

**The Future of Tax Collections:  
E-filing's Who, When, and How Much**

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## I. Introduction

Electronic filing of tax returns is a boon to state tax agencies because it reduces processing costs and shortens processing times. Electronic filing can also be beneficial to taxpayers by speeding their refund receipt. Despite these mutual gains, states have not convinced all taxpayers to switch to this new tax filing media. For some the road block to e-filing may be unfamiliarity with computers and software; for others it may be security concerns regarding posting personal data on-line; and for others it may be the higher cost of e-filing versus the postage cost for filing by paper. Although a look at tax data cannot reveal the motivation for why taxpayers do or do not e-file, an analysis of who is choosing to e-file, when those returns are filed, and how much the tax bills differ for e-filers relative to non-e-filers can reveal some hints.

Electronic filing also has the potential to benefit tax analysts and revenue forecasters. In Iowa, it can take tax data from paper filers over two years to become available for statistical analysis whereas data from e-filers becomes available within two days. With the recent growth of e-filing in the State, at the close of a tax filing season over 60 percent of taxpayer data is now immediately available for analysis. However, if the taxpayers who choose to e-file are not representative of the entire population of taxpayers, the data must be used with caution. In addition, the nearly immediate access to e-filing data during a tax-filing season may allow for assessment of year-over-year growth in various components of income. This information may be used to update revenue forecasts. But if early e-filers do not provide a good representation of the total income in the State, this data may not reveal as much as hoped. This paper attempts to discern the representativeness of e-filers by answering the basic questions of who, how much, and when. First, some history of e-filing in Iowa is presented.

## II. History of E-Filing in Iowa

Iowa began accepting electronically-filed individual income tax returns during the spring of 1995. That year approximately 43,000 returns, 3.3 percent, were filed electronically. For the first seven months of tax year 2005, the number of electronically filed returns had increased to 920,400, 65.8 percent of all returns. This share is well above the national average for state e-filing of 47.5 percent.<sup>1</sup> Iowa's goal for tax year 2006 is to have 70 percent of individual income tax returns voluntarily filed electronically. Based on data compiled by the Federation of Tax Administrators, for the 2005 tax year, only two other states received a similarly high share of returns filed electronically: Montana and Minnesota.<sup>2</sup>

Electronic returns are filed with the Internal Revenue Service which then shares relevant tax data with the State of Iowa. Taxpayers in Iowa can e-file federal and state returns themselves using commercial tax software or through the services of a professional preparer.<sup>3</sup> In 2004 and 2005, taxpayers with income below \$50,000 qualified for free electronic filing through the Free File Alliance in conjunction with on-line tax software vendors. In 2005, taxpayers with higher incomes paid between \$10 and \$35 to e-file both federal and Iowa returns themselves; fees charged by a professional preparer could be higher.<sup>4</sup> The State encourages e-filing by noting that the processing time involved for refunds is only days compared to weeks for paper filers, or up to six months if the return contains errors. With e-filing, filers can be certain the return was received by the Department of Revenue, not lost in the mail.

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<sup>1</sup> Duncan, Harley T. "Preparing Your Taxes: How Costly Is It?" Statement of the Federation of Tax Administrators Before the Committee on Finance, U.S. Senate, April 4, 2006.

<sup>2</sup> Information accessed on-line at <http://www.taxexchange.org/member/06filing3.html>. The state data included in those statistics were preliminary as of May 1, 2006; updated data for Iowa show a slightly lower electronic filing percent.

<sup>3</sup> Iowa also has a Telefile program where taxpayers can enter tax return information via a touch tone phone. These returns are lumped with electronically-filed returns for all of the analysis in this paper.

<sup>4</sup> Prices are based on information made available on the Department of Revenue web site <http://www.state.ia.us/tax/elf/e-pc.html>.

In addition, direct deposit of Iowa refunds is only available to e-filers. Over 99 percent of Iowa tax forms have been electronically enabled, thus nearly all taxpayers should be able to use e-filing regardless of their tax situation.

The Department of Revenue also touts e-filing as saving “tax dollars spent on processing and storing returns.”<sup>5</sup> The savings to the State are manifested through four key areas: reduced costs of printing and mailing paper tax forms; fewer phone calls requesting help with filing the individual income tax return; lower labor costs for processing and keying individual income tax returns; and reduced space needed for storing paper returns.<sup>6</sup> Between 1996 and 2005, the orders for paper tax forms fell 77 percent. Through July 2006, orders relative to the first seven months in 1996 are 84 percent lower. The reduction translates into savings on the costs of paper and printing as well as labor costs because the Department of Revenue no longer needs to hire temporary workers to receive and respond to a large number of calls requesting paper forms. In addition to phone calls placing orders, the Department of Revenue also receives calls requesting help with completing the tax returns. Taxpayer Services received over 208,000 calls requesting help with individual income tax return filing in 1997. In 2006, that number fell by 52 percent, attributed in large part to the rise in e-filing. The third area of savings is possibly the most obvious, reduced processing costs including fewer tax return envelopes to open, move, and key-in. While the Department of Revenue hired the equivalent of 46 full-time employees during the 1995 tax season to help with processing at a cost of over \$1 million (2006 dollars), that number fell to under 12 for tax season 2005 at a cost of just over \$260,000. Finally, prior to the rise of e-filing in Iowa, a large section of one floor of Department of Revenue office space was reserved for storing tax returns for the requisite three year period. That space is no longer needed.

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<sup>5</sup> Quote from Department of Revenue web site <http://www.iowaccess.org/tax/elf/e-elf.html#Why>.

<sup>6</sup> No significant change has been seen in the number of returns that require review because of probable errors.

There are some new costs associated with electronic filing, however. For example, Department staff must review and approve new electronic forms submitted by participating e-filing companies. Also, a server for storing the electronically filed data was purchased and must be maintained.

Although e-filing has been occurring in Iowa for over 10 years, the results considered here focus on the last five years of e-filing experiences. For tax year 2001, 45.7 percent of taxpayers filed electronically. That share has steadily risen to 54.0 for 2002, 58.8 for 2003, 62.2 for 2004, and for the most recent tax year, 2005, 65.8 percent as of July 2006.

### III. Who, How Much, and When?

#### *Who?*

Who is choosing to e-file? Are e-filers young, single, urban high-income taxpayers or middle-aged, married, rural, average-income taxpayers? Each of these characteristics, as well as a few other key demographics, is considered in turn.<sup>7</sup>

Electronic filing requires a certain level of comfort with technology. Younger taxpayers may be quicker to adopt new technology and thus more likely to e-file (see Table 1).<sup>8</sup> For taxpayers age 24 and younger the share e-filing roughly equals the average for all taxpayers, 48.8 percent in 2001 and 65.8 percent in 2005. Because many of these taxpayers are dependents, their filing choice may be

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<sup>7</sup> Data on the use of paid preparers is not available on the paper return data, hence it was not possible to compare the tendency of taxpayers to e-file based on their choice of whether to seek professional help in filing their return.

