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UK fiscal policy and external balance under Bretton Woods: Twin deficits or distant relatives?

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This article provides a striking empirical repudiation of the long-held belief that fiscal policy was the chief culprit behind the UK's chronic balance of payments difficulties under Bretton Woods, instead identifying a far wider menu of historically plausible shocks. We demonstrate an apparent tension between the older vintages of macroeconomic models favoured by policy makers, and the alternate predictions emanating from a newer type of intertemporal model, which is better placed to reconcile data and theory.

In light of these findings, we offer a salutary reappraisal of the UK's macroeconomic management and conclude that its approach to the instrument-target problem was deeply flawed on both a conceptual and practical level.

Abstract

The United Kingdom (UK) is typically regarded as the sine qua non case of an economy experiencing chronic external imbalances under the post-war Bretton Woods system, apparently unable to reconcile the divergent objectives of robust economic growth and current account equilibrium. This paper investigates the famed 'twin deficits hypothesis', which ascribed responsibility for the UK's current account woes to an excessively lax fiscal policy. Calling on two distinct approaches to identifying fiscal shocks, we find evidence decisively against the traditional twin deficits view, and uncover serious shortcomings in the way that both policymakers and academics conceptualized the transmission of fiscal policy to the current account. Our results demonstrate that factors other than fiscal policy are of considerably greater importance for understanding the UK's historical experience, and we elaborate on the need for a reappraisal of some classic policy debates concerning external adjustment under the Bretton Woods system.

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I | INTRODUCTION

The efficacy of fiscal policy and its appropriate role has generated fierce contemporaneous debate over the years in British policymaking circles. It has proved equally contentious in the academic literature, with recent contributions by Cloyne et al., Crafts and Mills, Cloyne, and Crafts and Mills each wading into the provocative question of whether Keynesian fiscal policy succeeded in raising output.[1] The impact of fiscal policy on the external balance, however, has not been studied as extensively during recent times, which begs the question of just how important fiscal policy was in driving fluctuations in the current account balance under the Bretton Woods fixed exchange rate system. Indeed, during the post-war decades of the 1950s and 1960s, the main preoccupation of British policymakers was attempting to tweak fiscal policy so as to deliver the economic nirvana of simultaneous internal and external balance, namely high growth and low unemployment coupled with current account equilibrium and a defence of the fixed exchange rate. It would prove to be a chimera that confounded officials, vexed policymakers, and even brought down governments.[2]

Despite there being numerous potential drivers of external imbalance, fiscal policy has come under intense scrutiny for its ostensible impact during the Bretton Woods period, more so than any other facet of UK macroeconomic policy. Indeed, Chrystal and Hatton remark that 'there can be no doubt at all that fiscal policy received the most attention, both from policy-makers and from students of economic policy' and it has become common wisdom to attribute the UK's chronic current account imbalances to some alleged fiscal laxity.[3] In later years the notion that there existed a causal relationship between the fiscal deficit and the current account deficit acquired the moniker of the 'twin deficits hypothesis', in which causation was seen as flowing from the fiscal balance to the current account balance.[4] Comprehending the nature of the fiscal transmission mechanism is central to understanding the UK's macroeconomic history under Bretton Woods and it is the purpose of this paper to probe more deeply into the nature of the interaction between these two key macroeconomic aggregates.

Analysing the interaction of the so-called twin deficits is also important for a different reason, namely that whilst a large corpus of academic literature has taken to examining the important question of weaknesses in UK total factor productivity growth,[5] considerably less analysis has been dedicated to macroeconomic phenomena at short and medium-run horizons. In this sense there is an incongruity between the existing literature, with its predominant emphasis on long-run economic performance versus the quarterly demand-management and

[1] Cloyne et al., 'Taxes and growth'; Crafts and Mills, 'Self-defeating austerity?'; Cloyne, 'Discretionary tax changes', and Crafts and Mills, 'Rearmament to the rescue?'.

[2] See Tomlinson, '*Balanced accounts?*'.

[3] Chrystal and Hatton, *The budget and fiscal policy*, p. 52.

[4] The phrase 'twin deficits' actually emerged to describe US current account deficits in the early 1980s, however, the economic analysis underpinning this alleged causal relationship had long since existed in the UK thanks to the earlier work of Godley and Kaldor, amongst others.

[5] For an overview of the debate surrounding long-run performance of total factor productivity growth, see Broadberry and Crafts, 'UK productivity performance'.

economic fine-tuning that tended to consume most of the political oxygen of its day. This is not to say that policymakers were totally unconcerned or ignorant of issues regarding long-run growth performance: the Labour governments of Prime Minister Harold Wilson in the 1960s had intended to make long-run structural reforms a key tenet of their policy agenda.[6] However, the inescapable realities of economic management under a fixed exchange rate, and all of its attendant constraints on domestic policy, meant that governments often found their structural reform agenda being sacrificed on account of some impending macroeconomic crisis.

Establishing causal relationships between key macroeconomic variables is far from straightforward, as it is beset by a number of thorny empirical issues.[7] Given that policymakers would actively adjust the fiscal stance in light of perceived threats to the current account, disentangling the impact of fiscal policy changes from other economic forces acting on the current account is no easy task. The fact that the fiscal balance and current account balance are essentially general equilibrium phenomena means that there are other key variables that would surely warrant attention, such as the real exchange rate and monetary policy. What is called for is an empirical strategy that is capable of isolating cause and effect in such a highly interdependent macroeconomic system. Our response to this challenge is to utilize two distinct vector autoregressive approaches that seek to isolate the interactions of fiscal policy and the current account. Such a strategy is capable of handling the multiplicity of core variables involved in macroeconomic relationships, as well as the inherent time lags between the occurrence of an economic shock and the time it takes for its impact to actually be felt. A particular hallmark of our investigation is the analysis of different types of fiscal shocks to provide a rounded assessment of the fiscal transmission mechanism, as well as utilizing different metrics for modelling the monetary variables – owing to the historically unique manner in which UK monetary policy was conducted during the Bretton Woods era.

The UK is often regarded as the sine qua non case study for a country experiencing chronic external imbalances under the Bretton Woods system, yet the evidential basis for claims of fiscal policy's alleged role therein is surprisingly threadbare.[8] This study probes the validity of the famed twin deficits hypothesis by constructing a macroeconometric model and using it to shed light on a number of highly contentious historical debates regarding the appropriate conduct of economic policy. Our results overturn much of the established wisdom concerning the nature of the UK's current account woes, and help to inform a critique of the manner in which both policymakers and academics conceptualized the nature of the fiscal transmission mechanism in an open economy. In this vein, we suggest that there has been a case of mistaken identity in which the fiscal balance and current account are in fact distant relatives rather than twin deficits.

[6] It is also necessary to acknowledge attempts at supply-side reform undertaken by previous postwar governments: see Tomlinson, 'Mr. Attlee's supply-side socialism' for the immediate post-war years. Latterly there were attempts by Conservative governments, somewhat tepidly in the 1950s but more proactively in the early 1960s, which constituted notable activity in this sphere, see Tomlinson and Tiratsoo, *The Conservatives and industrial efficiency*. How successful each proved in achieving their goals, however, is beyond the scope of this article.

[7] A cogent discussion of these challenges and some of the responses to them is given by Nakamura and Steinsson, 'Identification in macroeconomics'.

[8] Bordo, *The Bretton Woods international monetary system*; Schenk, *The decline of sterling*; Eichengreen, *Globalizing capital*.

II | THE BRITISH POST-WAR ECONOMIC LANDSCAPE

Problems with external balance in the UK during the 1950s and 1960s followed a distinct pattern, which came to be known disparagingly as 'stop–go' cycles.[9] The basic mechanics of a stop–go cycle began with the economy growing buoyantly when unemployment was low and with relatively little slack or spare capacity, and inflationary pressures would often be manifesting. Given the absence of slack in an economy growing above trend (a positive output gap) the resulting constraints on aggregate supply would see excess aggregate demand spilling over into a higher level of imports. Clearly, if this increase in imports was unmatched by an offsetting rise in exports or earnings from overseas assets then the result would be a deterioration of the current account balance.[10] Since the current account deficits resulted in an increased supply of sterling in the foreign exchange markets, this generated downward pressure on the UK's exchange rate against the dollar. Therefore, to maintain market confidence and demonstrate commitment to the fixed exchange rate, the government would be forced to enact contractionary policies designed to rapidly bring the current account back into balance. These measures were invariably deflationary, consisting of fiscal and monetary tightening and other miscellaneous measures designed to rapidly lower the UK's quantity of imports, thereby ensuring that external balance was restored and that the fixed exchange rate against the dollar was preserved.

A particularly important instrument in the policy mix was the taxation side of fiscal policy, which was directed to engineer reductions (or increases) in aggregate demand. It tended to be favoured over the government expenditure side of fiscal policy owing to the relative speed and ease with which tax rates could be adjusted in response to evolving economic circumstances.[11] Spending adjustments tended to be regarded as cumbersome to implement and prone to substantial administrative delays. Indeed, the notion of so-called inside lags and outside lags made tax policy the preferred option, with the former relating to the time taken for policymakers to respond to a given economic shock, and the latter being the time taken for a given policy response to actually make its effects felt in the economy. The particular focus on the tax side of fiscal policy came to be criticized by Nicholas Kaldor, who argued that excessive emphasis on tax adjustments contributed to an economy dependent on stimulating consumption-led growth, which came at the expense of both investment and exports.[12]

A significant portion of the UK's fiscal deficits over this period were the result of debt-servicing costs, which marks a contrast with popular depictions of the period as being one of spendthrift, deficit-financed fiscal activism reigning supreme.[13] Servicing the national debt constituted a sizeable fiscal outlay, although its true cost was assuaged by an extensive web of financial regulatory policies that essentially generated artificially low interest rates on sovereign debt

[9] See Dow, *Major recessions*.

[10] UK policymakers on occasion resorted to defensive import controls, however, these elicited much acrimony from the UK's trading partners; violated the country's obligations under the General Agreement on Trade and Tariffs (GATT); and were increasingly seen as a hindrance to membership of the European Economic Community. A notable – though arguably heterodox – defence of import controls as a policy instrument can be found in Godley and Cripps, 'Control of Imports'.

[11] See Clark and Dilnot. *British fiscal policy*.

[12] Kaldor, *Conflicts in national economic objectives*.

