Multivariate Long-Term Forecasts of Social Security Outcomes

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We propose to develop and apply methods to forecast and to express uncertainty about many-year-ahead values of variables relevant to Social Security, when the information set used to form forecasts is multivariate. The relevant horizon is a decade or more. The methods build on Granger and Jeon (2007) and Müller and Watson (2019). Those researchers suggest modeling trends but not short run dynamics, with Granger and Jeon proposing time domain and Müller and Watson frequency domain techniques. We flexibly allow for a range of models governing the long run, or low frequency, components of data. Among the ways we depart from Stock (2019) is our use multivariate information sets, and our construction of point in time forecasts as well as forecasts of average values.

We are motivated to make forecasts from multivariate information sets because of its relevance to Social Security. An example is forecasting a trust fund ratio conditional on values for various underlying variables that are assumed in a given scenario. Those values might come from proposed legislative changes or from judgment such as that in Social Security's high cost or low cost scenarios. In this example, although the conditioning values would be assumed, the forecast itself would be econometric rather than judgmental. The forecast would thus come with measures of uncertainty such as confidence intervals. As well, multivariate information sets are relevant for the obvious reason that the factors that feed into Social Security income and payouts—productivity growth, inflation, labor force participation rates, and so on—are interrelated. So multivariate information sets in principle will lead to more precise forecasts.

This research falls under focal area #4, "Informing Long-Term Projections and Models."

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