Ontario PIT Revenue Forecasting Model Challenges

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The Ontario PIT Forecasting Model

- Aggregated data and micro-data from tax returns supplied by Canada Revenue Agency. (http://www.cra-arc.gc.ca/agency/stats/gb00/pst/final/menu-e.html)
- Model uses historical data from taxable returns on the aggregate amounts filled out by Ontarians for each line of the Canada T1 General Tax Return
- PIT Macroeconometric Model produces forecasts of income and deduction items
  - Each line of the T1 tax return has a corresponding equation with the tax data specified as a function of the appropriate, economic, demographic and/or tax variables.
- PIT Microsimulation Model uses growth rates from the Macro Model and applies these to a weighted sample of individual tax returns to calculate tax assessments.

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PIT Revenue Forecasting Challenges

- **Forecasting Challenge:**
  - Capital Gains Income
    - Volatile and Difficult to Forecast Accurately
- **Solution:**
  - Capital Gains Income Forecasting Model
- **Experience:**
  - Very Accurate - Sometimes
  - Forecasts Very Sensitive to Model Specification

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PIT Revenue Forecasting Challenges

- **Forecasting Challenge:**
  - Seniors and Pension Incomes
    - Very Strong Growth in Last 10 Years
    - Stronger Growth During Economic Downturns
- **Solution:**
  - Changed Model Specification to Address Early Retirement, Increased Wealth of Seniors
- **Experience:**
  - Very Accurate

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PIT Revenue Forecasting Challenges

- **Forecasting Challenge:**
  - Taxable Investment Income
    - Relationship Between Tax and Economic Data is Weak
    - Tax Sheltering of Investment Income
- **Solution:**
  - Additional Variables Added to Model Equations
- **Experience:**
  - More Accurate, But Still Not Very Accurate.

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PIT Revenue Forecasting Challenges

- **Forecasting Challenge:**
  - Pension Plan Contribution Deductions

    Two Types
    - Discretionary Contributions to Tax Sheltered Saving Plans
    - Obligatory Pension Contributions Through Employment

    Statute Features
    - Limits on Total Individual Combined Contributions to Both Types
    - Allow Current Use of Accumulated Past Unused "Room"
- **Solution:**
  - Media Reports from Major Financial Institutions
  - Information from Major Pension Plans
  - Use Long-run Equations/Cautious Positioning
- **Experience:**
  - Nothing Works

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PIT Revenue Forecasting Challenges

- **Forecasting Challenge:**
  - Distribution of Income Growth
    - Progressive Tax System Makes Revenue Estimates Quite Sensitive to Who has Income Growth
- **Solution:**
  - Micro-simulation Model
  - Model to Provide Separate Forecasts for Individuals with Incomes <100K and >100K
- **Experience:**
  - Moderately Accurate
  - Produces Much Higher Revenue Estimates Given a Forecast for Economic Growth

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PIT Revenue Forecasting Challenges

- **Forecasting Challenge:**
  - Significant Changes in Tax Policy (Brackets, Rates)
- **Solution:**
  - Micro-simulation Model
- **Experience:**
  - Quite Successful
  - Considerable Investment of Resources Required
  - Data Confidentiality Issues

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PIT Revenue Forecasting Challenges

- **Forecasting Challenge:**
  - Accuracy of "Actual" Economic Data
- **Solution:**
  - Payroll Tax Experience
- **Experience:**
  - Quite Successful in Risk Assessment
  - Reluctance in Getting Official Buy-in

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Summary

- PIT Revenue Forecasting Models Have Significantly Improved Our Ability to Forecast and Monitor Revenues
- Models Help Us Make the Best Use of Available Information
- Despite Advances in Our Modelling Capacity, Significant Challenges Remain

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