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Stabilization Policy: A Turbulent Journey Through Time

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Abstract

The theory and practice of stabilization policy has taken many turns as it evolved over the past century, oscillating between high hopes and deep skepticism regarding the capacity – and desirability - of governments taking responsibility for macroeconomic stability. This pa- per reviews the turbulent history of stabilization policy, highlighting the close interaction be-tween events, policies, and ideas. The focus is on the single most debated issue in this his- tory: the resilience of a market economy in the face of macroeconomic shocks. Views on thisquestion have been shaped by experience, theory and ideology to varying degrees.

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1. Introduction

Early in the 21st Century, the world economy was shaken twice by massive macroeconomic crises. With little more than 10 years between them, they were both associated with a deep slump in economic activity. The first time, the cause was a financial crisis, sparked by the burst-ing of a real estate bubble in the United States. The second time, a pandemic engulfed the world, originating from a formerly little-known city in Eastern China. The two cases differed as much in the mechanisms by which they affected the world economy as they did in their origins. But they shared one important common element: They both provoked a swift and strong response from monetary and fiscal policymakers – the second time even swifter and stronger than the first time. The consensus on the necessity of decisive government interven-tion to prevent an out-of-control implosion of the economy was, if not universal, very broad.

This near-unanimous resolve to engage governments in the macroeconomic stabilization of their economies is remarkable and certainly not a matter of course. The theory and practice of stabilization policy took many turns as it evolved over the past century, oscillating betweenhigh hopes and deep skepticism regarding the capacity – and desirability - of governments taking responsibility for macroeconomic stability. In fact, the very idea of public policy being systematically aimed at macroeconomic stabilization did not make its way into economic thought until well into the 20th century.

This paper reviews the turbulent history of stabilization policy, highlighting the close interac- tion between the evolution of economic thought and the rapidly changing real-world environ-ment on which it is meant to shed light. Previous, book-length accounts of ideas, doctrines and policy regimes can be found in monographs by Snowdon/Vane (2005), De Vroey (2016) and Arnon (2022). Mankiw (2006) offers a reflection on the methodological differences be- tween the research in basic macroeconomic theory and the more applied policy-oriented re- search. Woodford's (1999) survey article lays out the technical and analytical issues of recentmacroeconomics in much detail. The present paper, in contrast, applies a much broader brush

to this long history, placing its focus on one pervasive theme that had been raised by Keynes (1934) early on: the stability of a market economy or, to use a more modern expression, its resilience in the face of macroeconomic shocks. Different policy doctrines and regimes reflect,more than anything else, different judgments on this question. Experience, theory and ideol-ogy have shaped these judgments to varying degrees.

The paper proceeds in seven sections, devoted to seven distinct stages in the evolution of stabilization policy, starting with the periods of the Gold Standard and the Great Depression when stabilization policy became a serious issue in the economic policy discourse for the firsttime. What followed was a sequence of periods distinguished by varying degrees of macroe- conomic turbulence and a continuous, or at times discontinuous, learning process about whatstabilization policy can and cannot achieve. Most recently, against the backdrop of a global financial crisis, the Covid-19 Pandemic and the most recent resurgence of inflation, this learn-ing process continues as old certainties are questioned and new uncertainties arise.

2. The Absence of Macroeconomic Stabilization Under the Gold Standard

The Gold Standard was a monetary system under which the monetary conditions of an econ-omy were determined by the stock of gold and a rigid rate of exchange between gold and money. This left no room for monetary policy to stabilize the price level, the inflation rate or economic activity. Instead, macroeconomic conditions were subject to substantial variation as required by the adjustment mechanisms of the Gold Standard. At the same time, a stabiliz- ing role of fiscal policy was not considered a serious option as taxes and public spending weresmall in relation to national income and principles of ‘sound public finance’ called for govern-ment budgets to be balanced as continually as possible.

The potential conflict between the rules of the game of the Gold Standard and macroeconomicstability did not go unnoticed at the time. Famously, the campaign of William Jennings Bryan for U.S. president in 1896 proposed to break out of the constraints of the Gold Standard. At the center of his campaign was a plea for increasing the money supply by means of a silver- based money creation. In a period of depressed economic activity and deflation, this would have helped heavily indebted farmers against the “idle holders of idle capital” as he put it. As

Bryan lost the election, however, the principle of a hard currency firmly tied to gold carried the day.

The normative case for the unconditional defense of the value of money in terms of gold, at the expense of its stabilization in terms of goods, was increasingly questioned within academiceconomics as well. The crusade for a reversal of priorities in favor of stabilizing the internal price level was led by Keynes (1923, 1925). In a legendary dispute, Keynes was pitted against Montagu Norman, the Governor of the Bank of England, when Winston Churchill, at the timechancellor of the exchequer, sought advice on the crucial issue of returning the United King- dom to the Gold Standard at its pre-war parity in 1925. Keynes pointed to the dire implicationsof the implied overvaluation of the Pound for economic activity and employment. For the Bankof England, in contrast, the return to Gold was a matter of the international standing of Britainas the financial center of the world economy, a matter also of maintaining the trust of inves- tors worldwide who valued the Pound as equivalent to Gold. Foreshadowing later debates in macroeconomics, Norman explicitly framed the Gold question in terms of the advantages of following a strict, time-honored rule as opposed to leaving the management of monetary pol-icy to the discretion of fallible human judgment (Ahamed 2009). In 1925, Churchill, after muchhesitation, opted in favor of the rule at the expense of macroeconomic stability - a costly error, as Keynes had correctly predicted.

