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Taxpayer Compliance Costs for Corporations and Partnerships: A New Look

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The estimates of income tax compliance costs of corporations and partnerships are intended to reflect the out-of-pocket costs and the time—often expressed as the monetized value of time—incurred in order to comply with their Federal income tax obligation, up to and including the filing of their income tax returns. This paper presents the preliminary results of new research by the Internal Revenue Service (IRS) and the Treasury Department's Office of Tax Analysis that updates and improves the estimates of total Tax Year 2009 compliance costs for corporations and partnerships. In addition, the new estimates reflect a more comprehensive measure of compliance costs.

There are three main objectives of IRS compliance cost research. The first is to gain insights into what determines compliance costs and how changes in the macro-economy, the tax laws, and tax administration interact to affect those costs. The second is to improve our knowledge about the costs of information that is needed to support tax administration and how those costs may affect taxpayer behavior. The third objective is to provide statutorily required information: information for Congress through the Office of Management and Budget's Information Collection Budget and information for taxpayers (provided in tax return instructions) about their average estimated compliance costs.

This paper first summarizes the old methodology used to estimate taxpayers' compliance costs, then describes the new estimation methods and presents the new compliance cost estimates (both the results of survey data weighted to population totals and results based on econometric models constructed from the survey data). Finally, the paper compares the new and previous estimates.

Existing IRS Estimation Method for Corporations and Partnerships

For many years, IRS estimated the compliance costs of corporations and partnerships—indeed for all businesses—using a methodology developed for the IRS by Arthur D. Little, Inc. (ADL) based on average time burden estimated from a survey of corporations and partnerships conducted in 1984.[2] For each type of taxpayer, the ADL methodology provides a set of burden equations, one for each of several major taxpayer paperwork activities. Each equation, resulting from regression analysis of the 1984 taxpayer surveys, depends on the basic characteristics of the forms and instructions, form and form line usage by taxpayers, and characteristics of the taxpayer populations using the forms. These equations are applied to each tax form or tax schedule used by taxpayers to produce an average time for each use of that form or schedule. That time is assumed to be the same for each use of the form or schedule regardless of how many lines the taxpayer actually uses. The ADL taxpayer models predict average compliance costs by type of activity (e.g. recordkeeping, learning about the law, etc.) and by preparation method (paid professional vs. self-prepared). At the time of the survey, there was only very limited electronic return preparation, and there was no electronic filing of tax returns. An estimate of the total time for a specific form is produced by multiplying the average time for that form by the number of taxpayers filing the form.

The ADL methodology has a number of limitations. First, it is outdated, being based on taxpayer behavior and business structures of nearly 30 years ago. A lot has changed in the tax preparation environment since the 1984 business taxpayer survey. Business taxpayers have increasingly outsourced many of their pre-filing and filing activities. In Tax Year 2009, approximately 89 percent of all business returns were prepared by a paid professional. Second, the ADL methodology ignores technology. Its estimates are independent of the preparation and submission methods. Today, both paid professionals and taxpayers use software for the majority of the pre-filing and filing activities. More than 90 percent of all business returns in Tax Year 2009 were prepared using tax preparation software. Third, the ADL methodology provides estimates only of time expended, combining taxpayer and preparer time in lieu of a separate estimate of out-of-pocket costs including the cost of hiring outside professionals. Finally, its estimates of average time expended provide little information on the differences of time incurred across filling populations whose size and other characteristics may vary greatly. It does not differentiate time expended based on the underlying recordkeeping, accounting, etc., that is required to develop the information to be entered on the tax form. Generally, this means that the averages overstate the time required for smaller businesses and understate the time required for larger businesses.

New Business Taxpayer Compliance Cost Modeling Approach

For the past 14 years the IRS and the Treasury Department have been developing new methodologies to estimate compliance costs to replace the ADL methodology. The new methodologies rely on surveys that measure time and out-of-pocket costs that taxpayers spend on pre-filing and filing activities. The methodologies establish econometric relationships between taxpayer and tax return characteristics and compliance costs. The results control for the substitution of time and money by monetizing time and reporting total compliance costs in dollars. The new methodologies are based on the activities performed by the taxpayer rather than the actual forms and schedules used. In a world of electronic tax preparation, time and out-of-pocket costs are governed by the information required rather than the form on which it is ultimately reported. Even where the same tax form lines must be used, the new method differentiates the cost based on the characteristics and size of the business. The micro-simulation models developed from the combination of survey results and linked tax returns can be used for forecasting and simulation of changes in the underlying tax law, IRS administrative procedures, and taxpayer behavior.

Since 2006, IRS has deployed the Small Business Burden Model (SBBM) to estimate compliance costs for corporations and partnerships with end-of-year assets of less than $10 million. It is driven by compliance cost estimates based on a survey of Tax Year 2004 small business taxpayers.[3] The SBBM complements the IRS Individual Taxpayer Burden Model (ITBM) in use since 2003, which now uses Tax Year 2010 survey data. The ITBM and SBBM models cover only the pre-filing and filing activities (such as tax-related recordkeeping and planning) that would not have occurred without a Federal tax system and also exclude psychological costs and deadweight losses from economic behavior changes.[4] Incremental compliance costs from state and local income taxes are also excluded from these estimates.

Tax Year 2009 Business Compliance Cost Survey

In 2010, the IRS commissioned a second business taxpayer compliance cost survey. This survey covered corporations and partnerships of all sizes that filed income tax returns for Calendar or Fiscal Year 2009. The 2009 survey collected information on both the time and out-of-pocket costs that corporations and partnerships spent on pre-filing and filing activities in response to their Federal tax obligations. As with the 2004 survey, the intention was to exclude baseline business activities such as recordkeeping and financial planning that would have been performed even without a tax system, as well as the incremental costs associated with other taxes beyond those incurred for the Federal income tax.

