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## A CASE FOR SUBSIDIZING CHILD-REARING?

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**Abstract:** A case can be made for the temporary subsidization of child-rearing in countries with aging populations and a historical commitment to PAYG (pay as you go) methods of financing welfare programs. Recently, however, Yew-kwang Ng has argued that, even in an otherwise perfectly functioning competitive economy, the rate of population growth may be suboptimal and in need of artificial stimulation. It is here suggested that Ng's proposition, already well-received, rests on debatable assumptions and that if those assumptions are abandoned then so must be the proposition, at least in its present form.

**Key words:** representative agents, child rearing, optimality.

**JEL numbers:** D60, D62, F22, H23.

### 1. INTRODUCTION

In many wealthy 'welfare states' birth rates are falling, life expectancies are rising and the population is greying, that is, the ratio of retirees to workers is growing. Most of those states rely on PAYG (pay as you go) methods of financing their welfare programs, so that an increasing tax burden falls on those still working. Hence the governments of those states have been driven to consider corrective measures, including the subsidization of child-rearing. In Europe, France, and in Asia, Singapore and Korea have already embarked on programs of this sort.

Given the past and continuing reliance on PAYG financial measures, the subsidization of child-rearing makes some sense, at least as a temporary policy. However, PAYG measures can be reversed (with some pain to transitional generations), and, once those measures are reversed, the case for the continuing subsidization of child-rearing disappears. That is, the subsidies are temporarily validated by past policy errors.

*Dedication.* It gives me great pleasure to offer this short paper to my good friend Michihiro Ohyama as he begins another lap of a remarkable career.

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Yet it is precisely this conclusion that has been denied by Yew-kwang Ng who, in a highly stimulating and policy-relevant paper [Ng (2002)] has argued that, in an otherwise perfectly functioning competitive economy, without conventional production or consumption externalities, ignorance or irrationality, the rate of population growth may be suboptimal and therefore in need of artificial stimulation. Already his proposition has been accepted by considerable authorities.<sup>1</sup> Evidently his argument deserves a close examination.

My purpose in the present essay is to provide such an examination. It will be noted that Ng's argument rests on the hidden assumption that a population of representative agents will play a repetitive and non-cooperative game without ever recognizing that they are representative. It will be argued that the assumption is implausible, and it will be shown that, without that assumption, there is no case for subsidies in Ng's well-functioning economy.

## 2. ANALYSIS

Ng's analysis rests on three special assumptions.

- (a) The economy is static; that is, adjustments through time are absent.
- (b) All families are identical, both in their preferences and in their endowments (including their endowments of information).
- (c) In choosing their family size, each pair of parents takes as given the number of children in other families.

Taking these assumptions to be mutually compatible, Ng is able to demonstrate that the decision of any pair of parents increases the work force, raises the productivity of the collectivity of all pre-existing factors, and thus creates a positive externality accruing to other families. The existence of this externality justifies the subsidization of child-rearing.

However, it is implausible to suppose that a repetitive game can be played by identical households without ever suspecting that they are identical. It seems more reasonable to assume at the outset of the analysis that each household is aware that all households are identical. However, if that is done, we must recall a result of Kemp and Shimomura (1995): Identical households which know that they are identical will understand that, behaving non-cooperatively, all households will make the same choices and therefore will further understand the advantage of cooperating to make choices which, in the aggregate, are socially optimal. That is, identical households, aware that they are identical, will not behave in the manner indicated by assumption (c).

Evidently the key step in this counter argument is the last, that is, the Kemp-Shimomura step from the recognition by the families that they are identical, to their socially optimal cooperative behaviour. Ng is aware that assumption (c) is crucial in his

<sup>1</sup> See, for example, the review of Ng (2002) by Peter Lloyd in *The Economic Record* 79, 387-388.

analysis and suggests that to deny the assumption is to “commit the fallacy of attribution” [Ng (2002) p.60]. That fallacy is defined by Ng in an earlier paper, also purely static, on the subject of representative firms [Ng (1982) p.122]:

... one has to be very careful in the use of the representative firm construction. On the one hand, one has to avoid the fallacy of composition. For example, each single firm may be able to expand output without affecting its marginal cost: this does not imply that all of them can do so simultaneously. On the other hand, one has to avoid the reverse fallacy, which may be called the fallacy of attribution. If a representative firm (which may not actually exist) knows that it is representative (in a model of  $N$  identical firms, each may know precisely that), it knows that, if it charges a price according to its own profit maximising calculation, it will turn out to equal the average price. Nevertheless, it cannot then assume that, whatever price it charges, the average price will be equal to it. This would be the case only if there is complete implicit collusion. In the absence of collusion, each firm has to maximise with respect only to the variable under its control. It is a fallacy to attribute what all firms can do together to a single (even if representative) firm.

It is apparent from the last three sentences of this passage that, in 1982 and presumably in 2002 also, Ng was prepared to accept the possibility that identical firms will understand that they are identical and make the same choices but is nevertheless unable to accept the further possibility that the firms will make choices which, in the aggregate, are socially optimal. That Shimomura and I are prepared to accept that further possibility renders us guilty of Ng’s fallacy of attribution. We are happy to accept that status.<sup>2</sup>

### 3. A FINAL REMARK

The assumption of representative agents usually simplifies analysis. For that reason it is a very popular assumption. For example, the assumption underlies all major contributions to the theory of endogenous growth and to the Ramsey–Pigou–Samuelson theory of commodity tax incidence. However, the assumption can be justified only by coupling it with the further assumption that representative agents are completely unaware of their status.

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<sup>2</sup> In Kemp and Shimomura (1995) the authors took the position that, in addressing policy issues, only information incorporated in a formal model should be used—and may be used to the limit. Any other information should be excluded until it has been embodied in the model.