MASTERARBEIT | MASTER'S THESIS

Titel | Title

A Window into Macroeconomics: The Case of Modern Monetary Theory

verfasst von | submitted by

Andreas Albiez BA

angestrebter akademischer Grad | in partial fulfilment of the requirements for the degree of

Master of Arts (MA)

Wien | Vienna, 2024

Studienkennzahl lt. Studienblatt | Degree programme code as it appears on the student record sheet:	UA 066 906
Studienrichtung lt. Studienblatt | Degree programme as it appears on the student record sheet:	Masterstudium Science-Technology-Society
Betreut von | Supervisor:	Assoz. Prof. Mag. Dr. Maximilian Fochler

Acknowledgements

Writing this thesis has been a tremendously instructive journey. I am deeply grateful for the privilege of getting to devise and pursue my own research project. I am also grateful for the supervision and guidance of Maximilian Fochler, whose feedback has been invaluable.

I want to thank my parents Petra and Thomas Albiez for their unrelenting support. The month of September that I spent in your presence has been a fantastic way of recharging my batteries before heading for the final stretch of the thesis marathon.

I also want to thank my dear friends and fellow travelers. The co-working sessions with Julius Grießler might not have always been the most productive, but it was invigorating to be on the thesis journey together. The same goes for the countless phone calls I have enjoyed with Felipe de Leon, who has felt nearly as present as when we used to live together.

I also want to thank my wonderful partner Viktoria Wimmer, whose unshakeable belief in my abilities has lifted me up when I doubted myself. Knowing that I could always count on you for feedback and support has been an absolute blessing.

Table of Contents

List of Tables

List of Figures

1. A Window into Macroeconomics: The Case of Modern Monetary Theory

Whenever a scientist invokes Planck's dictum that 'Science progresses one funeral at a time', trouble is afoot. Ideally, scholars should accept whatever theory provides the most convincing evidence, but once in a while, a group of scientists declares that the progress in their discipline has been halted since a moribund mainstream theory refuses to make way for the new and superior paradigm. Precisely this claim is being made by the economists gathered around *Modern Monetary Theory* (MMT), for whom the historic turn from Keynesian economics to the current mainstream was "as if we returned to flat earth theory after once embracing round earth theory (Mitchell et al., 2019, p.34). In their view, there is a unified mainstream of economic theory that consists of nothing but long-disproven 'neoclassical' dogmas that fail to say anything about the real world. Modern Monetary Theorists are not alone in making this claim, as they are part of a wider community of economists that calls itself 'heterodox' – in opposition to the supposed 'orthodoxy' (Dobusch & Kapeller, 2012). Whereas mainstream economists usually just ignore these heterodox theorists, MMTers have somehow successfully "rattled the mainstream cage" (Rochon, 2019, p.158). Especially in political discourse, MMT has gained influence, as can be seen from one of the theory's main contributors serving as economic advisor to Bernie Sanders (Fullbrook & Morgan, 2019a) and the countless reactions from mainstream economists labelling MMT as "nonsense", "crazy" or "a recipe for disaster" (Rogoff, 2019; Laffer & Moore, 2024; Summers, 2019). This thesis analyzes the strategies MMT proponents use to challenge mainstream economics in order to shed light on the social processes at work when economists fight for epistemic authority. Understanding these processes is crucial due to the societal influence of economic theories that are deemed authoritative at any given time.

The discipline of economics has tremendous impact on society. Far from being a mere description of an extant reality, economic theories have been integral in shaping, regulating and creating markets, financial instruments and labor regulations (MacKenzie & Millo, 2003; Callon, 2007; Muniesa, 2014). As such, the economic theories that dominate key institutions and inform policy exert significant influence. One area of particular importance is fiscal policy. How much a government can spend has been a contentious subject for decades that has occasionally brought entire governments to a standstill, such as when the US government had to shut down numerous services because Republicans blocked the raising of the debt ceiling (Nippani & Smith, 2014; Weisman & Parker, 2013). More recently, the German government has been divided over its 'debt brake' that limits how much new debt it can take on (Bergmann & Diermeier, 2024). Its supporters see it as a shrewd measure that prevents government overreach and ensures long-term fiscal sustainability, while its opponents see it as an unnecessary 'innovation brake' that prevents key investments and rests on exaggerated fears of government debt (Feld et al., 2021; Mühlenweg et al., 2024; Fuest et al., 2024). While these conflicts partly revolve around different normative visions for the state, they centrally hinge on contested knowledge claims over the negative impact of rising debt-to-GDP ratios. Economic theories and the economists that represent them are therefore endowed with a particular kind of power and it should be scrutinized how one theory, rather than another, achieves its ascendance (Callon, 2007; Sismondo, 2011, p.120-136).

Against this backdrop of societal influence, numerous economists identify themselves as part of a 'heterodoxy' that challenges the prevailing 'orthodoxy'. They argue that economic theory and policy are both dominated by a shortsighted mainstream paradigm that rests on unrealistic assumptions and overly mathematical methods and thus fails to explain what it ought to (Dobusch & Kapeller, 2012; Lee & Lavoie, 2012). In their view, superior theories exist but are suppressed and ignored by mainstream scholars who want to maintain their privileged position. Moreover, this orthodoxy is said to be a theoretically narrow 'monoculture', whereas the heterodoxy encompasses a broad range of complementary schools of thought, offering a more comprehensive view (Dobusch & Kapeller, 2012; Mitchell et al., 2019, p.32-34).[1]

One heterodox theory has achieved a level of publicity that others have dreamed of: Modern Monetary Theory. Whereas other heterodox scholars are mostly ignored by the mainstream, MMT has broken through to wider media discourses and provoked responses from numerous mainstream economists that felt a need to 'disarm' the MMT bomb (e.g. Rogoff, 2019; Laffer & Moore, 2024; Summers, 2019). In their view, MMT can be reduced to the proposition that 'deficits do not matter', which in turn would be an extremely dangerous theory for politicians to adhere to. The theory would serve as a carte blanche for reckless government spending and thus engender massive inflation. Laffer and Moore (2024) go so far as to suggest that the Biden administration has already been practicing MMT, which "unleashed the worst inflation in 40 years". Now, MMT supporters insist that 'deficits do not matter' is a gross misrepresentation of their position, and that mainstream economists engage in superficial fearmongering to discredit MMT (Tymoigne, 2021; Wray, 2019). Yet being deemed dangerous is not a bad thing for someone who fashions themselves a revolutionary. Evidently, MMT has hit a nerve that prompted mainstream economists to respond, and while the theory has been sharply criticized since it first emerged in the late 90s, it has demonstrated more staying power than its detractors had

[1] See Appendix B for an overview of the schools of thought in economics and Appendix E for a glossary of economic terms and abbreviations.

predicted (Rochon, 2019; Lavoie, 2024). What then is the content of MMT that has provoked such strong reactions?

MMT describes "how the monetary system actually operates" (Mitchell et al., 2019, p. 131) and reaches counterintuitive conclusions about the fiscal capacities of monetarily sovereign governments. A government can be said to be monetarily sovereign if it issues its own currency with a floating exchange rate and owes only little debt in foreign currency – such as the US, Canada or Japan (p.14). According to the theory, such countries cannot be forced to default on debt denominated in their own currency and can thus never become insolvent. Because they are currency *issuers*, rather than mere currency *users*, governments are technically never financially constrained and do not have to raise taxes to pay for their expenditures. According to MMT, sovereign governments already finance all their expenditures by creating money out of thin air, since taxing and spending are operationally separate procedures and tax money is literally destroyed upon collection (Mitchell et al., 2019, p.318; Wray; 2019).

MMT thus dismisses debates about debt ceilings and redirects attention to the availability of real resources (Mitchell et al., 2019, p.20). According to MMT, monetarily sovereign governments need not worry nearly as much as they do about the size of their deficits and should instead focus on full employment. Full employment of all of society's resources, including but not limited to the labour force, has long been the focus of (post-)Keynesian thinking that forms the basis of the theory (Mitchell et al., 2019, p.12). MMT argues that governments should actively steer the economy toward full employment by spending whatever amount necessary to boost aggregate demand to the required level (Mitchell et al., 2019, p.335). Rather than trying to minimize the deficit as austerity policies foresee, governments should focus on full employment and accept the resulting deficit, however big it may end up being (p.130).

A big step for the theory has been the publication of the very first textbook written from an MMT perspective, titled *Macroeconomics* (Mitchell et al., 2019). The book, written by Bill Mitchell, Randall Wray and Martin Watts (hereafter MWW), can form the basis for university courses that teach MMT and therefore facilitates the institutionalization of the theory. Additionally, MMTers often find their theory to be misrepresented by critics and this textbook can thus also serve as the gold standard of what MMT is and is not (Wray, 2019; Tymoigne; 2021). While MWW are not the only developers of the theory, MMT scholars are remarkably unified, and the textbook's version of MMT can safely be assumed to represent a consensus or 'canon'. The book not only teaches MMT but also other heterodox theories and concepts. It can therefore be seen as a heterodox textbook with a particular focus on the monetary system as described by MMT. When mainstream economic theory is presented in the book, it is only for the purpose of showing that it is wrong, as its authors make clear: “Our preferred pedagogy is to outline valid theory before considering the alternatives that have been proffered by orthodox economists, which we consider to be flawed” (Mitchell et al., 2019, p.178). Overall, this textbook is the perfect entry-point into the controversy surrounding MMT because it represents the most settled account of what MMT is and why it is superior to the mainstream. Because it is a textbook intended for university students, it also presupposes as little as possible and explicates things about economics that other scholarly publications leave implicit.

In this thesis, I want to investigate *how MWW position Modern Monetary Theory in their textbook ‘Macroeconomics’.* Its authors, alongside many of their heterodox colleagues, claim that they present superior theories with convincing evidence, yet the mainstream refuses to admit defeat. Consequently, heterodox economists are constantly adapting and debating their own strategies with which they challenge the mainstream and present their own theories (Bettin, Glötzl & Theine, 2019; Lee & Lavoie, 2012). Given that Modern Monetary Theory has been remarkably successful at least in gaining publicity, it is the perfect site to study what strategic moves heterodox scholars make. This investigation starts from the STS view that scientific theories do not become accepted automatically by virtue of being truer. Rather, science is a social process that can involve a great deal of work in selling, defending, adapting and teaching one’s theory to establish it in the scientific community (Sismondo, 2011, p.120-136). Even when science works as intended, and a superior theory comes to be accepted, it must first come to be seen as superior through an irreducibly social process of closure wherein a particular alignment of epistemic norms, theoretical propositions and empirical data comes to be accepted (Pickering, 1981). While numerous studies of such processes have been conducted under the label of *controversy studies* in STS, many of these focus on disputes within physics or the life sciences, while economics remains under-researched from this angle (Jasanoff, 2019). While there is critical scholarship about economics textbooks written by heterodox economists (van Treeck & Urban, 2017), STS scholarship about economic controversies, particularly economics textbooks, is lacking. To structure my inquiry, I pursued three sub-questions.

The first sub-question is: What epistemic norms and expectations do MWW impose on economics? In order to make their case that the heterodoxy is indeed superior to the mainstream, MWW need normative criteria based on which they establish this superiority. The criteria they posit add up to a particular ideal that an economic theory should live up to. Such norms are by nature contestable and while some of them are largely uncontroversial (e.g. economic theories should proceed from realistic assumptions) others are shared only within heterodox circles (e.g.

microeconomics should be separate from macroeconomics). It is therefore worth examining the specific normative yardstick MWW develop.

For this question, the STS concept of *boundary work* serves as an analytical lens. Boundary work refers the attribution of "selected characteristics to the institution of science (i.e., to its practitioners, methods, stock of knowledge, values and work organization) for purposes of constructing a social boundary that distinguishes some intellectual activities as 'non-science.'" (Gieryn, 1983, p.782). In their textbook, MWW posit numerous norms and then claim that MMT fulfills them, whereas mainstream theory does not. Through a long list of such differential attributions, MWW aim to demonstrate that the mainstream is a degenerating paradigm compared to the heterodoxy.

The second sub-question is: How do MWW map the schools of thought in economics? Whenever scientists speak about different strands of economic theory, they produce a kind of map that relates the strands to each other. Such maps are never neutral, as alternative mappings are always possible, and the choices made in creating them reflect the interests and understandings of the mapmaker. Furthermore, the structure of the map can serve as an important underpinning for further arguments. In this case, MWW paint a picture where a diverse heterodoxy made up of complementary schools stands in opposition to a moribund mainstream, which refuses to admit defeat. Their own theory, MMT, is at the forefront of the heterodoxy, although the precise relationship it has to other schools remains somewhat vague. The heterodoxy and orthodoxy are furthermore argued to constitute *paradigms* in the sense advanced by Thomas Kuhn, which for MWW means that they cannot learn from each other and are instead locked into a struggle where one must displace the other (Mitchell et al., 2019, p.32-34; Kuhn,1970). The particular map MWW produce of the discipline of economics therefore serves to totalize the conflict and push for a scientific revolution.

To analyze this mapping, the lens of boundary work is again helpful. MWW's argument revolves a specific genre of boundary work, namely *expulsion*, where scientific rivals vie for epistemic authority by "drawing a map to put discrepant claims and claimants outside (or, at least, on the margins)" (Gieryn, 1999, p.16) of the discipline. Indeed, mainstream critics of MMT constantly highlight that it is advocated by "fringe economists" (Summers, 2019) working "in a small corner of academia" (Mankiw, 2020, p.1) in an effort to peripheralize their work. MWW turn the tables on this argument by asserting that they may be in the periphery of the discipline, but its core is degenerating (Mitchell et al., 2019, p.32-34). They seek to invert the current hierarchy of economics, such that the heterodoxy would become the dominant force and the current orthodoxy is relegated to the history books. Throughout their entire book, MWW map the schools of thought in economics in specific ways that they then leverage for their argument.

The final sub-question returns to the wider context and asks: What can the theory of performativity tell us about MMT and its success? Some philosophers have characterized the relationship between economic theory and reality as one of *performativity*, arguing that theory does not merely represent an unchanging reality but rather itself makes up that reality in specific ways (Callon, 1998a; MacKenzie et al., 2007; Muniesa, 2014). In this view, no human is born as *homo economicus* – but they can become one by being embedded in a wider assemblage that enacts them as such (Callon, 1998a, p.22). In this sense, the lens of performativity does not ask whether a theory is 'true' and instead wonders if it can be successfully performed such that there is a congruent assemblage of actors, practices, theories, infrastructures and institutions.

For the case of MMT, this theory fits quite well and helps to explain its appeal. MMT more so than other theories presents a 'package' that unites a description of the economy with a prescriptive set of instructions for how to run it. Specifically, MMT presupposes and advocates for a specific institutional assemblage (monetarily sovereign governments with full control of their central banks) and provides such a government with a policy framework that differs greatly from the currently dominant austerity regimes. Yet at the same time, MWW claim that its preconditions are already fulfilled in numerous countries and that their prescriptive framework can therefore be executed. Especially in the US where that is argued to be the case, MMT has enjoyed considerable publicity because it offers what seems like a substantial alternative to the current economic policies that the public has become disillusioned with but so often appears as if it were 'without alternative' (Rochon, 2019; Skidelsky, 2010).

This thesis proceeds in the following steps. First, an in-depth literature review is presented that recounts the current state of the art (Chapter 2) and introduces relevant STS theories and concepts (Chapter 3). After detailing the utilized methods (Chapter 4), the results of the empirical analysis are presented (Chapter 5). Finally, the discussion draws on the theories and concepts to analyze the results and answer the research questions (Chapter 6), followed by a conclusion (Chapter 7).

2. State of the Art

For all that has been written about the phenomenon that is Modern Monetary Theory, surprisingly little has been said from philosophical, sociological or STS perspectives. This investigation thus has little prior research to build on and therefore must draw on general STS theories and prior STS work on economics more broadly for analytical perspectives (see chapter 3). Fortunately, however, heterodox economists cherish interdisciplinarity and demonstrate a high degree of reflexivity, because of which their comments on MMT often touch on philosophical and sociological dimensions that will aid my analysis. This section consequently leans heavily on the work of heterodox scholars, especially post-Keynesians, who have published a wide variety of opinions on MMT.

This chapter first provides a summary of MMT's theoretical content (2.1.), its history (2.2.) and a consideration of what kind of epistemological object it is (2.3.). Then follows a concise note about the social scientific publications about MMT, or lack thereof (2.4.). To prepare for the later analysis of MWW's positioning of their theory, we must then examine the state of economics as a discipline with its division into *orthodoxy* and *heterodoxy* (2.5.). Lastly, the reception of MMT is summarized, beginning with the critiques from mainstream (2.6.) and heterodox economists (2.7.) and ending with rebuttals by MMT proponents (2.8.). The reception of MMT is important for our purposes, because it reveals the boundaries drawn within the heterodoxy and between it and mainstream economics, many of which we will later encounter again in the empirical analysis of MWW's textbook.

2.1. What is Modern Monetary Theory?

Modern Monetary Theory[2] (MMT) is a macroeconomic theory that revolves around the operations of the monetary system and the mechanics of government spending (Mitchell et al., 2019, p.17). Its central argument is that monetarily sovereign governments are in a peculiar role that often goes unacknowledged or is misunderstood by other economists. Since a sovereign government is the issuer of its own currency, rather than a mere user, it can never be forced to default on debt issued in this currency and is therefore technically not financially constrained in its spending (p.13). MWW frame this analysis as the heart of MMT, highlighting both its descriptive character and its realism: "MMT provides an accurate description of how the monetary system actually operates" (p. 131). Based on this description, however, MMT reaches the crucial policy conclusion that has made it a popular albeit contested theory: A sovereign government can

[2] Also sometimes called 'Modern Money Theory', which makes clearer that it is a theory of modern money, not a modern theory of money (Bonizzi et al., 2019).

technically always pay for any measure it wants by issuing more currency, without the need to increase taxes. Notably, this conclusion only applies to monetarily sovereign countries (p.317-318).

Monetary sovereignty refers to a government's relationship to its currency and forms the pivot point of the entire theory. The precise definition of sovereignty varies and is one of the most contested aspects of the theory (Tcherneva, 2016; Wray, 2019; Bonizzi et al., 2019). Bonizzi et al. (2019) highlight three main elements that authors agree on. A government is monetarily sovereign if:

1. It issues its own currency in which it also imposes taxes.
2. Its currency is "fully-floating and non-convertible" (Bonizzi et al., 2019, p.49), meaning that there is no fixed exchange rate or pegging to gold.
3. It has negligible debt in foreign currencies.

These conditions apply to countries such as the United States, Japan or Canada, while excluding all Eurozone countries (for not issuing their own currencies) and most developing countries (for having too much debt in foreign currencies). A few European MMT economists nevertheless apply parts of the theory to the Eurozone (Ehnts & Höfgen, 2019). The beating heart of MMT, however, remains an elaboration of the capacities that monetary sovereignty grants a government, namely a counterintuitively large fiscal agency.

A monetarily sovereign government is technically never revenue-constrained in its spending. Folk economic thinking assumes that, like a private household, a government needs to collect income (taxes) before being able to spend and in this sense, can 'run out of money' (Mitchell et al., 2019, p.318). MMT however points out that money collected from taxes is *never* deposited into an account from which it is later withdrawn for spending (Armstrong, 2019; Mitchell et al., 2019, p.318). Rather, tax income is removed from circulation and literally destroyed in the case of non-paper money. In a second and operationally independent step, the government spends money by issuing new currency. These statements are not put forward as theories or possibilities, but as facts of the present operational reality of sovereign states (Mitchell et al., 2019, p. 347). From this technical description of how government spending works, MMTers derive the conclusion that governments need not raise taxes to fund expenditures – quite the opposite. In fact, spending *precedes* taxation in their view, both logically and historically (Wray, 2019). Since a government does not need tax revenue and already spends by issuing currency (Mitchell et al., 2019, p.325), it is never financially constrained in its spending and can always afford anything available for purchase in its currency and meet prior obligations (pp.13, 317-318). However, this technically true statement does not mean that practically, a government *should* spend without limit – which MMT has been misconstrued as saying (Wray, 2019).

A framework for how a government should spend and tax is provided by the fiscal doctrine of *functional finance*. Originally formulated by Abba. P. Lerner (1943), functional finance is an integral part of MMT that provides a prescriptive guide for understanding government spending and setting the right tax levels (Mitchell et al., 2019, p.335). First, governments should spend on the *functions* they want to support, such as healthcare, pensions, infrastructure, education (p.560). Second, they should understand themselves as managers of aggregate demand, which is increased by government spending and should be at precisely the right level to maintain full employment (p.335). Too little demand and the economy cannot reach full employment, too much and inflation ensues. This is where taxes come in, which governments should use to drain excess liquidity (too much money) from the economy to bring aggregate demand back down to the right level (Mitchell et al., 2019, p.323).

Functional finance and MMT as a whole thus turn the role of deficits on its head. Most countries impose on themselves some doctrine of *sound* finance that limits government spending to a 'reasonable' budget that is determined *ex ante*, and then cut its services to fit inside that budget (Mitchell et al., 2019, p.336). MMT instead instructs governments to spend however much necessary to reach full employment and provide desired services, tax to control demand and then accept whatever deficit results as an *ex-post* outcome (p.336). In the functional finance perspective, taxes are thus still connected to spending – but only because they both modify aggregate demand, not because the former finances the latter. From an MMT perspective, sound finance and austerity policies are entirely unnecessary, theoretically misguided and harmful to the public purposes the government should fulfill (Mitchell et al., 2019, p. 442).

A further addition to the peculiar role of sovereign states is the *Chartalist* conception of money. Chartalism or the 'state theory of money' was originally coined by G.F. Knapp and further developed by Abba P. Lerner (Knapp 1924; Lerner, 1947). In their view, "money is a creature of the state" (Lerner, 1947, as cited in Mitchell et al., 2019, p.335) in the sense that it originates and derives its value from the actions of the government. Currencies have value because the government declares it so and imposes tax liabilities that drive demand for the currency (Mitchell et al., 2019, p.335). Wray (2019) cites Keynes in saying that this has always been true of sovereign governments, at least for the last 4000 years. He points out that 'modern money' is a misnomer if it is taken to imply that MMT only applies to contemporary governments. This narrative is important because it further underscores the government's peculiar role as currency issuer. Chartalism has long been central to MMT, and, before its current name stuck, MMT was often called 'Neo-Chartalism' (Tcherneva, 2006, Lavoie, 2013).

The above points distinguish a sovereign government from a private household, which is an extremely important distinction for MMT theorists. Both lay people and mainstream economists often think and speak of government spending as if it was analogous to that of a private household (Mitchell et al., 2019, p.124). However, because a government is a currency issuer, it cannot be forced to default on its own debt, does not need to collect income before being able to spend and thus can always finance expenditure in its own currency. Economic intuitions that are commonly espoused in public discourse are therefore misleading and should be avoided (Mitchell et al., 2019, pp. 123-124, 318).

In terms of methods, a key component of MMT is to scrutinize how funds flow from one sector to another as part of what they call the *sectoral balances approach* (Mitchell et al., 2019, pp.83-103). This approach has been influential in post-Keynesian economics since the 90s and is based on the work of Wynne Godley (p.552). The approach distinguishes three sectors: the private domestic sector (households and companies), the public domestic sector (the state), and the external sector (foreign states, companies and households) (pp.83-85). These sectors constantly interact with each other, such as when citizens pay taxes, governments pay their employees, or companies export goods. Ultimately however, one sector's spending is always another sector's income, meaning that the flows between sectors add up to zero as expressed in this identity (p.85):

$$(S - I) + (T - G) + (-CAB) \equiv 0$$

Which translates to (Das, 2023, p.277):

"Domestic private balance + domestic government balance + foreign balance ≡ 0"

Consequently, not every sector can run a surplus at the same time. It is impossible for citizens to save money while the government is running a surplus unless the foreign sector runs a deficit. Given furthermore that the flows between all nations taken together also sum to zero, the global private sector cannot accrue financial wealth unless the global public sector accrues debt (Mitchell et al., 2019, p.86). This analysis yields the insight that governments persistently running deficits may be necessary in order for the private sector to accrue wealth, depending on the export balance – adding to the argument that deficits are in most cases the healthy 'default' stance for a government to take, and not inherently unsustainable, as austerity advocates would have it (Mitchell et al., 2019, p.85-86).

The final part of MMT we need to understand is the policy proposal of a *Job Guarantee*. The Job Guarantee (JG) designates the government an 'employer of last resort' that will provide a job to anyone looking for, but unable to find work (Mitchell et al., 2019, p. 301-311). Thus, "Instead of a person becoming unemployed when aggregate demand falls below the level required to maintain full employment, that person would enter the JG workforce" (p.302). The program would act as an automatic stabilizer, with the JG workforce expanding and shrinking countercyclically (p.303). The Job Guarantee program, which is also known as an ‘employer of last resort’ scheme or as an ‘employment buffer stock approach to price stability’ in the textbook, does not follow directly from the descriptive parts of MMT but is nevertheless considered the “flagship policy of MMT” (Wray, 2019, p.53) and is thus a vital part of the theory (Wray, 2018).

One crucial assumption of MMT is the *consolidation of government and central bank*. All of the above explanations have spoken of ‘sovereign governments’ as if they had full control over their central banks, which is assumed to be the case in MMT (Mitchell et al., 2019, p.16). In theory, these are two separate institutions with a division of responsibilities that varies across nations and that is meant to insulate central banks from political control (p.370). MWW however argue that in practice, central banks are not truly independent, because they already must work closely together with treasuries to ensure smooth operations of the economy (pp. 322, 372). And neither should they be independent, because maintaining a strict separation – as is the case with the European central bank – artificially constrains the agency of governments over the economy in a detrimental way (p.518). MWW thus conclude that central bank independence is neither desirable nor the norm in current practice, which makes the assumption of a consolidated treasury-central bank sector plausible. Besides the definition of monetary sovereignty, this is one of the most contested parts of the theory (Espinosa, 2024, p.87).

2.2. A Brief History of MMT

The theoretical content of MMT started to coalesce in the late 90’s through the work of Warren Mosler and Randall Wray (Armstrong, 2020a; Rochon, 2019). Mosler (1995) and Wray (1998) are usually credited as the first coherent statements of the theory (Rochon, 2019). Mosler especially is seen as the one who “got the ball rolling” (Ehnts, 2023b, my translation). The institutions MMT has come to be associated with are the Levy Economics Institute of Bard College New York, the University of Missouri-Kansas, and the Centre of Full Employment and Equity at the university of Newcastle, Australia (Fullbrook & Morgan, 2019a; Armstrong, 2020a). Already in its early days, post-Keynesians were critiquing MMT (Sawyer, 2003; Gnos & Rochon, 2002, Rochon & Vernengo, 2003). Some of the points raised in these critiques are maintained to this day.

In the 2010’s, MMT rose to significant prominence. It started to gain traction in public discourse around 2016, when American senator Bernie Sanders appointed the MMT theorist Stephanie Kelton (née Bell) as economic advisor to his presidential campaign (Fullbrook & Morgan, 2019a). Subequently, the acronym ‘MMT’ was invoked from both sides of the political aisle. Democrats invoked MMT to argue that the Green New Deal is financeable, while a group of Republicans passed motions denouncing the theory as dangerous nonsense (Rochon, 2019;

Dmitrieva, 2019). This was the biggest political impact and publicity any post-Keynesian theory had gotten in the last few decades (Rochon, 2019).

MMT's meteoric rise to fame was partly due to good timing. The financial crisis of 2008 had made even the most ardent adherents to mainstream economics see its blind spots (Mitchell et al., 2019, p.537). Additionally, the dominance of austerity regimes had begun to show its consequences through the erosion of public services cut back for the sake of lowering deficits (Mitchell & Fazi, 2017). In this climate, where governments were granted a tiny window for fiscal agency, MMT provided an argumentative repertoire to broaden that window. The neoliberal dogma that there is no alternative to austerity regimes was suddenly under fire (Rochon, 2019; Mitchell, 2023a).

MMT supporters successfully leveraged this opportunity through massive activity on the internet. There are countless blogs, podcasts and YouTube videos teaching MMT – even an educational MMT Manga created by Bill Mitchell (MMTed, 2024; MMTed, n.d.). It is uncommon for economists to be this active on social media and it has certainly contributed to the recruitment of online users (Lavoie, 2024). Another huge success was Kelton's 2020 book 'The Deficit Myth', which became a NYT bestseller and generated tremendous publicity, both positive and negative (Kelton, 2020).

Now, the future of MMT is open and there are multiple trajectories into which it could lean. First, there is a trajectory of differentiation that seeks to make MMT a standalone research program. For instance, Mitchell argues that MMT is a "body of work that's an identifiable school of thought" and generally tends to emphasize MMT's uniqueness (Mitchell, 2020a; Lavoie, 2024). Other MMTers emphasize their closeness to post-Keynesians (e.g. Watts, 2020b) and MMT could both grow closer or more distant to its home roots. This development goes hand in hand with the second trajectory of institutionalization. MMT has mostly been developed in a few identifiable places, where it is already somewhat institutionalized. Further steps of institutionalization include the creation of the MMT summer school[3], MMT conferences[4], and of course the publication of the first MMT textbook which can become the basis of university courses on MMT (Mitchell et al., 2019). The embedding of heterodox economics into universities and other institutions, however, is usually resisted by mainstream economists and it thus a continuous struggle (Bettin et al., 2019).

The textbook *Macroeconomics* is also a huge step in the final trajectory of *canonization*. Since the beginnings of MMT, its creators have been struggling to get readers to understand

[3] Summer school: https://fundacjalipinskiego.pl/wydarzenia/mmt-4th-summer-school-in-poznan/
[4] MMT conferences: https://www.mmtconference.eu/ ; https://mmtconference.uk/conference2024/ ;

where MMT begins and ends. Critics commonly point out that it is “not straightforward to summarise ‘what MMT says’ on any given topic. MMT itself is hard to characterise” (Bonizzi et al., 2019, p.47), while MMT theorists feel like they have been clearly stating the theory over and over again (Wray, 2019). Part of this problem comes from many people speaking in the name of MMT, including politicians and lay people, such that it is unclear whose MMT is the real one (Lavoie, 2024). MWW’s textbook can thus be seen as the canonical version of MMT that should serve as the gold standard reference – although critics complain that even in the textbook it remains unclear what MMT is (Mankiw, 2020).

Finally, the political future of MMT too is open. Some predict that MMT will remain relevant in the coming years (Brady, 2020), especially after the Covid-19 pandemic and the renewed desire for proactive governments (de Beer & Keune, 2022; Bergsen, 2020), with others prophesizing that it will be ‘pushed back into the heterodox wilderness’ as its star is waning (Colander, 2019, p.62; Toporowski, 2019; Fendel & Schmidt, 2023). The MMT proponents themselves are of course hopeful and continue to make grandiose claims, especially calling MMT a ‘paradigm shift’ in the making (Kelton, 2024; Mitchell, 2020b; Armstrong, 2018). Whether MMT will turn out to be a flash-in-the-pan that seized an opportune moment in time, or become a permanent voice that informs policy, will depend largely on the MMTers’ success in adapting their strategies and building a lasting research community (Lavoie, 2019; Lavoie, 2024; Rochon, 2019).

2.3. What Kind of Object is MMT?

In one sense, MMT is a description of the mechanics of government spending and monetary operations, with the overarching prescriptive framework of functional finance and the ‘flagship policy’ of the Job Guarantee. In this sense, it is reasonable to call MMT an *economic theory*. While this is undeniably one facet of MMT, some scholars have rightfully argued that the phenomenon of MMT permits other perspectives. Whereas MMT proponents usually call it a ‘theory’ or a ‘lens’ (Armstrong, 2019; Ehnts, 2023a), others describe MMT as a political polemic (Hartley, 2020; Palley, 2014, 2020; Toporoswki, 2019), a narrative (Colander, 2019; Mitchell et al., 2019; pp.15,120), or a twinned ‘general case’ that is simplified for a general audience and a more scholarly ‘specific case’, between which MMTers oscillate at will (Lavoie, 2019, 2024). These descriptions are not mutually exclusive and indeed overlap in some writings. Furthermore, some authors intend to discredit MMT as a scientific theory by calling it a narrative, whereas others neutrally reflect on its multiplicity. For our later analysis of boundary work conducted in and around MMT, these arguments are highly relevant.

MMT scholars usually refer to their work as a ‘theory’, ‘lens’ or ‘perspective’. In numerous articles, MMT scholars insist that it is a scientific theory in order to defend its legitimacy from those who call it a political campaign. German MMT scholar Ehnts insists that MMT is descriptive and scolds commentators (Fendel & Schmidt, 2023) for questioning the ‘implementability’ of MMT, as he writes: “What is that even supposed to be? How could one even implement ‘MMT’? None of us demands such a thing. MMT is a theory, a description of reality. It cannot be ‘implemented’” (Ehnts, 2023a, my translation). The idea of a descriptive theory is also captured in the commonly employed metaphor of the lens: “MMT provides a lens which enables a deeper understanding to emerge” (Armstrong, 2019, p.42). A lens is a passive element that magnifies some aspects while limiting one’s field of view. The metaphor thus captures how MMT magnifies the peculiar role of governments as currency issuers. Similarly, the very first sentence of *Macroeconomics* reads: “This book presents a comprehensive, university level study course in Macroeconomics from a Modern Monetary Theory (MMT) *perspective*” (Mitchell et al., 2019, p.xxvi, emphasis added). These metaphors underscore MMT’s descriptive side, especially in the face of dismissive critiques that only address its policy side.

MMT nevertheless has a prescriptive side. In *Macroeconomics*, a differentiation between description and prescription is made: “On one level, the MMT approach is *descriptive*: it explains how a sovereign currency works in practice”, and “Functional finance principles provide a framework for *prescriptive* policy. Thus, sovereign governments *ought* to operate fiscal and monetary policy to achieve full employment.” (Mitchell et al., 2019, p.348, emphases added). In MWW’s argument, the descriptive component of MMT precedes the prescriptions. The policy prescriptions then flow from the descriptions and serve higher-level prescriptions like full employment or price stability, that are nigh universally accepted in economics as indicators of a healthy economy. While MWW also often speak of MMT as a ‘perspective’ or ‘approach’, their development of a prescriptive policy package (Chapters 19-26) still contradicts Ehnts’ deflationary framings of MMT as mere description. MMTers nevertheless insist on its political neutrality, arguing that ‘MMT can lead you left or right’ since nothing in MMT dictates on what money should be spent (Medlen & Chen, 2023).

