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Working Paper

Lucas (1972): A personal view from the wrong side of the subsequent fifty years

Research Report, No. 2021-5

Provided in Cooperation with:

Department of Economics, University of Western Ontario

Suggested Citation: Laidler, David E. W. (2021) : Lucas (1972): A personal view from the wrong side of the subsequent fifty years, Research Report, No. 2021-5, The University of Western Ontario, Department of Economics, London (Ontario)

This Version is available at:

<https://hdl.handle.net/10419/261276>

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Citation of this paper:

Laidler, David. "2021-5 Lucas (1972), A Personal View from the Wrong Side of the Subsequent Fifty Years." Department of Economics Research Reports, 2021-5. London, ON: Department of Economics, University of Western Ontario (2021).

**Lucas (1972), A Personal View from the Wrong
Side of the Subsequent Fifty Years**

by

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Research Report # 2021-5

November 2021



Department of Economics

Research Report Series

Department of Economics
Social Science Centre
Western University
London, Ontario, N6A 5C2
Canada

Lucas (1972)

A Personal View from the Wrong Side of the Subsequent Fifty Years

by

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Abstract: Lucas (1972) was a paper that permanently changed the course of macroeconomics, even though its “money supply surprise” model lost its central place in the area within a decade because of empirical difficulties. However, Lucas’s novel methodology, based on clearing markets and rational expectations, still dominates orthodox macroeconomic theorising. An unfortunate side effect of this has been that, because mainstream models have no analytic room for money to play a key role in economic activity, the theoretical case for taking that role seriously was undermined just at the time when traditional monetarist macro-models were facing empirical problems. The consequences of all this for today’s monetary policy environment are briefly discussed.

Key words: Lucas, neutral money, monetarism, Keynesianism, micro-foundations, clearing-markets, inflation, recession.

JEL Classification: E13, E31, E40, E52, N01

*Notes prepared before, and revised after, the author’s participation in a round table on “*Monetary non-neutrality and stabilization policies 50 years after Lucas’ ‘expectations’ paper*” held on October 8th, 2021, at the Sofia Conference of the European Society for the History of Economic Thought. I am indebted to the other participants in this event, Olivier Blanchard, Beatrice Cherrier, Athanasios Orphanides, and its Chairperson, Pierrick Clerc, as well as to Mauro Boianovsky, Hans-Michael Trautwein, and Bill Robson for extremely helpful discussions.

Introduction

“Expectations and the Neutrality of Money” was hardly a new topic in 1972. Economists had been debating these matters for about two and a half centuries even before Maynard Keynes (1936) declared that “a monetary economy ... is essentially one in which changing views about the future are capable of influencing the quantity of employment and not merely its direction” (Keynes 1936, p. xii). But Robert Lucas’s view of this time-honoured subject was nevertheless original and important. When an economist meets a set of economic ideas, it is usually the economist whose subsequent biography is influenced. This was one of those rare encounters that permanently changed the evolution of the ideas as well. The capacity of Lucas’s analysis to do this was quickly recognised, if not in all quarters. For example, though “Expectations and the Neutrality of Money” was rejected by the *American Economic Review*, Neil Wallace and Thomas Sargent had read it in working paper form well before its eventual publication, and, as its significance sank in, had begun a radical readjustment of their own research by 1973.¹

Lucas (1972) set in motion a new episode in economic thought which, after a further fifty years, has left us with the macroeconomic theory which academic economists now teach, and the practices which policy makers now implement. Lucas is not to be held directly responsible for all of these consequences, and the evidence suggests that at least one of them, namely the current marginalisation of money itself in the theory and conduct of monetary policy, was not what he intended. But, without his 1972 paper, macroeconomics would be very different in 2022.

Macroeconomics in Disarray

In 1972, still-dominant “Keynesian” ideas about theory and policy were under extreme pressure on many fronts, though it was unclear whether, let alone how, the several debates then in progress related to one another. Macroeconomics was “in

¹ See Douglas Clement (2013) and Sargent (1996). Note, however, that Sargent recounts that it was reading a draft of what became Lucas (1976) in 1973 that finally alerted him fully to the importance of the 1972 paper.

disarray,” to borrow a phrase that Karl Brunner (1989) would apply to a later episode also to be discussed in these notes. Immediately prior to 1972, three major themes were of particular importance:

