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Inequality Hysteresis

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and the effectiveness of macroeconomic stabilisation policies

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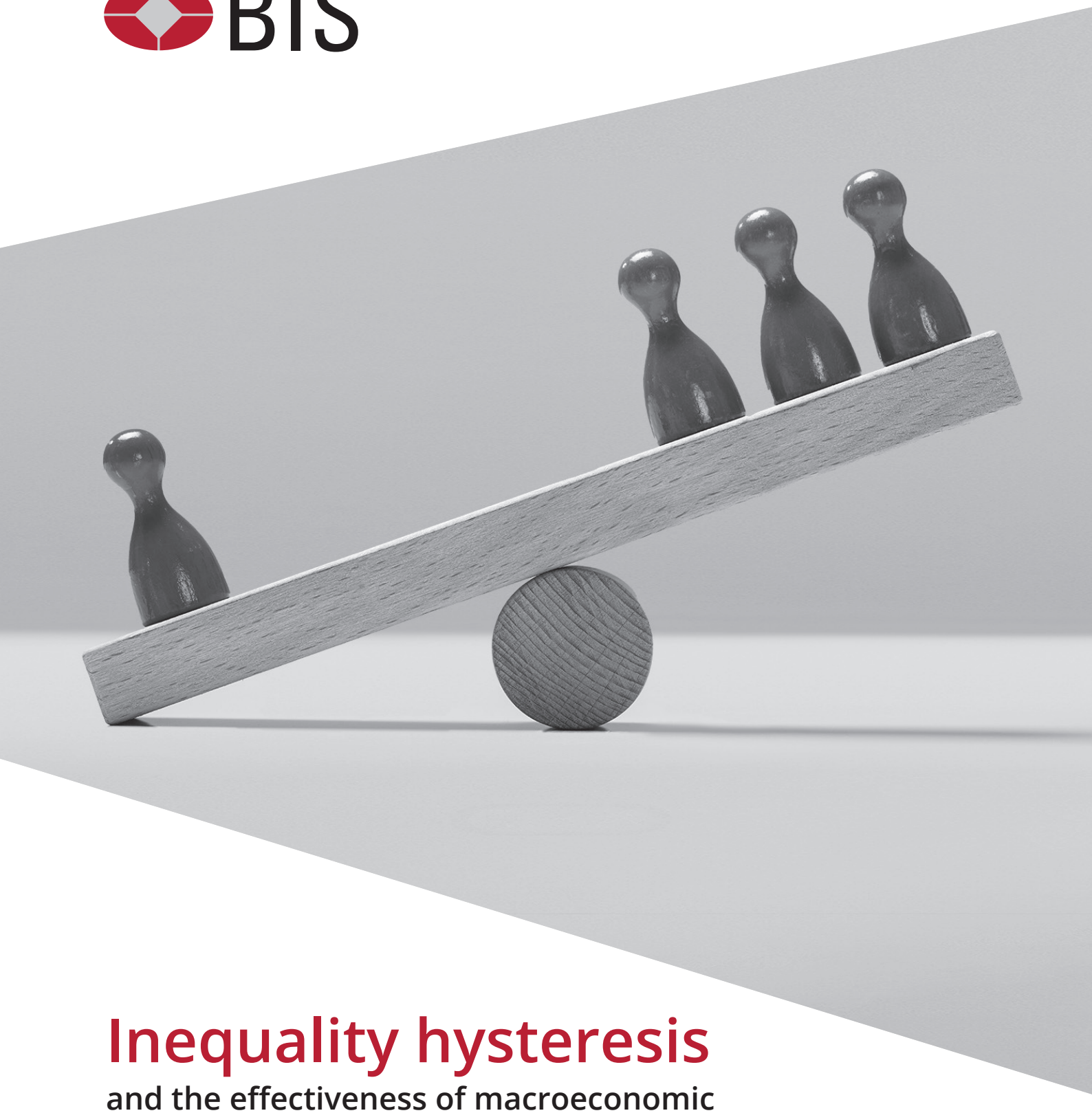

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Foreword by Agustín Carstens

Once somewhat of a technical backwater, the distributional consequences of monetary policy have surged to the forefront of public debate in recent years. Revisiting the topic in 2021, the BIS Annual Economic Report concluded that the well documented long-term rise in economic inequality since the 1980s arises largely from structural factors, beyond the reach of monetary policy and best addressed by fiscal and structural policies.

On this view, monetary policy can most effectively contribute to a more equitable society by fulfilling its mandate. In this way, the Report suggested, monetary policy can address the key factors that cause inequality to rise at shorter horizons. Inflation should be kept low, keeping in check the macroeconomic and financial instability that disproportionately hurts the poor. This is especially relevant nowadays, given the surge in energy and food prices that account for a larger share of consumption among lower-income households. In addition, central banks can also help mitigate economic inequality wearing their "non-monetary hats", as prudential authorities, promoters of financial development and inclusion, and guardians of payment systems.

To complement these arguments, this volume investigates the cyclical dimensions of inequality, a topic that has been somewhat neglected, in part due to the lack of higher-frequency data on inequality. The aim is to extend previous studies and examine a new facet of inequality: its persistence or "hysteresis" after recessions.

As a first step, a set of stylised facts is presented on the cyclical properties of inequality. These show that, across a large sample of countries and cycles, inequality increases faster and more persistently in the aftermath of recessions. Five years after a recession, inequality is still above its pre-recession level, whether or not employment rebounds faster after the recession. Second, greater levels of income inequality are associated with deeper recessions and a reduced effectiveness of monetary policy in steering aggregate demand. Taken together, these results point to the risk of an adverse feedback loop, where recessions persistently raise inequality while greater inequality deepens recessions, enfeebling the very policies designed to address them.

The authors also study the impact of traditional fiscal and para-fiscal redistribution instruments such as the structure of income taxes and unemployment insurance schemes through the cycle. Across advanced economies, the last two decades have witnessed a significant flattening of income tax rates as well as large cutbacks in unemployment insurance replacement rates. These trends, the authors show, have helped to shrink fiscal revenues and surpluses, particularly during economic expansions, making fiscal policy less countercyclical. This raises two sets of questions. To begin with, the pace of public debt accumulation has accelerated, as smaller surpluses during expansions provide less of an offset to deficits during recessions. In addition, as fiscal policy becomes less countercyclical and public debt grows faster, monetary policy must bear the brunt of macroeconomic stabilisation, just when rising public debt puts an additional crimp on monetary policy.

To break these feedback loops, some potential implications are discussed. For one, stabilisation policies need to be deployed quickly and decisively to prevent inequality from entrenching itself. To some extent, this is what we have seen during

the Covid-19 pandemic. Fiscal authorities might consider that their redistribution objectives could be pursued more effectively by adapting their policies to counter the cyclical hysteresis of income inequality. Central banks could contribute by delivering on their mandated objectives: that is, by taming the inflation that erodes the purchasing power of low-income households in particular, and by seeking to curb the frequency and depth of recessions that increase income inequality.

Another question is why redistribution policies have gained only a limited amount of traction over the last 40 years, as evidenced by the steady increase in within-country income inequality. The way that inequality interacts with the business cycle may help to explain this trend. The ratchet effect of recessions on inequality, coupled with the impact of inequality on the business cycle and stabilisation policies, may offer some clues as to why redistribution policies have failed to contain the rise in inequality.

The studies presented here echo a growing awareness among major central banks of the problem of inequality. This recognition is reflected in recent policy framework reviews that highlight inclusive labour markets, which matter significantly for equality of opportunity, as a key factor in the macroeconomic environment for monetary policy. Important progress has already been made in incorporating inequality (and, more broadly, heterogeneity across economic agents) into macroeconomic models. To deepen our knowledge on these important matters, additional research on the interplay between the business cycle, monetary transmission, fiscal policies and inequality is clearly warranted. This volume represents a tentative first step in that direction.

Preface by Jean Pisani-Ferry

Tommaso Padoa-Schioppa Chair in European Economic and Monetary Integration, European University Institute; Senior Fellow, Bruegel and Peterson Institute for International Economics

Once upon a time, things were simple. Fiscal policy would tackle everything that related to the distribution of income and wealth. The remit of central banks was monetary stabilisation and, in theory as well as in practice, central bankers could be blind to inequality.

There were very sound reasons for this assignment. As far as first principles are concerned, it is widely accepted that distributional choices are and should remain the responsibility of elected bodies, rather than of independent institutions that have no mandate for making such decisions.

For sure, monetary policy has distributional implications, but in yesterday's world it could be regarded as neutral over the cycle. Whatever consequences it might have could in any case be corrected through fiscal measures. There were more pressing problems for central banks to deal with than income and wealth distribution.

This book challenges the established wisdom, on the grounds that there is now enough evidence to prompt a richer discussion on the distributional consequences of monetary policy, on how prevailing inequality influences the effectiveness of that policy, and on the complementarity between monetary, fiscal and structural policies.

These claims hardly require justification, for the authors of the book did not invent this question. As documented here, speeches by central bank governors very rarely mentioned inequality prior to 2013; but since 2016 it was mentioned in at least 5% of these speeches – and sometimes more frequently still.

The primary reason for the emergence of this concern has been the continued reliance on unconventional monetary tools that has characterized policies since it was realized, around 2015, that expectations of normalisation would have to be postponed. By then, central bankers had to accept, albeit with dismay, that they could not any longer speak of a one-off enlargement of their toolbox. Repeated through-the-cycle asset purchases did, however, entail lasting consequences for the rich and the poor. Central bankers could no longer pretend that gains and losses would cancel out over the cycle.

Building on then-recent research in 2015, Ben Bernanke built an argument for rescuing central banks from the claim that they were overstepping their mandate. He argued that, although monetary policy could not be distributionally neutral over the cycle, quantitative easing did in fact reduce inequality because its benefits to low-skilled and unemployed workers outweighed those to the wealthy.

It was, in a way, a strange argument in that it gave a political answer to a quasi-constitutional question. If the central bank had no mandate to intervene on the

distribution of income and wealth, it could not justify itself by arguing that the outcome of its action matched unspecified social preferences.

