Electronic Income Tax Filing:

Can Early Returns Take the Surprise Out of April?

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Iowa Department of Revenue

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Topic on Back Burner

- Always looking for ways to improve revenue forecasts
- Wealth of data in electronic returns
- Desire to analyze value of early return information, no time
- Sign up to present – in theory moved to front burner
- In reality – still only scratched the surface
Electronic Filing in Iowa

- Started tax year 1994
  - 43,000 returns
  - 3.3% of all current year returns

- Tax year 2012
  - 1.3 million returns
  - 87.8% of all current year returns
Figure 1. Iowa Individual Income Tax Returns by Filing Method

- Paper Return
- Paper Return with 2D Barcode
- Electronic Return

Tax Year (2012 is Incomplete)
Electronic Filing Across States

- FTA numbers for 2013 filing season
  - Share through August range 94% to 62%
  - Iowa ranks 12th
  - Iowa ranks 2nd highest of non-mandate states
Figure 2. Share of Iowa Individual Income Returns Filed Electronically

Tax Year

2004  62.2%
2005  65.0%
2006  67.5%
2007  70.2%
2008  72.9%
2009  77.3%
2010  83.9%
2011  86.6%
2012  87.8%
Distribution of Electronic Filers

- In 2004, 62.2% filed electronically
  - Not representative at the tails
  - 59.0% below $20,000 in AGI
  - 34.6% above $200,000 in AGI

- In 2012, 87.8% filed electronically
  - 86.8% below $20,000 in AGI
  - 86.4% above $200,000 in AGI
Figure 3. Share Filing Electronically by Income Group

- $200,000 or more: 86.4%
- $100,001 to $200,000: 88.7%
- $80,001 to $100,000: 89.8%
- $60,001 to $80,000: 89.7%
- $40,001 to $60,000: 89.6%
- $20,001 to $40,000: 89.8%
- Less than $20,000: 86.8%

2012 | 2008 | 2004
Electronic Representative

- Data suggests that income distribution of electronic filers is no longer different from paper filers
- Switch base file for micro model from lagged federal data to current electronic returns
- Impute missing data for paper filers not matched to early federal file
Forecasting with Electronic

- Can early electronic returns (Jan-Feb) forecast total refunds and final payments (March-April)?
Iowa Filing Patterns

- Opening follows IRS
  - Delayed in 2010 and 2012

- Iowa due date – April 30
  - Filers peak with April 15 federal due date

- Farm due date – March 1
  - No estimate payments if return filed and 100% paid
  - 2012 delay to April 15
Figure 4. Daily Cumulative Count of Electronic Returns
Revenue Estimating Conference

- Three member group responsible for the official forecast receipts and refunds for current and next fiscal year
  - October
    - Preliminary numbers accounting for law changes
  - December
    - Baseline for Governor's budget
    - Legislature limited to budget 99% of next FY
  - Early March
    - Reduction in forecast requires reduction in budgeting
    - Increase in forecast should have no change in budgeting
- Legislature approves next FY budget in late April
Problems with April Surprise

- Large unexpected increase in refunds in April could result in revenue shortfall while budget is in final stages

- Leaves legislature and Governor little time to adjust

- Reduces confidence in Department’s forecasting skills
Current Forecast Method

- Regression on Annual Historic Data
  - Returns = f(trend, WH, Est, 1-year rate, tax cut indicator, farm income, Fiscal Cliff dummy)
  - Refunds = f(WH, Est, Returns, 10-yr rate, wages)

- In March – no current processing year data included in regression estimation
- Adjust forecast for actual deposits/claims paid in January and February
Electronic Return Data

- For last five years, track income growth and refunds for electronic filers to share with REC
  - To remove bias from growing number of filers, compare same filers in prior and current year
  - Check on weekly basis to watch for changes
Did Early Returns Reveal Final Growth?