<sup>8</sup> Age is computed based on the date of birth of the primary taxpayer in the household.

dictated more by parents than the taxpayer. For young adult taxpayers aged 25 to 34, 59.9 percent e-filed in 2001 and 76.2 percent e-filed in 2005. In contrast, only 33.5 percent of taxpayers aged 65 to 74 e-filed in 2001 and 52.5 percent e-filed in 2005, well below the overall average. The year-over-year growth in e-filing shares is greatest for the older age groups suggesting the gap across the age distribution may close with time.<sup>9</sup>

The State of Iowa allows six filing statuses: single, married filing jointly, married filing separately on the same return, married filing separately on different returns, head of household, and widow with dependents. Three-fourths of Iowa households file either as single or married filing separately on the same return, a status that eliminates the marriage tax penalty within the progressive Iowa tax code. Since 2001, the filing status most likely to e-file is head of household; 65.5 percent e-filed in 2001, rising to 80.3 percent in 2005 (see Table 2). A closer look at taxpayers filing as head of household reveals they are more likely to be receiving a refund than taxpayers with other filing statuses and they have lower adjusted gross income. Therefore e-filing may be more attractive to heads of households because it speeds processing, allows for direct deposit of any refund, and would be a free service for this low income group. The second highest e-filing share has shifted between widow with dependent (a very small group of filers) and married filing separately on the same return. Married filing separately on the same return is a group of taxpayers with two earners in the household who choose to file a more complicated status in order to reduce their tax liability. This status may reveal a greater understanding of the tax code and thus a greater willingness to try electronic filing or, alternatively, an increased tendency to use a paid preparer. Married taxpayers filing separately on the same return are also the second most likely filing status to receive a refund.

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<sup>9</sup> Date of birth information on the 2005 file, particularly for electronic filers, is currently incomplete, explaining the rise in the share of missings and the e-filing share for those missings.

Iowa taxpayers include both residents of the state, full and part-year (those moving in), and non-residents, full and part-year (those moving out). Not surprisingly, residents are much more likely to e-file because they may have more experience with the Iowa tax system and are more likely to work with a preparer familiar with Iowa e-filing procedures (see Table 3).<sup>10</sup> Despite the persistent gap between residents and non-residents e-filing shares, 48.7 percent versus 11.3 percent in 2001 rising to 65.7 percent versus 28.2 percent in 2004, the growth in non-resident e-filers has outpaced growth for residents.<sup>11</sup>

Resident taxpayers can further be identified by their county of residency. Of the 99 counties in Iowa, nine have populations that exceed 50,000 and are designated as urban. In 2001, the share e-filing among the rural and urban counties was roughly equal, 48.4 and 49.1 respectively (see Table 4). Over time, however, the e-filing share has grown slightly faster among the rural counties pushing the 2004 e-filing shares to 63.8 percent for urban taxpayers and 67.2 percent for rural.<sup>12</sup> Although the initial assumption might be that urban taxpayers would be quicker to adopt new technology, middle-income rural residents are slightly more likely to e-file than their counterparts in the urban counties, driving the faster rural growth. Indeed, most e-filing shares for the lower and higher income taxpayers in the urban counties exceed those in the rural counties.

Iowa adjusted gross income is nearly equivalent to federal adjusted gross income; it does not include state refunds and allows several additional adjustments (exclusions for Iowa capital gains and some pension income). Taxpayers with income in the middle of the distribution are much more likely to e-

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<sup>10</sup> In the early years of e-filing, taxpayers were limited to filing only one state return. A few years ago, it became possible to file a state-only return, thus allowing non-residents to electronically file their home state and nonresident return electronically.

<sup>11</sup> The large increase in 2005 electronic filing for non-residents reflects data discrepancies with the preliminary file in the assignment of resident status. Further refining of the data will likely reduce the percentages.

<sup>12</sup> The 2005 data are preliminary, many county codes are missing from the paper filings as well as on the electronic filings. Note that the electronic returns data have not undergone any examination at this point, thus errors may exist.

file than those at the top or the bottom (see Table 5 and Figure 1). The highest e-filing shares in 2001, at 52.1 percent, were reached by taxpayers with AGI between \$60,000 and \$70,000. Only 37.5 percent of taxpayers with positive AGI less than \$10,000 e-filed, while only 19.8 percent of taxpayers with AGI above \$250,000 e-filed that year. This relationship held over the next three years as all shares grew, while the shares in the tails grew slightly faster than those in the middle. In 2004, the top e-filing share, at 69.2 percent, was obtained by taxpayers with AGI between \$70,000 and \$80,000, while the low-income e-filing share rose to 53.0 percent and the highest-income e-filing share rose to 41 percent. In 2005, that steady upward shift in e-filing shares ended. For higher income filers, the share e-filing appears to have plateaued. The 3.6 percentage point growth in the 2005 overall e-filing share was mostly accounted for by the behavior of taxpayers with AGI below \$50,000. As noted above, this group recently became eligible for free e-filing services.

Another characteristic that may motivate a choice between e-filing and paper filing is the share of total income received as wages. Taxpayers who receive nearly all income from wages have much simpler returns, both the actual filing of the return and record keeping. In addition, withholding on wages often exceeds tax liability for taxpayers with little non-wage income, thus they are more likely to receive a refund (more on refunds and e-filing below). Around 60 percent of taxpayers report 75 to 100 percent of income from wages (see Table 6). At the opposite end, 20 percent of taxpayers report under 25 percent of income from wages, with much smaller shares reporting wage shares between 25 and 75 percent or over 100 percent (100+ wage shares reflect individuals reporting a relatively small amount of negative income, often investment or farm income). In 2001, 53.9 percent of taxpayers receiving 75 percent or more of income from wages e-filed compared to just 26.4 percent for taxpayers with 25 percent or less from wages, a relationship that persisted through 2004. 2005 data for paper filers' components of income are not currently available. The higher tendency for wage earners to e-



file suggests that taxpayers with simple returns are more likely to e-file. The high e-filing shares may also be driven the taxpayers' desire to speed their refund receipt.

These basic demographics reveal clear biases in who chooses to e-file. Young, middle-income, wage-earning, rural Iowa residents appear to be much more likely to file electronically than older taxpayers, those with high incomes, those with a high share of non-wage income, or non-residents. These relationships seem to be stable over time, although the e-filing shares for nearly all demographic groups have risen each year with the highest growth rates appearing in the groups with the lowest base percentages.

#### *How Much?*

A second question is whether the expected size and sign of the tax payment explains differences between electronic and paper filing. Iowa advertises the fact that e-filing will speed a taxpayers' refund and only makes direct deposit available to e-filers. Therefore, taxpayers receiving a refund should have more incentive to e-file. At the same time, taxpayers that owe money to the State are able to file electronically at any time but wait until the tax due date of April 30 to send in a check or make an electronic payment. Thus the speed of processing is not a disincentive to those who owe taxes.