[13] Indeed, it was not at all uncommon to see fiscal primary surpluses, which constitute a measure of present fiscal effort, since debt-servicing payments result from of an inherited stock of debt. From a twin-deficits perspective, however, it is necessary to utilize a more encompassing measure of the fiscal deficit to adequately capture the savings–investment dynamics underpinning the main sectoral financial balances. See Godley and Cripps, *Macroeconomics*.

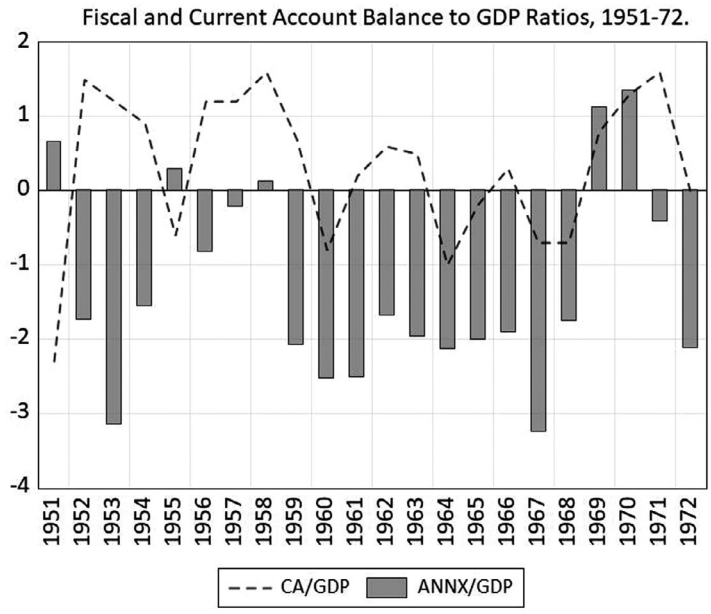

FIGURE 1 Graph of annual fiscal and current account balances, 1951–72.

instruments, thus benefitting the borrower (government) at the the expense of savers, namely investors.[14] Another key driver of fiscal deficits was cyclical fluctuations in economic activity and the attendant operation of the automatic stabilizers, which should be regarded as distinct from the kind of discretionary interventions typically associated with Keynesian economics. A more contentious angle on cyclical fluctuations in the fiscal balance was the temptation for politicians to spend the corresponding fiscal surpluses when the economy entered a boom phase, thereby contradicting the textbook rendition of automatic fiscal stabilizers, since deficits in the slump and corresponding surpluses during booms should mostly offset one another.[15] Nonetheless, the macroeconomic conditions prevailing under Bretton Woods were a boon from a public finance perspective, including the presence of unanticipated inflation, a sustained expansion of nominal (and real) GDP, and a favourable growth-interest rate differential, meaning that the public debt-to-GDP ratio continued to trend downwards over the course of successive business cycles.

Figure 1 plots both the fiscal balance and the current account balance, each as percentages of gross domestic product (GDP) for the period 1951–72.[16] There is a distinct cyclical pattern in the movement of the current account balance: this is visible throughout the 20-year period shown and remains intact even if one discounts the experience of the early 1950s, which were marred by the Korean War and adverse conditions in global commodity markets. The fiscal balance is in deficit for the most part – some minor exceptions notwithstanding – and it is worth noting 1955,

[14] See Turner, *Banking in crisis*, ch. 7. For a critical viewpoint on these financial policies, see Capie and Collins, *Have the banks failed British industry?*.

[15] The notion of so-called political business cycles is one that has long been associated with the UK under Bretton Woods, not least because of the striking coincidence that expansionary budgets seemed to occur during general election years. See Clarke and Dilnot, *British fiscal policy*, pp.387-388, for further discussion.

[16] More specifically, the fiscal balance here pertains to public sector net borrowing, which is one of the broadest measures of the fiscal deficit, comparable to the contemporary metric of the Public Sector Net Borrowing Requirement (PSNBR).

1959, and 1963 as years in which policy took a deliberately expansionary turn, which is likely no coincidence since there were general elections held in said years or shortly thereafter.[17] Similarly, 1967 was a year of heavy borrowing, though not because of an election but rather a combination of programmed public investment increases and slowing growth. This was reversed, however, in a contractionary budget following the devaluation of November 1967, with successive budgets seeking to restrain domestic demand and clear the way for an export-oriented recovery, leading to budget surpluses in 1970 and 1971.

The current account is also characterized by cyclical fluctuations, however, unlike the fiscal balance, it moves contra-cyclically rather than pro-cyclically, that is, the current account balance falls (rises) when growth increases (decreases) and there is a positive (negative) output gap. Under a fixed exchange rate regime, current account deficits should be financed by the foreign exchange reserves of a central bank, however, the UK's foreign exchange reserves were often insufficient for the task, which left the country reliant on attracting accommodating capital inflows or negotiating assistance from other countries in the form of loans. The former typically relied on raising interest rates to attract capital, which as will be discussed did not always happen because of reasons quite unique to the UK. Therefore, the UK availed itself of international support for sterling to help plug shortfalls in its foreign exchange reserves, thus ensuring that balance of payments disequilibrium did not lead to a collapse of the sterling–dollar parity. Indeed, on numerous occasions the UK received such assistance – particularly during the 1960s – under the auspices of the International Monetary Fund and from the United States in particular.[18] Whilst such support may have helped policymakers temporarily overcome acute pressure on the exchange rate, in the absence of redressing the country's more fundamental economic problems, foreign support could only delay the inevitable.[19]

Whilst the graph provides a useful overview of the dynamics of these two variables, it would be hazardous to try and draw inferences regarding the influence of the fiscal balance on the current account balance. For a start, the data plotted in Figure 1 relates to annual data, when in all likelihood there will be higher frequency variations on a quarterly basis that determine the evolution of the external balance. A second point relates more specifically to the notion of the twin deficits: Corsetti and Muller argue that the opposing cyclical dynamics of the fiscal and current account balances could lead to highly misleading conclusions regarding the direction of causality.[20] Indeed, since the data tends to exhibit a negative correlation, researchers might erroneously infer that the two are in fact divergent and that expansionary fiscal policy does not lead to a deterioration in the current account (or that it even results in an increase). In our later discussion of the empirical framework, we discuss the steps taken to ensure that we do not run the risk of mistakenly deducing a twin divergence.

Opinions on whether fiscal laxity was indeed responsible for the UK's balance of payments difficulties tends to favour the traditional twin deficits view. The New Cambridge School produced

[17] For a blow-by-blow account of the UK's key fiscal changes each year during the postwar period, see Cloyne, *A narrative account and dataset*, which is the accompanying historical narrative underpinning his 2013 empirical paper.

[18] Further details of international assistance received by the UK (not least in light of the increasingly interwoven fortunes of sterling and the dollar) can be found in Naef, *An exchange rate history*. The author suggests that the considerable lenience shown by the United States regarding its assistance to the UK enabled the latter to defer efforts to improve the balance of payments, whilst the UK was required to make fewer sacrifices than other countries in terms of its fiscal and monetary policies (ibid, p. 122).

[19] Eichengreen, *Globalizing capital*, p. 119.

[20] Corsetti and Muller, 'Twin Deficits'.

a remarkably singular analysis, arguing that fiscal deficits were to all intents and purposes the sole driver of the UK's current account imbalance. The chief proponent of the New Cambridge approach – the economist Wynne Godley – would later remark that 'it came as a shock to discover that if only one knows what the budget deficit and private net saving are, it follows from that information alone, without any qualification whatever, exactly what the balance of payments must be'.[21] Central to the New Cambridge position was the use of identities derived from the national accounts, in particular the so-called 'three balances' approach, which they believed demonstrated the inescapable logic that the UK's current account woes were the result of fiscal intransigence.

Throughout the years a number of other prominent authors in the literature have espoused views that are sympathetic or even supportive of the notion that UK fiscal policy was paramount in driving its current account imbalances under Bretton Woods. Bean highlights the role of expansionary budgets in driving external imbalances, as well as precipitating cost–push pressures that undermined the competitive position of UK tradables.[22] De Grauwe cites the British experience during the 1960s as an example of a country suffering from adjustment problems and emphasizes the role of expansionary fiscal policy in driving up import demand.[23] He characterizes the British experience as one of fiscally induced current account deficits, which were eventually rectified by a programme of fiscal consolidation in the wake of devaluation that helped lead to a 'spectacular improvement in the current account'. Cairncross and Eichengreen note the role played by a weak fiscal balance in making it difficult to correct external imbalances. They also highlight the opinion of contemporaneous European observers who were puzzled by the fiscal stance of the UK government, believing that countries with big fiscal deficits ended up with big current account deficits, and that the cure for the latter was a reduction in the former.

Christopher Dow, an influential economist who in his later career would become the Bank of England's Chief Economist, produced an assessment in which active fiscal policy was largely exonerated of crimes against the current account balance.[24] To be clear, Dow was no defender of stop–go type policies, but this had less to do with any purported consequences for the external balance and was instead focused on the deleterious impact on entrepreneurs' animal spirits and investment – a view corroborated by a more recent empirical analysis of UK consumer durables industries during the 1950s and 1960s.[25] He argued that much of the variation in the UK's current account was driven by factors that were essentially exogenous to the UK economy, and for the most part lay outside the purview of UK policymakers. Dow highlights several factors including movements in the terms of trade (particularly movements in global commodity prices); fluctuations in net income on overseas assets; changes in grants and transfer payments from foreign governments; and fluctuations in the rate of demand growth in the UK's trading partners as being vital factors behind the emergence of current account imbalances.[26] Overall, given the UK's status as a relatively small economy with a high share of exports and imports in GDP, Dow calls into question the role of domestic policy as the major

[21] Godley and Lavoie, *Monetary economics*, preface - xxxvii.

[22] Bean, *The external constraint in the UK*.

[23] De Grauwe, *International Money*, pp. 57–58.

[24] Dow, *The Management of the British Economy*.

[25] See Scott and Walker, 'The impact of stop-go'.