Counter to these framings, some critics emphasize MMT’s political side. MMT is “more of a marketing success than an intellectual success” (Colander, 2019, p.62) according to these critics, who are skeptical of its theoretical value and attribute its success mostly or entirely to its political usefulness (Palley, 2014, 2019; Hartley, 2020). They see MMT as a “policy polemic for depressed times” (Palley, 2014, p.58), which repackaged and transferred existing post-Keynesian insights into the political arena (Palley, 2014; 2015b). Other critics go further and deny that MMT even qualifies as a theory. Toporowski (2019) writes that:” *Modern Money Theory is not so much a systematic exposition of what money is and how it works in a capitalist economy, as a set of doctrines with policy implications that promise to resolve the (monetary) ills of our economies*.” (Toporowski, 2019, p.195). In his argument, the political impact is based on a strongly oversimplified narrative that fails to hold up to scrutiny, and thus ultimately would also fail when used to guide real-world policy (Toporowski, 2019). He highlights especially MMT’s promissory character that progressives can employ as a carte blanche for increased government spending.

Yet another common framing of MMT is as a ‘narrative’. Heterodox critics almost unequivocally argue that mainstream economics is obsessed with overly technical, formalistic and mathematical models, such as the *Dynamic Stochastic General Equilibrium* (DSGE) framework (Dullien, 2009; Colander, 2019; Skidelsky, 2010, p.xii). MMT has been praised by some as a welcome contrast because it narrates the origins and innerworkings of money (Colander, 2019). Indeed, MWW themselves occasionally refer to MMT as a narrative, especially those parts surrounding the Chartalist theory of money and explanations why ‘spending precedes taxation’ (Mitchell et al., 2019, p.15;120; Wray, 2019). This narrative facet of MMT may be part of the reason why it has been so popular among activists and students that struggle to comprehend purely technical models (Mitchell et al., 2019, p. 115). An alleged lack of formalism and rigor has also been a point of criticism, however (Palley, 2014).

Lavoie (2019) describes MMT as a consisting of a ‘general’ and a ‘specific’ case, between which MMTers hop back and forth. He argues that MMTers sometimes present a ‘specific’ or ‘academic’ version of MMT that is intended for sophisticated readers or scholarly researchers and that precisely spells out institutional specificities (Lavoie, 2019, p.98). Conversely, MMTers sometimes present a ‘general’ case that glosses over these specificities and constitutes more of a simplified rhetoric. Lavoie uses this distinction to explain where frustrations in the debate come from:” The presence of these two strands creates a lot of confusion, as MMT authors reverse back to the specific or academic version whenever the oversimplified *general* or *vulgar* version is being attacked, thus creating the criticism that the goalposts are constantly moving.” (Lavoie, 2024, p.74). The key difference between the cases is that the general story “assumes the consolidation of the central bank and the government into a single unit” (Lavoie, 2024, p.98), which contradicts the reality of many countries (Lavoie, 2019). As Lavoie points out, many countries currently insulate the central banks somewhat from political influence, and regardless of whether that is desirable or not, economic theories should respect the current operational reality. Instead of making this consolidating assumption, Lavoie recommends that MMTers abandon the general case and frame the consolidation as something that *should* be made a reality, rather than pretending it already is (Lavoie, 2019, p.99). He thus also calls into question whether MMT really is an accurate description of the world as it is.

Especially in relation to these two cases, it must be pointed out that core MMT theorists have limited discursive control over what people see as 'MMT'. Online activists and politicians have quickly picked up the general case of MMT and utilized it for their arguments (Colander, 2019; Brady, 2020). Some of their arguments are provided by books like *Reclaiming the State* (Mitchell & Fazi, 2017) or the *Deficit Myth* (Kelton, 2020), that have been called "instructional polemics" (Medlen & Chen, 2023) since they translate the scholarly MMT case to a more usable political rhetoric. Nevertheless, the academic MMTers cannot fully control how MMT is summarized or framed by activists. Consequently, the key contributors and popularizers of MMT have found themselves replying to critiques of a general case of MMT that may have been simplified less by themselves and more so by activists acting on their behalf. The MMT textbook can thus also be seen in this context as an attempt at providing a 'definitive', canonical version of MMT.

Ultimately, commentators intend various things with these framings. Colander (2019) argues that economic theory and policy should be separate enterprises, and MMT drastically oversteps the line in being so political – thus leveraging an epistemological boundary as an argument against MMT. While not objecting to this mixing per se, others argue that MMT derives its success from its political usefulness, not from its intellectual contribution (Toporowski, 2019; Palley, 2014; 2020). Lastly, Lavoie intends to help MMTers by clearing up confusion between the two cases he outlines.

2.4. Social Scientific Publications About MMT

In my search, not a single STS publication about MMT has been found.[5] More generally, it has been surprising how scarcely publications about economics were found in the STS journals *Social Studies of Science* and *Science as Culture*. There is STS work on the performativity of economics, but the literature studying controversies sociologically is mostly limited to controversies within natural sciences. MMT appears under-researched from sociological, philosophical and STS angles and my investigation must therefore rely on the contributions of economists who contributed to the debate.

One notable exception is the scholar Phil Armstrong, who acquired a philosophy PhD with his dissertation about the relationship between MMT and heterodox economics (Armstrong,

[5] A search for: ('Modern Monetary Theory') OR ('Modern Money Theory') OR ('Neo-Chartalism') has yielded zero results in relevant STS journals. See Appendix A for a full list of searched journals.

2020a). Since then, he has gone on to publish numerous further works about MMT, including an insightful collection of interviews and commentaries on MMT by its leading scholars and critics (Armstrong, 2020b). Notably, however, Armstrong is deeply sympathetic towards MMT, has published together with Mosler and can be considered a supporter and contributor of the theory (Armstrong & Mosler, 2020). His works are interesting because his perspective is that of a philosopher of science, but also that of an insider promoting the theory, rather than an outside observer.

2.5. The State of Economics – Heterodox Underdogs Against a Neoclassical Orthodoxy?

Modern Monetary theory and its publicity are embedded in a wider discourse about the allegedly dismal state of the discipline of economics. Heterodox scholars see themselves as marginalized and have thus been embroiled in internal debates about strategic perspectives and their self-understanding (Dobusch & Kapeller, 2012). These debates are complex. For our purposes, it suffices to sketch the key issues and the spectrum of positions voiced on them, so that the positions MWW take in their textbook can be evaluated. The key debates revolve around the marginalization of heterodox scholarship, the 'heterodox vs. orthodox' duality, the contours of the mainstream and whether it should be called 'neoclassical', the question whether 'pluralism' is worthwhile aim, and the question whether Kuhnian or Lakatosian descriptions of 'paradigms' or 'research programs' fit the state of economics.[6]

Many heterodox scholars see the discipline of economics as sharply divided between themselves and an oppressive orthodoxy (Dobusch & Kapeller, 2012). The minimal premise of all such argumentations is that there is a 'mainstream' in the discipline that hardly interacts with those outside it while monopolizing resources and political influence. Scientometric analyses have indeed shown a high degree of concentration "along six dimensions: articles, journals, regions, institutions, authors, and paradigms," (Glötzl & Aigner, 2017) in the sense that the most referenced authors and institutions enjoy a drastically disproportionate number of citations and a mere three per cent fall upon heterodox scholarship (Glötzl & Aigner, 2017; 2018; Dobusch & Kapeller, 2012). There appear to be largely separate citation networks (Aistleitner et al., 2019), where the heterodoxy speaks at lengths about mainstream theories and models as a 'failed' or 'degenerating' paradigm, and the mainstream does not speak about the heterodoxy at all (Keen, 2020; Lee, 2012; Mitchell, 2020a). The most widely used textbooks for university teaching have

[6] For an overview of what schools of thought are considered heterodox, see Appendix B.

also been criticized for exposing students only to a narrow mainstream while invisibilizing dissenting scholarship (Treeck & Urban, 2017).

This divide is usually talked about in dualistic terms such as heterodox-orthodox, although the definitions of the respective sides are debated, especially in regard to the strategic aims of the heterodoxy (Mearman, et al., 2019; Rochon & Docherty, 2012, Dobusch & Kapeller, 2012). The ‘mainstream’ or the ‘orthodoxy’ is usually defined in one of two ways. First, it is often identified *intellectually,* by a shared body of theoretical content, methodological approaches and assumptions (Lee, 2012; Bigo and Negru 2008). For instance, Martin Watts (the second ‘W’ in ‘MWW’) counts as heterodox “any economist who doesn’t believe that the market-driven economy achieves efficient and equitable macroeconomic outcomes, and would thereby emphasise the role of the government in terms of its capacity to conduct fiscal policy and achieve superior outcomes” (Watts, 2020, p.279). Alternatively, it is defined *sociologically*, as the mesh of scholars and theories that presently dominates teaching and research positions at prestigious universities (Dequech, 2012). The latter definition is necessarily a negative one – heterodox scholars are those opposed to and marginalized by the mainstream, whereas the former definition also allows for a positive conceptualization of heterodox economics based on shared premises, methods or ontologies. Besides debates about how to define the heterodoxy, there has also been disagreement over whether economics really is all that dualistic, and whether the dualistic framing is a good rhetorical strategy (Mearman, 2008, 2011; Hodgson, 2022; Earl & Peng, 2020).

Heterodox scholars debate whether the mainstream should be called ‘neoclassical’. The term originated with the by now more than 100-year-old theories of Walras and Menger (Colander, 2000). Mainstream scholars of the last 30 years usually do not describe themselves using that label. However, many heterodox scholars including MMTers and MWW in their textbook continue to talk of ‘mainstream’ and ‘neoclassical’ economics interchangeably (Rochon & Rossi, 2023; Mitchell et al., 2019). Their argument is that all mainstream theories rely on assumptions that are so catastrophically false that they invalidate the work based on them, especially the characteristic focus on the existence of one general equilibrium for a given economy (Rochon & Rossi, 2023; Rochon & Docherty, 2012). Conversely, Colander (2000) has declared the death of the descriptor ‘neoclassical economics’. In his argument, the term no longer describes mainstream economics well, as its diversity and areas of study have long outgrown the 20th century economists it once described (Colander, 2020). Therefore, instead of using ‘neoclassical’ as a slur to denigrate mainstream economists, heterodox scholars should just state their critiques of the mainstream otherwise, lest they confuse students with obsolete terminology (Colander, 2000).

Activists and heterodox scholars also disagree whether ‘pluralism’ in economics is a worthwhile goal (Dobusch & Kapeller, 2012). The *International Students Initiative for Pluralism in Economics* has pushed for methodological and theoretical diversity, as well as interdisciplinarity, in economics curricula (ISIPE, 2014). This impressive grass-roots movement consisting of more than 100 sub-groups spread across 35 countries (Treeck & Urban, 2017, p.13) wants to see heterodox scholarship *added* to teaching: “It is not the particulars of any economic tradition we object to. Pluralism is not about choosing sides, but about encouraging intellectually rich debate and learning to critically contrast ideas” (ISIPE, 2014). This view sharply contrasts with that of some heterodox scholars who want to *supplant* mainstream economics entirely (Rochon & Rossi, 2023; Mitchell, 2020a). In their view, all mainstream economics is essentially neoclassical and so deeply wrong that it is unworthy of teaching. Most MMTers fall into this latter group, with MWW proclaiming this aim explicitly (Mitchell et al., 2019, p.xvi, p.552). For Mitchell, heterodox scholarship or even MMT by itself is sufficiently pluralistic: “If pluralism means that everything is equally privileged then I don’t think that’s correct. (...) MMT is a pluralistic body of thought because it brings in diverse influences, including sociology, anthropology, history, economic history, mathematics, philosophy, economic theory – that’s pluralistic.” (Mitchell, 2020a, p.162-163).

While heterodox scholars overall are torn whether Kuhnian and Lakatosian descriptions of science apply to economics, MMTers frequently use this language. For more than 40 years, it has been debated whether Kuhn’s language of paradigms or Lakatos’ ‘research programs’ with a core and a periphery better fits the discipline of economics (Baumberger, 1977; Blaug, 1976; Backhouse, 2012). Some reject that either description is suitable (Drakopoulos & Karayiannis, 2005), others defend a sophisticated conception of paradigms drawing on decades of debate (Dobusch & Kapeller, 2012). Most MMT proponents, however, do not engage with that debate in-depth, but simply use Kuhnian or Lakatosian framings in a relatively haphazard manner. Mitchell, for instance, argues that “the mainstream paradigm is moribund. (...) it’s a degenerate paradigm” (Mitchell, 2020a, p.152), a claim echoed by numerous other MMT contributors (Wray, 2020; Mosler, 2020; Armstrong, 2024). MWW also argue in *Macroeconomics* that the current mainstream paradigm should be supplanted in its entirety (Mitchell et al., 2019, p.32-34;). It remains unclear, however, whether the heterodox body of work or MMT alone is the new paradigm. For Mitchell, the latter seems to be the case: “The MMT economists are delivering the alternative paradigm in macroeconomics. No other challenge to the mainstream has succeeded and the heterodox tradition just became lost in peripheral issues" (Mitchell, 2023b).

2.6. Mainstream Critiques of MMT

MMT has drawn numerous responses from mainstream economists. Heterodox colleagues praise MMTers for this unusual feat, given that their work usually goes ignored by the mainstream (Fullbrook & Morgan, 2020). However, this attention is overwhelmingly negative. Comments from mainstream economists focus on different parts of MMT and vary both in length and sincerity of engagement but are united in having little positive to note about the theory. Notably, mainstream economists publish their comments on MMT mostly in newspapers and other non-scholarly sources, which some MMT proponents accuse of being a strategy to peripheralize heterodox scholarship (Watkins & Seidelman, 2023).

Numerous mainstream economists have dismissed MMT for its (alleged) core conclusions. A series of such comments emerged in 2019, when a few top economists and central bankers agreed that the core conclusions of the theory are "modern monetary nonsense" (Rogoff, 2019; McCormick, 2019; Holland, 2019). The Chair of the American Federal Reserve, Jerome Powell argued that "the idea that deficits don't matter (...) is just wrong" (Rogoff, 2019, p.1), a point echoed by numerous other mainstream economists (Sumner & Horan, 2019; Skousen, 2020). Some of these responses mention that MMT has been taken up by progressives in America, which is why they feel a need to disprove it (Rogoff, 2019; Laffer & Moore, 2024). The tone of these critiques was firmly dismissive with a hint of shock over the fact MMT is even being discussed.

Because of its position on deficits and inflation, some have also labeled it a dangerous theory. MMT is often quoted as saying – against the specifications of its proponents – that deficits never matter, which will encourage governments to engage in reckless, inflationary spending (Skousen, 2019; Rogoff, 2019; Brady, 2020; Laffer & Moore, 2024). Drumetz & Pfister (2021a) call it "a wrong compass for decision-making" since they see it less as a scientific theory and more as a political campaign characterized by wishful thinking. The dismissive tone of critics is also reflective of the danger they see in MMT as a guide to policy.

Other critics have focused less on its conclusions and argued instead that its premises and analyses are nothing new. Beck & Prinz (2019) surmise that parts of MMT are uncontroversial and true, yet also trivial and unworthy of the revolutionary character attributed to MMT. They furthermore point out that the MMT conclusions do not follow from its premises. That MMT's novelty is exaggerated is widely agreed upon by mainstream critics (Drumetz & Pfister, 2021a;

Mankiw, 2020) and even by many post-Keynesians (Palley, 2014, 2020; Davidson, 2019; Sawyer, 2019).

MMT proponents have also been criticized for obfuscating the debate. The New Keynesians Mankiw (2019) and Krugman (2019) complain that MMT is hard to delineate, with the latter stating: "The problem is that I don't understand her [Kelton's] arguments at all. If she's saying what I think she's saying, it seems just obviously indefensible. If I try to explain that, will I be told again that I just don't get it?" (Krugman, 2019). He laments especially that MMTers constantly change their own position: "every time you think you've pinned them down on some proposition, they insist that you haven't grasped their meaning" (Krugman, 2019).

Lastly, the most well-meaning of the mainstream critics have claimed that MMTers are needlessly hostile towards them. This complaint comes especially from New Keynesian economists who engaged in a seemingly sincere manner with MMT yet grew frustrated at their responses. After a back-and-forth with MMT proponents (Drumetz & Pfister, 2021a; 2021b; 2022; Mitchell, 2023b; Ehnts, 2022), Drumetz & Pfister (2023) argue that MMTers have sidestepped their criticisms while also hurling insults at them. They conclude that an opportunity for fruitful exchange has been missed and add that "it takes two to tango" (Drumetz & Pfister, 2023). Mitchell (2023b) denies that their engagement was a sincere effort and alleges that they misconstrue MMT, since they relied on the wrong sources to understand it. In a similar case, Paul Krugman (2019) expressed that MMTers seem unwilling to accept an olive branch presented to them:

> I really don't want to spend time arguing with the Modern Monetary Theory people; after all, we agree on basic policy issues right now, and they are never likely to have as much destructive influence as the deficit scolds. But the MMT people think they have an argument with conventional Keynesians like me, and as long as they're out there claiming that standard macroeconomics is all wrong, I guess we need to respond. (Krugman, 2019)

In an earlier article, Krugman complains that he is being harassed by MMT followers (Krugman, 2011), to which Wray (2011) remarks that Krugman continuously mispresents MMT in his critiques and that it is nice to see MMT-supporters correcting him in the comments to his articles. Evidently, Mitchell and Wray do not consider these New Keynesians as potential allies (see also Mitchell, 2019e).

2.7. Post-Keynesian Comments on MMT

Heterodox scholars have taken diverse positions on MMT. In this process of position-taking, social dynamics of scientific work are laid bare, boundaries are drawn, and values explicated. For the present study of how MWW position their theory, it is therefore helpful to know the criticisms and comments raised by heterodox colleagues to see how they are taken up and responded to in

Macroeconomics. We will first deal with post-Keynesian voices, as they are MMT's closest colleagues and strongest influence. It should be noted that the majority of the debate and the bulk of most papers focuses on theoretical critiques of MMT. For our purposes, these are not as relevant as the comments made about epistemological, sociological, strategic or interpersonal aspects of the MMT debate. For the most up-to-date review of theoretical critiques on MMT, see Espinosa (2024).

Numerous post-Keynesians have commented on MMT with both praise and critique. Most comments were made as MMT garnered more public attention in the period from 2015 to 2020, with the 2019 publication of *Macroeconomics* prompting especially many people to weigh in (Mitchell et al., 2019). A particularly noteworthy collection of comments can be found in a 2019 issue of the heterodox open access journal *real-world economics review* (Fullbrook & Morgan, 2019b). It features articles by MMT theorists, supporters and critics. The issue is titled *Modern Monetary Theory and its Critics* and was subsequently also published as a book of the same name (Fullbrook & Morgan, 2020).

The tremendous success of MMT has put other post-Keynesians in an awkward position. On the one hand, MMTers have achieved what many others have dreamed of: They challenged mainstream economists and garnered enough attention to force them to respond, breaking the illusion that there is no alternative to the dominant paradigm (Rochon, 2019). Numerous post-Keynesians scholars, including the ones who remain skeptical of the theory, have congratulated them for this noteworthy feat (Mayhew, 2019; Rochon, 2019, Lavoie, 2024). After all, post-Keynesians are united in despising mainstream economics and share the goal of dethroning it in both teaching and policy (Rochon & Rossi, 2023). On the other hand, not all post-Keynesians are convinced of MMT theoretically. A mountain of post-Keynesians critiques has piled up since MMT's inception, with an equal-sized mountain of MMT rebuttals and responses next to it. To make matters worse, MMT proponents have a reputation for lashing out at critics and dismissing their arguments (Lavoie, 2024), as well as obfuscating the debate (Rochon, 2019; Bonizzi et al., 2019). Post-Keynesians are thus in the awkward position of celebrating the success of a theory whose content is not uncontroversial and whose proponents are difficult to work with. In response to this situation, two identifiable positions have emerged – harsh critiques disavowing MMT, and 'friendly critiques' that support and conditionally endorse the theory (Rochon, 2019).

Some post-Keynesians have clearly disavowed MMT on theoretical grounds, fearing damage to the overall heterodox cause. Thomas Palley, renowned as "MMT's most ardent critic" (Lavoie, 2019, p.97), has made this case most forcefully (Palley, 2014, 2015, 2019, 2020). He sees no added value in the theory and summarizes his view thusly: "MMT is a mix of old and new, the old is correct and well understood, while the new is substantially wrong" (Palley, 2014, p.46). As old and well understood he counts the idea that governments technically could finance spending deficits by printing money indefinitely, the claim that governments must run deficits if the private sector wants to save, and Knapp's (1924) Chartalism (Palley, 2014; Palley 2015). Palley argues that MMT "Reinvents the Wheel" (Palley, 2014, p.47) in the sense that they are restating old Keynesian theories that work perfectly well in their own right while the restatements are less consistent and less clear (Palley, 2014). He is not alone in the assessment that MMT has little theoretical merit (Toporowski, 2019; Sawyer, 2019). The harshness of this disavowal has been attributed to the fear that MMT's flaws and overconfident presentation may hurt the overall heterodox cause (Lavoie, 2019).

Further disavowal focuses on MMT's claim to novelty. Numerous critics have emphasized MMT's (post-Keynesian) heritage (Davidson, 2019; Kregel, 2019; Colander, 2019; Toporowski, 2019). For instance, the historian of economics David Colander argues that: "MMT is not a new theory; they are reviving earlier credit theories of money by economics [*sic*] such as Georg Knapp" (Colander, 2019, p.63). Several critics doubt the success of this revival (Sawyer, 2019; Palley, 2019). Toporowski (2019) makes this case in particularly pitiless prose:

> Despite the best efforts of its academic partisans to ennoble Modern Money Theory with antecedents in the work of John Maynard Keynes, Georg Friedrich Knapp, Michał Kalecki, Abba P. Lerner, and Hyman P. Minsky, the theory itself bears little resemblance to the systematic thinking (as opposed to incidental insights) of these luminaries. For those partisans this may be evidence of the originality of Modern Money Theory. (Toporowski, 2019, p.198)

At the root of these arguments lies indignation over the way in which at least some MMTers pass off existing insights as their own (Lavoie, 2019), as well as a critique of the grandiosity with which proponents oversell their theory (Colander, 2019). Rochon (2019) self-critically remarks that he and other post-Keynesians have been envious of MMT's publicity, which might motivate some to downplay MMT's novelty and emphasize its post-Keynesian core.

Contrary to the disavowal, other post-Keynesians have adopted the position of the 'friendly critic'. Marc Lavoie (2013) has coined this term, with which he clarified that he seeks a relationship of constructive exchange with MMT proponents. He felt the need to make this clarification after seeing the hostility of MMTers: "While criticisms and counter-criticisms are healthy in a scientific setting, neo-chartalists occasionally seem to over-react to criticisms, blasting away even people that are essentially on their side" (p.7). Heterodox economists are no strangers to hostility between their camp and mainstream economics. It is, however, unusual to be treated so rudely by allies. Rochon (2019) reflects on how his own critiques of MMT might have troubled the relationship, but notes that MMTers engage in "cult-like behaviour", which has resulted in him and others becoming "*persona non grata* in MMT circles, (...) for simply wanting to engage with them at the theoretical level" (Rochon, 2019, p. 159).

Countless heterodox scholars have been burned by the MMTers' scorn after daring to critique them, because of which many of them now walk on eggshells when addressing them (Lavoie, 2024). For instance, Mayhew (2019) criticizes MMT on a theoretical level, but couches this criticism in elaborate praise: "The creators and advocates of MMT are to be applauded (...)" for challenging austerity regimes. After summarizing her points of criticism, she states that: "If the MMTers could add these things I would convert from friendly critic to strong advocate." (Mayhew, 2019, p.136). Several papers feature this kind of language, with authors going out of their way to emphasize their constructive and friendly intentions, presumably to pre-empt some of the hostility (Lavoie, 2013; Lavoie, 2024; Lawson, 2019).

The friendly critics make an effort to build and maintain bridges between MMTers and other post-Keynesians. Rochon (2019) advocates a ceasefire. He argues that Post-Keynesians should stop publicly criticizing MMT and instead do whatever possible to leverage its publicity for the shared cause. He adds that MMT needs post-Keynesians to be the more moderate arm of a social movement against mainstream economics, but this also requires MMTers to become more peaceable. He points out that: "MMT scholars seemed more interested in going [at] it alone rather than continuing a dialogue with post-Keynesians. (...) the number of scholars interested in MMT is very small and has not changed much in the last 25 years. The legitimacy of MMT will not come from the army of untrained activists, but from scholars." (Rochon, 2019, p.164).

Lavoie (2019; 2024) strikes a similar chord. He laments that MWW hardly acknowledge post-Keynesians in *Macroeconomics* and recounts their theoretical commonalities (Lavoie, 2019). In reflecting about the state of the debate, he uses his distinction of MMT's *general* and *specific/academic* case to argue that critics often address the former, whereas MMTers refer to the latter to reply – which sows confusion and justifies the accusation of shifting goalposts (Lavoie, 2019). But the general case is often made by activists over whom professional MMT economists have little control, so it is understandable that the professionals are tired of rebutting critics based on the activists' simplifications (Lavoie, 2014). Lavoie adds that it is understandable that MMTers' lose their cool when subjected to insulting critiques like those of Thomas Palley (Lavoie, 2024).

2.8. Further Heterodox Comments on MMT

The above-mentioned critiques come mostly from Post-Keynesians and Institutionalists. However, Marxist scholars have also weighed in on the matter and have largely rejected MMT, either on epistemic grounds as an inferior description (Lapavitsas & Aguila, 2020) or on normative grounds as a reformist project too comfortable with capitalism (Winczewski, 2021). These critics too were rebutted by Armstrong (2022), who accused Lapavitsas and Aguila of mischaracterizing the theory. Epstein (2019) wrote a strongly negative book titled *What is Wrong with Modern Monetary Theory* which focuses on policy. A minority of Marxist scholars have responded favorably, embracing MMT as a framework to theorize a path to socialism (Hernández, 2023) Marxists and post-Keynesians are both heterodox and share the common enemy of mainstream economics, but Marxists evidently do not feel the same collegiality to MMTers that shapes some post-Keynesian reactions.

Environmental economists have taken a positive interest in MMT. Several works have been published with the explicit goal of synthesizing environmental economics and MMT (Williams & Taylor, 2022; Schneider & Miess, 2024). The value MMT harbors for their purposes is expressed in the title of one such paper, named “How to pay for saving the world: Modern Monetary Theory for a degrowth transition” (Olk et al., 2023). Environmental economists develop mechanisms and pathways towards socio-ecological transformations and thus see MMT as one framework that demonstrates the feasibility of measures such as a Green New Deal.

2.9. Rebuttals From MMT Proponents

MMT proponents are unusually active on blogs, podcasts and other informal channels, which some see as a reason for its breakthrough into activist and political discourses (Lavoie, 2024). On these blogs and in academic publications, MMTers reply to nearly every piece of criticism they are subjected to (e.g. Ehnts, 2022, 2023a, 2023b; Ehnts & Wray, 2024; Wray, 2019; Tymoigne, 2021, 2024; Mitchell, 2019a, 2019c, 2019d, 2023a, 2023b). These rebuttals usually address the critiques raised, but also feature an uncompromising and often downright hostile tone even towards ‘friendly critics’ (Lavoie, 2024).

MMTers frequently accuse critics of (purposefully) misunderstanding the theory. By far the most common rhetorical move employed by MMT proponents in defending the theory is to allege that critics have either not understood MMT, have relied on the wrong sources or are purposefully misconstruing the theory. Indeed, it is hard to find an MMT rebuttal that does not begin with some version of this argument. A prime example is provided by Wray (2019):

> In this piece we have carefully defined what we mean by MMT. Comparison of the fundamental principles of MMT against what the critics claim MMT asserts will make it clear that the critics are either ignorant or dishonest. None of the critiques raised so far presents any challenges to MMT because they are not directed to MMT scholarship. (p.21)

Wray could be interpreted as saying that the critiques do not address MMT *scholarship* – in an attempt to reign in what counts as MMT and disavow the 'general case', to use Lavoie's distinction (Lavoie, 2024). It could also be read as a dismissal of critics, which seems to be the thrust of the argument in most other rebuttals. For instance, on his blog, Mitchell asserts that the "conga line" of MMT critics all follow the same pattern: "little citation, false constructions, idiotic inferences" (Mitchell, 2019a). The tone is not much more moderate in his academic publications, arguing that the critique by Drumetz and Pfister (2021):" is based on a superficial representation of the body of knowledge (...) if the authors had consulted the published academic literature, they would have realised that many of the assertions they make are simply without foundation" (Mitchell, 2023b). Mitchell too criticizes that Drumetz and Pfister do note cite *Macroeconomics* and instead rely on working papers and Kelton's (2020) *The Deficit Myth* for their knowledge of MMT.

Clearly, Mitchell and Wray try but struggle to exert authority over what counts as MMT. As Lavoie (2024) argued, there exists an 'academic case' of MMT as well as a simplified 'general case', where the latter is presented by activists and books like that of Kelton (2020), and the switching between the two sows confusion. Mitchell and Wray seemingly disavow this general case, as they scold anyone who takes it to represent MMT (Wray, 2019; Mitchell 2023b). From this perspective, it will be especially relevant interpret *Macroeconomics* as an effort to canonize MMT and to analyze how they treat some of MMT's more controversial aspects.

3. Theories and Concepts

Before diving into the empirical results, we need to equip ourselves with interpretive tools and contextualize our inquiry. This chapter first draws on controversy studies in STS (3.1.) and the concept of boundary work (3.2.) which will help to structure the interpretation of the empirical material. Then, common epistemological standpoints in economics are discussed along the theory of performativity (3.3.) since MWW extensively weaponize epistemological language. Lastly, the peculiarities of textbooks as a genre are considered (3.4.), especially in regard to the ways in which textbooks produce epistemological certainty and the state of the art of their discipline.

3.1. Scientific Controversies

Studies of controversies have a long history in STS. Controversies surrounding science and technology are a mainstay of modern societies that arise whenever actors fight for epistemic authority and agency in decision-making processes (Jasanoff, 2019). For social scientists, such disputes are fruitful sites of study because participants are forced to explicate those values and boundaries that are usually left implicit. Not only are pre-existing values and boundaries explicated, however, but they become challenged and defended as each side of the conflict attempts to leverage these points to suit their argument. From this perspective, seemingly hard and fast boundaries like nature/culture, science/politics or expert/lay person, norms of scientific conduct and even imaginaries of national identity are in fact quite malleable, and their stability is produced and stabilized in controversies (Jasanoff, 2019; Latour,1987; Felt, 2015).

Broadly speaking, there are two genres of controversy studies in STS (Jasanoff, 2019). First, there are *technopolitical* controversies, in which technologies and their adoption, development or expansion come under political scrutiny. Diverse actor groups can be involved, including lay citizens, politicians, regulatory agencies, scientists and entrepreneurs, each fighting not just for their particular agenda but also for their say in such controversies more generally. Well studied technopolitical disputes include those around nuclear power (Nelkin, 1974, 1981; Jasanoff & Kim, 2009) nanotechnology (Felt et al., 2015) and agricultural technology (Suryanarayanan & Kleinman, 2013). This genre of controversy is usually called 'technopolitical' to emphasize that the technical and the political are not neatly separable, as naïve ideas of technological neutrality would have it (Irwin, 2008). In fact, how actors strategically draw the boundary to politicize or depoliticize a given technology is part of controversy studies conducted by STS scholars (Sismondo, 2011, pp.126-127).

The controversy around Modern Monetary Theory belongs to the second genre of *scientific* controversies. These concern competing scientists, theories, knowledge claims and methods that each vie for epistemic authority and jurisdiction *within* science. Science is never a hermetically sealed system, however, and many 'intra-scientific' controversies feature one side trying to bring the public eye and politics into the debate while the other side is working to keep them out. Nevertheless, scientific controversies usually center less on urgent political decisions and more on simmering disputes between often entrenched camps that adhere to opposed theories. In such controversies, "a central rhetorical task (...) is to convince audiences of the legitimacy of one's positions, and the illegitimacy of those of opponents. To a large extent this means making one's own work appear more scientific, or more central to key traditions, than that of one's opponents" (Sismondo, 2011, p. 126-127). Contrary to popular imagination, scientists cannot simply go back to the data and extract the truth from it, because theory, observation and measurement apparatuses are always intertwined, and the truth of a knowledge claim is not self-evident (Collins, 1992).

The resolution or 'closure' of controversies is instead seen as a social process, where wins and losses must be explained *symmetrically*. (Sismondo, 2011, p.120). Folk historiography commonly assumes that scientific theories and new technologies become dominant simply because they are better. Conversely, STS scholars argue that the fact that they successfully establish themselves as better is the outcome of a social process through which all scientific knowledge and technologies must pass. STS scholars therefore see the outcomes of disputes as contingent and open-ended and scrutinize empirically why one side was more successful in forging a decisive coalition of data, facts, theories, methods, apparatuses, reputation and colleagues (Sismondo, 2011, pp.120-128).

Assuming this view does not imply that truth does not matter (Jasanoff, 2019). A scientist whose theory better explains relevant data will have an easier time constructing a convincing alignment of evidence and argument (although what constitutes 'better' and 'relevant' will be part of the debate). However, even the advocate of the better theory must go through the social processes that constitute science, since data does not speak for itself, and controversies do not resolve automatically. For such propositions, STS scholars were accused of undermining the credibility of science during the infamous 'science wars' of the 90s (Jasanoff, 2019). One clarified position voiced by scholars since then is that scientific knowledge deserves credibility and authority because it is a suitable social process to deal with the inherent epistemic uncertainty of our world – not because it stands above or outside it (Vogelmann, 2022).

But when exactly is a controversy closed? Numerous case studies demonstrate that defeated scientists often cling on to their theories for decades after the rest of the scientific community has moved on (Collins & Pinch, 2012; Simon, 1999). For instance, Simon (1999) details how a consensus in physics and chemistry emerged that 'cold fusion' was impossible and the funding and respect for the inquiry dried up. Many of the researchers that had invested years of their lives into this issue nevertheless found alternative sources of funding and continued their research despite being deemed unscientific by the mainstream. Simon describes their activity as 'undead' and ghostly, in the sense that it lives on, but invisibly and without recognition or effect on the overall scientific pursuit. Insofar as the object of the controversy was the question whether cold fusion was possible, the controversy was resolved - yet it is neither impossible that the defeated researchers will make a comeback, nor has the mainstream emerged unchanged. Rather, Simon points out, the orthodoxy now exists in contradistinction to the heterodoxy and latently defines itself through precisely those characteristics that were used as grounds to expel the cold fusionists (Simon, 1999; Collins, 2000).