The survey's target population was all corporations and partnerships that filed Federal income tax returns by the end of December 2011 for Tax Year 2009.[5] The statistically valid survey sample of over 22,000 business entities was divided into twenty-four strata based on data from the Tax Year 2004 Small Business Burden Survey.[6] The strata were based on four factors: organizational type; size (assets or receipts); industrial sector of the business; and use of a paid professional. A Neyman allocation method was used to maximize the survey's precision given the fixed sample size.[7]

In an effort to minimize the effects of memory decay, the sampling was conducted and the survey was administered in five waves over the course of approximately 21 months, from July 2010 to April 2012. The multiple waves allowed for surveys to be mailed as close as feasible to the filing of the return.[8] The long fielding period was needed to accommodate fiscal year tax periods and tax return filing extensions beyond the normal filing dates. Approximately 11 percent of all C corporations had non-calendar year filing periods (fiscal years), and many corporations and partnerships, including some of the largest, request six-month filing extensions. Because of the non-Calendar Fiscal Years and filing extensions, Tax Year 2009 returns could be filed as late as December 2011.[9]

The survey instrument was subjected to two rounds of extensive pretesting to ensure that the requested information accurately captured the costs, both in time and in dollars, associated with Federal tax obligations. Since respondents of the final survey could complete it on paper, on the web, or by telephone, all three versions of the survey went through successive rounds of testing, by both the contracted survey administrator and the IRS.

After the IRS drew the sample for each wave, the survey administrator reviewed and standardized the business name and address information for various anomalies (e.g. obvious misspellings, missing zip code, etc). The vendor then located the telephone numbers associated with the business' name and address. Under the assumption that directing the survey to the most knowledgeable respondent is more challenging for medium and large businesses, a pre-screening effort was implemented in order to identify the specific individual to whom the survey should be addressed.

The data collection protocol included four successive contacts. The first mailing included an IRS endorsement letter, a letter from the vendor, and a survey questionnaire booklet. The respondents had the option of taking the survey on the web, completing the survey in the booklet and returning it by mail, or contacting the survey vendor to arrange for the survey to be conducted by telephone. The second mailing was a reminder/thank-you postcard. The third contact was a follow-up telephone call to nonrespondents. The fourth contact was a final reminder postcard to nonrespondents. All contacts included instructions on how to take the survey on the web. The overall response rate for the survey was 31.5 percent.[10]

The response rate was higher for medium and large businesses than for small businesses. Specifically, the response rate for small businesses (those with end-of-year assets less than $10 million) was 31.1 percent; for medium businesses (those with end-of-year assets between $10 million and $500 million) 35.6 percent; and for large businesses 34.1 percent. Approximately 57 percent of all responses were completed on the web. Fewer than 45 taxpayers (0.2 percent) completed the survey on the phone, with the remaining surveys (43 percent) being completed in the paper survey questionnaire and returned by mail. The final survey dataset was delivered to the IRS in May, 2012.

Due to widely varying response rates across the strata, there is a potential for non-response bias. The IRS controlled for non-response bias by adjusting the sample weights.[11] The sample weights were adjusted to meet control totals for the following variables: total assets; processing year; existence of deductions or inventory; sector code; stratum; and large firm indicator. The control totals by entity type and asset size are shown in Table 1. The survey responses were then associated with the taxpayers' corresponding income tax returns[12] for Tax Year 2009 and adjusted for outliers.[13]

TABLE 1. Number of Corporations and Partnerships, Tax Year 2009
By Size of Assets

Total Assets ($ in millions)	Number of Entities (in thousands)			
	C corporations	S corporations	Partnerships	Total
$0 to $0.10	1,081.8	2,763.7	1,587.1	5,432.6
$0.10 to $1	592.9	1,196.9	1,039.5	2,829.3
$1 to $10	158.4	280.3	580.2	1,018.8
$10 to $500	31.7	39.0	106.9	177.6
$500 or more	3.8	0.0	2.2	6.0
All Asset Sizes	**1,868.6**	**4,279.8**	**3,315.9**	**9,464.3**

NOTE: Includes all active corporations and partnerships filing returns with accounting periods ending between July 2009 and June 2010.

In order to combine the time and out-of-pocket costs from the survey into a single estimate of compliance costs in dollars, the time estimates must be monetized. The monetization method may have a large impact on the final results. Whereas previous studies have typically used a constant dollars-per-hour rate for monetizing time for all taxpayers, we use a variable hourly rate based on the size of assets and sales (turnover or total receipts). The variable rate methodology reflects the different opportunity costs of the time spent by firm owners and employees on federal income tax related activities according to the size of the business. This is consistent with evidence that larger firms tend to pay higher wages and with a more realistic approach than assigning the same opportunity cost to businesses of all sizes.[14]

While variable monetization is clearly preferable to a constant rate, there are many possible variable monetization methods. To avoid zero or unreasonably small opportunity costs, we limited the variable rate at the low end (for firms with zero assets and total receipts) to $8.00 per hour, which is the minimum wage plus the employer's share of associated payroll taxes. At the upper end (for firms with assets over $5 million or total receipts over $2.5 million), the variable rate is capped at $90 per hour, which is the 90th percentile of the pay rate for accountants.[15] The upper end cap ensures that the monetization rate does not exceed the fees charged by professionals for these activities. The rates between the two limits are set according to a simple negative parabolic function. The function produces monetization rates that rise faster at lower levels of assets and receipts until they reach the maximum monetization rate of $90 per hour. The function's parameters were selected so as to produce reasonable monetization rates across all levels of assets and receipts.

We believe this monetization method is clearly preferable to using a constant monetization rate, and it yields reasonable results. Nevertheless, since more than 60 percent of the total monetized compliance costs result from monetizing time, the monetization assumptions have an important impact on the size of the estimates of total monetized compliance costs. Since there are a virtually unlimited number of monetization approaches and parameters, we recognize that sensitivity analysis and further exploration of different approaches are important areas for future research.

