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Article from:

Forecasting & Futurism
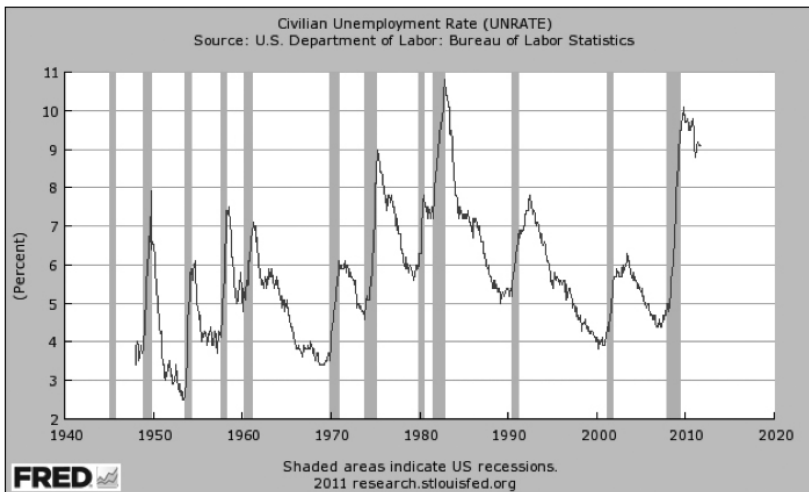
January 2012 – Issue 4

F&F 2ⁿᵈ **Annual** iPad 2 Forecasting Competition

By Ben Wadsley

Attention: Anyone who would like to win an iPad 2 … and sharpen their forecasting skills.

I'm proud to announce the second annual iPad forecasting competition sponsored by the Forecasting and Futurism Section! The winner will be the one who develops the best model that predicts the Civilian Unemployment Rate (UNRATE), measured on a monthly basis, from March-end 2012 through September-end 2012. The contestants may use any combination of actuarial techniques to arrive at the model, including but not limited to: time series, regression, genetic algorithms, agent based models, judgmental forecasting, etc.

Civilian Unemployment Rate (UNRATE)
Source: U.S. Department of Labor: Bureau of Labor Statistics
Shaded areas indicate US recessions.
2011 research.stlouisfed.org

THE WINNER WILL BE THE ONE WHO DEVELOPS THE BEST MODEL THAT PREDICTS THE CIVILIAN UNEMPLOYMENT RATE (UNRATE), MEASURED ON A MONTHLY BASIS, FROM MARCH-END 2012 THROUGH SEPTEMBER-END 2012.

For a data source, we are going to use the Federal Reserve Economic Data (FRED) database. This can be found at: *http://research.stlouisfed.org/fred2/*. The statistic of interest will be the tracking error for each of the submitted models, defined as the sum of the (six) squared monthly deviations between the forecast and the actual UNRATE data points over the forecast period. All input variables into the model must also come from the FRED database (except for time variables, mathematical operators and constants). This shouldn't be a problem, since the FRED database has 35,000 economic time series! The only exception is that data series that have some form of unemployment included in them (state unemployment or jobless claims for instance) are not allowed. Also, it is recommended that each of the variables included are measured at least on a monthly basis. Quarterly reported variables are allowed, but will use the quarterly statistic for the next three months. Also, because we hope to announce the contest winner at the 2012 SOA Annual Meeting, all data is cut off as of Oct. 12, 2012, so any September data not reported by that date will be replaced with August data.

A sample model submission may look like this (but doesn't have to):

$Y = Y(t-1) + a * CPI$ for all urban consumers $+ b * 10Y$ Treasury Rate/ FED Funds $+ c * \log (Y(t-1) / Y(t-2))$; Where a, b, c are constants.

Also, a short description of how the model was developed is recommended. If there needs to be a tiebreaker, the Forecasting and Futurism Section Council will use the best or most innovative description of the model to decide the winner of the iPad.

You may be asking yourself, "Where do I start?" A great place to start may be looking at one of the previous Forecasting and Futurism newsletters. In the September 2009 issue of the newsletter, there is a great article outlining the different classes of forecasting methods found at: *http://www.soa.org/library/newsletters/forecasting-futurism/september/ffn-2009-iss1.pdf*. There is a list of five main catego-

ries that can be used with other techniques (such as genetic algorithms).

1. Extrapolative methods—Methods based on data patterns rather than explanatory variables.
2. Explanatory variable methods—Methods incorporating causal variables to forecast dependent variables.
3. Simulation modeling methods—Methods using the computer to simulate real-world agents, behaviors and events.
4. Judgmental methods—Methods based on expert opinion or intuition.
5. Composite methods—A combination of the above.

Many of the forecasting methods in the above categories are very powerful, yet not frequently used by actuaries. Some of them are exponential smoothing, autoregressive moving average, econometric modeling, system dynamics simulation and multi-agent simulation. This may be a great time to get to practice one of these methods, and think about how it could apply to our profession. On the other hand, a tried-and-true method may be the best way to go.

Please submit your model and description by Feb. 28, 2012 to Christy Cook at *ccook@soa.org*. The only requirement is that you are a member of the Forecasting and Futurism Section. There will be a periodic update on the frontrunners of the contest as it progresses. The iPad 2 will be given to the winner around the 2012 SOA Annual Meeting (attendance at annual meeting is not required to win). If you have any questions on the contest rules, feel free to contact me at *Ben.Wadsley@transamerica.com.* ▼

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