

# Growth Effects of Government Expenditure and Taxation in Rich Countries: A Reply

by

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January 2006

*JEL* Classification: E62; H20; H50; O23; O40.

*Keywords:* Economic growth; Extreme bounds analysis; Fiscal Policy; Government expenditure; Public sector; Taxation; Cross-country regressions; Robustness test.

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Jonas Agell, Henry Ohlsson and Peter Skogman Thoursie [AOT] (2005) comment on our paper “Growth effects of government expenditure and taxation in rich countries” published by the *EER* (Fölster and Henrekson [FH] 2001). AOT are critical of our work for not taking account of simultaneity in cross-country regressions of the relationship between growth and government expenditure. But in the FH paper it is clearly acknowledged that simultaneity is not addressed.<sup>1</sup> AOT create the impression that FH claim to have proved a causal effect. In fact, the FH paper consistently uses the terms correlation, relationship or association to describe the link between public expenditure and GDP growth found in the regressions.

In most of the empirical growth literature simultaneity is not addressed because no good instruments are available. AOT seem to admit this.<sup>2</sup> Since meaningful simultaneous regressions remain elusive, however, it is of interest whether positive or negative correlations can be established. Different economic theories (that we discuss in our original paper<sup>3</sup>) make different predictions about the correlation between government spending and economic growth. Establishing whether such a relationship exists therefore helps to select among theories.

We reject AOT’s critique for the following reasons. First, AOT focus on a single regression using a sample of OECD-countries. This is already shown in the FH paper to render rather weak correlations. The sample of OECD-countries as such is likely to suffer from a selection problem, since the OECD has tended to allow countries to join that combine good economic performance and a western democratic system, which has often gone hand in hand with a relatively larger public expenditure share. The main contribution in the FH paper is to show that the correlation between government expenditure and growth appears significantly stronger when analysed with extreme bounds analysis, and when an extended sample of rich countries is used instead of the usual group (of 24) OECD countries.<sup>4</sup> AOT totally ignore our strongest empirical evidence.

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<sup>1</sup> See e.g. on p.1511: “In sum there are serious issues of endogeneity... Our compromise hardly settles this issue.” It should also be noted that AOT’s description of a TSLS regression in FH is simply false. It is made clear in the FH paper that the single TSLS regression reported does not serve to control for simultaneity in general, but merely to shed light on whether business cycles play an important role in the estimated relationships. That is also the motivation for using potential GDP rather than actual GDP in that particular regression.

<sup>2</sup> “Obviously, table 1 is no proof that the size of the public sector is of no consequence for the economic growth rate.” (AOT, p. x).

<sup>3</sup> See also the discussion in Fölster and Henrekson (1999).

<sup>4</sup> This extended sample is unlikely to be biased. Additional countries were selected that had a high GDP level in 1995. The dependent variable in the regressions, on the other hand, is GDP growth over a five-year period, which is quite a different matter. The choice of additional countries is also wholly independent of the size of their respective public sectors.

Second, AOT use extremely weak instruments for current government expenditures (and taxes). They are weak in a statistical sense, since the partial correlation between the instruments and the tax and expenditure shares is low. This fact is shown by AOT's own  $F$ -statistic in their Table 1. The chosen instruments are also weak theoretically. Changes in government expenditure levels are instrumented by changes in government expenditure ten years earlier, a choice with little foundation in economic theory.

Third, a theoretically correct treatment of simultaneity would take account of the fact that investment and labor supply are endogenously determined. As long as the analysis concerns correlations, as in FH and most of the literature, it may appear reasonable to ask what correlation there is above and beyond the effect of taxes on investment and labor supply. AOT, however, claim to address simultaneity, but then only do so selectively.

Fourth, AOT's choice of instruments implies that the number of degrees of freedom is reduced by 40 percent. The second-stage regression is run on three time periods instead of five. AOT could have partially compensated for this by adding another time period from 1995–2000, which has become available since the FH study was conducted in 1997–98. However, AOT choose not to follow this route.

Fifth, AOT report results of their TSLS regressions only for *one* arbitrarily chosen set of control variables. As shown in FH using an extreme bounds analysis that shows estimates for a wide range of combinations of control variables makes a huge difference.

In sum, the AOT paper gives the impression of controlling for simultaneity but actually fails to do so. Meaningful simultaneous regressions of the relation between government expenditure and growth do not yet seem possible. In the meantime analysing correlations does provide relevant information that should not be discarded.

### *References*

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