[26] An interesting question related to this is the extent to which UK policymakers could get ahead of the curve on what were essentially shocks driven by overseas developments, largely autonomous to the UK's domestic economy. Whilst these developments may have been unforecastable in a statistical sense – hence 'shocks' – they were arguably not unforeseeable in some wider sense to policymakers with a sufficient degree of preparedness. This harks back to whether a small, open,

factor behind the UK's current account variability and the succession of mini-crises therein. Similar in spirit to these factors, we could also add unanticipated outlays relating to Britain's overseas military presence. Whilst it is true that military spending trended downwards as a share of national income in the post-war decades, this did not prevent flashpoints in geopolitics necessitating increased foreign expenditure. Asteris emphasizes a striking 450% increase in net government spending abroad over the period 1957–64, of which a large proportion were military expenditures.[27]

It is also worth noting the assessments of Gibson and Thirlwall and McCombie and Thirlwall.[28] Indeed, Thirlwall et al. ascribe much of the UK's trouble with external imbalance to secular weaknesses in the performance of the export sector, and an unhealthy predilection towards excessive imports of consumption goods.[29] In addition, whilst active fiscal policy per se is not held to be the culprit, an important corollary of Thirlwall's analysis is that government policy was inadequate in helping to boost the competitiveness of the manufacturing sector, thereby allowing rampant import penetration to imperil the current account balance whilst also foregoing a potent stimulus to effective demand via the export channel. This argument has its antecedents in debates waged during the 1950s and 1960s concerning British entry into the European Economic Community (EEC).[30] On the one hand, EEC entry might provide a competitive stimulus to British industry, giving rise to a virtuous circle of increasing productivity, higher investment, and greater market share.[31] This was contrasted with the 'competitive shock' hypothesis that anticipated a displacement of British tradables by superior continental producers, paving the way for a process of circular and cumulative decline in market share, investment, and productivity. Whatever the merits or demerits of these arguments, it is clear that the dynamics impacting the current account are structural in character and largely independent of the fiscal balance, thus eschewing the twin deficits hypothesis.

Monetary policy was a domain in which inherited policy constraints, coupled with ambivalence or even outright apathy, hindered the deployment of monetary instruments to their fullest extent. The UK was heavily burdened by the national debt incurred during the Second World War, which stood at a colossal 250% of GDP in 1946. The cost of servicing this debt loomed large in the minds of policymakers, and as such there was a high price attached to ensuring debt sustainability and the basic need to prioritize national solvency.[32] This inculcated a considerable reticence to enact

and significantly trade-oriented economy such as the UK did enough to ensure that it had a sufficient cushion of foreign exchange reserves to ride out the storm when unanticipated conditions materialized.

[27] Asteris, *British overseas military expenditure*. Asteris also notes that the foreign exchange implications of maintaining military forces within the sterling area became of greater significance when the pound was made fully convertible in 1958.

[28] Gibson and Thirlwall, *Balance of payments theory*; McCombie and Thirlwall, *Economic growth*.

[29] This line of argumentation is formalized within the abundant literature on balance of payments constrained growth models, in which the home country's income elasticity of demand for imports is contrasted with the world's income elasticity of demand for the home country's exports. See McCombie and Thirlwall (ibid) for extensive treatment of this topic.

[30] For an engaging insight into these debates, the key protagonists, and some important nuances, see Rollings, *British business*.

[31] One line of reasoning maintained that the UK had become over-reliant on trade with less developed Commonwealth markets – a consequence of the country's imperial heritage – which failed to provide a competitive impetus to UK industry in the way that greater trade with the more economically advanced EEC economies purportedly would.

[32] For a comprehensive insight into the UK's challenges with national debt management under Bretton Woods, see Allen, *The Bank of England*.

measures that would increase the government's debt servicing costs, and as a result, the central bank's policy rate was used only sparingly as an instrument of macroeconomic policy. The precarious situation was further exacerbated by the presence of the sterling balances, namely debt owed by the UK government to overseas creditors in the sterling area, which was acutely sensitive to developments in the external balance.[33] Owing to the nature of floating debts, they were prone to being withdrawn on any hint of weakness in Britain's ability or commitment to defend their fixed exchange rate, hence a poor performance on the latest trade figures would lead to withdrawals of a much greater magnitude than the trade deficit, precipitating yet further pressure on sterling's parity. In this vein, Avaro chronicles the dragooning, browbeating, and propaganda employed by the British authorities so as to ensure that sterling area countries did not divest out of the currency, thereby delaying the necessary adjustments required to liquidate the sterling balances and transferring the adjustment costs on to sterling holders. [34]

There was also a strong and pervasive intellectual undercurrent in British academia and policymaking circles that decidedly favoured the efficacy of fiscal policy over monetary, or more specifically certain types of monetary policy. Indeed, the intricacies of monetary policy and the nature of the transmission mechanism were examined more closely in the so-called Radcliffe Review of the late 1950s, which at best afforded a second-rate role to interest rate policy in the conduct of macroeconomic management, and at worst ascribed a wholly disproportionate importance to real economic variables at the expense of conventional monetary ones.[35] This led the prominent US Keynesian Alan Blinder to caustically refer to 'the bad old days in which Neanderthal Keynesians roamed the land, spreading the false word that money does not matter'.[36] To the extent that a certain element of monetary policy was regarded as having a substantive bearing on macroeconomic conditions, it tended to take the form of 'credit policy', which was used to a considerable extent during the 1950s and particularly the 1960s. It focused directly on the volume of lending ('advances') to both consumers and businesses, rather than simply adjusting the bank rate. This eclectic mix of instruments included credit ceilings, hire-purchase restrictions, special deposits, and even 'moral suasion'.[37] From the policymaker's perspective, the chief advantage of this credit-driven approach to monetary policy is that it could ostensibly help to regulate aggregate demand whilst avoiding the rise in national debt servicing costs associated with regular interest rate policy. Its impact on the current account balance will be explored further in the empirical analysis.

[33] Slater, *The national debt*, ch. 10. It is also worth highlighting an important revisionist perspective on the sterling balances, namely Schenk, *Britain and the Sterling Area*, ch. 2, who argues that during the 1950s the sterling balances were not the 'dangerous and volatile factor' that many contemporaneous observers and later historians believed them to be.

[34] Avaro, 'Zombie international currency'.

[35] In essence, the 'Radcliffe view' suggested an extremely interest-inelastic aggregate demand profile, with consumption and investment being largely unresponsive to changes in the central bank rate. Further still, it was widely held that interest rate increases could in fact contribute to rising prices owing to their perceived impact on cost structures, leading incomes policy to be favoured for containing inflationary pressures. For extensive discussion see Batini and Nelson, *The UK's rocky road to stability*.

[36] Blinder, *Ruminations on Karl Brunner's reflections*, p. 118.

[37] Capie, *The Bank of England*, ch. 9–10. It is also worth highlighting that credit policies were not exclusive to the UK during the this period, see Monnet, 'Monetary policy' for the French case and Galati et al., 'Effects of credit restrictions' for the Netherlands.

III | METHODOLOGICAL ISSUES IN THE ANALYSIS OF THE TWIN DEFICITS

There are several different components of the government's fiscal stance that are of relevance to an econometric analysis of the fiscal transmission mechanism, namely: (i) endogenous; (ii) systematic-discretionary; and (iii) random components.[38] The endogenous component refers to the automatic response of the fiscal balance to innovations in other macroeconomic variables such as output, inflation, and the interest rate. Essentially the budget position passively adjusts to these innovations without any prompting, such as a decrease in tax revenues when output declines due to reduced economic activity, and the increased outlays for unemployment benefits, etc. By contrast, the systematic discretionary component refers to changes in fiscal policy owing to policymakers' deliberate actions in response to proximate economic phenomena: for example, the decision to increase taxes in response to an overheating economy – this was particularly prevalent during the Bretton Woods era when policymakers were actively seeking to manage the level of demand in the economy, thus making systematic-discretionary responses highly prevalent. Meanwhile, the random component refers to discretionary spending decisions that are very much unrelated to the present or expected state of the economy, that is to say, they are exogenous. They include things such as preparation for war or fiscal transfers for reasons of ideology, such as a tax break for married couples. It is these random components that play a crucial role in allowing meaningful causal relations to be drawn in macroeconomic analysis, since they offer an insight into the causal effect of the fiscal variable on other variables, but in such a way that it is unrelated to the existing or impending state of the economy and therefore will not be plagued by endogeneity. Identifying these random (i.e. exogenous) fiscal shocks will constitute a key focus of our empirical strategy.

The analysis of macroeconomic relationships, and fiscal policy in particular, is beset by endogeneity issues caused by the multiplicity of feedback loops and bi-directional causation between variables. Indeed, earlier discussion highlighted the warning of Corsetti and Muller (2006) regarding potentially spurious inferences of a 'twin divergence' between the fiscal and current account balances. Meanwhile, benchmark economic theory would suggest that controlling for other core macroeconomic variables, such as monetary policy and the real exchange rate, is essential, because both the fiscal and current account balances are general equilibrium phenomena that are determined in tandem with the other key macroeconomic forces. A tractable empirical framework that is capable of handling a system of endogenous variables and allowing for meaningful causal inferences to be derived is the structural vector autoregression (SVAR).

Our baseline SVAR model is inspired by Roubini and Kim and comprises a 5*1 data vector including: **{RGDP, Fiscal Balance, SRR, REER, CA/GDP}**, representing: real GDP, the structural fiscal balance, short real interest rate, real effective exchange rate, and current account to GDP ratio.[39] The analysis runs from 1955Q1 to 1972Q2, thus capturing the majority of the Bretton Woods period in which the UK experienced so-called stop–go cycles in economic activity, and the model is estimated with four lags and a constant, and is unrestricted in the reduced form.[40] We follow convention by working broadly in log levels, since even when variables might

[38] Perotti, 'In search of the transmission mechanism of fiscal policy', pp. 7–8.

[39] Roubini and Kim, 'Twin deficit or twin divergence?'. A dummy variable is also included in the current account and exchange rate equations in light of the 1967 sterling crisis. See Appendix for further information.

[40] Quarterly official current account data from the Office for National Statistics begin in 1955, meanwhile the UK maintained its fixed exchange rate for a short time after the cessation of Bretton Woods before finally floating in mid-1972.

have stochastic trends and/or be co-integrated, the log-level specification will yield consistent estimates.[41] The real effective exchange rate (REER) was constructed against a basket of 16 key trading partners on a trade-weighted basis with time-varying weights. See Appendix for further information on the construction of variables.