As expected, taxpayers receiving refunds have always been more likely to e-file than the average taxpayer (see Table 7). During the 2001 through 2004 period, taxpayers receiving refunds comprised over three-fourths of all taxpayers and e-filed at rates 4 to 5 percentage points higher than the average. Those with zero additional tax liability at filing (98 percent of whom owed no tax and had no tax withheld) were the least likely to e-file, although those owing additional tax at filing had only slightly higher rates of e-filing. The numbers changed for tax year 2005, however. In April 2005, the State of

Iowa changed withholding tables with the goal of reducing overwithholding and refunds. Meeting this goal, the share of taxpayers receiving refunds dropped by 12 percentage points, with one-fourth shifting into the zero group and the other three-fourths into the group owing additional taxes at filing. Not only did the distribution of taxpayers change between the types of tax liability at filing groups, but the share e-filing within the groups also changed. The e-filing share for the refund group rose from 66.4 percent in 2004 to 73.5 percent in 2005. The e-filing share of the group owing additional taxes rose even more from 48.5 percent in 2004 to 57.9 percent in 2005. In contrast, the zero group's e-filing share dropped from 47.6 percent to 36.0 percent. This suggests that those taxpayers who were shifted from the refund group to the zero group were those least likely to e-file, while those shifted from the refund group to the owe additional tax group were the most likely to e-file.

Tax liability at filing does not tell the full story of how much e-filers owed in taxes versus paper filers. Liability at filing is as much a function of sources of income (non-wage income is less likely to face withholding) as it is by actual tax liability. Those with \$400 to \$4,000 of tax liability were most likely to e-file in each year, while shares were the lowest for those with total tax liability over \$8,000 (see Table 8 and Figure 2). Similar to the pattern seen above for e-filing shares by AGI, e-filing shares by tax liability are lowest at the tails. In particular, the highest income taxpayers and the taxpayers with the highest tax liability are least likely to e-file. These are not necessarily the same taxpayers (85 percent of individuals with AGI above \$200,000 report a tax liability above \$8,000), but together these observations suggest that the most complicated returns are the least likely to be e-filed.

### *When?*

The final question regarding e-filing in the State of Iowa is when. E-filers file earlier than paper filers (see Table 9). While over 90 percent of January filers chose to e-file, in 2002 only 34.0 percent of

April filers chose e-filing.<sup>13</sup> The April share rose to 58.1 percent by 2005. Timing differences can reflect the unique logistics of paper versus electronic filing. The Department receives e-filed returns nearly immediately upon filing. Returns initially go to the IRS which makes the relevant electronic data available to the states. Iowa harvests this electronic data each working day and designates that date as the filing date on the electronic return. Paper returns must go through the mail system before arriving at the Department of Revenue. Filing dates for paper returns reflect the date when a return was physically opened by Department employees. With the reduced number of paper filers, processing of those remaining paper tax returns has been speeded up.

Another way to answer the question of when is to consider the cumulative distribution of paper and electronic filers over the months (see Table 10). Focusing only on those taxpayers who file between January and July of the following calendar year, the cumulative distribution of paper versus e-filers reveals the same tendency for e-filers to file earlier. Of all paper filers in 2002, just 1.6 percent had filed by the end of January. In contrast, of all the electronic filers in 2002, 21.9 percent had filed by the end of January. By the end of March in 2002, the Department of Revenue had received 48.5 percent of all paper filers' returns and 82.3 percent of all e-filers' returns. Interestingly, those cumulative filing shares have dropped in recent years. In 2004, 46.5 percent of paper filers and 78.1 percent of electronic filers had filed by the end of March; in 2005, those shares fell further to 43.5 and 76.4 percent. This may reflect the record-keeping delays caused by recent federal tax law changes regarding capital gains income or the rise in the number of Iowa taxpayers with additional tax due after recent changes in the withholding formula.

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<sup>13</sup> 2001 data on filing date are not readily available.

To check whether the number of electronic filers increased each month even as the cumulative distribution shifted later, the growth in e-filing counts by month is also presented (see final column under each year in Table 10). The enthusiasm for e-filing in January 2002 seems to have withered in 2003 as the share and absolute number of e-filers dropped even while the share of paper filers rose. In 2004, both paper and e-filers shifted toward later filing dates. That tax season the Department waited until January 17<sup>th</sup> before making e-filing available, thus the 2004 January data are not directly comparable to other years. Although e-filers filed later in 2005 than they did in 2002, e-filers still bested paper filers in submitting their returns to the Iowa Department of Revenue.

The timing of electronic versus paper filing may also reflect the different characteristics of the filers noted above. Recall that e-filers are more likely to be wage earners who need only receive their W-2 to have the records needed for filing. W-2s are delivered to taxpayers in mid to late January. Once wage earners receive that one form, they are able to complete their relatively simple return as opposed to taxpayers with significant non-wage income who must wait to receive many forms before completing their more complicated returns. In addition, e-filers are more likely to receive refunds, and thus are probably more likely to file early regardless of filing type.

#### IV. Multivariate Regression Analysis

Although each of the individual tables can reveal a little piece of information about e-filers, multivariate regression analysis is able to consider all of the information at one time. A simple linear probability model can reveal the impact of the various characteristics discussed above on the probability of e-filing across the five years of tax return data. The model, including indicators for age

group, state filing status, residency status, AGI group, refund receipt, and tax liability group, was estimated using the pooled data and separately for each individual year (see Tables 11 and 12).<sup>14</sup>

As expected, the independent variable capturing time has a strong positive effect. For the pooled regression, the year indicator coefficients rise over time with a taxpayer in 2005 having an e-filing probability 41 percentage points higher than a taxpayer in 2001. For the single-year regressions, the year effects (the intercept on each regression) rise from 36 percentage points in 2001 to 87 percentage points in 2005.

The age group indicators suggest the U-shaped trend in e-filing as age rises (where the omitted group is ages 24 or younger including missings). All single year estimates are similar to the pooled estimates except for 2005. Because data entry errors still exist in the preliminary 2005 data, including many missing ages and counties, the large negative coefficient on missing county pushes up the coefficients on ages for observations with both pieces of information.

Filing status patterns reveal the same results seen in Table 2, head of households are most likely to e-file with married filing separately on the same return and widows sharing the second spot (the omitted group is married filing jointly). Residency indicators also reveal the expected results: non-residents and those residents missing county data are less likely to e-file, with a smaller negative effect seen for residents of urban counties. Taxpayers receiving a refund are 13 percentage points more likely to e-file, even when controlling for all other characteristics. In the year-by-year equations, the refund effect is strongest in the early years and drops dramatically in 2005 when withholding changes shifted taxpayers between tax liability at filing groups.

