5. Professor Roger Farmer

PA: Thank you for doing the interview. Which field of economics do you consider to be your specialism?

RF: Macroeconomics.

PA: And within that specialism, what would you consider to be the main issues relating to your field?

RF: Oh, there are many. Much of my career has been spent on introducing beliefs as an independent driver of business cycles. I'm particularly interested in business cycles, business fluctuations, inflation, interest rates and unemployment – how those things are all related to each other – and how the fact that beliefs matter should shape our approach to economic policy.

PA: Quite a wide range there! How would you describe the underlying axioms or principles of your view?

RF: How long do you have?

PA: As long as it takes, within reason ...

RF: Oh, goodness. I think that, to a large extent, I'd say methodological individualism, with lots of caveats. So, let me tell you how I think about that, and this is going to be a discursive discussion. If you go back to 'what is methodological individualism?' I take it to be the notion that a human being pops into the world at the age of eighteen with a preference ordering that makes him or her capable of making choices over every conceivable option that they might ever face in their life. That view of a human being arrived into economics sometime in the nineteenth century when Walras started to formulate the notion that markets work well.

There were other schools in England – but the Lausanne School in Switzerland – specifically Walras, developed general equilibrium theory, followed by Pareto who introduced the notion of what it means for an outcome to be good in some sense. What Walras and Pareto were doing at that time was formalising Adam Smith's notion of the invisible hand. In order to do that, they needed a concept of choice – if markets work well – what does that mean? What it means to Pareto is the very narrow sense that market economies are not wasting things. Now in order to develop that idea, you have to have – first of

all – a concept of what people want. That's where the notion of a human being as a preference ordering enters economics.

There's another notion of a human being that predates Walras and can be found in the work of Adam Smith. Smith wrote *The Wealth of Nations*, but he also wrote *The Theory of Moral Sentiments*, which contains a view of human nature that is the furthest thing from the notion of a selfish human being that you can get. The selfish human being is very useful for thinking about economic liberty, and in particular, the efficiency of markets. However, it's not at all useful for thinking about another component of the role of individuals in society, and that's political liberty. The development of general equilibrium theory by the Lausanne School is the point where economics breaks off from the other social sciences.

I have a view, now somewhat unfashionable, that John Stuart Mill's essay 'on liberty' should be on the reading list of every high school and university. In Mill's essay, it's impossible to think of a human being in the same way that a person is pictured in Walras and Pareto because Mill's conception of liberty is that you and I can change our minds. When we have a conversation – and we're having one now – and you tell me, 'Roger, I'm a Modern Monetary Theorist for these reasons', and I say to you, 'Philip, that's nonsense, because ...', and I give you an argument ... and perhaps the argument changes your mind; or maybe not. Maybe you respond with an opinion that causes me to change *my* mind and, as a consequence of that conversation, I go out into the world and do something differently. I make a choice that was not the same one I would have made before we had the conversation.

If you come from the view of *homoeconomicus* developed by Walras and Pareto, the only way that you can conceive of what just passed in our conversation is that one of us acquired information that was not previously in our information set; information that helped us to make the choices that we would otherwise not have made. Now that, I think, is not a very useful way of thinking about conversations. Conversations, that is, human interactions, *change* our preference orderings.

I claimed to be a methodological individualist – and I think that's a useful way of thinking about the world on Saturdays – but on Wednesdays something changes. Let me explain that idea. The framework I use to think about macroeconomics goes back to John Hicks. Hicks wrote *Value and Capital* where he develops a concept that today we call temporary equilibrium theory.¹ People meet on Saturdays. They bring some goods to market. They make choices, they have beliefs about what they think is going to unfold in the future and there's some mechanism by which they trade. In temporary equilibrium theory that mechanism is the Walrasian concept of market clearing. People go away and they come back next Saturday, and they trade again.

Almost all macroeconomics can be thought of in that framework, whether you're a heterodox economist, a classical economist, or any other flavour of economist. Different schools of macroeconomic thought have their own views about how people trade on Saturdays. If you're an economist, all you need to develop a theory of the macroeconomy is a conception of time and a model of how economic transactions occur. Other social scientists don't see the world in the same way.

A sociologist or a political scientist is not going to be comfortable with Hicks's notion of temporary equilibrium theory as a complete description of economic interaction in markets because they have a different view of the nature of human beings. The economist's view of human beings and the sociologist's view are perfectly consistent with each other. They describe different aspects of human interaction in social structures.

The way to integrate the economist's and the sociologist's concepts of human beings is to think about sequences of interlaced interactions. On Saturday we all go to market and trade with each other; given a fixed set of preferences. Then, on Wednesdays, we read a newspaper, or we read a book, or we have conversations. You open your iPad and you go on the internet – the social interaction that ensues changes the preference ordering that you take to the market on the following Saturday. Now, economists have been very opposed to thinking about changing preferences, simply because once you take on that point of view you lose the ability to make value-free judgements about market allocations. The preferences you have might be changing. Economists want to believe that preferences are fixed because they want to make value-free statements about what is – and what is not – a good social outcome.

