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Standard analyses of fiscal policy assume that government bonds are net wealth or, equivalently, that the value of the bonds exceeds the capitalized stream of anticipated future taxes. Bonds are not net wealth—and hence, the usual fiscal policies are irrelevant—if current and future generations are connected by private intergenerational transfers (from old to young or young to old). Similar results apply to social security programs. The policy irrelevance result may still hold if private credit markets are imperfect and if future taxes are uncertain. [The *SCI®* and the *SSCI®* indicate that this paper has been cited in more than 540 publications.]

Ricardian Equivalence

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The phrase, "Ricardian equivalence," has become well known among scholars in macroeconomics and public finance. It refers to a situation in which taxation and government borrowing have the same effects on the economy. The equivalence can arise because government borrowing tends to increase future taxes (to pay interest and principal on the public debt) and, as long as the present value is the same, people may react to anticipated future taxes just as they do to current taxes. To put it another way, a reduction in the government's saving due to a current budget deficit may induce the private sector to save correspondingly more. The total of national saving is then invariant to the government's borrowing.

The equivalence result is described as Ricardian because the British economist David Ricardo expressed some of these ideas in his writings from the early 1800s.[1] (Ricardo then went on to indicate his own doubts that people were rational enough to behave in a Ricardian manner.) In 1974, the Ricardian notion was unfamiliar to most economists and was, in fact, unknown to me. Thus, when I derived the Ricardian equivalence result in my 1974 paper, I did not cite Ricardo's contribution. This error was corrected in a comment in the *Journal of Political Economy* by James Buchanan in 1976.[2] Soon thereafter, the term, Ricardian equivalence—and, more importantly, the ideas behind this equivalence—became standard material for researchers and students of macroeconomics and related fields.

At a substantive level, my 1974 contribution showed that Ricardian equivalence holds under fairly general terms. It can work even though people have finite lifetimes as long as parents are linked altruistically to their children (through intergenerational transfers between parents and children). It may also hold if credit markets are imperfect and if future taxes and incomes are uncertain. Moreover, if strict Ricardian equivalence fails, then the results do not necessarily resemble those implied by the previously standard analyses of fiscal policy (which argued that budget deficits raised interest rates and crowded out investment).

The Ricardian Equivalence Theorem is now something of a benchmark model for government finance, more or less in the way that the Modigliani-Miller Theorem[3] (that the choice of debt versus equity finance does not matter for a corporation) is the benchmark model for corporate finance. Each theorem does not hold literally, but the elements of truth in the theorems force theoretical and empirical analyses into disciplined, productive modes. In particular, satisfactory analyses of fiscal policies require explicit modeling of elements that lead to departures from Ricardian equivalence, and the predicted consequences of these policies flow directly from these elements.

1. **Ricardo D.** Funding system. (Sraffa P, ed.) *The works and correspondence of David Ricardo, volume FV. Pamphlets and papers. 1815-1823.* Cambridge. England: Cambridge University Press, 1951. (Cited 175 times.)
2. **Buchanan J M.** Barro on the Ricardian Equivalence Theorem. *J. Polit. Econ.* 84:337-42, 1976. (Cited 35 times.)
3. Modigliani F & **Miller M H.** The cost of capital, corporation finance, and the theory of investment. *Amer. Econ. Rev.* 48:261-97, 1958. (Cited 615 times.)