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<sup>14</sup> AGI and tax liability values were adjusted into 2001 dollars for the regression analysis. All but six are significant at the 5 percent level (see italicized values in the tables), assuming determinant regressors.

Even though the correlation between AGI and tax liability is just 0.06, correlation between individual AGI and tax liability groups is much higher. For the regression analysis, real AGI and tax liability values are divided into six groups (see Table 11 for the groupings which are slightly broader than the groupings seen in Tables 5 and 8). The correlation between the groups drives the regression results. Although Figure 1 suggests that individuals with \$30,000 to \$60,000 AGI have the highest e-filing probabilities (the omitted group in the regression), the AGI coefficients seen in Table 11 suggest those with AGI less than \$10,000 are the most likely to e-file. This coefficient must be considered in conjunction with the large negative coefficient on the lowest tax liability group because these two groups have a correlation coefficient of 0.68. Likewise, considering the tax liability coefficients alone would suggest that those with the highest tax liability are the most likely to e-file which is clearly not the results seen in Figure 2. Again, this coefficient must be considered in conjunction with the large negative coefficient on the highest AGI group because these two groups have a correlation coefficient of 0.72. Specifications where either the AGI group indicators or the tax liability group indicators are excluded do demonstrate the expected hump-shaped probabilities for the remaining group indicators; the patterns are muddled when the indicators are considered together. Both are included in this specification, however, to demonstrate the need to consider numerous characteristics when determining the representativeness of e-filers.

#### IV. E-Filing, Revenue Forecasting and Fiscal Analysis

E-filing speeds refund receipt for taxpayers and saves vast resources for the Iowa Department of Revenue. The Department also had hopes that growth of e-filing would improve the ability to forecast

revenue collections for the current and future fiscal years and the accuracy of fiscal estimates for proposed tax law changes.

Revenue forecasts for the State of Iowa are based on analysis of past trends in the various income sources for the State and projections for changes in those income sources in future years. Over 50 percent of State revenue is collected via individual income taxes, so identifying changes in income tax collections early could be very helpful in improving total revenue projections. The hope was that as electronic tax return data became available in January and February, trends in income for these taxpayers would reveal whether revenue forecasts were on target, particularly for non-wage income such as interest and capital gains. Unfortunately, as revealed in previous sections, electronic filers, particularly those filing early, are concentrated among wage earners. Also, with large swings in the number of early e-filers, there exists no reliable base to which to compare early revenue results. Therefore, e-filing has not provided much help for Iowa revenue forecasts to date. The hope remains that as e-filing rates stabilize in the State, such a comparison will be fruitful in the coming years. Work has begun to compare growth in the various components of income for the population of e-filers in 2005 and 2004 tax data with the hope that will provide a good forecast for growth in 2006 and 2007, barring large changes in the state of the economy.

The second hope for e-filing was an improvement in the accuracy of fiscal analysis. Each legislative session, the Tax Analysis and Program Research Section is asked to analyze various tax change proposals. Because it can take up to two years to collect all the needed data fields from state and federal tapes for paper filed tax returns, tax projections for a future fiscal year are often based on data filed three years prior. Although it is possible to apply growth factors that adjust for expected changes in the data gap, this can become a particular problem when the most recent data available reflects a

year that is in a unique part of the business cycle. For example, taxpayers in 2002 experienced a large drop in investment and interest income. Using that data to project revenues in 2006 and later years under various changes in tax legislation could produce a misleading result.

The usefulness of the e-filing data for fiscal analysis depends on how representative the data are. The previous two sections have shown that electronic filers are not a representative cross-section of the Iowa taxpayer population. Thus it is not yet possible to carry out policy analysis using only the electronic data from tax year 2005 in the State individual income model. Work is under way to fill in the missing parts of the taxpayer distribution and make the e-filed data more useful for immediate analysis by using simple weighting of returns based on observed characteristics or more advanced statistical techniques such as quantile regression analysis.

## V. Conclusions

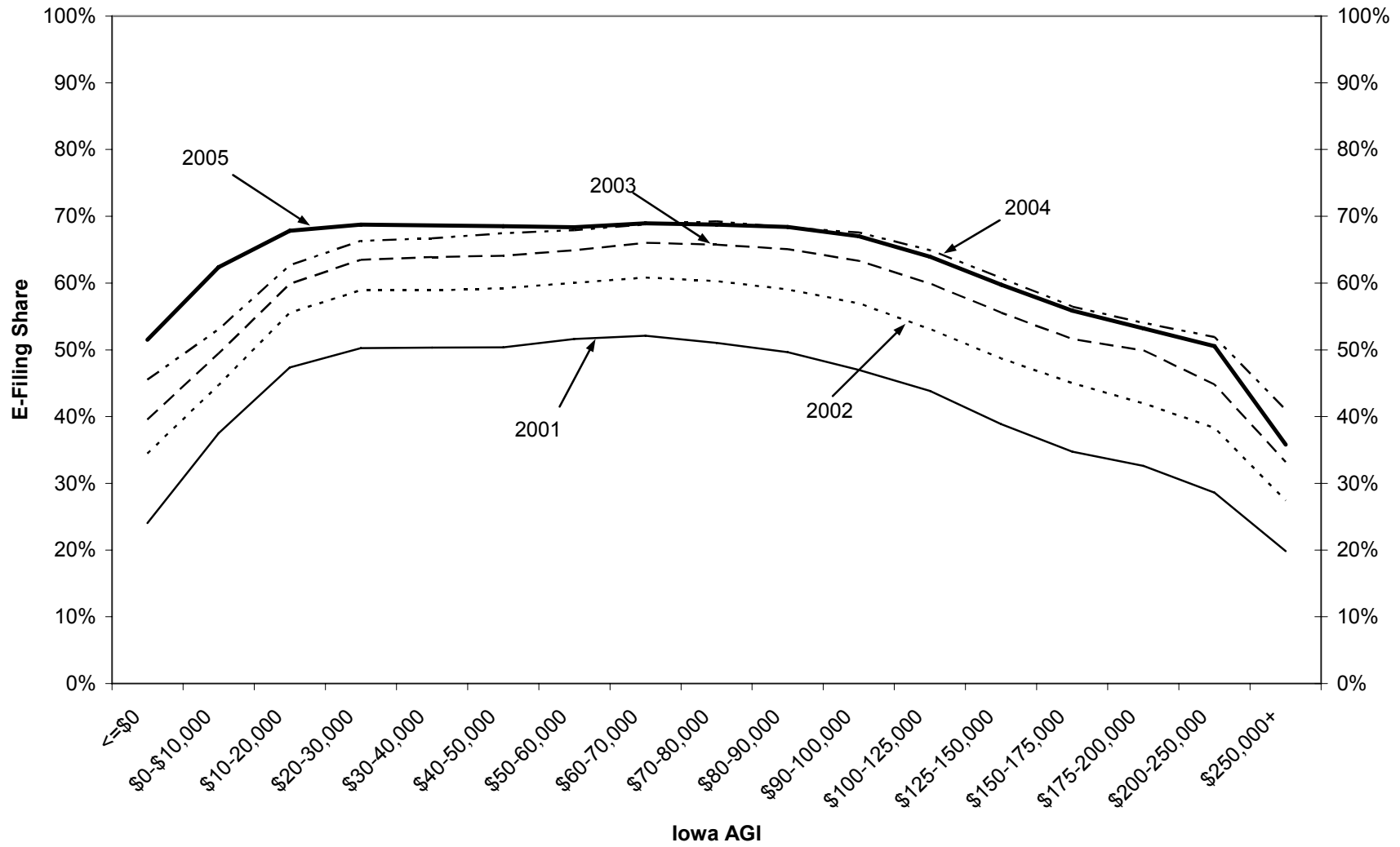
For tax year 2005, nearly two-thirds of all Iowa taxpayers chose to file electronically. These taxpayers saved State resources by reducing the need for labor-intensive processing of paper forms and tax returns. These taxpayers also reduced their own waiting time for refund receipt, an important consideration for the 48 percent of taxpayers in 2005 who both e-filed and received a refund.

