Fiscal Externalities to Childbearing in Aging Populations

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Abstract

We use National Transfer Accounts to calculate the net present value of a newborn child in the United States, Spain, and other countries. The net present value of lifetime taxes paid minus benefits received tells us from a fiscal standpoint how much a society would be willing to subsidize additional births. Our approach uses partial and general equilibrium models for overlapping generations, taking into account of both the 1st and subsequent generations of newborn children. Our goal is to understand both the order of magnitude of expenditures that might be rational to devote to encouraging more fertility and to understand the implications of population aging on the fiscal value of children.

Overview

When lifetime taxes are higher than lifetime benefits, it makes fiscal sense to recruit new potential taxpayers to a populations. In the proposed paper, we will calculate the net present value of newborns using the National Transfer Accounts created by Lee and Mason. The net present value of a baby tells us from a fiscal view how much societies should be willing to pay for additional births either in the form of transfers to parents or other investments in children.

In aging populations, the tax-paying benefit of additional children is larger because of the larger burden of outstanding implicit debt of pay-as-you-go pension systems. Other factors such as national debt and spending on public goods like defense also influence the fiscal implications of adding new children. Education costs are also important both because they occur early and thus are less subject to discounting and because of their potential to influence future productivity.

Methods

Our approach is to begin with relatively simple partial equilibrium calculations assuming several scenarios of exogenous interest rates. In this set-up, future tax profiles are adjusted so that the transfer system remains in balance as the population ages.

As a next step, we plan to compute general equilibrium overlapping generations models, in which the interest rate, national debt, and other relevant factors are endogenous.

The first part of our research builds on work by Ronald Lee and colleagues for the United States. Our contribution is to replicate this work with NTA-based profiles and to extend the partial equilibrium results to the general equilibrium context. The general equilibirum framework is useful not only for calculating the appropriate interest/discount rate but also for seeing the consequences of analyzing the endogenous interaction between the interest rate and transfer profiles. Our hope is that our methods will be easily applicable to many other NTA countries.

In all of these estimates, it is important to take into account the multi-generational implications of an additional birth. A new member not only provides his or her own tax-paying potential, but also produces children, grand-children, etc. that can pay taxes. With a discount rate of 3 percent

we find it sufficient to consider 3 future generations.

Preliminary Results

We have done preliminary calculations for the net-present-value of pension and public health-care transfers. We provide these for illustration, since we still need to include education costs and public goods, which act in counterbalancing directions, to gain a fuller sense of the fiscal externalities of childbearing. The following results assume a 3 percent discount rate. Considering only the first generation, we find that in the United States, the net present value of pension taxes minus benefits of a newborn in 2010 is about 2-times average labor income of a prime-aged working adult, about \$100,000 in today's dollars. In Spain, the figure is roughly double, or 4-times the prime-aged working adult's income. Taking into account future generations produced by the newborn of 2010 increases the NPV to about 5-times labor income for the United States and nearly 6-times labor income for Spain. Part of the reason that the multigenerational impact of a newborn is nearly the same in the two countries is that the newborn in the United States has more descendents because of higher fertility.

Future Directions

Taking only the pension and public health-care taxes and benefits into account, the NPV of a newborn is clearly positive. It remains to be seen whether this remains the case after education expenses and public good expenditures are included. General equilibrium results will be useful in order to assess the realism of our assumptions on the rate of interest/discounting and also to provide realistic macro-economic constraints to future tax and transfer schedules.

We note that the fiscal externalities are not the only relevant factor when pro-natalist or child-directed spending is being considered. Other relevant dimensions include the direct and opportunity costs of childbearing by parents, environmental and congestion effects of larger populations, and the utility of parents from having children. Still, we believe that fiscal externalities are an important part of the public discussion on family policy and public spending. Using the National Transfer Accounts to make such calculations is potentially valuable.