First of all, Keynes (1936) had sought to explain the chronic unemployment of the inter-war years, but, once World War 2 and its immediate aftermath were over, high though fluctuating employment and inflation became the salient features of market economies everywhere. In response, from the late ‘50s onwards, the exponents of what was by then mainstream macroeconomics, following Bill Phillips (1956) and Richard Lipsey (1960), incorporated the “Phillips relationship” between inflation and unemployment, into their thinking, and then added a variable measuring agents’ expectations of the inflation rate to the right hand side of the equation describing it, though at first not always with the unit coefficient that the theoretical work of Edmund Phelps (1967) and Milton Friedman (1968) implied. This step, along with a then still hesitant revival of interest in the Fisher (1896) effect of expected inflation on nominal interest rates gave new impetus to a search for ways of giving substantive content to this variable. The error learning hypothesis had provided a popular fix here since the 1950s, but no-one was satisfied with it and a small scale industry had developed that was trying to improve on it in all manner of often *ad-hoc* ways.²

Second, on the theoretical front, it had been noticed, again even in the 1950s, that the two halves of the representative economic theory syllabus, usually labelled “macroeconomics,” and “microeconomics,” bore little if any discernable analytic relationship to one another. By 1972, a hunt for the so-called “micro-foundations of macroeconomics” had long been in full cry, in a complicated literature whose contributors shared a common belief that, wherever these might be found, it would not be in the Walrasian general equilibrium theory in which markets always cleared that figured so prominently in the microeconomic part of the syllabus.³

Third, and last but not least, by the early 1970s, the “Monetarist counter-revolution” against Keynesian ideas had become a major feature of macroeconomic debates, particularly on the policy front. Monetarist doctrine had

² See David Laidler and Michael Parkin (1975, pp.197-202), for an account of these efforts.

³ See, e.g., Don Patinkin (1956), Robert Clower (1965, 1967) Axel Leijonhufvud (1968), and Robert Barro and Herschel Grossman (1976).

been developing haphazardly since the 1950s, under diverse leadership.⁴ But from the outset it had centered around a clear central message: namely that, because the demand for money function was, as a matter of empirical fact, both less interest elastic and more stable over time than Keynes had claimed in 1936, “money mattered” much more for the behaviour of the economy, and hence for economic policy, than his followers were willing to allow. More specifically, inflation everywhere was rising significantly by 1972 and presenting policy problems too serious to be ignored, and Friedman’s (1970) still famous corollary to monetarism’s basic theoretical propositions namely that “Inflation is always and everywhere a monetary phenomenon,” was generating heated controversy both within and beyond academia.

A New Orderliness

In short, in 1972, as in 1936, debates about macroeconomic issues were intense but fragmented. In just nineteen remarkable pages - compare this to the *General Theory’s* 403 - Lucas’s “Expectations and the Neutrality of Money” set out an apparently comprehensive blueprint for the restoration of intellectual order to the whole sub-discipline. Lucas offered his readers (or at least those who could follow his difficult mathematics and explain its meaning to their colleagues): first, a procedure for modelling expectations as the “rational” predictions of forward-looking maximising agents who understood the properties of the economy in which they operated, and applied this knowledge to their formation; second, an end to the search for new micro-foundations for macroeconomics by showing that fluctuations in output and employment were after all compatible with the Walrasian general equilibrium model in which markets always cleared; and hence, third, a theoretically rigorous reconciliation of a monetary explanation of inflation with the simultaneous occurrence of those puzzling variations in real variables that formed the empirical basis of Keynesian skepticism about it.

More specifically, Lucas showed that real fluctuations could occur if agents lacked information about the current value of the general price level - an appealingly realistic proposition - and thus had to base their decisions about real variables on

⁴ See, e.g., Friedman (1956, 1970), Brunner (1970, 1971).

estimates of the structure of relative prices inferred from price information obtained in local markets. In so doing, they would use their understanding of the economy's structure, as well as prior knowledge about the behaviour of the money supply, and hence the price level, over time, not least about the time series properties of disturbances to that behaviour. Real fluctuations would then be generated when variations in the rate of monetary expansion came as a surprise, and negative surprises in particular would cause real contractions even in the presence of ongoing inflation. In the absence of surprises, however, money would be neutral and prices would move in real-output-change-adjusted proportion to the quantity of money. It is hardly surprising that, Lucas (1972) was widely and immediately interpreted as providing, among other things, a ringing theoretical endorsement of the basic empirical tenets of the Monetarist counter-revolution.