PA: Well, some answers will be longer than others, that's absolutely fine and very interesting. In your work, to what extent would you say that history has a role to play?

RF: History is important – but so is the history of thought, so is mathematics and so is statistics. I've been asked many times if economics is a science, and my answer to that question is that it's definitely a science, but it's not an experimental science. Macroeconomics, in particular, is a little bit like sitting in the late nineteenth century, assembling a group of chemists, giving them an unknown substance and saying, 'What is that? Find out what it is. But you can only conduct three experiments a century, and you can't read the research notes of your predecessors.' The history of thought is analogous to the research notes of our predecessors. The three experiments I refer to are big natural events like the Great Depression or the stagflation of the 1970s, and I would count the Great Recession we've just been through as the third big experiment in the last century.² These big natural experiments shake up the way we think.

History is important because it represents our data. It is to a macroeconomist what a record of the heavens is to an astronomer. Neither astronomers nor macroeconomists can conduct controlled experiments. Nature conducts those experiments for us.

Mathematics is also an important skill because it ensures that our thinking is logically consistent. I think it was Marshall who wrote a letter to Bowley, he of the Edgeworth–Bowley Box; do you know that letter?

PA: I don't know the letter – I know about the Edgeworth–Bowley Box, but not the letter ...

RF: Marshall's letter is a statement to the young Bowley about the uses of mathematics, and roughly speaking, he says, 'Figure out a good problem, a good idea, and formalise it with mathematics.' And then – I may be getting the order wrong here – '... translate it back into English and throw away the mathematics. Next look for some examples, and if you can't find any good examples, throw away the English.'

As a profession we're not very good at following Marshall's advice. I use a lot of mathematics in my own work. As far as possible I try to bury it in the appendix, but there are just some parts where you can't do without mathematics. There's good economic writing that uses mathematics, and there's bad economic writing that uses mathematics. An example of good economic writing is anything Ken Arrow ever wrote; the mathematics is there, but it's explained in words, it's not superfluous, and it's key to everything he writes. For bad uses of mathematics in economic writing, read 90% of any modern economics journal.

PA: Didn't Marshall put most of his maths in the footnotes?

RF: Yes, I think that's right.

PA: That's very interesting. Thank you. I'll look at more narrowly-based questions – are you familiar with the credit and state theories of money?

RF: Peripherally. I've been following a debate going on right now on Twitter. Some non-mainstream economists, Jo Michell at Bristol is an example, have been critical of textbook theories of money.

You gave us a set of questions we would discuss in this interview. I laughed when I saw question 7 which reads, 'Do you consider the quantity of money to be determined exogenously or endogenously?' to which my answer is 'Yes'. Here's what I mean by that.

I'm a general equilibrium theorist, in the sense that I want to conceive of the things I observe in the macroeconomy – this comes back to methodological individualism – as choices made by individuals in markets. To answer the

question of exogeneity, you have to ask, first of all, what money is. That's a hard question and there are many different ways of thinking about it. If you go back to worlds where there were commodity monies – gold and silver – it's quite clear that the quantity of money was exogenously determined. At a point in time, the quantity of precious metals is fixed. There have always been trading mechanisms, trade credit for example, whereby other objects would serve as a medium of exchange. In today's world where gold and silver have been replaced by fiat money provided by national governments, the distinction between exogenous and endogenous money depends very much on the policies that central banks follow.

I've never understood the criticism of traditional monetarist thought by advocates of Modern Monetary Theory. Orthodox monetary theorists, and here I would include most of the New Keynesians, would agree with the statement that money is endogenous in modern fiat money systems when the central bank pegs the interest rate on short-term debt. But there is a sense in which asking if money is endogenous is the wrong question. The right question is: what determines the absolute price level? Here there is an active debate centred around the question of uniqueness, or non-uniqueness, of equilibrium in macroeconomic models. In all models where the central bank sets the interest rate, as opposed to the quantity of bank reserves, the quantity of money is endogenous.

Let me return to the question; what is money? A bank is an institution that allows many more objects to be used in exchange than in economies that don't have banks. In that sense, private banks create money. If you hold shares in Apple and you go into a car showroom and you try to buy a new Honda by offering them shares in Apple, you're not going to be very successful because the value of the shares in Apple fluctuates on an hourly basis and nobody really knows quite what they're worth. Now, imagine an institution – a bank – that lends to firms and households. The bank holds liens on machines and factories to back its loans to firms and it holds liens on houses to back its loans to households. The bank acts as a guarantor of the value of these assets. Take the example of a mortgage. You go to the bank and you borrow money for a mortgage on your house. The bank manager (at least in the past) knew who you were and had a relationship with you and realised that you were capable of repaying the mortgage. The bank manager's guarantee turns your house into a negotiable asset that appears on the liabilities side of the bank's balance sheet and the account that is created by lending you money can then be used in exchange. In that sense, banks create money.