3. The Great Depression and the Keynesian Revolution

With the onset of the Great Depression, the viability of the Gold Standard became even moredubious. As monetary policy was put out of action by the "golden fetters" of the Gold Standard(Eichengreen 1992), Keynes supported the use of expansionary fiscal policy to stabilize the economy as early as 1929. In doing so, he had to rebut a host of objections, ranging from doubts about the effectiveness of a demand stimulus to its budgetary cost and its potential inflationary effect. To no avail. Decision makers pulled all the wrong levers, exacerbating the depression until, in September 1931, the government abandoned the Gold Standard – "mainly by the irresistible pressure of events and only secondarily by the slow undermining ofold prejudices", as Keynes (1931, p. ix) remarked bitterly.

Keynes was determined to take on the “old prejudices” of economics which he saw backed by“almost the whole body of organized economic thinking and doctrine of the last hundred years” (Keynes 1934). He zeroed in on what he regarded as the fundamental issue that set himapart from the prevailing mainstream: the belief that “the economic system has an inherent tendency toward self-adjustment if it is not interfered with”. At the core of this belief, he identified the loanable-funds theory of interest-rate determination which implied that the in-terest rate would adjust, sooner or later, to align saving and investment at a level consistent with the economy operating at full capacity. This theory underpinned the widely held belief that any additional government spending would crowd out an equal amount of private pro- ductive investment, leaving total spending on goods and services unchanged – the so-called “Treasury View”. The same line of thinking led mainstream economists to speak out against Keynes’s dispraise of private saving as socially harmful under conditions of deficient aggregatedemand.

Keynes built his explanation of the depression and his attack on contemporary mainstreamthought on four central pillars:

i the determination of the interest rate through liquidity preference;
ii the equilibration of saving and investment through the adjustment of output and national income;
iii effective demand as a constraint on aggregate production;
iv the lack of an inherent homeostatic mechanism capable of lifting a market economy out of an underemployment equilibrium without assistance from public policy.

The final result of this theoretical construction work was completed and published in 1936 asthe ‘General Theory of Employment, Interest and Money’ which skillfully blended the above- mentioned elements into a coherent, though not easily digestible theory. The General Theorywas not a book on economic policy. By the time it was published, the world economy was wellon its way to recovery from the Great Depression and the power of effective demand as a driver of this recovery was amply demonstrated in country after country. The point of writinga book of pure theory was to target the mindset of academics as well as that of “practical men”, as Keynes put it, after he had witnessed the disastrous consequences of decision-mak-ers adhering to erroneous ideas. By doing so, he created a new paradigm which revolutionizedeconomic thought and established macroeconomics as a branch of economics in its own right.

4. The Neoclassical Synthesis and the Promise of Full Employment

The message Keynes had left behind was partly gloomy, partly optimistic. It was gloomy in that Keynes was deeply skeptical about the ability of a market economy to maintain full em- ployment, unaided by policy, as ongoing investment would drive the marginal efficiency of capital down and eventually leave monetary policy powerless to offset this downward-trend by lowering interest rates. Alvin Hansen (1938) added the specter of declining population growth to predict "secular stagnation" while Roy Harrod (1939) expanded the static Keynesianmodel into a dynamic theory of demand-driven growth which he showed to be plagued by violent instability. Optimism, on the other hand, was instilled by the promise that govern- ments, using skillful demand management to offset stagnation and instability, would have thecapacity to keep the economy on a path of full employment nevertheless.

As it turned out, the quarter-century following World War II, dubbed the "Age of Keynes" by John Hicks (1974), brought the exact opposite of secular stagnation and violent instability. It was a period of exceptionally rapid growth and rather moderate cyclical fluctuations of output.Investment rates were high and showed no sign of declining. Clearly, the secular stagnationists had been missing something. One important missing link was filled in by Robert Solow in 1956. In his model of long-term growth, he demonstrated how an incessant flow of technological innovations can offset the effect of ongoing capital deepening on the marginal productivity ofcapital and hence on the profitability of investment.

At the same time, Keynes's disciples recast his theory of income and employment as a blue- print for a policy of full employment. Interestingly, in view of the great monetary economist Keynes had been, his epigones placed fiscal policy at the center of full employment policy whereas monetary policy was seen in a subsidiary role at best, facilitating the management of public debt. In fact, the international monetary system conceived at Bretton Woods in 1944 in an attempt to reconcile the discipline imposed by the Gold Standard with the breathing space demanded by internal macroeconomic stability, left only limited room for central banksto deliver on the full employment promise that came to be associated with the Keynesian doctrine.