Table 2 shows the average monetization rates for corporations and partnerships by asset size that result from our assumptions and methodology. The average rates vary considerably by organizational form and asset size, from $14.27 per hour for partnerships with total assets under $100,000 to $90 per hour for businesses with total assets of $10 million or more. As intended, the variable rate methodology reflects different opportunity costs faced by the business population. The overall average monetization rate is $28.73 per hour.

TABLE 2. Average Monetization Rates Using a Variable Monetization Rate, Tax Year 2009

By Size of Assets

Total Assets ($ in millions)	Average Monetization Rates (in $ per hour)			
	C corporations	S corporations	Partnerships	All
$0 to $0.10	$16.71	$16.28	$14.27	$15.78
$0.10 to $1	$33.50	$34.50	$26.38	$31.38
$1 to $10	$71.78	$72.45	$67.77	$69.65
$10 to $500	$90.00	$90.00	$90.00	$90.00
$500 or more	$90.00	$90.00	$90.00	$90.00
All Asset Sizes	**$29.79**	**$25.94**	**$31.77**	**$28.73**

Applying these variable monetization rates to the Tax Year 2009 survey results, weighted to the population of tax returns shown in Table 1, produces estimated total compliance costs of $110 billion for corporations and partnerships filing Tax Year 2009 Forms 1120, 1120-S, and 1065.[16] Table 3 shows both the average and the aggregate monetized compliance costs for corporations and partnerships, classified by asset size, as developed directly from the survey.[17] Average compliance costs vary greatly by organizational form and, especially, by asset size. Compliance costs increase with size, but the percentage increase is less than the percentage increase in size. These results differ considerably from the cost estimates based on the previous ADL little method because the new method reflects the activities and costs of businesses—which differ substantially by the size and complexity of the business—rather than just the tax return form or schedule that the business filed at the close of the year.

TABLE 3. Income Tax Compliance Costs from New Survey, by Size of Assets, Using a Variable Monetization Rate, Tax Year 2009

By Size of Assets

Total Assets ($ in millions)	C corporations	S corporations	Partnerships	All
Panel A: Average Compliance Costs (in $)				
$0 to $0.10	$4,600	$4,400	$4,300	$4,400
$0.10 to $1	$13,700	$14,000	$10,700	$12,700
$1 to $10	$37,600	$31,000	$29,300	$31,100
$10 to $500	$98,400	$82,100	$85,900	$87,300
$500 or more	$611,600	NA	$225,000	$471,000
All Asset Sizes	**$13,100**	**$9,600**	**$13,400**	**$11,600**
Panel B: Total Compliance Costs (in $ billions)				
$0 to $0.10	$5.0	$12.2	$6.8	$23.9
$0.10 to $1	$8.1	$16.8	$11.1	$36.0
$1 to $10	$6.0	$8.7	$17.0	$31.7
$10 to $500	$3.1	$3.2	$9.2	$15.5
$500 or more	$2.4	$0.0	$0.5	$2.8
All Asset Sizes	**$24.5**	**$40.9**	**$44.6**	**$110.0**

NOTE: Includes all active corporations and partnerships filing returns with accounting periods ending between July 2009 and June 2010.

Business Taxpayer Burden Modeling Approach

The survey results provide only a static estimate of business compliance costs in 2009. To answer questions about compliance costs in future years or under alternative tax structures or other changes that may affect compliance costs requires a method for producing dynamic estimates. To accomplish that, the survey data need to be used as inputs to a model of compliance costs that allows the simulation of various legal, administrative, technological, economic, and behavioral changes.

The modeling approach adopted for the Business Taxpayer Burden Model (BTBM) reflects the objectives and approach developed several years ago for the Small Business Burden Model (SBBM). The primary objective of the SBBM is to be able to estimate and understand corporation and partnership compliance costs. To do so, IRS developed an econometric model using both the survey data and tax return data. The model needed to be easily adaptable to changes in the tax system and to changes in the structure and level of economic activity. Finally, the SBBM needed to be able to be adapted to, and integrated with, the compliance burden models for other taxpayer populations, such as large and medium-size businesses and tax exempt entities. The econometric model developed for the BTBM is an extension of the SBBM and of prior compliance burden modeling of large and mid-size businesses by Slemrod and Venkatesh (2002).

Economic Model

In modeling the compliance burden for businesses, an underlying assumption is that business entities select the combination of capital and labor that allows them to respond fully to the requirements of the U.S. federal tax system with the minimum amount of compliance costs.[18] While this assumption may not hold true for all firms all the time, we believe that for-profit entities generally adopt a compliance process that minimizes costs. For example, small and young entities with limited resources tend to handle more pre-filing and filing activities in-house. The owners often maintain the financial books and other business records, and substantially perform tax preparation activities such as reviewing the tax rules, preparing tax records, completing, and submitting all tax forms. As firms grow, they have more and a wider variety of business transactions, and the business owners face higher opportunity costs on the time spent dealing with payroll, recordkeeping, and other paperwork. Consequently, they are more likely to invest in recordkeeping software, hire recordkeeping staff, employ paid professionals for business activities, such as payroll, or use a combination of methods. The improved infrastructure leads to relatively less time expended on the tax-related activities, though substituting out-of-pocket costs for time. In addition, compliance costs tend to be mitigated as a firm's management becomes more familiar with the federal tax system and its requirements; otherwise it hires paid tax preparers.

The SBBM was used to test the hypothesis that business compliance costs increase at a decreasing rate with the size of the business. Contos et al. (2009) presented evidence that this is indeed the case.[19] The BTBM described below will also be used to further measure these effects in a model covering corporations and partnerships of all sizes.