Bank lending is profitable because the interest rate earned on long-term loans is higher than the rate that banks must pay on their short-term liabilities. The quantity of money that banks create is limited by the need to hold cash and other liquid assets to meet the needs of their customers. The amount of available liquid assets is limited by central bank actions that control the price

of credit by buying and selling assets in the markets for short-term funds. Before the 2008 financial crisis, cash and bank reserves did not pay interest, but short-term government bonds did. In that period, there was a positive opportunity cost of holding money.

Since the financial crisis of 2008, the interest rate on short-term liabilities has been very low and, in some cases zero. And central banks began to pay interest on reserves. In that environment reserves, which are part of the monetary base, become perfect substitutes for short-term government debt and theories of endogenous money come into their own. When the opportunity cost of holding money falls to zero, monetary general equilibrium models have even less to say about the determination of the price level than they do when money is scarce.

When the interest rate is zero, money and bonds become perfect substitutes and there is a continuum of price levels and a continuum of associated values for the stock of money, all of which are equilibrium values in a monetary general equilibrium model. In those environments, the supply of money is determined by the public's perceptions of future prices. Beliefs become fundamental in the way I described in my books, *The Macroeconomics of Self-Fulfilling Prophecies*, *Expectations, Employment and Prices* and *Prosperity for All*.³ The same phenomenon occurs when the central bank pays interest on reserves. Although cash is still costly to hold, cash is a shrinking component of the monetary base. When the interest rate on reserves is roughly equal to the interest rate on Treasury bills, the economy is in a liquidity trap similar to the one that characterised much of the period in the 1930s in the United States. The payment of interest on reserves puts us in a whole new world.

PA: I think your interpretation is thought-provoking ... I might go slightly away from the original script, to a question that's very interesting from my perspective: when you talk about equilibrium, do you see it as an 'ultimate end' of a tendency, like a point that a force that will take you towards but may not actually reach? Or is it a set point that things adjust to and, if so, what would be your thoughts in terms of the adjustment speed of the pathway?

RF: To answer that question, let me use the concept of temporary equilibrium theory.

PA: ... I think it's called a 'traverse', the idea of how quickly you get there, what happens on the way.

RF: Indeed. In the temporary equilibrium story, we all meet in a market every Saturday. When we meet, there must be a mechanism to determine what gets traded. That could be Walrasian market clearing, it could be sticky price equilibrium, or it could be some version of search theory, for example, 'Keynesian

Search Theory', a term I coined in my book *Prosperity for All*. On Saturday we observe the trades that take place, we observe the prices that take place, and we record those trades as a list of numbers on an Excel spreadsheet. Now, if nothing in the world ever changed, our models predict that the list of numbers we record will converge to a constant list. I would call that a steady-state equilibrium. A physicist would simply call it an equilibrium.

The reason that these uses differ is that the word 'equilibrium' in economics is used to mean a Nash equilibrium, which is a set of plans and prices that are consistent with each other in a sense that was made precise for temporary equilibrium models by Roy Radner.⁴ In a Nash equilibrium, the values of the list of numbers in the Excel spreadsheet may be changing from one period to the next. What qualifies them as 'equilibrium numbers' is that at each point in time the numbers record prices at which the quantity of each good demanded is equal to the quantity of each good supplied.

PA: You've really answered the question about banks, so how would you consider interest rates to be determined in theory and practice? Do you think there's a 'disconnect' between theory and practice?

RF: Well, there's at least one interest rate that's set by central banks, which is the overnight rate. Then there's a whole spectrum of interest rates that are determined in markets. Traditional monetary theory argued that central banks could control only one interest rate but, in the 2008 financial crisis, central banks appeared to exert influence over a whole range of rates. So, in that sense yes, there was a 'disconnect' between traditional monetary theory and practice.

PA: Would you consider that the central bank *could* control the full spectrum of risk-free rates? I'm not saying it should, but if it wanted to, would you think it a feasible thing?

RF: OK, those are two separate questions. I have never subscribed to traditional monetary theories that are set in the context of a single representative agent and in all of my work, central banks *can* control a whole spectrum of interest rates at different points in the yield curve. Second; there is the question of whether central banks *should* intervene by controlling the yield curve. Again, my answer is yes and, I would go further. Central banks should control the price of a basket of risky assets. Policies of this kind are not currently in the remit of the Bank of England or the Fed. But they should be. I remain optimistic that my work is leading them in that direction.

PA: OK, that's interesting. I'll move on to heterodox economics, and I'm looking for your personal opinion and your perception of the environment in which you work. So, what do you personally understand by the term 'hetero-

dox economics', and could you give me any examples of groups of economists that you would identify as heterodox?

RF: Well, for anyone in a major university in the UK or the US, 'heterodox' is an insult used to put down people who don't agree with you. For anyone in non-mainstream universities, it's a badge of honour, a term used to identify the fact that they really are guardians of the truth.

PA: So it's a very loaded term, then!

RF: I don't think it's a very useful term. Let's take Post-Keynesians. I wrote a piece recently – it was called 'Post-Keynesian Dynamic Stochastic General Equilibrium Theory'⁵ – which was an attempt to unite Post-Keynesians and orthodox economists. In that article I pointed out that Post-Keynesians kept alive a flame of truth from Keynes's *General Theory* that had been lost by the mainstream.

