What is "Ricardian Equivalence" and when can it fail?

Principles of Macroeconomics (ECO-2A05)

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Introduction

This essay will explain the economic theory of Ricardian Equivalence as speculated by David Ricardo (*Essay on the Funding System*, 1820) and further theorised by Robert J. Barro (*Are Government Bonds Net Wealth?,* 1974), in addition to analysing three potential failings of the theory; the issue of intergenerational linkages, the presence of imperfect capital markets and the rationality of consumers.

Ricardian Equivalence

The Ricardian view proposes that the substitution of a budget deficit for current taxes, or an alternative temporal arrangement, has an equal effect on aggregate demand. Thus, the two are 'equivalent'. (Barro, 1989: 4). A decrease in taxation by the government incurs a budget deficit with a future tax implication. Rational consumers recognise that these future taxes 'have a present value equal to the incurred debt' (Seater, 1993: 142). They therefore see through the 'intertemporal veil' (Bernheim, 1987: 265), saving additional disposable income to pay the future taxes rather than raising their consumption – an action equivalent to paying current taxes. The rise in private saving exactly offsets the fall in public saving (Mankiw 2012), and therefore aggregate demand remains unchanged. Summarily, government debt is not perceived as net wealth by rational and forward looking households (Barro, 1974).

Ricardian Equivalence implies debt-financed fiscal policy would not raise aggregate demand, therefore having no short run effects on employment and output. However where policy is appropriately financed consumers will perceive no future tax implications and experience a net wealth effect. (Bernheim, 1987) (Mankiw, 2012).

For Ricardian Equivalence to hold, Bernheim (1988) cites various underlying assumptions. Three of the most criticised include altruistically motivated intergenerational linkages, the presence of perfect capital markets (no borrowing constraints) and the rationality and far-

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sightedness of consumers. The plausibility and 'failure' of each assumption will be considered in turn.

Intergenerational Linkages

In an overlapping generations two-period lifespan model of the economy, as presented by Samuelson (1958), agents would experience a net wealth effect from a deficit-financed tax decrease. Agents would be aware that the future tax liability would be borne by future generations, allowing individuals to utilise the additional disposable income without redemption (caring only about their own utility). Therefore Ricardian Equivalence is necessitated by intergenerational altruism, where 'households act as though infinitely lived' (Barro, 1974: 1116). This indicates that individuals would save the additional disposable income and bequeath it to their children in order to cover the future tax liability of the current debt. (Seater, 1993). However, the implausibility of this assumption highlights it as a potential failure of Ricardian Equivalence.

Firstly, Feldstein (1976) discusses the nature of intergenerational transfers, summarising that they are not only represented by bequests. The next generation has consumption as children and investment in human capital (i.e education) supported by the current generation; this represents a transfer of the deficit-financed disposable income. Feldstein states that this does not however represent a real capital transfer. While such transfers may better prepare the next generation for paying the tax liability that they will bear, it clearly does not induce an exact offsetting. Further to this, we can consider if altruism is the motive behind the bequest transfer; where parents may attempt to influence the decisions and behaviour of their children using the executable threat of disinheritance; potentially reducing the offset (Berheim, Shleifer and Summers, 1985). Indeed, realistically a substantial minority of the population will receive no bequeaths at all; while Tobin (1980) suggested that childless families will also transfer none of their additional disposable income to the next generation, meaning the intergenerational offset proposed by Barro (1974) would be significantly unbalanced.

Barro (1989) counters some criticisms, listing them as second order effects[1] which are also unsupportive of standard theory. He states that intergenerational transfers are best described by altruism as they show parents care about their children's welfare, simply on different levels. He also argues the quantitative insignificance of increased consumption from childless families. Nevertheless, akin to the majority of evidence, Barro concedes

[1] Pertaining to an effect yielded by an original effect – a by product of the models' original implications. In this instance it is argued that they the make Ricardian Equivalence no less of a good approximation. In the opinion of the author, an effect being second order does not invalidate its implications for the accuracy of a model, more so when a number exist.

eventualities whereby the assumption of intergenerational altruism causes Ricardian Equivalence to fail.

Perfect Capital Markets

The Ricardian Equivalence model initially assumes 'no elements of capital market imperfections' (Barro, 1974: 1097). Therefore agents will face no borrowing constraints and will base current consumption on lifetime expected income. Buiter and Tobin (1981) state that realistically, financial markets do not offer unlimited opportunities for constrained households to consume future income through borrowing. Some proportion of individuals will be liquidity constrained. One example of a constraint is 'credit rationing'; where borrowers are withheld loans even when willing pay above the market rate (Stiglitz and Weiss, 1981).