3.2. Demarcation, Boundary Work, and Contested Epistemic Authority

The demarcation of science from non-science is a key resource in contests for epistemic authority (Sismondo, 2011, p.127). In the 70s, philosophers of science intensely sought criteria that could demarcate science as a distinct activity from non-science and pseudo-science (Vogelmann, 2023). Philosophers wanted to safeguard science and its authority in society by elevating and separating it from allegedly non-scientific activities, such as creationism or psychoanalysis (Vogelmann, 2023). A 1983 article then mostly ended this line of inquiry as it convinced many philosophers that the demarcation problem cannot be solved (Laudan, 1983; cf. Pigliucci & Boudry, 2023). This philosophical debate nevertheless paved the way for a related line of investigation on demarcation with more sociological motivations.

In the 1980s, attention moved away from the hypothetical possibility of demarcating science and towards the practical reality of everyday *boundary work* (Vogelmann, 2023; Gieryn, 1983). Gieryn (1983) argued that the impossibility of a neat demarcation has not stopped scientists and non-scientists alike from drawing such boundaries on a daily basis. As a matter of fact, scientists constantly attribute "selected characteristics to the institution of science (i.e., to its practitioners, methods, stock of knowledge, values and work organization) for purposes of constructing a social boundary that distinguishes some intellectual activities as 'non-science.'" (Gieryn, 1983, p.782). These boundaries entail tremendous consequences, since they govern the distribution of funding, the design of teaching curricula, government policy, and ultimately the careers of scientists that have invested themselves into a particular research program. First and foremost, however, boundaries demarcate jurisdictions of epistemic authority. Understanding *how* boundaries are constructed, attacked and defended is thus a central contribution of sociological and anthropological studies of science.

Gieryn (1999) identifies three distinct genres of boundary work: *Expansion, protection of autonomy,* and *expulsion*. First, *expansion* occurs when "two or more rival epistemic authorities square off for jurisdictional control over a contested ontological domain" (Gieryn, 1999, p.16). For instance, some conventional doctors assert their interpretation of the human body as the only correct one against the efforts of alternative medical practitioners. These are fights of mapping: Does the object of study reside in the borders of one knowledge practice or the other? Such contestations are also commonplace between scientific disciplines and sub-disciplines, or lay stakeholders and scientific experts. Second, *protections of autonomy* occur when non-scientists (politicians, journalists, entrepreneurs) attempt to utilize science for their purposes, and the affected scientists defend the independence of their work. Gieryn also counts into this genre cases where scientists deny responsibility for the application of their research to avoid blame for undesired consequences (p.17.).

For the case of MMT, the most relevant type of boundary work is *expulsion*. Expulsion concerns disputes *within* a knowledge practice, where some practitioners draw a "map to put discrepant claims and claimants outside (or, at least, on the margins)" (Gieryn, 1999, p.16) of the discipline. For this purpose, they often use dichotomies such as "orthodox science against heterodox, mainstream against fringe, established against revolutionary" (p.17). Crucially, these are fights over who gets to wield the scepter of the discipline that thereby affirm, rather than contest, the overall authority the science is endowed with. Scientists usually argue that they occupy the center and their opponents the periphery – but the case of MMT presents an inversion of this argument, where scholars label themselves as heterodox revolutionaries fighting against a degenerating paradigm (see e.g. Mitchell, 2020a).

The actual activity of boundary drawing then proceeds through the selective attribution of characteristics drawn from a context-dependent *repertoire* (Gieryn, 1983). For each knowledge practice at a given time, there is a repertoire of attributes a good scientist or theory is expected to have. Psychologists may be expected to conduct only ethical experiments, experimental physicists are expected to prove their theories empirically and philosophical theories are expected to be internally consistent. Some of these criteria are normative and concern the conduct of the scientists or the impact of their theories, whereas others are epistemological and concern the validity of their method. By attributing these characteristics to oneself and denying them to opponents, boundaries are drawn and epistemic authority distributed. As we will see in our case study, it is not only the boundaries, but also the repertoires themselves that can come under contestation.

3.3. Common Epistemologies in Economics and the Theory of Performativity

What is the relationship between economic theory and reality? A commonly held epistemological view follows a representational logic, where science is: "an activity that seeks to represent nature, to produce knowledge that maps, mirrors, or corresponds to how the world really is" (Pickering, 1995, p.5). For economics specifically, representational epistemologies can be further distinguished between *realist* and *instrumentalist* (Kapeller, 2017). Realism demands accurate assumptions and initial conditions for theories and models, for instance about the rationality of economic agents or their access to price information. Instrumentalism on the other hand focuses on the accuracy of predictions. Economists use both approaches and sometimes draw on their differences for boundary work. Lawson (2020) for instance denounces instrumentalist economists who consider themselves heterodox:

> They commonly think they're heterodox because they get 'truer' results. But if the assumptions are silly, doing so adds nothing. As an example, suppose a heterodox economist thinks that all polar bears are white, an apparently true claim, and seeks to demonstrate that this view is superior to that of mainstream economists who suppose that polar bears are pink. (...) our heterodox economist assumes (1) all polar bears eat snow and (2) anything that eats snow turns white, and thereby deduces the seemingly true conclusion that (3) all polar bears are white (Lawson, 2020, p.386).

Most science studies scholars reject purely representational epistemologies since they see scientific knowledge as involved in the construction of the world (Muniesa, 2014, p.10). One strain of STS scholarship proceeds from the 'idiom of co-production', asserting that scientific knowledge and everyday practices are entangled, while leaving open *how* exactly they are entangled (Jasanoff, 2004). Another strain of scholars, following the footsteps of Actor-Network-Theorist Michel Callon, have pursued a more comprehensive theory of the ontological relation of knowledge and reality for the study of economics, which they have termed *performativity* (Callon, 1998a, 1998b).

In the performativity view, the economy and the people acting within it are not pre-existing, unchanging beings, but rather are configured into specific kinds of economic agents by theories and models. Callon writes that: "*homo economicus* does exist, but is not an a-historical reality; he does not describe the hidden nature of the human being. He is the result of a process of configuration" (Callon, 1998a, p.22). An example of such configuration is how Norwegian fishermen were gradually turned into rational, calculating economic agents through a new system of fishing quotas based on neoclassical economic theory (Holm, 2007). The process of configuration transforms all involved actants, including the fishes, who are turned into a calculable resource by new measurement procedures and standards so that they conform to their role in the emerging assemblage.

Callon (2007) speaks of 'agencements' to refer to the web of connected actants. The term is borrowed from French philosopher Gilles Deleuze and emphasizes that the emerged arrangement exerts an agency that is more than the sum of its parts. The parts of an agencement are seen as equal on an ontological level as Callon does not distinguish between humans, animals, documents, regulations, infrastructures, meanings or economic theories. This symmetrical treatment of 'actants' is inherited from Actor-Network-Theory, of which Callon has been a key contributor. Crucially, economic knowledge is also part of the agencement, as: "there is nothing left outside *agencements* (...) because the construction of its meaning is part of an *agencement*" (Callon, 2007, p.320). This theory decidedly rejects the representational idea that economists observe and comment on the economy as a pre-existing entity without influencing it. Rather, the 'construction of meaning' that is economic theory is part and parcel of markets and the economy itself.

The precise relationship between economic theory and the economy is thus a *performative* one. Instead of asking whether a theory is true or not, the question becomes whether it can be successfully enacted as part of an agencement (Callon, 2007). Where representational thinking looks for a correspondence to an unchanging world, performative thinking looks for moments where economic agents become like the theories about them, where price prediction formulas turn into widely-held expectations and where infrastructures are created to track and make available data about objects that were previously not quantified. Successful enactment and realization thus replace truth and correspondence as mode of relation that stitch together theory and reality. Callon did not invent this general theory of performativity – itss lineage can be traced from philosophers Wittgenstein, Austin and perhaps most notably Judith Butler, who located gender as existing in performances of it, again pointing out that thought is constitutive of reality, not independent of it (Butler, 1990).

The theory of performativity has been strongly criticized by historians of economics, heterodox economists, and sociologists (Maeße & Sparsam, 2017). Colander (2008) argues that work on performativity is shrouded in needlessly complicated language, especially since its basic tenet that markets are constructed by economists is trivial and well-known to historians of economics, who have moved past a representational epistemology long ago. Miller (2002) alleges that Callon reproduces neoclassical economics by overlooking that hardly any markets truly work according to its laws. Another series of criticisms argues that performativity theories obscure power relations through its assertion of ontological symmetry between actants (Mirowski & Nik-Khah, 2007; Nik-Khah & Mirowski 2019). Nik-Khah and Mirowski (2019) conclude that performativity theories are not the right way to challenge neoliberalism because they overlook the rift between cynically espoused economic theory and the routine practice of market construction, which involved economists know to be different.

Theorists have put forward softened versions of the performativity thesis. Partly in reaction to the criticism, numerous scholars have sought to refine the concept of performativity (MacKenzie & Millo, 2003; MacKenzie, 2006; MacKenzie et al., 2007; Muniesa, 2014). One such step was to make the theory of performativity more empirically verifiable, which required allowing for varying degrees of performativity (MacKenzie & Millo, 2003; MacKenzie 2006). Contrary to Callon's strong thesis that economic knowledge and theory are absolutely entangled ontologically, MacKenzie (2006) points out that most of the time, economic reality conforms only partly to theories about it and there remains therefore ontological space between theory and reality (Maeße & Sparsam, 2017).

An illustrative example where the theory of performativity shines is in the introduction of the *Black-Scholes-equation* in the 70s (MacKenzie, 2003; MacKenzie & Millo, 2003). The equation describes the price development of so-called 'options', a specific type of financial product that had a bad reputation of being gambling at the time due to its unpredictability (MacKenzie, 2003). When the Black-Scholes equation was developed, it quickly became the standard tool as it seemed more reliable and less dubious than the rules-of-thumb investors had been relying upon. However, even according to its creators, the formula was never 'true' in the sense that it fittingly described a pre-existing world. Rather, the behavior of investors, and consequently the options market as whole, came to resemble the world presupposed by the equation. The Black-Scholes equation, like all economic models, presupposes a fictional or virtual world and it is the possibility of realizing this fictional world that is at stake according to the theory of performativity (Callon, 2007). For the case of MMT, it will be interesting to see whether MWW put forward more of a representational or performative epistemology and what consequences this entails for their challenge to mainstream economics.

3.4. Textbooks as Genre and the State of Economics Textbooks

Textbook authors have a difficult task. A good textbook is supposed to introduce students in an accessible manner to the state of the art in a given discipline, while making the right simplifications, presenting differing viewpoints in a neutral manner and structuring the discovery process for them (Smyth, 2001). In so doing, textbooks produce a map of their discipline, often with a center and periphery, since choices must be made about what to include and leave out and what boundaries to draw to demarcate where other disciplines begin. Textbooks should thus not be seen as a mere reflection of the state of affairs in a science, but an active contribution to the continuous re-structuring of the field (Smyth, 2001).

One way in which textbooks actively produce the state of the art is through the choice of *modalities* used when presenting facts. Modalities are words that diminish or enhance the epistemic certainty of a piece of information (Latour et al., 2013). Saying that 'x *may* cause y' as opposed to 'x causes y' diminishes that certainty and thus places the proposition closer to the realm of conjecture than fact (Bertotti & Miner, 2019). Indeed, the hallmark of facts is that they are usually presented nakedly, without accompanying modalities (Latour & Woolgar, 1986). As STS laboratory studies have pointed out, propositions tend to become increasingly fact-like as they travel from the laboratory to the textbooks, whose authors usually strip them of modalities and traces of origin. In this way, statements like: 'a 2015 study at Cambridge has shown that x may cause y' might become 'x causes y' when printed in a textbook. Textbooks are therefore actively involved in turning propositions into facts and theories into the state of the art, as opposed to being the mere repositories of already finished knowledge (Mody & Kaiser, 2008, p.384).

Commonly used economics textbooks have been criticized from a variety of angles (Treeck & Urban, 2017). For instance, macroeconomics textbooks by Mankiw and Taylor (2012) have been accused of neglecting economic history, lacking epistemological reflection (Graupe, 2017), not having learned from the 2008 financial crisis (Peukert, 2017) and being ideologically biased (Treeck, 2017), and similarly the textbook by Krugman, Obstfeld and Melitz (2015) has been accused of dogmatically preaching free trade (Truger, 2017; Kapeller, 2017) and presenting as canon empirically falsified theories of exchange rates (Priewe, 2017), although Krugman is credited with criticizing mainstream economics more so than other textbooks authors. The overall thrust of the critiques is clear – the dominant textbooks teach faulty, neoclassical theories while marginalizing or simply ignoring superior heterodox scholarship (Beckenbach, 2019).

Taking a glance at the 10th edition of *Principles of Economics* by Mankiw reveals two ways of marginalizing heterodox scholarship (Mankiw, 2023). First, neither Marxian, Feminist nor post-Keynesian economics or the word 'heterodox' are mentioned a single time across its 800+ pages. They simply do not exist. Second, every few pages, Mankiw shows a pie chart titled 'Ask the Experts' that represents the current consensus, or lack thereof, between economists on topical issues (Mankiw, 2023, p.31). The charts draw survey results from the 'Initiative on Global Markets Economic Experts Panel', a panel survey that probes around 50 top economists about current matters (IGM, n.d.). Mankiw uses these survey results to give "you [the reader] a sense of when economists are united, when they are divided, and when they just don't know what to think." (Mankiw, 2023, p.31). In other words, the pie charts map the opinion landscape of economics. The map in this case is flat – it does not mark paradigmatic borders and thus paints economics as one large melting pot of opinions that incidentally converge and diverge depending on the issue. This picture starkly contrasts the more common framing among heterodox scholars that juxtaposes a unified mainstream against a diametrically opposed heterodoxy. Indeed, two studies have examined the IGM panel data and found it characterized by a "heterogenous network topology" rather than "discrete factionalization" (van Gunten et al., 2016, p.1028; Kozlowski & van Gunten, 2023). Since Mankiw uses these data to represent the state of the debate and does not mention once heterodox scholarship, the readers of his textbook might get the impression that what he presents is all of economics, and hence remain oblivious to the vehement, albeit marginal, opposition to the mainstream.[7]

Interestingly, Modern Monetary Theory was also the subject of the panel survey (IGM, 2019). The content of the theory was broken down into two statements: "Countries that borrow in their own currency should not worry about government deficits because they can always create money to finance their debt" and "Countries that borrow in their own currency can finance as much real government spending as they want by creating money" (IGM, 2019). With both statements, every single asked economist either disagreed or disagreed strongly on a five-point scale. Mitchell (2019, March 19) denounced the result as a "fake survey", arguing that he too would have disagreed with these assertions since they grossly misrepresent MMT. Indeed, 'deficits don't matter' is a position commonly attributed to MMT that MWW have vehemently rejected on numerous occasions (Wray, 2019). Mitchell adds that the survey is conducted by the University of Chicago where mainstream economics reigns and alleges that the panel is "comprised of the senior 'priests' in the profession" (Mitchell, 2019b). That the panel disproportionately includes mainstream economists may or may not be the case, and its composition can of course bias the result. Yet heterodox economists *are* far outnumbered by the mainstream and a strictly proportional distribution would certainly not include MMTers among the 50 selected economists (but probably a few post-Keynesians). For our purposes, it will be

[7] This superficial glance at one edition of one textbook by Mankiw says nothing about his work as a whole. It merely illustrates the ways in which one economics textbook maps its discipline and thus produces a particular idea of the state of the art.

interesting to see how MWW present consensus in their textbook, and how they attribute epistemic certainty to respective theories.

4. Methods

4.1. Data Collection and Analysis

To shed light onto the sociological side of the scientific controversy surrounding MMT, the 2019 textbook *Macroeconomics* was chosen as empirical site for this analysis (Mitchell et al., 2019). It was written by the Australian economists William (Bill) Mitchell, Martin Watts and the American L. Randall Wray. These authors will be referred to throughout this text as MWW for short, and their book as *Macroeconomics*. Their book is the first macroeconomics textbook written from an MMT perspective, although it also exposes many heterodox ideas that are not exclusive to MMT and thus covers a wide range of macroeconomic topics. They describe their pedagogical aim as decentering mainstream economics: “Unlike earlier pluralist approaches to macroeconomics in which the teaching sequence begins with an exposition of the standard mainstream macroeconomics (...) and only then qualifies that conceptual structure and framing with some 'real world' criticisms and quibbles, we feel students are better informed if we build the narrative from the ground up, based on an understanding of how the monetary system actually operates” (Mitchell et al., 2019, p.xxvi). The book is therefore the perfect site to study not only the controversy surrounding MMT specifically, but also the heterodoxy’s fight against mainstream economics to which MWW want to contribute.

I employed *reflexive thematic analysis* to examine the textbook (Braun & Clarke, 2021). This approach works by generating narrow concepts that are called *codes*, either from the material itself (inductive) or the literature review and the theories guiding the interpretation (deductive). Codes are relatively narrow concepts with a low degree of abstraction, such as recurring phrases, arguments or frames in the empirical material. When processing the empirical material, be it interview transcripts or text documents, every instance of these codes is marked for later analysis and quotation purposes. In a second step, these codes are processed and coalesced into *themes* characterized by a higher degree of abstraction and interpretation. To arrive at these themes, codes are provisionally clustered around a common pattern called a *candidate theme* (Braun & Clarke, 2021, p.170). If such a candidate theme is deemed helpful for addressing the research question and has sufficient material to support an argument, it can be accepted as a proper theme. This is necessarily an iterative and experimental process, as there is always overlap between clusters and multiple themes a code could contribute to. Braun and Clarke (2021, p.183) recommend continuously refining codes and themes throughout the research process and writing, guided by the research question. They contrast their approach from other variants of thematic analysis by situating themselves in a qualitative paradigm that produces situated and contextualized knowledge, rather than aiming at narrow hypothesis testing (Braun & Clarke, 2021, p.48-83). This requires the researcher to reflect about their own situatedness and keep in mind that both coding and theme development are inherently interpretive processes.

I roughly followed their method and found it helpful in structuring my research process. I coded *Macroeconomics* in Atlas.ti, which is a program that functions like a pdf reader but allows passages to be tagged with multiple codes at once. The codes (found in Appendix D) derived mostly from the textbook itself, but a few also came from the wider heterodox literature. Many post-Keynesians have reflected deeply about MMT, its success, and its place within heterodox economics (Fullbrook & Morgan, 2020). Their writing sensitized me to things I might have likely overlooked while coding, such as MWW's ambivalent relationship to the heterodoxy. Thoroughly reading contextualizing literature is therefore helpful for code development. Out of the codes, I delineated five themes that can be seen in Table 1. The development of these themes required a lot of wrestling with the research question itself and led to the introduction of three sub-questions. The relatively openly posed 'how do MWW position MMT in their textbook?' was initially only supplemented by the sub-questions: 'how do MWW characterize the discipline of economics?' and 'How do MWW leverage these characterizations?'. While clustering the codes, it became clear that MWW characterize the discipline in two structurally discernable ways – First, by mapping economics, and second, by imposing norms on it. The corresponding sub-question was then split up to reflect this structure, such that each sub-question addresses one of these themes. It also became clear that the relationship between theory and reality was an important issue in *Macroeconomics*, which is why the final sub-question about the theory of performativity was added. The arduous process of developing themes thus required constant reflection and grappling with the research questions that Braun and Clarke accurately describe as: "Finding, losing, then finding your way again" (Braun and Clarke, 2021, p.163). Ultimately however, qualitative research is inherently messy, and I found it productive to structure the material into codes and themes as intermediate analytical layers between the raw material and the research questions.

Table 1

Themes Developed During the Research Process

Theme	Description
Mapping economics: Heterodoxy vs. orthodoxy	Delineations of what counts as heterodox and orthodox, characterizations of their relationship, e.g. framing them as paradigms.
Norms in Economics	Epistemic norms and other expectations that MWW impose on economics, e.g. realism and instrumentalism
Halted progress in economics	Arguments about progress in economics being halted, reasons for why heterodoxy has not yet replaced mainstream, e.g. language in economics.
Performativity of economics	Statements about MMT to which the theory of performativity applies well, e.g. preconditions of MMT and arguments by MWW that they should be realized.
Mainstream economics and its Anomalies	Descriptions of the ways in which 'mainstream economics' is deficient, e.g. failing to predict Global Financial Crisis

Not all of *Macroeconomics*' 33 chapters were equally relevant. Many of them, as one would expect, straightforwardly explain economic concepts, theories and models. These are sometimes relevant in that they demonstrate how MWW teach or contain an instance of their boundary work, but most of the time, the 'purely' economic chapters were not revealing. Consequently, reading through them yielded only a few occurrences of existing codes. Table 2 lists all chapters and categorizes them roughly for the purposes of this analysis into: 'economic', 'policy', 'mapping' (for descriptions of schools of thought), and 'disciplinary' (for MWW's other characterizations of economics as a discipline). Additionally, Table 2 denotes the 'coding density' of each chapter that indicates how many relevant passages were identified. This thesis leans the most on the chapters with medium and high coding densities. Nevertheless, no chapter was skipped from the coding process and the coding density is an ex post, rather than ex ante judgement of how relevant which chapter of *Macroeconomics* is.

Table 2

'Macroeconomics' Chapter Overview With Classification and Code Density

Chapter Name	Classification	Code Density
1. Introduction	Disciplinary	High
2. How To Think and Do Macroeconomics	Disciplinary	High
3. A Brief Overview of Economic History and the Rise of Capitalism	Mapping	Low
4. The System of National Income and Product Accounts	Economic	Low
5. Labour Market Concepts and Measurement	Economic	Low
6. Sectoral Accounting and the Flow of Funds	Economic	Medium
7. Methods, Tools and Techniques	Disciplinary	Medium

Chapter Name	Classification	Code Density
8. The Use of Framing and Language in Macroeconomics	Disciplinary	High
9. Currency, Money and Banking	Economic	Low
10. Money and Banking	Economic	Medium
11. The Classical System	Economic	Medium
12. Mr. Keynes and the Classics	Economic	Low
13. The Theory of effective Demand	Economic	Low
14. The Macroeconomic Demand for Labor	Economic	Low
15. National income, Output and Employment Determination	Economic	Low
16. Aggregate Supply	Economic	Low
17. Unemployment and Inflation	Economic	Medium
18. The Phillips Curve and Beyond	Economic	High
19. Full Employment Policy	Economic	High
20. Introduction to Monetary and Fiscal Operations	Economic	Medium
21. Fiscal Policy in Sovereign Nations	Economic	Low
22. Fiscal Space and Fiscal Sustainability	Economic	Medium
23. Monetary Politics in Sovereign Nations	Economic	Medium
24. Policy in an Open Economy	Economic	Low
25. Economic Instability	Economic	Low
26. Stabilising the Unstable Economy	Economic	Low
27. Overview of the History of Economic Thought	Mapping	High
28. The IS-LM Framework	Mapping	Low
29. Modern Schools of Economic Thought	Mapping	High
30. The New Monetary Consensus in Macroeconomics	Mapping	High
31. Recent Policy Debates	Policy	Medium
32. Macroeconomics in the Light of the Global Financial Crisis	Policy	Medium
33. Macroeconomics for the Future	Policy	High

4.2. Limitations and Strategies to Address them

A few limitations of this thesis must be mentioned. First, analyzing MWW's textbook reveals only *their* moves in this controversy. The moves of their opponents remain invisible. Since MMT supporters (and heterodox scholars more generally) have alleged that the mainstream is suppressing them, it would be fruitful to analyze their strategies as well. I suggest this line of inquiry for further research as it exceeds the scope of this thesis. Nevertheless, chapter 3.4. features a cursory look at one mainstream textbook (Mankiw, 2023) to show that it simply does not acknowledge the heterodoxy's existence whatsoever. This necessarily superficial glance does not substitute a more in-depth investigation, however, and especially since MMT has prompted so many mainstream economists to respond, the strategies they use to respond to MMT are worthy of analysis.

Second, the heterodoxy's reaction to MMT and how it fits into their overall struggle against the mainstream provides important context that cannot be gleaned from *Macroeconomics* alone.

To address this issue, chapter 2 features an extensive literature review of responses and position-takings towards MMT from heterodox scholars. That survey serves a triple purpose. First, it contextualizes the emergence of MMT in its intellectual surroundings. Second, it sheds light on the commentary coming out of the heterodox camp, which ranges from supportive to overtly hostile and dismissive and the heterodoxy. The heterodoxy is therefore another 'front' on which MWW have been attempting to establish and defend themselves. Lastly, heterodox economists are by nature highly interdisciplinary and reflexive, because of which they too have commented on philosophical and sociological dimensions of the MMT-controversy. Since MMT is woefully understudied from such angles, heterodox reflections serve as interpretative aids.

Lastly, it should be noted that my understanding of MMT overemphasizes its operationalization by Mitchell, Wray and Watts. By nature of having read a full textbook from their perspective, it is their version of MMT, their interests and framings that have most strongly informed my idea of the theory. Other theorists exist, most notably Stephanie Kelton who served as an economic advisor to Senator Bernie Sanders and whose best-selling book *The Deficit Myth* has popularized the theory, as well as Warren Mosler, who was integral to MMT's early formation (Kelton, 2020; Mosler, 1995). Further MMT contributors exist whose work I also could not examine thoroughly, if at all. Nevertheless, MWW's book does represent perhaps the most central work in the academic MMT canon, and I could not find any criticism by other MMTers that were unhappy with the version of the theory presented. This was also true more generally – in the large pile of MMT critiques I found, there was not one article by an MMTer criticizing another MMTer or claiming that their version of the theory is the true one. For all intents and purposes, MMT proponents appear remarkably unified, which makes my emphasis on MWW's work less of a caveat. Nevertheless, there may be internal tensions among MMTers that this document analysis, since it lacks an ethnographic component, cannot uncover.

4.3. Alternative Approaches

Other methodological approaches would have been feasible and remain interesting angles to uncover facets of the issue that are invisible to my textbook analysis. First, qualitative interviews with a range of economists could have shed light on the more personal and inter-personal aspects of such controversies. What experiences of marginalization and hostility would MMTers and heterodox economists report? How have their personal career paths been impacted by the tradition they work in? Interviews were rejected as a method for practical and theoretical considerations. First, there simply are not that many MMT economists (roughly 10-15 people) and it might have been difficult to acquire a sufficient sample size. Second, MMTers tend to be even more vitriolic and polemical towards the mainstream in interviews than in their publications. The textbook by contrast provides a more settled and rigorous version of their arguments and was thus the preferable material.

It would have also been interesting to visit the MMT summer school or a conference MMT was discussed. Especially given that MMT is still relatively young and in a process of institutionalization, seeing how MMTers and other heterodox scholars interact as well as seeing MMTers amongst themselves could have revealed something about their place within the heterodoxy and their self-understanding. My investigation targets the discursive construction of MMT and the overall controversy it is embroiled in, and interpersonal and community dynamics are reconstructed only from scholarly articles. Moreover, what is entirely absent in my approach are internal tensions within the MMT community. This is simply due to there not being any visible tension in the scholarly articles – the MMTers appear utterly united, and I have not found them contradicting each other. Presumably, tensions would be more visible at MMT events like conferences or summer schools, which would have been interesting to witness.

5. Results

5.1. Heterodox vs. Orthodox – Paradigm Clash in Macroeconomics

Macroeconomics argues that economics consists of two paradigms, which MWW denote as 'orthodox' or 'mainstream' on the one hand, and 'heterodox' on the other. This chapter elucidates their understanding of the concept of paradigms (5.1.1.), their description of the mainstream camp (5.1.2.), the heterodox/orthodox dichotomy (5.1.3.), the description of the heterodox camp (5.1.4.) and the position of MMT within heterodox economics (5.1.5.).

5.1.1. The Concept of Paradigms in Macroeconomics

MWW argue that macroeconomics is divided into two *paradigms*. They use this term in a loosely Kuhnian sense, whom they cite in a section titled "The Structure of Scientific Revolutions" (Mitchell et al., 2019, pp. 32-35), which briefly summarizes Kuhn's original formulation of his theory and a brief application thereof to the state of macroeconomics. MWW write: "*For our purposes, we can think of the neoclassical approach as a 'paradigm' that works within the framework of utility maximisation and rationality, with the Keynesian (/Institutionalist/Marxist) approach as the paradigm-breaking scientific revolution* (p.32)." While calling themselves and their colleagues paradigm-breaking here, they argue in line with Kuhn that scientific revolutions instate other paradigms, rather than getting rid of the paradigmatic structure as such. Consequently, they also refer to their own camp as the *heterodox paradigm*. Their opposing camp is interchangeably referred to as the *orthodox*, *mainstream*, *neoclassical* or *free market* paradigm (Mitchell et al., 2019, pp. 6, 470, 122, 32, 120).

The authors argue that the two paradigms are not on equal footing, with neoclassical economics being in an unjustified position of dominance. Ever since the 70s, the economic mainstream has consisted of various schools with the same fallacies at their core, while the superior heterodox theories are relegated to being underdogs (Mitchell et al., 2019, pp.34, 553). These long-disproven theories are nevertheless taught in university courses around the world, to which the authors want to provide not just a counterweight, but a full-fledged alternative:

> "Unlike earlier pluralist approaches to macroeconomics in which the teaching sequence begins with an exposition of the standard mainstream macroeconomics (...) and only then qualifies that conceptual structure and framing with some 'real world' criticisms and quibbles" (p.xvi), "our preferred pedagogy is to outline valid theory before considering the alternatives that have been proffered by orthodox economists, which we consider to be flawed" (p. 179).

As can be seen, the author's ambition is to invert the relationship between orthodoxy and heterodoxy. Ideally, MMT and its colleagues would be taught as the state of the art, whereas neoclassical economics is fossilized and taught to students merely as historical folly (Mitchell et al., 2019, p. 552).

Macroeconomics argues at its core that that the unjustly dominant mainstream of economic thought should be dethroned and replaced with heterodox economics. This argumentative thrust is established in its chapter on Kuhnian paradigms and it informs the structure and content of the entire book. The authors cite Kuhn to assert that science progresses within paradigms through *normal science* and *puzzle* solving, up to the point where the paradigm becomes too constraining because *anomalies* accrue that can only be solved in a novel paradigm (Mitchell et al., 2019, p.33). Precisely this has happened in economics, according to the authors, before John Maynard Keynes published his revolutionary *General Theory of Employment, Interest and Money* (Keynes, 1936) in which he "*clearly demonstrated that the neoclassical approach was deeply flawed*" (pp.32-33,165). In MWW's telling, most economists recognized the revolutionary brilliance of Keynes' work, and the discipline soon became dominated by Keynesian macroeconomics. However, neoclassical economists in the 70s mounted a successful "counterrevolution" (p.34) and dethroned Keynesian theory, which was "as if we returned to flat earth theory after once embracing round earth theory" (p.34). Since then, no further revolutions have happened, and mainstream economics has remained largely stagnant (p.120). Orthodox schools of thought ultimately all fall prey to the same mistakes as neoclassical economics and are as wrong now as they have always been, while empirical anomalies have only amassed (Mitchell et al., 2019, p.165).

This is the central argument of the entire book and many of its chapters feature further characterizations of the opposing paradigms. While MWW do acknowledge that both paradigms are "broad churches" (p.3), throughout the book they only paint the orthodoxy as diverse and pluralistic while reducing the mainstream to its alleged neoclassical core – an argument that must be examined further.

5.1.2. Why All Mainstream Economics is Ultimately Neoclassical

According to MWW, all mainstream theory is ultimately neoclassical. They argue that the orthodoxy of the last twenty years is the *New Monetary Consensus*, which fuses *New Keynesian, New Classical and Real Business Cycle* (RBC) theories (Mitchell et al., 2019, p.487)[8]. They make this argument especially in chapters 27-30, which comprise Part G of the book, "History of

[8] Brief definitions of these schools can be found in the glossary in Appendix E.

Macroeconomic Thought" (p.432-496) where MWW contrast these schools of thought with heterodox theory.

MWW argue that one can only really be either Keynesian or neoclassical. They place Keynes' thought in polar opposition to neoclassical thinking and argue that his insights were never appreciated or understood by neoclassical economists (Mitchell et al., 2019, p.34). After the publication of Keynes' *General Theory,* Paul Samuelson and John Hicks constructed the so-called *neoclassical synthesis,* also called *Neo-Keynesianism*, by attempting to fuse Keynes' macro- with neoclassical microeconomics (p. 34; Samuelson, 1947). MWW argue that such a fusion is not possible and that "all the revolutionary insights of Keynes (and Veblen and Marx) were dropped in order to make Keynes more or less consistent with neoclassical economics" (Mitchell et al., 2019, p.34). For instance, MWW allege that neo-Keynesians overestimate how well future profits can be predicted, whereas Keynes had always emphasized the inherent uncertainty underlying economic decisions (p.465). The authors reiterate this point when quoting economist Joan Robinson in calling this school "Bastard Keynesians" (p.438), who cannot rightfully claim allegiance to Keynes. In MWW's view, Robinson and the post-Keynesian tradition she co-founded stayed truer to Keynes' legacy (p.438). MWW categorically reject the idea of combining neoclassical and Keynesian thought, because the former has nothing of value to offer and including it spoils the integrity of the latter.

Based on this polar opposition, MWW describe all of mainstream economics as neoclassical in essence. While 'neoclassical' is not a commonly chosen self-descriptor of mainstream economists today, MWW justify this generalization by tracing the varying schools back to their neoclassical roots and assumptions. According to them, New Classical economics is "more fundamentally neoclassical than the old neoclassical approach that Keynes had criticized" (Mitchell et al., 2019, p.472), and Real Business Cycle theories emerged out of a desire to remain even truer to neoclassical foundations than the New Classicals (p.473). New Keynesian economics allegedly attempts "to resurrect some of the ideas in the post-war Neoclassical Synthesis (...)" and thereby also imports neoclassical microeconomics, albeit less rigorously than the other orthodox theories. These roots in neoclassical theory suffice for MWW to ultimately count all orthodox theories as neoclassical, since they also deny that much intellectual progress has been made within these schools. Consequently, they often speak either of "orthodox neoclassical approach" (Mitchell et al., 2019, p.13), or simply of "neoclassical economics" while meaning the entire orthodoxy.