The new Classical Agenda

For those who, like for example Sargent and Wallace, understood and accepted this powerful and unifying resolution of then-current macroeconomic debates, it also provided a new analytic basis for the future development of the whole sub-discipline. Implications for, among other topics, the interpretation of then ubiquitous macro-econometric models and the significance and appropriate conduct of monetary policy were quickly made explicit and, by the late 1970s, what was by then called “new Classical” economics seemed (to its adherents at least) capable of dealing with all the traditional problems that the macroeconomics that preceded it had faced.⁵ This property was particularly appealing to new-comers to the discipline who were seemingly relieved of the need to read anything published before 1972, at least in macroeconomics. Any missing details of this reconstructed sub-discipline could, furthermore, be filled in by the systematic application to any issue of the analytic principles that new Classical economics embodied, another feature well calculated to appeal to those same new-comers as they looked for research topics.

The above-mentioned analytic principles required that the economy's “fundamentals” – endowments, tastes, technology and the rules of the game (i.e.,

⁵ See, *inter alia*, Lucas (1976), Sargent and Wallace (1975), and Lucas and Sargent (1978).

forward looking maximising behaviour informed by rational expectations in continuously clearing markets) – be explicitly described, that the nature of shocks to it be precisely specified, and that all results be then rigorously derived from this information, with no extraneous *ad-hoc* additions – e.g., “free parameters” whose values were left to the data to determine – being allowed to intrude along the way.⁶ Any work that did not follow this blueprint was at least suspect, and to purists among Lucas’s followers, not even worth discussion. As is usually the case with such movements, Lucas, the founder of the new Classical school, was more tolerant of dissent.

But refusals by many of its adherents to engage with those who disagreed with them did not exempt new Classical economics from criticism, its unifying potential for macroeconomics notwithstanding, and by the mid-‘80s Brunner (1989, but delivered as a lecture 1986) would accurately characterise the sub-discipline as having once more fallen into “disarray.” This state of affairs came about because, although the new Classical economics of the 1970s failed abjectly in its encounters with empirical experience, it simultaneously succeeding triumphantly in its efforts to impose new professional standards of deductive rigour on the formulation of theory.

The methodology of positive economics (in all of its many variations), so influential before 1972, required (and still does) that, when an existing theory encounters empirical problems, modifications to it should be conjectured and then put to further test. After 1972, the insistence of new Classical economics on sound micro-foundations limited admissible conjectures to those that could be demonstrably deduced from “fundamentals.” If they did not meet this standard, their compatibility (or lack thereof) with empirical evidence was deemed irrelevant, and, lacking a satisfactory theoretical explanation, so was the relevance of the evidence that had created the problem in the first place.⁷ The fact that these

⁶ I base this succinct characterization of new Classical methods on my personal recollection of a 1987 oral presentation by Tom Sargent at a Siena conference aimed primarily at advanced graduate students. It does not appear in the finally published form of the paper he presented (Albert Marcet and Sargent, 1992).

⁷ See, e.g., Robert Barro’s (1979) summary dismissal of contemporary models that incorporated a price-stickiness assumption.

methodological views were of extremely questionable philosophical validity did not prevent their widespread acceptance.⁸

Early Criticisms of new Classical Economics

A number of specific criticisms would quickly be levelled at new Classical economics after 1972, with the earliest of these focussing on its most obviously novel component, namely the Rational Expectations Hypothesis (REH). As Lucas had formulated it, this treated information as either freely available to agents or not at all. Thus its structure ruled out what Edgar Feige and Douglas Pearce (1976) called “economically rational expectations,” the idea that the production and processing of information might come with a rising marginal cost, and that the behaviour of even rational maximizers might be therefore be based on less than all available information about the situations facing them.

Not least, some argued that under such conditions agents might hold precautionary money balances to cushion themselves against errors to which they would not be exposed if the acquisition of market information were cheaper, and, for the price setters among them, the costs of trading at “wrong” prices less punitive.⁹ That such considerations might be empirically important was in due course decisively confirmed by the finding of John Boschen and Grossman (1982). They showed that readily observable current variations in US money growth were systematically related to subsequent variations in real variables, rather than in only the price level, as they would have been had agents been systematically monitoring them and basing pricing decisions on this information. And they also showed that variations in money growth that were not public knowledge, as represented by initial measurement errors in the published data whose subsequent correction provided a direct empirical measure of monetary “surprises,” had no discernable effect on anything.