To ensure that we isolate the exogenous component of fiscal policy we follow the approach of Ali Abbas et al. in computing the structural fiscal balance, which represents the fiscal balance adjusted for the impact of cyclical fluctuations in the economy, thus helping to ensure that our model recovers shocks to the budget balance that are orthogonal to variation in other macroeconomic variables.[42] The cyclical components of both the real budget balance and real GDP (RGDP) are extracted using the Hamilton filter, and from the resulting trend series we construct the structural budget balance to GDP ratio.[43]

Short-run identification is achieved recursively via the Choleski decomposition, in which those contemporaneously exogenous variables enter the data vector first: **{RGDP, Fiscal Balance, SRR, REER, CA/GDP}**. The variables are conditioned on RGDP since this allows us to control for the effects of fluctuations in aggregate economic activity, which is likely to exert significant influence over the dynamics of all other variables, thus ensuring genuinely orthogonal shocks. In the first instance, the current account is endogenous to all other variables in the model, but one of the most striking findings in this analysis is how our key results concerning the twin deficits are largely impervious to the nature of the recursive identification scheme: indeed, this and other robustness checks (including serial correlation tests and a parsimonious model specification) can be found in the Appendix.

IV | EMPIRICAL OUTPUT

Figure 2 shows the impulse response function (IRF) of the current account to a negative fiscal balance shock, that is, a fiscal shock that is expansionary.[44] The current account exhibits a modest decline over the first year or so, although the reduction in the current account to GDP ratio remains well below 0.1 over all horizons (quarters 1–20), and is statistically insignificant throughout. Furthermore, from around the 2-year mark, the response of the current account becomes positive for a sustained period, although again this is not statistically significant. Relating this result to economic theory, it would seem to fall weakly in line with the prediction of simple income-expenditure models such as the Mundell–Fleming model, which posits a short-run fall in the current account balance in response to the higher aggregate demand induced by the expansionary fiscal policy. [45]

Whilst the impulse response analysis is useful for gauging the sign of the CA response, an obvious question to ask is how important the fiscal shocks are versus the shocks of other key

[41] Ramey, *Macroeconomic shocks*. Note that the fiscal balance and current account balance are expressed as percentages of GDP, as they are unsuitable for log transformation since they can assume negative values. The real interest rate is expressed in percentage terms.

[42] Ali Abbas et al., 'Fiscal policy and the current account'.

[43] We use the Hamilton filter as it possesses a number of desirable statistical properties vis-a-vis alternate approaches to trend-cycle decomposition, see Hamilton, 'Why you should never use the HP filter'.

[44] All impulse response functions are bounded by 95% confidence bands estimated using Hall's percentile bootstrap with 2000 draws. See Hall, *The bootstrap and Edgeworth expansion*.

[45] Mundell, 'Monetary dynamics', and Fleming, 'Internal financial policies'.

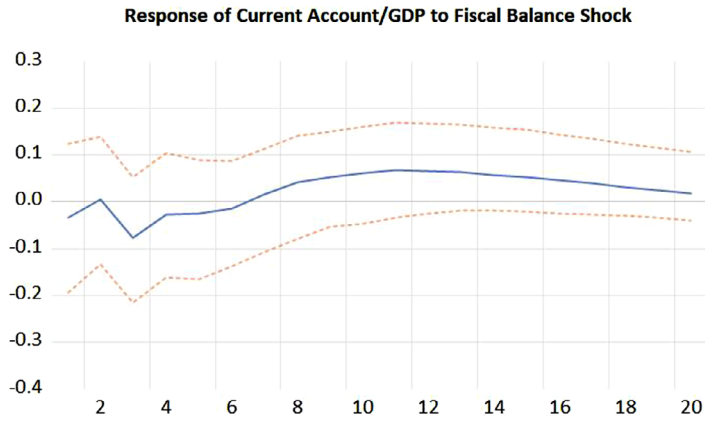

FIGURE 2 Impulse response function of current account balance to one standard deviation fiscal balance shock. Note: The *x*-axis represents the time horizon in quarters, and the *y*-axis represents the dynamic response of the current account to GDP ratio – measured in percentage points – from its baseline following a fiscal shock. *Source*: Baseline structural VAR model outlined in Section III. [Colour figure can be viewed at wileyonlinelibrary.com]

TABLE 1 Forecast error variance decomposition of current account balance.

Horizon	SE	RGDP	Fiscal	SRR	REER	CA/GDP
4	0.82	38	1	3	3	55
8	0.90	33	1	6	14	46
12	0.99	28	3	6	24	39
16	1.04	26	4	9	26	35
20	1.07	25	4	10	27	34

Note: The first column captures the time horizon in quarters, whilst the variables on each row are measured in percentage points and sum to 100.

CA/GDP, current account to GDP ratio; REER, real effective exchange rate; RGDP, real GDP; SE, standard error; SRR, short real interest rate. *Source*: Baseline Structural VAR model outlined in Section III.

macroeconomic variables, as well as being able to see how the relative importance of each variable increases (diminishes) through time. To this extent, Table 1 presents the forecast error variance decomposition (FEVD) of the current account balance, which decomposes the dynamics of the current account at particular horizons due to the respective shocks of each of the model variables: Stock and Watson liken the output from a FEVD to the easily recognizable partial R^2 in a typical regression.[46] The ability to assess the relative contributions of different shocks in both the short-run (e.g. after 4 quarters) and the medium-run (e.g. 12 quarters), respectively, provides powerful insights into the transmission mechanism of various shocks to the current account, and helps to disentangle the otherwise highly endogenous relationships between key macroeconomic variables.

At horizon 4, that is, the 1-year mark, just under 40 per cent of current account perturbation is driven by RGDP shocks: the notion that IS shocks of this kind are a significant factor behind movements in the current account has long been recognized. Similarly, the importance of RGDP

[46] Stock and Watson, 'Vector autoregressions'.

shocks diminishes at longer horizons and instead the REER shocks account for an increasing share of current account variability, which is unsurprising given that relative price adjustments are most prescient in the long run, once temporary frictions have been removed.[47] The fiscal balance amounts for a paltry sub 5 per cent of the current account's dynamics, and is in fact the least salient out of all the variables in the model. Furthermore, the current account's peak influence at horizons 16 and 20, respectively, is actually consistent with an increase in the current account balance, as evidenced by the IRF in Figure 2, which runs contrary to the spirit of the twin deficits hypothesis.

Two final points on the FEVD relate to the SRR and the current account's own shocks: the relatively modest contribution of the SRR, whilst still greater than that of the fiscal shocks, suggests a fairly tangential role for monetary factors in the dynamics of the current account balance. This is a point we will return to shortly, since there are grounds for suspecting that the full impact of monetary forces are not being adequately captured here. Finally, the current account's own idiosyncratic shocks account for slightly more than half of its variation in the short run, although this diminishes to around a third by horizon 16, indicating that the domestic macroeconomic variables collectively account for an increasing share of current account variation at longer horizons.

Whilst much of the discussion has been couched in terms of the impact of fiscal shocks to the current account, logic dictates there is no reason to preclude causation flowing from autonomous changes in the current account to the fiscal balance. Indeed, the argument for current account shocks to the fiscal balance dominating the traditional twin deficits relationship is potentially enhanced under a fixed exchange rate, since it amplifies the impact of both common and idiosyncratic shocks, which are transmitted between countries via the balance of payments.[48] In this case, the burden of equilibrium real exchange rate adjustment falls primarily on domestic nominal prices and wages, which can result in a costly and protracted adjustment process that will surely exert an impact on the fiscal balance.[49] To investigate this further, we estimate a VAR model comprising **{RGDP, CA/GDP, Credit, REER, Fiscal Balance}**. The results (available with full discussion in the Appendix) are eye-catching indeed: a positive (negative) current account shock elicits a pronounced and persistent rise (fall) in the fiscal balance, whilst the FEVD suggests that current account shocks to the fiscal balance were six times more important than the fiscal shocks to the current account. As well as providing striking evidence for a reversal of the traditional twin deficits relationship, the alternate short-run identification scheme employed (where the fiscal balance is now contemporaneously endogenous to the current account) also doubles up as a robustness check, insofar as the impact of the fiscal shocks to the current account are still negligible, as per the baseline model.

In our model specification thus far we have used the real interest rate as the monetary variable, which is consistent with key studies such as Roubini and Kim as well as benchmark open-economy models. However, in keeping with the earlier discussion regarding the historical constraints on UK economic policy under Bretton Woods, there are strong grounds to argue that

[47] For further analysis of the exchange rate, including the impulse response function of a REER shock to the current account, see the Appendix.

[48] See Bordo, *Bretton Woods*.

[49] External shocks can potentially affect the fiscal balance in wide-ranging fashion: Banerjee considers the impact of inflationary oil shocks on fiscal balances in a sample of OECD economies, noting that the institutional features of both the labour market and tax policy can interact with divergent implications for the fiscal balance. The presence of inflationary propagation mechanisms coupled with weak indexation in the tax system can give rise to 'fiscal drag', thus significantly raising the fiscal balance following an inflationary commodity shock. For further discussion, see Banerjee, 'Inflationary oil shocks, fiscal policy, and debt dynamics'.

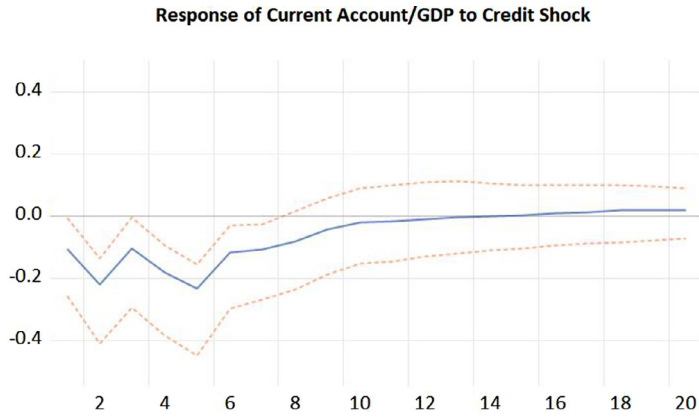

FIGURE 3 Impulse response function of current account balance to a one standard deviation credit shock. Note: The *x*-axis represents the time horizon in quarters, and the *y*-axis represents the dynamic response of the current account to GDP ratio – measured in percentage points – from its baseline following a credit shock.*Source*: Credit-augmented structural VAR model outlined in Section IV. [Colour figure can be viewed at wileyonlinelibrary.com]

the real interest rate might provide only a partial insight into monetary conditions. Indeed, policymakers as well as academics at the time focused heavily on credit as a key conduit for monetary policy, and therefore it is desirable to see whether our results concerning fiscal policy and the current account are robust to changes in the way we control for monetary conditions.[50] In this vein, we estimate a model identical to the baseline but substituting credit for the real interest rate as the monetary variable: **{RGDP, Fiscal, Credit, REER, CA/GDP}**. See the Appendix for full model details.