A few years later, the Fed went one step further. On the occasion of the 2020 strategic review, the Federal Open Market Committee (FOMC) assigned itself distributional responsibilities by saying (in its statement of August 2020) that its policy decisions "must be informed by assessments of the *shortfalls* [rather than *deviations*] of employment from its maximum level". And in the explainer presented a few days later by Jerome Powell at the Jackson Hole Economic Symposium, the Fed's Chair explicitly stated that this change reflected the FOMC's appreciation of the benefits of a strong labour market for "low and middle-income communities". Again, a red line was crossed.

There were epistemic, societal and political reasons for this change in attitude. From a knowledge viewpoint, heterogeneity across agents features increasingly in macroeconomic models that once relied on identical representative agents. This was meant to be a methodological improvement that would help make models more accurate. But a side effect is that such attributes have made it impossible to retain the fiction that monetary policy decisions are distributionally neutral.

Societal evolution has simultaneously turned the traditionally stated oblivion of inequalities into a sort of intolerable indifference. As anyone who teaches has experienced, to pretend that central banks can be indifferent to distributional concerns is the moral equivalent to saying that males can be gender-blind. It simply does not fly anymore to play the macro card at a time when society is obsessed with distributional issues

Politically, central banks have finally come under fire for having failed to prevent the global financial crisis and the ensuing episodes of social devastation. Of all arguments in favour of reconsidering the issue, this is probably the weakest. But it is one that is hard to ignore in practice as grievances against those who were in charge has not really dissipated.

Rather than for ad-hoc rebuttals, these developments call for a systematic and integrated discussion on the relationship between inequality and monetary policy. The key purpose – and the audacity – of this book is to propose such a framework and to put it to test.

The book's main and novel thesis is that inequality is a concern for central banks precisely because it undermines stabilisation and the effectiveness of monetary policy as a stabilisation tool. Moreover, it claims, or at least suggests, that central banks cannot defer to elected bodies, as with the traditional policy assignment, because fiscal policy has itself become less effective for combating inequality.

This is an important insight, for unlike the traditionally extrinsic view according to which central banks may have moral or political reasons to care about inequality, it leads to the conclusion that they should do so for intrinsic reasons – because inequality undermines the fulfilment of their primary macroeconomic stability mandates.

Because more inequality means deeper recessions, as well as a greater degree of inequality hysteresis and the reduced effectiveness of fiscal stabilisation, central banks have no choice but to push for stronger structural and tax responses to prevent a vicious circle from developing. They are not bystanders anymore, but legitimate players who have grounds to express views on the distribution of income and wealth, as well as on related variables.

This nexus deserves serious discussion. Its logic recalls the parallel debate about climate change, which can be regarded by central bank either as a secondary objective they can help to meet, as part of their duty to support the EU's and governments general economic policies, or as a matter of concern in the focus of their core stability objectives.

The book comes out at a particular juncture, when inflation is on the rise, macroeconomic stability is under challenge, and the voices of orthodoxy are fighting back against the policy innovations of recent years. Critics are and will increasingly be speaking of mission creep and they will insist on keeping monetary policy focused on is narrow price stability mandate.

The authors certainly did not anticipate such a context. It does, however, make their project even more timely.

Contents

Executive summary

Chapter I

In the first chapter, we set the book's aims in context and summarise its findings. Income inequality within countries has risen steadily in recent decades. It has risen so inexorably that it is worth revisiting the question why inequality tends to increase through the business cycle. We discover a two-way interaction between inequality and recessions. Higher levels of income inequality imply deeper recessions. And recessions tend to have a very persistent effect on income inequality. The income share of the wealthiest 10% of the population generally increases after recessions, usually remaining higher for years afterwards. In addition, we show that greater inequality makes monetary policy less effective when used either to stimulate or slacken aggregate demand. Finally, fiscal policy has tended to become less redistributive and less countercyclical, putting more onus on monetary policy as a tool for macroeconomic stabilisation. Taken together, these results suggest the importance of taking income inequality into account when designing and implementing both fiscal and monetary policy. First, both types of policy should seek to reduce the frequency and depth of recessions. Second, fiscal policy should seek to further limit the effects of recessions on the rise and persistence of income inequality. Third, policymakers should keep in mind how income inequality can erode the effectiveness of monetary policy.

Chapter II

Chapter II presents income inequality trends in more detail, presenting some new stylised facts about their business cycle properties. Inequality trends have been rising in the advanced economies since the 1980s. Income has also become increasingly concentrated within several large emerging market economies. Much of this greater within-country income concentration relates to structural factors such as technological progress and globalisation, which greatly boost the returns to skills. Inequality metrics then received a further boost from the Covid-19 recession. In many advanced economies, workers in the low-income bracket were more than three times more likely to lose their jobs than high-income workers. We document that this pattern is far from atypical, as inequality metrics generally deteriorate persistently after recessions. This is due in large part to the associated rise in unemployment, which tends to hit poorer workers harder, besides depressing the bargaining power of those who have kept their jobs. We explore several channels for this "inequality hysteresis" after recessions, including changes in labour relations. The chapter concludes by showing that high inequality has material macroeconomic implications, which manifest themselves during times of economic stress. In fact, countries and regions with higher levels of inequality typically experience deeper recessions. In other words, excessive inequality serves to erode macroeconomic stability.

Chapter III

Chapter III focuses on fiscal policy. Such policies have become less redistributive and less countercyclical. Governments have cut back tax progressivity and unemployment insurance while running lower surpluses in expansions. This chapter links these developments. It argues that reduced fiscal redistribution, through weaker tax progressivity and flatter tax systems, or the cutbacks in unemployment insurance benefits, have served not only to increase inequality but also to make fiscal policy less countercyclical, hence eroding its stabilising effect. Lower tax progressivity means that, in expansions, rising incomes contribute less to government revenues. Similarly, lower unemployment benefits imply less government expenditure in recessions but smaller government revenues in expansions – as reduced benefits usually go hand in hand with lower contribution rates for unemployment insurance. The chapter provides empirical support for these intuitions. In addition, the evidence from advanced economies over the last two decades also shows that weaker redistribution affects fiscal policy differently in different phases of the business cycle. Governments are now less able to run surpluses in expansions, while fiscal policy in recessions has been barely affected. This suggests that governments must now rely more on discretionary fiscal measures to deal with downturns. The chapter then draws the implications of these changes for fiscal sustainability and the public debt burden.

Chapter IV

Chapter IV explores the interactions between inequality and monetary policy. It first explains how the main objectives of monetary policy – price stability and output stabilisation – are themselves related to inequality: inflation tends to hurt the poor disproportionately, because they are often the first to lose their jobs during a recession. A key conclusion is that income inequality depends significantly on movements in and out of unemployment over the business cycle. Hence, by providing the necessary monetary stimulus, central banks can play an equalising role. Second, the chapter explores the hypothesis that inequality might obstruct the transmission of monetary policy. The intuition is that, in an unequal society, income is concentrated in the hands of a few, whose consumption is high and largely insensitive to interest rates. By contrast, those with a much higher propensity to consume – the poorest – may find themselves credit-constrained if their income is too low or too uncertain due to unemployment risk. We report empirical evidence for this intuition, relying on both a cross-country and a US cross-state analysis. By showing how a monetary policy stimulus can lose traction, these results suggest that rising inequality can make it increasingly difficult and costly for central banks to stimulate the whole economy. In turn, an inadequate stimulus is likely to prolong a recession and aggravate its impact on inequality. The weakening of monetary policy as inequality worsens is likely to amplify the hysteresis mechanism.

Chapter V

In conclusion, Chapter V focuses on the policy implications of inequality hysteresis and its effects on the business cycle and macroeconomic stabilisation policies. We discuss how well established structural policies to reduce inequality and traditional stabilisation policies could be better designed and implemented so that they help to reduce both inequality and macroeconomic instability in a coordinated way. Such synergies can be found in making the income tax structure more progressive and strengthening unemployment insurance schemes. Of course, this should not be construed as an argument for unsustainable expansionism and ultra-loose macroeconomic policy stances through the business cycle. For synergies to increase the effectiveness of both policies, they need to go hand in hand with balanced and sustainable interventions that are tailored to the specific local circumstances. Otherwise, macroeconomic imbalances such as high inflation and rapid debt accumulation will cut the recovery short and result in even higher levels of poverty and inequality. In a nutshell, inequality needs to be considered in the design of stabilisation policies. More emphasis should be put on inequality-reducing fiscal instruments in the design of stabilisation policies. This will shift the focus, requiring governments to make more use of their political capital and rebalance the burden between fiscal and monetary policies. This will make it less likely that central banks will find themselves the "only game in town" during recessions.

Chapter I: Inequality hysteresis and the effectiveness of the macroeconomic stabilisation policies: a summary and introduction

There is now an established consensus regarding the socio-economic importance of income inequality. That consensus is reflected in academic publications, political statements and economic reports. Anti-poverty policies (ie the improvement of income for the bottom part of the earnings distribution) were high on policy agendas in the 1980s and 1990s, and some progress was made notably in large emerging market economies. However, the extent of income inequality across households has now taken centre stage in policy debates for over a decade. The consensus that inequality matters rests on three pillars. First, the measurement of income inequality has greatly improved, bolstering the evidence that inequality has increased steadily in many countries over the last 40 years (see Atkinson (2015), Atkinson and Bourguignon (2015), Stiglitz (2012), Piketty and Zucman (2014), Chancel (2021) and Blanchet et al (2022)). The second pillar is the understanding that globalisation has simultaneously reduced income inequality between countries while increasing it within countries (see Bourguignon (2015), Lakner and Milanovic (2013)). The third pillar takes root in the interplay between income inequality and political economy. Several studies have made the case that growing inequality has sown the seeds of increased segmentation and the polarisation of society (see Drazen (2000), Boushey et al (2017)), while political protests against rising inequality are spreading worldwide. The more recent surge in inflation in 2022 (Carstens (2022)) could aggravate this unrest. As we elaborate in Chapters I and IV, it is the poor who are particularly hard hit by inflation. Energy and food prices have increased sharply and are likely to remain elevated. Both constitute a larger share in the consumption basket of lower-income groups. Hence, such groups will suffer a relatively larger loss of their purchasing power.