The dominant role of fiscal policy in macroeconomic management was epitomized by Abba Lerner's (1943) framework of "Functional Finance" which called for the unconditional

subordination of fiscal policy to the prevention of unemployment and inflation, no matter what traditional concepts of 'sound finance' might suggest. At that time, the underlying idea was that inflation and unemployment were mutually exclusive alternatives and that full em- ployment marked the threshold to inflation. Eventually, this oversimplified view of the relation between prices and quantities would be replaced by the famous Phillips curve (Phillips 1958).Among the first to experiment with the deliberate use of fiscal policy for demand managementpurposes were the United States and Germany in the 1960s.

The triumph of the Keynesian revolution had created an intellectual problem, however. A par-adigm whose core message was that a market-based economy cannot be relied to be self- adjusting in the absence of corrective government action did not comfortably coexist with thelong tradition of standard price and market theory which continued to be the bread and butter of microeconomics, welfare economics and their application to most policy areas other than macroeconomic stabilization. Early in the "age of Keynes", a solution to this problem was pro- posed by Paul Samuelson (1955) who proclaimed a "Neoclassical Synthesis".

The Neoclassical Synthesis meant to reconcile Classical and Keynesian economics by arguing that the market system, for the reasons spelled out by Keynes, cannot be expected to gener- ate full employment on its own. But if monetary and fiscal policy properly managed aggregatedemand, they would place the economy on a trajectory along which the principles of classicalequilibrium analysis applied to the determination of relative prices, resource allocation and their welfare implications. In this way, a workable coexistence of traditional microeconomics and the new macroeconomics was achieved without effectively addressing the inconsistencyof their respective theoretical foundations.

The apparent success of Keynesian demand stimulus when it was tried and the long period ofrapid economic growth, uninterrupted by major setbacks, fostered a general sense of confi- dence in the ability of governments to fine-tune the economy and to maintain permanent fullemployment. The gloom of the interwar period had faded into oblivion. The business cycle appeared to be tamed (Bronfenbrenner 1968).

As it happened, just when the confidence in the fine-tuning capacities of macroeconomic de-mand management had reached its peak, the long-lasting stability of the post-war world econ-omy fell apart with a bang. In the early 1970s, major macroeconomic turbulence returned

when the international monetary order of Bretton Woods collapsed and oil prices quadrupledin rapid succession, with both inflation and unemployment shooting up to levels not seen in along time. Keynesian economics looked overwhelmed, unable to handle this confluence of mishaps. A thorough reappraisal of macroeconomic theory and policy appeared to be in order.

5. The Monetarist Counter-Revolution and the Case for Rule-Based Policy

Even before the 1970s, the Keynesian doctrine and the compromise formula of the Neoclassi-cal Synthesis had not gone unchallenged. The most consistent and influential critique of the ruling mainstream during the "age of Keynes" was put forward by the Chicago School of eco- nomics, led by Milton Friedman. His 'counter-revolution', as he dubbed it himself, pushed backagainst most of the central tenets of the Keynesian Revolution, both theoretical and political.

Friedman was particularly unhappy with the way Keynes, in the General Theory, had sidelinedthe quantity theory of money as a mere special case, relevant in a state of full employment atbest. Friedman restated the quantity theory as a theory of money demand and emphasized the stability of the money demand function, thereby implying a reliable effect of changes in the money supply on nominal spending and, in the longer term, on inflation (Friedman 1956).He concluded that monetary policy was a much more powerful and reliable driver of aggregatedemand than the fiscal tools preferred by Keynesians. This emphasis on the power of money led Karl Brunner (1968), another early pioneer of the movement, to coin the term "Monetar-ism" for the counter-revolution.

More fundamentally, Friedman (1968), in his legendary Presidential Address to the AmericanEconomic Association, assailed the Keynesian notion of full employment policy. He did so by scrutinizing the Phillips curve which, as a corner stone of the Neoclassical Synthesis, stipulateda trade-off between unemployment and inflation. On purely theoretical grounds, Friedman argued that the Phillips Curve should be augmented by an expected-inflation term if labor market participants were not to be assumed to suffer from money illusion. In conjunction withthe assumption that expectations adjust to actually observed inflation over time, the expec- tations-augmented Phillips Curve implied the existence of a single long-run equilibrium unem-ployment rate to which the labor market would converge at any arbitrary level of inflation. Inreverence to Knut Wicksell, he dubbed this equilibrium rate the "natural rate" of

unemployment. He demonstrated that the unemployment rate could not be pushed below the natural rate without causing ever-accelerating inflation. At about the same time, Edmund Phelps (1967) independently established the same result. This theoretical reasoning soon proved prescient as it explained both the acceleration of inflation of the late 1960s and the "stagflation" of the 1970s when high inflation was associated with rising unemployment. Thisremarkable anticipation of events led to a rapid acceptance of the natural-rate hypothesis bymost macroeconomists.