While *Macroeconomics* does detail the respective orthodox schools and their histories, it also points out that they each share the faulty core of a general equilibrium approach. For instance, MWW contrast mainstream schools when they describe how New Keynesian economists softens a New Classical assumption. Whereas the New Classicals assert that markets clear continuously and automatically if left alone (Mitchell et al., 2019, p.475), the New Keynesians admit there to be more impediments and imperfections to economic processes. But that is only in the short run. In the long run, MWW argue, New Keynesians nevertheless "accept the metaphor of an invisible hand guiding the economy toward equilibrium" (p.475). It is this idea that ties all orthodox schools of thought together in MWW's view, since "in spite of the differences among the orthodox approaches, all of them rely heavily on a market-clearing equilibrium approach" (p.442). There are further and ideas that these schools share, such as the assumption of *rational expectations* (Mitchell et al., 2019, pp.281-282), but the one that allegedly defines orthodox thinking the most, and the biggest ball and chain that they have been carrying around for a century, is a general equilibrium approach.

MWW think that the orthodox general equilibrium approach is misguided. For orthodox theorists, the general equilibrium is a steady state in the economy where all markets clear simultaneously, that is, prices are adapted such that supply and demand meet perfectly (Mitchell et al., 2019, p.433). In MWW's view, it has already been demonstrated in the 1950s that even under generous assumptions, there is more than just one equilibrium that clears markets and it is unclear which equilibrium is preferable (p.433). They add that markets do not clear automatically and that there is therefore no functioning invisible hand to guide markets. MWW remark that: "perhaps we need the 'visible hand' of government, after all, to move markets to equilibrium" (Mitchell et al., 2019, p.433).

In the eyes of MWW, theoretical deficiencies and empirical errors combined make orthodox economics an obsolete paradigm. The authors make this point abundantly clear from the preface of the book and spend much of the book elaborating upon it. In the final chapter of the book, they restate concisely their view of the orthodoxy after having detailed the perceived flaws of each of its component schools:

> Among mainstream theories and claims that should no longer be taken seriously by policymakers, we can include: Rational Expectations and continuous market clearing; New Classical and Real Business Cycle approaches; (...) the New Monetary Consensus, the Taylor Rule and the Great Moderation; the Efficient Markets Hypothesis; (...). None of these ideas should be taught as serious economic theory, nor should they form the basis of policy. They are no more relevant to economic theory and policy than are bloodletting techniques to the study of medicine. (Mitchell et al., 2019, p.552)

That is, essentially, all of mainstream economics. The comparison to bloodletting techniques emphasizes how little MWW think of these theories and clarifies that they want to see neoclassical economics taught only as a historical folly, if at all. Notably, New Keynesian Economics is not mentioned, and MWW do speak the least negatively about it throughout the book. They nevertheless critique NKE abundantly and make clear in other parts that they see little value in it (Mitchell et al., 2019, pp.475-477). Overall, the above quotation shows that MWW consider themselves to have demonstrated the inadequacy of the orthodox paradigm, which underpins their teaching approach that grants priority to heterodox thinking.

5.1.3. The Heterodox / Orthodox Dichotomy

The entire book can be seen as an exposition of heterodox economics in contrast to the orthodoxy. A clearer image of their respective features will therefore emerge in the following chapters of this analysis. Nevertheless, it must first be examined how MWW justify the heterodox/orthodox dichotomy to begin with, and what implications using these terms has.

MWW argue that the heterodox/orthodox dichotomy is a convention that they adhere to despite having issues with it. First and foremost, they point to the issue of the two terms being historically relative (Mitchell et al., 2019, pp.5-6). Keynes' ideas were once dominant and neoclassical theory heterodox, meaning that the dichotomous terms are only usable when referring to the present. Second, MWW argue that the heterodox camp is almost too heterogenous to be subsumed simply under their opposition to the orthodoxy:

> While all orthodox theorists substantially accept the tenets of neoclassical theory, 'heterodoxy' is made up of a number of well-established and coherent economic schools of thought. While these share a common approach, they also deviate from one another in important ways. (p.6)

Note that MWW put quotation marks only around the *heterodoxy,* not the orthodoxy. In their view, the heterodoxy is pluralistic and struggles to be contained under a single label, while the mainstream is essentially a monoculture. Despite their issues with the heterodox/orthodoxy dichotomy, they state that they "will conform to the convention" (p.6) and use the terms – although one could argue that the black-and-white dichotomy underpins their argument and is thus much more than a mere stylistic convention.

What then are the advantages and consequences of using the heterodox/orthodox dichotomy? First, the dichotomy simplifies the landscape of economic thought to make it more digestible for readers. This is a concern for MWW, who state and demonstrate throughout the book that they want to make macroeconomics as accessible as possible (Mitchell et al., 2019, p.115). However, the more important consequence of the dichotomy is that it implies a power dynamic. The terms imply that two internally coherent opponents are struggling for dominance, and that the current orthodoxy dominates the current heterodoxy. This description is decidedly different to saying that a discipline has two competing paradigms on equal footing, or that there is one paradigm and scattered opponents strewn around the fringes. The choice to rely on defining heterodox economics negatively, that is, in contrast to the orthodoxy, emphasizes this power struggle and contributes to the overall narrative MWW are telling.

Furthermore, speaking of *the heterodoxy* emphasizes their unity in the struggle against the orthodoxy. Not all heterodox theories are the same, and not everyone in that camp likes Modern Monetary Theory. The dichotomous framing however dampens such internal conflicts to amplify the shared struggle against neoclassical theory. The subduing of internal conflicts can also be seen in the absence of criticisms directed towards heterodox theories. In the entire book, MWW not once highlight anomalies or weaknesses in a heterodox theory.

This can be seen as part of a wider strategy where disagreements within the heterodoxy are framed as *pluralism,* rather than *conflict*. When MWW contrast heterodox with orthodox thought, they always imply or explicitly argue that they are describing irreconcilable disagreements, where only one side of the conflict can be correct. However, when they describe differences between heterodox schools, they are framed as differences in emphasis that can co-exist peacefully without requiring resolution. For instance, chapter 26 contrasts Marxist, Keynesian, Post-Keynesian and Minsky's theories of crisis (Mitchell et al., 2019, pp.419-429). It states that Marxists focus on the destabilizing tendencies inherent to capitalism (p.423), (Post-)Keynesians focus on uncertainty and credit (p.427) and Minsky focused on financial markets and their regulation (p.427-428). In the conclusion of the chapter, MWW only really summarize Minsky's theory, which may imply that they see it as the most mature theory. They do not, however, explicitly argue that one theory is better than another, or that they cannot be reconciled. Predictably, they do state that "orthodoxy has no plausible theory of crises" (p.428), thus excluding them from the circle of plurality. The same dynamic is present in section 29.5, "Modern Heterodox Schools of Thought" (p.477-485), where MWW first provide a list of seven orthodox positions that the heterodox camp unilaterally rejects (p.477-478). MWW then go on to describe a few heterodox approaches in a paragraph each. They do so by highlighting different "loci of analysis" (p.478), for instance when writing that "Critical Realists emphasise (...) deep structures in the economy" (p.479). The choice of words here is crucial, because MWW consistently frame heterodox schools as *emphasizing* different features of the economy, allowing them to co-exist or even complement each other. MWW highlight this as a strength of their approach, as they explicitly state that the "heterodoxy favours pluralism and democracy" (Mitchell et al., 2019, p.479).

5.1.4. Characterizing the Heterodoxy

MWW sometimes characterize the heterodoxy positively through its component schools and theorists, but most of the time, negatively in contrast to orthodox thought. The Mount Rushmore of heterodox economics features the faces of J.M. Keynes, Thorstein Veblen and Karl Marx, as can be seen when the authors speak of the "Keynesian/Institutionalist/Marxist approach" (Mitchell et al., 2019, p.5,32). These are the authors MWW highlight as the giants on whose shoulders contemporary heterodox theorists stand. Additionally, MWW mention Hyman Minsky frequently, a post-Keynesian who worked at the Levy Economic Institute of Bard College in New York State, where he taught the author of this book, L.R. Wray, who now is a professor at the same college (Wray, 2016). Minsky being mentioned so frequently in the book can therefore be seen as a result of this relationship. Further theorists and schools mentioned in the book as heterodox include Neo-Ricardians, Sraffaists, the Surplus or Long period approach, fundamentalist Keynesians and Michal Kalecki (p.437). The mentioning of these authors and approaches can be seen as an attempt to define the heterodox positively, through its own elements, rather than in opposition to neoclassical thought.

Nevertheless, MWW more often define the heterodoxy through juxtaposition with the orthodoxy. Numerous chapters and arguments could be counted as elaborations of the respective characters of the paradigms, but at a few points, MWW provide succinct lists of features that serve as indication of the most important differences. One such list enumerates tenets of the orthodoxy that the heterodoxy rejects:

> - Orthodoxy is based on methodological individualism in which decision making by individuals is analysed taking prices as signals. Equilibrium analysis then shows how market forces drive the economy towards equilibrium where all markets clear.
> - Marginal productivity theory determines the reward of each factor of production and hence the distribution of income.
>
> (...)
>
> - Perfect competition is assumed, so that there are many buyers and sellers in the market, none of whom can influence the price.
>
> (...)
>
> (Mitchell et al., 2019, pp.477-478).[9]

[9] The list was shortened down from seven items to include only the points relevant to this investigation.

The first point on the list includes the previously discussed equilibrium approach, as well as a rejection of the microeconomic-derived methodological individualism (p.477). The second point is important to MWW because they see it as justifying income inequality through neoclassical theory (p.480). According to them, neoclassical theory asserts that laborers are paid according to their productivity and therefore, it is necessary and acceptable that some earn more than others. MWW state that heterodox economists reject this view since economists including Marx and Keynes have demonstrated its shortcomings and provided more sophisticated explanations of wage formation. In the final point, MWW argue that the orthodoxy believes that prices form as a result of demand and supply, whereas the heterodoxy follows the theory of Michał Kalecki who saw prices as arising from firms "setting prices as a mark-up over per-unit costs" (Mitchell et al., 2019, p.482). MWW assert the latter theory as more accurate because it does not make the unrealistic assumption of perfect competition among firms that blinds the orthodoxy to the agency of firms in setting prices. As can be seen, MWW thoroughly contrast the orthodoxy and heterodoxy on theoretical grounds, always with a justification as to why the heterodoxy's position is superior.

MWW also highlight the rejection of the *rational expectations* (RATEX) hypothesis as characteristic of the heterodox approach. Throughout the book, mainstream economics is accused of working with an overly simple model of a *homo economicus,* that frames humans as utility-maximizing, rational agents (Mitchell et al., 2019, p.32). This model allegedly assumes that agents make instantaneous calculations and that their decisions are independent of each other. Furthermore, these model humans are assumed to have rational expectations of how prices develop, meaning that they will defer purchases in case of deflation and make purchases immediately during inflation (pp.281-282). MWW argue that individuals cannot possess the amount and kind of information required for such inferences (p.282). Furthermore, they assert that heterodox theorists generally work with the proposition that human behavior depends on culture and socialization, meaning that no one model could ever accurately account for all humans (p.6). Their view of decision-making instead accounts also for "other factors, including uncertainty, power, discrimination, prejudice and segregation" (Mitchell et al., 2019, p.6), which makes their lens more realistic and allows them to see power structures in capitalism that are invisible from the mainstream view.

5.1.5. MMT in Heterodox Economics

The book places MMT as one *approach* within the heterodox *paradigm* (Mitchell et al., 2019, p.32). MWW generally use these two terms to indicate that the heterodoxy is a paradigm that shares certain assumptions and theoretical positions, which allows multiple approaches with differing focus points to co-exist. MMT is one such approach that is characterized by its foregrounding of the monetary system (p.xxvi). This emphasis is what makes MMT novel, unique and distinct from other heterodox approaches, although the authors rarely contrast MMT to other heterodox theories. The only real difference they highlight between themselves, and their colleagues is precisely “the link between money and sovereign power, which is largely lacking in other heterodox approaches to money, as well as in orthodoxy” (Mitchell et al., 2019, p.484). At no point in the book do MWW make an effort to denigrate the work of heterodox colleagues, or to argue that their approaches are less valuable.

Another way of locating MMT within the heterodoxy is through the works it builds on. MMT combines existing theories, namely Abba Lerner’s *functional finance*, *Chartalism*, a *sectoral balances approach* and much of Hyman Minsky’s work (Mitchell et al., 2019, p.551). None of these are neoclassical and the roots of MMT are therefore signaled as heterodox. In the book, these theories and the heads behind them are clearly mentioned and credited, which helps to trace the origins of MMT.

Interestingly, the authors do not clearly state that MMT is, or is not, post-Keynesian. Some commentators argue that MMT is squarely post-Keynesian, but that MWW obscure their relation to this school of thought to exaggerate their own novelty (Lavoie, 2019). Indeed, the link to post-Keynesian theory must be read between the lines, like when MWW state that an overhauled version of the Phillips Curve “supports the MMT and post-Keynesian view more generally that the government has an important role to play in maintaining low levels of unemployment” (Mitchell et al., 2019, p.269). This statement can be read as implying that MMT is post-Keynesian. Given that Hyman Minsky is described as being post-Keynesian (p.434), and that MWW places themselves in his footsteps, one could also surmise that they see themselves as post-Keynesian. Ultimately however, they never explicate their belonging or non-belonging to post-Keynesianism despite there being a passage in which they list different offshoots of Post-Keynesianism where they could have easily mentioned MMT’s location on the heterodox spectrum (Mitchell et al., 2019, p.437). This could be interpreted as a strategic choice to avoid highlighting differences between themselves and other heterodox scholars and to emphasize unity.

In sum, MWW establish their theory as part of a relatively united heterodoxy, which stands against a highly united orthodoxy. As argued above, the book frames the discipline of economics as divided into two camps warring for dominance, and MMT is clearly located on one side of this dichotomy. The precise place of MMT within the heterodoxy remains vague. This ambiguity, however, fits the stated pedagogical aim of the authors, since their “main purpose in this book is to develop the coherent heterodox alternative" (Mitchell et al., 2019, p.34) to the orthodoxy, not to put MMT in rivalry to other heterodox approaches.

5.2. Macroeconomics as a Discipline

This chapter analyzes how MWW characterize economics as a discipline and especially what their normative ideal of economics looks like. The following sections thus analyze MWW's demand for realistic theories (5.2.1.), their argument that economics ought to contribute to public purposes (5.2.2.), their placement of economics among the social sciences and the economic methods they take issues with (5.2.3.), and finally the sharp boundary MWW draw between micro and macroeconomics (5.2.4.).

5.2.1. Realism and Instrumental Value as Criteria of Theory Validity

MWW assert that a theory's validity hinges on its correspondence to the real world. They describe their epistemological outlook in the opening chapter of *Macroeconomics*:

> The responsible social scientist is not seeking to establish whether the theoretical model is true, because that is an impossible task given there is no way of knowing what the truth is anyway. Instead, we seek to develop theories or conjectures that provide the best correspondence with the empirical world in which we live. This means that our current, accepted body of knowledge comprises theories and conjectures that explain the real world data in the most comprehensive way possible compared to the competing theories. (Mitchell et al., 2019, p.8)

Note firstly that the prioritization of the empirical world is a normative affair for MWW because serving the public purpose requires understanding the real world and is thus a responsibility of economists. Furthermore, note the implication that *real world data* simply exists, prior to theory, waiting to be interpreted. Throughout the book, MWW draw on this epistemological basis to argue that MMT is the superior theory, because it actually describes real world arrangements (Mitchell et al., 2019, p.157, p.551). This correspondence can be further subdivided into *realistic* assumptions about the world and *instrumentally* useful predictions of empirical occurrences, a distinction some economists make to debate their relative importance (Kapeller, 2017; Lawson, 2020). While MWW do not make this distinction, it is helpful for our analysis.

Macroeconomics contends that neoclassical theories make false assumptions about the world they purport to describe. They argue that all theories must simplify the world, but that neoclassical theory makes the wrong simplifications (Mitchell et al., 2019, p.13). First, they assume that economic subjects have *rational expectations* (RATEX), which demands such a large informational requirement that it cannot be satisfied by real humans (p.282). Second, neoclassical theorists make false assumptions about central banks and their operations, which is a central topic in MMT. They argue that since in neoclassical thinking, "the central bank is supposedly able to control the monetary base, it is claimed that the central bank can control the supply of money. Reflecting what happens in the real world, MMT demonstrates that the central bank cannot control the monetary base" (p.157). MWW assert that neoclassical assumptions do not hold for the real world and that its adherents in effect describe a fictional world that has little to do with ours.

Furthermore, MWW point to two main empirical examples to allege the failure of the neoclassical description. First, the Global Financial Crisis of 2008 was neither predicted, understood nor alleviated by neoclassical economists (see section 5.3.4.) Second, the economy of Japan has been consistently defying orthodox predictions for roughly thirty years. In numerous MMT publications, Japan is used as *the* neoclassical anomaly, and it is debated whether its economic policy regime represents an application of MMT thinking (Wray & Nersisyan, 2021). Specifically, the debate revolves around Japan's debt-to-GDP ratio, which has quadrupled since 1992 because the government has been running large fiscal deficits (Mitchell et al., 2019, p. 29). Neoclassical theory predicts that this would increase interest rates and in consequence, incur accelerating inflation (p.28). This, however, has not happened. Consequently, MWW call Japan the "glaring counterfactual case", (Mitchell et al., 2019, p.27), which defies neoclassical logic while being perfectly in line with MMT reasoning.

5.2.2. The Public Purpose of the Economy and the Role of Economics

MWW argue that the economy should serve public purposes. They quote a full page of the United Nations Universal Declaration of Human Rights of 1948, which lists different human rights, to indicate "widely accepted goals" (Mitchell et al., 2019, p.9). MWW highlight how many of these rights depend on the economy, either directly or indirectly. Crucially, the economy needs to be steered to serve these purposes: "We want government to act on our behalf to move us from State A (less desirable) to State B (closer to our purpose). It is important to note that the economy has no goals. They are our goals and we use, manage, and control the economy to achieve our goals" (p.129). MWW furthermore point out that mere GDP growth does not indicate a growth in public purpose, as even environmentally destructive activities, for instance, can grow the GDP (Mitchell et al., 2019, p.52).

The book describes the public purpose as open and contested, but nevertheless provides a rough spectrum of values with an emphasis on full employment. As MWW note, there can never be one single accepted definition of public purposes, and they must be negotiated locally and democratically (Mitchell et al., 2019, p.9). Nevertheless, the selection of topics in the book and the way in which they are written about paint a picture of the kinds of public purposes that MWW care about. Economically speaking, the main aim is maintaining full employment and price stability at the same time (p.12). These aims are in service of material prosperity, as full employment is the state in which labor and other real resources are no longer underutilized and the current maximum amount of goods and services are produced. They furthermore argue that thinking with MMT helps to fulfill public purposes, the enumeration of which is insightful:

> Free from financial constraints, the sovereign government can use the domestic policy space to pursue the most important public purposes: full employment; provision of adequate food, clothing and shelter for all of its population; universal access to healthcare, education, and culture; aged care, maternal care and childcare; protection of the environment; public infrastructure investment; consumer protection and regulation of private enterprise; promotion of civil rights and equal opportunity; pursuit of domestic safety and protection of legal rights; and provision of assistance to other nations. (p.560)

Most of these points roughly correspond to a progressive worldview - yet they also put MMT at odds with certain political programs and ideologies. The first public purpose MWW mention in the above enumeration is full employment, which is necessary to maximize the output of the economy and is thus helpful in achieving all the other aims that depend on material prosperity (p.292). This characteristically Keynesian focus on full employment potentially runs counter to degrowth movements, who do not care to maximize the output of the economy (Antal, 2014; cf. Juniper, 2021), and to those advocating for a reduction of workweek, whose ideal can be described as 'full unemployment' (Srnicek & Williams, 2015). Moreover, because MMT's outlook is so fixated on empowering the government, it is also fundamentally at odds with any movement that seeks to reduce state power or eliminate states altogether, such as anarchism (Fiala, 2021). While MMT has descriptive parts whose validity is independent of political aims, MMT does imply a clear normative outlook for a strong and entrepreneurial state that leverages economic growth for progressive aims (see also Mitchell, & Fazi, 2017). If, as its critics remark, MMT is leftist wishful thinking (e.g. Summers, 2019), then it is a specific kind of leftist thinking that certainly will not make everyone happy.

For MWW, the discipline of economics is vital in steering the economy in a desirable direction, whereas orthodox economists believe that they can leave that to the *invisible hand*. In MWW's view, this infamous idiom attributed to Adam Smith encapsulates the idea that markets produce optimal outcomes for everyone because they are guided by underlying principles towards the general equilibrium, as if by an invisible hand (Mitchell et al., 2019, pp.3-4). Government interventions in this view can at best produce short term gains, and in the long run, markets are best left alone. MWW argue that the orthodoxy still follows this principle when the topic of the public purpose arises - although most of the time, orthodox economists allegedly do not concern themselves with the public purpose at all. They allegedly assume an inverted relationship between the economy and the people summarized by the credo: “you deserve what you get” (p.4), meaning that every individual gets from the economy what they contribute to it and the resulting allocation is fair by definition. According to MWW, heterodox economists posit that the economy is a socially created system to serve needs citizens must define democratically, whereas orthodox economists treat the economy as a natural phenomenon in which citizens get to participate (Mitchell et al., 2019, pp.121-122).

5.2.3. Economic Methods and Economics as a Social Science

Macroeconomics does not have a whole lot to say about methods for economics. The book devotes a mere 13 pages to chapter 7, “Methods, Tools and Techniques” (Mitchell et al., 2019, p.104-117), in which they go over basic terminology like distinguishing endogenous and exogenous variables. It also briefly describes how to solve basic algebraic equations, which other textbooks would likely presuppose (p.106). The authors say that they want the book to be accessible to all kinds of readers and that some students prefer mathematical descriptions, whereas others prefer graphical or written explanations. MWW want to accommodate these preferences and state that they employ formalism and mathematical expressions only where necessary, although economics necessarily requires some mathematics.

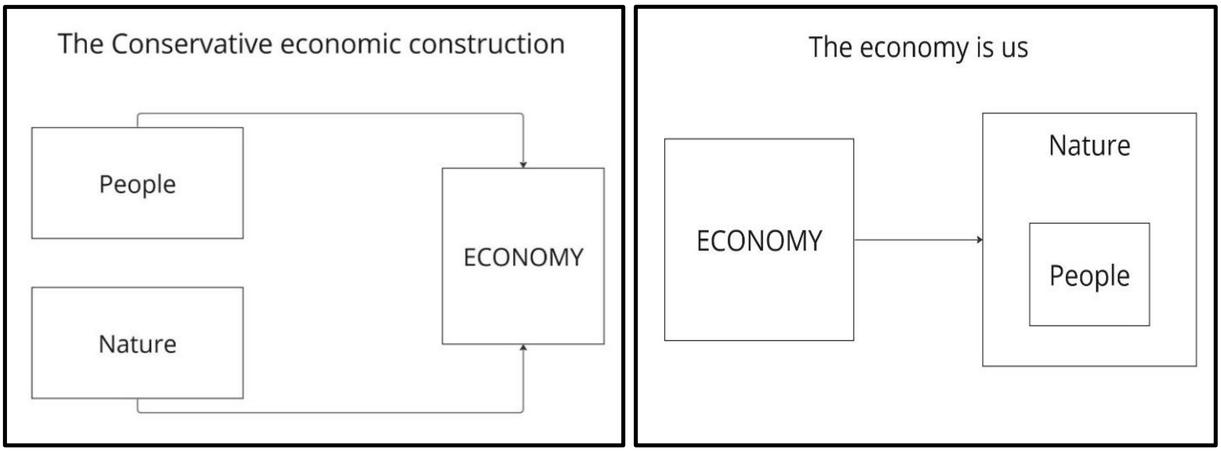
Eschewing formalism has a second purpose. Besides pedagogy, the authors place MMT in contradistinction to what they argue to be overly formalistic orthodox models. They state that: “Over the past half century mainstream macroeconomics has become increasingly devoid of relevance to our understanding of how modern monetary economies operate. In part this is due an increased emphasis on mathematical models underpinned by simplistic assumptions that reduce human behaviour to that of a 'rational agent'“ (Mitchell et al., 2019, p.560). Especially guilty of this is the influential *Dynamic Stochastic General Equilibrium (DSGE)* modelling approach, which is so focused on its internal modelling techniques that it overlooks that its foundational assumptions are wrong (Mitchell et al., 2019, p.491-492). According to MWW, the Global Financial Crisis exposed this formalistic obsession when DSGE modelers failed to predict this event yet chose to tack on mathematical ad hoc modifications to their broken models rather than re-evaluate their foundations.

Whereas the mathematically focused economists place their discipline among the natural sciences, MWW describe economics as a social science. For this placement, they provide primarily the argument that “there is no completely separate sphere of 'economic life', meaning that economics is linked to, and incorporates findings from, the other social science disciplines" (Mitchell et al., 2019, p.3). By arguing that the object of analysis of economics irreducibly social, they distance themselves further from purely mathematical descriptions and create a docking point for other social sciences. Their collegialityyyyyyyy to other social sciences can also be seen in their argument that there is no such thing as natural human behavior, because humans are too strongly shaped by their culture (Mitchell et al., 2019, p.6).

MWW moreover contrast what they call *two views of the economy* underlying the competing paradigms (Mitchell et al., 2019, p.121). The two constructions (Figure 1) contrast the relationship between people, nature, and economy. Whereas the "conservative economic construction" (p. 121) sees people and nature as contributors to an economy as an end in itself, the heterodox view emphasizes that "the economy is us" (p.122) by placing people within nature and having the economy contribute to them both.

Figure 1

The Orthodox and Heterodox Views of the Economy



Note. Adapted from *Macroeconomics* (pp.121-122), by W. Mitchell, L.R. Wray & M. Watts, 2019, Red Globe Press.

This juxtaposition mainly argues that the economy is not an end in itself, but rather a malleable system meant to serve public purposes as defined by people. MWW assert that in the orthodox view: "economy is enshrined as an entity – almost a deity- that is essentially beyond our control" (p. 121). To them, this view "represents a type of 'magical thinking' more appropriately associated with medieval views on the relationship between individuals and the world" (p.121), in the sense that they are subject to a naturalized order that rewards and punishes based on faith. The heterodox view on the other hand "represents an alternative view of the economy, where the economy works for us as our construction and people are organically embedded within and nurtured by the natural environment (Mitchell et al., 2019, p.121)."

This description does several things. First, it highlights that the economy serves public purposes. Second, it relieves the environment from being a mere standing reserve of resources, although the environment or environmental economics are not a primary concern in *Macroeconomics*. Third, and most importantly, MWW argue that the economy is a malleable construct. This is an indispensable argumentative pillar for them, because it later supports the central MMT contention that all countries that can should make themselves monetarily sovereign. The MMT prescriptions go beyond mere policy advice within the existing political economy to describe how the economic institutions themselves should be arranged. If one assumes markets to be natural phenomena that should be left alone – that argument falls flat.

Lastly, assuming the economy to be constructed rather than a natural phenomenon puts economics more in line with other social sciences. Anthropology, psychology, sociology and philosophy among others can contribute something to our understanding of human behavior and economic institutions if we assume them to be constructed and malleable.

5.2.4. Microeconomics vs. Macroeconomics

MWW draw a sharp boundary between micro- and macroeconomics. Microeconomics is the study of individual people, households or firms, whereas macroeconomics is the study of aggregate outcomes such as unemployment, GDP or inflation (Mitchell et al., 2019, p. 12). Their relation constitutes the *aggregation problem*, which deals with the manner in which the micro data and insights can be transferred to the macro level (p.20). There are numerous reasons why this transfer is not trivial, such as the interdependence of individual decisions (p.20), knock-on effects between actors (p.20) or zero-sum games such as global trade balances, wherein one country may benefit from an export surplus, but by definition, not all countries can run export surpluses at the same time (Mitchell et al., 2019, p.201). MWW argue that the orthodoxy ignores such issues and transposes too naively from micro to macro, which spoils the distinctly macroeconomic style of reasoning.

In this line of argument, mainstream economists fall prey to the *fallacy of composition*. This fallacy occurs when facts about members of a set are assumed to hold true for the entire set as well (Mitchell et al., 2019, p.20). MWW accuse mainstream economists of falling for this fallacy in two different ways. First, macroeconomic outcomes are assumed to be the mere summation of individual outcomes, such as when markets are assumed to behave rationally because all individuals do. Even if individuals did act rationally, there may nevertheless be emergent phenomena on the aggregate level that problematize such a summation. Second, orthodox economists overlook structural differences between microeconomic actors and governments (p.19). A core contention of MMT is that individual households must earn before they can spend and thus that they are financially constrained and cannot spend more than they have – which is untrue of monetarily sovereign governments. Government spending is logically prior to taxation and there are no financial constraints comparable to those of households (Mitchell et al., 2019, p.15).

Crucially, MWW see the fallacy of composition not just as a minor error in neoclassical economics that could be done away with, but rather a long-standing and defining flaw. In fact, Keynes himself had already recognized it and used the *paradox of thrift* to illustrate (Mitchell et al., 2019, p.21). He argued that one individual can save money by spending less, but not everyone can at the same time, because that would depress aggregate demand and incur recession. Individual thriftiness therefore does not translate to collective savings. At that time, however, the dominant neoclassical reasoning consisted of little other than fallacies of composition, and in that sense, macroeconomics as a thought style did not exist yet. It was only once Keynes (and others) highlighted the fallacy of composition that macroeconomics emerged as its own discipline (p.20), even though MWW note that “Keynes would not have been happy about that because his macroeconomics was fully integrated with his microeconomics” (p.436). Even today, however, neoclassical economists allegedly maintain that markets automatically work towards an equilibrium, which to MWW always implies a microeconomic logic that commits a fallacy of composition (pp.193-194). They argue that market clearing requires the assumption that supply and demand of a good are independent of each other, and that they are independent to those of other goods (p.194-195). This microeconomics assumption has no place in macroeconomics, however, because it leads to erroneous aggregations (Mitchell et al., 2019, pp.194-195).

If orthodox economists misconstrue the relationship between micro and macro, what relationship do MWW propose instead? This question is hard to answer. The book talks rarely about microeconomics, and when it does, it almost always loops back to accusing the orthodoxy of a fallacy of composition. The authors do not provide an elaborate alternative solution to the problem of aggregation. In this absence, the reader is left only with the frequent juxtaposition of micro- and macroeconomics. MWW argue that microeconomic logic leads people astray when thinking about macroeconomics: “MMT contains a coherent logic that will teach you to resist falling into intuitive traps and compositional fallacies. MMT teaches you to think in a macroeconomic way” (Mitchell et al., 2019, p.21).

False equivalences are allegedly made by economists but also by the public. MWW argue that journalists discuss macroeconomic topics on a daily basis but often rely on intuitive reasoning that generalizes incorrectly from micro to macro. Even worse however is the “blogosphere” (Mitchell et al., 2019, p.19), wherein any lay person can comment and will most likely fall for fallacies of composition since they rely on their personal (micro) experience and intuition. To uphold the appropriate style of reasoning, macroeconomics should thus be left to real macroeconomists, or as MWW put it: “The problems are that common sense is a dangerous guide to reality, and not all opinion should be given equal privilege in public discourse” (Mitchell et al., 2019, p.19).

The relationship between micro- and macroeconomics is also relevant for MMT because it has been criticized for lacking micro-foundations. For instance, Beck & Prinz (2019) argued that MMT refuses to deal with crucial microeconomic questions such as how citizens would react to their Job Guarantee program. The way in which the book navigates the micro-macro relationship therefore also functions to pre-empt and address criticism, which is palpable in certain passages. In one section, MWW explicitly address the topic of micro-foundations, and write that mainstream economists:

> claim authority because their macroeconomic models are what they call *micro founded* [original emphasis]. This just means that they assume people and firms behave as rational, maximising agents with rational expectations and can solve very complex maximisation problems (...). The problem is that the [mainstream’s] highly stylised mathematical models, which are overly simplistic because they cannot be 'solved' otherwise, fail very badly when they try to say anything sensible about movements in real world data. At that point, ad hoc changes are made to the models (for example, putting lagged variables in to capture real world inertia), which are not indicated by the micro-founded theory. In other words, what eventually emerges as the practice interface of these theories is not based on micro optimisation, and so the claim for authority is negated. (Mitchell et al., 2019, p.490)

First, MWW reductively equate ‘micro-foundations’ to rational expectations and the homo economicus, which by this point in the book they have asserted to be false. Second, they combine this falsity with the overly mathematical focus of the mainstream and their demand for realism to argue for the uselessness of mainstream models. Third, they argue that the solution to their problems lies outside of micro thinking, meaning that the mainstream’s microeconomic starting point does not actually help to understand macro phenomena, further strengthening the boundary between micro and macro.

How these critiques work together makes sense in the framing provided by the passage, wherein the micro-macro debate amounts to nothing but a “claim for authority” (Mitchell et al., 2019, p.490). Up to this point, MWW have argued that lay people are led astray by intuitions, that mainstream models are overly formalistic, and that macroeconomic thinking is a style of reasoning distinct from microeconomics. The sharp boundary they draw between micro and macroeconomic reasoning is thus a crucial barrier achieves several aims, namely that it keeps out lay people and economic commentators from the debate, pre-empts the charge that MMT lacks micro-foundations, and invalidates the mainstream's claim for authority through mathematical formalism.

5.3. Halted Progress in Macroeconomics

Macroeconomics argues that MMT and the heterodox paradigm are superior to mainstream economics but have not gained the academic recognition or policy dominance they ought to have. Overall, MWW paint a picture of economics where progress is halted and the discipline fails its duty to the public purpose. They establish this image by drawing on the history of economics and framing neoclassical economics as a stagnant yet revived theory (5.3.1.), by arguing that ideology has trumped rationality in economic theory choice (5.3.2.), by attributing to the dominant language of economic discourse the power to entrench and marginalize certain theories (5.3.3.) and by applying these points to the case of the Global Financial Crisis to demonstrate the failure of the discipline (5.3.4.).