It took only a little longer for the empirical problems posed by Lucas’s treatment of the expectations augmented Phillips curve to attract attention. It was, in fact, already obvious from models that had deployed a market-clearing approach even

⁸ See, e.g., Kevin Hoover (1984) and Brunner (1989).

⁹ See, e.g., Laidler (1974, 1976).

before 1972, including Lucas and Leonard Rapping (1970), that this assumption implied that causation ran from prices (or money wages) to output (or employment) along the curve, rather than in the opposite direction as had been postulated by Phillips (1956). But, it does not seem to have been until the mid-1970s that it was also noticed that this formulation was in conflict with one of the best established stylised facts about the dynamic interactions of money with real and nominal variables: namely, that, when money growth changes, changes in real variables systematically *precede* those in the inflation rate. Attempts to deal with this inconsistency would thereafter lead to some remarkable intellectual tangles whose details are too complicated to explain here.¹⁰

This empirical problem was closely linked to another one whose significance had been clear, not least to Lucas himself, from the outset: namely that of explaining the persistence over time of deviations of output and employment from their “natural” values after a monetary surprise. The rational expectations hypothesis as formulated in (1972) eliminated the distributed lags implicit in the error learning hypothesis that it had superseded and upon which earlier monetarist models had relied to generate such persistence.¹¹ But Lucas’s own (1973) empirical work initially replaced these with equally arbitrary adjustment lags in the dynamics of output deviations, and hence violated his own methodological ban on resort to “free parameters” to reconcile theory with evidence. Nor did his second and much more systematic effort (Lucas 1975) to address this problem by postulating a more complex and drawn out mechanism describing the dissemination of information fare any better in the face of the observation that the existence of economy wide asset markets would short-circuit such effects.¹²

And there was a further, even more fundamental problem that went to the very heart of Lucas’s desire, so obvious from his paper’s title, to vindicate a tradition in the theory of money that dated back (at least) to David Hume (1752), while simultaneously maintaining the market-clearing postulate: namely, that even in the

¹⁰ See, e.g., Barro’s (1978) efforts to fit a macro-econometric model embodying new Classical principles with U.S. data.

¹¹ See, e.g., Laidler (1973) and Laidler and Parkin (1975).

¹² See Lucas (1975) and Edi Karni (1980). As Pierrick Clerc and Rodolphe Dos Santos Ferreira (2021) show, recent efforts to revive interest in dispersed information as the source of economy-wide real fluctuations have also encountered problems when addressing the issue of their persistence.

1960s, it had been understood that the very nature of market clearing models was incompatible with the institution of monetary exchange.¹³

An asset resembling “money,” could, of course, be formally introduced into such a system. Lucas did so in (1972) using the overlapping-generations approach that treated this asset as a pure store of value, and hence ignored money’s role in the mechanism of exchange. This latter weakness is perhaps why, when he tried again in (1984), Lucas instead borrowed Clower’s (1967) cash in advance constraint, which made money a means of exchange and nothing else, from the very “micro-foundations” literature that new Classical economics had allegedly rendered redundant. However, this latter procedure violated the requirement that all components of an economic model be deducible from fundamentals, and was in any event, unable to match an already massive body of evidence about the properties of real world demand for money functions. Buffer-stock models of the demand for money, based on the notion mentioned earlier that information came at a positive marginal cost, and its corollary that agents’ market decisions were based on less than “all available” information seemed for a while to fare much better with the data, but were routinely dismissed as irrelevant because they violated new classical standards of deductive rigour, and they faded from the literature as the 1980s progressed.¹⁴

Monetary Policy at the Turn of the Decade

Meanwhile, during the 1970s, the political acceptability of anti-inflation policies based on the control of money growth had been much enhanced, not only by the growing seriousness of the actual inflationary situation in the wake of the failure of Keynesian alternatives, but also by the rapid acceptance of new Classical ideas by many of their academic advocates. The apparent predictions of the rational expectations hypothesis about the likely low costs of monetary contraction provided that it was preannounced, certainly played a role here, though how significant this was is open to debate.

¹³ See, e.g., Frank Hahn (1965).

¹⁴ See Laidler (1988) for a brief and largely retrospective account of the debate about these models.