The natural-rate hypothesis thoroughly transformed the way economists thought about em- ployment and stabilization policies (Mankiw/Reis 2018). The idea that proper Keynesian de- mand management could permanently maintain employment on any desired level was no longer tenable. For a lasting reduction of unemployment, policymakers were told, they had toturn to labor market policies and to reforms of labor market institutions. The role of demandmanagement was thus redefined as one of containing inflation and preventing undesirable fluctuations of output and employment around their natural equilibrium levels. The old Phil- lips-Curve trade-off between unemployment and inflation gave way to a new trade-off, arisingin the face of supply shocks, between the volatility of inflation and the volatility of unemploy-ment (Taylor 1994).

In yet another departure from the Keynesian orthodoxy, Friedman rejected any discretionary,activist policy responding *ad hoc* to exogenous disturbances. Instead, he recommended cen- tral banks should pursue a rule of constant money growth, regardless of current macroeco- nomic conditions. He based his case for a money-supply rule in part on the technical difficul- ties an activist policy would have getting the timing and the strength of its actions right. His main concern, however, was to discipline short-sighted, self-interested policymakers by sub- jecting them to a rigid rule. With his plea for strictly rule-based policy, he continued an old Chicago-School tradition, dating back to Henry Simons (1936).

The macroeconomic turbulence and the soaring inflation of the 1970s provided ample objectlessons on the discretionary misuse of macroeconomic policy. A conspicuous case in point were the macroeconomic shenanigans of the Nixon Administration in the run-up to the U.S. presidential elections of 1972 which William Nordhaus (1975) cited as a "textbook example" for his theory of the political business cycle. In the same vein, the inflationary bias created bythe time inconsistency of optimal policy in models by Kydland/Prescott (1977) and

Barro/Gordon (1983) provided yet another illustration of how discretionary policymaking is prone to deliver undesirable macroeconomic results.

A common thread running through all of the challenges raised by Monetarism against the Keynesian orthodoxy was its firm belief in the inherent stability of the market economy. The capacity of markets for self-adjustment, unaided by government intervention, was an essen- tial precondition for a no-feedback money-supply rule to keep the economy on track and for output and employment to converge towards their natural equilibrium levels reliably. This wasa far cry from the Keynesian view of the market economy as a system susceptible to persistent unemployment and stagnation. The extraordinary growth and stability of the post-war quar- ter-century convinced many that the resilience of the market economy was much stronger than the catastrophic Depression of the 1930s had led Keynes to believe (Johnson 1972). As amatter of fact, it was exactly over the interpretation of the Great Depression that Friedman disagreed most strongly with Keynesians. What Keynes had regarded as clear evidence for a massive breakdown of the forces of self-adjustment, Friedman diagnosed, in joint work with Anna Schwartz (Friedman/Schwartz 1963), as a gross policy failure on the part of the Federal Reserve Board which, they asserted, single-handedly wrecked the economy by allowing the money supply to contract on a massive scale. Needless to say, conflicting narratives of the Great Depression remained subject to fierce controversy (Temin 1976).

The Monetarist counter-revolution had a profound effect on the conduct of stabilization policyand on the objectives that were set for it. The widespread adoption of monetary targeting wasmade possible by the contemporaneous developments in the international monetary system.The large increase in the U.S. money supply, its transmission to foreign economies via the balance of payments and the subsequent acceleration of worldwide inflation were well cap- tured by a quantity-theoretic framework and its international corollary, the monetary ap- proach to the balance of payments (Frenkel/Johnson 1976). The collapse of the Bretton- Woods regime of fixed exchange rates, ultimately a consequence of the inflationary expansionof global liquidity, brought on the era of flexible exchange rates which thoroughly transformedthe operation of monetary-policy around the world. Central banks which previously had theirhands tied by their obligation to maintain the Dollar exchange rate of their currencies, were now free to take control of their monetary policies and to determine domestic monetary con-ditions according to the state of the macroeconomy.

This was the moment when monetary policy displaced fiscal policy as the policy branch re- sponsible for macroeconomic stability and when central bankers acquired the power and pub- lic visibility they command ever since. It was the first time in the history of money that mone-tary control was completely and formally separated from a commodity-related anchor such as gold. As Mundell (2000, p. 338) put it in his account of the monetary history of the 20th century, the experiment with this new regime "started off as a disaster, from the standpoint of eco- nomic stability, but nevertheless, it set in motion a learning mechanism that would not have taken place in its absence." Experimentation with Friedman's rule of constant money-supply growth was an important element of this learning process for a number of major central banks.

6. Rational Expectations and the Return of Classical Equilibrium Theory

While the Monetarist counter-revolution gradually conquered macroeconomics, an even more fundamental departure from the Keynesian consensus of the Neoclassical Synthesis be-gan to take shape. It was first and foremost intellectually motivated by the fragile behavioral foundations of the Keynesian model. To be sure, a lot of research had been devoted to buildingfirmer foundations for the key behavioral equations on the demand side of the Keynesian model - the consumption function, the investment function, the money demand function - since the 1950s. But the critical supply-side link between the demand-determined quantities of output or employment and the determination of wages and prices remained rather under-developed. The Phillips Curve provided a convenient link between unemployment and infla- tion, but it was, in the words of James Tobin (1972, p. 9), "an empirical finding in search of a theory, like Pirandello characters in search of an author."

