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Social security and endogenous fertility: pensions and child allowances as siamese twins

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Abstract

This paper analyses public pensions and child support in a model with endogenous fertility. We show that the individual fertility choice may not coincide with the social optimum, due to the existence of external effects of children on society as a whole. The market outcome without government intervention is efficient, however, as the externalities exactly cancel out in that case. If the government wants to redistribute towards the old, it cannot replicate the command optimum by merely applying lump-sum transfers, but rather needs a child allowance scheme to effectively alter the number of offspring. Finally, we analyse whether a Pareto-improving social security reform is possible. It is shown that merely reducing the PAYG-scheme cannot be Pareto-improving, but the introduction of a child allowance scheme can be.

Keywords: Ageing; Child allowances; Endogenous fertility; Overlapping generations; Pensions; Social security reform

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1. Introduction

As many societies will experience an ageing population in the near future,

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[†]The second author, Theo Leers, suddenly died on September 4, 2001. We remember him as an excellent researcher and a very fine friend.

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concerns about the feasibility of current pension and health care arrangements are growing. This demographic shift is caused both by a decrease in the number of children and increasing longevity. As to the first aspect, a lower rate of fertility seems to be the result of a choice that individuals make, viz. how many children to have. This endogeneity of fertility has important implications for the economy, and can therefore significantly affect the results of analyses concerning for instance social security reform. This paper analyses the effects of social security arrangements in a society where fertility is endogenous, and looks at the role the government can play in improving welfare. It is organised as follows. Section 2 pictures some recent demographic trends and population prospects, and dwells on the explanation of the fertility rate from an economic perspective. Section 3 presents the basic model. We will consider a small open economy where individuals derive utility from material consumption and raising their children. Section 4 describes the command optimum for this economy. As was argued in Cigno (1993), we find that there are two opposite externalities of children involved. Firstly, an additional child implies a higher future output, and secondly, it reduces the capital–labour ratio (or per capita debt in a small open economy). Parents who do not take these externalities into account are likely to give birth to a (socially) suboptimal number of children. We show, however, that the market solution without any form of government intervention is Pareto-efficient as both externalities then exactly cancel out. But if the government redistributes between generations, the command optimum cannot be replicated by merely applying lump-sum transfers. Rather, an additional instrument is required that induces substitution effects so as to effectively alter the number of children chosen by households. In particular, if the government redistributes from the young to the old, children on balance involve a positive externality and a system of child allowances in addition to the transfer scheme makes the achievement of the first-best outcome possible. We show this for the specific case of pay-as-you-go (PAYG) transfers, but this conclusion can readily be generalised to all other types of intergenerational redistribution. An international comparison of generational accounts (Kotlikoff and Leibfritz, 1998) shows that many countries do indeed transfer large amounts of resources from the yet unborn to current generations.[1] If, however, resources are transferred in the opposite direction, i.e. from the old to the young, the net external effect of offspring is negative and a tax per child is necessary to achieve Pareto-efficiency. A similar conclusion is drawn by Harford (1998), where children entail a (negative) pollution externality created by their consumption of particular commodities in the future.

Section 5 analyses whether social security reforms can be implemented in a

[1]Some examples are the United States, Japan, Italy, and Germany.