5.3.1. The History of Economics as Eternal Return of the Same Disproven Theories

Whenever MWW speak of economic history, the underlying narrative is that neoclassical economics has hardly made any real advances in the last century. In their telling, neoclassical economics was developed by Jevon, Walras and Menger in the 1870s as a direct response to Marx (Mitchell et al., 2019, pp.34, 432). Since then, its basic premises and thereby also its foundational flaws have been set, and any proclaimed theoretical novelty has just been the same old ideas in a new dress. For instance, MWW allege that the introduction of the "representative household" (p.20) to fix the aggregation problem in fact merely repeats the same mistakes, and similarly, that the *Dynamic stochastic general equilibrium* approach may introduce sophisticated mathematical methods but ultimately still follows the faulty neoclassical idea of a general equilibrium (p.491-492) and is therefore just a rebranding of the *Real Business Cycle theory* (p.435). To MWW, neoclassical thought has been "demolished" (Mitchell et al., 2019, p.275) by Keynes, and since then, the theory has stagnated.

MWW moreover discount the theoretical novelties that mainstream economists proclaim. As MWW explain, mainstream economists celebrated the "rational expectations revolution" (Mitchell et al., 2019, p.492) in the 70s that incorporated the *rational expectations hypothesis (RATEX)* into their models, while it actually made their models even less accurate to real world events. As explained earlier, the hypothesis posits that "individuals essentially know the true economic model that is driving economic outcomes and can make accurate predictions of these outcomes" (p.282). While individuals might make forecasting errors, these are random and thus cancel out in the aggregate (p.282). In MWW's narrative, the acceptance of this unrealistic hypothesis paved the way for even more technical models that fundamentally underestimate the inherent uncertainty of economic forecasting that Keynes had presciently highlighted (Mitchell et al., 2019, p.282).

The work of neoclassical economists therefore amounts to an endless revival of the same dead ideas. This view is evident in the language of MWW, since they often speak of orthodox ideas being "resurrected" (Mitchell et al., 2019, p.277), "revived" (p.275), "reformulated" (p.470) or experiencing "resurgence" (p.122). In their view, Keynes had vanquished neoclassical economics in a true scientific revolution, which the defeated economists refused to accept and led them to plot their return (p.276). One example of such a revival was: "the introduction of the so-called expectations augmented Phillips curve by Friedman in 1968", which "did not represent a sudden new discovery (...). Rather, the emergence and promotion of the model can be seen as the culmination of a long campaign by Friedman and others to restore the Quantity Theory to the status it had prior to the Keynesian revolution" (p.274). MWW still see neoclassical theory as stagnant, since its total failure to predict and interpret the Global Financial Crisis has neither led to a substantial re-evaluation nor improvement of the theory (Mitchell et al., 2019, pp.538,120).

The key example of such a revival took place in the 70s, when neoclassical theory dethroned Keynesianism. MWW call this a "counterrevolution", in which opponents of the Keynesian era of social welfare regrouped to restore the free market paradigm (Mitchell et al., 2019, pp.34, p.440). Milton Friedman is framed as the mastermind behind this plot. He opposed the Keynesian achievements of social security and healthcare and adhered to a radical free market ideology (p. 440). While Keynesianism was still dominant, he was biding his time, until the OPEC oil crisis and the ensuing stagflation gave him and his followers "the opportunity to strike" (p.440). His counterrevolution was successful and worked in conjunction with the politics of Ronald Reagan and Margaret Thatcher to usher in the neoliberal, free market era (p.440). To MWW, the switch from the Keynesian to the neoclassical paradigm was "as if we returned to flat earth theory after once embracing round earth theory" (p.34). This metaphor is similar to that of "bloodletting techniques" (Mitchell et al., 2019, p.552) in that it evokes the stereotype of pre-modern primitivity while at the same time effectively insulting mainstream economists for adhering to such an obviously outdated theory. Now, if neoclassical economics has really been proven to be deficient since Keynes, then how did it even manage to make a comeback?

5.3.2. How Ideology Prevents Progress

MWW argue that progress in macroeconomics has reversed or at least halted, given the dominance of neoclassical thought since the 70s. Superior heterodox theories are sidelined and do not get the attention or policy implementation they deserve, despite being coherent alternatives (Mitchell et al., 2019, pp.552, xxvi). One might wonder how it is possible that demonstrably inferior theories manage to become dominant across academia, central banks and governments. MWW provide two main reasons. First, a veil of ideology blinds citizens and policymakers. This veil is partly produced and upheld by think tanks and media outlets financed by the privileged few who benefit from unbridled capitalism (Mitchell et al., 2019, p.120). Second, this blinding ideology is entrenched in the dominant language of economic discourse (see chapter 5.3.3.).

Throughout the book, they describe neoclassical theories and policies as ideological. For instance, they speak of "the cult of austerity" (Mitchell et al., 2019, p.14), the "NAIRU ideology" (p.296) or the "free market ideology" (p.538). When MWW call something ideological, what they mean most of the time is a kind of bias that leads away from the truth. It therefore also hinders scientific progress: "Often the acceptance of a theory is driven by ideology and politics, rather than a balanced assessment of the competing theories and associated evidence" (p.8). Furthermore, ideologies appear to be tied to the interests of certain people, which in this case is rich elites. At numerous points, they argue that the current, neoliberal iteration of capitalism benefits a privileged few while disadvantaging most people (Mitchell et al., 2019, pp.121, 435).

MWW allege that this neoliberal ideology was purposefully put into place by neoclassical theorists and non-scientific actors to advance their own interests and mislead the public. Disgruntled theorists like Friedman refused to accept the defeat of their neoclassical theories and eventually succeeded in their counterrevolution due to the help of a "well-crafted public campaign" (Mitchell et al., 2019, p.122). Crucially, the economists were not alone but aided by anti-government interests who funded fake research to advance their cause (p.122). MWW emphasize the influence of these extra-scientific actors:

> Conservative think tanks and media outlets produce an array of 'research' or 'policy' reports such that the public understanding has become straitjacketed by orthodox concepts and conclusions that in themselves are erroneous, but also lead to policy outcomes that undermine prosperity and subvert public purpose. The public's willingness to tolerate mass unemployment, rising income inequality and poverty is a manifestation of this syndrome (p.120).

Thus, both the public and policymakers are fooled despite there being alternative theories and policy regimes that would enhance public purpose (p.123). The heterodox alternative on the other hand is cast as non-ideological, and can unmask the falsehoods of the orthodoxy: “MMT removes this veil of ideology to expose the intrinsic features of a modern monetary economy” (p. 551). There is ambivalence in this framing, however, because MWW also sometimes admit that everyone has an ideology (Mitchell et al., 2019, p.131). Despite fighting for the public purpose, however, the heterodox alternative has allegedly been marginalized partly because of the ideological blindfolds that are put on the public and policymakers.

Scientific progress has therefore been halted by this veil of ideology. MWW argue throughout the book that the current orthodoxy sits on a mountain of anomalies, that produce tangible inequalities for most people, while the MMT/heterodox paradigm offers a coherent solution. In fact, the failure to foresee the Global Financial Crisis creates: “a chance that heterodoxy could regain some of its lost dominance because there is popular revulsion against an orthodox economics that is out of touch with the real world” (Mitchell et al., 2019, p.443). MWW appear to have no hope of convincing orthodox economists of their errors and thus rather place their hope on citizens, young and aspiring economists and policymakers.

5.3.3. The Role of Language in Disciplines

MWW argue neoclassical thinking is deeply embedded in the dominant language of economic discourse, which stabilizes its dominance. They make this point in a dedicated chapter called “The Use of Framing and Metaphor in Macroeconomics” (Mitchell et al., 2019, pp.118-132). The overall argument is that our economic discourse has become laden with metaphors and terms that obscure the way the economy truly functions and invoke erroneous instincts that make orthodox economics seem true (p.123). Responsible for this are orthodox economists themselves, who purposively employ such language to keep the public uninformed (Mitchell et al., 2019, p. 119). To combat this pillar of the orthodox paradigm, their chapter provides tables with old and misleading metaphors as well as heterodox alternative terms that should be used instead.

MWW highlight two main ways in which language can be misleading. First, frequently used words like *fiscal deficit* and *fiscal surplus* come with intuitive, subconscious connotations (Mitchell et al., 2019, pp. 124-125). The word *deficit* sounds bad and emotionally, a citizen prefers its government being in a fiscal surplus, even though both surpluses and deficits can be desirable states, depending on the situation. MWW argue that governments running a fiscal deficit should be the default state for most countries, yet the word *debt* is associated with overspending, shortsightedness and a heavy burden one has to carry (Mitchell et al., 2019, p.119). In their view, the frequent use of these terms, combined with a lack of macroeconomic understanding, mislead the public and policymakers.

Second, some terms are inextricably part of disproven neoclassical theories. The expression *government household,* for instance, should not be used under any circumstances according to MWW (Mitchell et al., 2019, p.124). That is because a household must indeed earn before spending and carefully manage its debt, whereas governments must spending before earning (taxing) and can take on debt in wildly different proportions. Speaking of a *government household*, or similarly, of a *government budget*, invokes the erroneous transferal of microeconomic thinking to the macro level und thus traps people in neoclassical illusions according to MWW's argument.

This misleading power of language supports neoclassical dominance and hampers the adoption of superior theories. As MWW point out, the news and public discourse is rife with macroeconomic topics, from inflation, unemployment, and economic growth to government budgets and central bank politics (Mitchell et al., 2019, p.119). Because the discussion of these topics usually occurs in faulty framings, however, listeners are biased towards neoclassical conclusions. These misleading framings also hamper the adoption of heterodox theories:

> MMT has struggled to gain traction in wider economic and political debates due to:
>
> 1. An incomplete understanding of key macroeconomic terms amongst economics commentators, especially journalists, and the wider community, including policy makers and the general public; and
>
> 2. The deployment of key macroeconomic terms in the context of pervasive cultural metaphors to support policy interventions that effectively benefit a privileged few at the expense of the majority. (p.120-121)

This is the core reason that MWW provide as to why MMT and heterodox theories more broadly have not enjoyed wider uptake. Given how much superior MMT allegedly is to neoclassical theory, MWW need an argument as to why it has not already dethroned the orthodoxy. Further reasons are conceivable, such as institutional inertia, or neoclassical theory not being as bad as MWW make it out to be. However, in this book, the misleading power of language is the reason they provide. Precisely who then is being misled?

MWW argue that citizens are purposefully misled by economists and policymakers allied with neoliberal interests. MWW identify neoclassical theory with the neoliberal policy era that has engendered massive inequality (Mitchell et al., 2019, p.5). The main reason MWW provide as to why citizens support policies that go against their own interests is that they buy into the neoclassical theory that is being used to deceive them. They see the deception a deliberate ploy by “conservative economists [who] have been much more aware of the science of cognition, and have successfully used it to pervasively embed their ideology into economic discourse” (p. 119). As can be seen, the argument is *not* that economists themselves are deceived – they know what they are doing. Rather, “proponents of neoclassical macroeconomics have been extremely successful in their use of common metaphors to advance their ideological interests. Ideologically loaded myths - in modern parlance, 'fake knowledge' - are accepted unchallenged by the public as truths” (Mitchell et al., 2019, p.120). In short, neoclassical economics is allied with neoliberal policies which are upheld through the use of purposefully deceptive language.

To facilitate a paradigm shift, MWW provide a repertoire of alternative expressions. As they argue, heterodox economists furthermore face the difficult choice of speaking in the faulty yet dominant language, which further reinforces it, or to employ their own terminology, which listeners are unfamiliar with (Mitchell et al., 2019, p.120). They themselves stick to a few terms that are hard to replace, or that would make their writing incomprehensible. For other terms, they offer substitutes, such as ‘fiscal balance’ instead of ‘budget’ (p.15), or ‘government investments’ instead of ‘government spending’ (p.129). MWW however take issue not just with certain terms, but with the framing accompanying them. Consequently, they argue that negatively connoted terms like *deficit* should always be used in conjunction with their purpose: “The government deficit rose and generated higher levels of wealth for households and firms” (p.129). This phrase contests the common orthodox framing in which budget deficits are inherently bad and minimizing them is an *end* in itself, whereas MWW see deficits as a *neutral means* to the end of achieving public purposes (p.129). MWW furthermore argue against framings that centralize the financial cost of government programs, because the only true costs governments have to account for is that of real resources (p.130). At the end of this chapter of the book, MWW provide an overview table (Table 3) of alternative metaphors to be used when discussing macroeconomics in the public or when teaching (Mitchell et al., 2019, p.131).

Table 3

Alternative Metaphors MWW Offer to Replace Misleading Terminology

Focus of attention	Metaphorical claim	Implied meaning
Government spending	Government spending puts money in our pockets.	Government spending increases non-government's income.
	Government invests in the productive capacity of our nation.	Government spending increases our capacity to provide for the needs of our population.
	Government cannot run out of money; the true constraint is our nations' resources.	There is no financial constraint although there could be a resource constraint.
Fiscal balance	Government deficits allow us to save.	Government deficits equal non-government surpluses.
	Government surpluses equal non-governmental deficits.	Government surpluses reduce non-government financial saving.
	The fiscal balance is largely determined by the economy's performance.	Fiscal balance outcome is not discretionary
	The nation cannot run out of its own money.	Government 'budget' is NOT like a household budget.
Public debt	The government's debt is our asset.	Government debt provides a risk-free financial asset to strengthen non-government portfolios.
		Government debt helps to stabilise the financial system
Income support	We take care of our own.	As our government faces no financial constraints, it uses its fiscal capacity to ensure resources are mobilised to care for its population
	A good nation supports its people.	Unemployment is always evidence of a policy failure, a failure to put resources to work.
	A good nation helps to support those in other nations who need help.	Rich nations help to mobilise resources needed by poorer nations.

Note. Adapted from *Macroeconomics* (p.131), by W. Mitchell, L.R. Wray & M. Watts, 2019, Red Globe Press

5.3.4. The Global Financial Crisis as a Turning Point in Economics

The Global Financial Crisis (GFC) of 2008 is a central puzzle piece of the narrative in *Macroeconomics*. It is mentioned frequently throughout the book and analyzed extensively in chapter 32, “Macroeconomics in the light of the global financial crisis” (Mitchell et al., 2019, p.535-550). MWW also state that the GFC was an important moment for the further development of MMT (p.552). They argue that mainstream economists failed to predict the crisis because their theories are so disconnected from the operation of the real world that they could not have foreseen it (p.538). For instance, “mainstream economists and central banks still use economic models that assume that all borrowers always pay all debts as they come due. In such a world, (…) A crisis like the GFC would be literally impossible” (p.538). Similarly, the orthodoxy allegedly relied on equilibrium approaches that saw the novel financial products traded in the run-up to the crisis as risk-reducing, rather than increasing (p.540). MWW conclude that it is unsurprising that orthodox economists did not see the GFC coming, because their theories precluded such a possibility (Mitchell et al., 2019, pp.538, 442).

MWW allege that mainstream economists also failed to provide alleviating policies during and after the GFC (Mitchell et al., 2019, p.442, 21). They suggested austerity measures, which were followed especially in the 2010’s and led to a needlessly slow recovery (p.441-442). Immediately during and after the crisis, however, many governments were wise enough to rely on Keynesian, anti-cyclical logics instead and provide stimulus packages to increase aggregate demand (Mitchell et al., 2019, p.441-442). Nevertheless, in MWW’s view, the dominance of neoclassical thought persisted despite its obvious failure to help the public in avoiding, alleviating or preventing a re-occurrence of the GFC.

MWW argue that whereas the orthodoxy did not consider such a crisis possible, the heterodoxy saw it coming. Orthodox economists had assumed that crises of this kind lie firmly in the past, a sentiment that was epitomized by the American central banker Ben Bernanke who dubbed the pre 2008 era “the Great Moderation” in 2004 (Mitchell et al., 2019, p.492). On the other hand, heterodox economists, especially Hyman Minsky, had predicted such crises. Minsky astutely theorized financial instabilities of capitalism and indeed argued before his death in 1996 that global economic crisis like the Great Depression could happen again (p.542). He outlined a mechanism that is often referred to as a “Minsky Moment” or “Minsky Crisis”, wherein good times lead to greater risk taking, more aggressive borrowing and relaxation of financial regulation, which taken together lead to considerable financial instability (p.542). MWW argue that the GFC was such a Minsky Moment. He and other heterodox economists saw such a crisis coming because their theories corresponded better to the real world, especially the inherent instability of capitalism that only rose with its financialization, and thus did not preclude the possibility of such a collapse (Mitchell et al., 2019, p.542). Orthodox economists on the other hand believe that capitalism naturally gravitates towards equilibrium and becomes more resilient over time, according to MWW.

The GFC has not led to the overhaul of economic theory and policy that it should have, MWW argue. They point out that scientific theories need not be perfect and that forecasting errors are to be expected, but that the GFC constitutes a “catastrophic oversight” (Mitchell et al., 2019, p.22) that testifies to the mainstream’s deficiencies (p.22). Consequently, a paradigm shift should occur:

> It is reasonable to expect that professional failure on the scale of the GFC would have led to a re-evaluation of the paradigm within which these economists work, and to major changes in economic curricula and research. Mainstream economists however have failed to alter their teaching approaches in any significant way. (p.120)

Interestingly, MWW do claim at other points that orthodox economists and practitioners did recognize the failure of their theories and attempted to update them (p.491,537-538). They quote a senate hearing of Alan Greenspan, successor to Ben Bernanke, who admits that he was shocked to see how drastically his ideology diverged from reality during the GFC (p.537,538). Furthermore, MWW describe how New Monetary Consensus and New Keynesian theorists (both mainstream) attempted a return to Keynesian thinking by including theories of financial markets into their thinking (p.488, 491). MWW discount these attempts however, since they represent mere “ad hoc responses to anomaly” (Mitchell et al., 2019, p.491) that do not address the erroneous foundations that ultimately spoil any attempt at salvaging the framework.

6. Discussion

The results of the empirical analysis are compiled in Table 4, which lists all the previously described dimensions in which MWW contrast the heterodoxy and orthodoxy. Each row shows a characteristic they ascribe to the mainstream, the heterodoxy and MMT. MWW sometimes speak of the heterodoxy and other times of MMT specifically, which is why Table 4 features a column for each. Since the MMT is a part of the heterodoxy, everything applying to the latter also applies to the former, but not necessarily vice-versa.

These dimensions of comparison are separated into three clusters that each correspond to one of the sub-questions posed at the outset of this investigation. This chapter is structured around these clusters, and its sections will therefore tackle *how MWW map out the schools of thought of economics and leverage this characterization (6.1. - Cluster A), how they characterize the discipline of economics normatively and leverage this characterization (6.2. - Cluster B) and what the theory of performativity reveals about MMT and its success (6.3. - Cluster C).*

Table 4

Summary of Results: Dimensions in Which MWW Contrast Heterodoxy and Orthodoxy

Dimension of Comparison	Mainstream Economics	Heterodox Economics	MMT
Cluster A: Paradigms	***How do MWW map the schools of thought in economics?***		
Health of paradigm	Degenerating, riddled with anomalies	Vibrant, easily overcomes anomalies of mainstream	Spearhead of Heterodox paradigm
Future potential of paradigm	Stagnant, hardly updated post-GFC	Rising, evolving, fit to meet contemporary challenges	Will replace mainstream
Novelty	Old, adheres to long disproven theories		Right mix of old and new
Ideology	Highly ideological		Unmasks ideology
Keynesian legacy	Only pretend to have understood Keynes	True heirs of Keynes	Drawing on Keynes but also others
Alignment with lay intuitions	Aligns with naïve intuitions about economics		Often counterintuitive but correct
Relationship to the public / lay citizenry	Blinds citizens with misleading language		Uses language accurate to real world
Theoretical Pluralism	Seemingly different schools all share same flawed core – ‘Neoclassical monoculture’	Diverse complementary approaches with different emphases/focal points	In itself pluralistic
Scientific self-categorization	Sees itself as a natural science	Places itself among the social sciences	
Cluster B: Norms	*What epistemic norms and expectations do MWW impose on economics?*		
Realism	Unrealistic assumptions, models only apply to ‘fantasy world’	Realistic assumptions – real world economics	

Dimension of Comparison	Mainstream Economics	Heterodox Economics	MMT
Instrumentalism	Inaccurate predictions; thought event like GFC impossible	Accurate predictions	Minsky saw GFC coming
Methodology	Overly formalistic and mathematical	Mathematical only when necessary	
Interdisciplinarity	Is not interdisciplinary	Works with other (social) sciences and philosophy	
Micro-Macroeconomics relationship	Inappropriately generalizes microeconomics to macroeconomics (fallacy of composition)		Treats macroeconomics as stand-alone
Public Purpose	Makes government impotent through austerity policies; ignores public purposes	Aids public purpose by empowering government	Reveals how much governments are capable of
Cluster C: Theory and Policy	*What can the theory of performativity tell us about MMT's success?*		
View of the economy	Economy as an end in itself, served by economy and people	Economy as a means to provide for humans and environment	
Malleability of the economy	Immutable, natural system	Economy is malleable, can be changed drastically	
Government intervention	Invisible hand should guide markets, little government intervention	Government should actively shape economy	Functional Finance: Government manages aggregate demand
Policy focus	Austerity, staying within government 'budget'	Diverse	Full Employment
Alignment with neoliberalism	Spawned neoliberalism	Always been against it	Always been against it & offers alternative

6.1. Cluster A: Inverting Expulsion

In this section, I want to describe the kind of boundary work MWW conduct as an inversion of what Gieryn (1983) termed *expulsion*. Gieryn saw expulsion as one kind of boundary work in which participants in a scientific controversy are attempting to occupy the center and push others to the periphery by drawing a "map to put discrepant claims and claimants outside (or, at least, on the margins)" (Gieryn, 1999, p.16) of their discipline or science as a whole. Expellers thus *affirm* the existing hierarchy between center and periphery and *contest* the mapping. MWW do the opposite. They *affirm* the map that places them in the heterodoxy and *contest* the hierarchy between periphery and core. In their argument, the current mainstream of the discipline is a degenerating paradigm unworthy of the throne of economics and the political influence that comes with it, which is why a scientific revolution is necessary that dethrones neoclassical theory once and for all. To establish that the heterodoxy is superior to the mainstream, they draw on norms that economics and science in general should fulfill (Cluster B), which will be analysed in 6.2. First, however, we must examine the structure of the map MWW produce (6.1.1.) to then understand the mechanics of their argument, which I will call *inverted expulsion/undoing usurpation* (6.1.2.).

6.1.1. Mapping the Landscape of Conflict

The heterodoxy opposes the mainstream on nearly every conceivable metric, according to MWW. Whether it is theoretical tenets, methods or empirical predictions - the orthodoxy allegedly always clings to faulty and obsolete viewpoints, whereas the heterodoxy champions the correct position. MWW paint the picture of two neatly separable mountains with an uncrossable gulf between them. It is a startingly black-and-white picture that leaves readers to wonder whether mainstream economics can possibly be this defunct, and whether heterodox economics can possibly be that much better. It is passages like the one where MWW liken the conflict to that between 'flat earth' and 'round earth' theory (p.34) that betray their unwillingness to concede any ground to their opponents or to grant them a nuanced characterization. One necessary premise for this polar opposition is to establish their opponents as unified.

For this purpose, MWW must first establish that the mainstream even is a unified enterprise that can be talked about in broad brushstrokes. They erect this straw man by reducing all mainstream schools of thought to the 'neoclassical' core of assumptions they allegedly all adhere to. These approaches, especially equilibrium modelling and rational expectations, are then argued to be so disqualifying that differences and diversity within the mainstream are negligible. MWW thus construct for themselves a target dummy that they can refer to as 'the orthodoxy', 'the mainstream' or 'neoclassical economics' interchangeably, all of which the reader should understand as polar opposites of the heterodoxy. To be sure, MWW *do* explain the differences between the mainstream schools when they provide an overview of orthodox and heterodox schools of thought (p.432-498). But these chapters are not so much differentiations of their arguments to provide a more nuanced case of who they are attacking, as they are enumerations of their enemies and justifications of why they too are ultimately neoclassical.

MWW also leverage this rigid neoclassical – non-neoclassical distinction to claim the legacy of John Maynard Keynes. Keynes was one of the most influential economists of the last century and his name carries weight to this day. Indeed, Neo-Keynesians whom MWW count as mainstream maintained his name and saw themselves in his footsteps. But MWW call them "Bastard Keynesians" (p.438) because they purported to join Neoclassical thought and Keynesianism, but actually merely reproduced the former while forgetting about the latter. Only post-Keynesians are real Keynesians, their narrative goes. This is another purist line of argument, where overlaps, grey zones or syntheses are dismissed in favor of black-and-white dichotomies. This argument furthermore adds a historical dimension to the narrative. By putting themselves in

Keynes' footsteps, they extend their struggle beyond the current moment and into the past, such that they appear as the next generation in the eternal fight against neoclassical economics.

In sharp contrast to neoclassical economics, the heterodoxy is framed as diverse and pluralistic. MWW emphasize repeatedly that the heterodoxy features varied traditions that differ in their analytical focal points, methods and antecedents without – and this is crucial – coming into conflict with each other. Their frequent use of the triad 'Keynesian/Intuitionalist/Marxist approach' that is for them synonym to the heterodoxy indicates that these approaches stand side by side complementarily. MWW also never denigrate the work of any heterodox scholar in their book, or frame one approach as more important than another (apart from dedicating the book to MMT, of course). This move expands the heterodoxy and frames it as a community of scholars who complement each other by pursuing different areas of analysis without conflicting. MWW frame the heterodox paradigm as a peaceful coexistence of complementary approaches, whereas no such coexistence is possible with neoclassical economists.

MWW leave the place of MMT within the heterodoxy ambiguous. As previously shown, MWW neither specify their relationship to post-Keynesian economics, nor to the heterodoxy, and it often remains unclear whether a given theory or fact is particular to MMT or generally agreed upon among the heterodoxy. This ambiguity has two main consequences. First, it might lead readers to attribute heterodox claims to MMT specifically, thus expanding MMT's scope from a rather narrow theory to a more comprehensive school of thought. Lavoie (2019, 2024) has criticized these lacking references as an appropriation of their colleague's work that exaggerates the novelty of MMT. Second, the ambiguity also covers up conflict within the heterodoxy. As we have seen, MMT has numerous critics within post-Keynesianism and the heterodoxy in general. If MWW covered these disputes in detail, their framing of a united heterodoxy would crumble as MMT would suddenly appear as the internally controversial theory that it is. Given that MWW paint the mainstream as united in neoclassical thinking, and the heterodoxy as a united, albeit diverse community, the picture of two internally coherent but diametrically opposed camps emerges. They amplify this opposition further through their use of Kuhnian language.

MWW furthermore draw on the Kuhnian concept of 'paradigms' to seal off the two rivalling camps from each other. Two paradigms, in the sense that MWW use the term, cannot gradually learn from each other or form syntheses. They are incommensurable, meaning that shifting from one to the other changes the assumptions, problems, anomalies, methods and everything else that guides research[10]. Consequently, the shift from one to the other must be *total*

[10] MWW's use of the term 'paradigm' is not necessarily in line with that of Kuhn himself, especially given that he modified his theory substantially in his later publications.

– either neoclassical or heterodox. The Kuhnian framing thus does a lot of heavy lifting for MWW's argument, since they want the heterodoxy to supplant the mainstream entirely. Other descriptions are available, as it were, and some scholars (e.g. Colander et al., 2010) have emphasized the permeability of the mainstream and the value of working on its margins, rather than outside of it entirely. Such a possibility, however, goes against MWW's intent since they advocate for a wholesale replacement of mainstream economics.

There is some tension in the framing of a heterodox paradigm that is at the same time pluralistic. Is Marxian economics really similar enough to post-Keynesianism to stand side-by-side in one paradigm? If a paradigm is defined through its methods and theoretical positions, one could argue that the heterodoxy comprises too diverse a body of knowledge to be called one paradigm. MWW do not address this tension and instead paint the heterodoxy as a united front. Other scholars however have explicitly reflected about the issue, such as Dobusch & Kapeller (2012) in their excellent article "Heterodox United vs. Mainstream city?". They proceed from a similar, although significantly more nuanced, base picture that sees a neoclassical paradigm marginalizing the heterodoxy. They contrast 'disinterested pluralism' where approaches coexist with little interaction (characteristic of sociology) with their preferred 'interested pluralism' that cultivates substantial exchange between approaches. Interested pluralism should then form the normative and methodological basis of a heterodox 'pluralist paradigm' that relaxes the ideas of incommensurability and paradigm shifts and defines itself through its plurality, rather than a set of theoretical tenets or its opposition to the neoclassicals.

By contrast, MMTers sometimes fall into what Dobusch & Kapeller (2012) call 'selfish pluralism', where the marginalized stick together as an opportunistic strategy to fight the mainstream, but when the revolution comes, they want to establish themselves as the sole paradigm and push out their temporary allies. Given how Mitchell and Wray (although not Watts!) and other MMTers have treated even their friendly critics, it seems that the heterodoxy is only a useful transitional alliance to them, despite their rhetoric of a unified heterodoxy. The same may be said about some post-Keynesians, with Rochon (2019) almost explicitly making the case for a temporary alliance with MMTers for strategic purposes. Yet, MMT is never referred to as an entirely independent school of thought in *Macroeconomics*, and when MWW list the 'modern heterodox schools of thought', MMT not framed as a major, independent tradition (Mitchell et al., 2019, p.477-485). There still is, and will likely remain, tension between MMT proponents and their heterodox colleagues.

Taking these aspects together, we can see that the specific way in which MWW chose to map economics *expands* and *totalizes* the conflict between the heterodoxy and orthodoxy. They do not want to contest a narrow slice of mainstream macroeconomics – they want to abolish the entire intellectual edifice. This conviction can be seen in several attributes of the map. First, the bipolarity of the two camps with little overlap between them pushes the conflict towards replacement, rather than gradual exchange or mutual learning. Second, the same dynamic is heightened through the framing of Kuhnian ‘paradigms’, which by nature disallow gradations in favor of revolutions. Third, asserting that the mainstream is entirely neoclassical is a way of stuffing the large number of mainstream economists into this narrow frame, while the small number of heterodox economists is attributed plurality and thereby inflated to appear expansive and holistic. Fourth, placing MMT at the vanguard of the heterodoxy narrates the battle it fights as part of the war waged against all of mainstream macroeconomics. If one looked at this map as a snapshot of the current landscape and wondered how it will shift in the near future, one would see two binary outcomes: total victory of the heterodoxy, and total defeat. MWW’s map thus *expands* the conflict beyond MMT and the monetary operations it observes to encompass all of macroeconomics, and *totalizes* the conflict to insist on a binary outcome.

6.1.2. MWW’s Argumentative Structure: Inverting Expulsion, Undoing Usurpation

Now that we have characterized the map MWW provide of their discipline, we can explore in more detail the structure of their argument as to why the heterodoxy should replace the orthodoxy. As I will show, their argument is that economics exists in a state of *usurpation*, where John Maynard Keynes once rightfully took the throne from neoclassical thinkers, who in turn launched a successful counter-revolution by illicit means that put them back in power, exiling the heirs of Keynes and turning them into the marginalized heterodoxy of today. The neoclassical usurpers, however, are incompetent rulers who have become increasingly moribund and hence, the time has come for the heterodoxy to take back their throne.

Implicit in MWW’s framing is the largely true observation that economics has a sort of ‘throne’ on which only one theory can sit at a time and exert its influence over policy. In institutions like central banks, ministries and policy advice committees, the dominant theories and facts exert influence over tremendously consequential decisions. While the same holds true for other sciences, the stark opposition of heterodoxy and orthodoxy simply does not exist in the same way in medicine or climate science. While such scientists nevertheless struggle for jurisdiction and authority for their sub-disciplines (think virologists versus epidemiologists during the Covid-19 pandemic), economics is unique in having a heterodoxy that diametrically opposes the last 40 years of neoliberal policy. Because indeed, since the neoliberal era began in the 1970s/80s, these theories have informed the overall direction of policies, including lowering government deficits, reducing labor market protections, fighting unions and deregulating industry

(Rochon, 2019) – none of which post-Keynesians have been on board with. Yet they have not had significant sway over such decisions, at least until the GFC led to the partial adoption of (post-)Keynesian crisis responses (Skidelsky, 2010). Now, while MWW too simply equate neoclassical theory to neoliberalism and exaggerate how much sway economic theory has ever had over policy (mainstream economists too complain that politicians do not listen to them!), they remain correct in asserting that economics as a discipline is unusually concentrated and that whichever theory is dominant at any given time is of enormous consequence for the economy, and hence for the people.

The heart of MWW's argument is that neoclassical economics is a stagnant, degenerating and anomalous paradigm. In their view, countless anomalies have accrued, such as the Global Financial Crisis, which simply cannot be explained by the neoclassical paradigm. The paradigm is degenerating in the sense that it cannot overcome these anomalies, as its erroneous premises forever bar it from understanding the dynamics of the real world. It is a research program with no future, which can also be seen in MWW's accusation that it has not been updated since the GFC. Whatever expectations one might express about macroeconomic theory, whether it is accurate predictions, guiding policy or simply describing the world as it is – mainstream macro falls short on all of them (see section 6.2.). Crucially, because MWW have insulated the paradigms from one another in their mapping, there is also no pathway for neoclassical theory to improve gradually. They cannot update themselves to explain the GFC properly, for doing so would require changes so drastic that the paradigm would no longer be the same. In this sense, MWW attribute to it *absolute stagnancy*. Any novelty the mainstream proclaims is dismissed as a superficial makeover, or a revival of long-dead theories that do not overcome the underlying faulty neoclassical premises. In this way, MWW construct 'neoclassical' theory as one continuous project from its inception, through the Keynesian revolution, to the present. We can now turn to this historical dimension.

For MWW, Keynes had decisively demonstrated that his *General Theory* is vastly superior to neoclassical thought, which should have sufficed to banish it forever. When Keynes published his magnum opus, the world quickly came around to seeing its superiority to the then dominant neoclassical ideas and adopted Keynesian policies. MWW call this event a scientific revolution, that is in line with the key norm of science: Better theories should get the spotlight. However, MWW narrate the return of neoclassical theory in vastly different terms. When neoclassical theory pushed out Keynesianism in the 70s, they speak of a "counterrevolution", that is, an illegitimate coup d'état that goes *against* the same foundational norm of science (Mitchell et al., 2019, p.34). Note also that in order to tell the story thusly, the neoclassical school of thought must have been the same entity as before, which MWW have established through the attribution of stagnancy. The Keynesian and the neoclassical revolution are thus framed in profoundly asymmetrical ways. The former is a healthy and legitimate process where a superior theory rises to prominence through the regular proceedings of science, whereas the latter is a destructive and illegitimate plot artificially carried out by people with ill intent. We should therefore explore in more depth how they succeeded despite proffering the inferior theory.

