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Commentary

THE BUFFIN FOUNDATION SOCIAL AND ECONOMIC DEVELOPMENT ISSUES

Social Security Financing Stability

October is the month for the annual meetings of the International Monetary Fund (IMF) and the World Bank in Washington. Central bankers, finance ministers, private sector executives, representatives from civil society organizations, and academics meet to discuss issues of global concern. The IMF's agenda and objectives revolve around the theme of stability in the global financial and economic system. The World Bank's agenda and objectives revolve around the theme of global social and economic development. Two of the topics included on the meeting's agenda are relevant to social security; one is "Financing Universal Social Protection" and the other is "Consultation, Participation and Disclosure of Information". There is much to learn by listening to the exchange of ideas and opinions among participants in these discussion forums. Many points are of general interest with wide areas of practical application and can help to form a framework for debating specific issues such as the sustainability of social security systems and the measurement and reporting of their long-term financial obligations.

The July 2017 edition of *Commentary* discussed potential parametric changes to the US Social Security system that could be helpful in achieving long-term solvency and sustainability, including automatic adjustments to the contribution rate. Recent discussions within the global actuarial profession have included opinions to the effect that the US Social Security system is unsustainable, and that long-term obligations of social security systems should be measured and reported based on projections over extremely long periods so as to capture the effect of implicit liabilities. These opinions, although subject to challenge, deserve respect and constructive debate. It would seem reasonable to frame the debate in terms of the steps necessary to achieve sustainability and to focus on the degree to which long-term projections are credible or reliable for policy-making purposes. It is essential to understand that by their very nature, social security systems are dynamic, not static, reflecting demographic and economic changes over time.

Expert opinion is widely accepted as critical to inform the debate. But there are also lessons from history and popular culture that offer useful insights that describe the challenge of trying to stabilize social security finances. Winston Churchill observed "It is always wise to look ahead, but difficult to look further than you can see". Yogi Berra noted that "It's difficult to make predictions, especially about the future". Nobel literature laureate Bob Dylan cautioned that "The times, they are a changing". Fleetwood Mac created the image of "Over my head, like a circus wheel, changing all the time". Alice in Wonderland watched the Queen's croquet game and concluded "Just when you get it straightened out, it twists around again". William Shakespeare in Macbeth dramatized the witches' cauldron containing "a charm of powerful trouble, like a hell-broth boil and bubble". All of these images serve to emphasize the dynamic nature of social security systems that cannot be simply measured by a single accounting entry in a nation's statement of accounts. So what would Albert Einstein say if asked to define the nature of social security finance? We speculate that Einstein would think of social security finance as an emerging dynamic-multivariate-stochastic-kinetic-secular physical system operating in time and space with uncertainty and subject to both endogenous and exogenous shocks. A logical question to consider is how meaningful are accounting and actuarial measures of such an ever-changing and uncertain dynamic system. A line in Shakespeare's Hamlet offers some solace and notes that "Though this be madness yet there is method in it".

While poetic license and fantasy may indicate aspects of a creative mind, the real world demands specificity and certainty and so it becomes necessary to heed the demands of accountants for a single number to measure social security liabilities or to respond to the demands of politicians to set a specific contribution rate, fixed for all time, to finance future scheduled social security benefits. Faced with these stark realities, it is essential to communicate the nature of uncertainty associated with such metrics and to present alternative scenarios to indicate the potential range of plausible outcomes. Stochastic projections serve the useful purpose of providing such a range of outcomes with associated measures of probability. A statistical quantity, known as the semi-inter-quartile range, that measures one-half of the difference between the values in a stochastic distribution of a particular measure at the 25th percentile and the 75th percentile, is recommended as a simple indicator of the "plus or minus" likely degree of variation in the reported value. For measures of social security finances that are projected over periods such as 25 years, 50 years, 75 years and even longer, the progression of the semi-inter-quartile range associated with each projection period provides a useful measure of the increasing degree of uncertainty as the projection period is lengthened, indicating the decline of credibility associated with extremely long projection periods.

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