The world moves on, thought moves on, and Keynes would not be a Keynesian today. There were ideas in the *General Theory* that were kept alive in heterodox circles. The split came in the 1950s with Samuelson, who was a dominant figure on the East Coast of the US, who rejected certain ideas of the *General Theory* – in particular, a central idea from the *General Theory* that there are multiple equilibrium unemployment rates. That idea got thrown out, and that's the point where what we now call New Keynesians and Post-Keynesians diverged.

PA: Thank you. I think you've accurately covered questions 11, 12 and 13, so I might ask you question 14. Do you consider yourself to be heterodox, firstly, and secondly, do you work in a university department, do you teach undergraduates? What's your current role?

RF: That's an interesting question for me, because I always considered myself mainstream but slightly on the edge.

PA: The fact you're talking to me shows you must be somewhere near the edge, I think!

RF: So, what am I doing? I no longer teach undergraduates, I teach graduate students. I teach two graduate courses at Warwick. I'm also the Research Director at the National Institute of Economic Social Research in London, and as part of that, a bunch of my time is spent running a programme called 'Rebuilding Macroeconomics', which is an ESRC funded initiative.

After the financial crisis, the ESRC decided that macroeconomics was broken, but they weren't sure how to fix it. So, they asked for bids from teams to allocate funds. A group of people – myself and four other people on the

management team – won that bid. Whereas initially I thought that I was kind of on the edge, I soon realised otherwise.

The management team consists of me; Angus Armstrong, who's an economist at NIESR; then we have an anthropologist, Laura Bear, from LSE, a psychologist, David Tuckett, from UCL and a complexity theorist, Doyne Farmer, from Oxford. And once I started interacting with them, I realised that my role was not to map out new territory – it was to ground the project and interactions with mainstream economists. There was a danger the project would move so far from orthodox theory that none of the mainstream economists would listen to what was being said. Having said that, I guess I must be a heterodox economist, because I'm entertaining notions of introducing psychology, sociology, anthropology, and complexity theory into mainstream economics. It's a fascinating conversation with people from outside the discipline.

PA: That's great. This one relates to the new consensus macro (NCM); however you want to interpret that, and the global financial crisis – do you consider that the GFC gave any evidence to contradict the NCM, the rational expectations, New Keynesian, new classical school of thought?

RF: Yes, I think so.

PA: OK, and how can they get away with it then? How can they remain in this position of ascendancy if evidence of the GFC wasn't what they expected, they were caught by surprise? I think the Queen said, 'How come none of you guys saw it coming?' – how do you think they've managed to remain on top, all the Nobel Prize winners who've still got their status?

RF: Oh goodness, we need to get into the philosophy of science. Max Planck said that 'science progresses one funeral at a time'. He meant by this that established scientists do not change their minds in the face of contradictory facts. They simply amend their theories. And eventually, established research programmes die out because they fail to attract the best new students.

The New Keynesian paradigm has simply adapted. And to use an idea from the philosopher Imre Lakatos, it's a degenerative research agenda.⁶ It's amazing – people are taking the models they were using before the Great Recession, and they'll say, 'Well, we're just missing a piece. We really should have had the financial market in – well, let's just tack it on!' And now it's there, they go back, and they say that their model works.

It's much like Ptolemaic astronomy. When Copernicus came along, Ptolemaic astronomy continued to predict the movement of the planets better than Copernicus, initially, because followers of Copernicus were using circles instead of ellipses in the description of planetary movement. The New Keynesians are doing much the same thing. I wrote a paper with Andreas

Beyer of the ECB where we showed that New Keynesian models are unidentified.⁷ The implication of our work is that the parameters of the mainstream NK model are identified by theoretical restrictions and not by data. That may work well as a description of past data. But if the model is wrong, it will not help to predict future data nor is it a good laboratory for conducting policy experiments.

PA: How would you describe your relationship with New Keynesianism? You obviously have some aspects in common, like methodological individualism, rational expectations – but from hearing you speak I sense that you’re quite willing to criticise New Keynesianism. If there is such a thing as New Keynesian orthodoxy, you seem to have quite an uneasy relationship with it.

RF: Yes. I use the same methods, but I’m willing to give up on some of the assumptions. The big difference I have with New Keynesians goes back to the split that occurred in 1955 between New Keynesians and Post-Keynesians. In a sense, I am a Post-Keynesian who uses neoclassical methods. But even that description is not quite right because my research has also led me to be critical of Post-Keynesian policy prescriptions. For example, I believe an asset market intervention to support equity prices is a better cure for a big financial contraction than traditional fiscal policies.⁸

Samuelson’s new-classical agenda of combining Keynesian economics with equilibrium theory was a great idea. But he made a huge mistake by assuming that Keynesian economics was about sticky prices. Keynesian economics was never about sticky prices. My own work reconciles Keynes’s *General Theory* with Walrasian or temporary equilibrium theory in a different way.