This theoretical vacuum proved particularly disturbing when the Phillips Curve as one knew it evaporated in the inflationary and stagflationary turmoil of the early 1970s. An equally dis- turbing corollary of this vacuum was the lack of a sound welfare-theoretic foundation for sta-bilization policy. If Keynesian policies were supposed to remedy some sort of a market failureand to help with the coordination of the plans of employers/producers and workers/consum-ers in the face of widespread unemployment, what exactly was the deep source of the prob- lem? Wouldn't it be desirable to have an explanation of this coordination failure in the same

analytical terms in which a market failure is normally diagnosed to justify a public policy inter-vention in other domains (Barro 1979)?

Critical questions of this type led to a broad-based reappraisal and reconstruction of the foun-dations of business cycle theory and the theory of stabilization policy which soon came to be known as the "New Classical Macroeconomics". Led by Robert Lucas, another graduate from Chicago, this school of thought was devoted to anchoring macroeconomics within the frame-work of standard classical, or rather neoclassical, general equilibrium theory. Lucas (1977), indefining his research agenda, explicitly - though not quite accurately, as he admitted later on(Lucas 1999) - referred to von Hayek (1933) as a role model for his own endeavor to build a model of the business cycle within the logic of Walrasian equilibrium economics.

As Lucas (1996) noted, economists working in the tradition of the quantity theory of money, from David Hume in the 18th century to Milton Friedman in the 20th, agreed on the pattern bywhich a change in the money supply affected the economy: Initially, a monetary impulse would induce a change in economic activity whereas in the long run, the impulse would be fully absorbed by a proportional change in the price level. The long-run neutrality of money was the expected outcome in a world of firms and households making rational supply and demand decisions conditional on the relative price signals they received. But how could this same rationality be reconciled with the absence of monetary neutrality in the short run?

To answer this question, Lucas (1972) built an equilibrium model of a competitive economy with money, adding an element of imperfect information. Agents in this model, while not pos-sessing perfect information, were perfectly rational. In particular, Lucas assumed them to pro-cess the imperfect information they received efficiently. This marked the first appearance of the immensely influential concept of rational expectations in macroeconomics. From this set-up, Lucas was able to derive a powerful result: A short-run effect of a monetary impulse on output and employment can arise if, and only if, the impulse is unexpected. Any systematic element in the behavior of monetary policy, foreseeable by agents forming rational expecta- tions, is powerless to affect the quantities and the relative prices of the economy. This result, dubbed the "policy ineffectiveness proposition" by Sargent/Wallace (1975), marked a much more radical departure from the Neoclassical Synthesis than Friedman's initial Monetarist counter-revolution. At the time, a news magazine referred to New Classical Macroeconomicsas "a Monetarist branch that out-Friedmans Milton Friedman" (Newsweek, June 26, 1978).

As time passed, it became increasingly clear that the specific monetary equilibrium model proposed by Lucas was not all that successful in accounting for business fluctuations or for theeffects of monetary policy moves. Also, some of the assumptions on which the model criticallyrelied appeared highly questionable. In particular, the underlying information imperfection which implied that agents could not readily recognize movements of the general price level appeared alien to a context of otherwise efficient information processing. Quite obviously, money and competitive general equilibrium theory could not easily be fused into a convincingaccount of the business cycle. This insight left short-run macroeconomics fundamentally withtwo ways forward: Either it had to drop the assumption of a competitive general equilibrium or it had to give up on the idea of a monetary theory of the business cycle.

The latter route was taken by Real Business Cycle (RBC) theory, starting with seminal papers by Kydland/Prescott (1982) and Long/Plosser (1983) who proposed a competitive equilibriummodel of output fluctuations without money. Their model was essentially the neoclassical model of economic growth, augmented by intertemporal labor-leisure substitution and by random shocks to technical progress and government spending. Empirically, the point was toexplore to what extent a moneyless equilibrium model could account for the cyclical behaviorof major macroeconomic variables in terms of frequencies, relative volatilities and correla- tions. With regard to policy, this approach represented perhaps the most radical departure from the Keynesian idea of macroeconomic stabilization.

Keynesians and Monetarists still shared a general notion of a monetary economy which couldbe displaced from a deterministic equilibrium growth path of potential output by exogenous shocks. They may have disagreed on the predominant nature of such shocks as well as on thebest way of dealing with them. RBC theory, in contrast, denied the usefulness of distinguishingbetween trend and cycle. In its view, the observed fluctuations of economic activity do not constitute departures from potential output, but should be regarded as movements of poten-tial output itself, reflecting the best possible response of rational firms and households to un-avoidable stochastic disturbances. If agents are fully rational and perfectly competitive mar- kets do their coordinative work as they are supposed to do, there is no rationale for any typeof government intervention aiming at a reduction of output volatility. This policy implication is not too surprising, of course, once one assumes away any frictions or distortions that couldpossibly drive a wedge between private rationality and social optimality.

