A History of Macroeconomics

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1 Introduction

1.1 Is This Yet Another History of Macroeconomics?

This book offers a history of macroeconomics (the study of "the economy" as a whole) from its inception in the interwar period to today. Its novelty is twofold: it goes beyond a history of theories to cover a wider range of macroeconomists' practices; it relies on a growing body of historical research, challenging misconceptions commonly disseminated in macroeconomics textbooks. Did John Maynard Keynes's *General Theor*y (1936) establish macroeconomics as a new field? Not exactly! Did macroeconomics focus mainly on aggregates, before Robert E. Lucas "bridged" the gap between macroeconomics and microeconomics in the 1970s? Not really! Was macroeconomics at the onset of the Great Financial Crisis organised around a single modelling framework ("dynamic stochastic general equilibrium", DSGE models)? Perhaps not!

In short, this is not "yet another history of macroeconomics". It is one that should strike scholars and students in macroeconomics as *novel*. Such a history is needed because macroeconomics textbooks project a particular "identity" of the field, derived from a specific *historical* narrative, in which the field evolved through theoretical "revolutions" and "battles" between "schools of thought" initiated by "great men". We argue that this misrepresents the actual dynamics of macroeconomics (1.2). Our history conveys a different perspective (1.3), highlighting a more diverse set of characteristics (what macroeconomics is about) and practices (what macroeconomists do). We emphasise how macroeconomics has always relied on the combination of research agendas (theoretical, mathematical, empirical, and computational); how the interaction with other fields (notably microeconomics and econometrics) has been constant; and how the field has been shaped by a cast of researchers with diverse geographical and institutional origins (some working within academia, others in policymaking institutions and private organisations). We bring these many dimensions together through a simple chronology outlining four periods: birth (1920s-1940s), bridges (1950s-1960s), frictions (1970s-1980s), and constellations (1990s-2000s).

This book provides a *short* history of macroeconomics, not a comprehensive picture. Many characters, ideas, and practices in macroeconomics are still to be investigated. For instance, how the 2008 Great Financial Crisis has reshaped the identity of the field is still an open question. In this

respect, our history of macroeconomics highlights what historical scholarship has already accomplished and suggests future research paths (1.4).

Besides macroeconomists, this book offers scholars and students from other fields of economics a more relatable perception of macroeconomics than the one they are generally exposed to. Moreover, students and scholars from other social sciences (and, eventually, anyone reflecting on or bearing the consequences of macroeconomic policies) may find this an accessible synthesis of the recent scholarship in the history of macroeconomics. This synthesis remains technically demanding. It is not a substitute for a macroeconomics textbook, but a complement to one. Finally, for fellow historians of macroeconomics, this book stands at taking stock of several of the research directions explored over the past decade and basis for future discussion.[1]

1.2 Macroeconomics Textbook Narratives

Like in other sciences, the stories macroeconomists tell themselves shape their identity—how they think about themselves, how they perceive the origins and purpose of what they do, and the intellectual structure of their field.[2] This also frames what is "legitimate", how past debates have led to "progress" in the field, and, therefore, current research priorities.

Scholarship in the history of macroeconomics has highlighted *commonalities* across these various stories. They have labelled the resulting ideal-typical story the "standard narrative" about the history of macroeconomics (Duarte 2012; Sergi 2020). "Standard" refers to the dissemination of the narrative across a variety of interrelated supports—macroeconomics textbooks, lectures, anniversary special issues, (auto)biographies (including *Festschrifts* and obituaries), methodological writings, and

[1] Other directions proposed in the past twenty years are seen in several landmark histories: Snowdon and Vane (2005) provides a comprehensive history of macroeconomic theories (including interviews with key protagonists), although following much of the macroeconomics textbook narrative. De Vroey (2016)'s encompassing history of macroeconomics focuses on theoretical debates. Backhouse and Boianovsky (2013), Duarte and Lima (2012), Arnon (2022) and Assous and Carret (2022) dive into more specific topics, including disequilibrium theory, microfoundations, crises, and instability. Hoover (2015a) is a short encyclopaedia entry closest to our perspective.

[2] Historians of science have identified in other disciplines such "imagined pasts" (Wilson 2017), including in economics (Weintraub 2002: chap. 9).

even technical reports by central banks.[3] We set aside the specifics of each genre to focus on the narrative most macroeconomics textbooks share.

Textbook narratives locate the origins of the field with *The General Theory of Employment, Interest and Money* (Keynes 1936).[4] After this theoretical "revolution", macroeconomics stabilised, in the 1950s, around the "IS/LM" model, understood as a formal mathematical reinterpretation of Keynes (1936). In the process—the narrative goes—macroeconomics separated from microeconomics, embodying an intellectual "division of labour", nicknamed the "neoclassical synthesis". Macroeconomics, following the "Keynesian" framework, focused on aggregates (output, employment, consumption, etc.) and their short-term fluctuations. It postulated price rigidities, providing a rationale for the active role of discretionary fiscal and monetary policy to stabilise output and employment. Microeconomics, by contrast, relied mostly on general equilibrium frameworks to analyse individual behaviour (households, firms), and to outline the long-run equilibrium outcomes of the market process.[5] The neoclassical synthesis, textbooks claim, was twice overthrown:[6] by Milton Friedman's 1960s "monetarist revolution", which argued that discretionary fiscal and monetary policy failed to "fine-tune" the economy; and by Lucas's 1970s "new classical revolution", which provided a framework for integrating individual behaviour into macroeconomics (the "microfoundations" of macroeconomics). As the story continues, both revolutions ignited years of controversies between two "schools of thought":[7] "new Keynesians", who accepted Lucas's microfoundations but held on to price and wage rigidities that justified policy interventions; and "real business cycle" theorists, pursuing Lucas's work. By the end of the 1990s, these two factions reached a "new consensus" (the "new neoclassical synthesis"), embodied in a new modelling practice (DSGEs), and came to dominate academia, while providing better guidance for policymaking.[8]

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[3] The word "standard" captures how the narrative "standardises" the field, legitimating the dominant approach and marginalisinging other approaches.

[4] Blanchard, Amighini, and Giavazzi (2017: 509).

[5] Mankiw (2006: 35).

[6] Chugh (2015: 167–68).

[7] Dornbusch et al. (2007: 574) and Heijdra and van der Ploeg (2002: Introduction).

[8] Recent generations of students have also probably been exposed to an additional episode of this story, starting with the 2008 Global Financial Crisis: following this event, macroeconomics has been evolving to integrate in DSGEs new

The particular identity macroeconomics textbooks convey is primarily defined by theories. They delineate rival schools of thought (Keynesian, Monetarist, new classical, new Keynesian, etc.) whose leading figures (a handful of US-based male academics publishing in the top field journals and achieving recognition through a Nobel prize) introduce groundbreaking concepts.[9] This characterisation is inaccurate. Activities equally crucial to the discipline—collecting data, devising econometric techniques, crafting solution algorithms, coding models into the computer, drafting policy briefs, attending policy meetings, or selling forecasts— also shaped the evolution of macroeconomics.

Textbook narratives also depict macroeconomics as revolving around cyclical rivalries.[10] "Revolutions" and "wars" are ignited—the story goes—by macroeconomic crises: the Great Depression is pinpointed as the key impetus behind the "Keynesian revolution"; the 1970s "stagflation" is associated with the "death" of Keynesianism. Yet, textbook narratives also suggest that revolutions and wars converge towards "consensuses" and "syntheses", achieving a "superior" state of knowledge (Blanchard 2000: 1375).[11] These narratives give a sense of self-evidence and cohesiveness—an "end-of-history" impression.[12] There is little to no acknowledgment of the actual dynamics of science: the long process of refining intuitions into scientific ideas, shifts in research subjects and techniques, collective endeavours and collaborations, as well as how ideas and tools are shaped by their dissemination within and outside academia. It obscures the diversity of research questions and modelling strategies considered, inside and outside academia.

Macroeconomics textbook narratives are designed to provide purpose and continuity to macroeconomics; yet, they also establish authority and hierarchy (legitimising specific practices and forms of knowledge). This makes it often harder for new researchers in the field (in particular graduate students specialising in macroeconomics) to understand and adhere to this disciplinary identity. Students' dissatisfaction with economic education, which tends to flare-up in the wake of

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insights, including weaker versions of rationality, as well as banking and financial structures. Yet, overall, the cornerstones of the pre-crisis consensus survived to this day (Glandon et al. 2023).

[9] Phelps (1990).

[10] Begg (1982), Blinder (1988), and Mankiw (2006).

[11] The neoclassical synthesis in the 1950s, usually attributed to Samuelson (1955), or the new neoclassical synthesis in the 1990s (Goodfriend & King 1997). Duarte (2012) and De Vroey and Duarte (2013) offer a historical discussion of these "syntheses".

[12] Chari (2010: 2).

economic crises, is especially salient in macroeconomics.[13] Students usually point to the gap between what they are taught and the real world, while instructors lament the gap between the research frontier and what is taught in introductory, intermediate, and even graduate courses.[14] This has given rise to alternative macroeconomics textbooks (e.g., Bowles & Carlin 2020) and, more radically, to proposals to abolish the compulsory first-year graduate course in macroeconomics — a step MIT recently took.[15] One purpose of this book is precisely to provide students and scholars with a history of macroeconomics encompassing its plural and open identity—one that is easier to relate and build on.

Macroeconomics textbook narratives also miss out on the richer interactions macroeconomists have had with their colleagues in labour economics, consumption theories, industrial organisation, or in general equilibrium. They portray macroeconomics as a secluded discipline, evolving on its own pattern. This often prevents scholars and students in other fields from relating to macroeconomic research. This is related to a specific point of macroeconomics textbook narratives, which relies on a narrow conception of "microfoundations". By contrast, one key takeaway of this book is that microfoundations—defined as the bridge between microeconomics (the behaviour of individuals) and macroeconomics (the dynamics of the aggregates)—were at the forefront of macroeconomists' thinking since the origins of the discipline. When the term "microfoundations" became popular, in the 1970s, it was narrowed to one particular way of articulating microeconomic and macroeconomics, ruling out other attempts at microfoundations (Hoover 2012).

Finally, textbook narratives fail to engage other audiences, from other scientists to policymakers, op-ed writers, and voters. Outsiders generally picture macroeconomics as shaped by

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[13] When Robert Shiller (2010: 403) reflected on whether the Global Financial Crisis should change how we teach economics, he began by noting students' dissatisfaction "particularly with macroeconomics." Previous crises triggered similar reflections (e.g., Krueger 1991).

[14] Student societies like *Rethinking Economics* have been advocating this view in the past decade. See Courtoy et al. (2021) for instructors.

[15] Upon announcing this curriculum change on Twitter, macroeconomist Jon Steinsson warned that "This should be a wakeup call for macro, lest this turn into a new trend" (https://twitter.com/JonSteinsson/status/1613579995460562946?t=DyUpLdCVicQ9oEe_oX7gNw&s=03, retrieved 18/07/2025).

empty principles or downright ideology rather than by technical or institutional constraints.[16] Textbook narratives cannot engage with these criticisms, insofar as they portray a discipline achieving "scientific progress" through "consensus". By contrast, historical scholarship on macroeconomics has emphasised the complex interplay between academia and other institutions, in particular policymaking institutions.[17]

1.3 The Historians' Perspective

Over the past couple of decades, scholarship in the history of economics has analysed various contexts and aspects of macroeconomists' practices.[18] This substantial literature remains scattered and addresses a specialised audience. The contribution of our book is to combine this existing historical scholarship into a synthetic, consistent history of macroeconomics. History of macroeconomics differs from macroeconomics textbook narratives both in scope and, most importantly, in method.

Its scope extends beyond the history of theories. We address macroeconomics not only as an intellectual construct, but also as a wider set of practices, encompassing theorising, modelling, conducting empirical work (which further entails a subset of distinctive practices, spanning from collecting data to choosing estimation techniques), programming computer software, academic endeavours (for instance, hiring and promotion policies, or publication strategies), and policymaking activities (also consisting of a wide array of practices, including writing policy briefs, producing forecasts)—among other examples.[19] However, this is not just about being more "comprehensive". As documented here, there is a significant interplay across all these practices: the evolution of macroeconomic theories cannot be disentangled from, for instance, the consequences

[16] Widely read newspapers, such as *The Guardian,* host this kind of criticism (see e.g., Mason 2016); media on the other side of the political spectrum, like Fox News, host similar opinions (see e.g., Besset 2024).

[17] Hereafter, "policymaking institutions" refers to executive branches of central governments (e.g., the "Treasury"), various government agencies (national statistical offices, planning bureaus, etc.), central banks, and international organisations. "Other institutions" include private businesses, but also non-profit organisations (e.g. think tanks).

[18] This research has been published in journals specialising in the history of economics. History of economics is, however, only one academic field engaging with the history of macroeconomics. Some works referenced in this book come from philosophy of economics, political economy, sociology, and history of science.

[19] This shift in focus is akin to a more general "practical turn" in the history of economics (Stapleford 2017; Düppe & Weintraub 2018; Düppe et al. Forthcoming).

of computational constraints, of journals' editorial policies, or of available econometric techniques. In a nutshell, all these practices (empirical work, policy work, the rules of the academic game, available computers, etc.) matter for understanding the evolution of theories, and, therefore, of macroeconomics as a whole. The emphasis on macroeconomics as a practice also brings a different "cast" of characters and communities.

To understand the interplay across various practices, the history of macroeconomics investigates macroeconomists' motives, hopes, dead ends, and compromises, which often lie beyond the surface of published contributions. This requires historians of macroeconomics to go beyond close-reading of published texts and rely on other sources. Archival collections from individuals or institutions—featuring drafts, correspondence, grant applications, referee reports—provide crucial evidence for documenting macroeconomists' practices. Yet, some of these practices do not leave such a paper-trail: then, historians of macroeconomics turn, for instance, to oral history, interviewing protagonists. These qualitative methods have also been combined with quantitative ones, which embrace the full extent of a growing body of writings, authored by dozens of thousands of contributors to the field, worldwide (as opposed to focusing on a few "great men" awarded with the Nobel prize). Quantitative methods used include, e.g., collective biographies (prosopography), citation network analysis, topic-modelling, and natural language processing. These methods contribute to the understanding of the mutual links across individuals and communities and to the mapping of the variety of topics covered, as well as shifts in techniques and methods used by macroeconomists.

The history of macroeconomics relies on a combination of these methods to produce an evidence-based history. This contrasts with textbook narratives, mostly based on personal, partial and often incorrect recollection (or hearsay) about the past. This methodological gap, along with the change in perspective (practice-focused instead of theory-focused), is the essence of what makes the history of macroeconomics told in this book different from the one of macroeconomics textbooks.

Finally, this book attempts to relate the history of macroeconomics to the broader trends in the history of twentieth-century economics. Since World War II, economics has turned more decisively into a "tooled discipline" (Morgan 2012), centred on the use of models—that is, a combination of theory, data, empirical techniques, but also metaphors and narratives (Morgan & Stapleford 2023). Second, economics as a profession has gained wider recognition, access, and

influence in the public sphere (Berman 2022). This has materialised with the rise of economists as "experts", that is, professionals active within national and international public and private bodies tasked with managing various aspects of social life. Third, postwar economics has turned into a "global profession" (Fourcade 2006). Economists all around the world now share common intellectual frameworks and methodologies, as well as professional standards (from teaching styles to norms for hiring and promotion). Despite the persistence of some national specificities and traditions, the internationalisation of economics also coincided with its "Americanisation", that is, its alignment with the academic standards prevalent in the US. This overlaps with a fourth trend: the emergence of a "mainstream" within economics, that is, the process of marginalisation of some groups of economists "dissenting" from the prevalent intellectual and professional standards (Backhouse 2004). Marginalisation entails exclusion from various institutions (journals, societies, universities, expertise), and, symmetrically, the formation of parallel institutions gathering "heterodox" economists.

These four interrelated trends set the scene for the history of macroeconomics this book tells. It also informs the history of economics at large. Indeed, macroeconomics and macroeconomists played, since the 1930s, a leading role in the transformations of economics.

The models developed in the 1930s and the 1940s within the Econometric Society and then at the Cowles Commission were foundational, not just to macroeconomics, but to economics at large. After World War II, macroeconomists shaped "modelling" as a practice articulating theory, data, statistical methods, mathematical techniques, and the use of computers—embodied in large-scale macroeconometric models, built collectively by researchers in academia, policymaking institutions, and private companies. In the following decades, they introduced new optimisation techniques and techniques for time series analysis, as well as associated computer technologies. In doing so, they expanded the mathematical and statistical toolbox of economic modelling.

Macroeconomists were also among the first professional economists to develop a close relationship with institutions and policymakers in charge of the "stabilisation" of the economy (in the context of the Great Depression) or the planning of the war effort. Keynes's trajectory is a paradigmatic product of this collaboration. After the war, macroeconomists consolidated their position within various policymaking institutions. The "special relationship" between macroeconomists and policymakers evolved, from the turmoil of the 1970s stagflation to the 2000s,

to entail forms of "co-production" of macroeconomic knowledge, and the phenomenon of "scientisation" of central banks.

1.4 Book Outline and Scope

The book first narrates the origins of macroeconomics in the interwar period. We argue that macroeconomics emerged from the convergence of three research agendas (Section 2): first, conceptualising and quantifying "the economy" (2.1); second, providing new mathematical tools to model economic dynamics (2.2); and third, a new articulation between theories of business cycles and policymaking, embodied in *The General Theory* (2.3). The field consolidated after World War II (Section 3), through bridging macroeconomics and microeconomics (3.1), theoretical and empirical macroeconomics (3.2), and academia and other institutions, particularly policymaking ones (3.3). From the late 1960s to the end of the 1980s, a new generation of researchers brought a gradual transformation of the field (Section 4). This process was characterised by a series of "frictions" with the older generation, about new mathematical tools (4.1), new empirical strategies (4.2), and research and policy culture (4.3). Finally, we describe the 1990s-2000s as a period best understood as a "constellation" of approaches (Section 5). While macroeconomists promoting the "new consensus" grew in number, they also belonged to a hybrid of independent research agendas, which continued their trajectories outside the "new consensus" (5.1). The "new consensus" macroeconomists faced computational challenges, which they addressed by cooperating with a variety of scholars who were developing approaches at the boundary between macroeconomics and other fields (5.2). Beyond the "new consensus", various research communities have developed modelling practices, theoretical frameworks, and computational and empirical techniques renewing macroeconomic analysis (5.3).

In order to offer a concise account of these historical developments, we omit several elements. For instance, we only provide few biographical details about the macroeconomists mentioned, little detail about the history of various institutions, and only essential elements about theories, models, empirical, and computational techniques. Footnotes include selective references to the secondary literature covering such details. For similar reasons, we focus on the study of short-term fluctuations: growth theory, monetary theory, and international macroeconomics are only

partially covered. The history of these three subfields of macroeconomics is also rich and complex, and it would deserve its own development.

The book adopts a global perspective, emphasising macroeconomics developments outside the US, and retracing worldwide interactions between macroeconomists. However, it remains essentially US-focused (or, at best, US-Europe-focused) for two reasons. First, as mentioned above (1.3), the postwar internationalisation/Americanisation of economics means that contributions to macroeconomics produced in the US increasingly shaped the field worldwide: hence, the study of non-US contributions to macroeconomics takes US-based developments as a reference point. Second, the secondary literature on which we rely embodies this US-bias; there is little coverage in English for non-Western countries (most notably Japan, the former Soviet Union members, and countries from the Global South). Despite this limited coverage, the history of macroeconomics recounted in this book already pinpoints the significant specificities of European macroeconomics, when compared to the US developments, in terms of intellectual frameworks, tools, and policy debates.[20]

Internationalisation and Americanisation entailed that both macroeconomics textbook narratives and, to a lesser extent, the history of macroeconomics are focused on a small subset of contributions. The emergence of a "mainstream" in economics had similar consequences. Within macroeconomics, the marginalisation of several "dissenters" from the prevailing view of the day has materialised, in the 1970s, with the emergence of the "Post-Keynesian" community. The contribution of this (and other "heterodoxies") is also an understudied topic in the history of macroeconomics. As a result, although this book attempts to cover macroeconomics in all its diversity, the topic remains an open line of development for further research.

[20] Extending the history of macroeconomics beyond Western perspectives is a current challenge we share with historians at large. See e.g., Missemer (2026) for blueprints for "global" and "multilateral" histories of economic thought.

2 Birth: The 1920s-1940s

Today, "macroeconomics" is widely understood as the study of "the economy" as a whole, that is, of "aggregates" (such as output or inflation) and of the interactions across sectors, activities, and economic agents. Such a conception was developed before the term "macroeconomics" was invented in the early 1930s. For some historians, "the economy" is a creature of the interwar period, while for others, it dates back to the sixteenth century.[21] However, it is generally agreed that macroeconomics, as we know it today, took shape during the interwar period. In this section, we argue that macroeconomics emerged out of three independent streams of research: the quantification of "the economy" and the study of business cycles (2.1); the mathematical formalisation of dynamic systems and their connection to empirical data (2.2); and Keynes' double contribution as both a monetary theorist and an economic expert (2.3).[22]

2.1 Quantifying "the Economy": Business Cycle Theory and Policy

"National accounting" emerged as a distinctive framework for economic quantification in the 1930s-1940s (Vanoli 2005: chap. 1). Yet, it did not consist of mere "accounting": it was one component of broader efforts to reconceptualise "the economy", to use theory to interpret data, and to devise new statistical techniques. These developments were embedded in the distinctive policy agendas of the Great Depression and World War II. In this historical context, quantification was conceived as a practical, policy-oriented tool for forecasting and planning.

These intertwined activities (quantifying, theorising, and policymaking) were often discussed under the label "business cycle theory". The term highlighted that "the economy" evolved throughout periods of depression and prosperity, thereby suggesting a recurring yet uneven pattern in economic activity. This conception originated in earlier works, for instance the study of

[21] Such a view involves thinking in terms of "aggregates" as an organising principle for early political economy: e.g., the aggregate output in William Petty's *Political Arithmetic* (1676), or the general price level in David Hume's *On the Balance of Trade* (1752). This was accompanied by an understanding of how different sectors, activities, and agents in "the economy" are interconnected throughout the "flow" of goods and money (as outlined, for instance, in Richard Cantillon's work). For a brief overview of such early "macroeconomic" thinking, see Dimand (2003), Schabas (2009), and Breslau (2003).

[22] This three-legged origin is reflected in the *Journal of Economic Literature* (JEL) classification adopted by economists (Cherrier 2017). In 1940, in lieu of the not-yet stabilised 'macroeconomics' term, JEL listed 3 categories: "statistics and accounting"; "business cycles"; and "money, credit and banking".

"commercial crises" by French political economist Clément Juglar (1862). Juglar conceptualised crises as periodic phases within cyclical movements, rather than as isolated incidents. Juglar's work already used quantitative information (e.g., about prices, money, domestic demand) to study the fluctuations of "aggregates".[23] From the 1870s to the 1920s, other works in the same vein brought innovations in statistical methods, including correlation analysis and regression.[24]

In the US, the study of business cycles became prominent with the publication of Wesley Mitchell's *Business Cycles* (1913) and, later, with Mitchell and Arthur Burns's *Measuring Business Cycles* (1946). Mitchell and Burns's work resulted from a collective endeavour at the National Bureau of Economic Research (NBER), a New York-based private research foundation established in 1920.[25] NBER research was both directed at "accounting" and conceptualising "the economy" and its dynamics: for instance, by formally defining a "recession" and representing the cycle as a four-phase phenomenon (expansion, peak, recession, recovery)—both definitions are still in use today. For this purpose, they devised data collection routines and procedures for storing, ordering, and analysing data, one that proved particularly time-consuming in this pre-electronic computer era (Lenel 2023). Moreover, NBER's researchers engaged with new statistical techniques to identify "seasonal", "cyclical", and "trend" components of a time series (that is, a series of data measured at different points in time). They experimented with different forms of statistical inference and aggregation.[26] This whole process also relied on theories to interpret the data. In this respect, NBER's approach to business cycles analysis was rooted in the methodological and theoretical tradition of North American institutionalism, one of the strongest traditions within US economics in the interwar period. This entailed rejecting single-cause, universal explanations of each phase of a given cycle, especially explanations rooted on axioms about individual behaviour that rested on little empirical evidence. Instead, NBER's approach favoured context-specific, multi-causal explanations

[23] On Juglar, see Morgan (1990: chap. 2) and Bridel and Dal-Pont Legrand (2009).

[24] A stream of such works argued that astronomical phenomena (the sunspot cycle, for William Stanley Jevons, or the Venus cycle for Henry L. Moore) would influence terrestrial climatic conditions (heat, rainfalls), therefore affecting harvests and, ultimately, economic activity (Morgan 1990: chap. 1).

[25] On the history of NBER, see Rutherford (2011: chap. 9).

[26] On statistical inference debates in this period, see Biddle and Boumans (2021). On debates about statistical aggregation techniques, see the 1920s controversies on measuring inflation using "index-numbers" (Dimand 1998; Cruz-e-Silva & Almeida 2022).

of phenomena, based both on specific quantitative data and the qualitative study of the specific institutions at play (Mitchell 1924).

National statistical offices, various government agencies, central banks, universities or private sector actors, both in the US and worldwide, developed similar practices for collecting, analysing, and disseminating business cycle data (Morgan 1990: chap. 2). In the US, after the 1929 Crash, the Federal government increased its intervention in the economy: in this context, government agencies produced quantitative data and analysis to support policymaking.[27] A crucial domain for quantification was "national income": NBER researcher Simon Kuznets was tasked in 1933 with preparing such statistics for the US Bureau of Foreign and Domestic Commerce. Kuznets's work was soon imitated and challenged by other researchers, notably Clark Warburton's (1937) work at the Brookings Institution (a Washington D.C.-based private research institute).[28] In the context of the Great Depression, similar initiatives for measuring "national income" flourished in Europe.[29]

World War II and its associated planning needs further fuelled the establishment of more detailed "national accounts". In Britain, this task was assigned to Richard Stone and James Meade (within the Central Economic Information Service of the War Cabinet), and, in the US, to Kuznets and Robert Nathan (within the War Production Board).[30] These efforts did not end with the war. National accounting now resonated with the framework inspired by Keynes's *General Theory* (so that, for instance, the determination of national income was accounted for as the addition of the demands expressed by different institutional sectors).[31] Bretton Woods international organisations and colonial states all pushed for the standardisation of national accounts both in developed and

[27] See Didier (2020) about the US Department of Agriculture. On the relation between quantification and policy, see Porter (1995) and Desrosières (1998). About economic policies in the Great Depression, see Barber (1988).