Be that as it may, in the late 1970s, quasi-monetarist policies that focused on the control of money growth were widely and conspicuously applied, with mixed results. Where money growth fell so gradually as to be virtually invisible, nothing much happened (e.g., Canada before 1981); where it was reduced systematically and visibly, but with moderation, inflation stabilised and began to fall (e.g., Switzerland and West Germany); and where contraction was first delayed, and then sharply and suddenly applied (e.g., the U.S., the U.K, and Canada after 1981) inflation fell rapidly, but its fall was accompanied by real contractions on a scale unprecedented in post-war experience. These were far more severe than monetarist analysis, particularly when influenced by the rational expectations hypothesis, had led anyone to believe.

The main lesson of this episode for the application of this hypothesis to policy analysis was quickly absorbed: namely, that it is not sufficient simply to announce a new monetary policy; rather if it is to proceed smoothly with little real disruption, that announcement must also be credible. Observed relationships between changes in money growth and the subsequent behaviour of output and prices during this episode were nevertheless in qualitative accord with the predictions of traditional monetarism. But a profession that had become widely accustomed to thinking of new Classical economics as simply a more rigorous *mark 2* version of this old doctrine, carelessly misinterpreted the contractions of the early 1980s as discrediting its *mark 1* version as well.¹⁵

Thus, although this episode, may well have been, as Brunner (1983) would vainly protest, traditional monetarism's "failure that wasn't and . . . success that was," it was, along with Friedman's (1984) widely publicised and erroneous prediction of the imminent reappearance of double digit inflation in its wake, interpreted as undermining the empirical case for basing monetary policy on control of the money supply. The theoretical case for this practice meanwhile continued its already-begun journey into limbo as influential new Classical economists failed to generate an empirically useful theory of money, but simultaneously remained

¹⁵ The *Monetarism mark 1 and 2* labels are James Tobin's (1981), and as far as I am aware, Lucas, Sargent, Wallace et al. did not object to them.

unwilling to countenance other approaches to the issue that violated their methodological standards.¹⁶

Macroeconomics in Disarray Again

So, by the early '80s, the empirical and policy failure of Lucas's macroeconomic revolution, working in conjunction with its success in establishing a new theoretical methodology for the sub-discipline, had also put a stop to Friedman's monetarist counter-revolution. Though some hoped for a *Keynesian Recovery* in macroeconomic analysis on the lines pioneered by Leijonhufvud (1968) to ensue, this approach remained a minority taste, leaving mainstream macroeconomics to develop along two other principal lines.¹⁷

One was so-called "new-Keynesian" macroeconomics, which got its start with Stanley Fischer (1977) and Phelps and John Taylor (1977). This approach, whose relationship to Keynes (1936) was tenuous, re-established the phenomenon of price stickiness as a respectable component of macro-economic models, first by way of recognising the existence of labour market contracts, but later, and perhaps less arbitrarily, by way of the replacement of perfectly with imperfectly competitive markets as a fundamental structural assumption. The other was real business cycle theory, pioneered by Finn Kydland and Edward Prescott (1982). This maintained the new-Classical market clearing axiom, but attributed the occurrence of real economic fluctuations to unspecified shocks not to the behaviour of money, or any other demand side variable, but to a non-existent relationship, the aggregate

¹⁶ Search theoretic models, e.g., Robert Jones (1976) and Nobuhiro Kiyotaki and Randolph Wright (1989), were too abstract to meet this test. See Laidler (1988) for a discussion. For an example of the new Classicals' refusal to acknowledge work on money that did not meet their theoretical standards, see Wallace's (1990) refusal to engage as a discussant with the empirical substance of James Lothian, Michael Darby and Michael Tindall's (1990) paper on buffer stock models of the demand for money.

¹⁷ The above italicised and optimistic phrase is borrowed from the title of Peter Howitt (1990), an undeservedly neglected collection of essays written between 1974 and 1988, that significantly extend the approach to the micro-foundations of macroeconomics pioneered by Clower and Leijonhufvud.

production function, and explained their persistence by the fact that capital equipment takes “time to build.”¹⁸

What these otherwise incompatible approaches had in common was an unshakeable belief in the irrelevance of money, neutral or not, for any interesting empirical question that might have some relevance to economic policy. For new Keynesians such as Michael Woodford (2003) this stance derived its authority first of all from the beliefs of old Keynesians such as Tobin (1981) and Benjamin Friedman (2003), who had never been convinced by the monetarist attacks of the ‘60s and ‘70s, but was considerably re-enforced by their adoption of new Classical modelling techniques in formal analysis that left no room for money to play an essential role in the stories they developed. For real business cycle modellers, it followed inevitably from their self-conscious insistence, directly inherited from Lucas, on clearing markets as the basis for all acceptable analysis.

