GROWTH ACCOUNTING AND EXTERNALITIES*

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ABSTRACT

We reexamine the aggregate data on the growth of output, labor and capital, within the context of an explicit model that admits the possibility of an externality to the capital input. We consider three separate sources of evidence. Looking first at the annual post-war U.S. data, we find no evidence of the presence of increasing returns to scale in the aggregate production function, or of a large positive externality on the capital input, and this agrees with the findings of most others who looked at the micro data on R&D expenditures. Second, like Romer, we also use the model to interpret the behavior of output and inputs over longer periods of time. Here too, our conclusions differ from Romer's, because we find that the simultaneity problems caused by the correlation between the inputs and the production function disturbance do not go away when one takes long-run averages of growth rates. Finally, we show that the apparent empirical validity of "Gibrat's Law" in the behavior of different countries' GNP series is also consistent with there being no externalities or increasing returns associated with either the capital or the labor input. The puzzle that the macro data present us with, then, is not that externalities are very large. The puzzle seems instead to be that to understand long run movements in aggregates, we need not appeal to externalities at all.

* We thank the C.V. Starr for Applied Economics for financial and technical assistance, Francesco Goletti for research assistance, Larry Christiano, and Ned Nadiri for helpful comments.