[28] On Kuznets's work and the surrounding debates, see Lepenies (2016: chap. 4) and Coyle (2017: chap. 1).

[29] See, for instance, Colin Clark's work in Britain (Lepenies 2016: chap. 3).

[30] On Stone, see Johansen (1985). On national accounting in the US, see Duncan and Shelton (1978). Other forms of quantification were developed during the war and remained relevant to postwar macroeconomics. A key example is George Katona's work at the US Office of War Information, quantifying households' expectations, consumption, and saving behaviour, which led to the development of the University of Michigan Consumer Sentiment Index (Edwards 2012; Dechaux 2017).

[31] The influence of Keynes's ideas on national accounting is debated: see Mitchell (2002), Schabas (2009), Hirschman (2016a).

developing countries (Speich 2011), and the quantification of international transactions (e.g., the balance of payments).

In the interwar, alternative quantification efforts were developed for forecasting purposes by universities, think tanks and private research institutions. A well-known example was the Harvard Business Barometer, developed by statistician Warren Persons in the 1920s. This forecasting method, based on leading indicators, was popular until the 1929 Crash.[32] In the 1930s, another Harvard-based economist, Wassily Leontief, developed the "input-output" tables, conceived both as a statistical device for accounting and as a formal tool for theorising sectoral interdependencies. After the war, Leontief and Elizabeth Gilboy established a large team of researchers (the "Harvard Economic Research Project") to build input-output tables. They grew popular within policymaking in the US and worldwide.[33]

In Europe, institutes aimed at emulating the NBER in quantifying and studying business cycles emerged in France (Angeletti 2023; Brisset & Fèvre 2025), the UK (the National Institute of Economic and Social Research, established in 1938; Jones 1988; Bean 2018), Germany (in Berlin, and at the Kiel Institute of World Economics; Tooze 2001; Lenel 2021), Belgium (Buyst et al. 1995), and the Netherlands (van den Bogaard 1999)—among others. In the Soviet Union, quantification proceeded from the needs of economic planning, both within the Gosplan (Planning Bureau; Burina 2023) and the Moscow Institute of Conjuncture led by Nikolai Kondratiev (Barnett 1998; Vianna Franco et al. 2022). All these initiatives communicated data and techniques through international networks.[34] However, with the rise of fascism in Europe and, later, World War II, many European economists (such as Kuznets and Leontief, for instance) emigrated to the US, which became the geographical centre of economic research—paving the way to its dominance in the postwar period (Morgan & Rutherford 1998).

Many European émigrés joined the Cowles Commission, a private research foundation established in 1932 by Alfred Cowles.[35] In 1947, the Cowles Commission's soon-to-be-director

[32] On the Harvard Business Barometer and forecasting in this period, see Armatte (1992) and Friedman (2009).

[33] On Leontief, see Akhabbar (2021) and Halsmayer (2024: chap. 3).

[34] See e.g., Kondratiev's relation with the NBER (Louçã 1999).

[35] Cowles was a businessman worried about the inability of the economic profession to address the challenges of the Great Depression. On the foundation and early years of the Cowles Commission, see Dimand (2022). Besides establishing modern econometrics (Morgan 1990: chap. 8), the Commission pursued various research paths, playing a

Tjalling Koopmans published a critical review of NBER's *magnum opus* on business cycles. Koopmans attacked Burns and Mitchell's (1946) book for being "measurement without theory"—collecting data without an interpretative framework and without drawing conclusions useful to policymakers. NBER associate Rutledge Vining answered Koopmans' criticism, spurring a controversy with lasting effects on the economic profession (Hendry & Morgan 1996). The challenge to the NBER signalled the rise of a new approach, blending neoclassical economic theory and advanced mathematical and statistical techniques.

2.2 Understanding Dynamics: Formalising

In the same years, other economists were seeking to understand the sources of business cycles. During the 1930s, a small international group of economists, active within the Econometric Society, developed a new approach that integrated mathematical modelling and statistical methods. Compared to previous attempts at formalising business cycles, their approach involved two novelties: a shift from exogenous to endogenous explanations to business cycles (Morgan 1990), and from static to dynamic frameworks (Assous & Carret 2022).

A major development was the critique of the periodicity hypothesis (that is, of a recurrent timing and duration of the business cycle), which had been central to earlier business cycle theories (*cf. supra*). In the 1920s, British statistician George Udny Yule proposed a methodological critique of spurious correlations in time series (casting doubt on the validity of previous works) and suggested to reconceptualize the economy as a system subject to random disturbances—much like a pendulum being struck by peas (Morgan 1990: 74–79). Yule's work was followed by Eugen Slutsky ([1927] 1937)'s pivotal experiment, demonstrating that a cumulative process of arbitrary random shocks (such as national lottery draws) could faithfully reproduce observed business cycles.[36] This finding undermined the search for deterministic patterns in economic data: apparent regularities might be statistical artifacts with no periodic cause behind them. The culmination of these critiques was the emergence of the impulse-propagation framework (Kim 1988).

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pivotal role in the history of economics: driving the renewal of general equilibrium theory and introducing new mathematical concepts and tools into economics (Düppe & Weintraub 2014); encouraging the development of new theoretical approaches to financial markets (Dimand 2025); and by supporting the first macroeconometric models (3.2).

[36] On Slutsky's theory of business cycle, see Louçã (2004) and Barnett (2006).

In Britain, Arthur Cecil Pigou contributed to this framework by introducing the concept of "impulses"—real, monetary, and psychological causes that influence what he termed "a certain complex of industrial and monetary conditions" (Pigou 1923: 8). Pigou viewed these conditions as the main cause of business cycles, arguing that the economic system's structure determined how it responded to the various impulses. Austrian economist Friedrich von Hayek, who moved to the London School of Economics in 1931, entered the discussion with *Monetary Theory and the Trade Cycle* ([1929] 1933) and *Prices and Production* (1931).[37] He further developed Pigou's idea of "impulses", highlighting the inconsistency between Classical theory's static equilibrium concept and the dynamic nature of business cycles. Hayek proposed a model in which monetary impulses triggered real economic effects. In his view, cycles stemmed from successive distortions in the production structure's roundaboutness, originating from an influx of bank credit and a fall in interest rates below their "natural" level (i.e. the real rate of return on investment).[38] This process leads economic agents to overinvest in capital goods, misaligning the supply of production goods and the economy's capacity to absorb consumer goods, ultimately leading to cyclical downturns.[39]

Most impulse-propagation accounts of the business cycle in this period still lacked a formal framework. This changed with the publication of "Propagation Problems and Impulse Problems in Dynamic Economics" (1933), by Norwegian economist Ragnar Frisch. Building on Slutsky ([1927] 1937)'s insights, Frisch laid down the foundations for subsequent equilibrium business cycle models, and for time series analysis in economics (Duarte & Hoover 2012). Frisch distinguished between impulses—exogenous shocks disturbing the economic system—and propagation—mechanisms transmitting these disturbances throughout the economy. To illustrate how cyclical variations could emerge from non-periodic (random) impulses, Frisch borrowed Karl Petander and Knut Wicksell's rocking horse analogy (Velupillai 1992).[40] He also built upon his early-1920s statistical work on the decomposition of the business cycle, distinguishing long-term effects from

[37] On Hayek's life and work, see Caldwell and Klausiger (2022). On Hayek's business cycle theory, see Hagemann and Trautwein (1998), Backhouse (2006), and Repapis (2011).

[38] The idea of a "natural" rate of interest (as opposed to the observed, market rate of interest) was taken from Swedish economist Knut Wicksell's work (Trautwein 1996).

[39] Other authors active in British and American academia, such as Joseph Schumpeter (1939) contributed to the debate about the causes of business cycles, rather emphasising real and endogenous causes.

[40] "if you hit a wooden rocking-horse with a club, the movement of the horse will be very different from that of the club" (Frisch 1933: 198).

seasonal fluctuations without assuming inherent periodicity. Blending theoretical and empirical approaches, he aimed to develop a formal mathematical analysis of dynamic phenomena and statistical methods for their estimation (Bjerkholt & Dupont-Kieffer 2010).[41]

Frisch (1933) also introduced the term "macrodynamics", one he contrasted with "microdynamics". Beyond christening the field, it initiated a wave of research dedicated to exploring the microfoundations of macroeconomics, that is, whether economic rationality in individual behaviour could be coherently extended to aggregate systems (Carret 2022). Frisch's ideas and modelling methodology found a home in the Econometric Society, the first international association in economics dedicated to the advancement of economic theory in its relation to statistics and mathematics.[42] Frisch created the Society in 1930 together with François Divisia, Irving Fisher, Charles Roos, and Joseph Schumpeter among others; in 1933, he became the founding editor of the Society's flagship journal, *Econometrica*.[43]

The twin institutions fuelled the emergence of an international community who ambitioned to develop sophisticated mathematical frameworks for "macrodynamics". A key example is Kalecki (1935)'s seminal deterministic model, which used differential-difference equations to demonstrate how investment lags generated cyclical behaviour—a work sometimes considered the first "macrodynamic" model (Tinbergen 1935, 268).[44] *Econometrica* issues were rife with work by Frisch, Oskar Lange, Jacob Marschak, and other Econometric Society members who had sought refuge at the Cowles Commission. They promoted the abandonment of a static approach to macroeconomics in favour of a dynamic approach (Assous & Carret 2022). Though these discussions were "discursively rich, confused, and hardly ever convergent on any coherent perspective" (Weintraub 1991, 10), they eventually marked a shift from equilibrium as a state of rest to equilibrium as the final outcome of a dynamic process.

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[41] Frisch's conception of dynamics diverged from many contemporaries, particularly Swedish economists (Erik Lindahl, Bertil Ohlin, Gunnar Myrdal), who focused on how current actions are influenced by future plans and expectations. Conversely, Frisch treated dynamics with mathematical techniques like differential equations, difference equations, and variational analysis. Another line of dynamic analysis was initiated by Samuelson (1939)'s multiplier-accelerator model.

[42] On the early history of the Econometric Society, see Louçã (2007) and Bjerkholt (2017).

[43] The financial backing of Alfred Cowles supported Frisch's effort, making *Econometrica* one of the most prestigious publications in economics (Louçã 2007: 25–48; see 2.1).

[44] About Kalecki's life and work, see Sawyer (1998), Lopez and Assous (2010), and Marcuzzo (2021).

While Frisch's work remained theoretical, it served as a benchmark for a new generation of models, pioneered by Dutch economist Jan Tinbergen. Tinbergen's 1936 model of the Dutch economy combined dynamic model construction, statistical estimation, and policy analysis (Dekker 2021, chap. 10). The model was subsequently refined in 1939 for the League of Nations and the American economy. Tinbergen used statistics to confront the model to historical data, and incorporated lagged variables to generate cyclical behaviour converging toward equilibrium. Drawing on an explicit analogy with physics, Tinbergen argued for theoretical frameworks that provide endogenous causality rather than merely describe observed phenomena (Boumans 1993). Tinbergen treated shocks as statistical residuals in his deterministic system rather than as fundamental driving forces, as in Frisch's impulse-propagation framework.

Despite Keynes's harsh misgivings against econometrics (Boumans 2019), scholars engaged constructively with Tinbergen's work. Frisch's student Trygve Haavelmo identified Tinbergen's inadequate treatment of residuals as a key limitation (Hendry & Morgan 1996: 66–71). Haavelmo challenged those many economists who rejected probability theory on the ground that macroeconomic data, drawn from censuses and aggregates, could not be conceived as resulting from any sampling procedure. They further argued that economic data could not follow probabilistic laws, given the interdependence among observations and the heterogeneity of conditions over time. Believing in exact, deterministic laws of economic behaviour, they treated residuals as the result of omitted variables or measurement errors (Morgan 1990: chap. 8). Instead, Haavelmo (1944) argued that the set of aggregates observed (for instance, a GDP time series), while happening only once, could be seen as a draw from a hidden probability distribution of possible outcomes in a game played by Nature (a data-generating process, in contemporary terms). In this epistemological framework, residual errors (conforming to a well-defined probability distribution) were an integral part of the model, reflecting the inherent dynamics of the economy (Hoover 2005). These innovations prompted a gradual shift toward perceiving regression residuals as sampling errors rather than measurement errors—a perspective previously considered by Tjalling Koopmans (1936). Haavelmo's (1944) "probability approach" transformed Cowles Commission economists' work, who then disseminated it to economics in the US and abroad (Bjerkholt 2007).

Ultimately, Tinbergen's and Frisch's efforts to develop and apply macrodynamic models were recognised with the inaugural Nobel Memorial Prize in Economic Sciences (1969). Yet, the

developments to which they contributed during the interwar period arose from rather collective work by the international community established around the Econometric Society and the Cowles Commission. This highlights macroeconomics' dual identity as both a theoretical and applied discipline, neither predating the other. Macroeconomics and econometrics thus evolved, after World War II, as "twin" disciplines, developing in constant dialogue (Hoover 1995).

2.3 Keynes in Context: Theorising and Policing

The study of monetary phenomena was as important to the birth of macroeconomics as the study of business cycles. British nineteenth century economists such as John Stuart Mill or Walter Bagehot initially conceived business cycles as short-term price fluctuations. For many of them the quantity theory of money (whereby prices vary directly and proportionally with the quantity of money in circulation) was thus the driving mechanism to such fluctuations (Fetter 1965).[45] By the turn of the 20th century, Alfred Marshall, Knut Wicksell, and Irving Fisher challenged these views: Marshall emphasised an alternative theory of money demand (the so-called Cambridge approach); Wicksell explored cumulative inflationary processes; and Fisher highlighted inflation expectations' effect on interest rates (Laidler 1991). These insights changed how economists understood the relationship between money and business cycles, paving the way to theories developed by the Stockholm School, Austrian business cycle theory, and, above all, Keynes's economic work.

Keynes's 1936 *General Theory* was an extremely influential book, to the point that many—as noted above—consider its publication the origin of macroeconomics. Historians, rather see this book as the outcome of two decades of intellectual and political discussions that shaped Keynes's ideas. This story shows how intricate the development of macroeconomic theory was with political turmoil, policy demands and empirical work.

In the 1920s, a major concern for the British government was reinstating the Gold Standard and restoring the pound sterling to its pre-war gold parity.[46] Keynes (1923: 172) opposed the move because it required harsh deflationary policies, with dire consequences: unemployment rates tripled,

[45] They also emphasised the influence on business cycles of a variety of monetary factors, and the role of credit and banking institutions.

[46] For a history of the debates surrounding the gold standard, see Eichengreen (1992) and Bordo and Schwarz (2009).

seldom falling below 7% and reaching a staggering 15.4% in the early 1930s (Skidelsky 1995: 130–70). So he pleaded to abandon this "barbarous relic". Keynes and Hubert Henderson's pamphlet *Can Lloyd George Do It?* (1929), written to support Llyod George in the general election, prompted them to articulate why they rejected the "Treasury view" that the State budget should be balanced, and why public works expenditure was needed in the context of high unemployment. They proposed employing the jobless in public investment projects, arguing that beyond "direct employment", the income generated would stimulate demand for additional consumer goods, creating "indirect employment", a ripple effect of job creation (Kent 2007). Keynes and Henderson further posited that the initial public expenditures would be self-financing through increased tax revenues from enhanced economic activity. This reasoning was based on an implicit multiplier principle with roots tracing back to eighteenth-century economic debates (Hegeland 1954; Shackle 1956: chap. 8; Vercelli and Sordi 2012).

The 1929 election led to the establishment of an Economic Advisory Council, gathering independent experts to counsel the government on socio-economic issues. Keynes was nominated as chairman, joined by Henderson, Pigou, Lionel Robbins, and, later, Clark (Howson & Winch 1977). Clark's employment estimates fuelled explicit discussions on the multiplier within the Council. These debates led Keynes's student Richard Kahn to draft an article defining the multiplier as "the ratio of secondary to primary employment," directly referencing Keynes and Henderson's pamphlet (Kahn 1931). This work in turn laid the foundation for Keynes's *General Theory* (1936), which explicitly credited Kahn's research (Marcuzzo 2002).

Keynes's policy work also drove him to develop monetary policies proposals (influenced by Wicksell's ideas), which he elaborated in his *Treatise on Money* (1930). There, he developed analytical tools including "fundamental equations" and laid the foundations of the liquidity preference theory, serving as the basis for *The General Theory* (Keynes 1936: Preface). Diverging from Cambridge predecessors, Marshall and Pigou, he proposed to lower interest rates to stimulate employment. However, recognising that interest rates policy was primarily driven by exchange rate concerns, Keynes consistently advocated for fiscal policy to address Britain's employment issues, a theme that became a common thread in his work and public interventions from the 1920s onward.

In *The General Theory*, Keynes further departed from what he called "Classical economics" through challenging Say's Law—the idea that the inherent balance between supply (or production)

and demand (or income) ruled out the possibility of a general economic glut (Laidler 2006: 40–42).[47] Keynes's novel approach emphasised the disruptive role of money, one especially affecting interest rates' capacity to harmonize saving and investment decisions (Bridel 1987: chap. 9; Hoover 2015a). By considering money as a store of value and introducing hoarding concepts, Keynes developed a "liquidity preference" theory implying that money is demanded for the liquidity services it offers—an uncommon view at the time. This undermined the standard assumption that all savings translate into immediate investment and future consumption. It not only allowed for underemployment equilibria, but also reframed classical theory as a special case within his more comprehensive economic framework. Keynes eventually cautioned against excessive saving over consumption, advocating for what he termed the "euthanasia of the rentier." Keynes also rejected the conventional wisdom that nominal wages could be deliberately reduced in order to restore economic equilibrium. While acknowledging potential rigidities, he relegated these to peripheral positions, focusing instead on inherent instabilities of monetary production economies, particularly demand deficits.[48]

Keynes's late writings applied the theoretical foundations outlined in *The General Theory*. In *How to Pay for the War* (1940), he addressed the "inflationary gap" where demand exceeded productive capacity, and emphasised price stability's importance for economies near full employment. Keynes also applied his theoretical framework to devise his proposal for the restructuring of the international monetary system, which he defended at the Bretton Woods Conference. Drawing also on the drawbacks of the interwar attempt to restore the Gold Standard, he advocated for a system allowing deficit countries to borrow from a central organisation that could create a reserve currency. At Bretton Woods, his proposal lost to that of American negotiator Harry Dexter White, who, reflecting American concerns about fiscal responsibility, favoured more restrictive lending to avoid burdening creditor nations.[49]

The General Theory thus represented an integration of diverse, pre-existing theoretical strands, serving as a bridge between Keynes's two-decade-long practical policy recommendations

[47] Keynes strategically employed the term "Classical economics" to aggregate a diverse spectrum of economists under a singular, often oversimplified paradigm. This rhetorical maneuver, while effective in delineating his own theoretical stance, caricatured his opponents. The intellectual schisms—especially with Pigou—were far more nuanced than Keynes's assertive characterisations suggested (Laidler 2005: 39–40; Lawlor 2006: Part. I).

[48] Yet, "rigidities" would later be associated with Keynes (see 3.1).

[49] On the "international" outreach of Keynes, see Sampaio (2025).

and formal economic theory. Rather than offering a simplistic policy cookbook, it provided a sophisticated analytical framework equipping economists with versatile tools for deriving nuanced policy implications (Backhouse 2005; Dostaler 2007). Keynes's work was immediately discussed and reviewed. It was translated mathematically into "IS-LM" models (3.1) and suggested many other developments.[50]

Ironically, in Great Britain, the Treasury met "Keynesian" ideas with resistance throughout the 1930s (Weir 1989). In the US, Harvard economist Alvin Hansen and Federal Reserve Board economist Lauchlin Currie were more successful in infusing American economic policy debates with Keynesian ideas.[51] Similarly, the reception of these ideas by policymaking institutions varied significantly across national contexts (in France, Italy, Germany, the Scandinavian countries, and Japan), ranging from active engagement to outright rejection, and from theoretical adoption to pragmatic appropriation of fiscal practices. *The General Theory* nonetheless became a shared reference point in postwar economic debate (Hall 1989).

Although Keynes did not "invent" macroeconomics, his contribution was thus influential and original on one point: it elevated (macro)economists to a position of political prominence, through institutionalising the role of economic expert and policy adviser (Thirlwall 1982), and envisioning (macro)economics as an instrument for policymaking (Johnson 1974; Backhouse & Bateman 2011: 33–35). Keynes's influence over the following decades of macroeconomics was mediated by subsequent interpretations of his work and changing policy circumstances: this resulted in the entanglement between Keynes' ideas and other streams of macroeconomic research of the interwar, notably mathematical models and empirical techniques.

[50] Hansen's secular stagnation theory and Samuelson's multiplier-accelerator model, along with later work by Roy Harrod and Evsey Domar, successfully bridged Keynesian thought with prevailing business cycle theories, enriching the emerging macroeconomic field (Backhouse & Boianovsky 2016).

[51] About the policy influence of Hansen and of the economists gathered in his "Fiscal Seminar" at Harvard, see Leeson (1997), Johnson and Desmarais-Tremblay (2019), and Bigg (2023).

3 Bridges: The 1940s-1960s

Macroeconomics entered a new phase of development during the postwar period. From the mid-1940s to the late 1960s, its main challenge was to combine three rather different approaches and traditions inherited from the 1930s into a consistent body of knowledge: quantification and business cycle studies, dynamic mathematical modelling and econometric inference, and theoretical and policy propositions. This section emphasizes how developments in this period were driven by the ambition of building a series of "bridges": bridges between macroeconomics and microeconomics (3.1), bridges between macroeconomic theory and data (3.2), and bridges between macroeconomic academic research and policymaking (3.3). Notwithstanding the difficulties, controversies, and setbacks along the road, these three "bridging" endeavours contrast sharply with the macroeconomics textbook narrative about the pursuit of a merely theoretical "neoclassical synthesis".[52]

3.1 Bridging Microeconomics and Macroeconomics

The term "neoclassical synthesis" is usually attributed to Paul Samuelson, who regularly toyed with this idea, particularly in the 1955 edition of his best-selling undergraduate textbook *Economics* (Pearce & Hoover 1995).[53] Samuelson's so-called "synthesis" actually juxtaposed what he called (following Keynes) "the Classical view" (microeconomics, relevant for the long-run) and "Keynesian" theory (macroeconomics, relevant for the short run).[54] Later commentators entertained this interpretation, characterising this period as one of a "no bridge" between microeconomics and macroeconomics (Okun 1980: 818), or of an intellectual "chasm" (Mankiw 1990: 1647). This view permeates macroeconomics textbook narratives, with the idea that 1950s-1960s macroeconomics

[52] As is often the case, macroeconomics textbook narratives are factually inexact because the term "neoclassical synthesis" was not even widely used during this period, and its meaning remained rather vague and indeterminate throughout (Duarte & De Vroey 2013).

[53] A professor of economics at MIT (1940-2009), Samuelson played a key role in the transformation of US economics in the postwar period; see Backhouse (2017).

[54] Samuelson argued that the "Classical view" would regain validity once Keynesian demand-management policy stabilised the economy at full employment and stable prices (Backhouse & Boianovsky 2013). Noteworthy, Samuelson (1947) also assumed a strict separation between microeconomics and macroeconomics in dynamic analysis, separating maximisation and optimisation issues from dynamic ones (Boianovsky 2020).

had no "microfoundations"—no articulation between macroeconomic analysis (the level and dynamics of aggregates) and microeconomic analysis (the behaviour of individuals). By contrast, the history of macroeconomics has documented that microfoundations had been a major and constant concern since the early 1930s (Hoover 2012).

Beyond Frisch's articulation of "macrodynamics" and "microdynamics" (2.2), an important cornerstone for the interwar discussion on microfoundations was *Value and Capital* (1939), by British economist John Hicks. Hicks reframed the Walrasian general equilibrium framework, adding especially expectations toward future prices, to analyse macroeconomic issues that he saw as dynamic (Weintraub 1979). His temporary equilibrium framework was fully micro-founded and rested on a simplifying aggregation procedure (the "composite commodity theorem"), whereby the aggregate could be treated as an individual.

Keynes (1936) also paid attention to microfoundations, highlighting agent heterogeneity and pointing to a myriad of microeconomic factors, which explained the level and dynamics of the aggregates as an emergent effect (Hoover 2006). However, these elements were lost when his students translated these ideas into small systems of simultaneous equations (Young & Fuller 2022; Dimand 2007), giving rise to various "IS-LM" models—most influentially, Hicks's (1937) and Oskar Lange's (1938).[55] These models exhibited constant nominal wages and *flexible* prices; yet, a fixed-price version, based on Hansen (1953), was disseminated through US textbooks (Young 2011). These IS-LM models provided simple frameworks (e.g., for comparative statics exercises), but left out key microeconomic aspects of Keynes's theory, such as intertemporal decision-making, expectations, volatile market psychology ("animal spirits"), or radical uncertainty (Backhouse & Laidler 2004).[56]

Despite these omissions, articulating microeconomics and macroeconomics was a persistent concern in the early IS-LM models. It was commonly accepted that the intention of *The General Theory* was to *generalise* "Classical" theory of individual behaviour to account for aggregate

[55] Lange arrived in the US in the 1930s. Fellow of the Econometric Society (1939) and professor at the University of Chicago, he interacted with the Cowles Commission. On Lange's life, see Lampa (2025).