Real business cycle theory could, of course, find room if need be, and soon did, for the arbitrary introduction of “outside” money to determine the price level, in a nod to formal completeness, and also for “inside money” to respond passively to real fluctuations, much as it did in new (or even post) Keynesian systems.¹⁹ But nothing of further interest followed from this fact. Lucas, who would subsequently make the neutrality of money the central topic of his 1995 Nobel Prize Lecture and would be the author of at least four empirical papers in which the demand for money function figures prominently, could hardly have been happy with this outcome.²⁰

The Emergence of Inflation Targeting

If macroeconomics was indeed in disarray by the mid-1980s, monetary policy still had to be conducted. Central banks searched for ways of keeping inflation is single

¹⁸ Difficulties with the concept of an aggregate production function have been known to exist since the third (1821) edition of David Ricardo’s *Principles*, and figure prominently in modern heterodox work that follows the lead of Piero Sraffa (1960). But, for terse statement of them in the neoclassical tradition, see Franklin Fisher (2005).

¹⁹ See Robert King and Charles Plosser (1983).

²⁰ See Lucas (1988), Lucas (2000), Lucas and Nicolini (2015), Luca Benati, Lucas, Juan Pablo Nicolini and Warren Weber (2017).

digits and perhaps reducing it further. In a few cases, notably West Germany and Switzerland, where the local quasi-monetarist regimes adopted in the 1970s had not collapsed, these continued to evolve until the creation of the Euro decisively changed the landscape. But elsewhere, not least in jurisdictions where quasi-monetarist regimes had, fairly or not, been judged outright failures, *ad hoc* drift became the order of the day, until, in the early '90s, policy makers, led by those in New Zealand, Canada and the UK, stumbled on inflation targeting. This approach was adopted by its pioneers for many and various local reasons, as much political as economic, none of which had much to do with then current (or even obsolete) academic ideas about the nature of the monetary economy.²¹ The resulting regimes were widely emulated elsewhere as the decade progressed.

Even so, the seamless interweaving of a credible policy goal that anchored inflation expectations with a formal macroeconomic model which came to characterise those regimes by the turn of the millennium did not already exist as an available framework for the theory and practice of policy in the early 1990s; it was the product of subsequent learning by doing.²² Even the credibility that began to characterise inflation targets in some jurisdictions during that decade had not been confidently predicted on the basis of the rational expectations hypothesis when they were first introduced. It too was the product of experience as central banks, to their own surprise one suspects, actually succeeded in hitting their targets with noticeable frequency during the “the Great Moderation” that followed their adoption.²³

But, the fact that inflation was low and fluctuations in it were small under inflation targeting, had another effect: namely, it left essentially nothing for variations in money growth to explain.²⁴ To adopt vocabulary taken over by the ECB from the Bundesbank, by the end of the '90s, it seemed to most observers that monetary policy was adequately supported by its “economic pillar” alone, rendering its “monetary pillar” redundant and hence disposable. So, central banks everywhere

²¹ On New Zealand and the UK, see Charles Goodhart (2010), and on Canada see Charles Freedman (2010) and Laidler (2020).

²² The model, which forms the basic template for Woodford (2003), consisted of an expectations-augmented Phillips curve, a function relating output to the deviation of the real interest rate from its “normal” level, and a Taylor rule to determine the policy setting of the nominal rate.

²³ For a detailed account of these developments in the Canadian case, see Laidler (2020).

²⁴ See Laidler (2003), especially figs. 1a, 1b, and 1c.

did indeed dispose of it. Thus, though inflation targeting is sometimes referred to as “monetarism without money,” because, partially echoing Friedman (1970), it treats the medium term behaviour of the price level as the only goal of monetary policy, and delegates shorter-term stabilisation issues (if needed) to other policy tools, its adoption owed nothing to the rational expectations hypothesis, and its conduct came to ignore money entirely, neutral or otherwise. It is hard to claim, therefore, that it owed anything to Lucas (1972).