Figure 3 shows the IRF of the current account to an expansionary credit shock: the current account to GDP ratio immediately falls quite substantially by around 0.2 pp per quarter, with the deterioration exhibiting marked persistence, lasting around 2.5 years before finally reverting to the pre-shock baseline. Furthermore, the result is statistically significant for around 8 horizons. Even a simple visual comparison with the IRF from the fiscal shock in Figure 2 suggests that the monetary (credit) shock is of far greater importance in understanding the drivers of current account imbalances. This finding is consistent with a study of credit policy in the French economy by Monnet, in which a tightening of credit improves the current account (and equivalently a loosening causes it to deteriorate) although it appears the results here exhibit greater statistical significance than in the French case.[51] The persistence profile of the IRF is similar in both cases, with the effects of credit policy being felt most prominently over the 2–2.5 year mark. Because Monnet's article on French credit policy did not focus exclusively on the external balance aspect, credit shocks to the current account are not contrasted with conventional interest rate shocks, hence we are unable to comment on any (dis)similarities between the UK and French cases in terms of disparities between the different channels of monetary policy affecting the current account.

[50] For an engaging discussion of credit policy in the UK under Bretton Woods and its impact on *internal* balance, see Aikman et al., 'Monetary versus macroprudential policies'.

[51] Monnet, 'Monetary policy'. Note that the study by Monnet appears to use only 68% confidence bands rather than the 95% bands herein.

TABLE 2 Forecast error variance decomposition of current account balance.

Horizon	SE	RGDP	Fiscal	Credit	REER	CA/GDP
4	1.83	29	4	15	1	51
8	2.44	25	4	23	7	41
12	2.80	22	6	19	19	34
16	3.14	21	7	17	22	33
20	3.46	20	7	17	23	33

Note: The first column captures the time horizon in quarters, whilst the variables on each row are measured in percentage points and sum to 100.

CA/GDP, current account to GDP ratio; REER, real effective exchange rate; RGDP, real GDP; SE, standard error; SRR, short real interest rate.

Source: Credit-augmented structural VAR model outlined in Section IV.

The FEVD in Table 2 allows us to assess the importance of credit shocks in the context of other core variables. It is evident that at all horizons, credit plays a considerable role in accounting for the dynamics of the current account balance, particularly at the 2-year mark when credit accounts for nearly a quarter of current account perturbation. Some other relevant observations here include the fact that RGDP and REER have seen their relative shares decrease compared to the baseline analysis, which used the short real rate as the monetary variable. We believe this points to the importance of properly capturing the impact of monetary forces using credit, and that the relatively low importance of monetary shocks in the previous specification (i.e. the short real rate shocks) caused a comparatively higher share of the variance to be ascribed to RGDP and REER. The paltry role played by fiscal policy under the previous specification remains largely unchanged in the credit-augmented VAR model, with its share of current account variability rising by only a few percentage points from a very low base. Overall this modified specification suggests a substantial role for the shocks of RGDP, Credit, and REER as key drivers of the current account dynamics, and underscores the importance of remaining attuned to the historical and institutional particulars of the economy in question when engaging in VAR modelling.

Figure 4 plots the IRF of the current account (IRF) to a negative one standard deviation tax shock (i.e. a reduction in tax) using the tax shock series of Cloyne, which was identified using the well-known 'narrative' approach based on an extensive reading of the UK's annual budget statements and other important fiscal events.[52] The response of the current account is striking indeed: following the tax cut, the current account balance immediately increases by around 0.2 pp and remains elevated for around eight quarters following the initial tax cut (with the result statistically significant for around a year or so). The forecast error variance decomposition in Table 3 shows the tax shock accounts for 17 per cent of current account perturbation at the 1-year mark, before decreasing steadily thereafter. The other variables are similar to the FEVD results in the baseline analysis, with and RGDP and the REER assuming a prominent role. The relative importance of the tax shock is virtually the same when using credit as the monetary variable, and credit once again accounts for a little short of a quarter of current account variation by horizon 8. It is also worth mentioning the impulse response

[52] Cloyne, 'Discretionary tax changes'. Indeed, Cloyne indicates that the tax shocks were not balanced budget fiscal measures and this was not a case of 'starving the beast' where tax cuts are matched by corresponding reductions in government spending.

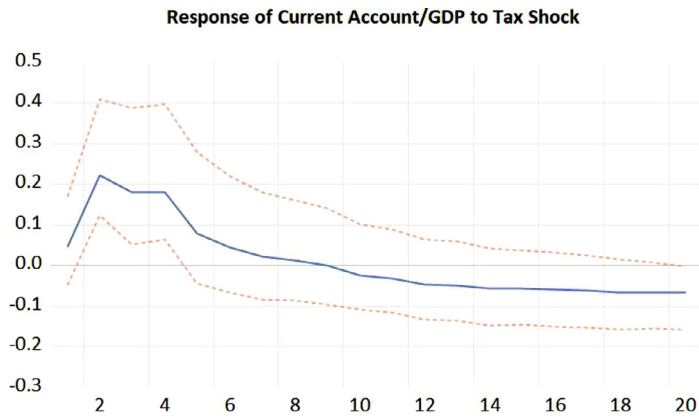

FIGURE 4 Impulse response function of current account to a one standard deviation tax shock. Note: The *x*-axis represents the time horizon in quarters, and the *y*-axis represents the dynamic response of the current account to GDP ratio – measured in percentage points – from its baseline following a tax shock. *Source*: Tax-augmented VAR model outlined in Section IV. [Colour figure can be viewed at wileyonlinelibrary.com]

TABLE 3 Forecast error variance decomposition of current account balance.

Horizon	SE	Tax	RGDP	SRR	REER	CA/GDP
4	0.83	17	33	6	2	42
8	0.93	15	28	8	15	34
12	1.00	13	25	7	26	29
16	1.07	13	23	8	30	26
20	1.09	13	21	9	31	25

Note: The first column captures the time horizon in quarters, whilst the variables on each row are measured in percentage points and sum to 100.

CA/GDP, current account to GDP ratio; REER, real effective exchange rate; RGDP, real GDP; SE, standard error; SRR, short real interest rate.

Source: Tax-augmented VAR model outlined in Section IV.

of the SRR (shown in the Appendix), which decreases persistently in response to the tax shock for around 2 years: indeed, the SRR is around 0.33 percentage points lower per quarter on average.

The results for the current account and SRR are particularly eye-catching because they run contrary to the theoretical predictions of the traditional income-expenditure type macroeconomic models, such as the benchmark Mundell–Fleming framework. Under this approach, an expansionary fiscal policy – typified by an outward shift of the IS curve – would elicit an increase in income and interest rates and a worsening of the trade balance.[53] In contrast, our own results suggest an improvement in the current account and a reduction in the interest rate: how can we reconcile data and theory? The answer seems to lie in a newer vintage of open-economy macroeconomic models.

[53] This is based on the Mundell–Fleming model with imperfect capital mobility, which does justice to the nature of the partial restrictions on capital movements that existed during this period. See Schenk, *The decline of sterling*, pp. 215–24 for an insightful discussion.

Baxter presents a theoretical framework in which consumers prefer to work harder whilst a tax cut is in effect and smooth consumption over the infinite future by saving in the periods following the tax cut, by purchasing bonds from foreigners (i.e. net acquisition of foreign assets).[54] Similarly, the model posits that the response of business investment is likely to be minimal for all but the most highly persistent cut in tax rates, since there is no incentive to alter investment unless they perceive the time horizon for the tax cut to be extremely long lived, hence, the money is either saved as retained earnings or possibly remitted to shareholders in the form of dividend payments.[55] The increase in the current account balance following the tax cut shown in the IRF in Figure 4 is consistent with this line of theoretical reasoning. Baxter's theoretical analysis also predicts a fall in the real interest rate in response to the increased private saving arising from the tax cut, so as to balance saving and investment, which is again consistent with the result from our impulse response analysis (see Appendix).

Baxter's inter-temporal model, unlike Mundell–Fleming, formulates its theoretical predictions on the basis of forward-looking individuals and businesses who respond to shifts in relative prices not just in the present time period, but also those in the future. The approach finds strong support from Obstfeld and Rogoff, who make the forceful case that in the same way efficient international trade tends to require unbalanced trade between different commodity groups, so too does efficient trade across time, which manifests itself in an unbalanced current account.[56] In the same article, Obstfeld and Rogoff highlight a number of analytical deficiencies in the Mundell–Fleming model, of which most pertinent to the current study is the fact that it is essentially a static model couched within a one-period framework, where future expectations do not play a role and agents merely respond to contemporaneous changes within the period. This leads to the very stylized result that expansionary fiscal policy causes a deterioration in the trade balance, whilst contractionary fiscal policy improves it. However, once expectations are incorporated a la Baxter, an alternate set of economically plausible scenarios emerge regarding fiscal policy and the external balance, including a 'twin divergence' between the two.

Another desirable feature of Baxter's treatment of the issue is the emphasis she places on the potentially different outcomes arising from temporary versus permanent tax cuts, that is, the persistence factor. For instance, her finding that business investment fails to respond to all but the most persistent tax cuts is hardly surprising when one considers the microeconomics of capital budgeting by firms, in particular the long time horizons involved. In a similar vein, the notion that households will seek to save transitory increases in income and only allow an outward shift of their budget constraint if the increase income is understood to be permanent. Historically this speaks to the nature of fiscal policy under Bretton Woods, indeed, arguably no country made greater use of temporary and discretionary fiscal fine-tuning via taxes than the UK, and there is a long-standing literature arguing that fiscal policy actually became destabilizing to the expectations of private agents and hence the dynamics of the

[54] Baxter, 'International trade and business cycles'.

[55] The first reason seems to resonate with the UK's experience, where it has long been acknowledged that the UK's investment-share of GDP was lower than that of other advanced economies, even when controlling for catching up effects. This excess tendency towards saving over investment on the part of the business sector could explain why the tax cut does not manifest in a current account deficit, if some or all of the funds were channelled into overseas saving via the external account.