March 14

<table>
<thead>
<tr>
<th>AGI in TY 2012</th>
<th>Count of Returns</th>
<th>% Change in Wages</th>
<th>% Change in Capital Gains</th>
<th>% Change in Farm Income</th>
<th>% Change in Adjusted Gross Income</th>
<th>% Change in Refunds</th>
</tr>
</thead>
<tbody>
<tr>
<td>$20,001 to 30,000</td>
<td>89,146</td>
<td>8.51%</td>
<td>-58.83%</td>
<td>-52.92%</td>
<td>5.76%</td>
<td>1.26%</td>
</tr>
<tr>
<td>$50,001 to 60,000</td>
<td>10,775</td>
<td>4.97%</td>
<td>55.09%</td>
<td>63.91%</td>
<td>8.28%</td>
<td>0.35%</td>
</tr>
<tr>
<td>$100,001 to 125,000</td>
<td>22,704</td>
<td>5.17%</td>
<td>-16.05%</td>
<td>61.05%</td>
<td>5.91%</td>
<td>-3.42%</td>
</tr>
<tr>
<td>$250,001 or more</td>
<td>2,452</td>
<td>13.67%</td>
<td>606.86%</td>
<td>81.90%</td>
<td>37.23%</td>
<td>22.31%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>579,646</strong></td>
<td><strong>5.29%</strong></td>
<td><strong>20.99%</strong></td>
<td><strong>53.99%</strong></td>
<td><strong>5.62%</strong></td>
<td><strong>-0.05%</strong></td>
</tr>
</tbody>
</table>

May 12

<table>
<thead>
<tr>
<th>AGI in TY 2012</th>
<th>Count of Returns</th>
<th>% Change in Wages</th>
<th>% Change in Capital Gains</th>
<th>% Change in Farm Income</th>
<th>% Change in Adjusted Gross Income</th>
<th>% Change in Refunds</th>
</tr>
</thead>
<tbody>
<tr>
<td>$20,001 to 30,000</td>
<td>133,142</td>
<td>6.50%</td>
<td>-44.98%</td>
<td>-32.27%</td>
<td>2.40%</td>
<td>2.25%</td>
</tr>
<tr>
<td>$50,001 to 60,000</td>
<td>71,490</td>
<td>3.85%</td>
<td>-15.49%</td>
<td>39.66%</td>
<td>3.80%</td>
<td>-3.05%</td>
</tr>
<tr>
<td>$100,001 to 125,000</td>
<td>53,955</td>
<td>4.18%</td>
<td>16.32%</td>
<td>58.20%</td>
<td>6.95%</td>
<td>-3.34%</td>
</tr>
<tr>
<td>$250,001 or more</td>
<td>16,826</td>
<td>11.44%</td>
<td>320.90%</td>
<td>108.76%</td>
<td>37.19%</td>
<td>0.58%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,006,976</strong></td>
<td><strong>4.44%</strong></td>
<td><strong>82.67%</strong></td>
<td><strong>69.37%</strong></td>
<td><strong>8.33%</strong></td>
<td><strong>-1.49%</strong></td>
</tr>
</tbody>
</table>
Electronic Filers: Refund/Pay?

- Tax year 2012 refunds:
  - 89% of refund returns
  - 89% of total refunds dollars
- Electronic filers more likely to claim a refund
  - Speed of Department turnaround desirable

- Tax year 2012 final returns pays:
  - 87% of pay returns
  - 86% of total final return payments
Refund Claims

- 35-40% of refunds claimed by March 1
  - Warrants usually mailed within days
- 2012 – late start to filing season with “fiscal cliff” in D.C. slowed claims

- What information can be gleaned from early returns?
Figure 6. Daily Cumulative Average Refund on Electronic Returns
Average Refund Growth

- Between March 1 and April 30 – 25.4% is average over last 7 years
- One large tax credit refund pushed up 2012 growth by nearly 2% points

<table>
<thead>
<tr>
<th>Tax Year</th>
<th>Refunds</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>20.8%</td>
</tr>
<tr>
<td>2007</td>
<td>19.2%</td>
</tr>
<tr>
<td>2008</td>
<td>29.1%</td>
</tr>
<tr>
<td>2009</td>
<td>23.4%</td>
</tr>
<tr>
<td>2010</td>
<td>26.5%</td>
</tr>
<tr>
<td>2011</td>
<td>26.0%</td>
</tr>
<tr>
<td>2012</td>
<td>32.8%</td>
</tr>
</tbody>
</table>
Figure 7. Refund Summary Statistics by Date of Filing, TY 2012

- 90th Percentile
- 75th Percentile
- Average
- Median
- 25th Percentile
- 10th Percentile