An analysis of who e-files in the State of Iowa reveals that large differences remain in the tails of both the AGI and tax liability distributions despite growth in e-filing rates for all demographic and economic groups over the past five years. The richest and poorest are least likely to e-file as well as those owing the least and those owing the most. This lack of representativeness across the entire

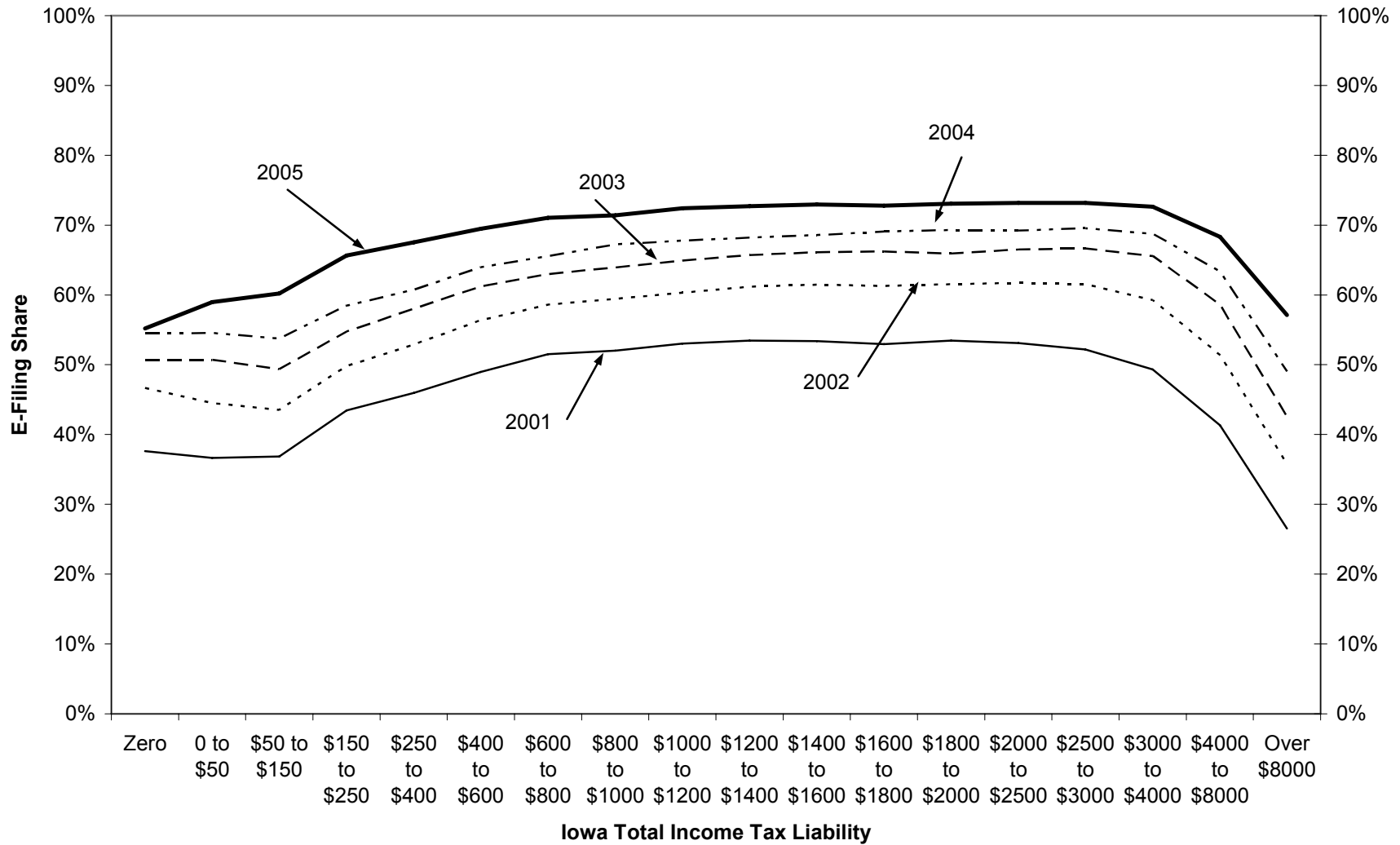


income and tax liability distributions suggests caution in using electronically-filed returns as an early indication of revenue trends or an early source of data for income tax policy analysis. Based on beliefs that e-filing rates will stabilize over the next few years, the Department is still hopeful that electronic tax returns will be a valuable data source for revenue forecasting and fiscal analysis. In addition, the electronically-filed data may prove to be more useful than anyone can currently anticipate because every field on the tax return is available for analysis. The potential exists to carry out detailed assessments of specific tax provisions, something that is not possible when relying on manual keying-in of data from paper returns.

