October 11, 2013

Dear Reviewers of the BSR Grant Proposals:

Please consider the following application for the summer 2013 BSR grant at Western Washington University. My current research agenda is to better understand the relationship between government policy and future economic activity. Specifically, for this proposal, I am studying how social security and education policy interact to influence economic activity. As the ‘baby boomers’ retire what will future wages and interest rates look like? How will education investment adjust to a potential increase in social security taxes? How will education and social security influence future generational consumption patterns? These are just a few of the questions I will address.

My past research grants generated two publications. Specifically, my 2007 BSR grant resulted in a working version of my paper titled “Bounded Rationality, Expectations, and Child Labor”, co-authored with Patrick Emerson who is affiliated with Oregon State University. This paper is the lead article in the Canadian Journal of Economics (2013, Issue 46-3)). I am including a copy of this paper in my application for reference. My 2006 BSR grant provided the time and resources necessary to write a working paper about influential observations in data. I rewrote this paper with Hart Hodges, which we titled “‘How Robust is the Relationship between Financial Intermediation and Economic Growth?’” This paper was published in Applied Econometrics and International Development (2010, Vol.10-1).

In support of this application I have attached my curriculum vitae, a description of my research plan, and a copy of my paper. My plan is to publish these papers in top field journals or top general interest journals.

Thank you in advance for considering my proposal,

[Signature]

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Two Papers: (1) The Interaction between Human Capital Accumulation, Social Security Indexation, and the Inter-temporal Elasticity of Substitution in the Presence of Demographic Disturbances (2) Demographic Disturbances and the Intergenerational Social Contract

I. Motivation

The current state of the U.S. public pension system, social security, has been clouded by misinformation and disinformation at all levels of government and in the common press. First, and foremost, is the idea that the current social security system will go bankrupt at some time in the future unless changes are made today to ensure the solvency of the system. This is fundamentally false. The U.S. public pension system is in effect pay-as-you-go (PAYG). This implies that current tax revenue for social security is directly transferred to current retirees. Given this structure, unlike private pension programs, the government always has a guaranteed new set of entrants. Also, unlike private pension programs, the government can change benefits and taxes to cover any potential shortfall. In fact, if the government chooses to reduce benefits in the future rather than raise tax revenue, the current system will still cover approximately 70% of the accrued benefits to future retirees. In short, a government program cannot go bankrupt by its very nature.

What is potentially true is that if the government decides to raise taxes to cover the revenue shortfall, rather than reduce benefits, the tax increase may be viewed as extreme. The Social Security Administration (SSA) projects the cost rate (the tax rate necessary to meet future payout) will increase from 10.6% today to 18.2% by the year 2025 and approximately 27% by the year 2050 under their intermediate cost or “best-guess” scenario. This cost rate projection is important because it approximately equals the tax rate required to meet yearly benefit obligations, excluding the trust fund, and gives us a benchmark measure of the system’s future funding gap.

The potential problem with this forecast is that the SSA’s estimates and projected budget shortfalls are trend-extrapolations and may miss important interactions between current demographics and the economy¹. Never before has a society observed a large cohort followed by a relatively small cohort in the age distribution with a pay-as-you-go public pension system. By treating factor prices (wages and interest rates), human capital, and the saving rate as exogenous, trend-extrapolation forecasts may miss any potential endogenous response of these variables to the changing economic and demographic environment. This paper will attempt to fill this void.

II. Proposed Project(s)

I am working on both papers at the same time because they address similar issues.

The first paper, “The Interaction between Human Capital Accumulation, Social Security Indexation, and the Inter-temporal Elasticity of Substitution in the Presence of Demographic Disturbances”, is a theoretical paper identifying how these three modeling assumptions

¹ Trend-extrapolation forecasting relies on information in past trends alone.
(parameterizations) influence the results from simulation models studying future factor prices (wages, interest rates, etc...), generational consumption patterns, and tax rates. Specifically, I construct a framework that allows me to systematically vary these three parameters (human capital, indexation, and the inter-temporal elasticity of substitution) and then observe how the variables of interest change under the different assumptions.

In this paper I assume that the government’s policy rule, or institutional rule, is to honor social security payments by adjusting the social security tax rate and to honor educational commitments by adjusting the education tax rate in response to demographic disturbances. In effect, I assume the government honors the existing social contract.

This assumption motivates the second paper, “Demographic Disturbances and the Intergenerational Social Contract”. In this paper I assume a specific parameterization for the three parameters (human capital, indexation, and the inter-temporal elasticity of substitution) discussed in the first paper and systematically vary the government’s policy rule. In effect, I analyze how different government policy rules can influence future economic activity. For example: How does a government default on the education component of the social contract impact future generational consumption patterns, factor price movements and, taxes? How about a default on the social security component of the social contract?

Given the complexity of this paper I use computational methods to simulate the economy under the different set of policy rules. The complexity results from the systematic variation of the government’s policy rules with respect to social security and education. The first paper will help identify how the three key parameters may influence the simulation results.

The basic framework I will employ in my study is a stochastic Diamond[1965] style growth model with overlapping generations in which the economy is subject to productivity (paper 2 only) and demographic shocks. In addition, the stylized model will also include the following elements.

First, I will include a social security system that collects tax revenue from current workers to meet the benefit obligations of current retirees. This pay-as-you-go structure is typical of most industrialized countries, as discussed in Auerbach and Kotlikoff[1991]. In addition, I will incorporate an indexation formula for calculating real social security benefits. This indexation method is not present in the previous research, see Murphy and Welch[1998]. This procedure realistically allows a working cohort whose earnings' profile is relatively higher than their predecessors to potentially benefit from any endogenous real wage differential relative to the social security fiscal burden, see Munnell[1999].

Second, I will include an education system that collects tax revenue from current workers to educate the young. The education technology is similar to Glomm and Ravikumar[1998] and Nechyba[2000] which assumes a productive role for education expenditure. The importance of the education system for social security is that it allows for productive investment in education across generations to reduce movements in the effective labor force following demographic shocks.

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2 The real wage differential is the difference between the average earnings across cohorts. As an example consider the baby boom and baby bust cohorts. If the baby bust cohort earns higher real wages relative to the baby boom cohort it is less costly for the bust cohort to support the boom cohort during their retirement years. This is due to real wage indexation stopping at the point of retirement.
III. Potential Impact and Publication

This paper will draw attention to some of the potentially offsetting effects that a dynamic economy produces in response to a decreasing worker-to-retiree ratio. This topic is not only important for the current social security reform debate, but important for any discussion about generational equity and policy. Once the paper is in presentable form I will present it at conferences and other institutions. I have previously presented papers at Cornell, The Federal Reserve Board (Washington D.C), University of California at Santa Barbara, Washington State University, and Williams College, to sight a few. I believe both papers will fit into a top or second tier general interest journal.

I plan on finishing both papers by the end of summer 2014. This research grant will help me achieve this goal.

References