The Crisis of 2007-9

The financial crisis of 2007-9 put a violent end to the great moderation. It proved to be a notable example of that “residue of things” (Lucas 2004) which the by-then-dominant stochastic dynamic general equilibrium analysis that had its origins in Lucas (1972), hadn’t been letting its exponents think about for more than a quarter century. Except among heterodox Austrians and post-Keynesians, and a very few others, such as Claudio Borio and William White (2004), who remembered that US experience in the late ‘20s had shown that the maintenance of price stability is not sufficient to ward off financial and real instability, reaction to this crisis was therefore characterised by extreme shock, followed by much intellectual muddle.

Fortunately, however, the Fed’s rapid appreciation of the contemporary relevance of US experience during the Great Contraction of the early 1930s prevented a repeat of this earlier catastrophe. That institution led the world’s policy makers in doing whatever was necessary to save the international economy, financial and real, from complete collapse. But the immediate inspiration here came not from any revival of monetarist ideas about the role played by money in the earlier episode. Rather it came from Chairman Ben Bernanke’s (1983) work on the importance of credit market failures in that story.

Any chance of a serious revival of interest in monetarist ideas as events unfolded was, furthermore, nipped in the bud by warnings of imminent inflation, as strident and widely publicised as they were unwarranted, emanating from some of their

most distinguished surviving exponents.²⁵ These commentators had apparently failed to notice that the policy induced explosion in the size of the Fed's balance sheet after 2008 was not leading to a corresponding expansion of the quantity of money, a phenomenon associated with the payment of interest on newly created reserves during this episode, but which had also marked the experience of the mid-1930s. They thus set monetarism up for what was once more perceived to be major empirical failure, every bit as dramatic, though every bit as fictitious, as that of the early 1980s.

Complicating Inflation Targeting

If the crisis of 2007-9 thus pushed money even further to the margins of serious macroeconomic discourse, it also undermined the simplicity of inflation targeting as it had been practiced until then. Financial markets had ceased to function in some jurisdictions, and for a while, the trajectories of prices and output had threatened to mimic those of 1930. And even where the impact of the crisis was less dramatic, simply to cut short interest rates as low as was institutionally feasible, and then await the recovery of the inflation rate, had been immediately and universally recognised as an absurdly inadequate policy response.

Thus, by simple force of economic and political circumstances, output and employment began to rejoin the inflation rate as policy targets during what came to be called "the great recession" and fiscal policy re-emerged as an important companion to monetary measures. In the monetary field specifically, all manner of policy instruments were also rushed into place to supplement the overnight interest rate, and two of these are of particular interest here: *quantitative easing* (QE), and *forward guidance* (FG). Not only did they play significant roles immediately after 2008 but, resurrected in the wake of the economic crisis brought on by the Covid pandemic that began in 2020, they now dominate the monetary policy landscape.

QE is a new name for an old measure, Open Market Operations, which were strongly recommended to an unfortunately reluctant Fed in the early 1930s by, among many others, Keynes (1931), and also, albeit in retrospect, by Friedman and Anna Schwartz (1963). The latter emphasised the beneficial influence that open

²⁵ See, e.g., Allan Meltzer (2009).

market operations might have had on money growth in the early '30s, but present-day exponents of QE ignore this channel, stressing instead its capacity to lower long term interest rates. Not coincidentally, this was Keynes's (1931) view of the matter which, transmitted by Bernanke's work on the Depression, was readily absorbed by new Keynesian economics. Today's QE is hardly a legacy of Monetarism, then, and, to return to the topic of these notes, it owes nothing to Lucas (1972) either.

The intellectual antecedents of FG are more difficult to identify. The aim of today's central banks, when they are precise and explicit in communicating their future policy intentions, is to influence the public's expectations and hence amplify their responses to current measures. It would be foolhardy to deny the possibility that such measures reflect a lasting influence of Sargent and Wallace's original deployment of Lucas's rational expectations hypothesis in the analysis of monetary policy, supplemented by later evidence on the vital importance of clarity and credibility in the communication of policy intentions. And it is also hard to deny that the now famous phrase "Whatever it takes" worked exactly as intended.