Figure 1. Distribution of E-Filers by Year and lowa AGI



**Figure 2. Distribution of E-Filers by Year and Iowa Total Income Tax Liability**



**Table 1. Iowa Distribution of Taxpayers and Electronic Filing Percentage by Year and Age**

Age Group	2001		2002			2003			2004			2005 <sup>a</sup>		
	Percentage of Total Taxpayers	E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share
24 and Younger	17.8%	48.8%	17.0%	56.9%	16.7%	17.6%	59.5%	4.5%	17.3%	61.4%	3.2%	13.6%	65.8%	7.2%
25-34	15.3%	59.9%	15.4%	67.7%	13.0%	16.4%	70.2%	3.6%	16.4%	72.8%	3.7%	15.6%	76.2%	4.7%
35-44	17.8%	54.7%	17.3%	63.5%	16.1%	17.6%	67.0%	5.5%	16.9%	71.1%	6.0%	16.0%	74.4%	4.6%
45-54	17.4%	46.4%	17.4%	55.6%	19.8%	18.4%	59.8%	7.5%	18.0%	64.4%	7.7%	17.6%	68.0%	5.6%
55-64	11.4%	40.2%	11.7%	49.0%	22.1%	12.8%	53.7%	9.5%	12.9%	58.8%	9.5%	13.1%	62.8%	6.8%
65-74	7.8%	33.5%	7.7%	43.0%	28.3%	8.1%	47.7%	11.0%	8.0%	53.9%	12.9%	7.9%	59.2%	9.8%
75 and Older	7.4%	26.8%	7.4%	35.6%	33.0%	7.7%	40.6%	14.1%	7.7%	47.4%	16.8%	7.7%	52.5%	10.6%
Missing	5.1%	17.2%	6.1%	24.5%	42.9%	1.3%	8.7%	-64.6%	2.8%	16.5%	90.5%	8.6%	49.6%	200.2%
All	100%	45.7%	100%	54.0%	18.0%	100%	58.8%	9.0%	100%	62.2%	5.7%	100%	65.8%	5.9%

Source: Iowa individual income tax records.

a. Date of birth information is incomplete in this preliminary data, particularly for electronic filers.

**Table 2. Iowa Distribution of Taxpayers and Electronic Filing Percentage by Year and State Filing Status**

State Filing Status	2001		2002			2003			2004			2005		
	Percentage of Total Taxpayers	E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share
Single	42.9%	43.4%	42.4%	51.5%	18.8%	42.1%	56.1%	8.8%	42.2%	58.8%	4.8%	42.6%	62.1%	5.6%
Married Joint	13.7%	36.5%	14.6%	45.2%	23.8%	14.6%	50.0%	10.7%	14.2%	54.7%	9.3%	13.6%	60.2%	10.0%
Married Sep/Same Return	33.7%	47.9%	33.0%	56.7%	18.2%	33.2%	62.3%	9.9%	33.3%	66.1%	6.1%	33.4%	69.6%	5.3%
Married Separate	1.2%	32.4%	1.2%	37.3%	15.0%	1.2%	42.5%	14.1%	1.2%	69.1%	6.0%	1.2%	50.2%	11.4%
Head of Household	8.5%	65.5%	8.7%	72.5%	10.6%	8.8%	75.7%	4.4%	9.0%	77.8%	2.8%	9.1%	80.3%	3.2%
Widow with Dependent	0.1%	49.1%	0.1%	55.1%	12.1%	0.1%	61.4%	11.5%	0.1%	67.5%	10.0%	0.1%	72.3%	7.2%

Source: Iowa individual income tax records.

**Table 3. Iowa Electronic Filer Counts and Percentage of Total Filers by Year and State Resident Status**

Resident Status	2001		2002			2003			2004			2005 <sup>a</sup>		
	Percentage of Total Taxpayers	E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share
Resident	92.0%	48.7%	91.4%	57.5%	18.0%	91.1%	62.4%	8.5%	90.7%	65.7%	5.3%	93.6%	67.4%	2.6%
Non-Resident	8.0%	11.3%	8.6%	16.5%	45.6%	8.9%	22.1%	33.9%	9.3%	28.2%	27.2%	6.4%	43.7%	55.3%

Source: Iowa individual income tax records.

a. Discrepancies exist in the assignment of resident status in this preliminary data.

**Table 4. Iowa Electronic Filer Counts and Percentage of Total Filers by Year and Urban or Rural County**

County	2001		2002			2003			2004			2005a		
	Percentage of Total Taxpayers	E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share
Urban	40.1%	48.4%	39.9%	56.5%	16.7%	39.9%	60.8%	7.7%	40.0%	63.7%	4.9%	30.2%	89.2%	40.0%
Rural	51.6%	49.1%	51.2%	58.4%	19.0%	50.9%	63.8%	9.2%	50.7%	67.2%	5.3%	38.7%	92.4%	37.5%
Residents Reporting County	91.7%	48.8%	91.1%	57.6%	18.0%	90.8%	62.5%	8.5%	90.7%	65.7%	5.1%	68.9%	91.0%	38.6%

Source: Iowa individual income tax records.

a. Preliminary data, many county codes are missing on the preliminary records for the paper filers.

69.07%

**Table 5. Iowa Distribution of Taxpayers and Electronic Filer Percentage of Total Filers by Year and AGI**

AGI Group <sup>a</sup>	2001		2002			2003			2004			2005		
	Percentage of Total Taxpayers	E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share
<=\$0	2.3%	24.0%	2.8%	34.5%	43.4%	3.0%	39.5%	14.7%	3.1%	45.5%	15.1%	2.5%	51.5%	13.2%
\$0-\$10,000	23.3%	37.5%	23.4%	44.7%	19.3%	23.0%	49.4%	10.6%	22.5%	53.0%	7.3%	19.8%	62.4%	17.6%
\$10-20,000	16.9%	47.4%	16.6%	55.6%	17.3%	16.2%	59.9%	7.8%	15.7%	62.6%	4.6%	15.1%	67.9%	8.3%
\$20-30,000	14.2%	50.2%	14.0%	58.9%	17.2%	13.7%	63.5%	7.8%	13.3%	66.3%	4.5%	13.3%	68.8%	3.7%
\$30-40,000	10.7%	50.3%	10.6%	58.9%	17.0%	10.5%	63.9%	8.5%	10.4%	66.7%	4.4%	10.6%	68.6%	2.9%
\$40-50,000	8.5%	50.4%	8.4%	59.2%	17.6%	8.3%	64.1%	8.2%	8.2%	67.4%	5.2%	8.5%	68.5%	1.6%
\$50-60,000	6.7%	51.6%	6.6%	60.0%	16.3%	6.6%	64.9%	8.1%	6.5%	67.9%	4.6%	6.9%	68.4%	0.7%
\$60-70,000	5.1%	52.1%	5.1%	60.8%	16.7%	5.1%	66.0%	8.6%	5.2%	68.8%	4.2%	5.6%	68.9%	0.2%
\$70-80,000	3.6%	51.1%	3.7%	60.3%	18.1%	3.8%	65.8%	9.1%	4.0%	69.2%	5.3%	4.4%	68.7%	-0.7%
\$80-90,000	2.4%	49.6%	2.5%	59.0%	18.9%	2.7%	65.1%	10.3%	2.9%	68.3%	5.0%	3.3%	68.4%	0.2%
\$90-100,000	1.6%	47.0%	1.6%	57.0%	21.2%	1.8%	63.3%	11.1%	2.0%	67.6%	6.7%	2.3%	67.0%	-0.8%
\$100-125,000	2.1%	43.8%	2.1%	53.1%	21.1%	2.3%	59.9%	12.9%	2.6%	64.9%	8.3%	3.1%	63.9%	-1.5%
\$125-150,000	0.9%	38.9%	0.9%	48.7%	25.2%	1.0%	55.6%	14.1%	1.2%	60.7%	9.3%	1.4%	59.8%	-1.6%
\$150-175,000	0.5%	34.7%	0.5%	45.0%	29.7%	0.5%	51.6%	14.6%	0.6%	56.5%	9.4%	0.8%	55.8%	-1.1%
\$175-200,000	0.3%	32.6%	0.3%	42.0%	28.7%	0.3%	49.9%	18.9%	0.4%	54.0%	8.3%	0.5%	53.2%	-1.5%
\$200-250,000	0.4%	28.6%	0.3%	38.3%	34.0%	0.4%	44.8%	16.9%	0.4%	51.9%	15.9%	0.6%	50.6%	-2.6%
\$250,000+	0.7%	19.8%	0.7%	27.4%	38.4%	0.7%	33.2%	21.0%	0.8%	41.0%	23.7%	1.3%	35.8%	-12.8%