[56] Thus, for some of Keynes' colleagues and students (e.g., Nicholas Kaldor, Joan Robinson), IS-LM was "bastard Keynesianism" (Robinson 1971). They proposed their own approach to Keynesianism, which later contributed to establishing "post-Keynesian" economics (4.1).

phenomena (unemployment, interest, and money).[57] However, the exact nature and validity of this generalisation sparked intense discussion. Hicks (1937) and Lange (1938) associated Keynes's "Classical theory" with the "neoclassical" approach. They also viewed Keynes's theory as a particular case of neoclassical theory, specifically designed to account for the Great Depression and "liquidity traps", whereby the interest rate falls to a level for which money demand is infinitely elastic (Boianovsky 2004; Rubin 2004).[58] Besides this case, Hicks (1937) and Lange (1938) argued that assuming rigid nominal wages within a neoclassical framework yielded conclusions broadly consistent with Keynes's main message.

A related issue is that a "neoclassical" framework could be either Walrasian-based (i.e., a consistent and complete general equilibrium framework) or Marshallian-based (i.e., a partial and incomplete framework). Lange (1938) sparked confusion on this point, claiming his IS-LM model was a simplified version of a Walrasian system. This fuelled the mistaken but widespread belief that Keynes' ideas, as conveyed through IS-LM models, were compatible with the Walrasian neoclassical framework (Rubin 2016).[59] Debates on this articulation continued during the postwar period, particularly focusing on "involuntary unemployment" as the key message of *The General Theory*. In his own version of the IS-LM model, Franco Modigliani (1944) showed how involuntary unemployment resulted from assuming downward nominal wage rigidity and infinitely elastic labour supply.[60] Following Lange (1938), Modigliani (1944) also claimed mistakenly that his IS-LM model was a simplified Walrasian system (De Vroey 2000; Rubin 2016; Rancan 2017).

Modigliani's way of bridging microeconomics and macroeconomics illustrated what Axel Leijonhufvud (1968) called the "friction view", i.e., assuming nominal rigidities (frictions) to make Keynes's idea compatible with the Walrasian framework.[61] Later, Leijonhufvud's (1968) book *On*

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[57] Keynes contrasted his ideas with those of the "Classics" (conflating under this label various authors), who, for him, unwarrantably derived aggregate implications from the sole microeconomic level of analysis.

[58] This renders monetary policy ineffective for stimulating investment, henceforth calling for fiscal expansion to restore full employment.

[59] This interpretation was also disseminated by the syllogism: "IS-LM was invented by Hicks, Hicks was a Walrasian, hence IS-LM was Walrasian." Yet, Hicks's IS-LM model had Marshallian roots (Darity & Young 1995; Barens & Caspari 1999; Dimand 2007).

[60] Born in Rome, Modigliani emigrated from Italy to the US in the 1930s. He spent most of his career at MIT (Rancan 2022a).

[61] Born in Stockholm in 1933, Leijonhufvud spent most of his career as an economist in the US. About his work, see Laidler (2008) and Trautwein (2019; 2020).

Keynesian Economics and the Economic of Keynes would articulate what many macroeconomists realised by the end of the 1960s: there was a gap between "Keynesian Economics" (i.e., IS-LM models) and the "Economics of Keynes," that is, the original message of *The General Theory*.[62]

This motivated alternative approaches to bridging microeconomics and macroeconomics. Don Patinkin (1956) was among the first to cast doubts on Modigliani (1944), arguing that there was a "discontinuity" between Keynes and the Walrasian approach.[63] Keynes's concept of involuntary unemployment made little sense in a Walrasian framework, Patinkin argued, as it would imply that some workers cannot satisfy their willingness to work at the current real wage, hence, are off their labour supply curve (Rubin 2002; 2012). Patinkin (1956) reformulated Keynes's theory as a disequilibrium approach within a choice-theoretic framework with flexible prices. In his theoretical account, firms confronted with a drop in demand for their goods would reduce their labour demand by a "spillover effect" (regardless of the level of real wages), thus creating a transitory involuntary unemployment.

Patinkin's approach gained traction in macroeconomics from the mid-1960s onwards, paving the way to a distinct approach to Keynesianism. Robert Clower (1965) showed that the (Keynesian) consumption function in IS-LM models was hardly compatible with the Walrasian approach, unless agents visit markets sequentially and make a "dual decision" (Rubin 2005; Plassard 2018). Elaborating on Clower's views, Leijonhufvud (1968) emphasised the role of coordination failures and claimed that, in Keynes, quantities adjusted faster than prices in the short run.[64] This research line paved the way to a "disequilibrium view", attempting to revise the foundations of the Walrasian frameworks for macroeconomic purposes. It also gave rise to the "disequilibrium theory", which took root and spread in Europe during the 1970s and 1980s (4.1).[65]

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[62] Another notable objection came from Lawrence Klein, who rejected Hicks's composite commodity theorem because it neglected income distribution. Klein also stressed how hard it was to derive a macro-system from a simple aggregation procedure from individual behaviour (Hoover 2012; Pinzón-Fuchs 2019).

[63] Patinkin completed his PhD under Lange's supervision in 1947. He then moved to the Hebrew University in Jerusalem, where he spent most of his career. On his life and work, see Mehrling (2002) and Rubin (2019).

[64] For a broader perspective on coordination issues in macroeconomics, see notably Dal Pont and Trautwein (2024).

[65] The disequilibrium theory gave a tractable content to the "disequilibrium view", by introducing fixed prices into a simplified Walrasian general equilibrium model, forcing transactions to occur through quantity rationing in the short run. The associated theoretical framework was entirely microfounded, articulating the level and dynamics of aggregates with an explicit description of the behaviour of individual agents.

Besides the "friction view" and the "disequilibrium view," another approach to microfoundations emerged at the time. It can be labelled the "heuristic view", because it aimed at establishing more modest and isolated connections between macroeconomics and microeconomics—that is, as a partial and piecemeal theoretical framework to be progressively generalised. Many scholars embarked on drawing particular bridges with microeconomics, often attempting at providing theoretical rationale for empirical observations.[66] These attempts included modelling investment (Hammond 2005), portfolio choices (Dimand 2014), expectations (Darity & al. 2004; Arnon et al. 2020), international trade (through the IS-LM-BP model; Darity & Young 2004), or consumption. For the latter, at least three distinct attempts at bridging micro-macro were developed during this period: Duesenberry (1948)'s relative income hypothesis, Modigliani and Brumberg (1954)'s life-cycle hypothesis, and the permanent income hypothesis that came out of the works of Margaret Reid, Dorothy Brady, Rose Friedman, and Milton Friedman (1957).[67] They all tried to account for observed persistence of aggregate consumption levels, using microeconomic models that characterised how households smooth their consumption over their life-cycle.[68]

Instead of a "no bridge" or an elusive "neoclassical synthesis", postwar macroeconomics seems better characterised as a "Keynesian consensus" (Renault 2020; Goutsmedt 2021). This consensus emerged in the 1960s, and was primarily organised around the practice of large-scale macroeconometric modelling (3.2); these models were equally driven by theoretical, empirical and operational concerns, and they were used in policymaking (3.3). The Keynesian consensus was thus not a theoretically consistent whole: it reflected instead a pragmatic combination of the three views ("friction", "heuristic", and "disequilibrium") about the bridges between microeconomics and macroeconomics.

The Keynesian consensus incorporated a further element: a temporal dichotomy between the short and the long run dynamics of the economy. The IS-LM model holds in the short run, where output was considered to be determined by demand-side factors because of some nominal rigidities (in line with the "friction view") and a given capital stock, since investment takes time to adjust it.

[66] Or "stylised facts", following Kaldor (1961)'s terminology, which was first applied in macroeconomics, then spread beyond it (Hirschman 2016b).

[67] On the history of the permanent income hypothesis and the role of Reid, Brady and Rose Friedman, see Burns (2022).

[68] On the general history of the consumption function, see Chao (2019; 2020) and Drakopoulos (2021).

In the long run, prices were considered fully flexible and, therefore, output was determined by supply-side factors such as investment changing the capital stock. This dichotomy owed less to theoretical purposes than to practical ones: organising the expanding literature in macroeconomics into two distinct branches, namely fluctuations and growth. The emergence of growth as a distinct subfield of macroeconomics in these years is usually traced back to Robert Solow (1956)'s and Trevor Swan's (1956) "neoclassical growth model" and their long-run dynamics of an economy at full employment.[69] As clarified by Solow (1956: 91–93), this was rather hypothetical, insofar as it may take deliberate policy action to implement full employment in the long run. Following-up on this qualification, contemporaries considered the neoclassical growth model as a reasonable approximation of the long-run paths of Western economies, *provided* that Keynesian policies were constantly applied in the short run to resolve effective demand issues and maintain full employment (Assous & Dal Pont 2020; Halsmayer 2024).

What stood between the short run and the long run was undefined: here, again, rather than theoretical consistency, the bridge between microeconomics and macroeconomics was driven by empirically-based discussions. The "Phillips curve" was a notable example of such attempts to fill the gaps. A. W. "Bill" Phillips (1958) sought to clarify empirically the long-run dynamics of nominal wages in the UK: the resulting non-linear and inverse relationship between unemployment and wage inflation took Phillips' name, although the idea behind his "curve" was already commonplace in the literature (Forder 2014).[70] The Phillips curve quickly gained popularity, as the sources of the inflation raging since the mid-1950s in the US were actively debated: was inflation demand-pull or cost-push? Was full employment compatible with price stability? This debate prompted Samuelson and Solow (1960) to seek analytical clarification and to discuss the relevance of the Phillips curve in the US context (Forder 2014; Hoover 2015b).

[69] A Harvard PhD student of Leontief and Guy Orcutt, Solow spent his whole academic career at MIT (1949-2013). On Solow's early contributions, see Boianovsky and Hoover (2014), Assous (2015), and Halsmayer (2024).

[70] For a biography of Phillips, see Bollard (2016).

3.2 Bridging Theoretical and Empirical Macroeconomics

Notwithstanding the importance of theoretical ventures for building microfoundations, macroeconomics of the 1950s and the 1960s also constituted an applied endeavour. Macroeconomists consistently sought to take theoretical assumptions to the data, through different statistical techniques. In other words, postwar macroeconomics was "applied" in the sense it combined theory, econometric techniques, and data—thus synthesising the interwar "triple origins" of macroeconomics (Section 2).

"Large-scale macroeconometric modelling" was the most widespread collective macroeconomic practice of the postwar era representing such an ambition to bridge theoretical and empirical work. Scholarship in the history of macroeconomics has extensively documented the nature and evolution of large-scale macroeconometric modelling (see Boumans and Duarte 2019). In a nutshell, this practice involved three steps:[71] devising a large system of equations (from a few dozens to a few hundreds), each describing a particular aspect of a national economy (the behaviour of a specific type of agents, the determination of output in a given industrial branch, etc.); estimating econometrically each single equation against available data; finally, making the estimated equations consistent (respecting adding-up constraints, following national accounting identities). The resulting system could then be used for forecasting and for policy simulations, such as answering "what if" questions about an increase in government spending, interest rates, or oil price shocks.[72]

American economist Lawrence R. Klein led the development of the first large-scale models of the US economy (Klein and Goldberger 1955; Duesenberry et al. 1960). Klein's trajectory illustrates the convergence of the lines of research underpinning the rise of macroeconomics:[73] after a degree in mathematics and statistics at Berkeley, Klein completed his PhD at MIT (1944), under the supervision of Samuelson. His dissertation, published as *The Keynesian Revolution* (1947), contributed to the interpretation and dissemination of Keynes' ideas. Klein then joined the Cowles

[71] Despite sharing the main features of this scientific practice, each modelling team developed models with distinctive theoretical and empirical features, related to the specificities of their intellectual context, of the practical and institutional arrangements; see Halsmayer (2017) and Goutsmedt et al. (2024).

[72] Simulations relied on the dynamics properties of models (obtained from lagged variables), on assumptions about policy parameters (e.g., tax rates), or on shocks to exogenous variables (e.g., an increase in foreign prices).

[73] About Klein's life, see Bjerkholt (2014) and Pinzón-Fuchs (2019).

Commission (1944-1948) to apply the new probability approach to econometrics championed by Haavelmo to Tinbergen's 1939 model (Bjerkholt 2015: 44).

Klein's importance lies beyond any single model: in the decades that followed, he established large-scale macroeconometric modelling as a scientific *practice,* embodied in models built by himself and others worldwide. This scientific practice did not merely emerge from Klein's own methodological principles or theoretical commitments.[74] It combined the intellectual preferences of the modellers involved with practical and institutional contingencies. In short, it reflected the "ordinary business" of large-scale macroeconometric modelling (Backhouse & Cherrier 2019).

First, large-scale macroeconometric modelling relied on a form of theoretical pluralism: assumptions about the behaviour of different agents and sectors of the economy could coexist. This pluralism was driven by the "Keynesian consensus" within the profession, that is, empirical as much as theoretical considerations. Competing assumptions on whether agents consume part of their current or their permanent income, for instance, would be sorted out with respect to their respective ability to fit the data and to match stylised facts on the marginal propensity to consume, for instance.

Second, estimation of every equation came with macroeconomists' active involvement with the development of econometrics: the two fields thus continued, in the postwar era, their joint development (Qin 2013). Estimation design reflected not just epistemological preferences and novel statistical or mathematical techniques, but also a set of rather practical arrangements. Quarterly estimation of large-scale macroeconometric models required setting up work routines about data collection, manipulation (e.g. harmonisation across different sources), and storage (Backhouse & Cherrier 2019; Duarte & Sergi 2023). This included establishing collaborations between modellers and data-producing institutions (both government and private) for keeping the flow of up-to-date data. Storage of these data and their use for estimating large-scale macroeconometric models also led to engaging with a relatively new practice, computer programming.[75] Large-scale macroeconometric

[74] About Klein's own approach to the microfoundations of macroeconomics see 3.1.

[75] This practice developed on electronic computers: however, note that it also existed a parallel tradition of using analogue computers, such as the MONIAC hydraulic machine devised by Phillips in 1949 (to see one in operation, see https://youtu.be/rAZavOcEnLg?si=mpTQUfpIN-jNa-Sq).

modelling brought computer tools into macroeconomists' practices, and, with them, new opportunities but also new constraints—actively shaping the resulting modelling choices.[76]

Finally, the "large-scale" aspect of this practice entailed that it had to be carried out as a collective practice, by large teams (from a few dozen to several hundred individuals) involving different professional figures. A specific division of labour was devised: assistants (often women) were in charge of collecting and storing data; statisticians and mathematicians worked out new econometric techniques; computer scientists and a few early "programming economists" translated these techniques into computer programmes for estimation and simulation purpose;[77] and economists carried out the equation design, with various specialists providing blocks of equations for the agricultural, financial or industrial sectors, for consumption or banking. (3.3).

Between the late 1950s and late 1960s, large-scale macroeconometric modelling was disseminated first to the US and then worldwide (eventually blending with distinctive national or local approaches), in academia as well as in policymaking institutions and private corporations (see 3.3). However, this particular approach to bridging theory and empirics was also challenged.

Alternative approaches relied on the interaction between theory and the collection of new data, as reflected in Friedman and Anna Schwartz's (1963) *A Monetary History of the United States*, which established the monetarist approach;[78] or John Gurley and E. S. Shaw's (1955; 1957) flow-of-funds accounting framework, soon taken up by authors in the Keynesian community, such as Duesenberry (1962) and by Hyman Minsky (1964). These contributions also illustrate the extension of the measurement of business cycles to monetary, financial, and banking factors, beyond the mere measurement of "real" factors (output, consumption, investment, etc.). Contrary to what Koopmans had suggested in his attack against the NBER (see 2.1), these approaches were not "without theory": they reflected different attempts to understand the connection between monetary and financial fluctuations and business cycles.

[76] About the early years of computing in macroeconomics, see Backhouse and Cherrier (2017), Cheng (2023), and Lenel (2023).

[77] Examples include mathematician Joan Lucy Slater at Cambridge Department of Applied Economics (Cheng 2023), and a group of MIT economists including Robert and Bronwyn Hall, J. Phillip Cooper, and Edwin Kuh (Duarte & Sergi 2023).

[78] On Anna Schwartz, see Burns (2024).

Friedman explicitly reclaimed the NBER legacy in his work with Schwartz and had stood on Vining's side in the "measurement without theory controversy". It is thus not surprising that he challenged the blend of Keynesian theory and Cowles econometrics encapsulated in large-scale macroeconometric models.[79] In a series of comments made at Cowles Commission's events between 1949 and 1955, Friedman criticised the "structural" simultaneous equations estimation used for large-scale macroeconometric modelling.[80] He argued that results of such large-scale simultaneous equations systems should be tested against "naïve" single-equation models (e.g., models equating the value of current aggregate consumption to the value of consumption in the past year, plus a stochastic error term).[81]

Other attacks against large-scale macroeconometric models highlighted diverging approaches to the theory-empirics bridge. A major bone of contention was the identification of an invariant "structure" of the economy (that is, a set of stable causal relationships with policy-invariant parameters). Frisch (1938) had already raised the issue in his critique of Tinbergen 1939's model. Although his solution (based on the concept of "autonomous" econometric relationships; see Aldrich 1989 and Qin 2014) was abandoned in the postwar period, the issue of invariance of econometric relationship remained, later culminating into the "Lucas Critique" (4.2).[82]

Leontief also considered his "input-output" approach (2.1) as a theory-measurement bridge alternative both to the structural econometric approach of the Cowles Commission and to what he considered the "radical inductivism" of the NBER (Leontief 1954). The key was to allow a feedback loop between data collection and theory by engaging actively and directly with data collection; macroeconomists should "reshape" the data in order to make them correspond more directly with theoretical concepts—and viceversa. This approach led him to note the discrepancy between the pattern of US international trade and industrial specialisation (as predicted by the Heckscher-Ohlin theory of international trade) and the actual data about factor-intensity of US exports, one that became known as the "Leontief paradox" (Akhabbar 2019: chap. 6).

[79] For a more comprehensive view of Friedman's life and career, see Burns (2023).

[80] On the genealogy of this methodology within the Cowles Commission, see Dimand (2022).

[81] On "Friedman's critique" of the Cowles Commission approach, see Boumans (2016).

[82] E.g., Haavelmo (1944, 27), Tinbergen (1956: chap. 5).

Over the 1950s-1960s, such empirical "puzzles"—or "discrepancies" between theory and data—indeed fed into several theoretical developments. For instance, Solow's (1956) theoretical contribution about the steady growth path of an economy at full employment came indeed hand-in-hand with Solow's (1957) empirical work in which he broke down the sources of economic growth—claiming, as a key result, that technical change accounted for almost 90% of the per capita growth in the US in the first half of the twentieth century.[83] The bridge established by Solow between theory and data was harshly challenged. In particular, economists from the "other" Cambridge, including Robinson, Kaldor, and Piero Sraffa, criticised Solow and Samuelson for assuming an aggregate measure of "capital", one that conflated heterogeneous types of "capital".[84] This "two Cambridge" debate, jointly with the contemporary disputes about the interpretation of *The General Theory* (3.1), foreshadowed the emergence, in the 1970s, of "dissident" or "heterodox" communities within macroeconomics, notably "Post-Keynesians" (4.1).

3.3 Bridging Academia and Policy

The Great Depression and World War II had expanded macroeconomists' presence and visibility in policymaking institutions around the world. This trend continued in the 1950s and 1960s, driven by the reception of "Keynesian" ideas, and "Keynesian" justifications for government intervention. Postwar continental Europe (especially France, The Netherlands, and Norway) was dominated by various forms of "economic planning".[85] Other countries, including the US, rather sought to "fine-tune" economic fluctuations through fiscal or monetary policy (with very different degrees of "autonomy" granted to central banks). Policy interventions were also shaped by how national governments understood specific economic problems (postwar reconstruction, price control, full employment, economic development, exchange rates stabilisation), as well as power struggles within political elites and bureaucracies in answering them. The diversity of national contexts notwithstanding, "bridges" between academia (universities and other public research institutions) and policymaking institutions (including an array of institutions, spanning from Planning

[83] See Halsmayer (2024). Soon called the "Solow residual", this empirical puzzle played a crucial role in further debates both in growth theory and in the analysis of fluctuations (4.2).

[84] See Harcourt (1972) and Mata (2004).

[85] Desrosières (1999) compares Dutch and French planning procedures. About Norway, see Halsmayer (2017).

Commissions to Treasuries, throughout central banks) consolidated in all countries (Coats 1981). International organisations, who had flourished since World War II, followed suit.[86]

Those bridges first involved the circulation of personnel between academia and policymaking institutions (via training relationships and the resort to academic "experts"). In the US, where universities played a particularly important role in certifying expertise, policy institutions increasingly hired economic PhDs beginning in the 1960s. In other countries, like France (where training in economics was then hardly established as a proper curriculum in universities), engineering schools teaching mathematical economics and statistics trained most of the personnel that joined policymaking institutions. In yet other configurations, like in the UK or Japan, academic training in macroeconomics was less of a requirement to enter public service (including organisations in charge of macroeconomic issues, like the Treasury), as in-house training was provided.[87]

Macroeconomists with an academic appointment served in various capacities as "experts" and "advisors". The US Council of Economic Advisers (CEA), created in 1946, employed leading postwar macroeconomists like Tobin and Solow (Bernstein 2001; Marx 2023). They ambitioned to carry policy-advising in a scientific manner (Romani 2018). Moreover, the work carried out at the CEA directly led to producing novel economic knowledge. This was the case of Arthur Okun's work at the CEA, resulting in his famous eponymous law (Cherrier 2019). US-based academic macroeconomists also regularly participated in public Congressional inquiries, by providing expert testimony or authoring reports on their fields of expertise (Berman & Pagnucco 2010). In Europe, macroeconomists' public role was more heterogeneous and less codified, including direct participation in government cabinets or personal ties with politicians.[88] Macroeconomists also reached for a wider audience by participating in policy debates via the press and other media, or engaging with private research institutes and think tanks.[89] In this role, they advanced both their policy prescriptions *and* their scientific arguments: this was the case, for example, of Karl Brunner

[86] See e.g., for the IMF, Clift (2018: chap. 3) and Hosman (2025) for the World Bank.

[87] About the differences in economic training in France, Britain, and the US, see Fourcade (2009). For Japan, see Wakatabe (2013).

[88] As in the case of French economists (Léonard 2024; Teixeira 2025), or German "ordo-liberals" (Fèvre 2021).

[89] For instance, Friedman and Samuelson became columnists in *Newsweek* (Mata & Medema 2013).

and Allan Meltzer's criticism of the Federal Reserve's "lack of a rational foundation for policymaking" (Acosta & Cherrier 2021: 328).

These academically-trained policy economists participated in large-scale macroeconometric modelling projects, thereby representing a major academia-policy bridge.[90] Their reliance upon data produced by public agencies and think tanks fuelled early collaborations, although the earliest models were developed by academic economists such as Klein (Acosta & Pinzón-Fuchs 2019). But it was the development of large scale macroeconomic models for central banking, pioneered by the Federal Reserve Board, that thoroughly reshaped the academia-policy pipeline.

The Board's FMP/MPS model was built by a team led by Frank de Leeuw (Board of Governors, Division of Research and Statistics), Franco Modigliani (MIT), and Albert Ando (University of Pennsylvania).[91] Ando and Modigliani were then in the midst of a theoretical and methodological dispute over the transmission channels of monetary policy with monetarists. At the St. Louis Fed, monetarists were developing single-equation models (Andersen and Jordan 1968) that built on the "Friedman critique" of the structural econometric approach (3.2). Ando and Modigliani saw the FMP/MPS model as an opportunity to settle this dispute (Backhouse & Cherrier 2019; Rancan 2019). Board economists were enticed by the promise of having a useful tool for policy analysis, consolidating the space for modelling that had opened as political and scientific criticism dawned on the Fed (Backhouse & Cherrier 2019; Acosta & Cherrier 2021). Both groups thus had different priorities: Board economists wanted a complete model that could be used for analysis as soon as possible; while the academics prioritised the adequate specification of equations and clarity about the underlying theory behind them (Backhouse & Cherrier 2019).

At the Board, the model helped secure a space for macroeconometric forecasting and policy analysis, though smaller than some of the Board's economists would have liked (Acosta & Cherrier 2021: 344). The model did not settle academic disputes, but it provided opportunities for Ando,

[90] Until the 1970s, national government agencies (and other policy-related institutions) were actually still actively developing modelling practices that were theoretically distinct from large-scale macroeconometric modelling. Some of these models, used for preparing forecasts or national budgets, were less formal extrapolations from national accounting. Hickman (1965) overviews different contemporary approaches to quantitative economic planning; Muniz Duarte (2023) provides a history of French models used in economic planning.

[91] The name reflects the changes in the organisations involved: the Federal Reserve Board, MIT, and the University of Pennsylvania during 1966-1970 (thus FMP), and MIT, the University of Pennsylvania, and the SSRC after the Fed stopped its involvement and funding (thus MPS).

Modigliani and several graduate students—such as Dwight Jaffee, George de Ménil, and Robert Shiller—to subsequently develop influential academic contributions on topics such as credit rationing (Acosta & Rubin 2019), price and wage dynamics (Rancan 2022b), and the term structure of interest rates (Delcey & Sergi 2023).