There are two principal aspects of the New Keynesian model that I disagree with. Most New Keynesian economists writing before the 2008 financial crisis modelled the labour market as an auction. In an auction model, the labour market is always in equilibrium. The quantity of labour demanded is always equal to the quantity of labour supplied. The real wage and the volume of employment are determined by the intersection of the labour demand and supply curves. That’s not a good assumption for a variety of reasons, not least of which is that it jettisons the concept of involuntary unemployment. Prior to 2008, most New Keynesian economists gave up on unemployment entirely. That was a big mistake.

After the 2008 financial crisis some New Keynesian economists reintroduced unemployment into NK models using search theory. But they are doing it the wrong way. The right way is as ‘Keynesian Search Theory’, a version of search theory originally developed in my own work. This is a way of closing search models that leads to the potential for a continuum of steady-state equi-

librium unemployment rates. That's one area where I have a difference with mainstream New Keynesian economists.

My second point of disagreement is with mainstream models of financial markets. Writing in 1972, Lucas threw away all of Keynesian economics and replaced it with Walrasian general equilibrium theory. But he did it in a way that made microeconomic theorists who worked in general equilibrium theory – I have in mind Frank Hahn and Ken Arrow – absolutely horrified. Instead of thinking about an equilibrium as something that the economy was tending towards, for Lucas the market was in equilibrium at all points in time. That was a massive transformation.

Ironically, I think that Lucas's shift in viewpoint was a useful one. Moving to the 'Lucasian' view was the right way to go. But what Lucas knew, but glossed over, is that once you take that route you can no longer pin down equilibrium in terms of economic fundamentals. As I explain in my forthcoming encyclopaedia entry, 'The Indeterminacy School in Macroeconomics',⁹ there are always multiple equilibria in monetary general equilibrium models.

Not only are there multiple dynamic paths, there are also multiple steady states. Lucas was unhappy with me promoting that view argued in my book, *The Macroeconomics of Self-Fulfilling Prophecies*, and he wrote me a letter at the time saying, 'why are you doing this?'¹⁰ For more than forty years, mainstream economists have been trying to purge multiple equilibria from their models. In contrast, as I have consistently argued since 1993 we should be embracing multiple equilibria as a way of integrating key ideas from the *General Theory* with General Equilibrium Theory. Once you realise that economic fundamentals – technologies, preferences and endowments – are not enough to pin down the equilibrium, you open the door for psychology and sociology to come in and to close an economic model with a theory of beliefs. For me, beliefs should be modelled as fundamentals which have the same methodological status as preferences, endowments and technologies. So that, in a nutshell, is where I differ from most mainstream New Keynesian economists.

PA: And if you were to identify yourself with a school of economics, are New Keynesians, with reservations, as close as you would come?

RF: I refuse to be labelled. I'm a 'Farmerian'!

PA: You remind me of Charles Goodhart, in that. He seems to have sympathies and criticisms of various schools. That's quite interesting. Now when I talk about Modern Monetary Theory, this is an interesting set of questions – you're a very experienced economist, I'm interested to know what you've picked up on it, if you've not come across something that tells me a lot about the outreach of MMT.

RF: It has very little outreach in terms of mainstream economics.¹¹

PA: I'm getting that feeling. Are you familiar with MMT and its operational reality? If you're wondering what I mean by that, I have it defined here [on question sheet], what I consider to be operational reality.

RF: I've no idea what you mean by it.

PA: Obviously if you've not heard of it, that's tells me something ...

RF: My initial reaction to the definition is that it's confused. My work is heavily influenced by conventional neoclassical economics – that makes me mainstream. And with my mainstream hat on, I insist on constructing coherent models that are based on individual maximising behaviour.

When you start thinking about monetary theory and monetary economics in that context, what you might say immediately is, 'Yes, but general equilibrium theory has no role for money', which is partly true. But to the extent that it forces you to construct logical chains of reasoning, the arguments about endogeneity of money – that's where I've met MMT – I find critiques of mainstream monetary theory to be misplaced. Of course, money is endogenous! But what does that mean?

If the question is 'what determines the price level?', which I do take to be a useful question, I'm probably in bed with Modern Monetary Theorists. My view is that beliefs determine the price level. But the reason that I'm able to make that statement and live in two worlds at the same time, is because the equilibrium models I build contain lots of interacting agents of different types. As a consequence, I end up with situations where the model is not determining prices, I need something else. So there's clearly room for a marriage of that idea with notions of endogenous money from Modern Monetary Theorists, and I suspect that if I actually sat down with Stephanie Kelton, or you, or some other Modern Monetary Theorist, and had a debate about that, we'd find that we had a lot in common. I'm simply more willing to use the apparatus of traditional microeconomic theory to explain those ideas.

PA: Yeah, I get the feeling, having heard you speak before, that you are open to dialogue with what I would call heterodox views. More so than most.

RF: I think that's essential!