The steadiness of increases in inequality led more and more citizens and policymakers to conclude that policies that were meant to reduce inequalities have failed – de facto, inequality has been trending up. The logical next step is to investigate through which mechanisms income inequality increases.

An increasing number of observers have reconsidered the scope of the income inequality phenomenon. These observers no longer consider inequality exclusively under the classical welfare economics trade-off between equality and efficiency. Instead, they document that inequality diminishes growth and productivity in the long run (see Blanchard and Rodrik (2021)) and provide evidence that reducing inequality can increase productivity and average standards of living. A large body of academic literature on these issues (see Atkinson (2015), and Atkinson and Bourguignon (2015) for extensive surveys) has dealt with how inequality can be tackled and has examined – from a long-term, structural perspective – the instruments available for doing so. This approach characterises the traditional package of policies to address inequality. This includes a combination of structural reforms and longer-term fiscal measures such as shifting revenue from high incomes (mostly capital) to lower incomes (mostly labour). They usually propose strengthening the social safety nets first developed after World War II – under the leadership of Beveridge and Keynes – and to enhance specific incentives for improving labour markets (toward more flexibility and to foster

job creation). They call for greater development of human capital including the acquisition of skills (education policies). These policies propose guaranteeing certain floors for labour income (eg a minimum wage policy and other forms of employment protection) and more progressive taxes on income. Finally, they can be complemented by other long-term structural policies such as influencing the direction and impact of technical change and globalisation (ie seeking to make them compatible with less inequality).

While we acknowledge that, in principle and in practice, these structural policies can reduce inequality, we also observe that their deployment has failed. We therefore propose to shift the perspective with a view to seeking new insights in income inequality. We focus on the cyclical patterns of income inequality, documenting a new characteristic of the interaction of inequality and the business cycle that we label "hysteresis".[1] This is the tendency, first, for inequality to persist for a long period of time after a recession ends and, second, for greater inequality to make recessions deeper. These two-way interactions between recessions and inequality appear to be robust features of the data in large samples of countries and across numerous recessions.

The notion of "hysteresis of inequality after recessions" will sound familiar to readers who know the concept of unemployment hysteresis that Blanchard and Summers (1986) introduced to describe the persistence of unemployment in Europe in the 1980s. Inequality hysteresis is, however, a different concept. It describes the persistence of income inequality for several years after recessions are over. While some of this persistence echoes the persistence of unemployment, it does not run in lockstep with it. In fact, we see as much if not more inequality hysteresis in countries where unemployment drops back to its pre-recession level relatively quickly. The inequality hysteresis phenomenon therefore encompasses the notion that the drop in unemployment may correspond to workers taking any job, even if on worse terms than the one they held before the recession. And the associated fall in income for these typically low-income workers lasts several years.

Our emphasis on the business cycle and its interaction with inequality does not mean that long-term growth is less relevant for inequality. The seminal contribution of Kuznets (1954) showed that, after rising in the initial stages of development, inequality comes down. With richer data, however, it became apparent that the decline in income inequality across countries was accompanied by increasing within-country inequality. Analyses of inequality on a global scale by Lakner and Milanovic (2013) and Milanovic (2016) unveiled more complex dynamics than the succession of growth waves put forth by Kuznets.[2] Global inequality during the last 40 years was captured by the "elephant curve" of change in income growth since the 1980s. Since

[1] A concept of "hysteresis" for unemployment was first introduced by Blanchard and Summers (1986). Unemployment hysteresis refers to the high persistence of increases in unemployment in the 1970s and 1980s, especially in Europe. A possible explanation of unemployment hysteresis is that the skills of newly unemployed workers become obsolete and that learning new skills takes time.

[2] Their "elephant curve" illustrates for the late 1980s up to the late 2000s the relation of growth and globalisation on income inequality by plotting the percentiles of the global income distribution against the cumulative growth rate percentage of income for each percentile. The very poorest households got almost no benefits from growth (Sub-Saharan Africa). Then, on the contrary from the 10th percentile to the 50th percentile, the new global middle class benefited from the very fast growth of China or India. Then there is the "old" upper middle class of Europe and the United States that has seen little to no growth in income. Finally, at the top percentiles of the distribution, the global elites (the top 1%) did benefit from very significant growth as the "winners" of income growth due to globalisation.

the mid-1990s, several studies[3] have found evidence that inequality harms growth. In particular, income inequality increases trigger adverse dynamics, including political economy redistributive conflicts and poverty traps preventing investment in education. Although there are also more nuanced results,[4] a great body of studies supports the feedback loop hypothesis that too much inequality brakes long-term growth, as surmised by Blanchard and Rodrik (2019).

Taking the view that the cyclical pattern of inequality matters, we suggest that macroeconomic stabilisation policies need to be assessed in terms of their implications for income inequality too. This assessment is also warranted given that the evidence shows that income inequality lessens the effectiveness of these policies. For example, we document the role of inequality in the transmission of monetary and fiscal policies, two powerful tools for addressing recessions. Stabilisation policies have been quite successful, but they remain designed around metrics that look at averages and representative agents. They have not necessarily paid explicit attention to the inequality and the heterogeneity of economic agents. If inequality matters for social welfare and if we are to reduce or contain it, the "hysteresis" of inequality warrants that the design and implementation of stabilisation policies should be updated. In fact, related considerations have surfaced in recent reviews of monetary policy frameworks. For instance, the emphasis on maximum employment in reviews by the Board of Governors of the Federal Reserve System (2020) and in the Bank of Canada (2021) is associated with the benefits of "a more inclusive" labour market. As we show in this book, labour market dynamics, especially large increases in inflation, notably in food and energy prices, as seen since 2021, and the risk of unemployment or switching to low-paid jobs, which affects a much larger share of low-skilled workers, are the most likely vector of income inequality along the business cycle.

We do not claim to cover all aspects of the cyclical patterns of inequality. And we cannot, in the space of this volume, provide a comprehensive analysis of the cost and benefits of additional measures that would limit the effects of inflation and the business cycle on income inequality. Many of these measures would entail numerous difficulties: the risk of asymmetries in holding a stimulative policy mix for too long, the inflationary risks of too large a stimulus, as discussed at the time of writing this volume against the backdrop of a strong pickup in inflation, the complexity of communicating policy directions and timing with a multiplicity of objectives, and so on. Nevertheless, the new evidence presented here indicates that the characteristics of the business cycle itself (eg depth and length) matter greatly for the dynamics of income inequality. As such, we argue that the design of policies that aim to stabilise inflation and the business cycle should also be assessed for their impact on income inequality and any synergies with structural reforms that aim to promote inclusive, less unequal economic outcomes.

[3] Alesina and Rodrik (1994), Persson and Tabellini (1994), Causa et al (2014), OECD (2011, 2014), Milanovic (2016), Johnson (2020), Constanza (2017).

[4] High levels of inequality reduce growth in poor countries but not in more advanced economies. Barro (1999). Banerjee and Duflo (2003) stress that, when using a large cross section of countries, it is very difficult to establish a clear link between inequality and growth. They identify a non-linear pattern such that changes in inequality (in any direction) are associated with reduced growth in the next period. The effects are more negative for either large increases or large decreases in inequality than when inequality does not change.

Income inequality has increased since the 1980s

Over the last century, inequality measures have broadly showed a U-shaped pattern. After a decline due mainly to public policies put in place after World War II, inequality has been on the rise since the 1980s. Segmentation, polarisation and impediments to social mobility have become more prominent in many different societies over the last 40 years. Meanwhile, broad data collection and measurement efforts[5] have confirmed a significant and general increase in within-country income inequality. As shown in Graph I.1 (left-hand panel), income inequality has been on a rising trend since the 1980s. This is reflected both in higher Gini coefficients[6] and either in the growing share of income that accrues to the richest 10% of the population or in a decline in the income share accruing to the bottom 50% of the population. There is, of course, a debate on how best to measure income inequality and various sources or definitions (gross or net) of income yield different income shares that accrue to different parts of the population. But a systematic comparison of various sources for income shares, which we conducted systematically for eight advanced economies (G7 countries and Sweden), as reported in Appendix Graphs I.A.1, I.A.2 and I.A.3, confirms a marked increase in the ratio of the income accruing to the top 10% over the share of income that accrues to the bottom 50% of the population since the 1980s – except in France. The pace of this increase is steady decade after decade in some countries such as Canada, Sweden and the United States. It has plateaued in the last 20 years in the United Kingdom. And, in Germany and Japan, the exact path of the increase in income inequality depends on the data source. But by and large, the level of income inequality appears markedly higher today than in the 1980s in all countries except for France, and this is consistent across data sources.[7]

In emerging market economies (EMEs), the picture is less clear-cut because strong economic growth and poverty reduction programmes have helped mitigate inequality (Graph I.1, centre panel). More generally, the impressive decline in poverty since 1980 in China and other fast-developing economies has contributed to a material drop in income inequality across countries. However, as also documented in various *World Inequality Reports*, this reduction in poverty went hand in hand with more income inequality within China, India and several other EMEs. Across EMEs, the income share accruing to the richest 10% of the population rose to 55% of aggregate income in 2019. We also observe the levels of wealth inequality in many EMEs either catching up with, or even overtaking, the wealth inequality seen in France and the United States (right-hand panel).