Outside the US, the development of large-scale macroeconometric models took different routes.[92] In some countries, this practice was also initiated by academics, but, unlike the US case, it only entered policymaking institutions much later. For example, in the UK, since the late 1950s, there have been several modelling projects in universities. Yet, it was only in the late 1960s that the London Business School helped the Treasury with the development of their own macroeconometric model (Ball & Holly 1991, 203-205). Similarly, in Canada and Denmark (Goldschmidt 2022) academia led the development of macroeconometric models during this period. In other countries, large-scale macroeconometric models were first developed by policymaking institutions, and only later on academics rejoined this practice. Despite Tinbergen's precedent in the interwar (1.2), the first large-scale macroeconometric model of the Dutch economy was developed by the Central Planning Bureau (CPB) in the early 1950s (Kayzel 2019). It provided a menu of options for reaching policymakers' goals and serving as an objective basis for discussion among the various ideologies and cultural identities present at the Council (van den Bogaard 1999). CPB economists dominated macroeconometric modelling in the Netherlands until the 1970s, when the Dutch central bank and universities began developing their own models. In Italy, it was the Bank of Italy's M1B1 model (1964-1970) that stimulated the development of macroeconometric modelling at the University of Ancona and the University of Bologna during the early 1970s. The M1B1 came from a direct request of the Bank's governor, Guido Carli, and was developed with the collaboration of Modigliani—thus, observing the parallel development of the FMP/MPS model (Rancan 2020). Finally, in countries like France, policymaking institutions maintained an absolute monopoly over macroeconometric modelling (Muniz Duarte 2023), although with a recurrent participation of macroeconomists working at the boundary between universities, engineering schools, private research institutions, and policymaking institutions.

[92] Bodkin et al. (1991) reviewed the history of macroeconometric modelling in various countries; Morgan and den Butter (1999) outlined their use in policymaking institutions. Another case similar to the US is probably Belgium (Rancan & Sergi 2024: chap. 2).

By the end of the 1960s, the practice of large-scale macroeconometric modelling evolved in two directions. First, Project LINK—led by Klein—began in 1968 with the goal of studying the dynamics of the global economy. The multi-country model of the world envisioned linked together the existing large-scale macroeconometric models of various countries maintained by national institutions (Hickman 1991).[93] International organisations (particularly the Commission of the European Communities, the International Monetary Fund, and the Organisation for the Cooperation and Development) became the main funders of multi-country models and of the theoretical work in international macroeconomics underpinning their development. Indeed, the ability of such models to account for international economic linkages (e.g., international trade and exchange rates) made them a particularly suitable tool in the working of these organisations. These projects contributed to the international circulation of modelling practices, data, and even personnel.[94] Multi-country modelling also cradled international macroeconomics, since it involved writing and testing novel trade and financial "linkage systems", i.e., systems of equations accounting for the economic interdependencies and exchanges across countries (Rancan and Sergi 2024, chap. 5).

Second, US-based academic macroeconomists established or helped develop private consulting activities, either within firms such as Data Resources Inc. or Chase Econometrics, or within organisations at the boundary between the private sector and academia such as Wharton Econometric Forecasting Associates, at the University of Pennsylvania. All these organisations sold forecasts and economic analysis for their corporate and government clients, and maintained and sold access to large-scale macroeconometric models, related data, and in-house software (Kraemer et al. 1987; Duarte & Sergi 2023).

Overall, the bridge between academia and policymaking institutions was not a one-way bridge (where academia would set the tone, and policymaking institutions would follow suite): depending on the national contexts and periods, the bridge was sometimes a "two-way" (with mutual influence), a "one-way" from academia to policymaking institutions, or a "one way" in the

[93] Some of the multi-country large-scale macroeconometric models developed in the US and Europe, such as Project LINK, remain active today (Acosta et al. 2023; Rancan & Sergi 2024).

[94] Many macroeconomists involved with large-scale macroeconometric models across the world met annually in Pennsylvania, while Project LINK provided national teams funding and training for them to build national models that would be included in its world model.

other direction. This latter configuration—one in which policymaking institutions actually produced novel macroeconomic knowledge and tools, which were then integrated into academia—constitutes an important result from the recent history of macroeconomics, one that reclaims the identity of the field as one not only driven by academic research.

4 Frictions: The 1970s-1980s

The 1970s were times of change in macroeconomics and of significant economic turbulence. After an inflationary spike in the late 1960s and the oil shocks of 1973 and 1979, the world experienced rising inflation and economic slowdown (plus unemployment), a phenomenon known as "stagflation". In the academic and policymaking debates, two waves joined forces in criticising Keynesianism and government intervention in the economy. Friedman and his monetarist allies escalated their criticisms of Keynesianism and active stabilisation policies along two main lines: a debate on the economic effects of money supply, and one on the operationalisation of stabilisation policies (lags, for instance; Nelson 2020: chap. 14–15). Concomitantly, a younger generation of macroeconomists led by Lucas and his coauthors (self-identifying as "new classical" macroeconomists) developed the rational expectations hypothesis, with sweeping policy and epistemological implications.[95] They argued that systematic economic policies have no real effects even in the short run (the "policy ineffectiveness" result) and they claimed that comparing alternative policies with a given estimated macroeconometric model is meaningless unless this model has parameters invariant to policy interventions (the so-called "Lucas Critique").[96]

The scholarship in the history of macroeconomics does not challenge the idea of rising new classical macroeconomics, but rather the textbook picture of a theoretical *revolution.* This literature shows, first, that new classical economics was not merely a theoretical shift, but a *tool shock* that opened several new (and sometimes conflicting) modelling strategies in macroeconomics (4.1). Second, and most important, the new classical approach did not swiftly replace other types of modelling either in academia or in policy institutions: reactions by old and new generations of macroeconomists, from Keynesians to heterodox macroeconomists, were diverse, in particular with respect to the empirical relevance of rational expectations and the Lucas Critique (4.2) and to the usefulness of new classical macroeconomics to policymaking (4.3).

[95] The origins of the rational expectations hypothesis in macroeconomics is well covered in De Vroey (2016: chap. 9), Boumans (2020), and Duarte (2025). Darity et al. (2004) overviews the history of expectations in modern economics.

[96] For earlier formulations of the policy ineffectiveness criticism, see 3.2.

4.1 Generational Frictions and the "Tool Shock"

Rational expectations came to macroeconomics at Carnegie Mellon University, where Lucas and Edward Prescott adopted its earlier microeconomic formulation proposed by their colleague John Muth in the early 1960s.[97] These Carnegie economists borrowed tools from mathematicians, physicists and engineers, signalling that rational expectations were primarily a shift in mathematical modelling strategy. Muth had read Norbert Wiener's work on time-series forecasting (Sent 2002; Klein 2015) in a decade where economists borrowed optimal control methods first for forecasting exercises with the large-scale macroeconometric models, then with the application of Pontryagin's maximum principle in the optimal growth literature (Sent 1997). In the 1970s, Lucas, Sargent, Kydland and Prescott attacked the use of optimal control in macroeconometric models because it treated expectations as predetermined (Sent 1997). Instead, they brought Bellman equations and the new tools from information engineering where information processing of noisy signals was central (Klein 2015; Boumans 2020). In doing so, they brought new solution concepts where information-processing robots observe inputs and outputs and make choices based on a predefined criterion.

The rational expectations hypothesis thus came to macroeconomics as a mathematical tool/apparatus (what Klein 2015 calls a "modelling strategy"). It guaranteed that expectations of economic variables described by a model were consistent with that model. These "artificial worlds", Lucas argued, should not be judged by the realism of their assumptions but by their ability to replicate the business cycle behaviour exhibited by real-world aggregate variables (Boumans 1997).[98] Nevertheless, the rational expectations hypothesis was also interpreted as relating to the behaviour of actual agents in existing markets (Duarte 2025: 20). New classical macroeconomics opposed the adaptive expectations hypothesis—according to which agents correct their expectations based on expectational errors done in the past—and argued that agents use the available information in the best manner in order to avoid systematic errors.[99]

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[97] It was also furthered at Minnesota, where Thomas Sargent settled after visiting Carnegie and where Neil Wallace turned the Federal Reserve Bank of Minneapolis into a new classical haven.

[98] On the issue of realism in Lucas's work, Galbàcs (2020).

[99] Representing human behaviour according to the rational expectations hypothesis became a contentious issue as experimentalists documented systematic deviations from rational behaviour in the 1980s. Learning became a literature in mainstream macroeconomics on its own in the 1990s (see Evans and Honkapohja 2001). A multifarious literature of "behavioural macroeconomics" and "experimental macroeconomics" emerged from the 1980s, including the idea that agents have bounded rationality (Roos 2017; Passard & Sergi 2026).

This "tool shock," influential as it was, did not stabilize a single approach to macroeconomics. Macroeconomists, old and young, reacted differently to this new toolbox. Some, such as Solow, Modigliani, Tobin, or Edmond Malinvaud dismissed it altogether (Renault 2020).[100] They rather dived into a positive agenda for the theoretical and empirical refinement of the approaches built in the 1950s and 1960s: large-scale macroeconometric models and the "disequilibrium theory". Disequilibrium theory, which was particularly important in Europe (Plassard & Renault 2023; Kirtchik & Boldyrev 2023), tried to give a mathematically tractable content to the "disequilibrium view" on microfoundations (3.1): this was done by introducing fixed prices into a simplified Walrasian general equilibrium model, and allowing transactions in the short-run through quantity rationings (Rubin et al. 2021). Key contributions to disequilibrium theory, such as Barro and Grossman (1971) and Malinvaud (1977), were more cited than Lucas's work in the 1970s, and as cited as Lucas in the 1980s (Backhouse & Boianovsky 2013: 151–3).

These macroeconomists also understood that the Lucas Critique required them to build macroeconomic models with a specific type of microfoundations. For the new classical macroeconomists the microfoundations requirement meant combining the rational expectations hypothesis with optimising agents, continuous market-clearing, and the use of a representative agent. Many Keynesian economists met this new epistemological requirement with skepticism, arguing that "it would have to pass an empirical test" (Goutsmedt et al. 2019: 537). Some, like Modigliani, Tobin, and Malinvaud rejected the critique outright and asked Lucas to provide an empirical proof of its validity. Others, such as Alan Blinder and Robert J. Gordon, developed specific econometric testing that ended up dismissing the Lucas Critique as empirically irrelevant. Yet another group, including Solow and those involved with the large-scale macroeconometric models, recognised that their models underperformed in the stagflation period but argued that Lucas's model did not perform any better (Goutsmedt et al. 2019). Interestingly enough, Lucas and Sargent (1979: 6) agreed that the debate on the relevance of the Lucas Critique was empirical: "Yet the question of whether a particular model is structural [i.e., 'invariant across the class of interventions that figure in contemporary discussions of economic policy'] is an empirical, not a theoretical, one."

[100] De Vroey (2016: chap. 12–14) also discusses theoretical reactions to Lucas.

Other macroeconomists rejecting the "tool shock" of the 1970s played an important role in building new intellectual frameworks and intellectual communities hosting such "dissenting" voices (Lee 2009). Their dissent resulted in the development, during the 1970s, of a "mainstream vs heterodoxies" divide. An older generation of Cambridge economists, such as Joan Robinson, led the charge. They had already expressed growing discontent in the immediate postwar period; in the 1970s, Cambridge economists joined forces with US-based scholars such as Hyman Minsky, Paul Davidson, or Jan Kregel and built new institutional spaces (including the *Journal of Post-Keynesian Economics*) that nurtured a distinctive and heterogeneous set of works, emphasising the role of endogenous money, of financial instability, and uncertainty for cyclical fluctuations (King 2002; His 2025).[101]

Yet another group of macroeconomists, often from the new generation and soon-to-be-known as "new Keynesians" economists, endorsed the toolbox when it became clear that the "policy ineffectiveness" result did not depend on the rational expectations hypothesis. In 1977, Stanley Fischer, Edmund Phelps, and John Taylor showed that the result derived in fact from the equilibrium postulate (market clearing with price flexibility) made by the new classicals (Duarte 2012)—something that Lucas (1977, 25–26) had clearly articulated.[102] "New Keynesian" macroeconomists widely adopted microfounded equilibrium models with rational expectations, but developed a diverse set of theoretical assumptions which dismissed the "policy ineffectiveness" result: these included, for instance, search and coordination models, efficiency wage models (De Vroey 2016: chap. 13-14), macroeconomic models with sunspots (Cherrier & Saïdi 2019).

In the 1980s, the rational expectations hypothesis was adopted both by Real Business Cycle macroeconomists, who were led by Prescott and Finn Kydland and held the view that cyclical fluctuations were optimal responses of private agents to technological shocks (Young 2014), and by new Keynesians, who introduced price rigidities and saw fluctuations as sub-optimal movements

[101] Other "heterodox" communities stabilising during this period are Austrian, who adopt methodological individualism, emphasize that production is a process over time, and focus on the coordination of the production process with the tastes of individuals.

[102] Lucas and Sargent (1979, 9) acknowledge that the rational expectations hypothesis was imposed "by way of adhering to the tenets of equilibrium theory."

caused by aggregate demand shocks, with countercyclical policies being welfare improving (Duarte 2012; Vroey 2016).[103] And yet, another round of empirical disputes ensued.

4.2 Empirical Frictions

A consequence of the shift to rational expectations generally downplayed in macroeconomics textbook narratives is how pervasive empirical debates on these topics were in the 1970s and 1980s.[104] These debates were fuelled by new empirical strategies and the increasing availability of richer datasets. An important empirical starting point was defining the business cycle itself and establishing the facts that competing models should explain or mimic. Lucas articulated a view that was adopted by macroeconomists of different stripes, citing the earlier work of Burns and Mitchell (1946): that business cycles are fluctuations of variables around their trends; despite having no unique periodicities, varying in amplitude, duration and scope, they have "regularities which are observed ... in the co-movements among different aggregative time series" (Lucas 1977, 10). Prescott went further and argued that "business cycle *phenomena* ... are nothing more nor less than a certain set of statistical properties of a certain set of important aggregate time series" (Prescott 1986: 13, emphasis in the original). Therefore, in the 1980s, empirical debate centred on evaluating models' ability to reproduce "stylised facts" that included co-movements and other statistics such as means and variances, and autocorrelations—with the language of "stylised facts" expressing an "ambiguity between data and phenomena ... between the observable and the inferred" (Duarte & Hoover 2012: 227).

The Lucas Critique became an unavoidable point of contention after the mid-1970s. From the econometric point of view the critique challenged whether a time-series characterisation of macroeconomic behaviour necessarily had a structural interpretation. "Free parameters" were the enemies that macroeconomists should fight against, but conflicting responses to this anathema emerged. The first amounted to going back to the Cowles Commission econometric approach of using theory to identify models' parameters and thus explain the conditional paths of aggregate variables. This was the effort of Lars Hansen and Sargent in their maximum-likelihood estimation

[103] Boianovsky (2022) analyses how Lucas himself also considered alternative models of price stickiness.

[104] This section draws on Duarte and Hoover (2012) and Duarte (2015).

of rational expectations models, supplemented by Hansen's generalised method-of-moments (GMM) estimators. With the structure assumed to be known a priori, from theory, the estimated parameters were taken to be structural.

The second response, promoted by Kydland and Prescott through their RBC program, involved rejecting econometric estimation altogether and turning to calibration. They took to heart Lucas's conception of models as "artificial worlds". Because models are not realistic, they will not perform well econometrically in some dimensions that they were not built to replicate (for instance, the original RBC model had no money and thus has nothing to say about any nominal variables). Instead, Kydland and Prescott proposed to calibrate the parameters "from general economic considerations: both long-run unconditional moments of the data and facts about national-income accounting, as well as evidence from independent sources, such as microeconomic studies."[105]

This allowed RBC macroeconomists to subject calibrated models to the technology shocks they believed explained both trends and cycles (Mata & Louçã 2009; Saïdi 2019). They generated simulated paths for the endogenous variables as well as various statistics (unconditional moments, co-variances, autocorrelations, etc.),and compared them to those found in economic data. Even those who endorsed calibration, however, fought over the type of shock that explained these business cycle "stylised facts" (technology/supply or monetary policy/demand), as well as over propagation mechanisms (Saïdi 2019).

Shocks were central to econometric disputes. Like Lucas, Christopher Sims had criticised the assumptions used to identify large-scale models, but he rejected using any a priori theory to learn about business cycles. His proposal, the Vector Autoregression (VAR) model, treated all variables as endogenous and described by a set of reduced-form equations "in which the random residuals were ... the only drivers of the dynamics of the model" (Duarte & Hoover 2012: 239). In this approach, business cycle phenomena were described by variance decomposition analysis and impulse-response functions, which critics believed were not robust to different normalisation choices (i.e., the

[105] Clerc and Le Fur (2026) show how the inconsistency between microeconomic data and the calibrated value of aggregate labour supply elasticity spurred theoretical reconsideration in the baseline RBC model.

ordering of variables in the model matters). The recognition that VAR too needed identifying assumptions led to developing "structural VARs".[106]

All these debates blended theoretical discussions on the origins of business cycles, methodological debates on proper econometric designs, as well as measurement. Focusing exclusively on theoretical aspects therefore obscures the complexity of these historical developments. A salient example was how to decompose series into trend and cyclical components. Lucas (1973) addressed this issue entirely on statistical grounds: if the determinants of the trend were different from those of cycles and aggregates tend to return to their deterministic trends, one can statistically fit a deterministic trend to data and obtain the cycle as the residual. In the 1970s however, these trends came to be understood as stochastic rather than smooth and deterministic, implying that permanent shocks affect the trend and transitory shocks affect the cycle (Qin 2013: 103–7). These non-stationary methods, because they challenged the empirical practice of obtaining cycles as the residual of smooth trends to data, lent some credibility to equilibrium models with stochastic trends such as RBC models.

The debate over which shocks and propagation mechanisms in rational expectations models best matched output fluctuations also drew on a range of competing empirical strategies. For instance, Barro (1977) and others initially tested Sargent and Wallace (1975)'s "policy ineffectiveness" result (4.1) by checking whether only unanticipated nominal shocks affect real variables. Later, macroeconomists studied co-movements among real and nominal variables, testing Granger causality (a technique popularised with Sims's VAR) between money and output, or assessing whether money leads output fluctuations. Over time macroeconomists kept searching for more powerful tests and abandoned co-movements in favour of testing the models' ability to predict the time series paths of key aggregates (King et al. 1988), or with using impulse response functions that were seen as stable over different identification restrictions (Blanchard 1989).

In fact, there was not a single macroeconomic debate of the 1970s and 1980s relating to the adoption of rational expectations that was not thoroughly empirical. Microeconomic studies were

[106] Salazar and Otero (2019) analyzed the impact of VARs on macroeconometrics, showing how their use evolved from an interaction of tools, theories and researchers. They highlight how criticisms to the identification method also came from other econometricians who were not responding to the Lucas Critique: David Hendry and Edward Leamer (see also Qin 2013).

used, to no avail, to settle whether price stickiness could explain aggregate fluctuations. Sargent drew implications of rational expectations models to financial markets (Delcey & Sergi 2023). Macroeconomists also debated how rational expectations impacted consumption functions, with the need of bringing heterogeneous agents to explain precautionary savings (Cherrier et al. 2023; García et al. 2023). Finally, other researchers more radically fudged the boundaries of micro and macro empirical techniques and pursued integrated practices that remained at the fringes of the field, such as computable general equilibrium models (Ballard & Johnson 2017).

4.3 Frictions between Academia and Policymaking Institutions

To understand how macroeconomics evolved in the 1970s and 1980s, it is not enough to supplement accounts of theoretical debates with empirical ones. Understanding changing relationships and tensions between academia and policymaking institutions also matters. During this period, macroeconomic knowledge became more deeply embedded into policy institutions — though not always directly influencing policy decisions (Fourcade 2009; Berman 2022: chap. 2). Like other economists, macroeconomists were tasked with developing new datasets, producing forecasts and policy analyses, and constructing policy devices (Berman 2022). Paradoxically, academic economists, policy-makers, businesses and the public increasingly criticised macroeconomists for failing to offer consistent forecasts and meaningful intellectual and policy guidance to cure stagflation. This created frictions between academia and policymaking: as a result, policymaking institutions and businesses remained largely insulated from the academic toolshock that spread throughout seminars and journals. For instance, at a time when large-scale macroeconometric models were increasingly criticised in academia for not being immune to the Lucas Critique, they were massively adopted across various policymaking institutions worldwide (3.3).[107]

This dissemination was driven by the "Keynesian" policy paradigm, which exerted an almost imperialistic influence in the 1960s (Weir 1989: 62–3) and still actively shaped policies in the 1970s (Goutsmedt 2022). Kennedy's 1963 tax cut stands as a key illustration of Keynesian policy in action

[107] In the US, for instance, the Congressional Budget Office started to rely on macroeconometric models in the 1970s. Models were provided by Data Resources Inc. (DRI), a major provider of data and modelling services in the 1970s (Kraemer et al. 1987: chap. 3; Duarte & Sergi 2023).

(Cherrier 2019); yet, similar uses of fiscal stimulus recurred throughout the 1970s, under liberal and conservative governments alike. In 1972, President Richard Nixon implemented a fiscal stimulus to reduce unemployment despite high inflation (Stein 1994: chap. 5). During that same year, in the UK, Conservative Prime Minister Edward Heath initiated the "U-Turn" by increasing public spendings (Beckett 2009: 47–9). In France, the 1975 "Relance Chirac"—named after the Prime Minister—included several expansionary fiscal measures aimed at economic recovery following the first oil shock (Chélini and Warlouzet 2017).

However, as both inflation and unemployment persisted in the 1970s, three distinct macroeconomic approaches challenged these Keynesian policies, and found some audience in policymaking—contributing to erode key tenets of "Keynesian" policies.[108]

First, monetarism, though relatively marginal in macroeconomics compared to the dominant Keynesian framework, had been well-established in academic circles since the 1960s. The stagflation of the 1970s provided an opportunity for monetarists to extend their influence beyond academia, in the US, but also in Europe and Latin America. Second, supply-side economics, despite its limited academic grounding, gained prominence through its association with the Reagan administration. Third, new classical economics offered the most articulated and general critique of the Keynesian consensus. Paradoxically, however, it exerted relatively little direct influence on policymaking institutions in the 1970s and 1980s; its impact was both delayed and indirect.[109]

Monetarism had been articulated in the 1960s, building on the quantity theory of money and on the historical data and narratives assembled by Friedman and Anna Schwartz (1963). This landmark work, which criticised the Fed's handling of the Great Depression, stimulated macroeconomists' interest in monetary policy. However, it was Friedman (1968)'s American

[108] The end of the Bretton Woods system also brought new issues to the forefront of policy discussions, especially in Europe, where these discussions were entangled with those about European economic integration. Here too, frictions between academia and policymaking institutions were considerable: academic and policy macroeconomists struggled to provide a clear and unified framework to address international economic monetary and financial interdependencies, and to explain the formation of exchange rates (Maes & Pasotti 2020; Mehrling 2022; Rancan & Sergi 2024).

[109] These three approaches were broadly associated with conservative or economically "liberal" (in the European sense) political camps. However, the Keynesian consensus in the US was also contested by actors positioned closer to the political centre or left/progressive side. For example, the distributive consequences of Keynesian tax cuts—particularly their impact on income inequality—were questioned since the 1960s (Andelic 2019). The undifferentiated, aggregate nature of demand-side stimulus was criticised by economists such as Leontief, who advocated for more targeted interventions, often grounded in economic planning (Weir 1987: 393–7). Though marginal at the time, concerns about the environmental costs of Keynesian-style stimulus policies also emerged (Collins 2002: 65–6).

Economic Association presidential address that best exemplified monetarists' challenge to Keynesian policies.[110] Although often interpreted as a critique of the short-run Phillips curve and a plea for integrating price expectations in inflation analysis, Friedman's address was fundamentally a sharp critique of discretionary monetary policy: monetary authorities should avoid attempting to control a natural rate of interest or unemployment, as it could lead to destabilising consequences (Forder 2018).[111]

This rejection of discretionary policy led to the promotion of a stable rule of money growth (Friedman 1960; Snowdon et al. 2005: 192–7). Without achieving consensus within macroeconomics at the time, these ideas nonetheless gained political traction as monetarists reached beyond academic circles. In the US, House Concurrent Resolution 133 was passed in 1975 thanks to an alliance of progressive representatives and of members of Congress sympathetic to monetarist ideas (Kettl 1986: 144–5). It required the Fed to report its "objectives and plans with respect to the ranges of growth or diminution of monetary and credit aggregates". To Friedman's satisfaction, a move towards greater transparency in monetary policy implementation increased the likelihood of adopting a money growth rule.[112]

The monetarist agenda was furthered by the "Volcker shock" of October 1979: Paul Volcker, the newly appointed Federal Reserve Chairman, announced that the Fed would adopt a strict target for the growth of money supply. While this move was primarily a political strategy aimed at signalling the Fed's unwavering commitment to curbing inflation, it nonetheless appeared to endorse core principles of monetarism (Krippner 2007; Hetzel 2008: chap. 13). In Germany, the Bundesbank had already adopted explicit monetary targets since 1974 (Johnson 1998). Monetarism did not dominate academic macroeconomics either in the UK, but it also spread politically under

[110] Friedman's address was not initially regarded as a "revolutionary" contribution in the years following its publication, but it increasingly came to be seen as such after 1973 (Forder 2010; Forder & Sømme 2019). Phelps (1967; 1968) was also associated with this criticism of the Phillips curve (Forder 2010b).

[111] Forder (2014) refers to this reinterpretation of Friedman's AEA lecture as part of the "Phillips Curve Myth". This myth elevates Friedman's "discovery" of the role of expectations as the key innovation behind the development of the "expectation-augmented Phillips curve". This simplified account overlooks the significant contributions of Keynesians themselves in refining the Phillips curve. They formally integrated expectations and the natural rate of unemployment into a Keynesian framework, maintaining a beneficial role for stabilisation policies (Goutsmedt & Rubin 2018).

[112] Lucas also viewed Resolution 133 as "encouraging" (Goutsmedt et al. 2019).

