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BOOK REVIEW**The fiscal theory of the price level**

By John H Cochrane. Princeton University Press. 2023. 584 pp. £84.00 (hbk). ISBN: 978-0691242248. £67.20 (ebk). ISBN: 978-0691243245

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Macroeconomists have long struggled to explain what makes fiat money valuable. Is it just another commodity, one that provides liquidity services, or perhaps an asset that only has value as long as the sequence of transactions it facilitates lasts for ever (in $t + 1$ we trust)? To my mind, it is the fact that people are required to pay taxes, and that those taxes must be paid in the country's own currency, that offers the best answer. First expressed by the Chartalist School in the early twentieth century, this explanation serves as the starting point for two very different theories: modern monetary theory and the fiscal theory of the price level. For the former, this understanding of fiat money is little more than a rhetorical device, deployed to justify the sophomoric theory that central banks can finance nearly unlimited public spending with little constraint. For the latter it forms the basis of the most important book on monetary economics since Woodford's *Interest and Prices*, published two decades ago (Princeton University Press, 2003).

The theory in the new book by John Cochrane, Senior Fellow at the Hoover Institution, rests on two principles. First, the government budget constraint is best understood as a valuation equation, where the value of non-indexed nominal public debt is analogous to corporate equity, here equal to the discounted stream of future primary surpluses rather than dividends. The overall price level adjusts in response to news that might change the size of future surpluses or the rate at which they are discounted, just as equity prices adjust to expected changes to either discount rates or future dividends. Second, money and government bonds are best regarded as close substitutes. The maturity structure of government liabilities is a continuum with money at one extreme, consols at the other, and bonds with maturity dates between zero and infinity falling in between. Friedman-style helicopter drops of money still

generate inflation, but so too do helicopter drops of gilts. Inflation is not a monetary phenomenon but rather a government liability phenomenon.

Central banks long ago ceased targeting monetary aggregates. Rather, they choose interest rates, so this is the instrument Cochrane focuses upon. This is one feature his theory shares with the paradigmatic New Keynesian models laid out by Woodford in *Interest and Prices*, which guide most current central bank thinking.

To understand the theoretical contribution here, it is useful to consider the New Keynesian framework that Cochrane's work partly augments and partly supplants. What distinguishes New Keynesian models from other models with rational forward-looking agents is that firms are not assumed to be perfect price takers, but rather have a degree of market power. At the same time, these firms can alter the prices they set only intermittently. Combined, these two features mean that changes in the overall price level have real effects on output, employment and consumption.

Given that Cochrane perceives his theory as very much in keeping with the traditions of the Chicago School (where he once taught), readers may be surprised that there is not much explicit criticism of either of these assumptions. In fact, he demonstrates that they can be profitably incorporated into his own model to generate more realistic dynamics. Instead, the focus is on two, more subtle, related problems which his theory resolves.

Inflation may have real effects, but New Keynesian models allow for potentially an infinite number of not only inflation rates, but levels of output consistent with equilibria (see T. Lubik and F. Schorfheide, F., 'Testing for indeterminacy: An application to US monetary policy', *American Economic Review*, 94, [2004], pp.190–217). To overcome this problem of indeterminacy, monetary policy is assumed to dominate fiscal policy. When necessary, the technocrats working in the central bank raise interest rates to achieve a particular inflation target, and democratically elected politicians then dutifully raise taxes or lower spending to accommodate the fiscal implications of these higher rates. One need hardly be a political scientist or historian to see the long-term unsustainability of such an arrangement. Yet this is the main channel through which monetary policy reduces aggregate demand.

Moreover, New Keynesian models assume these same technocrats perform their jobs by mechanically setting interest rates according to a Taylor Rule, no matter where that might lead. Setting the parameters of this rule so that a deviation in inflation generates a more than one-to-one increase in interest rates appears to solve the aforementioned indeterminacy problem – the model has a dynamic structure with a unique set of equilibria that converge to a stable rate of inflation (mathematically, the model is saddle-path stable). The problem is that,

whereas in models with only real variables we can appeal to economic theory (transversality conditions and no Ponzi schemes) to rule out divergent paths, there is no analogous theory we can call upon to rule out potential equilibria that correspond to unstable, indeed disinflationary or hyperinflationary, price dynamics. Cochrane refers to this as a problem of ‘equilibrium selection’. That is, following a shock, we assume the new rate of inflation will be the only one that does not prompt central bankers to then robotically apply the Taylor principle in a way that either disinflates or hyperinflates the economy for ever, or in his words “blows up the world” (p. 381, 385-387). It should be noted that monetarist models suffer similar problems of indeterminacy if money is interest-rate elastic (chapter 19). By contrast, in Cochrane’s model the valuation formula yields determinate price levels without any need for an additional equilibrium selection device.

What does all this imply for central bankers? Given a time sequence of future surpluses, no amount of monetary alchemy can significantly alter the long-term trajectory of prices. In the short term, central bank open market operations and quantitative easing reshape the term structure for the yields on government liabilities (inclusive of the monetary base). The value formula determines how subsequent changes in the value of those liabilities are matched by short-term changes in the real discount factor through inflation. Altering the maturity structure of publicly held government debt can shift inflation across time, but in the long run monetary policy cannot change real rates of return, and the Fisher equation implies a direct, rather than inverse, relationship between interest rates and inflation. Incorporating more realistic maturity structures for government debt into our models turns out to be important. If all government debt were, as macroeconomic models often assume, composed solely of risk-free one-period bonds, increases in interest rates would not generate even a temporary dip in inflation.

The material in this book is the culmination of years of careful research. Absorbing the lessons contained in the hundreds of equations across the 25 chapters requires a significant investment in time and effort. Is it worth it? Yes. Consider just one example: how poorly most macroeconomic models treat the relationship between changes in unfunded liabilities and current economic performance.

Suppose the government were to announce tomorrow that, in recognition of our superior moral character, it would reward all of us born in the 1960s – and only us – with a (well-deserved) quadrupling of our future state pensions. No new taxes need be immediately collected, nor will the government need to borrow more this year, since the first of our cohort reaches the official retirement age of 66 only on 1 January 2026. New Keynesian models, with their built-in assumptions of monetary dominance, are ill-suited to analyse the likely impact of

spending hundreds of billions more on pensions annually starting in less than just three years' time. By contrast, under the fiscal theory of the price level, this policy, with its intimation of lower future surpluses, translates into higher inflation immediately upon its announcement. According to Z. Jiang ('Fiscal cyclicalities and currency risk premia', *Review of Financial Studies*, 35 [2022], pp. 1527–52), fiscal theory also implies a fall in the pound. Oh well.

As my simple example suggests, this work is not just about predicting the behaviour of the price level, but rather opens a whole new dimension for studying the political and redistributive implications of fiscal policy as expressed through the channel of monetary policy and inflation.