The Business Taxpayer Burden Model

As discussed above, we use a model based on Slemrod and Venkatesh (2002) and Contos *et al.* (2009). The dependent variable is the logarithm of total monetized compliance costs. Independent variables include the logarithms of total assets, total receipts, the logarithms of the sum of dollars reported for line items requiring either very little or conversely significant tax-specific recordkeeping,[20] and dummy variables for organizational form, industry, and use of a paid tax return preparer. Controlling for both assets and total receipts provides a better fit across a range of types and sizes of businesses. Dummy variables were used for cases where either assets or receipts were not reported.

Table 4 shows the results of the robust ordinary least squares (OLS) regression of the complete business econometric model. The estimated coefficient for logarithm of total assets is (as expected) positive, 0.188, and significant at the 1 percent level. The same is true for the No Assets coefficient, 1.649. The estimated coefficient for logarithm of total receipts is also positive, 0.139, and significant at the 1 percent level. The same is true for the No Receipts coefficient, 1.564. The coefficient for high complexity, 0.100, is positive and statistically significant at the 1 percent level. The fact that the coefficient is positive suggests that increases in the volume of high complexity activity will increase total burden, controlling for other drivers of burden. The coefficient for low complexity, while insignificant, is lower than the coefficient for high complexity, with a coefficient of 0.005. The coefficients for the remaining variables are generally in line with our expectations.

TABLE 4. Business Survey Regression Results

Variable	Burden Coefficients	
	Estimate	T-statistic
Intercept	**4.057**	6.91
Ln (Total Assets)	**0.188**	17.22
No Assets Indicator	**1.649**	12.24
Ln (Total Receipts)	**0.139**	8.17
No Receipts Indicator	**1.564**	7.16
Low Complexity	0.005	0.64
High Complexity	**0.100**	5.94
No Complexity	**0.787**	3.06
Partnership Indicator	0.067	0.96
S Corporation Indicator	-0.013	-0.21
Self-Prepared Indicator	**-0.276**	-3.30
Positive Tax Liability	0.080	0.89
Industry Controls	YES	—

NOTE: Coefficients in bold are statistically significant at the one percent level.

Compliance Burden

Before reporting compliance cost results from the BTBM, this section presents burden estimates using the older ADL methodology. The tables based on ADL methodology provide a basis for showing how the new methodology changes the estimates of compliance costs.

Estimates for both models are produced by applying the model coefficients to the Statistics of Income (SOI) corporation and partnership files. There are technical and practical reasons for basing the model on the SOI samples, rather than the entire database of tax returns filed, which consist of all returns of active corporations and partnerships organized for profit that were required to file one of the 1120 or 1065 forms for Tax Year 2009. The SOI sample excludes duplicate returns from the same entity that are in the database of tax returns filed and excludes returns of inactive entities. As such, the number of filers included in the SOI files is lower than the number of filers included in the IRS Business Master File that was used for the sample selection of the survey.[21] Thus, basing a model on the IRS Business Master File would overstate compliance costs (due to double-counting burden associated with duplicate tax returns) whereas basing the model on the SOI database understates compliance costs because it excludes the costs of inactive entities. Fortunately, the number of returns differs by only a few percent between the two datasets, and it seems reasonable to assume that inactive entities are smaller than average. Thus, the difference in costs based on the two datasets is probably five percent or less. Future research will attempt to prepare a database that includes all non-duplicate entities.

The number corporations and partnerships included in the SOI database for Tax Year 2009 is shown in Table 5.

TABLE 5. Number of Corporations and Partnerships, Tax Year 2009
By Size of Assets

Total Assets ($ in millions)	Number of Entities (in thousands)			
	C corporations	S corporations	Partnerships	Total
$0 to $0.10	923.3	2,648.4	1,468.5	5,040.2
$0.10 to $1	550.9	1,115.9	926.8	2,593.6
$1 to $10	178.5	293.8	645.0	1,117.4
$10 to $500	37.7	36.0	124.0	197.7
$500 or more	4.5	0.5	4.4	9.3
All Asset Sizes	**1,694.9**	**4,094.6**	**3,168.7**	**8,958.2**

NOTE: C corporations are entities filing Form 1120; S corporations are entities filing Form 1120S; and partnerships are entities filing Form 1065.
SOURCE: IRS Statistics of Income

Table 6 shows the results of applying the variable monetization rates described above to the SOI database using the ADL method of estimating burden. This results in an overall average compliance cost of $6,500 per entity and an aggregate compliance cost of $58.3 billion.

TABLE 6. Income Tax Compliance Costs from ADL Methodology, Using a Variable Monetization Rate, Tax Year 2009
By Size of Assets

Total Assets ($ in millions)	C corporations	S corporations	Partnerships	All	Share of Total
Panel A: Average Compliance Costs (in $)					
$0 to $0.10	$3,400	$3,100	$2,500	$3,000	
$0.10 to $1	$7,800	$7,200	$5,400	$6,700	
$1 to $10	$18,700	$16,200	$15,700	$16,300	
$10 to $500	$38,000	$31,200	$36,500	$35,800	
$500 or more	$44,800	$35,900	$37,200	$40,800	
All Asset Sizes	**$7,300**	**$5,400**	**$7,400**	**$6,500**	
Panel B: Total Compliance Costs (in $ billions)					
$0 to $0.10	$3.2	$8.3	$3.7	$15.2	26.1%
$0.10 to $1	$4.3	$8.0	$5.0	$17.3	29.7%
$1 to $10	$3.3	$4.8	$10.1	$18.2	31.2%
$10 to $500	$1.4	$1.2	$4.5	$7.1	12.2%
$500 or more	$0.2	$0.0	$0.3	$0.4	0.7%
All Asset Sizes	**$12.4**	**$22.3**	**$23.6**	**$58.3**	**100.0%**

NOTE: C corporations are entities filing Form 1120; S corporations are entities filing Form 1120S; and partnerships are entities filing Form 1065.