Margaret Thatcher's leadership: the Conservatives sought to impose a strict target for the money supply growth, to be implemented by the Bank of England (Smith 1987).[113]

However, the practical influence of monetarism through monetary targets and rules proved short-lived. The unstable relationship between inflation and monetary aggregates in the early 1980s—exacerbated by the rise of financialisation (Krippner 2005)—ultimately led central banks to retreat from strict monetary targeting.[114] The UK Treasury and the Bank of England abandoned it as early as June 1980 (Clift 2020), and the Fed officially ended its monetary targeting in October 1982 (Best 2022). By the early 1980s, discretionary policies had returned to prominence.[115]

By contrast, supply-side economics, which reached its peak influence following Ronald Reagan's election in 1980, when its proponents became key advisors to the new president (Cooper 2024), was rarely taken seriously in academia. However, much like monetarism's advocacy for rule-based policy, supply-side economics built its influence on a provocative idea: higher tax rates could paradoxically reduce total tax revenues. This idea, drawn from University of Chicago economist Arthur Laffer's famous curve (Giraud 2014), was rejected by economists from different sides, including Lucas (1980).[116] But it gained widespread attention through public promotion by journalist Jude Wanniski (1978) and began circulating in political discourse during the mid-1970s, especially in the US Congress (Berman and Milanes-Reyes 2013). Supply-side economics eventually triumphed through the sweeping tax cuts implemented by the Reagan administration under the Economic Recovery Tax Act of 1981.

Despite growing academic dominance, new classical economists exerted little direct influence on policy-making at the time (Goutsmedt et al. 2019; Sparsam and Pahl 2022; Duarte

[113] However, officials and staff at the Bank of England—many of whom adhered to a Keynesian perspective on macroeconomic interventions—resisted the implementation of monetary targets (Goutsmedt et al. 2024).

[114] This is also linked to what would later be called "Goodhart's law", for the British monetary economist: "any observed statistical regularity will tend to collapse once pressure is placed upon it for control purposes" (Goodhart 2015).

[115] In other European countries, policymaking institutions built a stronger opposition to monetarism from the beginning: see e.g., the case of the Banque de France (Monnet 2015; 2018).

[116] Alongside this "populist supply-side movement", a more academically grounded supply-side approach existed, championed by Michael Boskin and Martin Feldstein—who openly dismissed Laffer's "extravagant claims" (Cooper 2024: 34).

2025).[117] Neither did they transform the macroeconometric modelling practices of policymaking institutions or the growing forecasting business, who kept developing their large-scale macroeconometric models (Boumans & Duarte 2019; Rancan 2022b; Goutsmedt et al. 2024). Their political impact came much later, from the mid-1990s on, when new classical ideas were embedded in DSGE models and spread throughout central banks (5.1). Thus, while Keynesian macroeconometric models lost influence in academia, policymaking institutions continued to rely on Keynesian-inspired large-scale macroeconometric models. This created a growing gap between practical policymaking and the dominant academic standards.

The adoption of rational expectations in macroeconomics also contributed to the rise of the "new political macroeconomics" (Drazen 2002; Galvão de Almeida 2021). While this research field eventually branched into various subtopics, it initially coalesced around a critique of Keynesian macroeconomic policies. Discretionary fiscal policy drew criticism for its vulnerability to political manipulation, whether rooted in electoral cycles or partisan preferences (Nordhaus 1975).[118] Similarly, Barro (1974)'s "Ricardian equivalence", which holds that fiscal expansion is neutralised by agents who anticipate the implied future tax burden and curtail consumption accordingly, gained traction in macroeconomics (Hoover 1988: Chap. 7). More generally, a new literature, building on Kydland and Prescott (1977) and Barro and Gordon (1983), focused on how to make economic policy "credible" and how to adopt institutions "committing" policymakers to achieve specific goals. This literature resonated, at the turn of the 1990s, with the wave of central bank independence and the adoption of "inflation targeting". By the 1990s, this literature had helped establish a common "cognitive infrastructure" between central bankers and economists.[119]

[117] An exception was Mark Willes, the president of the Federal Reserve Bank of Minneapolis between 1977 and 1980. Drawing on contributions by new classical economists, he challenged the existence of a trade-off between inflation and unemployment (McGregor & Young 2013).

[118] In parallel, a literature at the frontiers of macroeconomics, public choice, and macroeconomics developed, for instance, on the impact of political and vote systems on macroeconomic results (Persson & Tabellini 2000).

[119] Although this body of literature originally emerged in the US, it experienced a resurgence of popularity in Europe in the 1990s, coinciding with the growing independence of several European central banks and the movement towards monetary union (Goutsmedt & Truc 2023).

5 Constellation: The 1990s-2000s

The textbook narrative for the 1990s is that, after two decades of conflict, a "new consensus" or "new neoclassical synthesis" emerged.[120] It portrays the "new consensus" as primarily theoretical, and cradled in US academia. Here again, scholarship in the history of macroeconomics documented different dynamics, status, and scope for this consensus: rather than a unified theoretical shift, this consensus arose from diverse research communities, each with distinct agendas, but shared interest in rethinking and documenting empirically the effects of monetary policy in business cycles. Through growing interaction in the 1990s, a specific group of economists formalised a new consensus on this topic. It was embodied in a new class of models called "Dynamic Stochastic General Equilibrium" (DSGE), which represented yet another "tool shock" for the field (5.1). Handling these models and using them for applied work (forecasting, simulations) also required addressing crucial computational challenges, this time driven by the rapid changes in computer tools available to macroeconomists (5.2). The computational origins of the consensus illustrate the extent to which communities invisible in standard textbook histories shaped the field, and they shine when researching the links between macro and other fields, between academia and other spaces. We thus highlight here the sheer diversity of macroeconomic research agendas that constitute the "constellation" of 2000s macroeconomics (5.3).

5.1 The "New Consensus" about Business Cycles and Monetary Policy

Textbook narratives present the "new consensus" as a 1990s theoretical framework resulting from the combination of real business cycles (RBC) and new Keynesian models of the previous decade (4.1). Such story can be summarised as "add rigidities and stir": "cooking" a DSGE model meant taking RBC models' basic structure (rational expectations and individual optimisation, representative agent, dynamic equilibrium, and stochastic shocks) and adding various kinds of nominal and real rigidities from new Keynesian literature (on prices, wages, capacity utilisation of

[120] Goodfriend and King (1997: 231) portray macroeconomics of their own time as a field "in intellectual disarray"; Blanchard (2000: 1404–5) retrospectively described it as characterised by "sharp ideological and methodological differences". Section 4 has already documented how such narrative is exaggerated.

capital, etc.)—*et voilà*![121] We view the "new consensus" rather as bringing together four distinct research agendas, each one with its own trajectory before and after the 1990s.

A first research agenda recast inflation as the result of holding unemployment below a natural rate, the so-called Non-Accelerating Inflation Rate of Unemployment (NAIRU). This agenda reflected the search for a common analytical framework for the inflation-unemployment trade-off, after decades of conflicting interpretations (Goutsmedt and Rubin 2018). This agenda fostered numerous studies on the role of monopolistic competition, wage-setting behaviour and bargaining power (see e.g., Blanchard & Katz 1997), on the impact of real rigidities in the labour market, and on the hysteresis effect of unemployment. However, European and American macroeconomists worked on this matter with different perspectives: American economists focused on the factors shaping the inflation-unemployment trade-off, while Europeans focused on what determined the level of the NAIRU (Backhouse et al. 2023). This difference was grounded in the differences between the actual European and US labour market dynamics, and the persistence of high unemployment in Europe (Bean 1994; Nickell 1997).[122] Another related issue stood at the intersection of theory and empirics: if a NAIRU exists, how can this unobservable variable be measured? This question prompted a large body of research, including a "time-varying NAIRU" (Gordon 1997). Measures of labour market tightness shifted from simple unemployment rates and other stock measures to indicators of worker and job flows, enabled by the growing availability of micro-level data (Davis and Haltiwanger 1992). These developments made it possible to estimate "frictional unemployment", which was central to the "matching model" of unemployment, developed by Mortensen and Pissarides (1994).

The second research agenda contributing to the "new consensus" was a wave of empirical research on business cycle (4.2). Central to this research agenda was the debate over unit roots in macroeconomic time series (Cochrane 1988; Perron 1989), which suggested that output fluctuations may have permanent effects—challenging the traditional distinction between trends and cycles. At the same time, new econometric approaches offered tools to decompose output

[121] For a more in-depth presentation of the theoretical content of the "new consensus" and DSGE models and its moving boundaries since the 2008 Global Financial Crisis, see e.g. Sergi (2020).

[122] Debates about European unemployment started in the 1980s, with the distinction between "Keynesian" and "Classical" unemployment—rooted in the disequilibrium theory (see 3.1)—playing a significant role (Plassard & Renault 2023). However, references to this dichotomy gradually faded after the mid-1980s (Goutsmedt & Truc 2023).

fluctuations: Hamilton (1989)'s Markov-switching model, to identify cyclical regimes, and Blanchard and Quah (1989)'s, to distinguish demand and supply shocks.

Third, building on the debates over the limits of discretionary policies (4.3), a theory-driven agenda analysed alternative rules for monetary policy. One obstacle stood in the way: Sargent and Wallace (1975) had shown that, under an interest rate rule, rational expectations models failed to pin down a unique equilibrium for the price level (the problem of price-level indeterminacy). This result was challenged in the 1980s and 1990s. Leeper (1991) showed that such models with stochastic interest rate rules, yield a determinate equilibrium, depending on the interaction between fiscal and monetary policies. Julio Rotemberg and Michael Woodford (1997), Jeffrey Fuhrer (1997) and many others helped formulate interest rate rules suitable for policy analysis. Woodford's 2003 book *Interest and Prices* systematised this research and became a key reference for monetary economists. The book explored a set of rational expectations models with interest rate rules, but its contribution also resided in (re)popularising the concept of the natural rate of interest (Clerc & Boianovsky 2026).[123]

Finally, a fourth research agenda was devoted to the empirical evaluation of monetary policy rules. In the early 1990s, a number of central banks turned to inflation targeting, pioneered by the Reserve Bank of New Zealand. This decision emerged alongside the theoretical debates on time consistency, credibility, and central bank independence sparked by Kydland and Prescott (1977). However, the Reserve Bank of New Zealand acted less out of academic considerations —be they the analytical contributions of the new political economy (notably Rogoff, Alesina, and Walsh) or the managerial microeconomics of the Harvard School—than in pragmatic response to the growing shortcomings of traditional monetary instruments (Carré 2014).

Equally significant was the shift to floating currencies and the resulting necessity to anchor policy and establish international credibility (Thomassen 2017; Wasserfallen 2019). Central bank macroeconomists, such as Jeffrey Fuhrer and George Moore (Leloup et al. 2024) or Andrew Aldane and Nicoletta Batini, developed models that empirically compare alternative monetary policy rules. Although these models varied greatly in size and characterisations, they generally tweaked either one

[123] Christiano et al. (2005) extended the basic model by incorporating frictions and shocks to better replicate the "facts" they observed in actual economies (Duarte & Hoover 2012).

of three elements: the IS curve, the Phillips curve, or the LM curve, replaced by policy rules responding either to inflation and the output gap, or to nominal income. Central to these endeavours were Carnegie Mellon's Bennett McCallum and Stanford's John Taylor, then associated with the Philadelphia Fed. Taylor (1993)'s contribution (the Taylor rule, and his associated rule vs. discretion framework), became a building block of the various three-equation models that emerged in this decade (Cherrier & Saïdi 2026).

The "new consensus" of the 1990s thus emerged from a constellation of research agendas that extended well beyond the boundaries of the consensus itself. By the turn of the 2000s, the sense that a "consensus" has been achieved was reflected both in key texts and surveys on the "science of monetary policy" (Woodford2003; Clarida et al. 1999), and new textbooks and classroom models (De Vroey & Hoover 2004, 20; Cherrier & Saïdi 2026). In other words, the new consensus was neither purely theoretical, nor purely academic. Given its focus on monetary policy and its effects on business cycles, macroeconomists in central banks (or in dialogue with central banks) played a key role in its development and dissemination.[124]

The personal trajectories and affiliations of the protagonists of the consensus showcases the integration of academic and central bank macroeconomics in these decades. Goodfriend and King (1997), who famously emphasised the application of the "new neoclassical synthesis" to real-world policymaking, were also affiliated with the Federal Reserve Bank of Richmond.[125] Clarida, Galí and Gertler (1999), who contended that the "new consensus" had produced a new "science of monetary policy", had a similar background: Jordi Galí was regularly a visiting scholar at various US Federal Reserve banks and at the Banco de España during the 1990s and 2000s; Michael Woodford held various visiting and consulting positions at Federal Reserve banks.[126] Finally, the workhorse DSGE model with Bayesian estimation methods, that circulated since 2001, was developed by two Belgian

[124] Woodford also emphasised the relevance of theory to policy, presenting the book as aiming at aligning "central bankers' understanding of what they do with the way that monetary policy is conceived in theoretical monetary economics" (Woodford 2003: xiii).

[125] The synthesis, they argued, clarified that there is "little long-run trade-off between inflation and real activity," that "significant gains" come from "eliminating inflation," and that "credibility plays an important role in understanding the effects of monetary policy" (ibid.).

[126] See also McCallum (1999).

economists, Frank Smets and Raf Wouters, working for the European Central Bank (Sergi 2020). It quickly became the "ECB's most acclaimed scientific export" (Mudge & Vauchez 2018).[127]

Far from being anecdotal, this proximity mirrors a more general shift of central bank activities towards producing original research fuelling the "new consensus". Central banks (and other policymaking organisations) were instrumental in producing a wide array of large scale DSGE models, and sponsoring the development and dissemination of computational tools and empirical techniques essential to this modelling practice (5.2). Moreover, macroeconomists affiliated (permanently or temporarily) with central banks became the major producers of articles published in major monetary economics and macroeconomics journals. Claveau and Dion (2018) have shown that, between 2006 and 2015, 42% of the articles in these fields were coauthored by at least one author affiliated with a central bank—compared to less than 15% thirty years before. More generally, Western central banks also hired a new generation of macroeconomists with PhDs, developed visiting programs, organised conferences, and competed with each other on publication scores. This shift has been documented extensively by the literature about "scientization" of central banks (for a review, see Goutsmedt & Sergi 2025 and Goutsmedt et al. 2026).

5.2 New Computational Challenges

Depicting macroeconomics as dominated by a theoretical convergence toward the "new consensus"—even when acknowledging that this consensus was shaped by diverse research agendas and shifts in policymaking practices—still misses the importance of solving computational and empirical challenges. Indeed, much of macroeconomists' energy in these decades was spent harnessing the promises of a "technological" shock, i.e., the advent of new computers, internet services, and new datasets. This gave rise to new communities at the boundary between macroeconomics and emerging fields, such as computational economics, as well as new practices

[127] This fact also highlights the importance of an international network of researchers active in shaping the "new consensus". Far from being a US-based development, the crafting of DSGE models actively involved macroeconomists across the Atlantic, networking throughout central bank seminars and workshops; the International Monetary Fund also played a key role, along with the European Commission Economic and Financial Affairs Directorate (Cherrier et al. 2023; Rancan & Sergi 2024: chap. 4). As a result, an important strand of the early DSGE literature integrates new international macroeconomics features, within multi-country models (see e.g., Dammski & D'Agostini 2024).

within macroeconomics itself (namely, algorithm and software development). The rise of simulation fuelled methodological rifts between alternative approaches to aggregation.

By the early 1990s, the kind of desktop computer IBM and Apple had put on the market a decade earlier had spread throughout the profession. The World Wide Web had just taken off, allowing macroeconomists to access online the new set of macroeconomic and microeconomic data that they were increasingly using.[128] In the US, the Panel Study of Income Dynamics (PSID) had been in operation since 1968 (Dupont-Kieffer & Pirotte 2011). The Federal Reserve Economic Data (FRED) was launched in 1991, providing access for 620 simultaneous users to thirty time series for one hour a day, and three hundred series later. Finally, the computerization of business activities allowed the real-time recording and storage of new data that could be used for macroeconomic research such as stock prices (Backhouse & Cherrier 2017) or scanner data for retail prices (Gradoz 2023).

A large part of macroeconomists' efforts was dedicated to leveling new computers to solve the tractability challenges that came with new trends in macroeconomic modelling (5.1). First, "pen-and-pencil" solutions were generally not possible for intertemporal models including rational expectations, shocks, or non-linear dynamics, and heterogeneous agents. Indeed, in models with infinite time-horizons, endogenous variables depended on all expected future values. Similarly, introducing even very limited household heterogeneity meant that equilibrium prices were not just a function of aggregate variables, but of the entire wealth and income distribution across agents and across time. The equilibrium dynamics of these models therefore needed to be approximated numerically. The problem was not just about *solving* these models, but also with *estimating* them. One empirical strategy developed since the 1970s was to refine the maximum-likelihood methods aimed at identifying structural parameters (4.2). But likelihood functions for DSGE models were, for instance, increasingly difficult to evaluate with existing methods, which required computational innovations (Fernández-Villaverde 2010), and the introduction of new "Bayesian" econometric methods (Qin 2013: chap. 2).

[128] Since the end of the 1960s, time-sharing technologies for mainframe computers had already provided economists with remote access to both data and computational capacities, but on a smaller scale at a much higher financial cost (see Duarte & Sergi 2023).

The improved computational opportunities resulting from new hardware thus did not *passively* morph into macroeconomists' faster computation and easier manipulation of more complex models (Boumans et al. 2023). This required a coordinated and longstanding effort to adapt numerical methods, taken from other fields, and to design new solution algorithms. Macroeconomists like Ray Fair and John Taylor in the US, Stephen Hall and Kenneth Wallis in the UK, and Jean-Pierre Laffargue and Raouf Boucekkine in France—among others—explored such new methods to solve models with rational expectations; these methods tried to turn dynamic systems into static systems ("relaxation methods"; Cherrier, Saïdi, et al. 2023). However, the accuracy of such methods worsened as time and sample size grew. Other researchers therefore advocated for the use of second-order expansions ("perturbation methods"). Generations of macroeconomic graduate students of the 1980s and 1990s attempted to provide new solutions for models with rational expectations, or models with ex-post heterogeneity among consumers. At the University of Minnesota, Ayse Imrohoroglu coded a FORTRAN program that allowed to turn the state space into a grid of discrete numbers (a technique known as "discretisation"), while Tony Smith from Carnegie Mellon, coded an algorithm in which agents' rationality is approximated by a simple rule (for instance, households only need to account the mean of the wealth distribution to take decisions; Cherrier et al. 2023).

The generalisation of such techniques to macroeconomists in academic communities and policymaking institutions further required to make these algorithms easy to circulate and to operate—that is, to make them *portable* through the development of specific software. Most 1970s econometric software used to take macroeconomic theory to data were redesigned to run on Microsoft's operating system (MS-DOS), while entirely new software, like STATA appeared (Renfro 2004; 2009). Macroeconomists also developed special purpose software. They sometimes adapted software already created in the era of large-scale macroeconometric modelling on mainframe computers, like TROLL; or they devised new ones, like Winsolve, that focused on real business cycles and rational expectations models.[129] Central banks followed suit by pairing their own in-house forecasting models with tailored software (e.g., YADA at the ECB, and EASE at the Bank of

[129] A creation of Richard G. Pierse, a prolific British software creator active since the 1970s, Winsolve was commissioned by the UK Economic and Social Research Council, with the intent to provide a unifying software platform for all macroeconomic models developed in academia and in other institutions (Pierse 2024).

England). New packages for general purpose software (like Matlab, and, later, R and Julia) emerged. Yet, most macroeconomists' programming skills and computer-proficiency remained limited. This state of affairs drove a French team of researchers, led by Swiss-French macroeconomist Michel Juillard, to disseminate in open-source their in-house package for Matlab, which provided a handy parser to solve and estimate dynamic rational expectations models. This package, named "Dynare" was gradually adopted and sponsored by several policymaking institutions, crucially participating in the spread of DSGE models (Cherrier, Saïdi, et al. 2023; Cherrier et al. 2026).

The development of these new computational practices furthered a division of labour started in the previous decades (3.2). "Macroeconomic programmers" found themselves in growing contact with a community of researchers directly concerned with the import and development of numerical methods for economics at large. A devoted journal (*Computer Science in Economics and Management*, later renamed *Computational Economics*) was founded in 1988, followed by a dedicated society in 1994. In 1998, Kenneth Judd, author of an authoritative textbook *Numerical Methods in Economics* (1998) advocated for extending the use of perturbation methods in macroeconomics, beyond DSGEs (Cherrier et al. 2023).

The "technological shock" of the 1990s and 2000s had indeed deeply transformed (and fractured) modelling choices themselves. The rise of new computers fuelled the development of simulation, a practice that represented a "third way" in between theory and empirics. Some simulation techniques, such as Monte Carlo methods, were quickly integrated in the macroeconomics of the "new consensus", and used instrumentally to perform simulation for policy evaluation (Lehtinen & Kuorikoski 2021; Cherrier 2023). For other macroeconomists, however, simulation techniques opened the way to a more radical renewal of the field. The ability to build processes imitating other processes altered the way to address aggregation over individual behaviour, to study the dynamic of aggregates, or microfounding aggregates on individual behaviour.[130] The use of microsimulation, for instance, developed in policymaking institutions and acquired a crucial

[130] Early attempts and using simulation techniques to address these questions are actually older than the 1990s. Barbara Bergman, for instance (professor at the University of Maryland and at the American University in Washington D.C., as well as CEA member under the Kennedy administration), used techniques developed by Guy Orcutt (see e.g., Cheng 2020) to model the aggregate dynamics of a labour market where one thousand workers went in and out of employment, receiving different weekly wages (Chassonnery-Zaïgouche & Goutsmedt 2025).

importance in the process of designing social security and tax policies (see about the French cas, Legendre 2019; Bessis & Cotton 2025).

Using simulations to model aggregates based on new micro-macro connections likewise laid the foundations for "agent-based" modelling—that is, simulating complex systems of interactions across heterogeneous individuals with simple behavioural rules. This approach was nurtured at the Santa Fe Institute, a leading private research centre on complex systems after a 1988 interdisciplinary workshop co-organised by Kenneth Arrow (Fontana 2006; 2010; Fontana & Corsatea 2013). A further step came in the mid-1990s, with the development of the SUGARSCAPE model at the Brookings Institution, by Robert Axtell and Joshua Epstein (Epstein & Axtell 1996; Epstein 2024; Axtell 2025). Agent-based models first became entrenched in finance (Axtell and Farmer 2025), before spreading to the study of complex macroeconomic dynamics—a move championed by a group of Italian macroeconomists (Dal Pont & Truc 2022). Though this approach is considered as heterodox macroeconomics (and thus, for instance, not published in top generalist and macroeconomics journals), some central bank economists came to see agent-based models as a serious alternative to DSGE models in the wake of the Global Financial Crisis (Plassard 2020).

5.3 Macroeconomics as a Constellation of Research Agendas

Framing the history of macroeconomics of the 1990s and 2000s as one about the emergence of a "new consensus" thus obscures the diversity of research questions and modelling strategies considered in macroeconomics, inside and outside academia.

Readers would however wonder whether our account merely expands existing histories of macroeconomics, or points to a more radical reframing. We believe that macroeconomics in this era is better understood as a constellation of related research agendas, communities, literatures, and identities, each shaped by more idiosyncratic questions, practices, and institutional structures than standard accounts recognize.

Given the growing size of the field, it is useful to rely on quantitative techniques to map it. Bibliometric networks produced for macroeconomics (Goutsmedt & Truc 2025) show substantial intellectual diversity.[131] In the early 2000s, a large community centred on DSGE models commanded

[131] See https://www.digitalhistoryofscience.org/dhm/.

the majority of citations in the field, but other major communities of comparable size coexisted. Another was focused on the development of the "new Open Economy Macroeconomics" (Obstfeld & Rogoff 2000; Lane 2001); yet another one expanded the RBC research agenda to labour market modelling; there was also a literature on aggregate consumption modelling (Cherrier et al. 2023); finally, sizable communities engaged with political economy issues in macroeconomics (central bank independence, monetary unions, monetary-fiscal policy interactions).[132] More broadly, beyond DSGEs and monetary policy, macroeconomics in the early 2000s was also shaped by the application of econometric techniques to international macroeconomic concerns (exchange rates) or to financial and monetary topics (the term structure of interest rates), as well as by advances in endogenous growth theory.

While network analysis shows *by design* a constellation of distinct but related communities, this structure is also supported by qualitative evidence. For instance, one could investigate the changing structure of one of macroeconomics' premier research institutions, the NBER. The Bureau's operations were enlarged to empirical microeconomics and restructured as a set of "research programs" under the long presidency of Martin Feldstein (1976-1982; 1984-2008).[133] Feldstein asked Robert Hall to set up an *Economic Fluctuations* research program—later merged into a larger *Economic Fluctuations and Growth* program; Benjamin Friedman headed a *Financial Markets and Monetary Economics* program which was later separated into two groups. The *Economic Fluctuations* program also gradually expanded to encompass a number of autonomous working groups, each with their own topics, theoretical core, and empirical challenges: in the early 1990s, this included working groups on *Macroeconomic Complementarities*, *Nonconvexities in Macroeconomics*, *Impulses and Propagation Mechanisms*, *Labor Market Dynamics and Aggregate Fluctuations*, *Growth and Fluctuations*, *Inventories*, *Micro and Macro Perspectives on the Aggregate Labor Market*, and *Consumption Inequalities and its Aggregate Implications* (NBER Reporter

[132] Heterodox approaches, namely post-Keynesian economics, make up a small but still sizable share of the field.

[133] It served as a model for the development of other institutions worldwide. Goutsmedt et al. (2021) documented the crucial importance of the annual International Seminar On Macroeconomics (ISoM), sponsored and co-organised by NBER and the Parisian EHESS (School of Higher Studies in Social Sciences) between 1978 and 1993. The ISoM had important ramifications for the development of a network of European macroeconomists, later involved in several initiatives transforming the European economic profession at large (e.g., with the founding of the European Economic Association, in 1985 and the establishment of the Centre for Economic Policy Research, CEPR, in 1983).

Summer 1991 and 1993). More groups and conferences arose from interactions with other programs and communities. For instance, George Akerlof and Shiller led a *Behavioural Macroeconomics* workshop (Passard & Sergi 2026).