According to MWW, the neoclassical ‘counterrevolution’ was a usurpation, an unrightful regicide that succeeded due to illicit, *extra*-scientific tactics. MWW allege that the neoclassical counterrevolution succeeded because economists preyed on folk economic intuitions, planted misleading language in discourse and thrived off a pervasive capitalist free-market ideology. Additionally, economists had help from extra-scientific think tanks that produced propaganda to deceive politicians and the public. MWW moreover note that Keynesianism had spawned “social welfare for the poor, social security for the aged, or jobs for the unemployed” (Mitchell et al., 2019, p.34) and it was opposition to these policies that motivated the neoclassical restoration – not scientific disagreement. Thus, the motivations too were extra-scientific. These are also the reasons why neoclassical theory managed to maintain its ascendancy and why “MMT has struggled to gain traction” (Mitchell et al., 2019, p.120) (when MMT in fact enjoyed massively outsized publicity for a post-Keynesian theory).

That MWW consider economics a usurped discipline can also be seen in their telling of the first neoclassical counterrevolution. In their view, the first victim of neoclassical regicide was not J.M. Keynes, but Karl Marx. They consider his *Capital* another legitimate scientific revolution against which the “orthodoxy mounted counterrevolutions to restore neoclassical thought” (p.34). Here, they explicate the argumentative structure of *expulsion:* “Marx's revolutionary theory carried on, but in much of the West it was sidelined as the neoclassical theory became dominant” (Mitchell et al., 2019, p.34). MWW affirm that there always is a core and periphery in a discipline to argue that Marxian and Keynesian theory were expelled to the margins.

Taking these points together, MWW paint economics as a usurped discipline where the rightful rulers live in exile, awaiting their return. It is a corrupted discipline whose normal scientific proceedings have been overruled by extra-scientific influences and ideology. The prevailing paradigm has been degenerating for decades and fails its duties yet dominates policy. This state of corruption is the result of the neoclassicals expelling first Marx, then Keynes - and the time has come to *invert the expulsion*, or in reference to the historical continuity, *undo the usurpation*.

6.2. Cluster B: How do MWW Leverage the Epistemic Norms and Expectations they Impose on Economics?

One question posed at the outset of this investigation asked what epistemic norms and expectations MWW impose on economics and how they leverage them to position MMT advantageously. The answer is that they leverage the ideal image of economics they paint to attack mainstream economics by using it as the normative foundation based on which the mainstream is established as degenerating. The central pillar of their argument here is their demand for *realism,* because they allege that neoclassical theory applies to some fantasy world that has nothing to do with the one we live in. This demand for realism, which is of course a common and reasonable expectation to place upon economics, is the argumentative hinge through which other facets of their argument become effective. That micro- and macroeconomics should be separate, and that the mainstream is overly mathematical, non-pluralistic and non-interdisciplinary can be seen as supplementary arguments that support explain why neoclassical economics is unrealistic, and why the heterodoxy is superior.

The second half of this chapter theorizes MWW's rhetoric as boundary work. In this case, clearly, "one of the most important rhetorical resources is the idea of science itself" (Sismondo, 2011, p.127) – but the ideal image of science is always malleable and itself part of the controversy. Mainstream economists not only disagree with the differential ascriptions MWW undertake, but also with some of the norms they advance. While they would likely agree that assumptions should be realistic, they might see micro- and macroeconomics as necessarily entangled and economics as justifiably mathematics-focused and therefore placed among the natural sciences. The 'paradigm clash' MWW attempt to make happen is therefore not just about judgements over who follows a set of pre-existing norms, but also a contestation of these norms themselves. Boundary work always presupposes and thereby fights for a specific configuration of the repertoire it draws on, which in this case translates to a fight over how one should think and do macroeconomics.

6.2.1. Real-world Economics

A central argument for MWW is that MMT corresponds much closer to the real world than neoclassical theory does. This correspondence manifests itself in the accuracy of predictions, where MWW provide the GFC as their smoking gun, and the veracity of assumptions, where they assert that MMT much more accurately reflects the *operational reality* of money (a term I will analyze). To them, the cardinal sin neoclassical economists commit is that their models presuppose a fictional world that differs drastically from the one we live in. Why then is the mainstream so unrealistic, and how does the heterodoxy do better?

MWW allege that mainstream theories do not provide *instrumental* value since their predictions are inaccurate. In their telling, mainstream theorists did not see the Global Financial Crisis coming, nor were they able to provide alleviating policies. Crucially, MWW argue that this was not an incidental forecasting error, but a structural deficiency because the faulty assumptions baked into mainstream models categorically excluded the possibility of such an event. For MWW, this failure violates one of the basic norms economics should fulfill. In their view, it is the professional duty of economists to decode the complicated system that is the economy in order to safeguard society from such crises and help to overcome them. The same holds true for regular policymaking, where MWW also allege that mainstream modelers fail their duty because they wrongly predict that, for instance, minimum wage increases lead to unemployment (Mitchell et al., 2019, p.31-32). In their view, the orthodoxy fails to provide instrumental value to the public's understanding of the economy or policymaking decisions because its predictions are structurally deficient. This failure depends in large part on the unrealistic view the mainstream has of the real world.

What makes MMT more *realistic* than the mainstream in the eyes of MWW is its characterization of the *operational reality*. If MMT has a descriptive and a prescriptive part, then the descriptive part encompasses the operational reality of the monetary system. MWW use this term sparingly, yet it encapsulates an important part of their argument. Armstrong uses the term frequently and defines it thusly: "[operational reality] refers to the actual way the monetary system works in practice including the relationship between the central bank and commercial banks. A knowledge of operational reality implies an understanding of how the short-term interest rate is determined and how government spending and debt sales by the central bank or Treasury impact on the balance sheets of the central bank and commercial banks" (Armstrong, 2020b, p.460). In other words, the operational reality concerns the *mechanics* of money – what goes on 'under the hood'. When MMTers assert that spending precedes taxation, or that sovereign governments always create their money ex nihilo, they are stating technicalities that operate on exactly that level. Whenever people emphasize that MMT is a descriptive theory, that it cannot applied or that its opponents do not engage with its content, they mean that a key part of MMT is its description of this operational reality as it currently exists. Now, while MWW do criticize the mainstream's assumptions about human nature, such critiques are commonplace among the heterodoxy and do not set MMT apart. It is their characterization of the operational reality, and the way they leverage it, that makes MMT stand out and that has contributed to its publicity.

Crucially, the operational reality described by MWW is counterintuitive, which they leverage for their role as revolutionaries. They argue that many of the received wisdoms that comprise folk economics are flatly wrong, including the ideas that sovereign governments need money to finance expenditure, that they can 'go broke' or that money printing necessarily causes inflation. The supposed unveiling of these myths can be utilized in debates by MMT supporters. When an MMT supporter says surprising statements like 'spending precedes taxation' that are part of MMT's operational reality, the disruption of the received narrative allows the MMTer to take the role of a revolutionary privy to arcane knowledge. The mainstream proponent is often taken aback by such an unusual description and can then be painted as an indoctrinated sheep who has been blinded by an unrealistic ideology. This strategy is further enabled by MMT's alternative language MWW introduce in their chapter on language. MWW provide an entire table with alternative metaphors and argue that one should speak of a 'fiscal balance' rather than 'budget deficit' to avoid reproducing the mainstream myths baked into these terms. This unconventional language however also heightens the counterintuitive speaking style of MMT supporters, further amplifying their ability to startle mainstreamers.

Many of MWW's start with the assertion of a technicality and generalize to a practical implication therefrom. First, MWW state a technicality and assert that most economists get this wrong, for instance that 'sovereign governments do not need taxes to finance their spending because they technically always already create money ex nihilo'. Second, MWW make a more substantial claim that seemingly follows from that technicality, like 'governments can accept whatever deficit necessary to achieve full employment and then raise taxes to drain excess liquidity'. In this example and many others like it, mainstream economists actually agree with the technicality, but disagree with the conclusion. For example, Beck and Prinz (2019) argue that MMT's technical description of the mechanics of money is largely correct, but that all of it is well-known to economists who reach drastically different conclusions based on these premises. Yet MMTers pretend that mainstream economists reached a different conclusion because they misunderstand the operational reality. For this specific argument, Palley points out that the conclusion does not follow from the technical premise: "It's semantic to say whether taxes finance spending or whether taxes draw money out of the economy in order to create space to spend the money." (Palley, 2020, p.184). Yet MWW pretend that their opponents misunderstand the operational reality and *therefore* disagree with MMT's prescriptions, when the core of the disagreement actually resides with the policy prescriptions.

To conclude, MWW leverage the idea of realism by taking the role of revolutionaries who explain how the monetary system really works and thereby unveil the dominant interpretation as a series of myths. MWW see legal spending constraints like 'debt brakes' as ideological and posit that: "MMT removes this veil of ideology to expose the intrinsic features of a modern monetary economy." (Mitchell et al., 2019, p.551). As can be seen in this poignant passage, MWW position MMT as a correct mechanical description that contradicts and unmasks the mainstream's ideology.

6.2.2. Boundary Work and How One Should Think and Do Macroeconomics

If boundary work is the differential ascription of a desirable characteristic to two competing approaches, then the entirety of *Macroeconomics* is an exercise in boundary work. Mainstream economists will naturally disagree with these ascriptions, maintaining that their assumptions are justifiable simplifications and that their work is appropriately, not overly mathematical. On a more fundamental level, however, they might also disagree with the validity of the norms MWW espouse, especially the separation of micro- from macroeconomics. Consequently, it is not only the concrete ascriptions of characteristics that are contested in this controversy, but also the repertoire they are drawn from. Through the contestation of these repertoires, MWW's battle extends beyond MMT and to the overall war between the orthodoxy and heterodoxy, who enact different ideals of how to think and do economics.

It will help our analysis to think of MWW's arguments as syllogisms:

1. **All economic theories should do A**

a. Neoclassical economics does not do A

b. Heterodox economics/MMT does do A

→Therefore, heterodox economics/MMT is superior in regard to A

Where A is one of the norms listed in Cluster B of Table 4. Each of these norms is a puzzle piece that together reveal the ideal image of economics that MWW paint. MWW then use this image to characterize both the Keynesian golden era and the heterodox future, with the present mainstream being a corrupted contradiction of all that economics should be. This ideal image of economics is the normative basis on which MWW's argument stands and constitutes an essential rhetorical resource for their argument.

MWW provide a layered argument to establish that economics can and should aid *public purposes*. In a short yet important chapter, MWW contrasted 'two views of the economy' which they ascribe to the mainstream and the heterodoxy, respectively. They explain that the 'conservative economic construction' posits that the economy is best left alone since the invisible hand will steer it best. This belief stems from a deeper ontological view, wherein the economy is a benevolent quasi-deity whom people and planet should serve (Mitchell et al., 2019, p.121). Any attempt at pushing this deity away from its natural equilibrium-points therefore represents an irregular *intervention* by foolish humans who should instead submit to the inevitability of the economy's will. The heterodoxy, by contrast, does not see government action as an *intervention* into a pre-existing system, but rather understands that the economy is highly malleable and already the product of past decisions about its design, as well as current regulations, laws and infrastructures. Government action is therefore expected, needed, and normal.

An illustrative example MWW provide is the neoclassical belief in the existence of a *natural rate of unemployment* towards which the economy gravitates. Trying to drive unemployment below that rate through government 'intervention' can only achieve temporary success, as the economy (read: deity) will snap back towards its equilibrium like a rubber band and create undesirable outcomes in the process (Mitchell et al., 2019, p.122). Here, MWW link this ontological view to their vision of a proactive state: "Governments can always choose and sustain a particular unemployment rate. We created government as our agent to do things that we cannot easily do ourselves and we understand that the economy will only serve our common purposes if it too is subjected to active oversight and control" (p.122). Note that they speak of active oversight, rather than singular interventions. While it is doubtful that *all* mainstream economists adhere to such naïve notions of the invisible hand, it is certainly true that economic indicators like GDP growth are often treated as an end in itself, that people talk about 'the economy' being healthy, and that the ideal of free markets still holds sway. Against the backdrop of this "veil of ideology" (p.552), MWW attempt to pry open a window for persistent government action such that *public purposes* can be talked about at all, rather than being forced to accept that 'there is no alternative' to the will of the invisible hand (Mitchell et al., 2019, p.121).

MWW argue that macroeconomics should be an *interdisciplinary* field working together with other *social sciences* to counter the mainstream's *overly mathematical methods*. In their view, mainstream economists are overly focused on mathematical techniques and the internal validity of their models while ignoring insights from psychology, sociology, anthropology or political science that are needed to do macroeconomics properly. When the mainstream models inevitably make another erroneous prediction, it is these broader insights about human behavior and society that should be considered in order to improve the model's foundation while mainstream modelers instead look inward and add even more ad hoc variables to adjust their outputs, MWW allege (Mitchell et al., 2019, p.492). This is boundary work, as MWW claim to think interdisciplinarily while accusing their opponents of insularity, as well as attributing to their own work the appropriate level of mathematization. Furthermore, MWW place the heterodoxy among the social sciences, where they argue economics belongs, while the mainstream has foolishly turned itself into a "branch of mathematics" (Mitchell et al., 2019, p.2). MWW thus erect a boundary between good and bad economics by differentially assigning normative criteria to the heterodoxy and the mainstream.

Another interesting criteria MWW leverage is the *wedge they drive between micro- and macroeconomics* because it amounts to an attack and defense at the same time. For them, macroeconomics is a separate, although not entirely unrelated, enterprise to microeconomics. Although the precise relationship they envision remains unclear, they state that neoclassical economics is doing it wrong. Neoclassical economists are guilty of what MMW call the 'fallacy of composition', where micro-level insights are transferred to the macro level without further qualification. There is a historical dimension to this argument since they accused the 'Bastard Keynesians' of having married Keynesian macro to neoclassical micro – associating neoclassical theory with microeconomics. MMT has been criticized for lacking 'micro-foundations', that is, a credible theory or link to a microeconomic basis that would fill gaps in their explanations, such as the inflationary expectations citizens hold (Beck & Prinz, 2019).

In terms of boundary work, this is an *expansion*, or perhaps more precisely, a *contraction*, where "two or more rival epistemic authorities square off for jurisdictional control over a contested ontological domain" (Gieryn, 1999, p.16). Mainstream economists presuppose an integrated micro-macro approach and accuse MMT of failing the micro-layer, whereas MWW want to separate the two entirely to disqualify microeconomic criticisms. They draw a line of jurisdiction between the two sub-disciplines, so that only 'true' macroeconomists may speak on the subject. In this sense, they are not so much expanding their own territory, as they are contracting the domain of macroeconomics and denying epistemic participation of microeconomists.

Through arguments like this, MWW's fight extends beyond MMT. If an element is generally accepted as part of the normative repertoire, as is the case with *realism*, then combatants can draw on that element without first having to establish it. By contrast, MWW have to expend additional effort to disqualify the norm that 'macro theories should have macro foundations' and replace it with 'macroeconomics should be separate and distinct from microeconomics'. If MWW successfully convinced relevant audiences of their normative vision of economics, then the heterodoxy as a whole would appear superior. As Sismondo (2011, p.127) said, "one of the most important rhetorical resources is the idea of science itself" – and this ideal image of science is malleable and part of the controversy. In fighting for a specific configuration of the normative repertoire underlying economics, MWW therefore also fight for the shape of the discipline as a whole.

And indeed, the vision of economics that MWW offer largely falls in line with that of other heterodox scholars. Heterodox scholars and historians of economics largely agree that an overly mathematical method that is at the same time blind to other disciplinary viewpoints has been hampering the realism of dominant theories (Petersen et al., 2019; Colander, 2019; Skidelsky, 2010). By contrast, the heterodoxy proffers what they call 'real world economics', a claim that is namesake of the journal 'real-world economics review' in which many of the articles cited in this thesis are published in (Fullbrook & Morgan, 2019b). Interestingly, this is not an old argument. John Maynard Keynes himself said that an economist should be a "mathematician, historian, statesman and philosopher" (Keynes, n.d., as cited in Skidelsky, 2010, p.189) because economics is an inherently intersectional undertaking. His biographer Robert Skidelsky (2010) wrote in his influential book *Keynes: Return of the Master* that the GFC proved the mainstream had failed its duty to the public, which governments recognized and caused them to instinctively draw on Keynesian theory instead. In Skidelsky's argument, the world needs macroeconomics to become again as transdisciplinary as Keynes had been, because an overly mathematical focus had blinded the mainstream. He argues that microeconomics can indulge in mathematical modelling but that it should be institutionally separated, at least at the postgraduate level, from macroeconomics. MWW quote Skidelsky's book at length and adopt his argument that it is time for a return to true Keynesianism, both in theory and method (Mitchell et al., 2019, p.441). As can be seen, Keynes and the scholars that claim his legacy have long fought for economics as an interdisciplinary undertaking in order to ensure the realism of their theories.

6.3. Cluster C: The Political Economy and What Kind of Object MMT is

Numerous commentators have wondered what kind of object MMT is, with some arguing it is merely a descriptive theory and others saying it is a hollow policy rhetoric. To state the obvious: MMT is multiple, and depending on the context, different elements are foregrounded. Yet, understanding more precisely how MMT's dimensions are related is the key to understanding its tremendous publicity. In this final section, I want to view MMT through the lens of *performativity* and argue it describes MMT uniquely well, because MWW offer a comprehensive package of description, prescription, rhetoric and characterization of economics. Finally, I want to conclude this investigation by zooming out to the larger context of this debate, namely the decade-long dominance of neoliberalism to which MMT has offered a persuasive alternative that has been the main reason for its outsized publicity.

6.3.1. MMT Through the Lens of Performativity

Theories of performativity reject that economic theory merely represent an independently existing world and thus do not ask whether an economic theory is 'true' or not. Rather, they emphasize that theories are involved in the construction of the world they purport to describe, and the question is whether theories, behaviors of actors, institutions and infrastructures can be brought into alignment so as to create the world the theory presupposes. MWW mostly adhere to a representational logic, yet their theory presupposes a world that hardly exists yet. By MWW's own description, the Eurozone and most developing countries are out of MMT's scope, and critics argue that not even the US fulfills MMT's precondition of central bank consolidation (Palley, 2020). Furthermore, their prescriptive framework foresees a drastically different role for governments than currently expected. To understand MMT's impact, it is better to think of it as a proposed agencement than a representational theory. To recall, Callon (2007) defined agencements as an assemblage of heterogeneous elements that are adapted to each other in a manner that grants the assemblage an emergent agency. The four main elements of this assemblage, that I will go through in that order, are its *operational reality, prescriptive framework, normative societal vision,* and *normative vision for the discipline of economics*.

The foundation of MMT is its operational reality. Recall what MMT presupposes: A country with a sovereign currency (its own currency, floating exchange rate, negligible foreign debt) as well as a consolidated treasury-central bank under the government's control. While MMW maintain that the consolidation hypothesis is a minimal simplification (Mitchell et al., 2019, p.319), it remains the aspect of MMT that post-Keynesians criticize the sharpest (Gnos & Rochon, 2002; Lavoie, 2013, 2019). But MWW not only argue that most countries can be assumed to have such consolidation – they also argue that is *desirable*. In their argument, "it is impossible for the central bank to work independently of the treasury if the monetary system is to operate smoothly" (Mitchell et al., 2019, p.16). Moreover, MWW argue the same for monetary sovereignty. They admit that monetary sovereignty might not be immediately realizable for all countries, but maintain that it should be a long-term goal and that it has been a catastrophic mistake to give it up in the Eurozone. Thus, MWW not only argue that their description already corresponds to the world, but that the world should come to correspond to it.

That MMT's institutional arrangement is desirable is established through the unprecedented fiscal capacities it grants the government – which in turn depends on the rest of MMT (Mitchell et al., 2019, p.16). According to MWW, a sovereign government *can* leverage its peculiar role as currency issuer for much larger expenditure than neoclassical economists believe. However, this ability depends not just on the operational reality but also on the correct view and usage of this system. If the operational reality is the mechanical description of the machine we call economy, then the prescriptive part of MMT is the instructions for how to operate it. These instructions first and foremost include the *functional finance framework*, which counterintuitively redefines existing structures. In this framework, governments become managers of aggregate demand to attain full employment, which is certainly not how free market proponents would describe its role. Budget deficits also turn from being an undesirable exception to being the default, and taxes shift their function from being about financing expenditure to being about draining excess liquidity (that is, bringing down aggregate demand). What this means is that the fiscal space MWW attribute to their proposed institutional arrangements depends on its correct operation, which is provided by MMT's prescriptive elements.

Implicit in this proactive role for governments is also a specific, state-focused normative vision of how nations attain well-being. MWW think in a 'statist' way that neither questions the existence of nation-states, nor conceives of an alternative. This is neither a criticism nor something that sets MMT apart from other theories, but MMT does differ from mainstream theories in how interventionist and creative it wants governments to be. Whereas free market thinkers envision a 'small' government (at least in economic respects) that does not intervene into markets, MWW emphasize how governments create well-being through the social services that free-market thinkers want to see abolished.

Underlying this vision of the state is what the heterodox belief in the malleability of the economy. When MWW contrasted "two views of the economy", (Mitchell et al., 2019, p. 121-122), they alleged that conservative economists see the economy as a pre-existing, immutable quasi-deity that citizens serve as an end in itself. By contrast, the heterodoxy sees the 'rules of the game' as inherently human-made and therefore malleable. This malleability too is captured well by theory of performativity. That is because regardless of how far this principle is believed cognitively or not, the world certainly acts as if the economy was a deity that is best left unshackled. The economy is *enacted* as immutable – "There is no alternative". The heterodox scientific revolution would therefore enhance, but at the same time partly require, the belief that the economy is malleable and should be actively designed.

Finally, MMT also contains a vision of how the discipline of economics should function. MWW paint economics as a discipline with a corrupt ruling elite and valiant heterodox challengers that are ready to take over. These challengers do everything right – they are interdisciplinary, they have in mind the public purpose, they think genuinely macroeconomically and provide realistic theories. This vision too is part of MMT as it is a core part of its attacking rhetoric against the mainstream.

One must note here that the conduct of Wray & Mitchell and other MMTers contradicts their stated vision for macroeconomics. They claim that they appreciate plurality yet appropriate the work of colleagues in pretending they are the first to voice certain ideas (see Lavoie, 2024) and rudely dismiss even well-meaning critics. Similarly, MWW claim to cherish interdisciplinarity but introduce the idea of a public purpose by quoting the United Nations Declaration of Human Rights (as opposed to drawing on philosophy or political science), engage sloppily with epistemology and narrate the history of the economy in a manner so oversimplified that it would make historians' and anthropologists' skin crawl (Mitchell et al., 2019, pp. 9-11, 38-49). In this sense, there is tension between MWW's stated vision and their conduct and one could argue that the latter practically trumps the former. The same holds true for their enactment of plurality. As Colander et al. (2007) have pointed out: "if you [dogmatically] believe in the correctness of your ideas, you don't want pluralism; you want your ideas to win out because they are correct" (Colander et al., 2007).

Taking these elements together, MMT forms an assemblage of heterogenous elements that we can think of as the *MMT-world*. MMT describes a fictional institutional arrangement that can be operated with a specific set of instructions by governments fulfilling a redefined role, guided by a particular normative vision. Importantly, MMT is no less fictional than neoclassical economics – it too presupposes particular humans acting in a particular operational reality, and the heterodox critique that these fictions are more outlandish than its own is convincing. After all, the mainstream 'free market' assemblage has produced unquantifiable harm to people and planet. So 'MMT-world' is not meant at all in the sense of 'MMT-fantasyland'.

Rather, I want to argue that MMT presupposes and thereby proposes a specific world, and in MWW's narrative, this requires the mere flicking of a switch. MWW emphasize in their book and other publications (e.g. Wray, 2019) how many countries have already been living in the MMT-world without realizing it. A veil of neoclassical ideology has prevented them from seeing the system for what it is, but by tearing down this veil, the underlying MMT-world is revealed. To be sure, countries like the Eurozone-members must first create the necessary institutional arrangements. But for countries like the US, creating the MMT-world merely requires reinterpreting the operational reality, shifting to a different terminology and reassigning the functions of some elements like taxes or interest rates. Thus, whereas many leftist movements require the abolition and creation of many institutions, entering the MMT-world merely requires opening one's eyes.

6.3.2. How MMT Broke the Neoliberal Reality-Principle

To conclude this investigation, I want to argue that MMT has been so successful because it proposes an at least superficially credible alternative world that challenges the neoliberal credo that 'there is no alternative' (TINA) to this specific iteration of capitalism. This *reality-principle* is a core feature of neoliberalism, by which I mean the cultural condition western countries have been living in for the past few decades more so than a mere economic doctrine. Finding ourselves in this condition with increasingly hollowed out states that produce rather than alleviate the rising inequality as well as existence-threatening climate change has prompted various scholars to wonder why we are 'stuck' (Graeber & Wengrow; Fisher, 2022). Rochon (2019, p.163) chalks MMT's success up to its ability to break TINA: "by becoming a world-wide movement, MMT (...) represents the greatest threat to TINA. What MMT has done, which no other approach has achieved, is to destroy the myth that there is no credible alternative to the established neoliberal agenda" (Rochon, 2019, p.163). I want to complement Rochon's analysis with an argument as to why it might have been MMT specifically, rather than another theory, that managed to challenge neoliberalism so effectively. I want to continue where he left off and argue that MMT has been successful because it offers an ambitious and comprehensive alternative world that opens up the economy for redesign and points to a way out of neoliberal captivity.

The core of the neoliberal cultural condition is how immutable this capitalist reality appears. The cultural theorist Mark Fisher (2022) has called this condition *capitalist realism* and described it as the principle by which this highly ideological and specific iteration of capitalism with a hollowed out social state and an environmentally and socially destructive economy appears non-ideological and without alternative. And indeed, austerity advocates and deficit hawks sell themselves as prudent defenders of the hard reality that governments simply cannot sustain deficits, and frame demands for higher spending as unrealistic, wishful thinking. MWW assert the opposite: 'debt brakes' and other deficit restrictions are always artificial self-imposed constraints, and the reality is that sovereign governments have always been able to afford extensive public services, yet instead chose to erode social welfare as part of a neoliberal ideology that privileges rich elites over the last few decades. Thus, both sides leverage the idea of 'reality', but in different ways. The austerity advocates take the role of financially shrewd realists who defend an unfortunate truth, whereas MWW take the role of the revolutionaries who unveil that narrative as an ideology-driven myth to unleash the latent potential of the real-world economy for the benefit of the masses.

MWW are not the first to make such arguments, yet what they offer is not just a theory, but a comprehensive MMT-world. It is because, rather than despite MMT's multiplicity that activists and politicians have been able to mobilize people based on it. First, MMT solves rhetorically a problem that spending advocates have had, namely the iron-clad correctness wrongly attributed to austerity programs. Now, activists and scholars alike can point to MMT as the answer to the pesky question: How will we pay for it? But MMT is not just a rhetoric – it offers at the very least the veneer of a scientific theory, be it a good one or not when looked at closely, that operates on a different aesthetic register to usual progressive argumentations. Whereas conservative forces are usually seen as financially shrewd and capable and progressives slandered as not understanding basics of economics, MMT turns the table by supposedly unmasking that same shrewdness as a sheepish adherence to dogma. Thus, it is for once progressives who can seem like the economic experts. What further adds to MMT's challenge to neoliberalism is that it leans on already existing elements of the system and redefines them, rather than hoping for the creation of brand-new, vague post-capitalist structures. Everything MMT needs is already known to us: sovereign currencies, central banks and governments. MWW do not introduce complicated new mechanisms or vaguely gesture to some possible pie-in-the-sky post-capitalist utopia. In their own rhetoric (which is of course exaggerated), the preconditions for MMT's prescriptive framework are already met in many places and can be created in many more. As Wray has put it: "[Chartal Money] is infinitely generalizable. This is the way it has worked for the past 4000 years, at least, as Keynes put it." (Wray, 2019, p.10). In this sense, I presume MWW would vehemently oppose the idea that MMT is fictional and argue that we already live in the MMT-world.

MMT is rain falling on parched land. Especially in a world after the Covid-19 pandemic, calls for more capable post-neoliberal states have strengthened (de Beer & Keune, 2022; Bergsen, 2020). Perhaps the most influential scholar making this call (at least in Europe) has been the economist Mariana Mazzucato, who has demonstrated that it has been state intervention rather than deregulation that has produced innovation (2011) and that hollowed out government institutions have redistributed power to private consultancy firms (Mazzucato & Collington, 2023) and has thus advocated for more proactive, 'entrepreneurial' states (Mazzucato & Skidelsky, 2020). It is no coincidence that she cites MMT, albeit briefly, in some of her work to address the question of how to pay for things, and to point to a different world that is already possible (Mazzucato, 2021). Similar thoughts can be found in books like *Post-neoliberal economics*, edited by Fullbrook and Morgan (2021) who also edited the volume on *MMT and its critics*.

Nevertheless, the question remains whether the MMT-world could be successfully performed. Despite the constructivist nature of normative visions, the value of money or roles expected from governments – there remains a hard core of mechanical economic processes that provide friction to our ideas about them. The frictions of neoliberalism have become palpable to even those who have never heard the term, and anyone can and should ask: Where is all the promised innovation through deregulation? Where is the rising tide that lifts all boats? In this sense, MMT need not be perfect, only better than neoliberalism. And even MMT critic Paul Krugman stated: “I’m not an MMT fan, but it's a whole lot better than the economic doctrines Republicans adhere to” (Krugman, 2019, as cited in Rochon, 2019).

7. Conclusion

This section summarizes the key findings of my analysis and discusses their implications both for the future of MMT and the social study of scientific controversies. Moreover, a few reflections about the nature of *Macroeconomics* as a textbook are made, as well as reflections about the meaning of this inquiry for STS. Lastly, areas for future research are highlighted.

This thesis examined how Mitchell, Wray and Watts (2019) position Modern Monetary Theory in their textbook *Macroeconomics*. MMT is a post-Keynesian macroeconomic theory that provides a counterintuitive description of the monetary system based on which it argues against the currently dominant fiscal policy of austerity. Its proponents argue that their theory is drastically superior to the current mainstream theories in economics, which they see as out of touch with reality and ultimately worthless. MMT proponents have reached a much wider audience than most of their post-Keynesian colleagues, who usually receive little attention from mainstream economists and policymakers. Yet this attention was largely negative, and mainstream economists mostly dismissed the theory as dangerous nonsense, predicting rampant inflation if it were followed by policymakers. Since MMT proponents make bold claims about the state of economics, which seemingly have contributed to the publicity of the theory, an STS investigation into the strategies they employ to position their own work advantageously seemed fruitful.

The present investigation revealed that MWW position MMT at the vanguard of a thriving heterodox community that is being marginalized by a moribund mainstream paradigm. In MWW's view, there is nothing redeeming whatsoever about the scholarship they identify as mainstream, and none of it should be taught in universities or taken seriously by policymakers. They make this case through extensive boundary work, where they posit various norms that economic theories should live up to and assert that they fulfill them, whereas the mainstream does not. The two key normative demands are that the discipline of economics should contribute to public purposes and deliver realistic theories that correspond to the real world. In MWW's argument, mainstream economics is out of touch with reality because it clings to long-disproven neoclassical dogmas, which renders it unable to say anything meaningful or helpful about the world. This not only constitutes an epistemic failure, but also a moral one, as can be seen in mainstream economists failing to predict the Global Financial Crisis or provide effective policies to alleviate it. Similarly, MWW argue that mainstream economists advocate for minimal spending deficits because they drastically misunderstand the monetary system, with the disastrous effect of paralyzing governments. MWW posit further norms that can be seen as subordinate to the demand for realism. For instance, they argue that economics should be interdisciplinary, because the mainstream is plagued by overly mathematical methods that cloud its understanding. Similarly, MWW assert that micro- and macroeconomics should be separate disciplines, because macroeconomics is a distinct style of thought that mainstream economists fail to grasp because they merely aggregate microeconomic results.

All these arguments presuppose a particular kind of mapping that renders the two camps in polar opposition. By nature of their genre, textbooks assert their contents to represent the prevailing state of the art, whereas omitted content is peripheralized. While mainstream textbooks tend to omit even a passing mention of post-Keynesianism and the heterodoxy more broadly, *Macroeconomics* is extremely explicit and thorough about its mapping. The map MWW provide contrasts a vibrant and pluralistic heterodoxy with a moribund mainstream monoculture. MWW place their own theory at the vanguard of this heterodoxy and contrast it extensively with the mainstream that they identify as the undead neoclassical orthodoxy. While many heterodox scholars work with a similar understanding of their own discipline, MWW paint a particularly black-and-white picture. As I have argued, MWW pursue a strategy of *totalization* by weaponizing Thomas Kuhn's theory of scientific revolutions. They briefly summarize his theory and argue that two rivalling camps in economics are incommensurable paradigms that cannot learn from each other and that are locked in a century-long battle that can only ever result in one supplanting the other. They explain that this has happened with neoclassical theory pushing out Marx, Keynes pushing out neoclassical theory, and finally, neoclassical theory re-establishing itself in the 70s through an illegitimate coup through the use of extra-scientific tactics. Since then, the discipline of economics has existed in a state of usurpation, where the rightful Keynesian heirs are kept in exile by the corrupt neoclassicals – and now, the time has come to take back the throne. Yet, this entire narrative only works if the underlying mapping is accepted. Their mapping could be questioned in several ways: Is epistemic authority and policy influence really that concentrated in the center? Are the two 'paradigms' really incommensurable? Is the mainstream really such a monoculture? This thesis cannot answer these questions, as its aim was to reconstruct the inside perspective of Modern Monetary Theorists. Rather, what I have shown is that MWW use their textbook to map the schools of thought in economics in a particular way, namely one that totalizes their conflict with mainstream economics by foreclosing any possibility of mutual learning and pushing for a scientific revolution.