Table 7 shows the results of applying the ADL method to the same database but using a constant monetization rate of $28.73, which is the weighted average for all entities of the variable monetization methodology.[22] Using constant monetization yields an estimated average compliance cost of $5,800 and an estimated aggregate compliance cost of $51.8 billion.

TABLE 7. Income Tax Compliance Costs from ADL Methodology, Using a Constant Monetization Rate of $28.73, Tax Year 2009
by Size of Assets

Total Assets ($ in millions)	C corporations	S corporations	Partnerships	All
Panel A: Average Compliance Costs (in $)				
$0 to $0.10	$7,200	$6,800	$7,700	$7,100
$0.10 to $1	$11,400	$10,600	$11,100	$109,005
$1 to $10	$18,200	$16,300	$16,600	$16,800
$10 to $500	$43,700	$35,000	$36,900	$37,800
$500 or more	$175,100	$112,300	$132,500	$152,000
All Asset Sizes	**$11,000**	**$8,800**	**$11,800**	**$10,300**
Panel B: Total Compliance Costs ($ in billions)				
$0 to $0.10	$6.6	$18.1	$11.3	$36.1
$0.10 to $1	$6.3	$11.8	$10.3	$28.4
$1 to $10	$3.3	$4.8	$10.7	$18.8
$10 to $500	$1.6	$1.3	$4.6	$7.5
$500 or more	$0.8	$0.1	$0.6	$1.4
All Asset Sizes	**$18.6**	**$36.0**	**$37.5**	**$92.2**

NOTE: C corporations are entities filing Form 1120; S corporations are entities filing Form 1120S; and partnerships are entities filing Form 1065.

Comparing Tables 6 and 7 shows that switching to a fixed monetization rate lowers the estimate of total compliance costs under the ADL methodology by $6.5 billion, or 11 percent. The variable rate produces both a wider range and a steeper increase in average burden by size of business. With a constant monetization rate, average burden by organizational form and total assets ranges from $5,300 to $13,000 (a 2.5-to-1 ratio) whereas with a variable rate average burden ranges from $3,000 to $40,800 (greater than a 13-to-1 ratio). The use of a variable monetization rate changes the distribution of compliance costs among businesses of different sizes. Firms with total assets greater than $10 million bear a much larger share of total burden than estimated under the ADL method with constant rate monetization, 12.9 versus 4.8 percent of all compliance costs.

Next, we show compliance cost estimates from the BTBM. As discussed earlier, the BTBM uses current statistical techniques to develop an econometric model using the survey data and tax return data. Robust OLS regression results for the 2009 survey collections using the more realistic variable monetization method are presented in Table 8 by size of assets and in Table 9 by size of receipts. Results using the fixed monetization rate of $28.73 (which is the weighted average of the variable monetization rates) by size of assets are shown in Table 10.

Overall, regardless of which monetization method is chosen, using the same Tax Year 2009 population, the compliance cost estimates under the new model are much larger—nearly 80 percent larger—than under the ADL methodology. Using the variable monetization rate methodology, the compliance cost estimate from the new model is $104.1 billion. Using the constant rate monetization, the estimated compliance costs are $92.2 billion. It is important to stress that these differences result not from changes in behavior but simply from different methodologies applied to newer data about the time and out-of-pocket expenses incurred by taxpayers to comply with their federal income tax obligations.

Tables 8 and 10 show that switching to a variable monetization rate has a very similar, effect to that seen with the ADL methodology. Using a constant monetization rate lowers estimated compliance costs by $11.9

billion (11.4 percent) below the estimate based on the more realistic variable monetization rates. More importantly, the distribution of that burden by size of business shifts dramatically. The average burden by organizational form and total assets with constant monetization rates ranges from $7,100 to $152,000 (a 21-to-1 ratio). When the monetization rate is variable, the average burden ranges from $4,600 to $468,000 (a 102-to-1 ratio). Thus, a variable monetization rate increases the share of total burden borne by businesses with total assets greater than $10 million from 10 percent of total compliance costs to 19 percent.

TABLE 8. Income Tax Compliance Costs from BTBM, Using a Variable Monetization Rate, Tax Year 2009

By Size of Assets

Total Assets ($ in millions)	C corporations	S corporations	Partnerships	All
Panel A: Average Compliance Costs (in $)				
$0 to $0.10	$4,800	$4,400	$4,600	$4,600
$0.10 to $1	$14,000	$12,000	$11,300	$12,200
$1 to $10	$34,400	$27,800	$23,700	$26,500
$10 to $500	$112,400	$76,300	$68,600	$78,300
$500 or more	$630,000	$331,800	$316,800	$468,000
All Asset Sizes	**$14,900**	**$8,900**	**$13,400**	**$11,600**
Panel B: Total Compliance Costs ($ in billions)				
$0 to $0.10	$4.5	$11.9	$6.8	$23.1
$0.10 to $1	$7.7	$13.3	$10.5	$31.5
$1 to $10	$6.1	$8.2	$15.3	$29.6
$10 to $500	$4.2	$2.7	$8.5	$15.5
$500 or more	$2.8	$0.1	$1.4	$4.3
All Asset Sizes	**$25.3**	**$36.3**	**$42.5**	**$104.1**

NOTE: C corporations are entities filing Form 1120; S corporations are entities filing Form 1120S; and partnerships are entities filing Form 1065.