The evolution of NBER programmes remains historically unexamined in any systematic way. This gap points to the wider invisibility of many macroeconomic research agendas, and their associated communities, in both the historical literature and textbook narratives. Yet some of these long-neglected communities are now attracting historical attention, and this new work may further challenge the textbook narrative. Quantitative evidence also points to important research agendas whose investigation might further transform historians' narratives : economic growth (especially endogenous growth theory), and international macroeconomics.

Solow's contributions (1956; 1957; see 3.1, 3.2) were followed by a broad turn toward optimal growth models, which came to dominate much of the growth literature from the 1960s onward (Duarte 2009). Growth research evolved independently from business cycles research. The 1980s brought a reunification. First, the so-called Ramsey-Cass-Koopmans optimal growth model became a cornerstone of the RBC approach in the 1980s. Second, other types of growth models were used to challenge the policy ineffectiveness result: one example was the sunspot literature, which pointed to multiple equilibria and related issues of expectation coordination (Cherrier & Saïdi 2018; Saïdi 2024). The introduction of heterogeneous agents in the optimal growth model also became a way for general equilibrium theorists to derive macroeconomic implications from their studies (Cherrier et al. 2023). Solovian then optimal growth also formed the backbone of the development of climate macroeconomics (see for instance DICE; Nordhaus 1992), as well as related disagreement on the choice of discount rates, one crucial to set a price for carbon (Gaspard & Missemer 2022; Cherrier & Duarte 2024). At the same time, however, growth became a booming research field on its own, addressing long run theoretical and empirical questions about sources of technological change—the so-called "endogenous growth" literature (Rubin 2025).

Taking into account macroeconomists' work on international dimensions could also transform scholarship in the history of macroeconomics.[134] The end of the Bretton Woods system

[134] Historical scholarship is lacking, but macroeconomists themselves have produced several syntheses (Rogoff 1996; Obstfeld & Rogoff 2001; Rey 2015; Edwards 2025).

and the path toward economic and monetary integration in Europe resulted in the development of large separate literatures on the determinant of (now floating) exchange rates, optimal currency areas or the purchasing power parity. Some of these works required distinctive empirical techniques (for instance a greater reliance on VARs) and have been published in finance journals. But in international macroeconomics too, research was also driven by policy debates and the needs of policy institutions, particularly of international organisations. Several international macroeconomists developed strong stances about the desirable structure of the international monetary system, and actively engaged in promoting such views (including by training generations of policymakers)—e.g., Charles E. Kindleberger (Mehrling 2022), Robert Triffin (Maes & Pasotti 2020), or Rüdiger Dornbusch. It is yet unclear how the frameworks they developed affected macroeconomists' analysis of the international monetary system, capital controls, and exchange rate policy, but also international trade, economic development, and sovereign debts.[135]

The picture of macroeconomics as a constellation of research agendas extends to the last decades. The 2008 Global Financial Crisis and the soul-searching it prompted within a profession exposed to criticism from inside and outside economics may have deepened that diversity further. Some research topics, ideas, and authors marginalised within the field were taken up again.[136]

[135] See Laskaridis (2025) on economic expertise in the first years of the World Bank. See Clift (2024) for a more recent example on the development of new ideas and models at the IMF around fiscal policies, and Hosman (2024) about the World Bank research on the "commodity problem".

[136] An illustrative example is the work of Minsky (His 2025: Introduction).

6 Conclusion: A New Textbook History

The history of macroeconomics outlined in this book is dense and complex. This mirrors both the flourishing historical scholarship and the richness of the subject itself. Yes, macroeconomics is complicated and hard (much more than usually acknowledged in macroeconomics textbook narratives). But this is a good thing, especially as it results from the sheer diversity of topics, of theoretical and methodological patterns, and from the entanglements with other fields as well as policymaking. And yet, the chronology that we offer (birth, bridges, frictions, constellation) helps navigate such a complex story by pointing to our main takeaways. We believe that the different audiences of macroeconomics deserve such an evidence-based, encompassing history, and that our history should, and can, be integrated into macroeconomics textbooks. An introductory macroeconomics lecture could summarize it by making four points.

First, students should not be taught that macroeconomics was born with Keynes, because this conveys the incomplete idea that macroeconomics is a theoretical endeavour led by somehow exceptional (and lone) individuals. By contrast, historical evidence points that macroeconomics was in fact born out of the combination of three types of collective endeavours: (1) new *theories and pratices*, including prominently (but not limited to) that elaborated by Keynes, in the context of British policy debates of the interwar period; (2) new ways of *measuring* the business cycle, reshaping the understanding of "the economy" and of aggregate phenomena, leading to the national accounting framework, in the context of the implementation of new policies during the Great Depression, World War II, and the postwar period; (3) a new mathematical *toolbox* (mostly borrowed from natural sciences) aimed at modelling economic dynamics, through combining measurement and theory in new ways. From the start, macroeconomics has been conceived as a field involving theory, measurement, and empirical work to answer to policymakers' demands.

Second, it is erroneous to present the postwar era (1950s-1960s) as some "golden age" of macroeconomics characterised by the "neoclassical synthesis" (that is, some kind of theoretical division of labour between microeconomics and macroeconomics), ending up with a theoretical war between monetarists and Keynesians. During this period, macroeconomics consolidated its identity through building *bridges*. These included back-and-forths between theories of aggregates and theories of individual behaviour (about consumption, labour supply, investment, etc.): that is,

continuous conversations with microeconomists to microfound macroeconomics. These also included bridges between theories and data, fostering the development of various empirical approaches such as large-scale macroeconometric models. In doing so, bridges between academia and policymaking institutions were established.

Third, the 1970s and 1980s are not merely the decades of wars between schools of thought (the new classical and the new Keynesian). This depiction of some clear-cut battlefield between two distinct factions misrepresents the actual nature and scope of disagreements (or "*frictions*") across macroeconomics. These frictions were generational and epistemological, about content and about methods, about theories as well as empirical techniques. Finally, it was an era of divergence across academic, policy, and business practices of macroeconomists.

Fourth, while the 1990s and the 2000s are generally presented as the decades of a "new consensus" ruled by one single modelling practice (DSGE models), a careful historical examination highlights more diversity in topics and methods (a *constellation)*. Even the "new consensus" itself can be reframed as resulting from the peculiar intersection of various independent research agendas. Likewise, DSGE models were shaped by imports from other fields, such as computational economics. While there has never been doubt that macroeconomics as a field deals with a specific object—"the economy" as whole—for which researchers have developed specific methods, this has been done through more interaction with the rest of the discipline than existing textbook histories have acknowledged.

This history explains better how and why macroeconomics is a rich and diverse field. Macroeconomists' practices extend beyond formulating theories (or models), to data collection, devising econometric and empirical techniques, addressing computational challenges. These practices are obviously shaped by technical capabilities and constraints, but also by the gaps and bridges between academic knowledge and macroeconomic expertise. This complex but complete picture is necessary to understand what macroeconomics is today, and the challenges it faces. Macroeconomics is now as it has always been: a field in constant motion and interaction with the world around it.

Bibliography

Acosta, J. & Cherrier, B. (2021). The Transformation of Economic Analysis at the Board of Governors of the Federal Reserve System during the 1960s. *Journal of the History of Economic Thought*, 43(3), 323–49.

Acosta, J. & Pinzón-Fuchs, E. (2019). Peddling Macroeconometric Modeling and Quantitative Policy Analysis: The Early Years of the SSRC's Committee on Economic Stability, 1959-1963. *Œconomia. History, Methodology, Philosophy*, 9(3), 537–58.

Acosta, J. & Rubin, E. (2019). Bank Behavior in Large-Scale Macroeconometric Models of the 1960s. *History of Political Economy*, 51(3), 471–91.

Acosta, J., Rancan, A. & Sergi, F. (2023). Multi-Country Modelling at the Commission of the European Communities: Centralised and Decentralised Approaches. *European Economic Review*, 158: 104564.

Akhabbar, A. (2019). *Wassily Leontief et la science économique*, Lyon: ENS Éditions.

Akhabbar, A. (2021). The Case against "Indirect" Statistical Inference. *History of Political Economy* ,53(S1), 259–92.

Aldrich, J. (1989). Autonomy. *Oxford Economic Papers*, 41(1), 15–34.

Andelic, P. (2019). "The Old Economic Rules No Longer Apply": The National Planning Idea and the Humphrey-Hawkins Full Employment Act, 1974–1978. *Journal of Policy History*, 31(1), 72–100.

Andersen, L. C. & Jordan, J.L. (1968). Monetary and Fiscal Actions: A Test of Their Relative Importance in Economic Stabilization. *Federal Reserve Bank of St. Louis Review*, 50(Nov), 11–23.

Angeletti, T. (2023). *L'invention de l'économie française*, Paris: Presses de SciencesPo.

Armatte, M. (1992). Conjonctions, Conjoncture et Conjecture. Les Baromètres Économiques (1885-1930). *Histoire & Mesure*, 7(1/2), 99–149.

Arnon, A. (2022). *Debates in Macroeconomics from the Great Depression to the Long Recession: Cycles, Crises and Policy Responses*, Cham: Springer.

Arnon, A, Young, W. & Van Der Beek, K., eds. (2020). *Expectations: Theory and Applications from Historical Perspectives*, Cham: Springer.

Assous, M. (2015). Solow's Struggle with Medium-Run Macroeconomics, 1956–95. *History of Political Economy*, 47(3), 395–417.

Assous, M. & Carret, V. (2022). *Modeling Economic Instability: A History of Early*

Macroeconomics, Cham: Springer.

Assous, M. & Dal Pont Legrand, M. (2020). Growth Without Expectations: The Original Sin of Neoclassical Growth Models. In Arnon, A., Young, W. & van der Beek K., eds., *Expectations: Theory and Applications from Historical Perspectives*, Cham: Springer, pp. 121–130.

Assous, M. & López, J. G. (2010). *Michal Kalecki*, London: Palgrave Macmillan.

Axtell, R. (2025). *Interview with Robert Axtell, Conducted by Romain Plassard and Francesco Sergi on April 9th 2024*. Oral Histories of Economics. Dataset Nakala, https://doi.org/10.34847/NKL.AFB92MB.

Axtell, R. & Farmer, D. J. (2025). Agent-Based Modeling in Economics and Finance: Past, Present, and Future. *Journal of Economic Literature*, 63(1), 197–287.

Backhouse, R. E. (2004). A Suggestion for Clarifying the Study of Dissent in Economics. *Journal of the History of Economic Thought*, 26(2), 261–71.

Backhouse, R. E. (2005). 'The Keynesian Revolution'. In B. W. Bateman & R. E. Backhouse, eds., *The Cambridge Companion to Keynes*, Cambridge: Cambridge University Press, pp. 19–38.

Backhouse, R. E. (2006). Hayek on Money and the Business Cycle. In E. Feser, ed., *The Cambridge Companion to Hayek*, Cambridge: Cambridge University Press, pp. 34–50.

Backhouse, R. E. (2017). *Founder of Modern Economics: Paul A. Samuelson*, Oxford: Oxford University Press.

Backhouse, R. E. & Bateman, B. W. (2011). *Capitalist Revolutionary: John Maynard Keynes*. Cambridge: Harvard University Press.

Backhouse, R. E. & Boianovsky, M. (2013). *Transforming Modern Macroeconomics: Exploring Disequilibrium Microfoundations, 1956-2003*. Cambridge: Cambridge University Press.

Backhouse, R. E. & Boianovsky, M. (2016). Secular Stagnation: The History of a Macroeconomic Heresy. *The European Journal of the History of Economic Thought*, 23(6), 946–70.

Backhouse, R. E. & Cherrier, B. (2017). "It's Computers, Stupid!" The Spread of Computers and the Changing Roles of Theoretical and Applied Economics. *History of Political Economy*, 49(Suppl.), 103–26.

Backhouse, R. E. & Cherrier, B. (2019). The Ordinary Business of Macroeconometric Modeling: Working on the Fed-MIT-Penn Model, 1964-74. *History of Political Economy*, 51(3), 425–47.

Backhouse, R. E. & Laidler, D. E. (2004). What Was Lost with IS-LM. *History of Political*

Economy, 36(5), 25–56.

Backhouse, R. E., Forder, J. & Laskaridis, C. (2023). The Natural Rate of Unemployment and the NAIRU. *European Economic Review*, 158, 104563.

Barber, W. (1988). *From New Era to New Deal: Herbert Hoover, the Economists, and American Economic Policy, 1921-1933*. Cambridge: Cambridge University Press.

Barens, I. & Caspari, V. (1999). Old Views and New Perspectives: On Reading Hick's "Mr. Keynes and the Classics". *The European Journal of the History of Economic Thought*, 6(2), 216–41.

Barnett, V. (1998). *Kondratiev and the Dynamics of Economic Development: Long Cycles and Industrial Growth in Historical Context*. London: Palgrave Macmillan.

Barnett, V. (2006). Chancing an Interpretation: Slutsky's Random Cycles Revisited. *The European Journal of the History of Economic Thought*, 13(3), 411–32.

Barro, R. J. (1974). Are Government Bonds Net Wealth? *Journal of Political Economy*, 82(6), 1095–117.

Barro, R. J. (1977). Unanticipated Money Growth and Unemployment in the United States. *The American Economic Review*, 67(2), 101–15.

Barro, R. J. & Gordon, D. B. (1983). Rules, Discretion and Reputation in a Model of Monetary Policy. *Journal of Monetary Economics*, 12(1), 101–21.

Barro, R. J. & Grossman, H. I. (1971). A General Disequilibrium Model of Income and Employment. *The American Economic Review*, 61(1), 82–93.

Bean, C. R. (1994). European Unemployment: A Survey'. *Journal of Economic Literature*, 32(2), 573–619.

Bean, C. R. (2018). NIESR at 80: A Retrospective - Introduction. *National Institute Economic Review*, 246(November): R1–2.

Beckett, A. (2009). *When the Lights Went Out: Britain in the Seventies*. London: Faber & Faber.

Begg, D. (1982). The Rational Expectations Revolution. *Economic Outlook*, 6(9), 23–30.

Berman, E. P. (2022). *Thinking like an Economist. How Efficiency Replaced Equality in U.S. Public Policy*. Princeton: Princeton University Press. Princeton.

Berman, E. P. & Milanes-Reyes, L. M. (2013). The Politicization of Knowledge Claims: The "Laffer Curve" in the US Congress. *Qualitative Sociology*, 36(1), 53–79.

Berman, E. P. & Pagnucco, N. (2010). Economic Ideas and the Political Process: Debating Tax Cuts in the U.S. House of Representatives, 1962-1981. *Politics & Society*, 38(3), 347–72.

Bernanke, B. S. & Mishkin, F. S. (1997). Inflation Targeting: A New Framework for Monetary Policy? *Journal of Economic Perspectives*, 11(2), 97–116.

Bernstein, M. A. (2001). *A Perilous Progress: Economists and Public Purpose in Twentieth-Century America*. Princeton: Princeton University Press.

Besset, S. (2024). Nobel Prize-Winning Economists Claim Trump Will Wreck Our Economy. This Is the Reason I Don't Trust Them | Fox News'. *Fox News*, April 27. https://www.foxnews.com/opinion/16-nobel-prize-winning-economists-claim-trump-wreck-our-economy-reason-i-dont-trust-them.

Bessis, F. & Cotton, P. (2025). Usages et effets de la microsimulation dans l'élaboration d'une réforme. Un nouvel éclairage sur la création du RSA. *Revue de La Régulation. Capitalisme, Institutions, Pouvoirs*, 37.

Best, J. (2022). Uncomfortable Knowledge in Central Banking: Economic Expertise Confronts the Visibility Dilemma. *Economy and Society*, 51(4), 559–83.

Biddle, J. & Boumans, M. (2021). Exploring the History of Statistical Inference in Economics. *History of Political Economy*, 53(S1), 1–24.

Bigg, R. J. (2023). *Alvin Hansen: Seeking a Suitable Stabilization. An Academic Biography*, Cham: Springer.

Bjerkholt, O. (2007). Writing "the Probability Approach" with Nowhere to Go: Haavelmo in the United States, 1939-1944. *Econometric Theory*, 23(5), 775–837.

Bjerkholt, O. (2014). Lawrence R. Klein 1920–2013: Notes on the Early Years. *Journal of Policy Modeling*, 36(5), 767–84.

Bjerkholt, O. (2015). Trygve Haavelmo at the Cowles Commission. *Econometric Theory*, 31(1), 1–84.

Bjerkholt, O. (2017). On the Founding of the Econometric Society. *Journal of the History of Economic Thought*, 39(2), 175–98.

Bjerkholt, O. & Dupont-Kieffer, A. (2010). Ragnar Frisch's Conception of Econometrics. *History of Political Economy*, 42(1), 21–74.

Blanchard, O. J. (2000). What Do We Know about Macroeconomics That Fisher and Wicksell Did Not? *The Quarterly Journal of Economics*, 115(4), 1375–409.

Blanchard, O. J., Amighini, A. & Giavazzi, F. (2017). *Macroeconomics: A European Perspective*, 3rd edn, London: Pearson.

Blanchard, O. J. (1989). A Traditional Interpretation of Macroeconomic Fluctuations. *The American Economic Review*, 79(5), 1146–64.

Blanchard, O. J. & Katz, L. F. (1997). What We Know and Do Not Know about the Natural Rate of Unemployment. *Journal of Economic Perspectives*, 11(1), 51–72.

Blanchard, O. J. & Quah D. T. (1989). The Dynamic Effects of Aggregate Demand and Supply Disturbances. *The American Economic Review*, 79(4), 655–73.

Blinder, A. S. (1988). The Fall and Rise of Keynesian Economics. *Economic Record*, 64(4), 278–94.

Bodkin, R., Klein, L. R. & Marwah K., eds. (1991). *A History of Macroeconometric Model-Building*, Cheltenham: Edward Elgar.

van den Bogaard, A. (1999). *Configuring the Economy: The Emergence of a Modelling Practice in The Netherlands, 1920-1955*. PhD dissertation, University of Amsterdam.

Boianovsky, M. (2004). The IS-LM Model and the Liquidity Trap Concept: From Hicks to Krugman. *History of Political Economy*, 36(5), 92–126.

Boianovsky, M. (2020). Paul Samuelson's Ways to Macroeconomic Dynamics. *The European Journal of the History of Economic Thought*, 27(4), 606–34.

Boianovsky, M. (2022). Lucas' Expectational Equilibrium, Price Rigidity, and Descriptive Realism. *Journal of Economic Methodology*, 29(1), 66–85.

Boianovsky, M.& Hoover, K. D. (2014). In the Kingdom of Solovia: The Rise of Growth Economics at MIT, 1956-70. *History of Political Economy*, 46(Suppl.), 198–228.

Kirtchik, O. & Boldyrev, I. (2024). Rise and Fall of the Walrasian Program in Economics: A Social and Intellectual Dynamics of the General Equilibrium Theory. *Journal of the History of Economic Thought*, 46(1), 1–26.

Bollard, A. E. (2016). *A Few Hares to Chase: The Economic Life and Times of Bill Phillips*, Oxford: Oxford University Press.

Bordo, M. D. & Schwartz, A. J. (2009). *A Retrospective on the Classical Gold Standard, 1821-1931*, Chicago: University of Chicago Press.

Boumans, M. (1993). Paul Ehrenfest and Jan Tinbergen: A Case of Limited Physics Transfer. *History of Political Economy*, 25(Suppl.), 131–56.

Boumans, M. (1997). Lucas and Artificial Worlds. *History of Political Economy*, 29(Suppl.), 63–90.

Boumans, M. (2016). Friedman and the Cowles Commission. In R. Cord & J. D. Hammond, eds., *Milton Friedman: Contributions to Economics and Public Policy*, First edition. Oxford: Oxford University Press, pp. 585–604.

Boumans, M. (2019). Econometrics: The Keynes–Tinbergen Controversy. In R. W. Dimand & H. Hagemann, *The Elgar Companion to John Maynard Keynes*. Cheltenham: Edward Elgar

Publishing, 283–9.

Boumans, M. (2020). The Engineering Tools That Shaped the Rational Expectations Revolution. *History of Political Economy*, 52(S1), 143–67.

Boumans, M. & Duarte, P. G. (2019). The History of Macroeconometric Modeling : An Introduction. *History of Political Economy*, 51(3), 391–400.

Boumans, M., Chassonnery-Zaïgouche, C., Dechaux, P. & Sergi, F. (2023). The Computerization of Economics: Three Lessons for Economics. Introduction to the Special Issue. *Œconomia. History, Methodology, Philosophy*, 13(3), 637–55.

Bowles, S. & Carlin, W. (2020). What Students Learn in Economics 101: Time for a Change. *Journal of Economic Literature*, 58(1), 176–214.

Breslau, D. (2003). Economics Invents the Economy: Mathematics, Statistics, and Models in the Work of Irving Fisher and Wesley Mitchell. *Theory and Society*, 32(3), 379–411.

Bridel, P. (1987). *Cambridge Monetary Thought. The Development of Saving-Investment Analysis from Marshall to Keynes*, Berlin: Springer.

Bridel, P. & Dal Pont Legrand, M., eds. (2009). Clément Juglar (1819 - 1905). Les origines de la théorie des cycles. *Revue européenne de sciences sociales,* 67(143).

Brisset, N. & Fèvre, R. (2025). The Rise of the Conjuncturists: Building Economic Expertise on the Fall of the Popular Front. *Modern Intellectual History*, 22(3), 525–51.

Burina, E. (2023). Chemistry at the Service of Economic Modelling: Vladimir Bazarov's Approach to Formalizing Business Cycles. *Œconomia. History, Methodology, Philosophy*13(4), 995–1027.

Burns, J. (2022). Hidden Figures: A New History of the Permanent Income Hypothesis. *History of Political Economy*, 54(S1), 43–68.

Burns, J. (2023). *Milton Friedman: The Last Conservative*, New York: Farrar, Straus and Giroux.

Buyst, E., Smits, J. P. H. & Van Zanden, J. L. (1995). National Accounts for the Low Countries, 1800–1990. *Scandinavian Economic History Review*, 43(1), 53–76.

Caldwell, B. & Klausinger, H. (2022). *Hayek: A Life, 1899–1950*, Chicago: University of Chicago Press.

Carré, E. (2014). Une histoire du ciblage de l'inflation : science des théoriciens ou arts des banquiers centraux ? *Cahiers d'économie politique*, 66(1), 127–171.

Carret, V. (2022). Rupture and Continuity in the Original Divide between Microdynamics and Macrodynamics. *The European Journal of the History of Economic Thought*, 29(6), 1146–64.

Chao, H.-K. (2019). Inference to the Best Model of the Consumption Function. *History of Political Economy*, 51(3), 493–513.

Chao, H.-K. (2020). *Representation and Structure in Economics. The Methodology of Econometric Models of the Consumption Function*, London: Routledge.

Chari, V. V. (2010). Testimony. In *Building a Science of Economics for the Real World*, House Committee on Science and Technology, Subcommitte on Investigations and Oversight, June.

Chassonnery-Zaïgouche, C. & Goutsmedt, A. (2025). Modelling Intervention: Barbara Bergmann's Micro-to-Macro Simulation Projects. *The European Journal of the History of Economic Thought*, 32(3), 342–62.

Chélini, M.-P. & Warlouzet, L., eds. (2017). *Slowing down prices. European Inflation in the 1970s*, Paris: Presses de Sciences Po.

Cheng, C.-T. (2020). Guy H. Orcutt's Engineering Microsimulation to Reengineer Society. *History of Political Economy*, 52(S1), 191–217.

Cheng, C.-T. (2023). From Computors to Computers: The Early History of Econometric Computation at the University of Cambridge. *Œconomia. History, Methodology, Philosophy*, 13(3), 681–721.

Cherrier, B. (2017). Classifying Economics: A History of the *JEL* Codes. *Journal of Economic Literature*, 55(2), 545–79.

Cherrier, B. (2019). How to Write a Memo to Convince a President: Walter Heller, Policy-Advising, and the Kennedy Tax Cut. *Œconomia. History, Methodology, Philosophy*, 9(2), 315–35.

Cherrier, B. (2023). The Price of Virtue: Some Hypotheses on How Tractability Has Shaped Economic Models. *Œconomia. History, Methodology, Philosophy*, 13(1), 23–48.

Cherrier, B. & Duarte, P. G. (2024). How the "Ramsey Formula" Came to Define Time Discounting in Economics (1950-2000). *SSRN Working Papers* hal-04719083. https://ideas.repec.org//p/hal/wpaper/hal-04719083.html.

Cherrier, B. & Saïdi, A. (2018). The Indeterminate Fate of Sunspots in Economics. *History of Political Economy*, 50(3), 425–81.

Cherrier, B. & Saïdi, A. (2026). Pedagogy for Whom? The Case of the 3-Equation New Keynesian Model. *History of Political Economy*, in press.

Cherrier, B., Duarte, P. G. & Saïdi A. (2023). Household Heterogeneity in Macroeconomic Models: A Historical Perspective. *European Economic Review*, 158, 104497.

Cherrier, B., Saïdi, A. & Sergi, F. (2023). '"Write Your Model Almost as You Would on Paper and Dynare Will Take Care of the Rest!" A History of the Dynare Software. *Œconomia. History, Methodology, Philosophy*, 13(3), 801–48.

Cherrier, B., Saïdi, A. & Sergi, F. (2026). "Write Your Model Almost as You Would on Paper and Michel Will Take Care of the Rest!" Michel Juillard's Contribution to Macroeconomics in Historical Perspective. *Journal of Economic Dynamics and Control*, 182, 105224

Christiano, L. J., Eichenbaum, M. & Evans, C. L. (2005). Nominal Rigidities and the Dynamic Effects of a Shock to Monetary Policy. *Journal of Political Economy*, 113(1), 1–45.

Chugh, S.K. (2015). *Modern Macroeconomics*, Cambridge: MIT Press.

Clarida, R.H., Galí, J. & Gertler, M. (1999). The Science of Monetary Policy—A New Keynesian Perspective. *Journal of Economic Literature*, 37(4), 1661–707.