Once again, the ultimate proof of the pudding was not in its normative content, but in its confrontation with the data. Initially, the success of quantitative RBC models in mimicking thetime-series behavior of major macroeconomic aggregates looked impressive. On closer in- spection, however, it became clear that the successful replication of time series properties was not the same thing as a high explanatory power of the theory. The way RBC models ac- counted for variations in output was almost fully circular: Output fluctuations were mainly attributed to exogenous shocks to productivity (Cooley/Prescott 1995). These exogenous productivity shocks were extracted from the movements of the Solow Residual, a measure ofthe fraction of observed output variations that cannot be attributed to changes in factor in- puts. The Solow Residual, in turn, happened to make up the lion's share of the cyclical varia- tion of output in the first place. Thus, "explaining" output variations largely by their own un- explained component essentially amounted to little more than explaining output variations by output variations. Later studies, working with independent measures of technology shocks,mostly concluded that the technology-driven RBC model was hard to reconcile with the ob- served data (Galí/Rabanal 2004, Francis/Ramey 2005, Basu/Fernald/Kimball 2006).

Unlike Friedman's monetarism, the a-priori rejection of demand-side stabilization policy by the new classical equilibrium theory did not leave a major mark in actual policymaking. How-ever, the rejection of stabilization policies by the New Classical School fitted well into the so- called "conservative revolution" around 1980 when conservative parties were voted into power in major industrial countries, on an agenda of curbing the influence of government in the economy and ending inflation. This agenda was underpinned by "Supply-Side Economics" (Feldstein 1986) which emphasized deregulation and the incentive effects of fiscal policy ra- ther than demand management. Central banks got serious about fighting inflation, operatingon an understanding of the macroeconomy which shared the monetarist belief in the power of monetary policy to affect output in the short run and to contain inflation in the long run. Ina somewhat ironic coincidence, RBC was riding highest in academia precisely when major ad-vanced economies suffered from extended recessions in the wake of the tough anti- inflation-ary stance adopted by their central banks.

7. The 'Great Moderation' and the New Neoclassical Synthesis

The models proposed by the New Classicals and their nihilistic implications for stabilization policy may not have fared well in the face of mounting evidence. But their basic methodo- logical innovations proved to be a gold mine for the research community and had a lasting influence on macroeconomics. The principle of building macroeconomics up from the foun- dations of optimizing forward-looking behavior of firms and households, the long-run neu- trality of money, the assumption of rational expectations, and the use of dynamic stochasticgeneral equilibrium (DSGE) systems have become mainstays of modern macroeconomics.
Where the field has moved away from the New-Classical paradigm, however, was in its as- sumptions about market structure. Rejecting the model of perfect competition as a basis for macroeconomic analysis, Keynesians investigated the pricing behavior of firms with actual price-setting power. In doing so, they followed an early lead by Kenneth Arrow (1959) who had observed that an understanding of price adjustment cannot come from the study of per-fectly competitive markets. The resulting research agenda of "New Keynesian Economics" (Mankiw/Romer 1991) provided microeconomic foundations for the nominal rigidities that were needed to rationalize a role for monetary policy in stabilizing output and employment in the standard DSGE framework.

The combination of the methodological innovations of the New Classicals with the Keynesianfeature of incomplete price flexibility created a theoretical framework which has come to be known as the "New Neoclassical Synthesis" (Goodfriend/King 1997). In comparison to the old Neoclassical Synthesis, this new framework models not only monetary policy as pursuingmacroeconomic stability, subject to private sector behavior, but also the private sector as rationally anticipating central bank behavior. In doing so, it accommodates the Lucas Cri- tique (Lucas 1976) which has alerted macroeconomists to the sensitivity of private sector be-havior to the prevailing policy regime. The microfoundation allows to evaluate the effects of exogenous disturbances and policy responses, including the gains from commitment to a policy rule, in welfare terms (Woodford 2003).

A remarkable feature of this framework is that it hardly makes a reference to the money supply (Woodford 2008). Rather, monetary policy is characterized as choosing a time path for the interest rate. This is not to deny the presence of monetary aggregates in the conductof monetary policy. But by controlling the interest rate, the central bank in effect lets money

demand determine the money supply residually. This is largely in line with the way central banks have come to conduct policy after they had abandoned their experiments with mone- tary targeting. An interest-rate strategy insulates the monetary transmission process against the instability of money demand which proved to be much more of a problem than originallyassumed by Friedman.

After the stagflationary turmoil of the 1970s and the disruptions associated with the tough anti-inflationary stance taken by central banks in the early 1980s had died down, the ad- vanced economies enjoyed an extended period of macroeconomic tranquility, the so-called “Great Moderation”. During this period, central banks succeeded in keeping inflation rates low and stable without provoking major output fluctuations. They did so by following activistinterest-rate strategies resembling those suggested by the policy framework of the New Ne- oclassical Synthesis or the closely related, though less strictly optimizing Taylor rule (Taylor 1983).