But the passage from *The General Theory* quoted above (para. 1) is hardly unique in Keynes's writings in stressing the importance of expectations in economic life: the *Treatise on Money* (1930, ii, 352-367), an example particularly relevant in the current context, contains a lengthy discussion of the importance of the behaviour of the short rate of interest, including expectations engendered by it, for that of long rates and hence for investment spending. And discussions of "announcement effects" were commonplace in the monetary policy debates of the 1960s, not least among central bankers. The following quotation is drawn from the Bank of England's contribution to a 1969 conference: "The role of expectations is . . . much greater than is normally assumed in academic and journalistic comment. Changes in the climate of expectations brought about by events . . . or by the timing and manner of the announcement and implementation of policy measures – can often act to negate or greatly reinforce the tactics of the authorities" (Bank of England (1970), p. 228).

Perhaps, then, we need to suspend judgement on how much importance should be attached to the introduction by Lucas (1972) of the Rational Expectations

Hypothesis into macroeconomics for the development of today's ideas about FG, pending a little more systematic historical research on the matter.

The Current Macro-policy Situation

So, ironically, the characteristic of today's monetary policy scene on which the influence of Lucas (1972) is most definitely apparent seems to be the *almost* total absence of attention currently being paid to the behaviour of money in discussions, let alone in the actual conduct, of policy.²⁶ As already noted, this is probably not an outcome that Lucas intended, but it was logically implicit in the analytic principles he propounded, and it is extremely important at the current policy juncture for several reasons.

First, by adopting in late 2020 “no-change until late 2022 or mid 2023” FG for their then rock bottom policy interest rates, inflation targeting central banks in effect declared that monetary policy henceforth had two explicit and well publicised targets. The inflation rate remained policy's ultimate goal but was joined by a target for its basic instrument, the overnight rate. Second, and crucially, though QE may not have been intended to promote money growth when it was introduced on a large scale in 2020, it did, with a vengeance. The money supply veritably exploded in some jurisdictions for a while in 2020 and (at the time of writing) is still expanding at rates that are high by the standards of the last three decades. And finally, it now looks possible that, as a result, monetary policy's two targets are proving to be incompatible. If this is really so, central banks will be forced to raise interest rates ahead of schedule in the face of persistently above-target inflation rates, and their credibility with the public, not to mention their political masters, will be badly damaged, perhaps to the extent of making an orderly restoration of any regime based on an independently pursued medium term goal for inflation in the next few years extremely problematic.

On the other hand, the current (again at the time of writing) mainstream consensus that money does not matter may turn out to be correct after all. The current

²⁶ The italicised qualification is significant: dissenting commentators are few, but Michael Belongia and Peter Ireland, Tim Congdon, Steve Hanke, Robert Hetzel, and Scott Sumner continue to stress the importance of the quantity of money in numerous publications.

inflation might still prove to be transitory and fade away of its own accord as central banks are predicting. If these things happen, then all will be well with the theory and practice of monetary policy that has dominated the last three decades.²⁷ But if they don't, if the most basic monetarist proposition about the behaviour of the price level, that was adopted unquestioningly in Lucas (1972), (despite its incompatibility with his analytic approach): namely, that it is determined by the interaction of the supply and demand for money, and its corollary that in the long run inflation responds systematically to variations in money growth, are still true, then there is serious economic and political trouble ahead. Macroeconomics thus seems to be in the middle of an important natural experiment.

The Significance of Lucas (1972) Today

To sum up, then: it seems that the influence of “Expectations and the Neutrality of Money” began to wane forty years ago, and that its only remaining visible effect has been one that its author did not intend, namely to undermine the theoretical element in the case for according money a central role macroeconomic analysis. But if there were no more to matters than this, we would not now be celebrating the fiftieth anniversary of its publication. To understand why it seems natural to do so, we need to adopt the viewpoint not of current practitioners of macroeconomics seeking help from Lucas in dealing with current problems of theory and policy, but of historians of the field, seeking to understand what role his work has played both in creating them and forming the ideas we bring to them.

As I hope is apparent from the preceding pages, it is my personal view that the publication of that paper half a century ago marked a decisive turning point in the trajectory of thinking about the macro-economy and hence, as a consequence, in its actual behaviour as well. Had Lucas (1972) not been written and read, the intellectual landscape, not to mention the external economic environment, we currently inhabit would be very different. Whether this has been for the better or the worse would require speculation on what the alternatives might have looked like, and that is a task best left to other authors who were less involved than this one in the debates of the last fifty years.

²⁷ Though let it be clear that this is not my own expectation.

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