MWW's mapping also renders the heterodoxy in a particular way, namely as at once pluralistic and diverse yet unified and coherent. There is tension between these ascriptions, since sufficient diversity in approaches will undermine the coherence in thought as well as the willingness to form strategic alliances. MWW do not resolve this tension and frame the heterodoxy as an absolutely united alliance that provides a paradigm that is coherent and ready to supplant the mainstream. While MMT is placed at the vanguard of this heterodox movement, its precise relationship to other theories is left ambiguous in an effort to subdue the internal differences among the heterodoxy and the conflict between MMTers and its critics. Bill Mitchell strikes an entirely different tone on his blog: “The MMT economists are delivering the alternative paradigm in macroeconomics. No other challenge to the mainstream has succeeded and the heterodox tradition just became lost in peripheral issues” (Mitchell, 2023b). Perhaps it his co-authors’ influence or the medium of the textbook that has led to *Macroeconomics* presenting a more charitable attitude towards the heterodox community. Regardless, it is clear that tensions remain between MMT proponents and their heterodox colleagues that must be navigated. MMT proponents can attempt to differentiate MMT and turn it into a stand-alone school of thought or rebuild bridges to other heterodox thinkers. *Macroeconomics* falls somewhere in between, as it foregrounds MMT and de-emphasizes its overlap with existing post-Keynesian thought, while also praising the heterodoxy extensively and framing the “Keynesian/Marxian/Institutionalist” (Mitchell et al., 2019, pp. 5,32), rather than just MMT, as the alternative paradigm. Heterodox commentators respond in various ways to MMT – with some heterodox scholars arguing for a ceasefire and strategic alliance (Rochon, 2019; Lavoie, 2024) and others disavowing MMT entirely (Palley, 2014, Toporowski, 2019). Any movement must negotiate how much divergence in beliefs it is willing to tolerate for the sake of strategic unity, and how it deals with existing conflicts. At stake in this controversy is thus also the configuration of the heterodox community, and specifically whether it should be more of an activist movement that prioritizes its impact, or a dispassionate science that soberly insists on epistemic precision. *Macroeconomics* clearly chooses the former.

Lastly, viewing MMT through the lens of performativity helped to explain its success. I have argued that MMT does not just claim to describe reality as it exists but that it presupposes a specific institutional arrangement and provides instructions for how to run it such that maximum public purpose is achieved. Moreover, it *advocates* the realization of its presuppositions. MWW argue that the central bank *should* be under the government’s control, and that most countries *should* issue their own currency. MWW’s argument as to why these arrangements are desirable in turn depends on MMT – since the theory posits that governments can leverage tremendous fiscal capacities by operating the economy according to its instructions. For instance, the MMT view reassigns the function of taxation from financing expenditure to draining excess liquidity, and demands that governments take on the task of managing aggregate demand to achieve full employment. In this sense, MMT as described in *Macroeconomics* presents an *agencement* as described by Callon (2007). That is, MMT outlines an assemblage made up of a particular institutional arrangement and a framework of government policies that are adapted to each other in a manner that grants the assemblage an emergent agency.

In the political arena, MMT's nemesis is a deeply entrenched austerity regime that seeks to minimize government spending deficits. This regime is part of the wider cultural condition of neoliberalism, which is characterized by the pervasive belief that neoliberal capitalism is the only viable system, with all proposed alternatives being ideological delusions (Rochon, 2019; Fisher, 2022). Heterodox economists, alongside countless other social scientists and philosophers have pondered ways to challenge this 'capitalist realism' and develop a 'post-neoliberal economics' (Fischer, 2022; Fullbrook & Morgan, 2021). In their textbook, MWW emphasize the malleability of the economy and society, arguing that the economy can and should be run profoundly differently to serve public purposes, while mainstream economists treat the economy as a naturalized quasi-deity and assume that leaving the economy to the 'invisible hand' maximizes public good. Rochon (2019) has attributed MMT's success to it successfully breaking the neoliberal illusion that 'there is no alternative' to the present system by offering an at seemingly coherent alternative. I have argued that MMT achieves this through its performative character – since its radically different proposed enactment of the economy embodies their argument for the very malleability of the economy that neoliberalism denies. If neoliberalism's core is the enactment of reality as one without alternative, then MMT has succeeded in its challenge because it offers an at least superficially credible alternative world that lies right below the surface of the one we already live in.

To conclude this investigation, a few reflections are in order, starting with the nature of *Macroeconomics* as a textbook. The empirical material analyzed for this thesis was not interviews or ethnographic fieldwork, but rather a document of a particular genre. Textbooks are a genre that asserts itself as an authoritative representation of the state of the art in their discipline, and it is particularly important to scrutinize how this authority is constructed and used since their target audience is inexperienced students. MWW's aim with this book is clear. Following the logic that 'science progresses one funeral at a time' (Mitchell, 2020b), MWW attempt to recruit students into their heterodox revolution against the mainstream. They seem to have given up trying to convince mainstream economists and instead hope to build a community of young researchers who were never 'indoctrinated' into the neoclassical ideology. I am not an economist, and I have done my best to suspend judgement over whether mainstream economics really is as anomalous as MWW make it out to be. Yet, it is hard to imagine such strong rhetoric coming from an established minority of scholars in any other discipline. Were such a debate occurring in medicine or physics, one would immediately discount the 'revolutionaries' as conspiracy nuts. But economic theory is intimately tied to policy, about which people including me have preconceived opinions, and it is all too easy to blindly accept theories that play into one's politics. Nevertheless, scientists and citizens in a democracy owe their opponents a certain amount of epistemic precision when assessing their claims – and this is all the more true for a textbook that teaches students. Especially because a textbook also implicitly teaches the values and practices researchers should adhere to, they should lead by example and present opposing arguments in their strongest possible formulation and let students figure out their position themselves. MWW instead strawman their opponents by lumping all of them together as one 'neoclassical orthodoxy' that is also equivalent to the mainstream. This practice teaches students to do the very thing that MMTers rightfully decry when mainstream economists do it to them, namely enacting an opposing theory as undeserving of epistemic accuracy.

MWW weaponize Kuhnian language in a way that should prompt reflection from STS scholars. It is not uncommon for marginalized scientists to draw on arguments from philosophical or sociological studies of science, and heterodox economists do this a lot. Some heterodox scholars are more nuanced than MWW and earnestly ponder whether Kuhnian, post-Kuhnian or Lakatosian descriptions best capture the nature of economics, while nevertheless pursuing the strategic aim of coordinating the heterodoxy (Dobusch & Kapeller, 2012). MWW do not seem concerned with accuracy, but with rhetorical utility. They treat Kuhn's theory loosely, yet they need the idea of paradigms and scientific revolutions to totalize their conflict with the mainstream and take on their role of revolutionaries. In a way these efforts are also performative, in that they enact economics as consisting of two incommensurable paradigms, thereby working towards realizing the description they already assert to be true. MWW do not want students to learn neoclassical economics and ascertain its value for themselves, they do not want neoclassical policies to be considered, they do not even want the occasional olive branch offered by mainstream economists – they want to burn all bridges that span the gulf between themselves and their opponents. In this sense, the 'mere descriptions' that sociologists and philosophers of science provide can not only become a rhetorical resource in controversies, but even a part of reality when scientists enact it accordingly.

Since I have borrowed the concept of boundary work as a tool for this investigation, it is only polite to reflect a little about it before I give it back. I have argued that MWW's arguments fall into one of three genres of boundary outlined by Gieryn (1999), namely *expulsion*. Mainstream economists emphasize that MMT is a fringe theory in an effort to expel it from the center and deny it epistemic authority. MWW flip this argument by affirming that MMT is indeed on the fringes but adding that the core of the discipline is degenerating. Hence, a scientific revolution is necessary. I have termed their strategy *inverting expulsion*, or, in reference to the historical dimension of their argument, *undoing usurpation*. Gieryn's description of expulsion as a distinct genre was extremely helpful in recognizing and conceptualizing this strategy. As Gieryn had already highlighted, this genre revolves around the *mapping* of the discipline, which is never neutral and always reflects the worldview and interests of the mapmakers. MWW's mapping lays the groundwork for their argumentative structure and *logically precedes* the other kind of boundary work they do, consisting of contrasting ascriptions of norm adherence. Yet these contrasting ascriptions also form boundaries that demarcate the camps in the mapping, since MWW define the heterodoxy as all that which the mainstream is not. For any future scholars working with the concept of boundary work, I strongly recommend reflecting about the co-construction of boundaries and mappings of a discipline.

On a final note of reflection, I must highlight the challenges in studying a controversy in a science that I am not versed in. I am not an economist, and sizeable chunks of MWW's textbook and the critiques of MMT escaped my understanding – but that was not the problem. In a sense, being unfamiliar was also an asset, since it made it easier to suspend judgement over who is factually right and thus to focus on the sociological aspects of MWW's arguments. However, being unfamiliar with economics led me to internalize the heterodoxy's mapping of economics somewhat. Since the focus of this thesis lies on the strategies and inside perspective of heterodox economists, the vast majority of the economic material I have read came from heterodox, especially post-Keynesian scholars. These scholars nearly unanimously agree that there is such a thing as 'mainstream economics' and that it is deficient. Now, while I can imagine that the mainstream is not as deficient as the heterodoxy claims, or suspend judgement on the matter, I struggle to imagine economics consisting of anything other than two polarized camps. To be sure, I find the empirical arguments for the existence of such a mainstream convincing (Glötzl & Aigner, 2017; 2018; Aistleitner et al., 2019). Yet other descriptions are available (Colander, 2000), and the immersion in the heterodox worldview has rendered me somewhat blind to the 'mainstream' perspective. 'Going native' is always a potential issue for qualitative research, and the danger is only heightened if the inquiry aims to reconstruct the inside view of one side of the controversy. I would have benefitted from, and would recommend to other scholars studying controversies, to contact members of all sides of the dispute to prevent internalizing underlying framings.

My thesis highlights numerous pathways for further research. First, the question of how MMTers challenge the mainstream begs the inverse question of how the mainstream dismisses, debunks and undercuts MMT and the heterodoxy. Second, ethnographic investigations into MMT should look at media other than textbooks to probe deeper into the self-understanding of MMTers and potentially their internal tensions, for instance at MMT conferences or the yearly MMT summer school. Third, the role of institutions play in this controversy has been invisible to the chosen method of textbook analysis. Universities are crucial because academic theories require a space where they are researched and taught without having to constantly legitimize their existence. Central banks would also be a fascinating site to explore ethnographically, since they have their own recruiting and learning programs where certain theories are privileged over others. It would be fascinating to analyze instances where someone attempts to bring MMT into one such institution to see how the discursive strategies outlined in this thesis intermingle with the material realities of institutions. Lastly, it would be fruitful to analyze how arguments about MMT play out on television, in YouTube videos and other online formats. My analysis concerned the written debates of scholars, which is quite a different medium to a face-to-face debates, or online 'reaction videos'. From what I have seen MMT plays exceptionally well in these formats because its counterintuitive statements (e.g. spending precedes taxation) confuse opponents and grant MMTers the air of someone privy to arcane knowledge. Additionally, MWW's extensive work in debunking what they see as neoclassical myths provides readers with the tools they need to recognize attackable framings and assumptions in their opponents' arguments.

Macroeconomics was published in 2019, and its second edition has been announced for 2025 (MMTed, n.d.). Since then, a pandemic has shaken the earth and brought into sharp relief the deficiencies in public institutions that have been bled dry of funding over decades of austerity (de Beer & Keune, 2022; Arrieta, 2022). MMT has never been more relevant politically than among the reinvigorated post-pandemic calls for expanded fiscal policy and proactive governance (Kentikelenis & Stubbs, 2021; Szymborska, 2024). MMT's star is not waning just yet, and it will be interesting to see what changes MWW make for their second edition. Will they push further in differentiating MMT from the heterodoxy to turn it into a stand-alone paradigm, or will they maintain their narrative of a heterodox coalition with MMT as primus inter pares?

References

Aistleitner, M., Kapeller, J., & Steinerberger, S. (2019). Citation patterns in economics and beyond. *Science in Context*, *32*(4), 361–380.

Antal, M. (2014). Green goals and full employment: Are they compatible? *Ecological Economics, 107*, 276-286. https://doi.org/10.1016/j.ecolecon.2014.08.014

Armstrong, P. (2019). An MMT perspective on macroeconomic policy space. *Real-world Economics Review*, *89*, 32-45.

Armstrong, P. (2020a). *Modern Monetary Theory and its relationship to heterodox economics* [Doctoral dissertation, Solent University]. https://pure.solent.ac.uk/ws/portalfiles/portal/26193370/Full_Thesis_and_Appendices_1_4_post_viva_FINAL.pdf

Armstrong, P. (2020b). *Can Heterodox Economics Make a Difference?: Conversations With Key Thinkers*. Edward Elgar Publishing.

Armstrong, P. (2022). A modern monetary theory advocate's response to 'modern monetary theory on money, sovereignty, and policy: A marxist critique with reference to the Eurozone and Greece' by Costas Lapavitsas and Nicolás Aguila (2020). *The Japanese Political Economy*, *48*(1), 49–66. https://doi.org/10.1080/2329194X.2022.2051720

Armstrong, P. (2024). The contribution of Modern Monetary Theory to heterodox economics. In T. Jefferson & J.E. King (Eds.), *Post Keynesian Economics*. (pp.48-70). Cheltenham, UK: Edward Elgar Publishing. https://doi.org/10.4337/9781803922232.00008

Armstrong, P., & Mosler, W. (2020). Weimar Republic Hyperinflation through a Modern Monetary Theory Lens. *Gower Initiative for Modern Monetary Studies*. https://gimms.org.uk/2020/11/14/weimar-republic-hyperinflation-through-a-modern-monetary-theory-lens/

Arrieta, T. (2022). Austerity in the United Kingdom and its legacy: Lessons from the COVID-19 pandemic. *The Economic and Labour Relations Review*, *33*(2), 238–255. https://doi.org/10.1177/10353046221083051

Backhouse, R. E. (2012). The rise and fall of Popper and Lakatos in economics. In U. Mäki (Ed.), *Handbook of Philosophy of Science: Philosophy of Economics* (Vol. 13, pp. 25-48). Elsevier.

Baumberger, J. (1977). No Kuhnian Revolutions in Economics. *Journal of Economic Issues*, *11*(1), 1–20. https://doi-org.uaccess.univie.ac.at/10.1080/00213624.1977.11503410

Barba, A. (2023). Austerity. In L. P. Rochon & S. Rossi (Ed.), *Elgar Encyclopedia of Post-Keynesian Economics.* (pp. 11-12). Edward Elgar Publishing.

Beck, H., & Prinz, A. (2019). How Revolutionary is Modern Monetary Theory?. *Wirtschaftsdienst*, *99*, 415-420.

Beckenbach, F. (2019). Paradigmendominanz in der Ökonomik und die Notwendigkeit eines kompetitiven Pluralismus. In D. J. Petersen, D. Willers, E. Schmitt, R. Birnbaum, J. H. Meyerhoff, S. Gießler, & B. Roth (Eds.), *Perspektiven einer pluralen Ökonomik* (pp. 3-24). Springer VS.

de Beer, P. T., & Keune, M. (2022). COVID-19: a prelude to a revaluation of the public sector? Transfer: *European Review of Labour and Research, 28*(1), 135-140. https://doi-org.uaccess.univie.ac.at/10.1177/10242589221078710

Bergmann, K., & Diermeier, M. (2024). *Transformationspolitik: Anspruch und Wirklichkeit der Ampel-Koalition*. transcript Verlag.

Bergsen, P. (2020). A new political economy for Europe post-COVID-19. *European View, 19*(2), 131-137. https://doi-org.uaccess.univie.ac.at/10.1177/1781685820968301

Bertotti, A. M., & Miner, S. A. (2019). Constructing contentious and noncontentious facts: How gynecology textbooks create certainty around pharma-contraceptive safety. *Social Studies of Science, 49*(2), 245-263. https://doi-org.uaccess.univie.ac.at/10.1177/0306312719834676

Bettin, S. S., Glötzl, F., & Theine, H. (2019). Strategische Perspektiven für die Zukunft des Pluralismus. In D.

J. Petersen, D. Willers, E. M. Schmitt, R. Birnbaum, J. H. E. Meyerhoff, S. Gießler, & B. Roth (Eds.), *Perspektiven einer pluralen Ökonomik* (pp. 259-279). Springer VS.

Bigo, V. & Negru, I. (2008). From Fragmentation to Ontologically Reflexive Pluralism. *Journal of Philosophical Economics, 1*(2), 127-150.

Blaug, M. (1976). Kuhn versus Lakatos, or paradigms versus research programmes in the history of economics. In S. J. Latsis (Ed.), *Method and appraisal in economics* (pp. 149-180). Cambridge University Press.

Bonizzi, B., Kaltenbrunner, A., & Michell, J. (2019). Monetary sovereignty is a spectrum: modern monetary theory and developing countries. *Real-World Economics Review*, *89*, 46-61.

Bougrine, H. (2023). Neoclassical Economics. In L. P. Rochon & S. Rossi (Ed.), *Elgar Encyclopedia of Post-Keynesian Economics* (pp. 303-304). Edward Elgar Publishing.

Brady, G. L. (2020). Modern monetary theory: Some additional dimensions. *Atlantic Economic Journal*, *48*(1), 1-9.

Braun, V., & Clarke, V. (2021). *Thematic analysis: A practical guide*. SAGE Publications Ltd.

Butler, J. (1990). *Gender trouble: Feminism and the subversion of identity.* Routledge, Chapman & Hall.

Callon, M. (1998a). Introduction: The embeddedness of economic markets in economics. In M. Callon (Ed.), *The laws of the market*. (pp. 1-57). Blackwell.

Callon, M. (1998b). An essay on framing and overflowing: Economic externalities revisited by sociology. In M. Callon (Ed.), *The laws of the market* (pp. 244-269). Blackwell.

Callon, M. (2007). What does it mean to say that economics is performative? In D. MacKenzie, L.-S. Siu, & F. Muniesa (Eds.), *Do economists make markets? On the performativity of economics* (pp. 225-243). Princeton University Press.

Colander, D. (2000). The death of neoclassical economics. *Journal of the History of Economic Thought, 22*(2), 127-143.

Colander, D. (2008). [Review of *Do Economists Make Markets? On the Performativity of Economics*, by D. MacKenzie, F. Muniesa, & L.-S. Siu]. *Journal of Economic Literature*, *46*(3), 720–724. http://www.jstor.org/stable/27647044

Colander, D. (2019). Are modern monetary theory's lies "plausible lies"? *Real-World Economics Review*, *89*, 62-71.

Colander, D., Rosser, B., & Holt, R. (2007). Live and dead issues in the methodology of economics. *Journal of Post Keynesian Economics, 30*(2), 303-312. https://doi.org/10.2753/PKE0160-3477300208

Colander, D., Holt, R. P., & Rosser, J. B., Jr. (2010). How to win friends and (possibly) influence mainstream economists. Journal of *Post Keynesian Economics, 32*(3), 397-408.

Collins, H. M. (1992). A strong confirmation of the experimenters' regress. *Studies in History and Philosophy of Science Part A, 23*(3), 493-503.

Collins, H. (2004). *Gravity's shadow: The search for gravitational waves*. University of Chicago Press.

Collins, H. M., & Pinch, T. (2012). A new window on the universe: The non-detection of gravitational radiation. In *The golem: What you should know about science* (pp. 91-108). Cambridge University Press.

Das, S. (2023). Modern Money Theory. In Rochon, L. P., & Rossi, S. (2023). *Elgar encyclopedia of post-Keynesian economics*. (pp. 276-277). Edward Elgar Publishing.

Davidson, P. (2019). What is modern about MMT? A concise note. *Real-World Economics Review, 89*, 72-74. http://www.paecon.net/PAEReview/issue89/Davidson89.pdf

Dequech, D. (2012). Post Keynesianism, Heterodoxy and Mainstream Economics. *Review of Political Economy, 24*(3), 353–368. https://doi.org/10.1080/09538259.2012.664364

Dmitrieva, K. (2019, May 3). Senate Has a Duty to Denounce MMT, Republicans Say in Resolution. *Bloomberg*. https://www.bloomberg.com/news/articles/2019-05-03/senate-republicans-mmt

Dobusch, L., & Kapeller, J. (2012). Heterodox United vs. Mainstream City? Sketching a framework for

interested pluralism in economics. *Journal of Economic Issues*, *46*(4), 1035-1058. https://doi.org/10.2753/JEI0021-3624460410
Docherty, P. (2023). Central Banking. In L. P. Rochon & S. Rossi (Ed.), *Elgar Encyclopedia of Post-Keynesian Economics* (pp. 57-58). Edward Elgar Publishing.
Drakopoulos, S. A., & Karayiannis, A. D. (2005). A Review of Kuhnian and Lakatosian Explanations' in Economics. *History of Economic Ideas*, *13*(2), 51-73.
Drumetz, F., Pfister, C. (2021a): MMT: A wrong compass for decision-making, in: *Intereconomics – Review of European Economic Policy*, *56*(6), 355–361. https://www.intereconomics.eu/contents/year/2021/number/6/article/modern-monetary-theory-a-wrong-compass-for-decision-making.html.
Drumetz, F., & Pfister, C. (2021b). The meaning of MMT. *Banque de France Working Paper*, No. 833. https://publications.banque-france.fr/en/meaning-mmt
Drumetz, F., & Pfister, C. (2022). De quoi la MMT est-elle le nom? *Revue française d'économie, 36*(2), 3–46. https://www.cairn.info/revue-francaise-d-economie-2021-4-page-3.htm
Drumetz, F., & Pfister, C. (2023). It takes two to tango: a reply to our MMT critics. *European Journal of Economics and Economic Policies Intervention*, *20*(1), 78-89. https://doi.org/10.4337/ejeep.2023.01.09
Dullien, S. (2009). The new consensus from a traditional Keynesian and post-Keynesian perspective. *IMK Working Paper*, No. 12-2009. https://ideas.repec.org/p/imk/wpaper/12-2009.html
Earl, P. E., & Peng, T.-C. (2012). Brands of economics and the Trojan horse of pluralism. *Review of Political Economy, 24*(3), 451-467. https://doi.org/10.1080/09538259.2012.701927
Ehnts, D. (2022). Modern monetary theory: The right compass for decision-making. *Intereconomics*, *57*(2), 128-134.
Ehnts, D. (2023a, March 06). Der aufsteigende Stern der MMT – und die Kritik an ihr. *Dirk Ehnts*. https://www.dirk-ehnts.de/l/der-aufsteigende-stern-der-mmt-und-die-kritik-an-ihr/
Ehnts, D. (2023b, April 06). *Der Wissenschaftliche Dienst schreibt über MMT*. *Dirk Ehnts*. https://www.dirk-ehnts.de/l/der-wissenschaftliche-dienst-schreibt-uber-mmt/
Ehnts, D. H., & Höfgen, M. (2019). Modern monetary theory: a European perspective. *Real-World Economics Review*, *89*, 75-84.
Ehnts, D. H., & Wray, L.R. (2024). Revisiting MMT, Sovereign Currencies and the Eurozone: A Reply to Marc Lavoie. *Review of Political Economy*, 1-15. https://doi-org.uaccess.univie.ac.at/10.1080/09538259.2023.2298448
Epstein, G. (2019). *What's wrong with Modern Money Theory?: A policy critique*. Palgrave Macmillan.
Espinosa, E. G. (2024). *Modern monetary theory: A comprehensive and constructive criticism*. Taylor & Francis.
Feld, L., Nöh, L., Reuter, W. & Yeter, M. (2021). Von der Corona-bedingten Schuldenaufnahme zur Wiedereinhaltung der Schuldenbremse . *Perspektiven der Wirtschaftspolitik*, *22*(4), 330-349. https://doi-org.uaccess.univie.ac.at/10.1515/pwp-2021-0020
Felt, U. (2015). Keeping technologies out: Sociotechnical imaginaries and the formation of Austria's technopolitical identity. In S. Jasanoff & S.-H. Kim (Eds.), *Dreamscapes of modernity: Sociotechnical imaginaries and the fabrication of power* (pp. 103-125). University of Chicago Press.
Felt, U., Schumann, S., & Schwarz, C. G. (2015). (Re)assembling Natures, Cultures, and (Nano)technologies in Public Engagement. *Science as Culture*, *24*(4), 458–483. https://doi-org.uaccess.univie.ac.at/10.1080/09505431.2015.1055720
Fendel, R. & Schmidt, A. (2023). Verglüht der Stern der Modern Monetary Theory? *Wirtschaftsdienst*. https://www.wirtschaftsdienst.eu/inhalt/jahr/2023/heft/1/beitrag/verglueht-der-stern-der-modern-monetary-theory-7278.html
Fiala, A. (2021). Anarchism. In E. N. Zalta (Ed.), The Stanford Encyclopedia of Philosophy (Winter 2021

ed.). Stanford University. https://plato.stanford.edu/archives/win2021/entries/anarchism/
Fisher, M. (2022). *Capitalist realism: Is there no alternative?* John Hunt Publishing.
Fuest, C., Gründler, K., Nübling, M., Potrafke, N., & Schlepper, M. (2024). Die deutsche Schuldenbremse – Stabilitätsanker oder Investitionsblocker? *ifo Schnelldienst, 77*(01), 44-48.
Fullbrook, E., & Morgan, J. (2019a). Whither MMT? *Real-World Economics Review, 89*, 2-4. http://www.paecon.net/PAEReview/issue89/FullbrookMorgan89.pdf
Fullbrook, E., & Morgan, J. (Eds.) (2019b). Modern Monetary Theory and its Critics. *Real-World Economics Review.* http://www.paecon.net/PAEReview/issue89/whole89.pdf
Fullbrook, E., & Morgan, J. (2020). *Modern monetary theory and its critics*. World Economics Association Books.
Fullbrook, E., & Morgan, J. (2021). Post-neoliberal economics. World Economics Association.
Gieryn, T. F. (1999). *Cultural boundaries of science: Credibility on the line*. University of Chicago Press.
Gieryn, T. F. (1983). Boundary-work and the demarcation of science from non-science: Strains and interests in professional ideologies of scientists. *American Sociological Review, 48*(6), 781-795.
Gieryn, T. F. (1999). *Cultural boundaries of science: Credibility on the line*. University of Chicago Press.
Glötzl, F., & Aigner, E. (2017). *Six dimensions of concentration in economics: Scientometric evidence from a large-scale data set*. Ecological Economic Papers, 15. https://doi.org/10.57938/e328c16d-af4e-4ddb-af11-4c578de2eff8
Glötzl, F., & Aigner, E. (2018). Orthodox Core–Heterodox Periphery? Contrasting Citation Networks of Economics Departments in Vienna. *Review of Political Economy, 30*(2), 210-240. https://doi.org/10.1080/09538259.2018.1449619
Gnos, C. & Rochon, L.-P. (2002). Money Creation and the State: A Critical Assessment of Chartalism. *International Journal of Political Economy*, *32* (3), 41-57.
Graeber, D., & Wengrow, D. (2023). *The dawn of everything: A new history of humanity*. Picador.
Graupe, S. (2017). (pp.20-31). In T. Van Treeck & J. Urban (Eds.), *Wirtschaft neu denken: Blinde Flecken in der Lehrbuchökonomie* (pp. 20-32). iRights Media.
di Guilmi, C. (2023). NAIRU. In L. P. Rochon & S. Rossi (Ed.), *Elgar Encyclopedia of Post-Keynesian Economics* (pp. 306-307). Edward Elgar Publishing.
van Gunten, T. S., Martin, J. L., & Teplitskiy, M. (2016). Consensus, polarization, and alignment in the economics profession. *Sociological Science*, *3*, 1028-1052.
Hartley, J. (2020). The weakness of modern monetary theory. *National Affairs*. https://www.nationalaffairs.com/publications/detail/the-weakness-of-modern-monetary-theory
Hernández, C. G. (2023). *Fiat socialism: Achieving the goals of socialism through modern monetary theory*. Lola Books.
Hodgson, G. M. (2022). Dualism revisited. In S. Dow, J. Jespersen, & G. Olesen (Eds.), Economic methodology, history and pluralism (pp. 61-76). Routledge. https://doi.org/10.4324/9781003142324-5
Holland, B. (2019, March 5) Larry Summers slams MMT as 'fallacious'. *Bloomberg*. https://www.bloomberg.com/news/articles/2019-03-05/summers-slams-mmt-as-fallacious-as-economics-battle-heats-up
Holm, P. (2007). Which way is up on Callon. In D. MacKenzie, L.-S., Siu., & F. Muniesa (Eds.), *Do economists make markets? On the performativity of economics* (pp.225-243). Princeton University Press.
Hornung, L., Kaczmarczyk, P., Kleimeier, N., & Mühlenweg, L. (2024). Die Schuldenbremse – ein Garant für nachhaltige Haushaltspolitik? Eine Replik auf Feld et al. *Wirtschaftsdienst*, *104*(7), 470-475. https://doi.org/10.2478/wd-2024-0122

International Students Initiative for Pluralism in Economics (2014, May 5). An international student call for pluralism. *ISIPE*. http://www.isipe.net/open-letter

IGM US Economic Experts Panel (n.d.). US Economic Experts Panel. *Kent A. Clark Center for Global Markets*. https://www.kentclarkcenter.org/us-economic-experts-panel/

IGM US Economic Experts Panel. (2019, March 13). Modern Monetary Theory. *Kent A. Clark Center for Global Markets*. https://www.kentclarkcenter.org/surveys/modern-monetary-theory/

Irwin, A. (2008). STS perspectives on scientific governance. In E. J. Hackett, O. Amsterdamska, M. Lynch, & J. Wajcman (Eds.), *The handbook of science and technology studies* (3rd ed., pp. 583-607). MIT Press.

Jasanoff, S. (2004). The idiom of co-production. In S. Jasanoff (Ed.), *States of knowledge* (pp. 1-12). Routledge.

Jasanoff, S. (2019). Controversy studies. In G. Ritzer & C. Rojek (Eds.), *The Blackwell Encyclopedia of Sociology* (pp. 1-5). John Wiley & Sons. https://doi.org/10.1002/9781405165518.wbeos1180

Jasanoff, S., & Kim, S. H. (2009). Containing the atom: Sociotechnical imaginaries and nuclear power in the United States and South Korea. *Minerva*, *47*(2), 119-146.

Juniper, J. (2021). Degrowth and full employment-a modern monetary theory perspective. *Journal of Resilient Economies, 1*(1), 22–31. https://doi.org/10.3316/informit.928829316220668

Kapeller, J. (2017). Ein philosophischer Blick auf die Grundlagen internationaler Ökonomie. In T. Van Treeck & J. Urban (Eds.), *Wirtschaft neu denken: Blinde Flecken in der Lehrbuchökonomie* (pp. 110-120). iRights Media.

Keen, S. (2020). Interview. In P. Armstrong (Ed.), *Can heterodox economics make a difference? Conversations with key thinkers* (pp. 353-369). Edward Elgar Publishing.

Kelton, S. (2020). *The deficit myth: Modern monetary theory and the birth of the people's economy*. PublicAffairs.

Kelton, S. (2024). A Paradigm Shift in Macroeconomic Finance. *Stephanie Kelton*. https://stephaniekelton.com/.

Kentikelenis, A., & Stubbs, T. (2021). Austerity redux: The post-pandemic wave of budget cuts and the future of global public health. *Global Policy, 12*(6), 28-40. https://doi.org/10.1111/1758-5899.13028

Keynes, J. M. (1936). *The general theory of employment, interest and money*. Macmillan.

King. J.E. (2023). Post-Keynesian economics – a big tent? In L. P. Rochon & S. Rossi (Ed.), *Elgar Encyclopedia of Post-Keynesian Economics* (pp. 331-332). Edward Elgar Publishing.

Knapp, G.F. (1924). *The State Theory of Money*. Macmillan and Company

Kregel, J. (2019). MMT: The wrong answer to the wrong question. *Real-World Economics Review*, *89*, 85-96.

Krugman, P. (2011, August 11). Franc thoughts on long-run fiscal issues. *The New York Times*. https://archive.nytimes.com/krugman.blogs.nytimes.com/2011/08/11/franc-thoughts-on-long-run-fiscal-issues/

Krugman, P. (2019, February 25). Running on MMT (Wonkish). *The New York Times*. https://www.nytimes.com/2019/02/25/opinion/running-on-mmt-wonkish.html

Krugman, P. R., Obstfeld, M., & Melitz, M. (2015). *Internationale Wirtschaft: Theorie und Politik der Außenwirtschaft* (10th ed.). Pearson.

Kuhn, T.S. (1970). *The structure of scientific revolutions*. University of Chicago Press.

Kozlowski, A. C., & van Gunten, T. S. (2023). Are economists overconfident? Ideology and uncertainty in expert opinion. *The British Journal of Sociology*, *74*(3), 476-500.

Laffer, A. & Moore, S. (2024, June 23). Bidenomics, Also Known as MMT. *Wall Street Journal*. https://www.wsj.com/articles/bidenomics-also-known-as-mmt-modern-monetary-theory-spending-ccadee9c?mod=article_inline

Lapavitsas, C., & Aguila, N. (2020). Modern monetary theory on money, sovereignty, and policy: A marxist critique with reference to the Eurozone and Greece. *The Japanese Political Economy*, *46*(4), 300–326. https://doi.org/10.1080/2329194X.2020.1855593

Latour, B. (1987). *Science in action: How to follow scientists and engineers through society*. Harvard University Press.

Latour, B., & Woolgar, S. (2013). *Laboratory life: The construction of scientific facts*. Princeton University Press.

Laudan, L. (1983). The demise of the demarcation problem. In R. S. Cohen & L. Laudan (Eds.), *Physics, philosophy and psychoanalysis: Essays in honour of Adolf Grünbaum* (pp. 111-127). Springer Netherlands.

Lavoie, M. (2013). The monetary and fiscal nexus of neo-chartalism: A friendly critique. *Journal of Economic Issues*, *47* (1), 1-32.

Lavoie, M. (2019). Modern monetary theory and post-Keynesian economics. *Real-World Economics Review*, *89*, 97-108.

Lavoie, M. (2024). Modern Monetary Theory: The good, the bad and the ugly. In T. Jefferson & J.E. King (Eds.), *Post Keynesian Economics* (pp. 71-88). Edward Elgar Publishing.

Lawson, T. (2019). Money's relation to debt: Some problems with MMT's conception of money. *Real-World Economics Review*, *89*, 109-128.

Lawson, T. (2020). Interview. In P. Armstrong (Ed.), *Can heterodox economics make a difference? Conversations with key thinkers* (pp. 370-391). Edward Elgar Publishing.

Lee, F. S. (2012). Heterodox economics and its critics. *Review of Political Economy, 24*(2), 337-351. https://doi.org/10.1080/09538259.2012.664360

Lee, F.S. & Lavoie, M. (Eds.) (2012). *In defense of post-Keynesian and heterodox economics: Responses to their critics*. Routledge.

