

RTIC AGENDA ITEM: Update on revenue estimating process improvements

In the September 2015 report, [A Study on Improving Montana's Personal Income Tax Revenue Projections](#), the LFD identified a series of next steps in the current focus on improving the personal income tax forecasting. The following list provides a recap and progress report:

Cash Flow

- Research Wisconsin's use of fiscal year cash flow data with the aim of implementing a similar technique at least for comparative purposes
- Consult other states with high levels of accuracy—Arizona, Indiana, Louisiana, Rhode Island, and Virginia—to understand their forecasting processes, and potentially apply some methodologies to Montana

Stephanie & Sam attended the annual revenue estimating conference immediately following the presentation of the September report and were able to discuss findings of the report with analysts from many other states. Many states appear to rely on a cash flow methodology, rather than the micro simulation method currently used in Montana.

A preliminary cash flow model was developed for Montana personal income tax and presented in the December [Updated Trend](#) report. Current analysis is comparing the accuracy of the cash flow model to the historical forecast produced from the micro simulation model.

Naïve Modeling

- Investigate the possibility of using the bias indicator suggested by naïve modeling to "unbias" the forecast—or at least reduce the amount of bias
- Use more historical data in naïve models with an aim toward incorporating the results into the revenue estimating process
- Develop upside and downside risk bounds based on naïve modeling

This analysis is in progress and preliminary results will be incorporated in the [2019 Biennium Outlook](#) in June.

IHS Forecasting Accuracy

- Extend last interim's analysis of the relative forecasting accuracy of IHS econometric variable that are used as inputs into the personal income tax model

An intern was hired to assist with this data-intensive project. The data-compilation portion of the project has just been completed and the statistical analysis will continue throughout the summer.

Compare Wage vs. Nonwage Income Proportions across States

- Examine "April surprises" across states with respect to wage income versus non-wage income using the Statistics of Income available from the IRS to evaluate whether Montana's personal income make-up varies substantially compared to other states

Results of this analysis were inconclusive, and no further research is anticipated.

New Since September: Capital Gains

The 2014 taxpayer data--available in early November—revealed that CY 2014 personal income growth was driven by a 44% growth capital gains income, which was much stronger than the stock market growth of 18%. Further understanding the volatility of capital gains income and its increasing impact on the overall volatility of personal income tax have been added as subject areas to improving forecasting accuracy.

Conversations with the revenue forecasters in California—a state with a high proportion of capital gains income—did not produce new ideas for analysis. Research in this area will continue.

Summary

All proposed topics of further research in the September report have been initiated. The initial results of the cash flow model suggest that it may provide a more time-sensitive comparison for the current micro-simulation model. Work on the naïve modeling and IHS forecasting accuracy continues; potential adjustments to the current modeling methodology as a result of the analyses may be highlighted in the 2019 Biennium Outlook in June.

Depending on the early results of the new methods, some new methods could be integrated into the revenue estimate that will be presented to the Revenue & Transportation Interim Committee in November 2016.