[56] Obstfeld and Rogoff, 'The intertemporal approach to the current account'.

business cycle.[57] A relatively recent paper by Fogli and Perri helps to bridge our understanding of uncertainty and domestic economic instability with the balance of payments by investigating the relationship between macroeconomic volatility and the external balance in advanced economies.[58] They document that heightened macro-volatility is consistent with greater accumulation of foreign assets manifested by current account surpluses – both in theory and in the data. They suggest that the precautionary motive for saving is ultimately driven by aggregate uncertainty, with policy-induced uncertainty proffered as a key mechanism therein, which appears consistent with the stop–go macroeconomic zeitgeist that prevailed in the UK under Bretton Woods.[59]

V | CRISIS 1967: DISENTANGLING THE CAUSES OF AND RECOVERY FROM THE 1967 STERLING DEVALUATION

The collapse of sterling's parity against the dollar in November 1967, from $2.80 to the pound down to $2.40, represented a nominal devaluation of 14 per cent, although the numbers arguably belie the true historical significance of the moment. Indeed, the sterling–dollar parity had stood since 1949, and despite successive UK chancellors being forced to weather some fairly tempestuous storms, the commitment to defending the currency had remained (in public, at least) a steadfast undertaking of all governments.[60] The collapse of the parity, which was unceremoniously forced onto the government of Prime Minister Harold Wilson, was perceived as being something of an economic 'Suez moment'.

The devaluation was buttressed by an enormous fiscal tightening in the budget of March 1968, when the new Chancellor of the Exchequer, Roy Jenkins, passed one of the most contractionary macroeconomic policy packages of the entire post-war period up to that point. It is also necessary to recognize that the UK was far from out of the woods following the devaluation, and significant doubts continued to linger in both policy circles and financial markets as to whether the new parity would hold up or whether a further devaluation would occur. One thing that did happen, however, is that the current account balance underwent a remarkable turnaround from a trough in 1967-Q4 of -2.5 per cent (as a percentage of GDP) to a peak of 2.3 per cent in 1970-Q1.

Questions have abounded in relation to both the causes of the sterling crisis and the seemingly impressive recovery of the current account that occurred in its aftermath. Contemporaneous opinion in continental Europe was that countries such as the UK with large budget deficits ended up with balance of payments deficits, and that the cure for the latter was a reduction in the former.[61] Similarly, in the mid-1960s the IMF counselled Chancellor James Callaghan in favour of much

[57] Dow, *The management of the British economy*, was arguably one of the earliest and most influential manifestations of this thinking.

[58] Fogli and Perry, 'Macroeconomic volatility'.

[59] Supporting evidence for this can be found in Rollings, *British business*, ch. 3, in the discussion of an unresolved tension between business and government, namely the way in which the Treasury in particular took a critical view of UK financial capital as being too footloose and prone to investing overseas, thus forgoing domestic investment and impeding the formation of future export capacity.

[60] See Schenk, *International economic relations*, pp. 52–7 for an overview of how Britain's travails contributed to the decline of the wider Bretton Woods system.

[61] Cairncross and Eichengreen, *Sterling in Decline*, p. 177.

tighter fiscal policy as well as tight money, though with seemingly mixed results.[62] In relatively more recent times, Paul De Grauwe invokes a twin deficits line of reasoning and attaches a key role to fiscal policy in the entire episode:

'As a result of relatively expansionary fiscal policies, the government budget turned to large deficits during the middle of the decade. This also had the effect of increasing imports and led to the deterioration of the current account… From 1962–1967, the government budget deficit became larger and larger. As a result, during 1963–1965 and later during 1967 the current account deteriorated significantly'.[63]

De Grauwe explicitly posits that fiscal deficits and the ensuing current account deficits were responsible for the speculative attacks against the currency, which gave way to the exchange rate crisis. He also goes on to note that the current account improved in spectacular fashion in 1968–70 due to the subsequent fiscal tightening as well as the impact of the devaluation itself. Hence, fiscal policy was crucial to both the cause of the crisis as well as the ensuing recovery.

We investigate the nature of the 1967 sterling crisis by way of a historical decomposition, which allows one to unpack the constituent shocks that drive the dynamics of a variable over a specific window of time.[64] The underlying VAR model used to generate the historical decomposition is akin to the credit-augmented specification in Section IV. See Appendix for full details. The decomposition of the current account balance runs from 1967Q1–1971Q4, thereby allowing us to carefully probe the various assertions and hypotheses regarding the cause of the crisis as well as the subsequent recovery.

Figure 5 shows the role of the REER in helping to drive the recovery of the current account in the years 1968–71. After an initial period of inertia in the first year or so since devaluation, we see the real exchange rate, as depicted by the black dashed line, contributing significantly to the upturn in the current account balance, with visual inspection suggesting it accounted for roughly half of the observed recovery in the current account. This certainly corroborates De Grauwe's emphasis on devaluation in driving the turnaround in the current account balance. The result also speaks to those long-standing debates in British policy circles during the Bretton Woods era regarding the efficacy of relative price changes (as effected by changes in the nominal exchange rate): the devaluation seems to have contributed to a large and sustained increase in the current account balance, indicating that the exchange rate did constitute a viable policy instrument in promoting external adjustment.

What of fiscal policy in this story? Figure 6 shows the contribution of the fiscal balance in both the build up to the crisis and the subsequent recovery. It is readily apparent that fiscal policy appears to have played next to no role in the marked deterioration of the current account balance in 1967Q4. Similarly, its part in the recovery over subsequent years can be described as very modest at best, with the fiscal balance's influence being felt fairly late in the day from around 1970Q3. Overall the results suggest that whatever the causes of both the crisis itself and the subsequent recovery, the spotlight does not fall on fiscal policy.

The role of the current account's own shocks seems an important factor in relation to the 1967 currency crisis: it is readily apparent from Figure 7 that most of the deterioration in the

[62] Schenk, *The Decline of Sterling*, ch. 5.

[63] De Grauwe, *International money*, p. 57.

[64] In essence, the historical decomposition enables us to analyse the role of different structural shocks in driving deviations of the endogenous variables away from their respective equilibria, in which the equilibrium states are the fitted values obtained from the VAR.

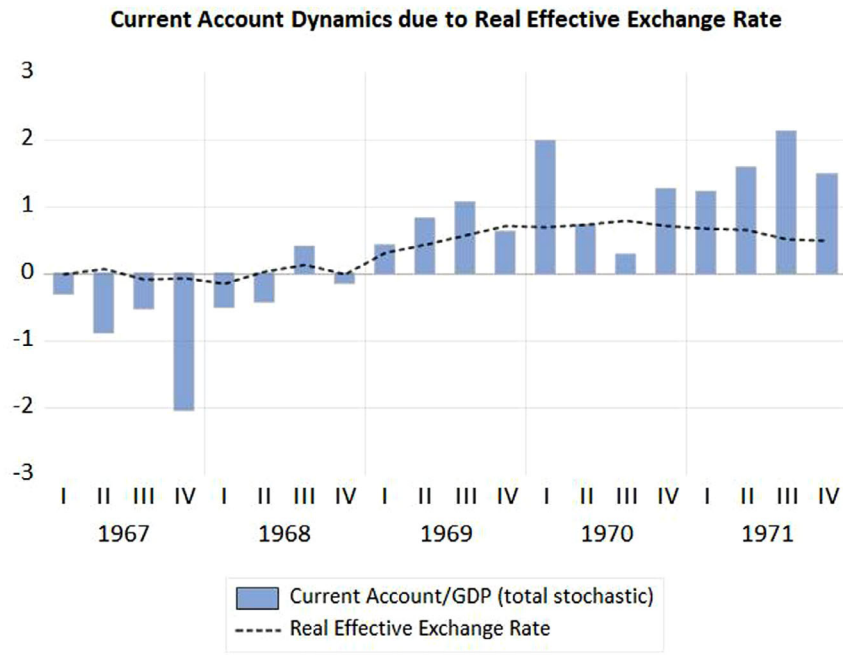

FIGURE 5 Historical decomposition of current account due to REER. Note: The graph plots the proportion of variability in the current account balance – measured in percentage points – due to real exchange rate shocks, as denoted by the dashed black line. The *x*-axis displays the date in quarters per annum.*Source*: Structural VAR model outlined in Section V. [Colour figure can be viewed at wileyonlinelibrary.com]

current account occurring in 1967Q4 (i.e. when devaluation occurred) was driven by the current account's idiosyncratic variation. Similarly, the particularly strong current account value for 1970Q1 is attributable to one of the current account's own shocks, although this time a positive one. It is helpful to recall at this point that the VAR model underlying the historical decomposition treats the current account as contemporaneously endogenous to all other variables, meaning that we have controlled for domestic economic influences in the current account shocks we recover, hence the shocks are likely to be capturing effects that are exogenous to the UK economy. Dow highlights some of the autonomous factors that typically accounted for the ebb and flow of short-term movements in the UK's current account balance, including: movements in the terms of trade, fluctuations in net income on overseas assets, and changes in the rate of demand growth in the UK's trading partners.[65] Taken collectively, these factors seem plausible enough candidates, but are they alone capable of establishing the cause of the currency crisis?

It is worth appealing to the historical record to see whether it substantiates the emphasis our analysis places on the current account's own shocks. Alec Cairncross was a senior official in the UK Treasury during the 1960s and thus had a unique vantage point from which to construct a blow-by-blow account of the main factors leading to the sterling crisis and devaluation. Cairncross documents several one-off and essentially random factors that adversely affected the current account during the latter part of 1967.[66] These included the closure of the Suez canal and industrial unrest in the form of strikes by dockworkers, which meant that UK exports were unable to be

[65] Dow, *The management of the British economy*, p. 385).

[66] Cairncross, *Managing the British economy in the 1960s*, ch. 10.

