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Intergenerational policy and the measurement of tax incidence

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ABSTRACT

We evaluate the ability of generational accounting to assess the potential welfare implications of policy reforms. In an intergenerational context policy reforms usually have redistributive, efficiency, and general equilibrium implications. Our analysis shows that when the policy reform implies changes in economic efficiency, generational accounts can be misleading not only about the magnitude of welfare changes, but also about the identity of who wins and who losses. In contrast, the generational accounts correctly identify welfare changes when the policy reform has only a pure intergenerational redistribution component. We illustrate and quantify this issue in the context of widely considered policy reforms (substitution of consumption for labor taxation, and the increase of retirement age) and in a more general context of optimal policy.

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1. Introduction

In most developed economies, the financing of entitlement programs or commitments to the existing generations (i.e., social security and health care) will likely pose very serious fiscal challenges in the near future. Many potential reforms involve substantial changes in economic efficiency and intergenerational redistribution. The magnitude of these fiscal adjustments, the distribution of the tax burden across different cohorts and the welfare implications depend on the specifics of the tax reforms. It is then essential to have reliable estimates of the implications of alternative reforms.[1] A commonly used tool is generational accounting, first described in Auerbach et al. (1991), that measures the distribution of the tax burden across different cohorts (see Kotlikoff, 1992, 2002), for a full description of the methodology), comparing the lifetime tax bills (net of transfers) of present and future cohorts.[2]

This paper evaluates the ability of generational accounting metrics to capture the identity of the cohorts who benefit from or bear the cost of policy reforms. Using data generated by the model provides the perfect laboratory to measure tax incidence. Within the context of a theoretical model in the spirit of Auerbach and Kotlikoff (1987), we argue that when reforms generate large changes in efficiency, the generational accounts do not identify well the identity and magnitude of

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[1] The literature builds on the seminal contribution of Auerbach and Kotlikoff (1987). It is impossible to provide a comprehensive list of references here, see for example Altig et al. (2001), Conesa and Krueger (1999), Conesa et al. (2009), Fuster et al. (2007) or Nishiyama and Smetters (2007).

[2] Gokhale et al. (2000) analyze the U.S. use of the long-term projections of the Congressional Budget Office. The authors calculate the magnitudes of adjustment through alternative policies that could solve future imbalances. Other applications include a switch from income to consumption taxation (as in Altig et al., 2001) or Social Security privatization (as in Kotlikoff et al., 2001), and a cross country analysis (as in Kotlikoff and Raffelhueschen, 1991).

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welfare changes. We proceed by computing the dynamic response of our model economy to a given reform, take the model generated data and compute the generational accounts on the artificial data. The evaluation stage compares the performance of the model generational accounts with the model quantitative predictions about welfare changes for different cohorts.

Of course, this way of proceeding assumes exact knowledge of the general equilibrium effects and the behavioral responses to policies when computing the generational accounts. This might be the case when evaluating policies ex-post (once their implications are observed, if at all possible), but this is for sure not possible when trying to evaluate the potential impact of policies not yet implemented. Still we show that, even if we had all the correct information available in terms of behavioral responses and price implications, generational accounts might generate a misleading picture of the welfare implications of policies. The reason is that policies often imply changes in economic efficiency that for some cohorts would result in simultaneous increase in welfare and a larger tax burden.

To compare the generational accounts and welfare we use the following criteria. We will argue that the generational accounts capture the sign and magnitude of welfare changes if, whenever generational accounting determines that a particular cohort will pay $X\%$ more taxes over its life-cycle (as a share of lifetime income), we observe that for that particular cohort there is a decrease in welfare roughly equivalent to an $X\%$ decrease in consumption over its life-cycle (as a share of lifetime income).

In our model economy, we consider first two specific reforms that have been widely discussed in the actual policy debate. The first reform is a switch from income to consumption taxation, as has been often discussed in the literature (see for example Altig et al., 2001). The second reform eliminates restrictions on labor market participation for individuals collecting social security benefits (i.e., the type of reforms that were implemented in the US in the late nineties). Within the context of our model economy, this second reform can also be interpreted as a delay in retirement age. We show that in the first reform (increasing consumption taxes and decreasing labor income taxes) the intergenerational redistribution component dominates, and then the generational accounts do a very good job of identifying the identity and magnitude of welfare changes. In contrast, in the second reform (allowing for people to work after age 65) efficiency considerations dominate, and we show that generational accounts do not perform well in identifying welfare changes.

Based on these results, we perform an additional experiment based on the optimal fiscal policy approach in overlapping generations economies of Erosa and Gervais (2002) and Garriga (1999). As in Conesa and Garriga (2008a), Conesa and Garriga (2008b), we solve for the optimal fiscal policy given an explicit target of intergenerational redistribution of welfare changes. This analysis helps to clarify the distinction between efficiency considerations and intergenerational redistribution. The reason is that this exercise brings the economy to the constrained Pareto frontier (thus maximizing constrained efficiency), while allowing for the explicit comparison of different points along that frontier (intergenerational redistribution). While the explicit policies that solve this programming problem might not be policies that are under consideration, we still believe the exercise is useful because of its ability to cleanly decompose the impact of reforms between their efficiency and redistributive components. In addition, it provides evidence that our conclusions are not an artifact of the specific policy reforms considered. Indeed, our exercise confirms the main insight from the evaluation of our two exogenous reforms: Generational accounting performs very well when comparing policies that imply different points along the constrained Pareto frontier, while it performs very poorly in evaluating policies that bring the economy from an interior point to the frontier.

Both our exogenous reforms and the optimal policy exercise highlight the main mechanism behind our quantitative results. Increasing efficiency, bringing the economy to the constrained Pareto frontier (in the case of optimal reforms) or closer to it (in the case of exogenous reforms), is mostly the result of changes in the age-profile of hours worked and consumption. When evaluating these types of reforms generational accounts are in general misleading, since welfare changes and the magnitude of the change in the net present value of consumption are very different objects. In contrast, redistributive reforms in general increase the age-profile of consumption of some cohorts at the expense of others. In that second case, generational accounts capture the change in the net present value of consumption and give an accurate picture of welfare changes of the reform.

The rest of the paper is organized as follows. Section 2 summarizes the methodology of generational accounting. Section 3 describes the benchmark model used in the analysis. Sections 4 and 5 consider various exogenous and endogenous tax policy reforms. Section 6 concludes.

2. The methodology of generational accounting

The generational accounting methodology was developed by Auerbach et al. (1991) with the objective of measuring the generational incidence of tax policy independent of fiscal taxonomy labels (see Kotlikoff, 1992, Kotlikoff, 2002) for a full description of the methodology). The approach compares the lifetime net tax bills of present and future cohorts, and it also measures the change in the generational accounts implied by changes in fiscal policy. All these different tax burden measures can be compared independently of how fiscal deficits are calculated. An important aspect of the methodology is the evolution of population demographics in the government budget constraint and the measurement of generational imbalances. The ultimate goal is to prescribe tax policies that could correct any imbalance, so all generations bear a similar