Lerner, A. P. (1943). Functional finance and the federal debt. *Social Research, 10*(1), 38-51.

Lerner, AP. (1947). Money as a Creature of the State. *The American Economic Review, Papers and Proceedings, 37*(2), 312-321

MacKenzie, D. (2003). An equation and its worlds: Bricolage, exemplars, disunity and performativity in financial economics. *Social Studies of Science*, *33*(6), 831–868.

MacKenzie, D. (2006). *An engine, not a camera. How financial models shape markets*. MIT Press.

MacKenzie, D. A., & Millo, Y. (2003). Constructing a market, performing theory: The historical sociology of a financial derivatives exchange. *American Journal of Sociology*, *109*(1), 107-145.

MacKenzie, D., Muniesa, F., & Siu, L.-S. (Eds.). (2007*). Do economists make markets?: On the performativity of economics*. Princeton University Press.

Maeße, J., & Sparsam, J. (2017). Die Performativität der Wirtschaftswissenschaft. In A. Maurer (Ed.), *Handbuch der Wirtschaftssoziologie* (pp. 181-195). Springer VS. https://doi-org.uaccess.univie.ac.at/10.1007/978-3-531-19907-8_11

Mankiw, N. G. (2020). A skeptic's guide to modern monetary theory. In *AEA Papers and Proceedings* (Vol. 110, pp. 141-144). American Economic Association.

Mankiw, G.N. (2023). *Principles of Economics* (10th ed.). Cengage.

Mankiw, N. G., & Taylor, M. P. (2012). *Grundzüge der Volkswirtschaftslehre* (5th ed.). Schäffer-Poeschel.

Mayhew, A. (2019). The sleights of hand of MMT. *Real-World Economics Review, 89*, 129-138.

Mazzucato, M. (2011). The entrepreneurial state. *Soundings, 49*(49), 131-142.

Mazzucato, M. (2021). *Mission economy: A moonshot guide to changing capitalism.* Penguin UK.

Mazzucato, M., & Collington, R. (2023). *The big con: How the consulting industry weakens our businesses, infantilizes our governments, and warps our economies.* Penguin.

Mazzucato, M., & Skidelsky, R. (2020, July 10). Toward a new fiscal constitution. *Project Syndicate*.

https://www.project-syndicate.org/onpoint/new-fiscal-constitution-job-guarantee-by-mariana-mazzucato-and-robert-skidelsky-2020-07
McCormick, L.C. (2019, February 26). Jerome Powell says the concept of MMT Is 'just wrong'. *Bloomberg*. https://www.bloomberg.com/news/articles/2019-02-26/jay-powell-is-no-fan-of-mmt-says-the-concept-is-just-wrong
Mearman, A. (2008). *Rhetorical dualism and the orthodox/heterodox distinction in economics* (Working Papers 0802). Department of Accounting, Economics and Finance, Bristol Business School, University of the West of England, Bristol.
Mearman, A. (2011). Pluralism, Heterodoxy, and the Rhetoric of Distinction. *Review of Radical Political Economics, 43*(4), 552-561. https://doi-org.uaccess.univie.ac.at/10.1177/0486613411402644
Mearman, A., Berger, S., & Guizzo, D. (2023). What is Heterodox Economics? Insights from Interviews with Leading Thinkers. *Journal of Economic Issues*, *57*(4), 1119–1141. https://doi.org/10.1080/00213624.2023.2273130
Medlen, C., & Chen, Z. (2023). Modern Monetary Theory in Historical Perspective. *Journal of Economic Issues*, *57*(1), 241-256.
Miller, D. (2002). Turning Callon the right way up. *Economy and Society*, *31*(2), 218-233.
Mitchell, W. (2019a, April 16). When the MMT critics jump the shark. *Bill Mitchell*. https://billmitchell.org/blog/?p=42113
Mitchell, W. (2019b, March 7). The conga line of MMT critics – marching into oblivion. *Bill Mitchell*. https://billmitchell.org/blog/?p=41727
Mitchell, W. (2019c, March 19). Fake surveys and groupthink in the economics profession. *Bill Mitchell*. https://billmitchell.org/blog/?p=41823
Mitchell, W. (2019d, December 23). A response to Greg Mankiw – part 1. *Bill Mitchell.* https://billmitchell.org/blog/?p=43900
Mitchell, W. (2020b, August 31). US Federal Reserve statement signals a new phase in the paradigm shift in macroeconomics. *Bill Mitchell*. https://billmitchell.org/blog/?p=45699
Mitchell, W. (2020a). Interview. In P. Armstrong (Ed.), Can heterodox economics make a difference? Conversations with key thinkers (pp. 152-164). Edward Elgar Publishing.
Mitchell, W. (2023a, March 6). German Bundestag body's MMT overview exposes the hidden agenda – the population simply can't be allowed to understand MMT. *Bill Mitchell*. https://billmitchell.org/blog/?p=60685
Mitchell, W. (2023b, July 23). Voodoo economic revisionism abounds – and it is not MMT doing the voodoo. *Bill Mitchell*. https://billmitchell.org/blog/?p=42783
Mitchell, W. (2023c). The modern monetary theory literature seems to have escaped Drumetz/Pfister. *European Journal of Economics and Economic Policies Intervention*, *20*(1), 23-33. https://doi.org/10.4337/ejeep.2022.0090
Mitchell, W., & Fazi, T. (2017). *Reclaiming the state*. University of Chicago Press Economics Books.
Mitchell, W., Wray, L. R., & Watts, M. (2019). *Macroeconomics*. Red Globe Press.
Mirowski, P., & Nik-Khah, E. (2007). Markets made flesh. In D. MacKenzie, L.-S., Siu., & F. Muniesa (Eds.), *Do economists make markets? On the performativity of economics* (pp.225-243). Princeton University Press.
MMTed, (2024) The Smith Family and their Adventures with Money. *MMTED*. https://www.mmted.org/smithfamily/
MMTed. (n.d.). Welcome to MMTed. *MMTed.* https://www.mmted.org/
Mody, C. C., & Kaiser, D. (2008). Scientific training and the creation of scientific knowledge. In E. J. Hackett, O. Amsterdamska, M. Lynch, & J. Wajcman (Eds.), *The handbook of science and technology studies* (3rd ed., pp. 377-402). MIT Press.
Moreno Rivas, A.M. (2023). Austerity. In L. P. Rochon & S. Rossi (Ed.), *Elgar Encyclopedia of Post-*

Keynesian Economics (pp. 301-302). Edward Elgar Publishing.
Mosler, W. (1995). *Soft currency economics*. Adams, Viner and Mosler.
Mosler, W. (2020). Interview. In P. Armstrong (Ed.), *Can heterodox economics make a difference? Conversations with key thinkers*. Edward Elgar Publishing. pp. 165-172
Muniesa, F. (2014). *The provoked economy: Economic reality and the performative turn*. Routledge.
Nelkin, D. (1974). The role of experts in a nuclear siting controversy: New York case pitted academe against industry. *Bulletin of the Atomic Scientists, 30*(9), 29-36.
Nelkin, D. (1981). Some social and political dimensions of nuclear power: examples from Three Mile Island. *American Political Science Review*, *75*(1), 132-142.
Nik-Khah, E., & Mirowski, P. (2019). On going the market one better: economic market design and the contradictions of building markets for public purposes. *Economy and Society*, *48*(2), 268-294.
Nippani, S., & Smith, S. D. (2014). The impact of the October 2013 government shutdown and debt ceiling on US treasury default risk. *The Journal of Fixed Income*, *24*(2), 79-91.
Olk, C., Schneider, C., & Hickel, J. (2023). How to pay for saving the world: Modern Monetary Theory for a degrowth transition. *Ecological Economics, 214*, 107968.
Palley, T. I. (2014). The critics of Modern Money Theory (MMT) are right. *Review of Political Economy*, *27*(1), 45–61. https://doi-org.uaccess.univie.ac.at/10.1080/09538259.2014.957473
Palley, T.I. (2015) Money, fiscal policy, and interest rates: A critique of Modern Money Theory. *Review of Political Economy*, *27*(1), pp. 1-23.
Palley, T. I. (2019). Macroeconomics vs. Modern Money Theory: Some unpleasant Keynesian arithmetic and monetary dynamics. *Review of Political Economy, 31*(1), 148-155. https://doi.org/10.1080/09538259.2019.1684774
Palley, T. (2020) Interview. In P. Armstrong (Ed.), *Can heterodox economics make a difference? Conversations with key thinkers* (pp. 173-189). Edward Elgar Publishing.
Petersen, D. J., Willers, D., Schmitt, E. M., Birnbaum, R., Meyerhoff, J. H., Gießler, S., & Roth, B. (2019). *Perspektiven einer pluralen Ökonomik*. Springer VS.
Peukert, H. (2017). Volkswirtschaftslehre als Indoktrination und die (Nicht-)Auswirkungen der Finanzkrise. In T. van Treeck & J. Urban (Eds.), *Wirtschaft neu denken: Blinde Flecken in der Lehrbuchökonomie* (pp. 120-130). iRights Media.
Pickering, A. (1981). Constraints on controversy: The case of the magnetic monopole. *Social Studies of Science*, *11*(1), 63-93.
Pickering, A. (1995). *The mangle of practice: Time, agency, and science*. University of Chicago Press.
Pigliucci, M. & Boudry, M. (Eds.). (2013). *The Philosophy of Pseudoscience: Reconsidering the Demarcation Problem*. University of Chicago Press.
Priewe, J. (2017). Wechselkurstheorie in drei Standardlehrbüchern der Volkswirtschaftslehre. In T. Van Treeck & J. Urban (Eds.), *Wirtschaft neu denken: Blinde Flecken in der Lehrbuchökonomie* (pp. 252-265). iRights Media.
Rochon, L. P. (2019). MMT and TINA. *Real-World Economics Review*, *89*(1), 156-166.
Rochon, L. P. & Vernengo, M. (2003) State money and the real world: or Chartalism and its discontents, *Journal of Post Keynesian Economics, 26*(1), 57–67
Rochon, L. P., & Docherty, P. (2012). Engagement with the mainstream in the future of post Keynesian economics. *Review of Political Economy*, *24*(3), 503-518.
Rochon, L. P., & Rossi, S. (Eds.). (2023). *Elgar encyclopedia of post-Keynesian economics*. Edward Elgar Publishing. https://doi.org/10.4337/9781788973922
Rochon, L. P., & Rossi, S. (2023, December 11). Should we be teaching Neoclassical

Economics to undergraduates?. *Medium*. https://medium.com/@monetarypolicyinstitute/should-we-be-teaching-neoclassical-economics-to-undergraduates-77b15fd298c5

Rogoff, K. (2019, March 4). Modern monetary nonsense. *Project Syndicate*. https://www.project-syndicate.org/commentary/federal-reserve-modern-monetary-theory-dangers-by-kenneth-rogoff-2019-03

Samuelson, P. (1947) *Foundations of Economic Analysis*. Harvard University Press

Sawyer, M. (2003). Employer of last resort: Could it deliver full employment and price stability? *Journal of Economic Issues*, *37*(4), 881-908.

Sawyer, M. (2019). Modern monetary theory: is there any added value. *Real-World Economics Review*, *89*, 167-79.

Sawyer, M. (2023). Fiscal Deficits. In L. P. Rochon & S. Rossi (Ed.), *Elgar Encyclopedia of Post-Keynesian Economics* (pp. 179-180). Edward Elgar Publishing.

Schneider, C., & Miess, M. (2024). Democratizing the monetary provisioning system to enable social-ecological transformation. *Sustainability: Science, Practice and Policy*, *20*(1). https://doi.org/10.1080/15487733.2024.2344305

Simon, B. (1999). Undead science: Making sense of cold fusion after the (arti)fact. *Social Studies of Science, 29*(1), 61-85. https://doi-org.uaccess.univie.ac.at/10.1177/030631299029001003

Sismondo, S. (2011). *An introduction to science and technology studies*. John Wiley & Sons.

Skidelsky, R. (2010). *Keynes: The return of the master*. PublicAffairs.

Skousen, M. (2020). There's much ruin in a nation: An analysis of modern monetary theory. *Atlantic Economic Journal*, *48*(1), 11-21.

Smyth, M. M. (2001). Fact making in psychology: The voice of the introductory textbook. *Theory & Psychology*, *11*(5), 609-636.

Srnicek, N., & Williams, A. (2015). *Inventing the future: Postcapitalism and a world without work*. Verso Books.

Stockhammer, E. & Ramskogler, P. (2012). Post-Keynesian economics – How to move forward. In F.S. Lee & M. Lavoie (Eds.), *In defense of post-Keynesian and heterodox economics: Responses to their critics* (pp.42-62). Routledge.

Sumner, S., & Horan, P. (2019). How reliable is Modern Monetary Theory as a guide to policy? *Mercatus Policy Brief Series*.

Summers, L. (2019, March 4) The left's embrace of modern monetary theory is a recipe for disaster. *The Washington Post*. https://www.washingtonpost.com/opinions/the-lefts-embrace-of-modern-monetary-theory-is-a-recipe-for-disaster/2019/03/04/6ad88eec-3ea4-11e9-9361-301ffb5bd5e6_story.html?noredirect=on

Suryanarayanan, S., & Kleinman, D. L. (2013). Be(e)coming experts: The controversy over insecticides in the honey bee colony collapse disorder. *Social Studies of Science, 43*(2), 215-240. https://doi.org/10.1177/0306312712466186

Szymborska, H. (2024). Fiscal policy after the COVID-19 pandemic: Step change or status quo? *International Journal of Political Economy, 53(*3), 272–284. https://doi.org/10.1080/08911916.2024.2391237

Tcherneva, P. R. (2006). Chartalism and the tax-driven approach to money. In P. Arestis & M. Sawyer (Eds.), *Handbook of alternative monetary economics* (pp. 69-87). Edward Elgar.

Tcherneva, P. R. (2016). Money, power, and monetary regimes (Working Paper No. 861). Levy Economics Institute.

Toporowski, J. (2019). The political economy of modern money theory, from Brecht to Gaitskell. *Real-World Economics Review, 89*, 194-202.

van Treeck, T. (2017). Der „große Zwiespalt" zwischen Effizienz und Gerechtigkeit: Realität oder Ideologie?

In T. Van Treeck & J. Urban (Eds.), *Wirtschaft neu denken: Blinde Flecken in der Lehrbuchökonomie* (pp. 130-141). iRights Media.

van Treeck, T., & Urban, J. (Eds.). (2017). *Wirtschaft neu denken: Blinde Flecken in der Lehrbuchökonomie*. iRights Media.

Truger, A. (2017). Hohepriester der Freihandelssekte. In In T. van Treeck & J. Urban (Eds.), *Wirtschaft neu denken: Blinde Flecken in der Lehrbuchökonomie* (pp. 236-251). iRights Media.

Tymoigne, E. (2024). Modern Money Theory and the monetary system: A response to critics. In Y. Nersisyan & Wray L. R. (Eds.), *The Elgar companion to Modern Money Theory* (pp. 420-432). Edward Elgar Publishing.

Vogelmann, F. (2022). Weder verleugnen noch verherrlichen: Für ein realistisches Verständnis wissenschaftlicher Praktiken. *Leviathan*, *50*(2), 297-320.

Vogelmann, F. (2023). *Umkämpfte Wissenschaften – zwischen Idealisierung und Verachtung*. Reclam Verlag.

Watkins, J. P., & Seidelman, J. E. (2023). The Great Hypocrisy: Neoliberalism’s Critique of Modern Monetary Theory. *Journal of Economic Issues*, *57*(3), 793–807. https://doi.org/10.1080/00213624.2023.2237860

Watts, M. (2020). Interview. In P. Armstrong (Ed.), *Can heterodox economics make a difference? Conversations with key thinkers* (pp. 275-284). Edward Elgar Publishing.

Weisman, J. & Parker, A. (2013, October 16). Republicans back down, ending crisis over shutdown and debt limit. *The New York Times*. https://www.nytimes.com/2013/10/17/us/congress-budget-debate.html

Williams, S. J., & Taylor, R. (2022). *Sustainability and the new economics*. Springer. https://doi.org/10.1007/978-3-030-78795-0

Winczewski, D. (2021). Neo-chartalist or Marxist Vision of the Modern Money? Critical Comparison. *International Critical Thought*, *11*(3), 408–426. https://doi.org/10.1080/21598282.2021.1966641

Wray, L. R. (2011, August 14). Krugman taken to the Modern Money cleaners. *The Huffington Post*. https://www.huffpost.com/entry/paul-krugman-modern-money-theory_b_926757

Wray, L. R. (2016). *Why Minsky matters: An introduction to the work of a maverick economist*. Princeton University Press.

Wray, L. R. (2018, October 1). Modern Money Theory: How I came To MMT and what I include in MMT. *Multiplier Effect*. https://multiplier-effect.org/modern-money-theory-how-i-came-to-mmt-and-what-i-include-in-mmt/

Wray, L. R. (2019). Alternative paths to modern money theory. *Real-World Economics Review*, 89, 5-22.

Wray, L. R. (2020). Interview. In P. Armstrong (Ed.), *Can heterodox economics make a difference? Conversations with key thinkers* (pp. 284-291). Edward Elgar Publishing.

Wray, L. R., & Nersisyan, Y. (2021). Has Japan been following Modern Money Theory without recognizing it? No! and yes (Working Paper No. 985). Levy Economics Institute of Bard College.

Appendix A: STS Journal Search Results

A search conducted in August of 2024 through STS and STS-adjacent journals (Table A1) has yielded zero relevant results for the query:

('Modern Monetary Theory') OR ('Modern Money Theory') OR ('Neo-Chartalism')

Searching for the term 'MMT' was unhelpful, as it yielded many false results that coincidentally used the same abbreviation, while all relevant publications would also at some point write out 'Modern Monetary Theory' or 'Modern Money Theory'.

Table A1

STS Journals Included in the Literature Review

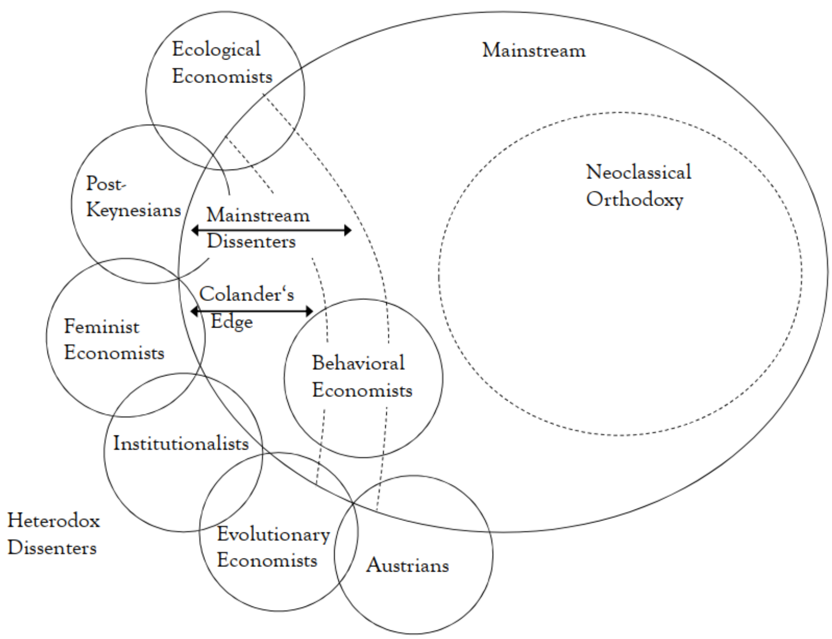
Science as Culture	**Science in Context**
Social Studies of Science	**Science & Technology Studies**
Science, Technology and Human Values	**Isis**
Minerva	**Philosophy of Science**
Journal of Risk Research	**Bulletin of Science, Technology & Society**
Catalyst: Feminism, Theory, and Technoscience	**Configurations**
Issues in Science and Technology	**Public Understanding of Science**
Science Education	**Science and Public Policy**
Annals of Science	**British Journal for the History of Science**
Centaurus	**Engaging Science, Technology, and Society**
Endeavour	**Perspectives on Science**
Tapuya: Latin American Science, Technology and Society	**British Journal for the Philosophy of Science**
Social Epistemology	**Episteme**
Studies in History and Philosophy of Science A	**Osiris**

Appendix B: Economic Schools of Thought

There is no neutral way of mapping the schools of thought in a scientific discipline. Since this thesis is concerned with the perspective of heterodox economists, Figure B1 provides an overview of the paradigms in economics as described by the two heterodox economists Dobusch & Kapeller (2012). Their article provides a more nuanced cartography than MWW provide, alongside justifications of the choices made in the mapping.

Figure B1

Paradigms in Economics, as seen by Two Heterodox Scholars



Note. From "Heterodox United vs. Mainstream City? Sketching a framework for interested pluralism in economics," by L. Dobusch & J. Kapeller, 2012, *Journal of Economic Issues*, *46*(4), p. 1037. https://doi.org/10.2753/JEI0021-3624460410

Appendix C: Translation of German Quotes

The following quotes in section 2.2. have been translated by me from German to English:

> "Die Studie beginnt mit der Nennung von Vertretern der MMT, vergisst dabei aber Warren Mosler, **der den Stein ins Rollen gebracht hat."** (Ehnts, 2023b)

➔ Mosler especially is seen as the one who "got the ball rolling" (Ehnts, 2023b).

"Aber was soll das denn sein? Wie kann man denn die 'MMT' umsetzen? Keiner von uns fordert so etwas. MMT ist eine Theorie, eine Beschreibung der Realität. Das lässt sich nicht 'umsetzen'" (Ehnts, 2023a).

➔ "What is that even supposed to be? How could one even implement 'MMT'? None of us demands such a thing. MMT is a theory, a description of reality. It cannot be 'implemented'" (Ehnts, 2023a).

Appendix D: Codebook

Table D1 contains the codes guiding the analysis and a brief explanation. The codes are sorted by occurrence (descending).

Table D1

Codebook

Code	Description
Heterodox vs. Orthodox	Contrasts of the heterodoxy and orthodoxy
Boundary to Policy	Theory – Policy boundary elaborations
Neoclassical Econ. and its anomalies	Alleged anomalies of neoclassical theory
Public Purpose	Explanations of what the public purpose is, and what adds/detracts from it
What is MMT?	Explanations of what MMT is
Paradigms	Mentions of the word 'paradigm' and wider usage of Kuhnian language
History of Economics	Elaborations of the history of economics
Language in Discipline	The role language plays in science & paradigms
Correspondence Theory of Truth	Realism / correspondence to a real world as a central criterion of theory validity
Government intervention	Advocating for government action, specifying what it should look like
Global Financial Crisis	Global Financial Crisis and how it constitutes an anomaly for mainstream econ
Everyone is an ideologist but me	Accusing opponents of being ideologues
Micro vs. Macro	Contrasting Micro vs. Macroeconomics
Full Employment	Explaining Full Employment, asserting it as policy goal
Orthodox History	History of mainstream economics
Formalism & Methods	Anything concerning methods, criticism that mainstream is overly formalistic
Revival of Dead Theories	Framing oneself as novel, opponents as revivers of dead theories
Keynes, the hero	Praising J.M. Keynes
Object of Analysis of Economics	What does economics analyze?
Meeting the Publics	Relationship btw. Experts and publics
Progress in science/theory choice	How science progresses, and theories are supplanted
Homo economicus vs. homo heterodoxicus	Assumptions about human behavior
Book Framing	How do MWW frame their book? What is their pedagogical approach?
Economics as a contested discipline	Framing economics as a battleground
Eurozone	Mentions of the Eurozone
Boundary Work	Noteworthy instances of blatant boundary work
Mere description	Claims that MMT is nothing but descriptive
Econ. As a social science	Framing economics as social, rather than natural science
Phillips Curve	Explanations of the Phillips curve
Sectoral Balances	Explanations of the sectoral balances approach (part of MMT)
Natural rate of unemployment	Explanations of NAIRU, an economic theory MWW reject.
Central bank consolidation	Elaborations of the way in which MMT assumes the central bank & treasury to be consolidated
Inflation & Inflation Control	What is inflation and how to control it
Foregrounding the monetary system	MMT puts the monetary system in the foreground
Growth GDP Degrowth	MWW view on GDP and growth
Martial language, attacks, war metaphors	Usage of martial language
Chartalism	Explanations of Chartalism (part of MMT)
Job guarantee	Explanations of the job guarantee
The 'lost son' Samuel Hicks	The neo-Keynesian Hicks admitting being wrong
Minsky	Mentions of Hyman Minsky

Appendix E: Glossary of Economic Terminology

The following is a glossary of economic terminology used in this thesis. The definitions are meant as reading aids for this text and only explain the terms in so far as they are relevant to the thesis. To offer definitions close to the one employed by MWW, all following definitions are drawn from the encyclopedia of post-Keynesian economics (Rochon & Rossi, 2023).

Table 5

Glossary

Term	Definition
Austerity	"a restrictive stance of fiscal policy, made of public spending retrenchments, tax increases (particularly on lower incomes), or a combination of both. Austerity means to use budget manoeuvres to reduce public and/or private expenditure" (Barba, 2023, p.11).
Central Bank	Institutions with "a range of functions including: banker to the government; issuing and managing national currencies including their exchange with foreign currencies; acting as the bankers' bank; maintaining financial stability; operating national payments systems; conducting monetary policy; and regulating commercial banks" (Docherty, 2023, p.57)
Deficits / Fiscal Deficits	"The fiscal (budget) deficits of governments refer to the difference between government revenues (largely taxation) and expenditures" (Sawyer, 2023, p.179).
DSGE	The *Dynamic Stochastic General Equilibrium* modelling approach. Counted as mainstream and highly influential within the current mainstream by MWW.
MMT	Modern Monetary Theory/Modern Money Theory/Neo-Chartalism: The theory around which this thesis revolves. Consult section 2.1. for a detailed description of its content or 2.2. for its history, or consult Das (2023).
MWW	Shorthand for Bill Mitchell, L. Randall Wray and Martin Watts, the authors of *Macroeconomics*.
Neoclassical Economics	An economic paradigm that emerged in response to the work of Karl Marx. Developed mainly by Jevons, Walras and Menger in the 19th century. Treats economic agents as utility-maximizing. Believes that markets automatically gravitate towards an equilibrium as if steered by an invisible hand (Bougrine, 2023). MWW argue that mainstream economics retains a core of neoclassical assumptions to this day.
Neo Keynesians / Neoclassical Synthesis	An older school of thought that attempted to synthesize Keynesian macro- with neoclassical microeconomics. Notable exponents include Hicks and Samuelson. Counted as neoclassical by MWW.
New Classical Theory	An older school of thought associated with Milton Friedman's Monetarism. Counted as mainstream and neoclassical by MWW.
NCM / New Consensus in Macroeconomics	A contemporary school of thought. Counted as mainstream by MWW. "The New Consensus in Macroeconomics (NCM) is the paradigmatic answer to a series of low-intensity intellectual battles between two complementary sides of the mainstream. These are the New Classicals, who developed real business cycle (RBC) models, and the New

Term	Definition
	Keynesians, who provided microeconomic foundations of market frictions and imperfections.” (Moreno Rivas, 2023, p.306).
New Keynesianism	A contemporary school of thought. Counted as mainstream and highly influential within the current mainstream by MWW. MWW do not see it as ‘true’ Keynesianism. Notable exponents include Paul Krugman, Gregory Mankiw, Larry Summers and Oliver Blanchard.
GFC	Global Financial Crisis of 2007-2008.
NAIRU	*Non-accelerating inflation rate*, sometimes equated to the *natural rate of unemployment* (Di Guilmi, 2023). Describes “the rate of unemployment for which the inflation rate is stable” (Di Guilmi, 2023, p.301) in New Keynesian and other mainstream theories. MWW reject against the existence such a natural rate of unemployment and see it as an ideological tenet of the mainstream
Post-Keynesianism	A heterodox school of thought. MMT is one part of this school. Post-Keynesians see themselves in the footsteps of J.M. Keynes, with ‘fundamentalist Keynesians’ staying especially close (e.g. Davidson) to his work than others. Notable sub-schools include the work of Michał Kalecki and Hyman Minsky (King, 2023) – and perhaps now MMT.
Real Business Cycle Theory	A contemporary school of thought and modelling approach. Counted as mainstream by MWW.

Appendix F: English Abstract

This thesis investigates the scientific controversy surrounding the macroeconomic theory called *Modern Monetary Theory* (MMT). Its proponents claim to have developed a coherent paradigm that is superior to the currently dominant models which MMT supporters call the 'neoclassical orthodoxy'. Economists representing these established theories in turn dismiss MMT as nonsensical and dangerous. The dispute revolves around MMT's claim that governments under certain conditions can and should run on deficit spending indefinitely, whereas the 'orthodoxy' sees that as unsustainable. MMT derives this conclusion from a counterintuitive description of the monetary system in which monetarily sovereign governments such as the US or Japan do not finance spending through taxes but rather through currency issuance. Consequently, governments should spend whatever amount necessary to induce full employment and accept the resulting deficit, rather than artificially restricting itself to a small deficit as the orthodoxy demands. The outcome of this debate has major implications for fiscal policy and thus for the extent of services a government can provide. Therefore, an STS investigation is needed to ascertain how economists fight for epistemic authority in this high-stakes scientific controversy. *This thesis thus examines the strategies used to challenge mainstream economics and position MMT favorably in the first textbook written from an MMT perspective – 'Macroeconomics'* by Mitchell, Wray and Watts (2019). Moreover, the thesis answers three sub-questions, namely, *how the textbook maps the different schools of thought in economics*, *what epistemic norms and expectations the book imposes upon on* economics, and *what the STS theory of performativity can tell us about the success of MMT*.

The textbook *Macroeconomics* represents a milestone in MMT history and can be considered the current canonical gold standard reference as to what MMT is and is not. As analytical lens, this inquiry leverages the concept of *boundary work*, which is the differential attribution of characteristics in order to draw a boundary between scientific and non-scientific work. *Macroeconomics* paints a picture of how economics should function to then argue that MMT fulfills these ideals, whereas allegedly orthodox theories fall short of them. Additionally, the claim that economics consists of a rivalling heterodoxy and orthodoxy wherein each constitutes a paradigm is already a particular kind of mapping that other economists contest and that is part of MMT's favorable positioning. This thesis thus adds to our understanding of how epistemic authority is contested by means of boundary work and mappings. Finally, the thesis argues that MMT is so successful partly because it offers a blueprint of an institutional arrangement combined with instructions for how to operate it to better fulfill public purposes. It thereby adds

to the ongoing conversation in STS about the performativity of scientific theories, and specifically economics.

Appendix G: German Abstract

Diese Masterarbeit untersucht die wissenschaftliche Kontroverse um die makroökonomische Theorie *Modern Monetary Theory* (MMT). Ihre Befürworter*Innen behaupten, ein kohärentes Paradigma entwickelt zu haben, welches den derzeitig dominanten Theorien, die sie als 'neoklassische Orthodoxie' bezeichnen, deutlich überlegen sei. Ökonom*Innen, die jene etablierten Modelle vertreten, lehnen wiederum die MMT als unsinnig und gefährlich ab. Ihr Disput dreht sich um die Behauptung der MMT, dass Staaten, die gewisse Bedingungen erfüllen, langfristig Haushaltsdefizite fahren können und sollten, wohingegen die 'Orthodoxie' dies nicht als nachhaltig ansieht. Die MMT leitet diese Schlussfolgerung aus ihrer kontraintuitiven Beschreibung des Geldsystems ab, in der monetär souveräne Staaten wie die USA oder Japan ihre Ausgaben nicht durch Steuern finanzieren, sondern durch Währungsemissionen. Folglich sollen Regierungen stets jene Summe ausgeben, die notwendig ist, um Vollbeschäftigung herbeizuführen und das resultierende Defizit hinnehmen, anstatt sich auf ein im Vorhinein festgelegtes Defizit zu limitieren, wie es die Austeritätspolitik der 'Orthodoxie' vermeintlich empfiehlt. Das Ergebnis dieser Debatte hat weitreichende Implikationen für Fiskalpolitik und somit für den Umfang der Leistungen, die eine Regierung bereitstellen kann. Daher ist eine Untersuchung aus STS-Perspektive notwendig, um herauszufinden, wie Ökonom*Innen in wissenschaftlichen Kontroversen um epistemische Autorität kämpfen. *Demnach untersucht diese Masterarbeit die Strategien, die im ersten Lehrbuch aus MMT-Perspektive (‚Macroeconomics' von Mitchell, Wray und Watts 2019) benutzt werden, um Mainstream-Ökonomik anzufechten und die MMT vorteilhaft zu positionieren.* Darüber hinaus beantwortet diese Arbeit drei Unterfragen, nämlich *wie das Lehrbuch die unterschiedlichen Denkschulen in der Wirtschaftswissenschaft kartiert, welche epistemischen Normen und Erwartungen das Buch der Wirtschaftswissenschaft auferlegt,* und *was die STS-Theorie der Performativität uns über den Erfolg der MMT sagen kann*.

Das Lehrbuch *Macroeconomics* ist ein Meilenstein in der Geschichte der MMT und gilt als derzeitiger Goldstandard bezüglich dessen, was die MMT sagt und nicht sagt. Als analytische Linse nutzt diese Masterarbeit das Konzept der *boundary work*, welches beschreibt wie differenzierende Zuschreibungen eines Charakteristikums genutzt werden, um eine Grenze zwischen wissenschaftlichen und unwissenschaftlichen Tätigkeiten zu ziehen. *Macroeconomics* entwirft ein Idealbild der Wirtschaftswissenschaften um zu argumentieren, dass die MMT diesem Bild mehr entspricht als orthodoxe Theorien. Darüber hinaus leistet bereits die partikuläre Kartierung der Wirtschaftswissenschaften, die ein heterodoxes Paradigma einem orthodoxen gegenüberstellt, einen Beitrag um die MMT strategisch zu positionieren. Die vorliegende Masterarbeit trägt zu unserem Verständnis dessen bei, wie epistemische Autorität mittels boundary work und partikulärer Kartierungen angefochten werden. Schlussendlich argumentiert diese Masterarbeit, dass die MMT unter anderem deswegen so erfolgreich ist, weil sie eine Blaupause für ein institutionelles Arrangement mitsamt jener Handlungsanweisungen vorlegt, die nötig sind, um das Gemeinwohl zu erhöhen. Dadurch leistet diese Arbeit auch einen Beitrag zur Debatte über die Performativität wirtschaftlichen Wissens in STS.