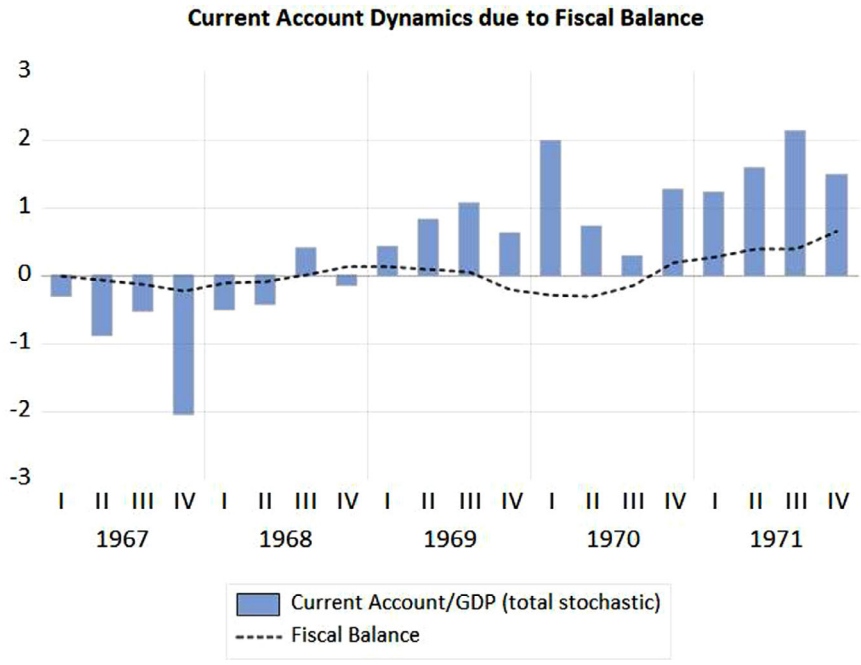

FIGURE 6 Historical decomposition of current account due to fiscal balance. Note: The graph plots the proportion of variability in the current account balance – measured in percentage points – due to fiscal balance shocks, as denoted by the dashed black line. The *x*-axis displays the date in quarters per annum. *Source*: Structural VAR model outlined in Section V. [Colour figure can be viewed at wileyonlinelibrary.com]

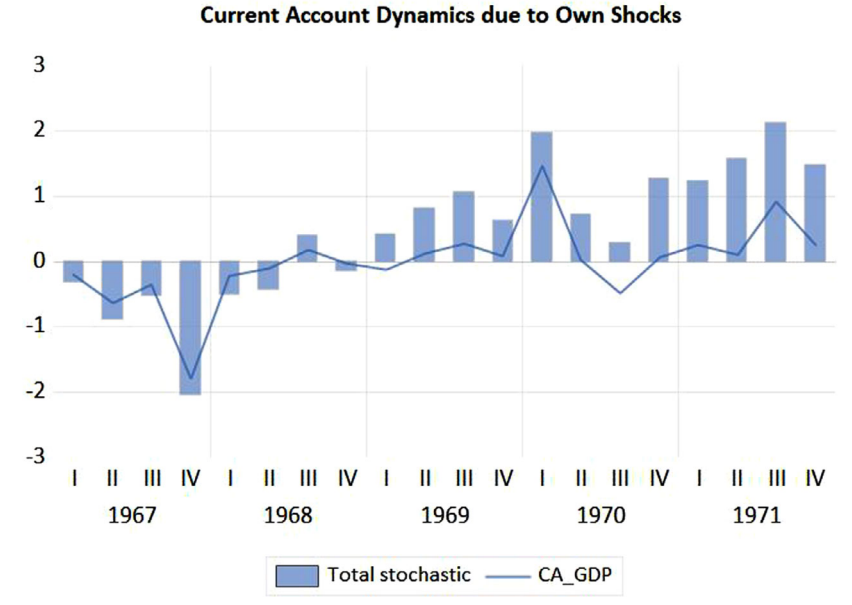

FIGURE 7 Historical decomposition of current account due to own random shocks. Note: The graph plots the proportion of variability in the current account balance – measured in percentage points – due to the current account's own shocks, as denoted by the blue line. The *x*-axis displays the date in quarters per annum. *Source*: Structural VAR model outlined in Section V. [Colour figure can be viewed at wileyonlinelibrary.com]

shipped and therefore precipitated a loss of much needed foreign exchange. He also highlights that 1967 saw a slowdown in global economic growth, thus undermining the demand for UK exports, a point which also finds support in the work of Dow who further emphasizes that fluctuations in world exports varied to a greater extent changes in world GDP.[67] Cairncross sums up the picture aptly by noting 'these events could not fail to have a serious effect both on the balance of payments and on confidence in sterling'.[68] In light of this, it is hard to interpret the 1967 sterling crisis as being induced by fiscal laxity, nor to attribute the current account's subsequent recovery to the concurrent fiscal tightening, but rather an episode in which largely unforecastable disturbances to the current account tipped the UK into crisis.

Some brief remarks may be warranted on the matter of international assistance received by the UK. Whilst it is true that owing to sterling's importance in the international monetary system the UK was a recipient of numerous financial assistance packages when facing severe balance of payments problems, Eichengreen and Cairncross offer a number of salient observations providing important qualification.[69] First, the size of the financial support being offered in the build up to the 1967 sterling crisis was paltry in relation to the scale of the assistance required – a point pithily captured by the adage 'pills don't cure earthquakes' – and as such might even have proved counter-productive in terms of its impact on confidence. Added to this was ongoing speculation regarding a British application to join the European Economic Community in 1967, which culminated in an announcement on May 2 to that effect. This was widely understood to entail a significant future toll on the balance of payments, and it was suspected that the UK's point of entry might double up as an opportune moment for devaluing the pound. International support packages, which tended to focus on staunching the bleed in the short to medium term, were potentially more limited in countering fundamental uncertainty regarding the outlook on long-term fundamentals such as major shifts in commercial policy. Then there was the question of whether it would have been wise for the UK to further increase its short-term indebtedness, even if a rescue package of the requisite size could have been corralled from the disparate and diverging parties. Indeed, international assistance was no free lunch, and without devaluation it was difficult to envisage how the necessary current account surplus would emerge to repay the country's existing debts, let alone new ones. Finally, there was no real expectation that the government would acquiesce to bringing in yet another package of deflationary measures – the usual price for securing meaningful international assistance – when unemployment continued to rise throughout the year. Taken collectively, these factors help elucidate the obstacles to international assistance being able to avert the climactic and watershed moment of 18 November 1967.

Locating the sterling crisis of 1967 within the extensive literature on speculative attacks makes for some interesting analysis. The so-called first generation of speculative attack models places unsustainable fiscal policy at the heart of an exchange rate peg collapse, however, such a view does not comport with the evidence obtained from the historical decomposition.[70] Indeed, the first-generation models, typified by Krugman, emphasize large, persistent fiscal deficits financed by monetization, thus precipitating a drain on foreign exchange reserves and ultimately a

[67] Dow, *Major recessions*, p. 241.

[68] Cairncross, *Managing the British economy in the 1960s*, p. 180.

[69] Eichengreen and Cairncross, *Sterling in decline*, ch. 5.

[70] By contrast, Bordo et al., 'Sterling in crisis', suggest that the UK's experience in the 1960s does align with the first generation models, arguing that reserve movements were ostensibly driven by 'monetary and fiscal indiscipline' (ibid, p. 439), thus creating an inconsistency between the exchange rate parity and economic fundamentals.

speculative attack that leads to a collapse of the parity.[71] This purported link between fiscal deficits and money creation has the potential to obfuscate cause and effect when considering the 1967 sterling crisis, indeed, whilst we do not claim that fiscal policy never results in an expansion of the money supply, this putative relationship ought to be evaluated on the basis of both theory and careful studies of particular episodes, rather than simply presupposing a clear-cut relationship between the two.[72] Likewise, it is entirely possible that autonomous shifts in the money supply might occur due to decisions made within the domestic financial system or because of changes in the demand for money balances by households and firms, which are fundamentally unrelated to the government's fiscal stance.[73]

The second-generation of speculative attack models by contrast, focus on how crises might occur due to self-fulfilling beliefs, and can occur in the absence of poor macroeconomic fundamentals.[74] Krugman posits that these models require three key ingredients: (i) there must be a reason why the government would like to abandon its fixed exchange rate; (ii) there must be a reason why the government would like to defend its fixed exchange rate; and (iii) to precipitate a circular logic that results in a crisis, the cost of defending the fixed rate must itself increase when people suspect that parity might be abandoned.[75] With regard to the UK's situation in the 1960s, it is clear that on the first point the government would wish to devalue the exchange rate to pursue a more expansionary policy agenda, specifically Labour's plans for a structural transformation of the UK economy to break out of the stop–go cycle, which envisaged large and sustained increases in public investment to achieve its aim. Second, the most prominent incentive to defend the exchange rate was Harold Wilson's enduring fear of Labour being perceived as the 'party of devaluation', to which we might add wider concerns about the fortunes of the international monetary system and the dollar if sterling were to devalue. And on the third point, the contractionary policies needed to defend the existing parity (which were broadly understood to comprise tighter monetary and fiscal policies) implied the UK attempting to limp on with macroeconomic policy actively suppressing output and employment and defending an exchange rate at which the level of exports fell significantly below the full employment level of imports, thus perpetuating a chronic trade-off between internal and external balance. In this sense, the proximate cause of the crisis is reached when speculators fathom that the government will be unable to continue its adherence to parity in the face of widespread discontent regarding the relative costs and benefits of defending the status quo.[76] This was the very situation anticipated by James Meade, who correctly surmised that policymakers would

[71] Krugman, 'A model of balance of payments crises'.

[72] The deficit–money supply nexus has arguably led UK policymakers astray at key junctures. For further reading see the case studies in Nelson and Batini, *The UK's rocky road to stability*. More broadly, and on a theoretical level, an important starting point is to distinguish between inflationary versus non-inflationary deficit financing, that is, money versus bond-financed fiscal expansions, since macroeconomic outcomes are not invariant to the deficit-financing regime.

[73] One of the hallmarks of the structural VAR empirical approach is its ability to identify such autonomous changes in variables (structural shocks), rather than changes induced by some other variable. Interestingly, when we analysed the impact of the credit variable in the historical decomposition, it did not appear to play a significant role in either the build up to the 1967Q4 crisis nor the subsequent recovery.

[74] It should be pointed out that this exercise with the historical decompositions does not constitute an explicit econometric test of any particular vintage of speculative attack model, rather, it offers impetus to discursively compare and contrast our empirical findings and the UK's historical experience with some of the key features of those models.

[75] Krugman, *Currency crises*.