PA: One of the things about MMT – which leads me on to my next point – is its 'unique selling point' in the non-academic world: this idea that taxes drive money, the idea that the government must spend (or lend) money before it can tax. This is a fundamental idea – in other words, the government spends new money, always and in every case. If the government wants to, for example,

collect taxes, or sell bonds, it must spend or lend the money first. So therefore, in an accounting sense, taxes cannot fund spending. For Modern Monetary Theorists, taxes have two functions: one, to give value to state debt, because without taxes underlying the value of the currency people wouldn't accept state money in payment for delivering services to the state. And secondly, by adjusting spending and taxes, the government can adjust aggregate demand. So the idea that taxes fund spending you could view in, I guess, three ways – maybe more than that. One is it's just plain wrong because taxes can't fund spending. Two, is it is wrong but it's a useful fiction, perhaps in the sense that I might argue that Keynes saw it,¹² in that it underlies a synthetic accounting process that enables us to think about things well, and third, it's actually true in an accounting sense. The government, in order to fund spending, must acquire money from the private sector and/or borrow it.

RF: I believe that this is related to the debate, in the standard theory, on the Fiscal Theory of the Price Level.

PA: I've not come across that ...

RF: Well, I'll explain that and you can tell me if it's related, because it certainly sounds like it. Government spending, taxation and borrowing are connected by an accounting identity. In any period of time, the difference between the amount the government spends and the amount it takes in in taxes has to be funded by issuing some kind of debt. It could be money, it could be short bonds, or it could be long bonds. Treasuries spend and create liabilities. Central banks decide on the composition of those liabilities between the different categories.

There is currently a lot of angst in modern macro circles about what determines the price level. And the government accounting identity can be viewed in two ways. In one way it's a budget constraint, which the government has, just like you and I have budget constraints. We spend, we borrow, we get income, we die, and as a consequence of eventually dying, over our lifetime we can't spend more than we earn. That places a constraint on how much we can borrow. Now you and I *can* shift resources over time by borrowing and lending, so one way of seeing the government accounting identity is that it's just the analogue of what you and I do. Now, that's clearly false because the government doesn't die, and the revenues are coming in from different people from those who benefit from the spending.

One group of economists sees the government accounting identity as analogous to a household constraint. Government spending plans must be consistent with its income plans over a very long horizon. In this view, the government must make spending plans that are consistent with taxation. There is an extreme version of that argument, called Ricardian equivalence, which says

that it doesn't matter whether a given government expenditure plan is financed by debt or taxes. Different plans simply rearrange the timing of the payments, and the representative agent who must pick up the tab, is the other side of that borrowing and lending. Now, most people think that's probably wrong.

PA: Yeah, certainly MMT-ers!

RF: Indeed. Now, the other way of looking at this accounting identity is that it is a debt valuation equation. The government has a stream of primary surpluses that it will be running for the conceivable future. It has some existing debt in dollar terms. The price level must adjust to make sure that the value of the nominal debt is equal to the discounted present value of the surpluses. So, the sequence of accounting identities is a price level determination equation. I suspect that some of these issues arise in Modern Monetary Theory. Perhaps you could say more about what Modern Monetary Theorists mean by money?¹³

PA: Well, I think that what Modern Monetary Theorists would argue is that money is credit and nothing but credit.

RF: Fine, so a Treasury bill is money. Or not?

PA: Well, no – a Treasury bill isn't money, because money is simply a ledger entry. For example, what a Modern Monetary Theorist would argue is that there is no government budget constraint, it's simply an ex-post description of what's happened. So, in other words, if the government wants to spend, if you want to conceptualise as a model, the first thing it has to do is spend by issuing new money, i.e. new debt, and that doesn't have any corporeal existence.

RF: You said new money and new debt in the same breath.

PA: For a Modern Monetary Theorist, credit and debt are the same thing, made at the same time (two sides of the same coin, if you like). Therefore, new money is new debt.

RF: Perfect, I'm totally on board with the statement you just made. In the models I write down, that's true because there are multiple equilibria and because the actions the government takes help to select one of the equilibria. Maybe I should write a paper called 'Modern Monetary Dynamic Stochastic General Equilibrium Theory'.

PA: I'm currently writing a paper with my supervisor who is a TSSI Marxist.

RF: What's TSSI?

PA: The Temple Single System Interpretation. He rejects dualism – that there's a dual price and value system – and also, he would believe that the

value of inputs has to be valued differently to the value of outputs. So consequently, if you are a TSSI Marxist, you believe that Marx's original value theory is internally consistent.

If I go back to the original point, if the government spent money, what would you think would happen to the balance sheets and the economy, or do you not think in those terms? So if the government bought, say, a new nuclear submarine from a private defence contractor, what would be the monetary movements in that? I've had this question answered in so many very different ways; every person I've asked has answered it entirely differently, which is very interesting.

RF: I don't understand the question, even.

PA: That has been said before. So say, for example, I was in charge of the Ministry of Defence Procurement, and I decided that we wanted another nuclear submarine, so the orders went out from the government, 'Pay "Firm ABC" for a delivery of a nuclear submarine in five years.' What would actually happen in the balance sheet structure of the economy? Which accounts would go up, which would go down? Do you think in those terms, or do you think on a much more abstract level than that?

RF: The government has a bank account that it uses to purchase new nuclear submarines. I'm honestly bemused by the question.