Source: Iowa individual income tax records.

a. AGI amounts used to compute this table were nominal values.

**Table 6. Iowa Distribution of Taxpayers and Electronic Filing Percentage by Year and Wage Share of Income**

Wage Share of Income	2001		2002			2003			2004			2005a		
	Percentage of Total Taxpayers	E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share
Under 25%	23.6%	26.4%	24.5%	35.0%	32.6%	20.7%	41.1%	17.4%	21.5%	45.9%	11.6%	N/A	N/A	N/A
25 to 50%	4.1%	34.2%	4.0%	45.1%	31.9%	4.3%	49.8%	10.3%	4.1%	56.2%	12.8%	N/A	N/A	N/A
50 to 75%	6.1%	39.5%	6.0%	50.1%	26.8%	6.4%	54.6%	9.1%	6.2%	60.3%	10.3%	N/A	N/A	N/A
75 to 100%	60.8%	53.9%	59.4%	61.9%	14.9%	62.2%	65.0%	5.0%	62.1%	67.5%	3.9%	N/A	N/A	N/A
Over 100%	5.4%	54.1%	6.2%	62.0%	14.5%	6.3%	66.2%	6.8%	6.0%	71.4%	7.9%	N/A	N/A	N/A

Source: Iowa individual income tax records.

**Table 7. Iowa Distribution of Taxpayers and Electronic Filing Percentage by Year and Tax Liability at Filing**

Tax Liability at Filing	2001		2002			2003			2004			2005		
	Percentage of Total Taxpayers	E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share
Refund	77.4%	50.9%	78.2%	58.8%	15.6%	77.1%	63.6%	8.2%	76.9%	66.4%	4.4%	64.8%	73.5%	10.7%
Zero	6.2%	27.1%	6.9%	35.2%	30.1%	7.0%	41.4%	17.3%	7.1%	47.6%	15.1%	9.9%	36.0%	-24.3%
Owe	16.4%	28.5%	14.9%	37.3%	30.9%	15.9%	43.3%	16.2%	16.0%	48.5%	12.0%	25.2%	57.9%	19.3%

Source: Iowa individual income tax records.

**Table 8. Iowa Distribution of Taxpayers and Electronic Filer Percentage of Total Filers by Year and Total Tax Liability**

AGI Group	2001		2002			2003			2004			2005		
	Percentage of Total Taxpayers	E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share
Zero	25.2%	37.6%	24.8%	46.7%	24.1%	24.8%	50.7%	8.6%	24.5%	54.5%	7.4%	26.2%	55.2%	1.3%
0 to \$50	3.4%	36.6%	3.4%	44.5%	21.5%	3.2%	50.7%	14.0%	3.1%	54.5%	7.5%	2.9%	59.0%	8.1%
\$50 to \$150	4.5%	36.8%	4.5%	43.5%	18.1%	4.3%	49.4%	13.4%	4.2%	53.8%	8.9%	4.1%	60.2%	12.0%
\$150 to \$250	4.2%	43.4%	4.2%	49.8%	14.6%	4.1%	54.7%	9.9%	4.0%	58.5%	6.8%	3.8%	65.6%	12.3%
\$250 to \$400	5.0%	46.0%	5.1%	52.9%	15.0%	4.9%	58.0%	9.7%	4.8%	60.8%	4.7%	4.7%	67.5%	11.1%
\$400 to \$600	6.0%	49.0%	5.9%	56.3%	15.0%	5.7%	61.2%	8.6%	5.6%	64.0%	4.5%	5.4%	69.5%	8.6%
\$600 to \$800	5.7%	51.5%	5.7%	58.6%	13.8%	5.5%	63.0%	7.5%	5.3%	65.6%	4.1%	5.1%	71.1%	8.4%
\$800 to \$1000	5.4%	52.0%	5.3%	59.4%	14.3%	5.1%	63.9%	7.6%	5.0%	67.2%	5.1%	4.8%	71.4%	6.2%
\$1000 to \$1200	5.0%	53.0%	4.9%	60.3%	13.7%	4.7%	64.9%	7.6%	4.7%	67.8%	4.4%	4.4%	72.4%	6.9%
\$1200 to \$1400	4.5%	53.5%	4.4%	61.2%	14.4%	4.3%	65.7%	7.4%	4.2%	68.2%	3.8%	4.0%	72.7%	6.6%
\$1400 to \$1600	4.0%	53.4%	4.0%	61.5%	15.1%	4.0%	66.1%	7.5%	3.9%	68.6%	3.7%	3.8%	72.9%	6.4%
\$1600 to \$1800	3.6%	52.9%	3.6%	61.3%	15.8%	3.6%	66.2%	8.0%	3.5%	69.1%	4.3%	3.4%	72.8%	5.4%
\$1800 to \$2000	3.0%	53.4%	3.1%	61.6%	15.2%	3.1%	65.9%	7.1%	3.1%	69.3%	5.1%	3.0%	73.1%	5.4%
\$2000 to \$2500	6.0%	53.1%	6.1%	61.7%	16.2%	6.0%	66.5%	7.8%	6.0%	69.2%	4.1%	5.9%	73.2%	5.7%
\$2500 to \$3000	4.3%	52.2%	4.5%	61.5%	17.9%	4.5%	66.7%	8.3%	4.6%	69.5%	4.3%	4.6%	73.2%	5.3%
\$3000 to \$4000	4.6%	49.3%	5.0%	59.2%	20.1%	5.5%	65.6%	10.7%	5.8%	68.8%	4.9%	5.9%	72.6%	5.6%
\$4000 to \$8000	3.8%	41.3%	4.1%	51.4%	24.3%	4.8%	58.6%	14.1%	5.6%	63.3%	8.1%	5.8%	68.3%	7.9%
Over \$8000	1.4%	26.5%	1.5%	35.8%	34.8%	1.7%	42.6%	19.0%	2.0%	49.0%	15.2%	2.1%	57.1%	16.5%

Source: Iowa individual income tax records.