Claveau, F. & Dion, J. (2018). Quantifying Central Banks' Scientization: Why and How to Do a Quantified Organisational History of Economics. *Journal of Economic Methodology*, 25(4): 349–66.

Clerc, P. & Boianovsky, M. (2026). Michael Woodford's *Interest and Prices After Twenty Years*'. *The European Journal of the History of Economic Thought*, 1–25, https://doi.org/10.1080/09672567.2026.2674654.

Clerc, P. & Le Fur, T. (2026). The New Classical Microfoundations of Aggregate Labor Supply. *History of Political Economy*, in press.

Clift, B. (2018). *The IMF and the Politics of Austerity in the Wake of the Global Financial Crisis*, Oxford: Oxford University Press.

Clift, B. (2020). The Hollowing Out of Monetarism: The Rise of Rules-Based Monetary Policy-Making in the UK and USA and Problems with the Paradigm Change Framework. *Comparative European Politics*, 18(3), 281–308.

Clift, B. (2024). How "Baked in" Ideas Hinder Ideational Robustness: The International Monetary Fund and "Fiscal Space". *Policy and Society*, 43(2), 159–72.

Clower, R. (1965). The Keynesian Counter-Revolution: A Theoretical Appraisal. In F. Hahn & F.P.R. Brechling, eds., *The Theory of Interest Rates*. London: Macmillan, pp. 103–25.

Coats, W. A. (1981). *Economists in Government. An International Comparative Study*, Durham, NC: Duke University Press.

Cochrane, J. H. (1988). How Big Is the Random Walk in GNP? *Journal of Political Economy*, 96(5), 893–920.

Collins, R. M. (2002). *More: The Politics of Economic Growth in Postwar America*, Oxford: Oxford

University Press.

Cooper, M. (2024). *Counterrevolution: Extravagance and Austerity in Public Finance*. Princeton: Princeton University Press.

Courtoy, F., De Vroey, M. & Turati, R. (2021). What Do We Teach in Macroeconomics? Evidence of a Theoretical Divide. *Université Catholique de Louvain, Institut de recherches économiques et sociales*, no. 23.

Coyle, D. (2017). The Political Economy of National Statistics. In K. Hamilton & C. Hepburn, eds., *National Wealth: What Is Missing, Why It Matters*. Oxford, Oxford University Press, pp. 15–46.

Cruz-e-Silva, V. & Almeida, F. (2022). The Making of Index Numbers in the Early 1920s: A Closer Look at the Fisher-Mitchell Debate. *History of Political Economy*, 54(4), 655–86.

Dal Pont Legrand, M. & Trautwein, H.-M. (2024). Taking Coordination Seriously: An Introduction. *The European Journal of the History of Economic Thought*, 31(2), 167–74.

Dal Pont, M. & Truc, A. (2022). Agent-Based Models: Impact and Interdisciplinary Influences in Economics. *GREDEG Working Paper.* https://shs.hal.science/halshs-04832295/.

Dammski, B. R. & D'Agostini, L. L. (2024). Modelos DSGE na teoria Economica: Uma abordagem bibliométrica. *Revista de Economia Contemporânea*, 28, e242810.

Darity, W. & Young, W. (1995). IS-LM: An Inquest. *History of Political Economy*, 27(1), 1–41.

Darity, W. & Young, W. (2004). IS-LM-BP: An Inquest. *History of Political Economy*, 36(5): 127–64.

Darity, W., Leeson, R. & Young, W. (2004). *Economics, Economists and Expectations: From Microfoundations to Macroapplications*, London: Routledge.

Davis, S. J. & Haltiwanger, J. (1992). Gross Job Creation, Gross Job Destruction, and Employment Reallocation. *The Quarterly Journal of Economics*, 107(3), 819–63.

De Vroey, M. (2000). IS-LM à la Hicks versus IS-LM à la Modigliani. *History of Political Economy*, 32(2), 293–316.

De Vroey, M. (2016). *A History of Macroeconomics from Keynes to Lucas and Beyond*. Cambridge: Cambridge University Press.

De Vroey, M. & Hoover, K. D. (2004). Introduction: Seven Decades of the IS-LM Model. *History of Political Economy*, 36(5), 1–11.

Dechaux, P. (2017). *L'économie face aux enquêtes psychologiques, 1944 -1960. Unité de la science économique, diversité des pratiques*. PhD dissertation, Université Paris 1 Panthéon-Sorbonne.

Dekker, E. (2021). *Jan Tinbergen (1903-1994) and the Rise of Economic Expertise*, Cambridge: Cambridge University Press.

Delcey, T. & Sergi, F. (2023). The Efficient Market Hypothesis and Rational Expectations Macroeconomics. How Did They Meet and Live (Happily) Ever After? *The European Journal of the History of Economic Thought*, *30*(1), 86–116.

Desmarais-Tremblay, M. & Johnson, M. (2019). "The Fiscal Policy Seminar: Its Early Stages" by Richard A. Musgrave. *Research in the History of Economic Thought and Methodology*, 37C, 147–79.

Desrosières, A. (1998). *The Politics of Large Numbers: A History of Statistical Reasoning*, Cambridge: Harvard University Press.

Desrosières, A. (1999). La Commission et l'équation. Une comparaison des plans français et néerlandais entre 1945 et 1980. *Genèses*, 34, 28–52.

Didier, E. (2020). *America by the Numbers: Quantification, Democracy, and the Birth of National Statistics*, Cambridge: MIT Press.

Dimand, R. W. (1998). The Quest for an Ideal Index. Irving Fisher and The Making of Index. In M. Rutherford, ed., *The Economic Mind in America. Essays in the History of American Economics*. London: Routledge, pp. 140–56.

Dimand, R. W. (2003). Interwar Monetary and Business Cycle Theory: Macroeconomics before Keynes. *Research in the History of Economic Thought and Methodology*, 21(1), 121–48.

Dimand, R. W. (2007). Keynes, IS-LM, and the Marshallian Tradition. *History of Political Economy*, 39(1), 81–95.

Dimand, R. W. (2014). Transforming the IS-LM Model Sector By Sector. In R. W. Dimand, ed., *James Tobin*. London: Palgrave Macmillan, pp. 24–43.

Dimand, R. W. (2022). The Cowles Commission at the University of Chicago, 1939–1955. In R. A. Cord, ed., *The Palgrave Companion to Chicago Economics*. Cham: Springer, pp. 103–122.

Dimand, R. W. (2025). Harry Markowitz, the Cowles Commission, and Portfolio Theory. *Annals of Operations Research*, 346(1), 99–111.

Dornbusch, R., Fischer, F. & Startz, R. (2007). *Macroeconomics*, 10th edn, New York: McGraw-Hill.

Dostaler, G. (2007). *Keynes and His Battles*, Cheltenham: Edward Elgar.

Drakopoulos, S. A. (2021). The Marginalization of Absolute and Relative Income Hypotheses of Consumption and the Role of Fiscal Policy. *The European Journal of the History of*

Economic Thought, 28(6), 965–84.

Drazen, A. (2002). *Political Economy in Macroeconomics*, Princeton: Princeton University Press.

Duarte, P. G. (2009). Frank P. Ramsey: A Cambridge Economist. *History of Political Economy*, 41(3), 445–70.

Duarte, P. G. (2012). Not Going Away? Microfoundations in the Making of a New Consensus in Macroeconomics. In P.G. Duarte and G. T. Lima, eds., *Microfoundations Reconsidered. The Relationship of Micro and Macroeconomics in Historical Perspective*. Cheltenham: Edward Elgar Publishing, pp. 190–237.

Duarte, P. G. (2015). *From Real Business Cycle and New Keynesian to DSGE Macroeconomics: Facts and Models in the Emergence of a Consensus*. FEA-USP Working Paper, no. 2015-05, University of São Paulo.

Duarte, P. G. (2025). The Rise of the Rational Expectations Hypothesis'. In I. Köhler, L. Lenel, A. Nützenadel & J. Streb, eds., *The Routledge Handbook of Economic Expectations in Historical Perspective*. London: Routledge, pp. 21–39.

Duarte, P. G. & De Vroey, M. (2013). In Search of Lost Time : The Neoclassical Synthesis. *B.E Journal of Macroeconomics*, 13(1), 1–31.

Duarte, P. G. & Hoover, K. D. (2012). Observing Shocks. *History of Political Economy*, 44(Suppl.), 226–49.

Duarte, P. G. & Gilberto Tadeu Lima, eds. (2012). *Microfoundations Reconsidered. The Relationship of Micro and Macroeconomics in Historical Perspective*, Cheltenham: Edward Elgar.

Duarte, P. G. & Sergi, F. (2023). Computer Operators and Software Engineers at Data Resources Inc. *Œconomia. History, Methodology, Philosophy*, 13(3), 723–68.

Duesenberry, J. S. (1962). A Process Approach to Flow-of-Funds Analysis. In National Bureau of Economic Research, *The Flow-of Funds Approach to Social Accounting: Appraisals, Analysis, and Applications*. Princeton: Princeton University Press, pp. 173–94.

Duesenberry, J. S. (1948). *The Consumption Function: A Study of Relations between Income and Consumer Expenditures*. PhD dissertation, University of Michigan.

Duesenberry, J. S., Eckstein, O. Fromm, G., Klein, L. R. & Kuh, E. (1960). A Simulation of the United States Economy in Recession. *Econometrica*, 28(4), 749–809.

Duncan, J. W. & Shelton, W. C. (1978). *Revolution in United States Government Statistics, 1926-1976*. Washington, D.C.: Department of Commerce, Office of Federal Statistical Policy and Standards.

Dupont-Kieffer, A. & Pirotte, A. (2011). The Early Years of Panel Data Econometrics. *History of Political Economy*, 43(Suppl.), 258–82.

Düppe, T., Halsmayer, V. & Stapleford, T. A. (Forthcoming). *Historical Epistemology of Economics*, Cambridge: Cambridge University Press.

Düppe, T. & Weintraub, E. R. (2014). Siting the New Economic Science: The Cowles Commission's Activity Analysis Conference of June 1949. *Science in Context*, 27(3), 453–83.

Düppe, T. & Weintraub, E. R. (2018). Contemporary Historiography of Economics. *History of Political Economy*, 50(3), 551–3.

Edwards, J. M. (2012). Observing Attitudes, Intentions, and Expectations (1945–73). *History of Political Economy*, 44(Suppl.): 137–59.

Edwards, S. (2025). One Hundred Years of Exchange Rate Economics at the University of Chicago: 1892–1992'. *Journal of the History of Economic Thought*, 47(1), 53–75.

Eichengreen, B. J. (1992). *Golden Fetters: The Gold Standard and the Great Depression, 1919-1939*, Oxford: Oxford University Press.

Epstein, J. (2024). *Interview with Joshua Epstein, Conducted by Romain Plassard and Francesco Sergi on April 11th, 2024.* Oral Histories of Economics. Dataset Nakala, https://doi.org/10.34847/NKL.034BBFRN.

Epstein, J. M. & Axtell, R. (1996). *Growing Artificial Societies: Social Science from the Bottom Up*, Washington, D.C.: Brookings Institution Press.

Fernández-Villaverde, J. (2010). The Econometrics of DSGE Models. *SERIEs*, 1(1–2), 3–49.

Fetter, F. W. (1965). *Development of British Monetary Orthodoxy, 1797-1875*, Cambridge: Harvard University Press.

Fèvre, R. (2021). *A Political Economy of Power. Ordoliberalism in Context, 1932-1950*, Oxford: Oxford University Press.

Fontana, M. (2006). Computer Simulations, Mathematics and Economics. *International Review of Economics*, 53(1), 96–123.

Fontana, Magda. 2010. 'The Santa Fe Perspective on Economics: Emerging Patterns in the Science of Complexity'. *History of Economic Ideas: XVIII, 2, 2010*, 1000–1030.

Fontana, M. & Corsatea, T. D. (2013). Empirical Evidence of Innovation in Economic Theory: Scientific Interaction and Knowledge Diffusion at the Santa Fe Institute. *Complexity Economics. Complexity, Crises & Choices*, 1(2), 77–105.

Forder, J. (2010). Friedman's Nobel Lecture and The Phillips Curve Myth. *Journal of the History*

of Economic Thought, 32(3), 329–48.

Forder, J. (2014). *Macroeconomics and the Phillips Curve Myth*, Oxford: Oxford University Press.

Forder, J. (2018). What Was the Message of Friedman's Presidential Address to the American Economic Association? *Cambridge Journal of Economics*, 42(2), 523–41.

Forder, J. & Sømme, K. (2019). Explaining the Fame of Friedman's Presidential Address. *Cambridge Journal of Economics*, 43(6), 1683–700.

Fourcade, M. (2006). The Construction of a Global Profession: The Transnationalization of Economics. *American Journal of Sociology*, 112(1), 145–94.

Fourcade, M. (2009). *Economists and Societies: Discipline and Profession in the United States, Britain, and France, 1890s to 1990s*, Princeton: Princeton University Press.

Friedman, M. (1957). *Theory of the Consumption Function*, Princeton: Princeton University Press.

Friedman, M. (1960). *A Program for Monetary Stability*, New York: Fordham University Press.

Friedman, M. (1968). The Role of Monetary Policy. *The American Economic Review*, 58(1), 1–17.

Friedman, M. & Schwartz, A. J. (1963). *A Monetary History of the United States 1867-1960*, Princeton: Princeton University Press.

Friedman, W. A. (2009). The Harvard Economic Service and the Problems of Forecasting. *History of Political Economy*, 41(1), 57–88.

Frisch, R. (1933). Propagation Problems and Impulse Problems in Dynamic Economies. In R. Frisch & K. Koch, eds., *Economic Essays in Honour of Gustav Cassel*. London: Allen & Unwin, 117–47.

Frisch, R. (1938). *Autonomy of Economic Relations. Statistical versus Theoretical Relations in Economic Macrodynamics*, Geneva: League of Nations.

Galbács, P. (2020). *The Friedman-Lucas Transition in Macroeconomics: A Structuralist Approach*, New York: Academic Press.

Galvão de Almeida, R. (2021). A Macroeconomic View of Public Choice: New Political Macroeconomics as a Separate Tradition of Public Choice. *Œconomia. History, Methodology, Philosophy*, 11(1), 77–105.

García, C., Otero, D. & Salazar, B. (2023). The Drifting Influence of Hall's Random-Walk Hypothesis on Consumption Modeling. *History of Political Economy*, 55(1), 103–43.

Gaspard, M. & Missemer, A. (2022). L'intégration des ressources naturelles dans la modélisation macroéconomique : l'empreinte de Robert M. Solow. *Revue française d'économie*, 37(3), 147–84.

Giraud, Y. (2014). Legitimizing Napkin Drawing: The Curious Dispersion of Laffer Curves, 1978-2008. In C. Coopmans, J. Vertesi, M. E. Lynch& S. Woolgar, eds., *Representation in Scientific Practice Revisited*. Cambridge: MIT Press, pp. 269–91.

Glandon, P. J., Kuttner, K, Mazumder, S. & Stroup, C. (2023). Macroeconomic Research, Present and Past. *Journal of Economic Literature*, 61(3), 1088–126.

Goldschmidt, L. (2022). *Econocrats: The Role of Economists in Danish Bureaucracy, 1850-1975*. PhD dissertation, Aarhus University.

Goodfriend, M. & King, R. (1997). The New Neoclassical Synthesis and the Role of Monetary Policy. In B. Bernanke & J. Rotenberg, eds., *NBER Macroeconomics Annual*. Cambridge: MIT Press, pp. 231–83

Gordon, R. J. (1997). The Time-Varying NAIRU and Its Implications for Economic Policy. *The Journal of Economic Perspectives*, 11(1), 11–32.

Goutsmedt, A. (2021). From the Stagflation to the Great Inflation: Explaining the US Economy of the 1970s. *Revue d'économie politique*, 131(3), 557–82.

Goutsmedt, A. (2022). How the Phillips Curve Shaped Full Employment Policy in the 1970s: The Debates on the Humphrey-Hawkins Act. *History of Political Economy*, 54(4), 619–53.

Goutsmedt, A. & Rubin, G. (2018). Robert J. Gordon and the Introduction of the Natural Rate Hypothesis in the Keynesian Framework. *History of Economic Ideas*, 26(3), 157–87.

Goutsmedt, A. & Sergi, F. (2025). Redefining Scientization: Central Banks between Science and Politics. *Finance and Society*, 11(2), 209–229.

Goutsmedt, A. & Truc, A. (2023). An Independent European Macroeconomics? A History of European Macroeconomics through the Lens of the *European Economic Review*. *European Economic Review*, 158, 104559.

Goutsmedt, A. & Truc, A. (2025). *Digital History of Macroeconomics*. Zenodo, January 10. https://doi.org/10.5281/zenodo.14627002.

Goutsmedt, A., Acosta, J. & Sergi, F. (2026). *Economists, Economic Knowledge and Central Banks*. Cambridge: Cambridge University Press.

Goutsmedt, A., Guizzo, D. & Sergi, F. (2019). An Agenda without a Plan. Robert E. Lucas's Trajectory through the Public Debate. *Œconomia. History, Methodology, Philosophy*, 9(2), 289–314.

Goutsmedt, A., Renault, M. & Sergi, F. (2021). European Economics and the Early Years of the International Seminar on Macroeconomics. *Revue d'économie politique*, 131(4), 693–722.

Goutsmedt, A., Sergi, F., Cherrier, B., Acosta, J., Claveau, F. & Fontan, C. (2024). To Change or

Not to Change. The Evolution of Forecasting Models at the Bank of England. *Journal of Economic Methodology*, 32(2), 66–86.

Gradoz, J. (2023). The Computer and the Statistician. Computerization and the Mobilization of Scanner Data by National Statistical Institutes for the Construction of Price Indexes. *Œconomia. History, Methodology, Philosophy*, 13(3), 849–76.

Gurley, J. G. & Shaw, E. S. (1955). Financial Aspects of Economic Development. *The American Economic Review*, 45(4), 515–38.

Gurley, J. G. & Shaw, E. S. (1957). The Growth of Debt and Money in the United States, 1800-1950: A Suggested Interpretation. *The Review of Economics and Statistics*, 39(3), 250–62.

Haavelmo, T. (1944). The Probability Approach in Econometrics. *Econometrica*, 12(Suppl.), 1–115.

Hagemann, H. & Trautwein, H.-M. (1998). Cantillon and Ricardo Effects: Hayek's Contributions to Business Cycle Theory. *The European Journal of the History of Economic Thought*, 5(2), 292–316.

Hall, P. A., ed. (1989). *The Political Power of Economic Ideas: Keynesianism Across Nations*, Princeton: Princeton University Press.

Hall, S. G. & Henry, S.G.B. (2018). Macro Modelling at the NIESR: Its Recent History. *National Institute Economic Review*, 246, R15–23.

Halsmayer, V. (2017). A Model to 'Make Decisions and Take Actions: Leif Johansen's Multisector Growth Model, Computerized Macroeconomic Planning, and Resilient Infrastructures for Policymaking. *History of Political Economy*, 49(Suppl.), 158–86.

Halsmayer, V. (2024). *Managing Growth in Miniature: Solow's Model as an Artifact*, Cambridge: Cambridge University Press.

Hamilton, J. D. (1989). A New Approach to the Economic Analysis of Nonstationary Time Series and the Business Cycle. *Econometrica*, 57(2), 357–84.

Hammond, G. (2012). *State of the Art of Inflation Targeting*, London: Bank of England, Centre for Central Banking Studies.

Hammond, J.D. (2005). *Theory and Measurement*, Cambridge: Cambridge University Press.

Hansen, A. H. (1953). *A Guide to Keynes*. New York: McGraw-Hill Book Company.

Harcourt, G. C. (1972). *Some Cambridge Controversies in the Theory of Capital*, Cambridge: Cambridge University Press.

Hayek, F. H. (1931). *Prices and Production*, London: Routledge.

Hayek, F. H. (1933). *Monetary Theory and the Trade Cycle*, London: Jonathan Cape.

Hegeland, H. (1954). *The Multiplier Theory*, Lund: C. W. K. Gleerup.

Heijdra, B. J. & Ploeg, F. (2002). *Foundations of Modern Macroeconomics*. Oxford: Oxford University Press.

Hendry, D. F. & Morgan, M. S., eds. (1996). *The Foundations of Econometric Analysis*, Cambridge: Cambridge University Press.

Hetzel, R. L. (2008). *The Monetary Policy of the Federal Reserve a History*, Cambridge: Cambridge University Press.

Hickman, B. G., ed. (1965). *Quantitative Planning of Economic Policy*, Washington, D.C.: Brookings Institution.

Hickman, B. G. (1991). Project LINK and Multi-Country Modelling. In R. G. Bodkin, L. R. Klein & K. Marwah, *A History of Macroeconometric Model-Building*. Cheltenham: Edward Elgar, pp. 482–506.

Hicks, J. R. (1937). Mr. Keynes and the 'Classics'. A Suggested Interpretation. *Econometrica*, 5(2), 147–59.

Hicks, J. R. (1939). *Value and Capital. An Inquiry into Some Fundamental Principles of Economic Theory*, Oxford: The Clarendon Press.

Hirschman, D. (2016a). *Inventing the Economy Or: How We Learned to Stop Worrying and Love the GDP*. PhD dissertation, University of Michigan.

Hirschman, D. (2016b). Stylized Facts in the Social Sciences. *Sociological Science*, 3, 604–26.

His, F. (2025). *A History of Financial Keynesianism: From Hyman Minsky's Financial Instability Hypothesis to Modern Monetary Theory*. PhD dissertation, Université Paris 1 Panthéon-Sorbonne.

Hoover, K. D., ed. (1995). *Macroeconometrics: Developments, Tensions, and Prospects*, New York: Kluwer Academic Pub.

Hoover, K. D. (2005). Methodology of Econometrics. In T. C. Mills & K. P., eds., *Palgrave Handbooks of Econometrics*. Volume 1: Theoretical Econometrics. London: Palgrave Macmillan, pp. 61–87.

Hoover, K. D. (2006). Dr. Keynes: Economic Theory in a Diagnostic Science. In R. E. Backhouse & B. W. Bateman, eds., *Cambridge Companion to Keynes*. Cambridge: Cambridge University Press, pp. 78–97.

Hoover, K. D. (2012). Microfoundational Programs. In P.G. Duarte & G. T. Lima, eds., *Microfoundations Reconsidered: The Relationship of Micro and Macroeconomics in*

Historical Perspective. Cheltenham: Edward Elgar, pp. 19–61.

Hoover, K. D. (2015a). Macroeconomics, History From 1933 to Present. In J. D. Wright, ed., *International Encyclopedia of the Social & Behavioral Sciences*. Volume 14. Oxford: Elsevier, 400–405.

Hoover, K. D. (2015b). The Genesis of Samuelson and Solow's Price-Inflation Phillips Curve. *History of Economics Review*, 61(1), 1–16.

Hošman, M. T. (2024). The Most Important Research Project: The World Bank and the Commodity Problem of International Development in the 1960s. *The European Journal of the History of Economic Thought*, 31(6), 1034–57.

Hošman, M. T. (2025). *Development Brokers: The World Bank, Economic Expertise, and the Reinvention of Global Economic Governance in the 1960s*. PhD dissertation, Université Paris Cité & Università degli studi di Bologna.

Howson, S. & Winch, D. (1977). *The Economic Advisory Council, 1930–1939: A Study in Economic Advice during Depression and Recovery*, Cambridge: Cambridge University Press.

Johansen, L. (1985). Richard Stone's Contributions to Economics. *The Scandinavian Journal of Economics*, 87(1), 4–3.

Johnson, E. (1974). John Maynard Keynes: Scientist or Politician? *Journal of Political Economy*, 82(1), 99–111.

Johnson, P. A. (1998). *The Government of Money: Monetarism in Germany and the United States*, Ithaca: Cornell University Press.

Jones, K. (1988). Fifty Years of Economic Research: A Brief History of the National Institute of Economic and Social Research, 1938–88. *National Institute Economic Review*, 124, 99–111.

Judd, K. L. (1998). *Numerical Methods in Economics*, Cambridge: MIT Press.

Juglar, C. (1862). *Des crises commerciales et de leur retour périodique*, Paris: Guillaumin.

Kahn, R. F. (1931). The Relation of Home Investment to Unemployment. *The Economic Journal*, 41(162), 173–98.

Kaldor, N. (1961). Capital Accumulation and Economic Growth. In N. Kaldor, *The Theory of Capital*. London: Palgrave Macmillan, pp. 177–222.

Kalecki, M. (1935). A Macrodynamic Theory of Business Cycles. *Econometrica*, 3(3), 327–44.

Kayzel, T. (2019). A Night Train in Broad Daylight: Changing Economic Expertise at the Dutch Central Planning Bureau 1945–1977. *Œconomia. History, Methodology, Philosophy*, 9(2), 337–70.

Kent, R. J. (2007). A 1929 Application of Multiplier Analysis by Keynes. *History of Political Economy*, 39(3), 529–43.

Kettl, D. F. (1986). *Leadership at the Fed*, New Haven: Yale University Press.

Keynes, J. M. (1923). *A Tract on Monetary Reform*, London: Macmillan.

Keynes, J. M. (1930). *A Treatise on Money*, London: Macmillan.

Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money*, London: Macmillan.

Keynes, J. M. (1940). *How to Pay for the War*, London: Macmillan.

Keynes, J. M. & Henderson, H. D. (1929). Can Lloyd George Do It? *The Nation*.

Kim, K. (1988). *Equilibrium Business Cycle Theory in Historical Perspective*, Cambridge: Cambridge University Press.

King, J. 2002. *The History of Post-Keynesian Economics Since 1936*, London: Routledge.

King, R. G., Plosser, C. I. & Rebelo, S. T. (1988). Production, Growth and Business Cycles: I. The Basic Neoclassical Model. *Journal of Monetary Economics*, 21(2), 195–232.