PA: Well, the fact that you are is quite interesting. From my point of view, because MMT comes from Mosler, who's a financial thinker, and this idea he's on the fringes of economics, it's not a criticism of economists. It's just, like you, a lot of economists don't see that as a question that's often asked. For a Modern Monetary Theorist, they would say that if the government buys a new submarine, its balance at the Bank of England goes down. The receiving bank's reserves would go up, which would mean there's an internal transfer on the liabilities side of the Bank of England, there's a reduction in the balance in the account of the government, and an increase in the reserves held by the receiving bank. The asset total value of the Bank of England balance sheet remains the same. Regarding the bank which holds the account of the company that makes the submarine, that bank's balance sheet will expand. It will have liabilities – say it was £2 billion, I don't know if you can get a nuclear submarine for that, probably not – but now that company's got a balance at its own bank of £2 billion, which would be a liability to that bank, and on its assets side, the receiving bank's reserves would have gone up. Now, if you're a Modern Monetary Theorist answering that question, that's how I would think. But you won't be surprised to know that when I ask economists that question, they don't answer it in those terms.

RF: No, of course not. I want to ask you a question.

PA: Yes, of course ...

RF: Does it matter if the equity value of the Bank of England is negative?

PA: No.

RF: I agree with that. It's meaningless. In fact, the Bank of Israel has had negative equity for ten years.

PA: A Modern Monetary Theorist consolidates the central bank and the Treasury in terms of a model.

RF: How does a Modern Monetary Theorist deal with the difference between the world we live in now and the Gold Standard?

PA: Under the Gold Standard, the government's ability to issue debt, or to spend, is limited by its gold stocks. Because, for example, if the government runs a deficit under the Gold Standard – say it's spent a billion pounds and took in £800 million – there would be £200 million's worth of convertible gold currency.

RF: So, it's an entirely different world.

PA: Yeah, so therefore the interest rate had to be determined by the central bank so as to compete with the option of conversion, which is why big deficit countries under the Gold Standard would raise the bank rate.

RF: So, the question about buying a nuclear submarine would have very different implications in an economy under the Gold Standard than it would under the current standard.

PA: Yes, it would. I don't know if you're familiar with the employer of last resort policy?

RF: No I'm not.¹⁴

PA: That in itself is telling. What it's saying is that Modern Monetary Theorists don't believe that the main policy tool for maintenance of price stability should be interest rates, they don't believe this approach is effective.¹⁵ And an ELR also gives full employment, by definition. What they would suggest is that you have an employer of last resort policy, and what that means is that the state stands willing to offer a job at a given wage rate to anyone who turns up and asks for one. What that means is the state will offer any number of jobs, so unemployment effectively falls to zero, because if you define unemployment as 'anyone ready and willing to accept a job', it's not compulsory, so if you

were unemployed you could go to the government and say, ‘what have you got?’, and they will give you the job. So, what happens is a stock control policy – in times of recession, people move into the employed labour buffer stock.

RF: I am sympathetic to both of these points. I agree that the state has a responsibility for maintaining full employment. But full employment is not easily defined. It is possible to have too much employment just as it is possible to have too little employment. A job for everyone who wants one is a meaningless concept for someone who thinks in terms of search. In the real world, it takes resources for people to find jobs. All the time people are leaving jobs for one reason or another and societies have to find those people new jobs by some method. The unemployment rate is simply a measure of the speed with which you’re finding those people new jobs.

Now, obviously people leave jobs for endogenous reasons too, but imagine just 10% of people move across the country for exogenous reasons. They get married to someone on the other side of the country, for example. Those people are always flowing into the pool of unemployment. How quickly do you find them jobs? Well, when you recognise that it takes resources to match people with vacancies, you realise that the speed with which you find jobs for unemployed people is potentially an object of social policy. You could find them all jobs very, very quickly, so everyone was unemployed for an hour. But that might not be a good idea. Why? Because there would be a huge team of people figuring out what job each unemployed person should be assigned to. The faster you fill vacancies, the lower the unemployment rate. But a faster process requires more recruiters to match people with jobs and those recruiters might be better employed elsewhere.

To get to zero unemployment society would put so many resources into filling vacancies that nobody would be left to produce goods. There is an optimal unemployment rate which is one where society is filling jobs at a rate at which the production of commodities is maximised. In models of this process, the optimal unemployment rate is closer to 5% than it is to zero. How should we ensure that employment is close to the optimal employment rate? Here I favour intervention in the asset markets. I take this position because my published research finds that the unemployment rate is highly correlated with the value of the stock market. A deep and persistent drop in the value of the asset markets is followed, three months later, by a steep increase in the unemployment rate.¹⁶

Your second point is that MMT theorists believe that interest rate policy is not the best way to control prices. Here I disagree. My own view is that control of the interest rate is an effective way to target the inflation rate. And control of the rate of growth of an index fund of publicly traded stocks would be an effec-

tive way to control the unemployment rate. My view on how best to achieve these dual targets is explained in my book, *Prosperity for All*.

You asked, ‘Do you consider the employer of last resort policy to be a viable means to ensure full employment and price stability?’ I’m certain it could be a successful means of ensuring full employment, we saw that in Soviet Russia. I don’t think it was very efficient – the state allocating people to jobs is not my ideal society. Also, I don’t think that full employment, implemented by this policy, would guarantee price stability.

