Towards a New Keynesian Theory of the Price Level

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What determines the overall level of prices, in general? How does a policymaker achieve price stability in an economy? These questions lie at the very heart of what central banks are tasked with achieving and it is perhaps surprising that there is not universal consensus on their answers.

Since the early 1990s, the central banks of advanced economies have largely sought to achieve stability in the rate of price inflation via the manipulation of short-term (typically overnight) interest rates as the primary instrument of monetary policy. In the conduct of this policy, the dominant paradigm – in theory, at least – is that a central bank ought to satisfy the *Taylor principle*, by which the nominal interest rate responds by more than one-for-one to changes in the rate of price inflation. By doing so, the real interest rate (that is, after accounting for inflation) will change in a way that moves aggregate demand in the economy so that inflation returns to its target.

In modelling the economy, the Taylor principle is typically thought of as one of the defining features of New Keynesian models, where it is used to achieve nominal determinacy.[1] But because of the Taylor principle, New Keynesian models have a number of features that, depending on one's interpretation, range from uncomfortable to untenable.[2] In this paper, I present a variation of a textbook New Keynesian model in which firms' full information and sticky prices is replaced with flexible prices and incomplete information (where firms must estimate the underlying state of the economy). When the central bank also responds to expected future inflation instead of current inflation, this produces some striking results:

- There is no "deflationary trap": there exists a unique and globally stable steady-state equilibrium, despite the possibility of a lower bound in nominal interest rates.

[1] Determinacy and stability are subtly different. Since New Keynesian models feature forward-looking agents, they must account for people's forecast errors; a determinate solution is one with a well-defined process for these errors.

[2] These include, among others: the possibility of a "deflationary trap"; a (potential) need to rule out hyperinflations by assumption; and potential non-credibility in the central bank's reaction function.

- Around that steady state, the price level – and not just the rate of inflation – is determinate, despite the central bank only targeting inflation.

- Price stability requires that the monetary authority *violate* the Taylor principle when in steady state, although not necessarily when out of steady state.
- The nominal economy remains stable even under an interest rate peg. In other words, beyond the successful establishment and publication of the steady state rate of inflation, a central bank does not *need* to act in order to stabilise the economy.
- By systematically responding to the economy, central banks can lessen the depth of recessions, but this may come at the cost of increasing their duration.

An extension of the model to incorporate incomplete information on the part of the central bank permits consideration of (rational) errors of judgement on the part of policymakers. It also helps to provide a theoretical basis for inertial policymaking without a direct role for interest rate smoothing.