Klein, J. (2015). *The Cold War Hot House for Modeling Strategies at the Carnegie Institute of Technology*. SSRN Scholarly Paper No. 2667883. Social Science Research Network, September 29. https://doi.org/10.2139/ssrn.2667883.

Klein, L. R. (1947). *The Keynesian Revolution*, New York: Macmillan.

Klein, L. R. &. Goldberger, A. S. (1955). *An Econometric Model of the United States, 1929-1952*, Amsterdam: North Holland.

Koopmans, T. (1936). *Linear Regression Analysis of Economic Time Series*, Harlem: De Erven F. Bohn.

Kraemer, K. L., Dickhoven, S., Fallows Tierney, S. & King J. L. (1987). *Datawars: The Politics of Modeling in Federal Policymaking*, New York: Columbia University Press.

Krippner, G. R. (2005). The Financialization of the American Economy. *Socio-Economic Review*, 3(2), 173–208.

Krippner, G. R. (2007). The Making of Us Monetary Policy: Central Bank Transparency and the Neoliberal Dilemma. *Theory and Society*, 36(6), 477–513.

Krueger, A. O. (1991). Report of the Commission on Graduate Education in Economics. *Journal of Economic Literature*, 29(3), 1035–53.

Kydland, F. E. & Prescott, E. C. (1977). Rules Rather than Discretion: The Inconsistency of Optimal Plans. *Journal of Political Economy*, 85(3), 473–91.

Laidler, D. (2006). Keynes and the Birth of Modern Macroeconomics. In R.E. Backhouse & B. W. Bateman, eds., *The Cambridge Companion to Keynes*. Cambrige: Cambridge University Press, pp. 39–57.

Laidler, D. (2008). Axel Leijonhufvud and the Quest for Micro-Foundations: Some Reflections. In R.F. Farmer, ed., *Macroeconomics in the Small and the Large*. London: Edward Elgar, pp. 1–22.

Laidler, D. (1991). *Golden Age of the Quantity Theory*, Princeton: Princeton University Press.

Lampa, R. (2025). *Oskar Lange: An Academic Biography*, Cham: Springer.

Lane, P. R. (2001). The New Open Economy Macroeconomics: A Survey. *Journal of International Economics*, 54(2), 235–66.

Lange, O. (1938). The Rate of Interest and the Optimum Propensity to Consume. *Economica*, 5(17), 12–32.

Laskaridis, C. (2025). Hierarchies of Expertise and the Early Days of Research at the World Bank. *Journal of Economic Methodology*, 32(2), 108–23.

Lawlor, M. S. (2006). *The Economics of Keynes in Historical Context*, London: Palgrave Macmillan.

Leeson, R. (1997). The Eclipse of the Goal of Zero Inflation. *History of Political Economy*, 29(3), 445–96.

Legendre, F. (2019). The Emergence and Consolidation of Microsimulation Methods in France. *Économie et Statistique*, 510(1), 201–17.

Lehtinen, A. & Kuorikoski, J. (2021). Computer Simulations in Economics. In C. Heilmann & J. Reiss, eds., *The Routledge Handbook of the Philosophy of Economics*. London: Routledge, pp. 355–69.

Leijonhufvud, A. (1968). *On Keynesian Economics and the Economics of Keynes*, Oxford: Oxford University Press.

Leloup, S., Carré, E. & L'Oeillet, G. (2024). *The New Keynesian 3-Equations Model: A Revisited History. An Inquiry into Its Origins in the Works of Jeffrey Fuhrer and George Moore*. Working Paper. https://ideas.repec.org/p/hal/journl/hal-04776217.html.

Lenel, L. (2021). *The Hopeful Science. A Transatlantic History of Business Forecasting, 1920–1960*. PhD dissertation, Humboldt-Universität zu Berlin.

Lenel, L. (2023). The Introduction of the Electronic Computer and the End of Business Forecasting at the NBER. *Œconomia. History, Methodology, Philosophy*, 13(3), 657–80.

Léonard, C. (2024). *Généalogie du système de financement public français. Les doctrines de la dette publique de l'entre-deux-guerres aux années 1960*. PhD dissertation, Université Paris 1 Panthéon-Sorbonne.

Leontief, W. (1954). Mathematics in Economics. *Bulletin of the American Mathematical Society*, 60(3), 215–33.

Lepenies, P. (2016). *The Power of a Single Number: A Political History of GDP*, New York: Columbia University Press.

Louçã, F. (1999). Nikolai Kondratiev and the Early Consensus and Dissensions about History and Statistics. *History of Political Economy*, 31(1), 169–205.

Louçã, F. (2004). Swinging All the Way: The Education of Doctor Lucas and Foes'. *History of Political Economy*, 36(4), 689–735.

Louçã, F. (2007). *The Years of High Econometrics: A Short History of the Generation That Reinvented Economics*, London: Routledge.

Lucas, R. E. (1973). Some International Evidence on Output-Inflation Tradeoffs. *The American Economic Review*, 63(3), 326–34.

Lucas, R. E. (1977). Understanding Business Cycles. *Carnegie-Rochester Conference Series on Public Policy*, 5(1), 7–29.

Lucas, R. E. (1980). Rules, Discretion, and the Role of the Economic Advisor. In S. Fischer, ed., *Rational Expectations and Economic Policy*. Chicago: University of Chicago Press, pp. 199–210.

Lucas., R. E. & Sargent, T. J. (1979). After Keynesian Macroeconomics. *Federal Reserve Bank of Minnesota Quarterly Review*, 3(2), 1–16.

Maes, I. & Pasotti, I. (2020). *Robert Triffin: A Life*. Oxford: Oxford University Press.

Malinvaud, E. (1977). *The Theory of Unemployment Reconsidered*, Oxford: Basil Blackwell.

Mankiw, N. G. (1990). A Quick Refresher Course in Macroeconomics. *Journal of Economic Literature*, 28(4), 1645–60.

Mankiw, N. G. (2006). The Macroeconomist as Scientist and Engineer. *Journal of Economic Perspectives*, 20(4), 29–46.

Marcuzzo, M. C. (2002). The Collaboration between J. M. Keynes and R. F. Kahn from the *Treatise* to the *General Theory*. *History of Political Economy*, 34(2), 421–48.

Marcuzzo, M. C. (2021). Kalecki and Cambridge. In L.-P. Rochon, M. Czachor & G. R. Bachurewicz, eds., *Kalecki and Kaleckian Economics*. London: Routledge, pp. 14–24.

Marx, E. (2023). *Keynes, Keyserling, and the Intellectual Origins of the Employment Act 1946*. PhD dissertation, The University of Queensland.

Mason, P. (2016). It's Time to Junk the Flawed Economic Models That Make the World a Dangerous Place. Opinion. *The Guardian*, September 19. https://www.theguardian.com/commentisfree/2016/sep/19/its-time-to-junk-the-flawed-economic-models-that-make-the-world-a-dangerous-place.

Mata, T. (2004). Constructing Identity: The Post Keynesians and the Capital Controversies. *Journal of the History of Economic Thought*, 26(2), 241–59.

Mata, T. & Medema, S. G. (2013). Cultures of Expertise and the Public Interventions of Economists. *History of Political Economy*, 45(Suppl.): 1–19.

McGregor, R. R. & Young, W. (2013). Federal Reserve Bank Presidents as Public Intellectuals'. *History of Political Economy*, 45(Suppl.), 166–90.

Mehrling, P. (2002). Don Patinkin and the Origins of Postwar Monetary Orthodoxy. *The European Journal of the History of Economic Thought*, 9(2), 161–85.

Mehrling, P. (2022). *Money and Empire*, Cambridge: Cambridge University Press.

Minsky, H. P. (1964). Financial Crisis, Financial Systems, and the Performance of the Economy. In . Fried, ed., *Commission on Money and Credit, Private Capital Markets*. Hoboken: Prentice-Hall, pp. 173–219.

Missemer, A. (2026). A Plea for a Global and Multilateral Histories of Economic Thought. *The European Journal of the History of Economic Thought*, in press.

Mitchell, T. (2002). *Rule of Experts: Egypt, Techno-Politics, Modernity*, Berkeley, University of California Press.

Mitchell, W. C. (1913). *Business Cycles*. New York: Burt Franklin.

Mitchell, W. C. (1924). Quantitative Analysis in Economic Theory. *The American Economic Review*, 15(1), 1–12.

Mitchell, W. C. & Burns, A. (1946). *Measuring Business Cycles*. New York: National Bureau of Economic Research.

Modigliani, F. (1944). Liquidity Preference and the Theory of Interest and Money. *Econometrica*, 12(1), 45–88.

Modigliani, F. & Brumberg, R. (1954). Utility Analysis and the Consumption Function: An Interpretation of Cross-Section. In R. Kurihara, ed., *Post-Keynesian Economics*. New Brunswick: Rutgers University Press, 388–436.

Monnet, E. (2015). La politique de la Banque de France au sortir des Trente Glorieuses : un

tournant monétariste ? *Revue d'histoire moderne et contemporaine*, 62(1), 147–74.

Monnet, E. (2018). *Controlling Credit: Central Banking and the Planned Economy in Postwar France*, Cambridge: Cambridge University Press.

Morgan, M. S. (1990). *The History of Econometric Ideas*, Cambridge: Cambridge University Press.

Morgan, M. S. (2012). *The World in the Model: How Economists Work and Think*, Cambridge: Cambridge University Press.

Morgan, M. S. & Rutherford, M. (1998). American Economics: The Character of the Transformation. *History of Political Economy*, 30 (Suppl.), 1–26.

Morgan, M. S. & Stapleford, T. A. (2023). Narrative in Economics: A New Turn on the Past. *History of Political Economy*, 55(3), 395–421.

Mortensen, D.T. & Pissarides, C.A. (1994). Job Creation and Job Destruction in the Theory of Unemployment. *The Review of Economic Studies*, 61(3), 397–415.

Mudge, S. L. & Vauchez, A. (2018). Too Embedded to Fail. *Historical Social Research/Historische Sozialforschung*, 43(3), 248–73.

Muniz Duarte, L. (2023). *La modélisation macroéconomique en France : une histoire des pratiques de prévision au SEEF et à la DP entre 1950 et 1975*. PhD Thesis, Université Lumière - Lyon II.

Nelson, E. (2020). *Milton Friedman and Economic Debate in the United States, 1932–1972*, Volume 2, Chicago: University of Chicago Press.

Nickell, S. (1997). Unemployment and Labor Market Rigidities: Europe versus North America. *Journal of Economic Perspectives*, 11(3), 55–74.

Nordhaus, W. D. (1975). The Political Business Cycle. *The Review of Economic Studies*, 42(2): 169–90.

Obstfeld, M. & Rogoff, K. (2000). New Directions for Stochastic Open Economy Models. *Journal of International Economics*, 50(1), 117–53.

Obstfeld, M. & Rogoff, K. (2001). The Six Major Puzzles in International Macroeconomics: Is There a Common Cause? In M. Obstfeld & K. Rogoff, eds., *NBER Macroeconomics Annual 2000*. Volume 15. Cambridge: MIT Press, pp. 339–412.

Okun, A. M. (1980). Rational-Expectations-with-Misperceptions As a Theory of the Business Cycle. *Journal of Money, Credit and Banking*, 12(4), 817–25.

Passard, M. & Sergi, F. (2026). Behavioral Macroeconomics: An Alternative Programme for Microfoundations. *History of Political Economy*, in press.

Patinkin, D. (1956). *Money, Interest and Prices*, New York: Row, Peterson and Co.

Pearce, K. A. & Hoover, K. D. (1995). After the Revolution: Paul Samuelson and the Textbook Keynesian Model. *History of Political Economy*, 27(5), 183–216.

Perron, P. (1989). The Great Crash, the Oil Price Shock, and the Unit Root Hypothesis. *Econometrica*, 57(6), 1361–401.

Phelps, E. S. (1990). *Seven Schools of Macroeconomic Thought*, Oxford: Oxford University Press.

Phillips, A. W. (1958). The Relation between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861-1957. *Economica*, 25(100), 283–99.

Pierse, R. (2024). *Interview with Richard Pierse, Conducted by Francesco Sergi, Pierrick Dechaux, and Thomas Delcey on March 11th 2024*. Oral Histories of Economics. Dataset NAKALA, https://doi.org/10.34847/nkl.2317p125.

Pigou, A. C. (1923). *Industrial Fluctuations*, London: Macmillan and Co.

Pinzón-Fuchs, E. (2019). Lawrence R. Klein and the Making of Large-Scale Macroeconometric Modeling, 1938–55. *History of Political Economy*, 51(3), 401–23.

Plassard, R. (2018). Clower's Volte-Face Regarding the 'Keynesian Revolution'. *History of Political Economy*, 50(2), 261–87.

Plassard, R. (2020). *Making a Breach: The Incorporation of Agent-Based Models into the Bank of England's Toolkit*. GREDEG Working Paper Series. GREDEG, Université Côté d'Azur.

Plassard, R. & Renault, M. (2023). General Equilibrium Models with Rationing: The Making of a 'European Specialty'. *European Economic Review*, 159, 104570.

Porter, T. M. (1995). *Trust in Numbers. The Pursuit of Objectivity in Science and Public Life*, Princeton: Princeton University Press.

Prescott, E. C. (1986). Theory Ahead of Business-Cycle Measurement. *Carnegie-Rochester Conference Series on Public Policy*, 25(1), 11–44.

Qin, D. (2013). *A History of Econometrics: The Reformation from the 1970s*, Oxford: Oxford University Press.

Qin, D. (2014). Inextricability of Autonomy and Confluence in Econometrics. *Œconomia. History, Methodology, Philosophy*, 4(3), 321–41.

Rancan, A. (2017). The Wage–Employment Relationship in Modigliani's 1944 Article. *The European Journal of the History of Economic Thought*, 24(1), 143–74.

Rancan, A. (2019). Empirical Macroeconomics in a Policy Context: The Fed-MIT-Penn Model Versus the St. Louis Model, 1965–75. *History of Political Economy*, 51(3), 449–70.

Rancan, A. (2020). On the Rationalization of Italian Decision-Making Process: Behind the Construction of the Bank of Italy's First Macroeconometric Model (1964-1970). *History of Economic Ideas*, 28(3), 11–38.

Rancan, A. (2022a). *Franco Modigliani and Keynesian Economics*, London: Routledge.

Rancan, A. (2022b). The "Place of the Phillips Curve" in Macroeconometric Models: The Case of the Federal Reserve Board's Model (1966–1980s). *Journal of the History of Economic Thought*, 44(2), 161–81.

Rancan, A. & Sergi, F. (2024). *Modelling Europe. A History of Multi-Country Models at the European Commission (1970-2005)*, London: Palgrave Macmillan.

Renault, M. (2020). Edmond Malinvaud's Criticisms of the New Classical Economics: Restoring the Nature and Rationale of the Old Keynesians' Opposition. *Journal of the History of Economic Thought*, 42(4), 563–85.

Renfro, C. G. (2004). Econometric Software: The First Fifty Years in Perspective. *Journal of Economic and Social Measurement*, 29(1–3): 9–107.

Renfro, C. G., ed. (2009). *The Practice of Econometric Theory: An Examination of the Characteristics of Econometric Computation*, Berlin: Springer-Verlag.

Repapis, C. (2011). Hayek's Business Cycle Theory During the 1930s: A Critical Account of Its Development. *History of Political Economy*, 43(4), 699–742.

Rey, H. (2015). *Dilemma Not Trilemma: The Global Financial Cycle and Monetary Policy Independence*. NBER Working Paper, no. 21162. National Bureau of Economic Research.

Robinson, Joan. (1971). *Economic Heresies*. New York: Basic Books.

Rogoff, K. (1996). The Purchasing Power Parity Puzzle. *Journal of Economic Literature*, 34(2), 647–68.

Romani, R. (2018). On Science and Reform: The Parable of the New Economics, 1960s–1970s'. *The European Journal of the History of Economic Thought*, 25(2), 295–326.

Roos, M. (2017). Behavioral and Complexity Macroeconomics. *European Journal of Economics and Economic Policies: Intervention*, 14(2), 186–99.

Rubin, G. (2002). From Equilibrium to Disequilibrium: The Genesis of Don Patinkin's Interpretation of the Keynesian Theory'. *The European Journal of the History of Economic Thought*, 9(2), 205–25.

Rubin, G. (2004). Patinkin on IS-LM: An Alternative to Modigliani. *History of Political Economy*, 36(5), 190–216.

Rubin, G. (2005). La controverse entre Clower et Patinkin au sujet de la validité de la loi de Walras.

Revue économique, 56(1), 5–24.

Rubin, G. (2012). Don Patinkin's PhD Dissertation as the Prehistory of Disequilibrium Theories. *History of Political Economy*, 44(2), 235–76.

Rubin, G. (2016). Oskar Lange and the Walrasian Interpretation of IS-LM. *Journal of the History of Economic Thought*, 38(3), 285–309.

Rubin, G. (2019). Don Patinkin. In G. Faccarello & H. Kurz, eds., *Handbook of the History of Economic Analysis*. Vol. 1: Great Economists since Petty and Boisguilbert. Cheltenham Edward Elgar, pp. 706–11.

Rubin, G. (2025). Towards a History of Endogenous Growth Theories: An Introduction. *Cahiers d'économie politique*, 87(2), 10–42.

Rubin, G., Renault, M. & Plassard, R. (2021). Modelling Market Dynamics: Jean-Pascal Bénassy, Edmond Malinvaud, and the Development of Disequilibrium Macroeconomics. *History of Economic Ideas*, 29(1), 83–114.

Rutherford, M. (2011). *Institutionalist Movement in the American Economics 1918-1947*, Cambridge: Cambridge University Press.

Saïdi, A. (2019). How Saline Is the Solow Residual?: Debating Real Business Cycles in the 1980s and 1990s. *History of Political Economy*, 51(3), 579–99.

Saïdi, A. (2024). From Coordination Devices to Coordination Failures: On the Changing Epistemology of Sunspots Since the 1970s. *The European Journal of the History of Economic Thought*, 31(2), 277–300.

Salazar, B. & Otero, D. (2019). A Tale of a Tool: The Impact of Sims's Vector Autoregressions on Macroeconometrics. *History of Political Economy*, 51(3), 557–78.

Sampaio, G. (2026). *Keynes, Keynesianism, and International Organisations*, Cambridge: Cambridge University Press.

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

Samuelson, P. A. (1955). *Economics*, 3rd edn, New York: McGraw-Hill.

Samuelson, P. A. & Solow, R. M. (1960). Analytical Aspects of Anti-Inflation Policy. *The American Economic Review*, 50(2), 177–94.

Sargent, T. J. & Wallace, N. (1975). Rational Expectations, the Optimal Monetary Instrument, and the Optimal Money Supply Rule. *Journal of Political Economy*, 83(2), 241–54.

Sawyer, M. (1998). The Positive Dissent of Michal Kalecki. In R. P. F. Holt & S. Pressman, eds., *Economics and Its Discontents*. Cheltenham: Edward Elgar Publishing, 119–34.

Schabas, M. (2009). Constructing 'The Economy'. *Philosophy of the Social Sciences*, 39(1), 3–19.

Schumpeter, J. A. (1939). *Business Cycles: A Theoretical, Historical, and Statistical Analysis of the Capitalist Process*, Brewster, MA: Porcupine Press.

Sent, E.-M. (1997). Sargent Versus Simon: Bounded Rationality Unbound. *Cambridge Journal of Economics*, 21(3), 323–38.

Sent, E.-M. (2002). How (Not) to Influence People: The Contrary Tale of John F. Muth. *History of Political Economy*, 34(2), 291–320.

Sergi, F. (2020). The Standard Narrative About DSGE Models in Central Banks' Technical Reports. *The European Journal of the History of Economic Thought*, 27(2), 163–93.

Shackle, G. L. S. (1956). *The Years of High Theory: Invention and Tradition in Economic Thought 1926–1939*, Cambridge: Cambridge University Press.

Skidelsky, R. (1995). *John Maynard Keynes: A Biography. Volume 2: The Economist as Savior, 1920–1937*, London: Penguin Books.

Slutsky, E. (1937). The Summation of Random Causes as the Source of Cyclic Processes. *Econometrica*, 5(2): 105–46.

Smith, D. (1987). *The Rise and Fall of Monetarism*, London: Penguin Books.

Snowdon, B., Vane, H. R. & Wynarczyk, P. 2005. *A Modern Guide to Macroeconomics. An Introduction to Competing Schools of Thought*, Cheltenham: Edward Elgar.

Solow, R. M. (1956). A Contribution to the Theory of Economic Growth. *The Quarterly Journal of Economics*, 70(1), 65–94.

Solow, R. M. (1957). Technical Change and the Aggregate Production Function. *The Review of Economics and Statistics*, 39(3), 312–20.

Sparsam, J. & Pahl H. (2022). Macroeconomics and Monetary Policy as Autonomous Domains of Knowledge and Power: Rational Expectations, Monetarism and the Federal Reserve. In J. Maesse, S. Pühringer, T. Rossier & P. Benz, eds., *Power and Influence of Economists*. London: Routledge, 36–52.

Speich, D. (2011). The Use of Global Abstractions: National Income Accounting in the Period of Imperial Decline. *Journal of Global History*, 6(1), 7–28.

Stapleford, T. A. (2017). Historical Epistemology and the History of Economics: Views Through the Lens of Practice. *Research in the History of Economic Thought and Methodology*, 35A, 113–45.

Stein, H. (1994). *Presidential Economics: The Making of Economic Policy from Roosevelt to Clinton*, Washington, D.C.: American Enterprise Institute.

Taylor, J. B. (1993). Discretion Versus Policy Rules in Practice. *Carnegie-Rochester Conference Series on Public Policy*, 39(2), 195–214.

Teixeira, M. (2025). Did French Economists Ask for Inflation to Reduce Public Debt at the End of World War II? *The European Journal of the History of Economic Thought*, 32(1), 58–84.

Thirlwall, A. P. (1982). *Keynes as a Policy Adviser*, Berlin: Springer.

Thomassen, E. (2017). Translating Central Bank Independence into Norwegian: Central Bankers and the Diffusion of Central Bank Independence to Norway in the 1990s. *Review of International Political Economy*, 24(5), 839–58.

Tinbergen, J. (1935). Annual Survey: Suggestions on Quantitative Business Cycle Theory. *Econometrica*, 3(3), 241–308.

Tinbergen, J. (1956). *Economic Policy: Principles and Design*, Amsterdam: North-Holland.

Tooze, J. A. (2001). *Statistics and the German State, 1900-1945. The Making of Modern Economic Knowledge*, Cambridge: Cambridge University Press.

Trautwein, H.-M. (1996). Money, Equilibrium, and the Business Cycle: Hayek's Wicksellian Dichotomy. *History of Political Economy*, 28(1), 27–55.

Trautwein, H.-M. (2019). *Axel Leijonhufvud*. In R. W. Dimand & H. Hageman, eds., *The Elgar Companion to John Maynard Keynes*. London: Edward Elgar, pp. 521–8.

Trautwein, H.-M. (2020). Leijonhufvud on New Keynesian Economics and the Economics of Keynes. *Oxford Economic Papers*, 72(4), 923–45.

Vanoli, A. (2005). *A History of National Accounting*, Amsterdam: IOS Press.

Velupillai, K. (1992). Implicit Nonlinearities in the Economic Dynamics of 'Impulse and Propagation'. In H. J. Holm, ed., *Nonlinearities, Disequilibria and Simulation*. London: Palgrave Macmillan, pp. 57–73.

Vercelli, A. & Sordi, S. (2012). Genesis and Foundations of the Multiplier: Marx, Kalecki and Keynes. *History of Economic Ideas*, 20(2): 137–56.

Vianna Franco, M. P., Ribeiro, L. C., Da Motta, E. & Albuquerque, E. (2022). Beyond Random Causes: Harmonic Analysis of Business Cycles at the Moscow Conjuncture Institute. *Journal of the History of Economic Thought*, 44(3), 456–76.

Wakatabe, M. (2013). Central Banking, Japanese Style: Economics and the Bank of Japan, 1945-1985. *History of Economic Thought and Policy*, 1, 141–60.

Wanniski, J. (1978). *The Way the World Works: How Economies Fail - and Succeed*, New York: Basic Books.

Warburton, C. (1937). National Income and Outlay. *Journal of the American Statistical Association*, 32(200), 759–64.

Wasserfallen, F. (2019). Global Diffusion, Policy Flexibility, and Inflation Targeting. *International Interactions*, 45(4), 617–37.

Weintraub, E. R. (1979). *Microfoundations: The Compatibility of Microeconomics and Macroeconomics*, Cambridge: Cambridge University Press.

Weintraub, E. R. (1991). *Stabilizing Dynamics: Constructing Economic Knowledge*, Cambridge: Cambridge University Press.

Weintraub, E. R. (2002). *How Economics Became a Mathematical Science*. Science and Cultural Theory, Durham, NC: Duke University Press.

Weir, M. (1987). Full Employment as a Political Issue in the United States. *Social Research*, 54(2), 377–402.

Weir, M. (1989). Ideas and Politics: The Acceptance of Keynesianism in Britain and the United States. In P. Hall, ed., *The Political Power of Economic Ideas: Keynesianism Across Nations*. Princeton: Princeton University Press, pp. 53–86.

Wilson, A. (2017). Science's Imagined Pasts. *Isis*, 108(4), 814–26.

Woodford, M. (2003). *Interest and Prices: Foundations of a Theory of Monetary Policy*, Princeton: Princeton University Press.

Young, W. (2011). The Keynesian Revolution and IS-LM: From Enigma to Conundrum. In A. Arnon, J. Weinblatt & W. Young, eds., *Perspectives on Keynesian Economics*. Berlin: Springer, pp. 171–182.

Young, W. (2014). *Real Business Cycle Models in Economics*, London: Routledge.

Young, W. & Fuller, E. W. (2022). *Reinterpreting Mr. Keynes: The IS-LM Enigma Revisited*. Cham: Springer.