TABLE 9. Income Tax Compliance Costs from BTBM, Using a Variable Monetization Rate, Tax Year 2009

By Size of Receipts

Total Receipts ($ in millions)	C corporations	S corporations	Partnerships	All
Panel A: Average Compliance Costs (in $)				
$0 to $0.10	$4,700	$3,900	$6,700	$5,300
$0.10 to $1	$13,000	$9,800	$18,100	$12,500
$1 to $10	$35,700	$27,600	$43,500	$34,000
$10 to $500	$157,800	$89,800	$134,600	$128,200
$500 or more	$1,100,000	$504,000	$645,800	$925,400
All Receipt Sizes	**$15,000**	**$8,900**	**$13,400**	**$11,600**
Panel B: Total Compliance Costs ($ in billions)				
$0 to $0.10	$3.7	$7.9	$14.2	$25.9
$0.10 to $1	$8.8	$16.6	$14.9	$40.3
$1 to $10	$6.9	$9.6	$8.7	$25.1
$10 to $500	$4.2	$2.2	$4.3	$10.7
$500 or more	$1.7	$0.0	$0.4	$2.1
All Receipt Sizes	**$25.3**	**$36.3**	**$42.5**	**$104.1**

NOTE: C corporations are entities filing Form 1120; S corporations are entities filing Form 1120S; and partnerships are entities filing Form 1065.

TABLE 10. Income Tax Compliance Costs from BTBM, Using a Constant Monetization Rate of $28.73, Tax Year 2009

By Size of Assets

Total Assets ($ in millions)	C corporations	S corporations	Partnerships	All
Panel A: Average Compliance Costs (in $)				
$0 to $0.10	$7,200	$6,800	$7,700	$7,100
$0.10 to $1	$11,400	$10,600	$11,100	$109,005
$1 to $10	$18,200	$16,300	$16,600	$16,800
$10 to $500	$43,700	$35,000	$36,900	$37,800
$500 or more	$175,100	$112,300	$132,500	$152,000
All Asset Sizes	**$11,000**	**$8,800**	**$11,800**	**$10,300**
Panel B: Total Compliance Costs ($ in billions)				
$0 to $0.10	$6.6	$18.1	$11.3	$36.1
$0.10 to $1	$6.3	$11.8	$10.3	$28.4
$1 to $10	$3.3	$4.8	$10.7	$18.8
$10 to $500	$1.6	$1.3	$4.6	$7.5
$500 or more	$0.8	$0.1	$0.6	$1.4
All Asset Sizes	**$18.6**	**$36.0**	**$37.5**	**$92.2**

NOTE: C corporations are entities filing Form 1120; S corporations are entities filing Form 1120S; and partnerships are entities filing Form 1065.

Table 11 shows the comparison of compliance cost estimates under the ADL and the BTBM methodologies for Tax Year 2009 using the variable and the constant monetization rate. The BTBM produces average and total compliance costs nearly 80 percent higher than the ADL methodology.

As discussed in section 2 of this paper, the ADL methodology has a number of limitations that lead to the underestimation of compliance costs for corporations and partnerships of all sizes, particularly for large business. For example, the average monetized burden for C corporations with total assets of less than $100,000 is $3,400 from ADL versus $4,800 for the BTBM—a difference of 41.2 percent. When the ADL compliance time estimates for C corporations with assets greater than $500 million are monetized, the average compliance cost from ADL is $44,800 versus $630,000 for the BTBM—a more than one thousand percent difference.

These differences are not surprising since the ADL methodology is based on average burden for each tax form. It does not account for the apparently very large differences in the time and cost of developing, preparing, and maintaining the records and systems of records necessary to prepare the actual tax form entries. Obviously, the time and costs are correlated with the size and complexity of businesses. The ADL method also reflects the economic activity and business structures of nearly 30 years ago. For example, in 1984 there were approximately 700,000 S corporations, with total receipts, in 2009 dollars, of $385 billion. In 2009, after changes in the tax law that made the S corporation form more popular, the number of S corporations had climbed to more than 4 million, with total receipts of over $5.4 trillion. As a result, the average S corporation in Tax Year 2009 is quite different from the average S corporation of 1984. The average size of C corporations has also increased in real terms, although by a much smaller percentage. The number of C corporation tax returns has decreased since 1984, from 2.5 million to 1.7 million, but total receipts have increased, from $13.6 trillion (in 2009 dollars) to $16.8 trillion. Hence, the "average" firm for which ADL produces compliance costs is very different from the "average" firm in the BTBM.

The BTBM estimates for corporations and partnerships with less than $10 million in assets are comparable to the Tax Year 2004 (SBBM) estimates, after controlling for return growth, inflation, and technical changes. For comparison, we adjusted the Tax Year 2004 data to reflect the same filing population, monetization methodology, and econometric specification. We then applied the resulting coefficients to the 2009 SOI data with inflation adjustments, yielding a Tax Year 2009 estimate of $93B for corporations and partnerships with less than $10M in assets. The comparable figure estimated using the Tax Year 2009 survey data is $86B. This suggests that total compliance costs, for corporations and partnerships with less than $10 million in assets, have remained stable over the 5-year period from 2004 to 2009. For large and medium businesses, the most recent prior estimate of $24 billion is based on a 2001 survey conducted by Slemrod and Venkatesh (2002).[23] The estimate tabulated from our Tax Year 2009 survey data for similar-sized businesses is just under $20 billion.

TABLE 11. Comparison of Compliance Cost Estimates Under the ADL and BTBM Methodologies, Tax Year 2009

Total Assets ($ in millions)	ADL	BTBM	Percentage Differance
Panel A: Average Compliance Costs (in $)			
Variable Rate Monetization (range $8.00/hr to $90.00/hr)	$6,500	$11,600	78.5%
Constant Rate Monetization ($28.73 per hour)	$5,800	$10,300	77.6%
Panel B: Total Compliance Costs ($ in Billions)			
Variable Rate Monetization (range $8.00/hr to $90.00/hr)	$58.3	$104.1	78.6%
Constant Rate Monetization ($28.73 per hour)	$51.8	$92.2	78.0%

Conclusions and Outlook

In comparison with the ADL-based estimates, the new estimates—based on recent survey data and using a variable monetization rate that increases with business size—more intuitively reflect the distribution of compliance burden across the corporation and partnership populations by size. Even though there appear to be economies of scale for costs incurred in complying with tax laws, the magnitude of compliance costs definitely increases with the size of assets and receipts. Thus, with the BTBM larger businesses incur a much larger share of compliance costs than estimated under the ADL methodology. Conversely, smaller businesses incur a smaller share of compliance costs than estimated under previous methodologies. Estimates based on the Tax Year 2009 survey results show evidence of significant fixed costs and costs increasing with firm size but at a decreasing rate.