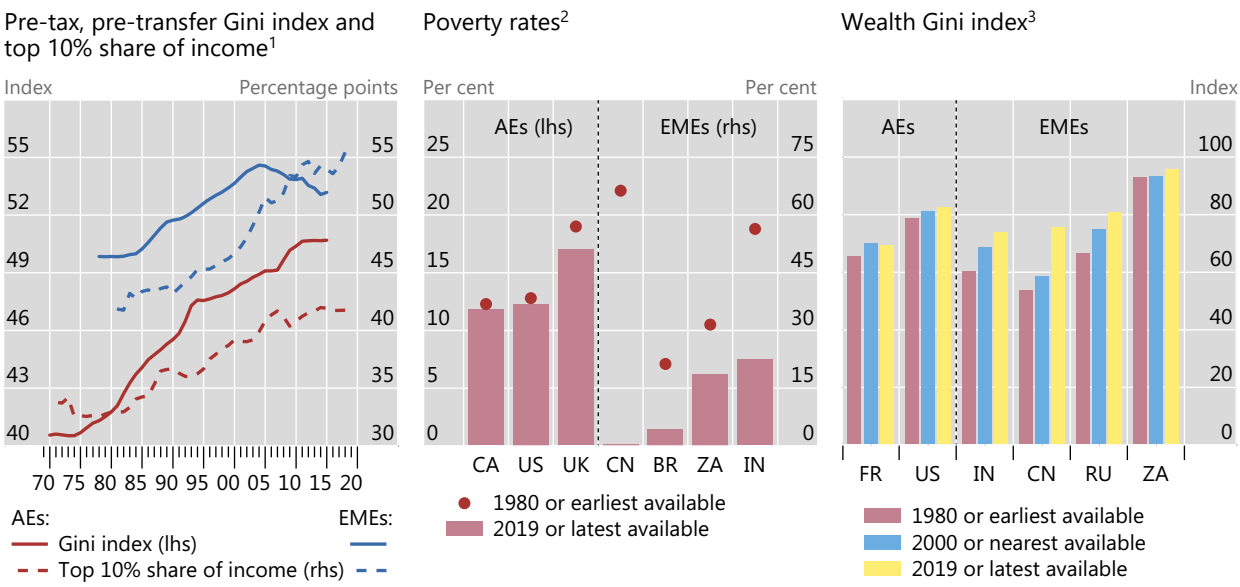
The long-term perspective depicted in Graph I.1 gives the impression that inequality has been increasing steadily over the last several decades. And as this looks like a trend, it is tempting to conclude that it reflects structural forces, and that economic policies that were meant to limit inequality have failed to do so.

[5] See Piketty and Saez (2007), the World Inequality Database and the World Bank's POVCAL/WYD data, the World Income Inequality Database (WIID) of the UNU-WIDER, "All the Ginis you ever wanted" of Lakner and Milanovic (2013), Chapter 19 of Atkinson and Bourguignon (2015).

[6] There are many ways to measure inequality; see footnote 13 in Chapter II.

[7] See also the discussion in Bourguignon (2021).

Inequality on the rise amid declining poverty rates — Graph I.1



[1] Pre-tax, pre-transfer Gini index is calculated using the amount of money coming into the household pre-tax, excluding government cash or near-cash benefits. Top 10% share of income represents pre-tax national income share held by top 10% earners of population. Weighted averages of selected economies, based on 1980 GDP and PPP exchange rates. AEs = CA, DE, FR, JP, UK and US; EMEs = BR, CN, IN and ZA. [2] For AEs, poverty headcount ratio at national poverty line is used. For EMEs, a common poverty headcount ratio at $1.90 a day (2011 purchasing power parity) is used. For CA, (1981, 2018); for US, (1989, 2019); for UK, (1995, 2018); for CN, (1990, 2016); for BR, (1981, 2018); for ZA, (1993, 2014); for IN, (1983, 2011). [3] For FR, (1980, 2000, 2014); for US, (1980, 2000, 2019); for IN, (1981, 2002, 2012); for CN, (1980, 2000, 2015); for RU, (1995, 2000, 2015); for ZA, (1993, 2000, 2017).

Sources: Federal Reserve Bank of St. Louis, FRED; OECD; World Bank; Standardized World Income Inequality Database (SWIID); World Inequality Database (WID); Datastream; national data; BIS calculations.

The Covid recession has increased income inequality further

While within-country income inequality has been rising since the 1980s, it may be more accurate to describe the increase in inequality as a series of upward steps. And the steps are typically higher at times of economic troubles. Large shocks like recessions, for instance, usually hit poor and low-skilled workers more severely than the rest of the population: in recessions, the unemployment rate among the low-skilled increases disproportionately relative to the population as a whole. The Covid recession is a case in point. The abrupt global recession in 2020 hit households in a particularly uneven way. The unemployment rate of lower-skilled, lower-income workers rose by wider margins during the Covid-19 recession, with job losses typically between two and three times larger for low-income workers than for high-income workers (Graph I.2, left-hand panel). Similarly, in the United States, employment rebounded much more strongly for high-income workers following the lifting of Covid-19 lockdowns, with low-income workers facing persistently depressed employment prospects (Graph I.2, right-hand panel).

Compounding these facts, the Covid-19 shock and associated lockdowns hit different sectors and segments of the population in different ways. Restaurants, hospitality, recreation, international tourism and air traffic all but ground to a halt in many parts of the world. On top of that, lockdowns paralysed large parts of the informal economy of outdoor customer-facing services offered by urban self-

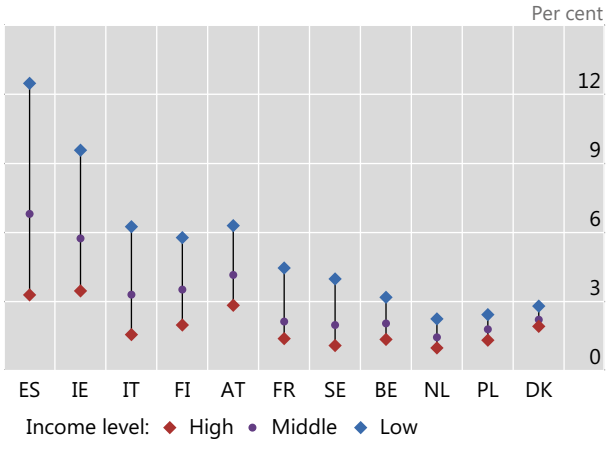
employed workers. Other sectors thrived, including information technology, online trade or pharmaceuticals. Meanwhile, manufacturing and corporate services suffered a short-lived, albeit significant, contraction but then adapted quickly, reverting to normal levels of activity. This varied impact on sectors means that households have also been affected unevenly. While some – typically high-income and high-skilled professionals – preserved their income (and even managed to increase their savings), others –the low-income and low-skilled workers in the services sector– were either laid off or confronted with a sharp fall in their workload, thereby losing a significant fraction of their income. This amplified the wedge between the income of the richest and that of the poorest.

The Covid recession is a particularly good example of how a recession may deepen poverty, with an even greater effect on inequality. It is certainly a general feature of recessions that they hit different sectors and workers to varying extents. During recessions, some sectors, known to be more cyclical, experience larger drops in their levels of activity than other, less cyclical, sectors. Likewise, workers with different qualification levels experience recessions differently. As is shown in Feiveson et al (2020), it is a stylised fact that low-skilled workers face a steeper increase in their unemployment rate in recessions than highly skilled workers do. But some of the specific features of the Covid recession highlight some of the underlying trends of rising inequality since the 1980s. For example, technology-based changes such as new ways of working out of the office have favoured high-skilled workers.

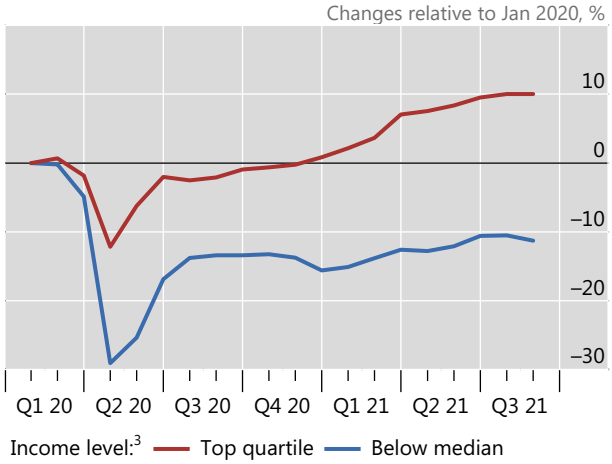
The pandemic hit low-income workers harder

Graph I.2

European Union: risk of job loss by income during the pandemic[1]



United States: employment by income[2]



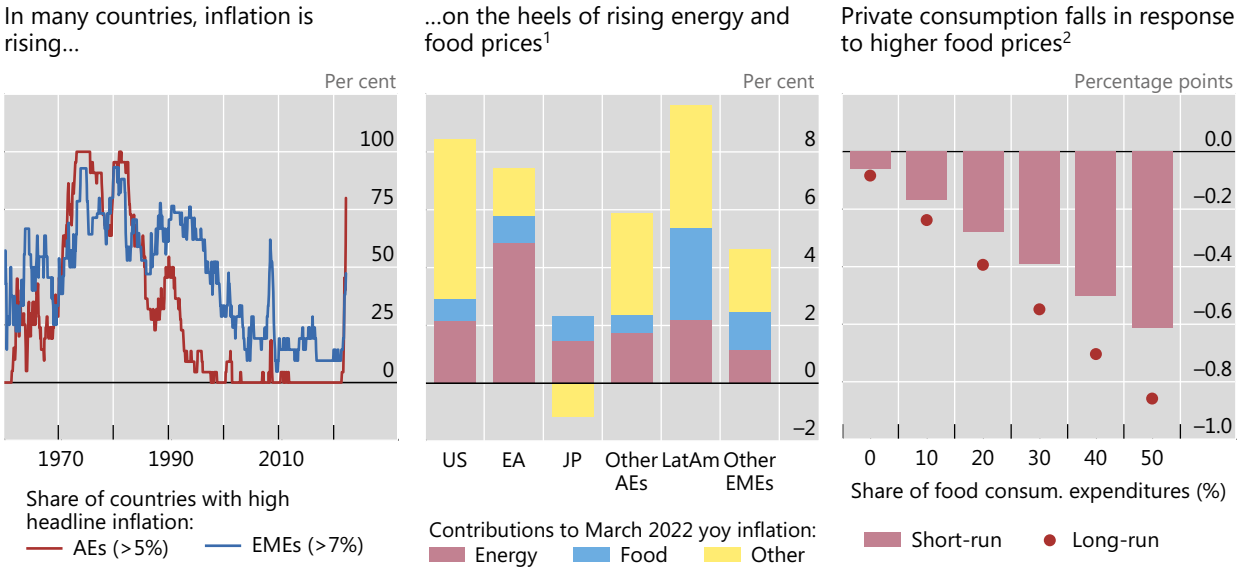
[1] Probability of job loss is estimated by Eurostat using a logit model with controls for age, gender, skill level required by the occupation, sector of activity and type of work contract. The reference period for labour market information is Q2 2020, using data from the Labour Force Survey. High = individuals in deciles 8, 9 and 10; middle = deciles 4, 5, 6, 7; low = deciles 1, 2 and 3. [2] Number of active employees. Monthly averages of daily data up to 10 August 2021; not seasonally adjusted. [3] Top quartile = employment level for workers in the top quartile of the income distribution (incomes approximately over $60,000); below median = employment level for workers in the bottom half of the income distribution (incomes approximately under $37,000).