PA: In a way, it’s only a buffer stock, so what would happen to it is that the pay rates in it wouldn’t be particularly high. In a boom, the private sector would get first choice, they’d just bid people out of the pool, and in a recession, people go back into it. In a sense, it’s not like a Soviet planning thing – for example, if you were at full employment with private sector demand high, there could be close to zero in the buffer stock, if you see what I mean. Then, if you went into recession, instead of people losing their jobs and doing nothing, they would go into the buffer stock and there would be no hysteresis effect, that’s the idea. So, you know the old saying, ‘No one wants to employ an unemployed person’? If for example you were, say, an economist, and you lost your job as an economist, you could do something with similar skills in the buffer stock at lower wages and then you would not be de-skilled, if you like.

RF: There’s a very interesting proposal that you should take a look at by Morgan Warstler. He’s on Twitter. His policy which he calls ‘Uber for Welfare’ is a similar proposal to that, but instead of having the government providing these jobs, it’s a graduated subsidy scheme that would get an individual a job. If you wanted to hire someone to help write your thesis, for example, you would offer a wage, and I don’t remember the details of exactly how the scheme works, but basically the government would top up the subsidy that you would get. It’s an incentive to get private people to hire anyone, much in the same way that you’re talking about, but it uses private markets to fulfil the role that you’re assigning to the state. It’s also a way of maintaining a guaranteed income, which is an important concept.

PA: The people that you come across in your professional life, what’s their attitude towards MMT, or do they not really have an attitude?

RF: I don’t think the majority of economists I interact with have heard of it.

PA: In terms of methodology, you’ve described your methodology much more fully than any of my other interviewees – would you consider that pluralism is important?

RF: Talking to people is important if that's what you mean by pluralism. My philosophy is Lakotosian as I explained in a paper I wrote for a conference in honour of Ned Phelps.¹⁷ There are a lot of competing agendas, all working at the same time. Different people work within different agendas. I do think that it's useful to have a dominant agenda because in normal times, it is not productive to have every newly minted graduate student pursuing her own independent research programme.

But in times of crisis, it's useful to have pools of other ideas that preserve concepts that have been rejected by the mainstream. Sometimes those concepts were rejected prematurely, and they may prove useful and re-enter the mainstream. So yes, pluralism is useful as a means of preserving knowledge. For example, Post-Keynesian economists preserved the idea that there are multiple steady-state equilibrium unemployment rates. That idea should be brought back to the mainstream. But that does not make me a Post-Keynesian.

PA: The final question is what role do you consider that MMT might have to play in the practice of heterodox, or indeed any economics? Do you see it as something that's so far from what economists are thinking about that you don't even see it on the horizon?

RF: There are many pluralistic views. I'm not sure why anyone would put a label on themselves, I refuse to be labelled as anything. I don't know why anyone would want to be labelled as an 'MMT person' as opposed to someone who seriously considers the ideas in Modern Monetary Theory and tries to integrate them with other things that they found useful.

PA: Well, that, in a sense, is just as good an answer as any other. That if you kind of pick apart the question, that's really what I want to do with the questions, if you see what I mean. Well, that concludes the formal interview. Many thanks, Professor Farmer.

NOTES

1. Hicks (1939).
2. Professor Farmer later notes, 'I am editing this transcript in March of 2020 and I would add a fourth natural experiment; coronavirus. The effects of that event are playing out as I write, and it is certain to be transformative for macroeconomics in ways that will help us sort between alternative theories.'
3. Farmer (1993, 2010a, 2017b) respectively. Professor Farmer notes, 'see my forthcoming entry in the *Oxford Research Encyclopedia of Economics and Finance* on "The Indeterminacy School in Macroeconomics" (Farmer 2020). The Indeterminacy School is an approach to macroeconomics that was initiated at the University of Pennsylvania and at CEPREMAP in Paris in the 1980s. It has continued to evolve over the last forty years. The identifying feature of the

Indeterminacy School is the willingness to embrace models with multiple equilibria to explain real world phenomena.'

4. Radner (1972).
5. Farmer (2017a).
6. Lakatos and Musgrave (1970).
7. Beyer and Farmer (2008).
8. Farmer (2010a).
9. Farmer (2020).
10. Professor Farmer notes 'for background on this interaction see Cherrier and Saïdi (2018)'.
11. Professor Farmer notes, 'This statement was true when I spoke to Philip in 2018. A lot has changed since then and MMT is now being more widely discussed as a policy approach to government finance.'
12. Armstrong (2018).
13. Professor Farmer notes, 'For a more complete account of my views on the Fiscal Theory of the Price Level see my recent working paper with Pawel Zabczyk (Farmer and Zabczyk 2019)'.
14. Professor Farmer notes 'I certainly know now as a consequence of the impact of MMT on the 2020 US presidential campaign.'
15. Mosler and Armstrong (2019).
16. Farmer (2012b, 2013).
17. Farmer (2012a).