**Table 9. Iowa Distribution of Taxpayers and Electronic Filing Percentage by Year and Filing Month**

Filing Month	2002		2003			2004			2005		
	Percentage of Total Taxpayers	E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share	Percentage of Total Taxpayers	E-Filing Share	Growth in E-Filing Share
January	12.7%	94.4%	12.1%	90.5%	-4.1%	6.5%	98.3%	8.6%	6.7%	95.0%	-3.4%
February	29.1%	70.8%	33.4%	71.1%	0.5%	32.3%	80.8%	13.7%	31.7%	83.7%	3.5%
March	25.2%	49.3%	29.4%	57.9%	17.4%	27.7%	60.8%	5.0%	26.9%	65.5%	7.7%
April	27.1%	34.0%	19.9%	37.5%	10.3%	23.0%	56.4%	50.4%	25.2%	58.1%	3.1%
May	4.3%	4.2%	4.1%	5.5%	30.9%	8.9%	4.8%	-12.3%	8.5%	6.1%	27.3%
June	1.0%	12.2%	0.7%	23.1%	89.6%	1.1%	20.1%	-12.9%	0.7%	34.9%	73.7%
July	0.6%	23.4%	0.5%	34.2%	46.1%	0.5%	33.4%	-2.2%	0.3%	51.6%	54.4%
Jan-July Filers	100%	54.6%	100%	59.7%	9.3%	100%	63.1%	5.7%	100%	66.0%	4.6%

Source: Iowa individual income tax records.

**Table 10. Iowa Cumulative Distribution of January-July Filers by Year and Month**

Filing Month	2002		2003			2004			2005		
	Paper Share	E-Filing Share	Paper Share	E-Filing Share	Growth E-Filing Counts	Paper Share	E-Filing Share	Growth E-Filing Counts	Paper Share	E-Filing Share	Growth E-Filing Counts
January	1.6%	21.9%	2.9%	18.4%	-8.4%	0.3%	10.1%	-41.2%	1.0%	9.6%	2.3%
February	20.3%	59.6%	26.8%	58.1%	6.5%	17.1%	51.5%	-5.3%	16.2%	49.7%	4.1%
March	48.5%	82.3%	57.5%	86.6%	14.8%	46.5%	78.1%	-3.4%	43.5%	76.4%	5.3%
April	87.9%	99.2%	88.4%	99.1%	9.0%	73.8%	98.7%	6.6%	74.6%	98.6%	7.5%
May	97.0%	99.5%	98.0%	99.5%	9.1%	96.8%	99.4%	7.0%	98.2%	99.4%	7.7%
June	99.0%	99.7%	99.2%	99.7%	9.1%	99.2%	99.8%	7.0%	99.5%	99.7%	7.7%
July	100.0%	100.0%	100.0%	100.0%	9.1%	100.0%	100.0%	7.0%	100.0%	100.0%	7.7%

Source: Iowa individual income tax records.



**Table 11. Multivariate Analysis of Demographic and Economic Characteristics on E-Filing Probability**

Independent Variables	Coefficient
Intercept	0.400
<b>Year dummies</b>	
2002	0.082
2003	0.133
2004	0.166
2005	0.413
<b>Age Group Indicators</b>	
25 to 34	0.092
35 to 44	0.066
45 to 54	0.015
55 to 64	-0.017
65 to 74	-0.042
75+	-0.072
<b>Filing Status Indicators</b>	
Single	-0.002
Married Sep/Same Return	0.041
Married Separate	-0.130
Head of Household	0.121
Widow with Dependent	0.052
<b>Residency Indicators</b>	
Nonresident	-0.395
Urban County Resident	-0.043
Missing County Resident	-0.821
<b>Tax Filing Liability Indicator</b>	
Received Refund	0.134
<b>AGI Group Indicators</b>	
less than \$10,000	0.094
\$10,000-30,000	0.075
\$60,000-100,000	-0.028
\$100,000-200,000	-0.078
more than \$200,000	-0.194
<b>Tax Liability Group Indicators</b>	
\$0 or less	-0.157
\$1-1,000	-0.086
\$1,000-2,500	-0.015
\$4,000-\$8,000	-0.006
more than \$8,000	-0.001

Source: Iowa individual income tax records.

Italicized coefficients are not statistically significant at the 5 percent level.

**Table 12. Multivariate Analysis of Demographic and Economic Characteristics on E-Filing Probability by Year**

<b>Independent Variables</b>	2001	2002	2003	2004	2005
Intercept	0.357	0.481	0.538	0.522	0.866
<b>Age Group Indicators</b>					
25 to 34	0.106	0.086	0.085	0.122	0.068
35 to 44	0.060	0.045	0.051	0.101	0.084
45 to 54	-0.004	-0.019	-0.008	0.046	0.081
55 to 64	-0.044	-0.065	-0.046	0.009	0.076
65 to 74	-0.075	-0.095	-0.075	-0.015	0.075
75+	-0.110	-0.139	-0.116	-0.053	0.075
<b>Filing Status Indicators</b>					
Single	<i>0.002</i>	<i>0.002</i>	0.003	0.007	-0.026
Married Sep/Same Return	0.034	0.038	0.045	0.053	0.030
Married Separate	-0.128	-0.151	-0.146	-0.155	-0.105
Head of Household	0.166	0.146	0.138	0.131	0.029
Widow with Dependent	0.062	0.037	0.056	0.079	0.026
<b>Residency Indicators</b>					
Nonresident	-0.365	-0.404	-0.400	-0.376	-0.421
Urban County Resident	-0.033	-0.043	-0.053	-0.054	-0.032
Missing County Resident	-0.252	-0.257	-0.297	-0.072	-0.884
<b>Tax Filing Liability Indicator</b>					
Received Refund	0.172	0.154	0.146	0.126	0.072
<b>AGI Group Indicators</b>					
less than \$10,000	0.104	0.057	0.067	0.074	0.145
\$10,000-30,000	0.084	0.066	0.061	0.054	0.083
\$60,000-100,000	-0.014	-0.015	-0.016	-0.007	-0.064
\$100,000-200,000	-0.054	-0.057	-0.053	-0.030	-0.132
more than \$200,000	-0.164	-0.183	-0.185	-0.128	-0.223
<b>Tax Liability Group Indicators</b>					
\$0 or less	-0.176	-0.117	-0.136	-0.109	-0.189
\$1-1,000	-0.070	-0.068	-0.069	-0.044	-0.129
\$1,000-2,500	0.009	-0.002	-0.009	<i>0.000</i>	-0.049
\$4,000-\$8,000	-0.032	-0.027	-0.023	-0.022	0.042
more than \$8,000	-0.054	-0.045	-0.036	-0.049	0.112

Source: Iowa individual income tax records.

Italicized coefficients are not statistically significant at the 5 percent level.