Sources: World Bank; Eurostat; Opportunity Insights Economic Tracker; BIS calculations.

Inflation and its unequal effects on purchasing power

The wave of post-Covid inflation could compound the observed trends in inequality. In 2022 inflation continued to climb to multi-decade highs at the global level. In 80% of AEs, inflation is now running above 5%. In EMEs, it exceeds 7% in about one country out of two (Graph I.3, left-hand panel). Inflation is forecast to remain above target in many economies in 2022 and 2023. Inflation in energy and food prices is particularly high (Graph I.3, centre panel). And the rapid house price growth of the past two years will eventually spill over into rents as well. The rising prices of energy, food and housing are likely to disproportionately hit the purchasing power of low-income groups (in both AEs and EMEs), given that this set of prices constitute a larger share of their consumption baskets. This share is typically 10 to 15 percentage points higher in the consumption basket of low-income households is typically than for the most affluent households.

Food and energy driven inflation hit the poor — Graph I.3



[1] Weighted averages based on GDP and PPP exchange rates for: Other AEs = CA, CH, DK, GB, NO and SE; LatAm = BR, CL, CO and MX; Other EMEs = CZ, HU, IL, KR and PL. [2] Change in real private consumption growth following a 1 percentage point increase in real food price inflation (FPI). Real FPI is nominal FPI minus inflation in the World Bank Manufactures Unit Value index. Estimates based on the fixed effect panel regression: $PCG_{i,t} = a_i + b_1.PCG_{i,t-1} + b_2.FS_{i,t-1} + (b_3 + b_4.FS_{i,t-1}) \times RFPI_{i,t-1} + e_{i,t}$. PCG is real private consumption growth, FS is the share of food in the consumption basket. Countries: 28 AEs and 12 EMEs. Time period 1992–2021.

Sources: Food and Agriculture Organization; OECD; World Bank; national data; authors' calculations.

To show this impact, consider two households for whom energy represents 10% and 20% of their consumption and that across Europe, the price of energy consumed by households increased by 30% between March 2021 and March 2022. The purchasing power of the household that consumes 20% of its budget on energy will fall by 3% more than the one that uses only 10% of its budget on energy. This is a major additional hardship, hitting especially those living far from city centres and commuting to work.

Higher inflation is also contractionary insofar as it affects household spending and more severely eats into the purchasing power of those with the highest propensity to consume out of income. A particularly relevant issue in the current

context is the drag that higher food prices will exert on total consumption. Food prices have been soaring on the back of the sharp increase in the price of agricultural commodities, as compounded by the war in Ukraine. Unsurprisingly, higher food price inflation weighs more heavily on consumption growth in countries where food accounts for a larger share of the consumption basket. This is confirmed by cross-country evidence. Higher increases in real food price inflation have a larger impact on real consumption growth the higher the share of food in the consumption basket (Graph I.3, right-hand panel). Altogether, high inflation disproportionately hits the most disadvantaged. It is for this reason that inflation is widely considered to be the most regressive of all taxes (Carstens (2021)).

The two-way interaction between inequality and the business cycle

These considerations suggest that, in addition to well known long-term trends, there is also a cyclical pattern to income inequality. This calls for a more systematic investigation, not least because trend and cyclical changes are hardly ever independent. First, it is worth noting that the vast literature on income inequality tends to overlook this cyclical aspect. Second, as noted above, understanding how inequality evolves along the business cycle is important when seeking to grasp how far cyclical fluctuations have contributed to the overall long-run trends. Last, given that inequality has considerably increased since 1980, it is worth asking whether and how this change has modified macroeconomic adjustment mechanisms, including the effects of fiscal and monetary policy throughout the business cycle.

In this volume, we therefore analyse the two-way interaction between inequality and the business cycle. The way inequality evolves over the business cycle becomes more relevant because these evolutions are economic outcomes that macroeconomic stabilisation policies can influence. Therefore, pinning down "inequality hysteresis" has implications for policy design. We know that, by stabilising the macroeconomy at business cycle frequencies, central banks and governments affect activity, employment and income, which allows them to continue working to reduce the structural determinants of inequality. However, if monetary, fiscal or other policies can simultaneously stabilise the cycle and reduce inequality, the opportunity to kill two birds with one stone should not be missed. Therefore, governments and central banks should begin analysing, grasping and internalising the aforementioned implications of the cyclical patterns of income inequality, and the design and implementation of macroeconomic policies should be conducted with these implications in mind.

Fiscal policy responses to income inequality

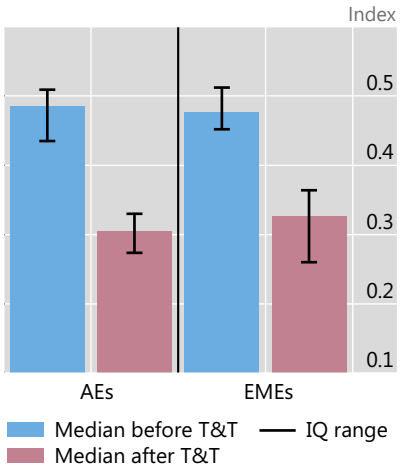
Redistributing income and wealth to achieve social cohesion through taxation, transfers and social programmes is a key function of fiscal policy. The evidence in this respect is clear: redistributive policies, taxes and transfers do reduce income inequality (Graph I.4, left-hand panel). For instance, post-tax income inequality is about 35% lower on average than pre-tax inequality, across countries.

That said, after a post-war period of remarkable gains, after-tax and after-fiscal transfer inequality has more recently increased almost as steadily as pre-tax and transfer income inequality over the last two decades (Graph I.4, centre panel). Moreover, the co-movement between pre- and post-tax and transfer inequality seems to have tightened in recent years, hinting that fiscal policy has become less capable of dampening fluctuations in pre-tax and transfer inequality.

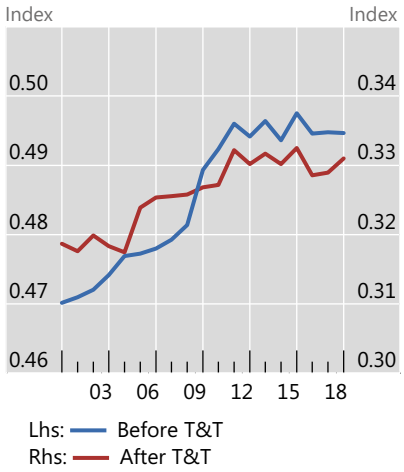
Fiscal policy is a powerful lever for reducing inequality[1]

Graph I.4

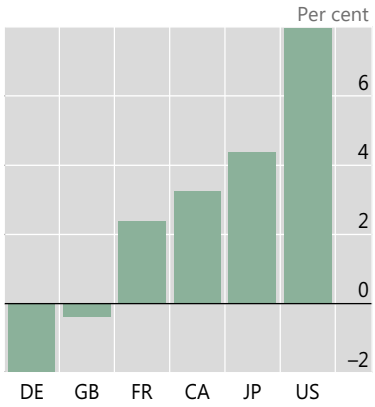
Fiscal policy reduces Gini coefficients, by a wider margin in AEs than in EMEs



Gini indices co-move more tightly over the recent period, both before and after tax and transfers[2]



Change in transfers as a percentage of government expenditure[3]



T&T = tax and transfers; IQ range = interquartile range.

[1] AEs: AU, AT, BE, CA, CH, DE, DK, ES, FI, FR, GB, GR, IE, IS, IT, JP, KR, LU, NL, NO, NZ, PT, SE and US. EMEs: BG, BR, CL, CN, CR, CZ, EE, HU, IN, LT, LV, MX, PL, RO, RU, SK, SV, TR, and ZA. Data averaged over 2001–2019. [2] Before and after tax and transfers Gini coefficients averaged across the full sample composed of AEs and EMEs. [3] Change from 2019 to 2020.

Sources: OECD; BIS calculations.

As we will see later, this may in part reflect fiscal policy having become less redistributive over the more recent period, as it is apparent that income tax has become less progressive over the last two decades.[8]

When recessions hit, the social safety net role of fiscal policies acts as a cushion through transfers. Transfers have indeed increased after the 2007–09 Great Financial Crisis (GFC) (Graph I.4, right-hand panel). No doubt the recession would have been much deeper without the various built-in insurance mechanisms of the welfare state that account for the bulk of what economists call "fiscal automatic stabilisers". However, the greater pre-tax and post-tax income inequality of the last two decades, and the decline in the progressivity of income tax, may imply a structural change in macroeconomic adjustment mechanisms. Notably, given that the propensity to spend falls with the level of disposable income, the structure of income tax can have a first-order impact on the response of aggregate consumption to GDP shocks through the business cycle. In addition, redistribution also affects the stabilisation properties of fiscal policy, which in turn will impact the mix between fiscal and monetary policy through the business cycle.

[8] See Piketty (2003) and Piketty and Qian (2009). See also Le Grand and Ragot (2022) for an analysis of optimal unemployment insurance in a model with heterogeneous agents, ie in a model where inequality across agents determine the business cycle.