There was some debate on the extent to which the Great Moderation was owed to the skill- ful management of monetary policy by central banks or the benign environment in which they operated. Regardless of the stance taken on this question, both academics and practi- tioners of monetary policy grew increasingly confident that the painful lessons of the 1970s had been learned and that monetary and macroeconomic stability should no longer be a ma-jor concern. As Lucas (2003, p. 1) famously put it in his Presidential Address to the American Economic Association: “[The] central problem of depression prevention has been solved, for all practical purposes, and has in fact been solved for many decades.”

This level of confidence was reminiscent of that prevailing in the heydays of the old Neoclas-sical Synthesis 40 years earlier. It had been premature then, and it proved to be premature once again.

8. Two Severe Global Crises and the Return of Inflation

Less than a decade into the 21st Century, a global financial crisis put a sudden end to the Great Moderation. Apparently, the problem of crisis prevention was not yet solved. Alt- hough a number of observers had worried about the risks inherent in the large bubbles that

had been building in the real estate sectors of some countries for quite some while, the scaleof the ensuing financial crash and its macroeconomic repercussions came as a surprise to practitioners and academics alike.

Authorities were quick to react. The Great Recession of 2009 was a clear case of a demand- induced contraction. Only a few dissenters doubted the necessity of the massive demand stimulus that was applied. Most economists shared the assessment by Eichengreen/ O'Rourke (2010) that this policy response played a crucial role in preventing the Great Reces-sion from turning into a 1930s-style depression. And yet, policymakers received limited guid-ance from the state-of-the-art macroeconomic models that were in use at the time. Central banks slashed interest rates as the rulebooks said they should. But once they had hit the zero lower bound on policy rates, the widespread use of quantitative easing could not rely on models which had placed a single short-term interest rate at the center of monetary transmission. One area in which the forward-looking optimizing models did prove useful to policymakers was the analysis of forward guidance as a tool of monetary policy. However, when governments jumped in with fiscal stimulus, they had to rely on more dated theory as the more recent literature mostly accepted the view that fiscal policy was dominated by monetary policy as a stabilization tool (Furman 2016).

The apparent shortcomings of New-Neoclassical-Synthesis theorizing in the face of the finan-cial crisis led to some serious soul-searching in macroeconomics. Different observers reached different conclusions. Some found nothing fundamentally wrong with DSGE models of the type employed by central banks, but regarded them as unfinished business in need of extensions and amendments if they were to remain useful to practitioners (Gürkaynak/Tille 2017). Others thought the crisis revealed fatal flaws in standard DSGE modelling that called for a radically different approach (Buiter 2009, De Grauwe 2010, Stiglitz 2018). Yet others suggested that different models were needed for different purposes (Blanchard 2018). How-ever, in contrast to the 1930s or the 1970s when an existing paradigm was struggling to deal with a major macroeconomic upheaval, no revolution was in the cards for macroeconomic theory this time. No single new alternative approach was waiting in the wings to topple the incumbent paradigm and to take its place. Equally, stabilization policy was not perceived as needing a fundamental change in philosophy. What it did need, however, were an expansion

of its toolkit and a better monitoring of hitherto underestimated risks to macroeconomicstability - it needed to “get granular”, in the words of Blanchard et al. (2014).

The limits of monetary policy that had become apparent in the course of the Great Reces- sion brought fiscal policy back into the macroeconomic policy game. Ever since the transitionto flexible exchange rates when stabilization policy had been taken over by central banks, fiscal policy was generally thought to be too slow and politically fraught to be of much use asa tool for macroeconomic stabilization. Its proper domain, the argument went, were the longer-run issues of the sustainability and the efficient structure of public revenues and ex- penditures. The contribution of fiscal policy to macroeconomic stability was largely seen to be confined to the operation of the automatic fiscal stabilizers built into tax and transfer sys-tems. As the zero-interest-rate environment brought on by the Great Recession persisted way beyond the recession itself, it became increasingly clear that central banks alone could upon fiscal policymakers to not deliver macroeconomic stability without active support fromfiscal policy. Earlier work studying fiscal and monetary policy in a liquidity trap, such as Eg- gertson/Woodford (2006), became very topical at once. Also, central bankers themselves were quite outspoken about the importance of fiscal policy reinforcing their efforts to reestablish macroeconomic equilibrium (Bernanke 2014, Draghi 2014).

Fiscal policy was immediately called upon as a stabilizing force again when another unex- pected shock hit the world economy in 2020. This time, the shock did not originate in a globalfinancial crisis, but in a global health crisis. The Covid-19 Pandemic induced a retrenchment ofglobal economic activity that was even more severe than the Great Recession a decade earlier.There was no doubt among economists and governments that the economic fallout of the public health crisis could not be left to the self-adjustment capacity of the private sector, butrequired a large-scale economic policy intervention. Of course, the task at hand was very dif-ferent from that required by a normal recession. The point was not to keep up capacity utili- zation at its pre-crisis level, but to manage the inevitable idling of contact-intensive sectors ofthe economy. Rather, public policy had to see to it that production facilities and employer- employee matches which had to be put out of business temporarily were not wiped out alto-gether. Also, public money was needed to mitigate the income losses of those worst hit. This amounted to a quasi-pandemic-insurance function of governments, which was readily under-stood and enjoyed broad political support.