The graph shows the trend of refund summary statistics by date of filing from February 4th to May 13th, 2012. The 90th percentile line is at the top, followed by the 75th percentile, average, median, 25th percentile, and 10th percentile at the bottom.
Figure 8. Daily Cumulative Share Filing Refund Claim
Potential Refunds Forecast
Using Electronic Returns

- Average refund: $422 – 3/1/2013

- Pattern of growth:
  - 26.76% - 3/1/2012 to 5/15/202
  - 81.60% - 3/1/2013
  - -8.85% - 3/1/2013 to 5/15/2013

- Share claiming refund: 81.60% - 3/1/2013

- Pattern share change
Tax Year 2012 Test

- March 1, 2013 – forecast for FY 2013
- Estimated total refunds through June 30 = 2012 Average Refund*2011 Growth*2011 Total Return Count Through June 30*2012 Share Refunds*2011 Share Change
  - $511.7 million

- $535.0 million actual 2013 processing year through June 30 – 4.6% higher
Pays – Receipts Harder

- Final return payments reported does not mean money received
  - E-pay allows for separate payment date
- Early receipts provide less information than filed returns
Figure 9. Timing of Final Return Payments Reported on Electronic Returns

2011 Pays

- 1-May: 29.9%
- 15-Apr: 34.6%
- 1-Apr: 54.7%
- 15-Mar: 7.8%
- 1-Mar: 0%

2012 Pays

- 1-May: 29.9%
- 15-Apr: 34.6%
- 1-Apr: 54.7%
- 15-Mar: 7.8%
- 1-Mar: 0%
Figure 10. Daily Cumulative Average Final Pay on Electronic Returns

- 2006
- 2007
- 2008
- 2009
- 2010
- 2011
- 2012
Average Pay Growth

- Between March 1 and April 30 – 41.0% is average over 2006-2011
- Delayed farm filing due date for 2012 explains high growth

<table>
<thead>
<tr>
<th>Tax Year</th>
<th>Pays</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>53.8%</td>
</tr>
<tr>
<td>2007</td>
<td>92.8%</td>
</tr>
<tr>
<td>2008</td>
<td>42.4%</td>
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<tr>
<td>2009</td>
<td>20.3%</td>
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<tr>
<td>2010</td>
<td>20.6%</td>
</tr>
<tr>
<td>2011</td>
<td>16.3%</td>
</tr>
<tr>
<td>2012</td>
<td>278.0%</td>
</tr>
</tbody>
</table>
Two Types of Pay Returns

- Likely need to introduce more data in a forecast of final pays
- Two distinct types of final pay returns
  - Farmers paying entire liability
  - Others meeting liability above estimates
Figure 11. Distribution of Pays for Wage Earners by Date of Electronic Filing

- 90th Percentile
- 75th Percentile
- Average
- Median
- 10th Percentile
- 25th Percentile

Time: 4-Feb, 18-Feb, 4-Mar, 18-Mar, 1-Apr, 15-Apr, 29-Apr, 13-May

Y-axis: $0 to $900

Legend:
- "90th Percentile" is the highest line.
- "75th Percentile" is the next line, slightly lower than the 90th.
- "Average" is the blue line, which is the highest compared to the median.
- "Median" is the black line, showing the middle value.
- "10th Percentile" is the red line, representing the lower end.
- "25th Percentile" is the lowest line.
Figure 12. Distribution of Pays Reported on Farm Returns by Date of Electronic Filing

- 90th Percentile
- 75th Percentile
- Average
- Median
- 10th Percentile
- 25th Percentile

Graph shows the distribution of pays reported on farm returns by the date of electronic filing. The x-axis represents dates from 4-Feb to 13-May, and the y-axis represents the amount of pays in dollars ranging from $0 to $10,000.
Figure 13. Daily Cumulative Share Reporting a Pay Return
Pays – Test Must Wait

- 2012 – farm return due date extension resulted in atypical patterns

- Test on both pays and refunds for tax year 2013
Can Early Returns Take the Surprise out of April?

- Moved off of back burner for last few weeks, hope to move this into practice next year
- Others use electronic returns to forecast revenues/refunds?
- Looking for other ideas of how the wealth of data can be used to end the surprise...