Monetary policy and income inequality

Unlike fiscal policymakers, monetary policymakers have traditionally viewed inequality as a side issue. This is in large part because monetary policy instruments affect credit conditions, economic activity and prices for all agents in the economy. By and large, these instruments cannot be targeted at specific segments of the population. In that sense, the distributional consequences of monetary policy were seen as a mainly temporary collateral effect, not least because it has long been assumed that these effects would even out over the business cycle.

That said, academics in the field and central bankers are well aware of the distributional effects of monetary policy measures (see Graph I.5). The nexus between inequality and monetary policy has received renewed attention in the aftermath of the GFC (see Graph I.5, Carstens (2021) and BIS (2021)). Quantitative easing programmes – in which central banks made extensive use of asset purchases to stimulate the economy beyond the lower bound on the short-term interest rate – have led several observers to question whether such policy actions could disproportionately benefit the tiny minority who own financial assets. This minority achieved substantial capital gains (see Stiglitz (2012)). The analysis of the net effect on poverty and inequality of the post-GFC unconventional policies cannot omit at least two important dimensions. First, the bulk of the purchased assets comprise government-issued securities. So, by lowering interest rates on public debt, central banks have made debt servicing cheaper, hence freeing up important resources that governments could use to support the economy and promote equal and inclusive growth: ie fund schools, education, public health, transfers and more broadly all government interventions in the economy – *including* redistributive policies. To be clear, central banks have purchased a high proportion of the net issuance of treasury bonds both after the Great Recession and since the Covid crisis in 2020.

Second, there is a broad consensus that the monetary stimulus administered by central banks through asset purchase programmes has helped to markedly reduce unemployment. This has benefited households with lower skills, ie those with a higher and more cyclical unemployment risk than other segments of the population. The counterfactual situation – where central banks would not have engaged in such programmes – would arguably have been far worse. In particular, unemployment would have been higher, leaving significant long-term scars on the economy.

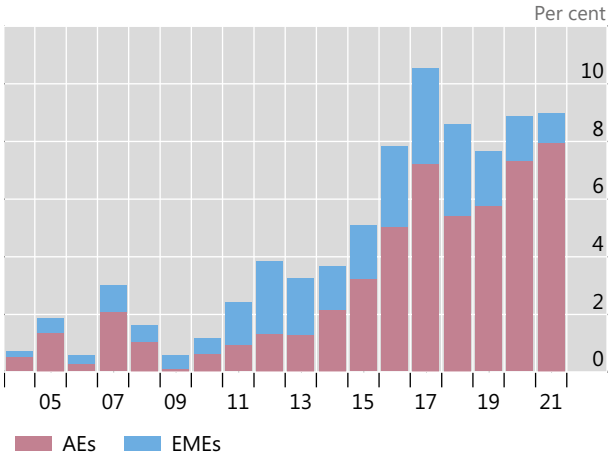
Further, the renewed focus on inequality is symptomatic of the growing awareness that it could have a first-order effect on the business cycle, and therefore, on macroeconomic stabilisation policies. For example, there is an increasing recognition in academic and institutional research[9] that the heterogeneity of economic agents needs to be adequately modelled if the transmission and the design of monetary policy is to be properly understood. Macroeconomists are moving away from models with representative agents to ones featuring a variety of agents, not least in terms of income and wealth. This heterogeneity, when broad enough, can alter some of the policy prescriptions devised under the assumption of a single representative agent. For example, in models featuring heterogeneous agents, Ricardian equivalence – the view that households cut consumption in reaction to a

[9] As also stated above, this new strand of research is becoming more influential within central banks. The US Federal Reserve has expanded its array of macroeconomic models to include heterogeneous agent models. For instance, Feiveson et al (2020) use such models to compare alternative monetary policy strategies.

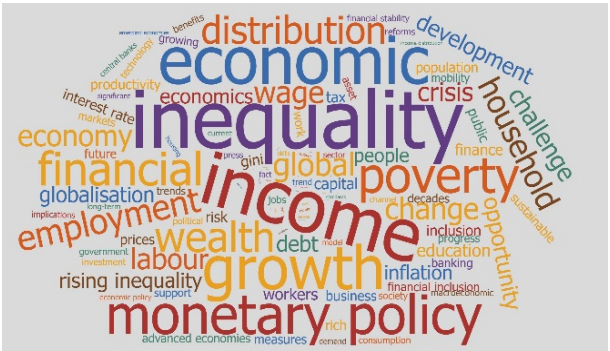
fiscal expansion to create savings for higher taxes in the future – no longer holds. Hence, fiscal policy has more scope to stabilise the economy through countercyclical spending. Moreover, the traditional separation between fiscal and monetary policy also breaks down with heterogeneity: the fiscal reaction to a monetary expansion turns out to be a key determinant of the overall size of the macroeconomic response.

Inequality has featured prominently in the communications of central banks since the GFC Graph I.5

Share of speeches mentioning inequality[1]



Frequency of occurrence of words in short excerpts of speeches around mentions of inequality[2]



[1] All speeches of central bankers mentioning the keywords "inequality" and "distributional consequences/impact of monetary policy" expressed as a share of all central bankers' speeches in the BIS database. Only selected speeches in English and, for the United States, only speeches by members of the Board of Governors of the Federal Reserve System and the Federal Reserve Bank of New York are included in the database. Data until end-May 2021. [2] The cloud contains selected words and phrases that appear in short excerpts around mentions of "inequality" and "distributional consequences/impact of monetary policy" in central bankers' speeches. The size of each phrase reflects its relative frequency.

Sources: BIS; BIS calculations.

A new perspective on income inequality and the business cycle: the concept of inequality hysteresis

Against this backdrop, this book investigates the nexus between income inequality and the business cycle and its policy implications. On the one hand, we examine how inequality evolves throughout the business cycle and on the other, we analyse whether the increase in income inequality has changed some features of the business cycle. Because the business cycle itself – its amplitude and its volatility – depends on how macroeconomic stabilisation policies are conducted, we also investigate the impact of inequality on the effectiveness of fiscal policy and monetary policy[10].

We establish four new results. First, increases in income inequality that follow recessions are highly persistent. The increases in income accruing to the top 10% of earners rises after recessions remain significantly higher several years after the recession occurred. In addition, the share of the bottom 50% diminishes. Second, income inequality makes recessions deeper. Economies that are more unequal go

[10] See also Le Grand and Ragot (2022) for a recent formal analysis of optimal policies in a macroeconomic model with heterogeneous agents, income inequality along the business cycle and incomplete insurance markets.

through deeper recessions, which in turn further increase inequality, according to our first result. Third, fiscal policy has become less countercyclical, and part of this reduction in countercyclicality relates to decisions made over the course of the last 20 years to reduce redistribution. Greater inequality has therefore come together with weaker fiscal automatic stabilisers, putting a larger burden on monetary policy to stabilise the business cycle. Fourth and finally, monetary policy is less effective in countries where income inequality is higher.

Let us now detail each of these results and draw implications for the design and implementation of economic policies.

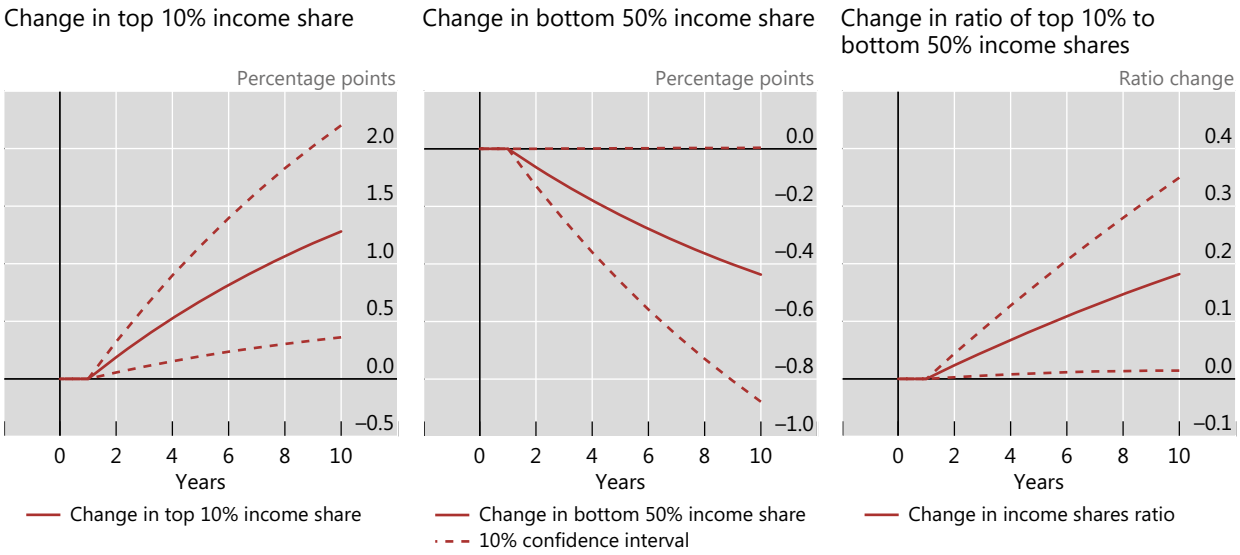
First, as is the case on the labour market, inequality shows clear signs of hysteresis. Inequality hysteresis is the idea that the increase in income inequality that arises in recessions does not fully reverse once the recession is over. We observe that the income share that accrues to the top 10% earners increases persistently after recessions (Graph I.6, left-hand panel). In the meanwhile, the income share of the poorest half of the population is estimated to decline (centre panel) and the ratio of the income going to the top 10% over the poorest half of the population increases (right-hand panel). This also means that macroeconomic stabilisation policies that fail to limit the number and the severity of recessions induce, as a side effect, an increase in inequality.

This result, which we explore further in Chapter II, is obtained from a simple event window analysis of 182 recessions that occurred since 1983 across 70 countries.[11] We show that the persistence and increases of inequality after recessions are triggered largely by the compounding effects stemming first from higher unemployment and more polarised labour income. Recessions push up unemployment, which in turn implies an increase in inequality. Recessions – such as the one triggered by Covid in 2020 – may also accelerate technological changes. This in turn favours highly skilled workers, leaving others without resources for longer periods of time and ultimately with lower chances of re-employment.