[76] The circular logic of the crisis is such that further pressure on the currency would necessitate even harsher contractionary policies, for example, additional increases in interest rates or cuts in government expenditure. This would fuel

resort to the only remaining instrument capable of reconciling internal and external balance: a devalued exchange rate.[77] Overall the second-generation speculative attack framework seems to provide a richer and more plausible account than its predecessor, being congruous with both the UK's historical experience as well as the novel empirical evidence obtained from the historical decomposition.

VI | HISTORICAL AND POLICY IMPLICATIONS: MEADE'S DILEMMA REVISITED

An overarching question that cuts to the core of the themes explored in this paper pertains to the sustainability and viability of the UK's post-war macroeconomic regime, an issue that was presciently considered by Meade during the earlier years of the Bretton Woods era.[78] In what has come to be regarded as something of a prophetical statement regarding the trials and tribulations that would come to define the UK's experience in the 1950s and 1960s, Meade argued that the entire edifice of post-war policy was intrinsically flawed. The outcome he predicted was one in which trade-offs between competing objectives would emerge, ultimately proving insurmountable to policymakers who, when caught between a rock and a hard place, would inevitably plump for devaluation. The reason for this, Meade argued, was that different economies would be subjected to asymmetric shocks causing a disequilibrium position to emerge: some of these situations would be remediable, such as a domestic recession coupled with a current account surplus, or similarly a domestic boom paired with a current account deficit. In both these instances the levers of macroeconomic policy could ensure a return to simultaneous internal and external balance and overall macroeconomic equilibrium. Essentially, in the first situation an expansionary macroeconomic policy stance would increase growth by boosting aggregate demand whilst reducing the current account surplus, and in the second it would slow the pace of expansion and improve the current account balance.

The real problems identified by Meade were when an economy was confronted with what he called the 'intractable' scenarios – a current account deficit and a recession, or a current account surplus and booming growth. In both of these situations, an attempt to solve one of the issues (external or internal balance) would result in a worsening of the other. There appeared to be no way out. Meade argued that a government faced with a chronic current account deficit and a recession could not reasonably expect, for any sustained period of time, to drive the domestic economy deeper and deeper into recession to bring the current account back into balance on account of the popular backlash against mounting unemployment.[79] He reasoned that governments would ultimately succumb to the temptation to use the 'forbidden' instrument of economic policy: devaluation. This tendency would be reinforced by the age-old issue regarding adherence to the 'rules of the game' – or lack thereof – whereby booming economies with a current account surplus had

investors' concerns about the unsustainable nature of these contractionary policies in the face of a discontented electorate, thus creating even greater incentive to withdraw from sterling to avoid imminent capital losses, and so the cycle perpetuates itself. On this point, Krugman remarks that with the second-generation models, it is not so much what you are doing as what financial markets suspect you might want to do, with the implication that governments may not need to change their policies so much as their underlying preferences. See Krugman, *Currency crises*, p. 439.

[77] Meade, *The theory of international economic policy*.

[78] Meade, ibid.

[79] This underscores a key theoretical presupposition of Meade's analysis – inflexible wages and prices.

little incentive to reduce their own external surplus for the benefit of deficit countries, thereby resulting in a case of 'beggar thy neighbour' and an asymmetric burden of external adjustment.

However, does our empirical analysis corroborate Meade's gloomy prognosis regarding the inevitability of a collapse of the parity? Arguably not. Indeed, to the extent that the tax shock actually generated a rise in the current account balance, this suggests that the UK had a domestic policy instrument that could be used to improve the current account balance, whilst an alternate instrument, such as the credit channel of monetary policy, might be tasked with raising economic growth and lowering unemployment (internal balance). The key finding here is that the two instruments exert differing effects on the target variables, and hence it may be possible to construct a feasible assignment leading to an ostensible restoration of macroeconomic equilibrium.

In practise, however, the reality might have proved more complicated: the so-called Lucas critique suggests that trying to predict the impact of counterfactual policy changes based on historical data is fraught with difficulties, since all too often the underlying macroeconomic relationships cannot be regarded as genuinely structural in the sense of being invariant to changes in government policy.[80] Further still, it is far from clear that averting devaluation and choosing to struggle on with a misaligned exchange rate is an appropriate macroeconomic policy. To the extent that a downward movement of the nominal and real exchange rate facilitates a return to relative purchasing power parity, it can be regarded as a necessary adjustment that redresses imbalances in the productive structure and consumption pattern of the economy. Nonetheless, our striking empirical findings do cast Meade's dilemma in a new light, not least because one of the key causal relationships implicitly assumed in his analysis (the negative impact of fiscal policy on the current account) fails to hold within the data. This obfuscates the cut-and-dry taxonomy of instruments and targets outlined by Meade, and subsequently popularized in Swan's famous diagram, implying that devaluation may not have been as inevitable as Meade supposed.[81] However, whether it would nonetheless have still been desirable for the economy is arguably the more important question.

In light of the significant role we found for credit policy in the empirical analysis, it is worth reflecting on why this particular instrument was not deployed further in defence of the external balance. On some occasions, a tightening of credit policy was indeed enacted to reduce aggregate demand and thus mitigate a current account deficit. However, aside from the obvious point that such a policy was contractionary – diminishing both GDP and employment – there were also serious misgivings on the part of the Bank of England regarding the practicality, efficacy, and even legality of credit control policies, as noted by Goodhart.[82] The Bank fretted about the possibility that the anticipation of impending credit restrictions would cause consumers and businesses to bring forward and crystallize their potential overdraft facilities (in advance of those services being withdrawn), thereby giving rise to unintended pro-cyclical consequences. Similarly, there were concerns about the possibility of disintermediation into less efficient channels of financing: this presented obvious downsides in terms of the impact on growth, but such 'leakages' also undermined the efficacy of the credit controls if economic agents sought credit outside the web of official restrictions. And finally, the fact that certain elements of a modern banking system (e.g. pre-agreed overdraft facilities) resulted in a demand-determined nature of credit creation gave

[80] Lucas, 'Economic policy evaluation'.

[81] Swan, *Longer-run problems*.

[82] Goodhart, 'Competition and credit control'.

rise to uncertainty amongst banks as to whether they would be able to meet the prescribed credit restrictions without running afoul of their legal and contractual obligations to customers. In spite of these difficulties, however, the Treasury still viewed credit policy as an important instrument, as evidenced by the frequency with which it had been deployed during the Bretton Woods era. Fundamentally, it offered an additional lever for the purposes of macroeconomic management and helped to avoid a less palatable alternative, namely the conventional interest rate channel of monetary policy.

Another considerable limitation of credit control instruments to act as a substitute for interest rates in conducting monetary policy pertains to their direct effect on the balance of payments – or rather, lack thereof. Granted, after a sufficient time lag a tightening of credit policy would cause a reduction in aggregate demand and by extension, reduce the UK's volume of imports. However, as was made abundantly clear in the seminal Mundell–Fleming model, a rise in interest rates not only reduces aggregate demand and thus imports, but it also attracts an accommodating capital flow to cover the incipient current account deficit. For a country such as the UK, who was generally inadequately furnished with foreign exchange reserves, whatever the merits of credit controls as a tool of internal demand management, they arguably represented an inferior alternative to interest rates when it came to the instrument–target assignment for the external balance.

VII | CONCLUSION

The question of how to achieve the chimera of simultaneous internal and external balance confounded a generation of British policymakers and stumped some of the country's top academic economists. In the canonical accounts of this period, fiscal policy is singled out as the key culprit for destabilizing the external balance and giving rise to the damaging 'stop–go' cycles in economic activity that disturbed the 'animal spirits' of both businesses and households, arguably undermining economic performance as a result. Our analysis refutes the traditional understanding of the fiscal balance and the current account ('twin deficits') under Bretton Woods by presenting evidence that fiscal policy was a relatively trivial factor in accounting for the dynamics of the current account. Additionally, in the case of the all-important tax policy instrument, which was favoured by successive British governments when conducting its fiscal interventions, we find that expansionary tax shocks actually increased the current account balance rather than diminishing it, thus turning the traditional twin deficits logic on its head.

The traditional paradigm is upended further by the empirical finding that current account shocks to the fiscal balance were substantially more important in the data than the reverse (i.e. fiscal shocks to the current account), indicating that the direction of causation in the canonical view of the twin deficits was in fact the wrong way round. This serves as a powerful reminder of the dangers of inferring causal relations from macroeconomic accounting identities. We provide a theoretical explanation as to why our revisionist findings are economically plausible, and highlight the divergent theoretical predictions emanating from an older vintage of income-expenditure type macroeconomic models (such as Mundell–Fleming) compared with the newer suite of intertemporal, expectations-driven approaches, in which divergent movements between the fiscal stance and the current account balance emerges as a logical consequence of the behaviour of optimizing agents.

Some potentially very interesting findings arise in the realm of monetary policy, since the empirical results indicate a relatively weak role for the real interest rate, despite the centrality of this

variable to most mainstream theoretical approaches. We explore the historically unique nature of the UK's unorthodox approach to monetary policy under Bretton Woods, positing that credit, rather than interest rates, is the key monetary variable to focus on. Modifying our model in light of this insight seems to yield an important role for credit policy in the determination of the current account, thus strengthening our understanding of the external adjustment process by indicating that monetary (credit) rather than fiscal forces were of greater significance under Bretton Woods. This finding also speaks to the abstruse contemporaneous debates regarding the nature of the monetary transmission mechanism, offering some tentative vindication for the so-called Radcliffean approach to monetary policy that emphasized credit rather than interest rates. However, given the article's predominant emphasis on fiscal policy, this intriguing monetary angle stands out as a focal point for future research efforts.

In terms of policy implications, the stakes are high: our findings suggest that one of the core tenets of British (and arguably international) post-war economic doctrine was deeply flawed, for in reality no simple relationship existed between fiscal policy and the current account. Attempts to tighten the fiscal balance to produce a corresponding improvement in the current account were at best ineffective, or at worst actually elicited the opposite effect. Viewed through the lens of an instruments–targets assignment problem, our results indicate a stark violation of Mundell's seminal principle of effective market classification, which states that policy instruments should be targeted on the objective for which they have relatively stronger influence, and that failure to do so would generate cyclical instability. This maxim seems congruous with the UK's historical experience, indicating that a more suitable mix of instruments making greater use of credit policy and the exchange rate were warranted.

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