We have used a monetization method under which compliance costs per hour increase with size but with the maxima and minima capped. We believe that this general structure yields significantly improved compliance cost estimates. However, other versions of this monetization approach could produce a range of total compliance cost estimates. Generally, these differences should not be problematic for simulating and forecasting changes in compliance costs due to policy changes, if the same monetization method is used for different simulations. The difference in total compliance costs, however, may be problematic when the goal is to produce a hard estimate of total tax compliance costs. Thus, monetization remains an interesting and useful area for future exploration. At minimum, sensitivity analyses of various methods need to be performed. However, given that a larger and ever-growing share of compliance costs is in the form of outlays rather than in time, the monetization methods will become less significant. To that end, to the extent possible, future surveys should attempt to elicit costs in outlays rather than owner and employee hours. That would reduce the uncertainties from attempting to monetize the time expended on tax compliance.

The simulation model provides some further capabilities in providing “what-if” type analyses and forecasts that reflect changes in tax law and other aspects of the tax system. Taken together, the BTBM and the Tax Year 2009 burden survey on which it is based provide an up-to-date and robust substitute for the ADL method for estimating corporation and partnership income tax compliance costs.

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Appendix
Definitions of the Variables in the Business Taxpayer Burden Model

Logarithm of Total Assets

= ln (end of year total assets plus 1)

No Assets Indicator

= 1, if total assets were equal to zero

= 0, otherwise

Logarithm of Total Receipts

= ln (sum of absolute value of total receipts plus 1).

No Receipts Indicator

= 1, if total assets were equal to zero

= 0, otherwise

Low Complexity

= ln (sum of amounts of all low complexity items reported) [see Table A]

High Complexity

= ln (sum of amounts of all high complexity items reported) [see Table A]

No Receipts Indicator

= 1, if no low or high complexity items are available

= 0, otherwise.

Partnership Indicator

= 1, if entity filed Form 1065

= 0, otherwise.

S Corporation Indicator

= 1, if entity filed Form 1120S

= 0, otherwise.

Self-Prepared Indicator

= 1, if entity had end-of-year total assets less than $5 million, and total receipts less than $2.5 million, and the return was not signed by a paid preparer

= 0, otherwise.

Positive Tax Liability Indicator

= 1, if entity's tax return showed tax liability for current tax year

= 0, otherwise.

Table A: Elements of the Complexity Categories in the Business Taxpayer Burden Model

(Forms and Schedules for Taxable Year 2009)

LOW Complexity Items

Form or Schedule	Line	Short Description
1120	1b	Less Returns and Allowances
1120	12	Compensation of Officers
1120	13	Salaries and Wages (less employment credits)
1120	14	Repairs and Maintenance
1120	15	Bad Debt
1120	16	Rents Deductions
1120	17	Taxes and Licenses
1120	18	Interest Deduction
1120	22	Advertising
1120	29b	Special Deductions
1120	32d	Estimated Tax Payments
1120	32e	Tax Deposited with F7004
1120	32f(1)	Regulated Investment Credit F2439
1120	33	Estimated Tax Penalty
1120 Schedule A	1	Inventory at Beginning of Year
1120 Schedule A	7	Inventory at End of Year
1120 Schedule J	2	Gross Income Tax
1120S	7	Compensation of Officers
1120S	8	Salaries and Wages (less employment credits)
1120S	9	Repairs and Maintenance
1120S	10	Bad Debt
1120S	11	Rents Deductions
1120S	12	Taxes and Licenses
1120S	13	Interest Deduction
1120S	16	Advertising
1120S	23a	TY2009 Estimated Tax Payments and 2008 Overpayment Credited to TY2009
1120S	23b	Tax Deposited with F7004
1120S	24	Estimated Tax Penalty
1120S	27	Credit Applied to TY2010 Estimated Tax
1120S Schedule A	1	Inventory at Beginning of Year
1120S Schedule A	7	Inventory at End of Year
F1065	1b	Less Returns and Allowances
F1065	'9	Salaries and Wages (less employment credits)
F1065	10	Guaranteed Payments to Partners
F1065	11	Repairs and Maintenance
F1065	12	Bad Debt
F1065	13	Rents Deductions
F1065	14	Taxes and Licenses
F1065	15	Interest Deduction
F1065 Schedule A	1	Inventory at Beginning of Year
F1065 Schedule A	2	Purchases
F1065 Schedule A	7	Inventory at End of Year