There was also a macroeconomic policy dimension in the response to the Covid-19 crisis, how-ever. Just as a virus is contagious among humans, the shutdown of a contact-intensive eco- nomic sector can infect other, epidemiologically non-hazardous sectors with an output con- traction due to demand spillovers between sectors. As Pierre-Olivier Gourinchas (2020) has observed, there is a common element in the justification of non-pharmaceutical public healthinterventions and the rationale for a stabilizing macroeconomic policy in an epidemic: an ex- ternality which translates individually rational behavior into a collectively harmful outcome. Thus, income support to agents immediately affected by the shutdown of a sector is not just a matter of social equity or of protecting production capacity, but it also serves to prevent a cascade of multiplier effects, firm closures and job losses that would otherwise depress the level of economic activity well below that indicated by epidemiology. Once again, a robust welfare case for macroeconomic stabilization can be shown to exist (Guerrieri et al. 2020).

Ever since the Great Moderation, inflation remained subdued. The Great recession of 2009 pushed already low inflation rates further down, often below the 2% target which central banks had generally adopted - some explicitly, others more tacitly. Thus, monetary policy faced the unusual and difficult task of having to push inflation up rather than keeping it down.Moreover, once central banks had lowered nominal interest rates towards their effective lower bound, the scope for reflation was severely curtailed. Even the unconventional instru- ments of quantitative easing and forward guidance did not leave much of a mark on wages and prices although detractors of the substantial balance sheet expansion brought about by quantitative easing kept predicting an imminent upsurge of inflation.

What central banks failed to achieve, was achieved by a confluence of inflationary forces about a year after the outbreak of the Covid-19 Pandemic. Disruptions in global supply chainsand rapidly rising commodity and energy prices on the supply side met an overhang of pur- chasing power and liquidity on the demand side to drive up inflation well above inflation tar-gets in no time. Monetary and fiscal policymakers are now criticized for an overexpansionaryresponse to the Pandemic and for neglecting the risk of inflation. At the very least, the expe- rience reaffirms the old insight that stabilization policy, acting in a thick fog of uncertainty, cannot be expected to hit its objectives with any measure of precision.

Mutually reinforcing supply-side and demand-side drivers of inflation had been a key featureof the inflationary 1970s, too. At that time, shortly after the breakdown of the Bretton Woods

regime, many central banks first had to find their role as guardians of price stability. The ac- quisition of the necessary anti-inflationary credibility was a costly process, in most cases asso-ciated with sharp downturns in output and employment. Today, central banks are in a betterposition to bring inflation back down towards target. Most measures of the long-term inflationexpectations of the private sector indicate considerable confidence in the willingness and abil-ity of central banks to reestablish price stability. Such confidence, which is reflected in financialmarket indicators of expected interest-rate hikes as well, evidently facilitates a „soft land- ing“ after a temporary bout of inflation. However, if central banks are to justify the initial con-fidence they enjoy, they must make good on the implied expectations of higher interest ratesin a timely fashion (Bullard 2022).

9. Conclusion

The history of stabilization policy discussed in this paper has been turbulent. Severe crises alternated with periods of relative calm, novel paradigms were developed to cope with ob- served facts, fierce controversies over competing paradigms led to attempted grand syntheses.This history was driven by the continued interplay of events, ideas and policies. The key ques-tion, raised by Keynes - “Is the economic system self-adjusting?” – was answered in different ways over time. Axel Leijonhufvud (1973) presumed that the answer would depend on the type and size of the shocks to which the economy is exposed. Whereas smaller shocks might be absorbed with relative ease, large shocks can set off destabilizing processes if they exceed a tipping point. The effective lower bound on interest rates could represent such a tipping point. Models with multiple equilibria often have tipping points as well.

After the traumatic experience of the Great Depression, deeply pessimistic views on the self-adjustment capacity of the economic system prevailed. Subsequent extended periods of mac-roeconomic stability, in turn, nourished the hope that the business cycle has been tamed afterall. Typically, such hopes were dashed because the tranquil periods weakened the sense for financial and macroeconomic risks. In the 1970s, the risk of a return of inflation was underes-timated and prevailing economic thinking did not prepare decision-makers for supply shocks.In the run-up to the Global Financial Crisis of 2008, smaller crises had been quenched with ample liquidity so that the possibility of a major financial crisis was increasingly disregarded and financial market participants assumed excessive, barely transparent risks.

Hyman Minsky (1968) thought to have diagnosed a systematic cyclical pattern in recurrent financial and economic crises: Stability tempts agents to neglect risk, and the neglect of risk paves the way for renewed instability. According to this view, stabilization policy suffers froma deep paradox: By being successful today, it may plant the seeds of instability tomorrow. Onlythe future can tell whether an understanding of this endogenous meta-cycle will help to over-come it.

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