Given that labour income is the predominant source of income for the working age population and that unemployment benefits do not fully insure against income losses, a much higher proportion of households among the poor will experience a material decrease in income when the unemployment rate increases. As a result, income inequality increases in recessions. What is less appreciated, as emphasised in this volume, is that this increase in income inequality persists long after recessions end. This is partly because the unemployed face a cost in terms of losing job-relevant skills and thus find it difficult to re-enter the labour market in the same position they had before being laid off. Even when they return to employment, they are likely to do so in lower-paying jobs. At the same time, given higher unemployment, those that remain in work typically see the pace of wage increases fall for several years. And indeed, as we show in Chapter II, countries where the unemployment rate falls the fastest in post-recession recoveries can have persistently higher inequality as well.

[11] Graph I.5 reports the results of estimates obtained for WID data on the top 10% and bottom 50% income shares over a cross section of 70 countries with yearly observations from 1983 to 2020. All countries in the sample have at least 10 years of observation on income shares. We identify 182 recessions, ie years when GDP declined. The results are robust and qualitatively similar for samples of large EMEs or samples of large AEs, in particular with population weighted estimations. The specification is explained in Chapter II.

Changes in income shares following a recession[1] Graph I.6



[1] The graph report the impulse response based on a panel regression of income shares (or their ratio) on dummies that identify a recession, ie, a reduction in the level of GDP from the year before. Panel of 70 countries over 1983-2020, with 182 recessions identified among 1700 country-year observations.

Sources: Authors calculation using WIID income shares and OECD and IMF data on GDP.

A number of factors tend to make increases in inequality persistent, making reversals difficult to achieve. Most noteworthy, economic recessions are typically associated with a hysteresis of higher income inequality, as inequality remains higher even several years after a recession has hit. Many recessions leave behind lingering scars, as full recoveries in labour markets tend to be very slow and gradual. Labour force participation, for instance, often remains low for years, as noted by Blanchard and Summers (1986). And those that lose their jobs often find it difficult to re-enter the market in jobs of a similar quality. Also, wage growth often stagnates for a long time. The effect of recessions is particularly damaging for new graduates, who tend to experience lasting negative effects on their lifetime earnings if they happen to finish training or university studies at a time when the labour market is depressed.

We call this newly documented persistence of inequality after recessions "the inequality hysteresis of the business cycle".

Chapter II delves deeper into this intuition: it looks in detail at the business cycle properties of inequality, focusing on the relationship between inequality and recessions. Almost every major economy has seen a gradual rise in income inequality in recent decades. This trend reflects deep structural changes induced by rapid globalisation, technological change and ineffective policies to contain the effects of these changes on income inequality. These forces have boosted the returns to skills, as they have increased the demand for workers who are sufficiently qualified to master the new technologies and operate well in a global economy. Generally, this has increased the income of the highly educated, who have seen their income and wealth increase. Globalisation has also enabled rapid growth and catch-up at an accelerated pace in many EMEs. In particular, manufacturing-based EMEs in South and Southeast Asia, and in Eastern Europe were able to benefit. Yet, at the same time, lower-skilled workers benefited less, as the compensation for lower-quality jobs increased less or stagnated. The result was that, while inequality across countries

(measured by average or median income) diminished, countries often became increasingly unequal within (as measured by their Gini indices or income shares).

The chapter then describes how the Covid-19 pandemic has provided yet another upward nudge to income inequality. While it is by no means novel that recessions increase income inequality, particularly through higher unemployment, the current pandemic has affected households in a much more uneven way than usual. This was because lower-skilled workers tend to be particularly active in the high-contact service sector, which was most affected by the restrictions that were put in place to contain the pandemic. As a result, job terminations afflicted mostly low-income workers, who were unable to continue their activities remotely as many higher-income workers could do. This type of impact on workers, which is associated with "scarring", may come from large (but perhaps necessary) sectoral reallocations. Displaced workers may need substantial retraining to move between sectors and may often lose some of the investment made in acquiring skills that were necessary for previous jobs. What is clear is that reskilling and upskilling are crucial elements for a flexible modern economy. Further, the large hysteresis in inequality measures suggests that policies that reduce the likelihood of painful recessions in the first place are particularly needed.

Chapter II also shows that greater income inequality is associated with deeper recessions. Chief among the responsible mechanisms is the lower marginal propensity to consume of higher-income households. When a recession hits, the share of income that goes to richer households in aggregate consumption increases (simply because job losses by low-skill workers are higher). In other words, a larger share of aggregate income flows to those that tend to consume less of it. This reduces aggregate consumption, thus deepening the output loss as output tends to be demand-determined in recessions. High levels of inequality are not only an issue of concern for political economy reasons. They also matter for macroeconomic management. When income disparities are very large and stay that way, local and individual situations add up and start to matter for macroeconomic performance as a whole. In particular, great inequality makes recessions deeper. As we show in the last section of Chapter II, this is confirmed separately by both subnational and international evidence.

Chapter III shifts the focus to fiscal policy. As noted above, fiscal policy is traditionally a key lever for containing and reducing inequality because it can target taxes and transfers to specific segments of the population, thus affecting disposable income across the entire income distribution. The chapter zooms in on two types of tool available to fiscal policymakers: income tax progressivity and unemployment insurance. These are two typical examples of fiscal and pseudo-fiscal instruments that contribute to what economists call "automatic stabiliser" adjustment mechanisms. The first measures the extent to which high-income households face higher tax rates than low-income ones, while the second measures the extent to which the government provides insurance against unemployment risks. Both are found to correlate significantly with measures of income inequality, with more progressive taxes and unemployment insurance that better protects the income of unemployed being associated with lower levels of income inequality. However, both have experienced a steady fall over the last 20 years: income taxes in advanced economies are now significantly less progressive (see Saez and Zucman (2019)) than they were at the beginning of the millennium. Similarly, the replacement rates of unemployment insurance have been cut, in some places, drastically, over the same period.

The chapter argues that these changes have taken their toll on the stabilisation properties and the sustainability of fiscal policy. On the one hand, less progressive taxes and weaker unemployment insurance have reduced the ability of fiscal policy to react countercyclically to business cycle fluctuations. This effect is not necessarily surprising. With progressive taxes, the overall rate at which the government levies resources on the economy is high in expansions and low in recessions. Conversely, with flat taxes, this rate does not, by definition, move with the cycle. As a result, with progressive taxes, the fiscal balance is more sensitive to upswings and downswings. Fiscal deficits are reduced faster in expansions. And this contributes to macroeconomic stabilisation. A similar argument can be made about unemployment insurance, as stronger insurance implies that larger deficits occur in recessions and larger surpluses in expansions.

We also show that tax progressivity and unemployment insurance seem to affect fiscal balances more in expansions than they do in recessions. As suggested above, the fiscal balance increases more sharply in expansions under more progressive taxation schemes or stronger unemployment insurance. However, there is no evidence of a comparable impact in recessions, as governments that reduced automatic stabilisers were still able to expand fiscal policy in a similar fashion to those that maintained strong automatic stabilisers. This asymmetry therefore suggests that the reduction in tax progressivity and unemployment insurance has affected the pace of public debt accumulation, as weaker automatic stabilisers have reduced surpluses in expansions, but with no comparable reduction in deficits during recessions.

The weakening of redistributive policies has therefore had three important consequences: first, it has contributed to accelerate rising trends in inequality. Second, it has reduced the ability of fiscal policy to react countercyclically to business cycle fluctuations. Finally, it may have increased the need to finance public policies by issuing debt, given that tax collection, notably in expansions, has become less effective in raising fiscal revenues. And indeed, fiscal debts have increased by nearly 50% of GDP on average, across the OECD, over the last 20 years.

Chapter IV turns to monetary policy and discusses its multi-faceted interactions with inequality. The main objectives of monetary policy – price stability and output stabilisation – are themselves related to inequality. High and runaway inflation tends to hurt the poor disproportionately, as they often have no means of hedging against rising prices. During recessions, the poorest are often the first to lose their jobs and they are the most vulnerable to skills obsolescence, which slows their re-entry into the labour force. So, in a strict sense, by delivering on their mandated objectives, central banks are already making their best possible contribution towards mitigating inequality.

Yet monetary policy affects inequality through various channels that go beyond those of inflation and unemployment. All monetary policy decisions, even the most conventional, have distributional consequences that become apparent once the heterogeneity of households is taken into account. An interest rate cut shifts income from lenders to borrowers. Rising wages due to labour market tightness benefit mostly the households whose main source of income is labour. At the same time, asset purchases boost the wealth of asset owners. The chapter reviews all of these transmission channels, both on income and on wealth inequality, and assesses their relative importance based on the available literature. One key conclusion on which there is a near consensus is that movements in and out of unemployment are the most important drivers of income inequality.

Finally, the chapter explores the hypothesis that inequality may hamper monetary policy transmission. We report empirical evidence that this is indeed the case, relying on both a cross-country and a US-specific cross-state analysis. The economic intuition behind these results is that the wealthiest typically have a low marginal propensity to consume, and hence monetary stimulus is unlikely to induce them to borrow to consume even more. The poorest households might instead be keen on expanding their consumption, but if their income is too low and they have no collateral to pledge, they may find themselves unable to borrow and take advantage of cheap credit. This is the case whenever income is very concentrated in the hands of the wealthiest, while the poorest only earn subsistence income. In such a context, the poor do not stand to gain much from the direct effects of easy monetary policy – ie the option of borrowing at cheaper rates – but they benefit more from its indirect effects through more employment and higher wages via labour market tightness. In fact, this is a key mechanism of monetary policy transmission in models with heterogeneous agents (see Kaplan et al (2018)). Hence, our results also lend empirical support to the emerging theoretical literature on models with heterogeneous agents.