HIGH Complexity Items

Form or Schedule	Line	Short Description
1120	8	Capital Gains
1120	9	F4797 Net Gain or Loss
1120	10	Other Income
1120	19	Charitable Contributions
1120	20	Depreciation from F4562 not Claimed on Sch A or elsewhere
1120	21	Depletion
1120	23	Pension, Profit-sharing, etc., Plans
1120	24	Employee Benefit Programs
1120	25	Domestic Production Activities Deduction
1120	26	Other Deductions
1120	29a	NOL
1120	32f(2)	Total Gas Tax Credit
1120	32g	Refundable Credits from F3800, Line 19c, and F8827, line 8c
1120 Schedule J	1(1)	Control Group Additional Tax 1
1120 Schedule J	1(2)	Control Group Additional Tax 2
1120 Schedule J	3	AMT
1120 Schedule J	5a	Foreign Tax Credit
1120 Schedule J	5b	Qualified Electric Vehicle Credit
1120 Schedule J	5c	General Business Credit
1120 Schedule J	5d	Credit for Prior Year Minimum Tax
1120 Schedule J	5e	Renew Energy Bond Credit
1120 Schedule J	8	Personal Holding Company Tax
1120 Schedule J	9	Other Taxes F4255
1120 Schedule J	9	Other Taxes F8611
1120S	4	F4797 Net Gain or Loss
1120S	5	Other Income
1120S	14	Depreciation not Claimed on Schedule A or elsewhere
1120S	15	Depletion
1120S	17	Pension, Profit-sharing, etc., Plans
1120S	18	Employee Benefit Programs
1120S	19	Other Deductions
F1065	5	Net Farm Profit or Loss
F1065	6	F4797 Net Gain or Loss
F1065	7	Other Income
F1065	16c	Net Depreciation
F1065	17	Depletion
F1065	18	Retirement Plans, etc.
F1065	19	Employee Benefit Programs
F1065	20	Other Deductions
F1065 Schedule A	6	Total Cost of Sales
1120S Schedule K	2	Net Rental Real Estate Income F8825
1120S Schedule K	9a	Net Long-term Capital Gain
1120S Schedule K	10	Net Section 1231 Gain F4797

Endnotes

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[2] See Arthur D. Little *et al.* (1988).

[3] See DeLuca *et al.* (2007), Contos *et al.* (2009a), and Contos *et al.* (2009b).

[4] Compliance costs incurred after the filing of the tax return due to the filing of an amended return or IRS enforcement processes are also outside the scope of estimates from both the ADL and these models. See Guyton *et al.* (2003), and Connors *et al.* (2007).

[5] Specifically, the following primary Forms were included in the sample: 1120, 1120S, 1120C, 1120H, 1120ND, 1120POL, 1120SF, 1120L, 1120REIT, 1120RIC, 1120PC, 1120F, 1065, 1065B, and 1066.

[6] However, the samples for Forms 1120L, 1120REIT, 1120RIC, 1120PC, 1120F, and 1066 were selected using a simple random sampling method due to the lack of the data needed for stratified samples.

[7] See Singh (2003), p.753.

[8] Surveys were generally mailed between six weeks and four months after the date the tax return was filed.

[9] A more detailed discussion on the patterns of corporation filings is reported in IRS Statistics of Income (2009), Section 3, Description of the Sample and Limitations of the Data.

[10] This response rate measure is conservative in that it makes no adjustment for businesses that have ceased operating or are otherwise unreachable by the survey administrator.

[11] Nonresponse bias adjustment followed the approach described in Brick *et al.* (2009).

[12] For the remainder of this paper, we will focus on corporation and partnership taxpayers filing Forms 1120, 1120S, or 1065. Corporation and partnership taxpayers filing on the less common Forms 1120C, 1120H, 1120ND, 1120POL, 1120SF, 1120L, 1120REIT, 1120RIC, 1120PC, 1120F, 1065B, and 1066 are excluded from discussion in the remainder of the paper, except as explicitly noted.

[13] Outlier adjustments were made using multiple imputation techniques for rounding bias correction based on Drechsler and Kiesl (2012) and for robust regression.

[14] For example, Haltiwanger et al. (2012), figures 7 and 8.

[15] May 2009 Occupational Employment Statistics (OES) Survey Estimates: BLS, Department of Labor. These rates reflect the inclusion of fringe benefits.

[16] These estimated costs would be a few percentage points higher except for the exclusion of the compliance costs for taxpayers filing one of the less common corporate or partnership income tax forms: 1120C, 1120H, 1120ND, 1120POL, 1120SF, 1120L, 1120REIT, 1120RIC, 1120PC, 1120F, 1065B, and 1066.

[17] The results in Table 3 reflect imputations for missing response in the surveys. Otherwise, they reflect the survey responses weighted to the actual population of Tax Year 2009 Forms 1120, 1120-S, and 1065 corporation and partnership income tax returns filed. Overall, the majority of the groups shown are well represented except for S corporations and Partnerships with assets of $500 million or more. Particularly, as shown on Table 1, there are fewer than 500 S corporations with assets of $500 million or more. We did not have any completed surveys from that group.

[18] Labor in this scenario is the time spent on pre-filing and filing activities by firm owners and employees but also by paid professionals.

[19] Similar findings were reported for large U.S. corporations by Slemrod and Blumenthal (1996). Eichfelder and Schorn (2009) found similar results for different groups of small business taxpayers in northern Europe.

[20] This variable is used to reflect differences in the recordkeeping intensity of different information reporting activities. See the Appendix for a list of the tax return line items counted as either high or low complexity for the creation of these variables.

[21] While both the SOI files and the Business Compliance Cost Survey start as nationally representative samples, of all corporations and partnership returns, drawn from the IRS Business Master File, the target population of the SOI files differs slightly from that of the BCCS. For a more detailed discussion of the reasons returns are excluded from the SOI Corporation file, see IRS Statistics of Income (2009), Section 3, Description of the Sample and Limitations of the Data.

[22] Earlier compliance cost research has used constant monetization rates often based on assumptions by Moody et al. (2005). For Tax Year 2009, the monetization rate based on this methodology would be $47. It is the blended mean of Accountants and Lawyers hourly rates from the May 2009 Occupational Employment Statistics (OES) Survey Estimates: BLS, Department of Labor. If the previously mentioned $47 per hour constant monetization rate were used, each of the amounts shown in Table 7 would be larger by 63.6 percent ($47.0 / $28.73) resulting in estimated aggregate costs of $84.8 billion.

[23] The IRS Small Business Burden study described in Contos *et al.* (2009a) covered corporations and partnerships with less than $10 million in assets, while the Slemrod and Venkatesh study essentially covered corporations with at least $5 million in assets and partnerships having more than a certain number of partners. There is both coverage overlap and a coverage gap across the two studies.