For individuals with binding borrowing constraints, consumption depends only on current income rather than the present value of lifetime income (Mankiw, 2012). In turn, both Heller and Starr (1979) and Buiter and Tobin (1981) find that for constrained households, a deficit-financed tax cut represents an advantageous opportunity to borrow against future income; something previously not offered by private capital markets. The government is granting them a loan at its borrowing rate of interest, increasing the liquidity of their lifetime income. These households would raise consumption (no longer just based on current income) with the additional disposable income, which would then be reduced by an equivalent amount in the next period. Therefore fiscal policy has a net wealth effect 'even when the future tax implications are perfectly foreseen' (Heller and Starr, 1979: 462). King (1983) summarises that across various data twenty to twenty five per cent of people may not be consuming or saving optimally due to borrowing constraints, indicating the wealth effect would be significant. They would raise consumption despite a future tax burden. This is compelling and represents a failure of Ricardian Equivalence.

Consumer Rationality

Ricardian Equivalence assumes consumer rationality as in line with the rational expectations hypothesis (hereafter REH), outlined under a macroeconomic setting by Lucas (1972). Agents' expectations surrounding future economically related variables are on average correct, with errors random and not systematic**.** This indicates that the consumer has an ability to fully anticipate the future tax implication of a deficit financed tax cut. The controversy over rational expectations raises questions over its plausibility as an assumption.

Ricardo (1820) criticised his own theory by stating that 'the people who pay the taxes never so estimate them, and therefore do not manage their private affairs accordingly', signalling his doubt that consumers could act in a far sighted, predictive nature as REH suggests.

Feldstein (1976) further labels the needed anticipations as too complex. He argues households would need to understand the effect of reduced saving on taxes and future wages, alongside the financing needs of the future social security program and the deficit. With these, accurate bequest adjustments would be necessary eliminate fluctuations in future tax liabilities. Overall, this seems unlikely. Boskin (1998) deems REH to be a very strong assumption, intuitively not reflective of at least some of the population. Households may instead suffer from myopia and see a deficit-financed tax cut as an increase in lifetime income (Mankiw, 2012). Mankiw and Campbell (1991) found significant evidence that a proportion of consumers have 'static' expectations (myopic and consuming from 'hand to mouth', dissimilar to REH); a figure of roughly '25 and 40 percent in Western nations' (Sorensen and Whitta-Jacobsen, 2010: 651). This supports the idea that not all consumers act in a rational and far sighted way. It seems a rise in disposable income from a deficit-financed tax cut would have a net wealth effect for some at least; leading to the failure of Ricardian Equivalence.

Counter criticisms exist surrounding the rational expectations assumption within Ricardian Equivalence. Barro (1976) points out that it is difficult to find a substitute for REH on which to form a basis for creating economic models. Seater (1993) further questions the type of 'intellectually satisfying' theory exists to explain exhibited behaviour. However criticisms of an arguably flawed assumption will still reflect on Ricardian Equivalence itself, even if other neo-classical models utilise it. Chow (2011) illustrates this, arguing that imposing REH as an incorrect assumption on otherwise correct models produces unreasonable conclusions. He suggests the traditional adaptive expectations hypothesis is a viable alternative; where consumers make future predictions based on past experiences. Clearly, without a unified set of behavioural assumptions existing among economists, models will always be subject to such criticisms. However there are convincing arguments which see Ricardian Equivalence fail if consumers do not behave as under REH.

Conclusion

Ricardian equivalence is the concept that a deficit-financed tax cut are treated as equivalent to current taxes by rational consumers – the additional disposable income simply saved to pay the created future tax implication.

This is based on several implausible assumptions, which realistically lead to failures of the equivalence. Intergenerational linkages do not always see real capital transfers between generations, due to the costs of human capital for instance. Observed also is that some individuals have no children, and some parents leave no bequests – seeing a net wealth effect for those individuals as the tax cut is spent. Perfect capital markets do not exist in real life, and consumers may see a net wealth effect is they can borrow against future income with a tax cut, where previously constrained to only current income by private capital

markets. Lastly, the rational expectations hypothesis provides a controversial basis for the Ricardian Equivalence model as a whole, being by no means an unchallenged theory of consumer behaviour. While several counter arguments exist, the weight of evidence means all three assumptions represent situations of total or specific failure.

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