The concept of inequality hysteresis and its policy implications

Chapter V concludes the volume with the policy implications of our findings on inequality hysteresis and the effects of inequality on the business cycle and macroeconomic stabilisation policies. As we established in Chapter II, greater inequality is associated with deeper and longer recessions that generate even greater inequality. The results presented in Chapter IV on the loss of traction of monetary policy stimulus also imply that, amid rising inequality, it becomes increasingly difficult and costly for central banks to stimulate the economy. In turn, insufficient stimulus makes recessions even longer, and exacerbates their impact on inequality. Hence, the diminished effectiveness of monetary policy as inequality increases can amplify the hysteresis mechanism.

However, we also know from Chapter III that fiscal policies aimed at stabilising the business cycle can play a significant role, at least in reinforcing other structural policies to contain and/or reduce inequality. In addition, other redistributive fiscal and quasi-fiscal policies also have a powerful role to play, and can counteract and revert structural trends, if so mandated.

Therefore, a logical first step would be to strengthen the redistributive role of fiscal and quasi-fiscal policies. Both can become much more effective in addressing income inequality and thereby help to stabilise the business cycle. A reassessment of the costs and benefits of both the structure and timing of taxes and expenditures could be important when assessing the longer-term effects of these instruments in combating inequality.

More progressive taxes could help both to recover fiscal revenues in the expansion phase of the business cycle and to strengthen the automatic stabiliser adjustments of the social safety net. Expenditures that both secure and spur economic growth, including better health readiness against pandemics, better education,

upgrades for digital infrastructure and investment in the energy transition have a positive net return.

A second step would be, following Blanchet et al (2022), to develop instruments that measure the evolution of income inequality in real time. This could help track consumption and employment statistics across the income groups that our analysis has shown to be relevant to understanding the risk of deeper economic contractions. As a feature of public statistics services, these tools should be made available to finance ministries and central banks, providing them with real-time information for policymaking. With current technologies and new big data techniques for understanding individuals and groups – while respecting data privacy – more sophisticated ways of conducting targeted fiscal transfers might be envisaged.

A third step would be to investigate how the design and implementation of stabilisation policies could take income inequality into account, and whether this should be done just to monitor the effectiveness of the policy transmission mechanism or whether targeted taxes and transfers should also be undertaken in order to enhance policy effectiveness. In all likelihood, these taxes and transfers would lean simultaneously against cyclical forces and rising income inequality.

On the fiscal front, it seems clear that more precise targeting of groups could bring more efficiency to policies at a lower per capita cost. This could significantly expand the room for manoeuvre for fiscal policy. Such developments could show that targeted stabilisation policies are more likely to be effective, particularly if they are able to limit any reductions in the income of those whose propensity to consume income is highest – typically households with lower income. This is not without challenges: despite its more direct nature and even with some degree of targeting (eg conditional cash transfer programmes in many EMEs), there could be a trade-off between the greater effectiveness of fiscal policies, maintaining desirable economic incentives and the perception of unfairness.

On the monetary policy front, we have examples of framework reviews. The US Federal Reserve System has given more prominence in its review to inclusive labour markets, and hence implicitly to income equality. Similarly, the Bank of Canada has stated that it "will consider a broader range of labour market indicators to actively seek maximum sustainable employment" when deciding on monetary policy.[12] The strategy review conducted by the European Central Bank has put more emphasis, among its secondary objectives, on sustainable growth and climate change than on inclusive labour markets. However, such a theme could become more prominent for the planned 2025 review of its strategy. Importantly, these reviews were motivated largely by the perception that monetary policy had become less effective in a context of very low real interest rates where most central banks had undershot the inflation target. Given that inequality reduces the effectiveness of monetary policy, we should consider monetary policy frameworks that take this factor of effectiveness into account.

None of this should imply that the traditional central bank role of stabilising inflation should become secondary. On the contrary, indeed. We see in 2022 that post-Covid inflation is hitting low-income households. This segment suffered during

[12] Further, the joint statement of the Ministry of Finance and Bank of Canada on the 2022–26 Monetary Policy Strategy notes that "there is now greater recognition, supported by economic research, that when the benefits of economic growth and opportunity are more evenly shared, it leads to more prosperity for the whole economy. A strong and inclusive labour market helps reduce income inequality and supports robust demand for goods and services."

the Covid recession since they were laid off at an early stage and now their income is more eroded by inflation since food and energy – the prices for which are rising fast – constitute a larger share of their consumption baskets. High inflation impacts the purchasing power (and hence the welfare) of those at the bottom of the income distribution to a greater degree, and hence could feed hysteresis if the gap between the inflation rates of the consumption baskets of low-income and high-income households do not revert in the future.[13] As recalled in Carstens (2021) inflation is a particularly unfair tax that disproportionally hits the poor, whose income and assets are nominal and usually not indexed. This warrants a thorough discussion about the calibration of stabilisation policies, especially their fiscal dimension. But this is largely beyond the scope of this volume.

The chapter also discusses how structural policies that are well established in the literature on inequality and traditional stabilisation policies could, in more general terms, complement each other better. We consider as best practices and recommendations the long-term measures to reduce inequality in the contributions by Atkinson (2015), Atkinson and Bourguignon (2015) and Blanchard and Rodrik (2021).

We suggest that the two types of policy can be designed and implemented in ways that produce synergies to reinforce one another and jointly contribute to a virtuous circle of reducing both inequality and macroeconomic instability. Two good examples of such synergies can be found in making the income tax structure more progressive and strengthening unemployment insurance schemes.

We call for further systematic research into these synergies to assess their full benefit for both stabilisation cum inequality reduction.

Of course, the existence of such synergies cannot be construed as an argument for unsustainable expansionism and ultra-loose macroeconomic policy stances in all phases of the business cycle. On the contrary. For synergies to increase the effectiveness of both policies, they need to go hand in hand with balanced and sustainable interventions that are state-contingent and country-specific. Otherwise, macroeconomic imbalances such as high inflation and rapid debt accumulation will cut the recovery short and result in even higher levels of poverty and inequality.

Finally, what we suggest is that more emphasis should be put on fiscal instruments, by paying attention to inequality in the design of stabilisation policies. That, per se, will shift the focus, requiring governments to make more use of their political capital to rebalance the burden between fiscal and monetary policies, making it less likely that central banks find themselves as the "only game in town" during recessions.

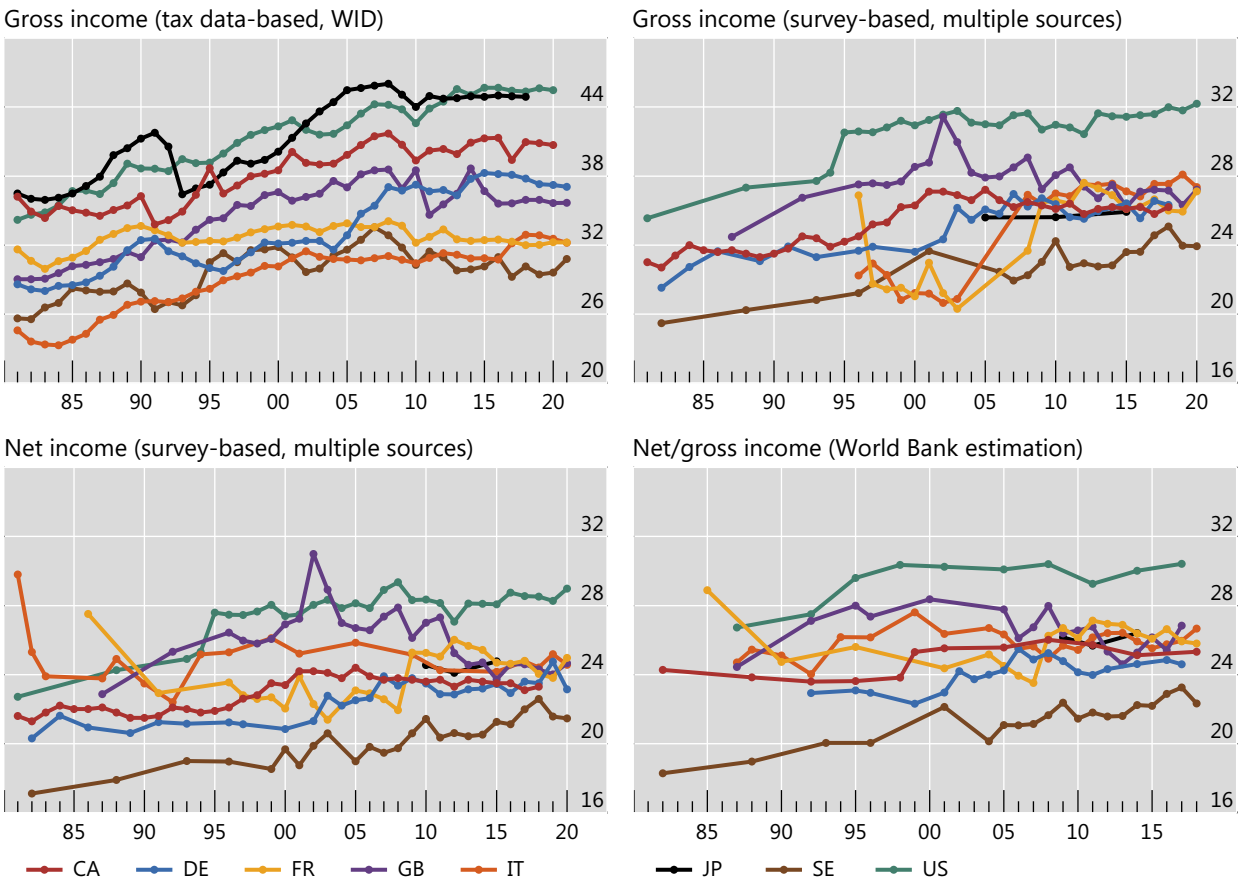
While further research needs to complement the findings of this volume, we aim to open a debate on new policy options that could help deliver more effective policies, in part because they take on board more explicitly the effects of inequality on the business cycle.

[13] BIS (2021) includes simulations of the extent of real wage erosions that arise as a consequence of higher or accelerating inflation (see p 45).

Top 10% share of income

In per cent

Graph A.I.1



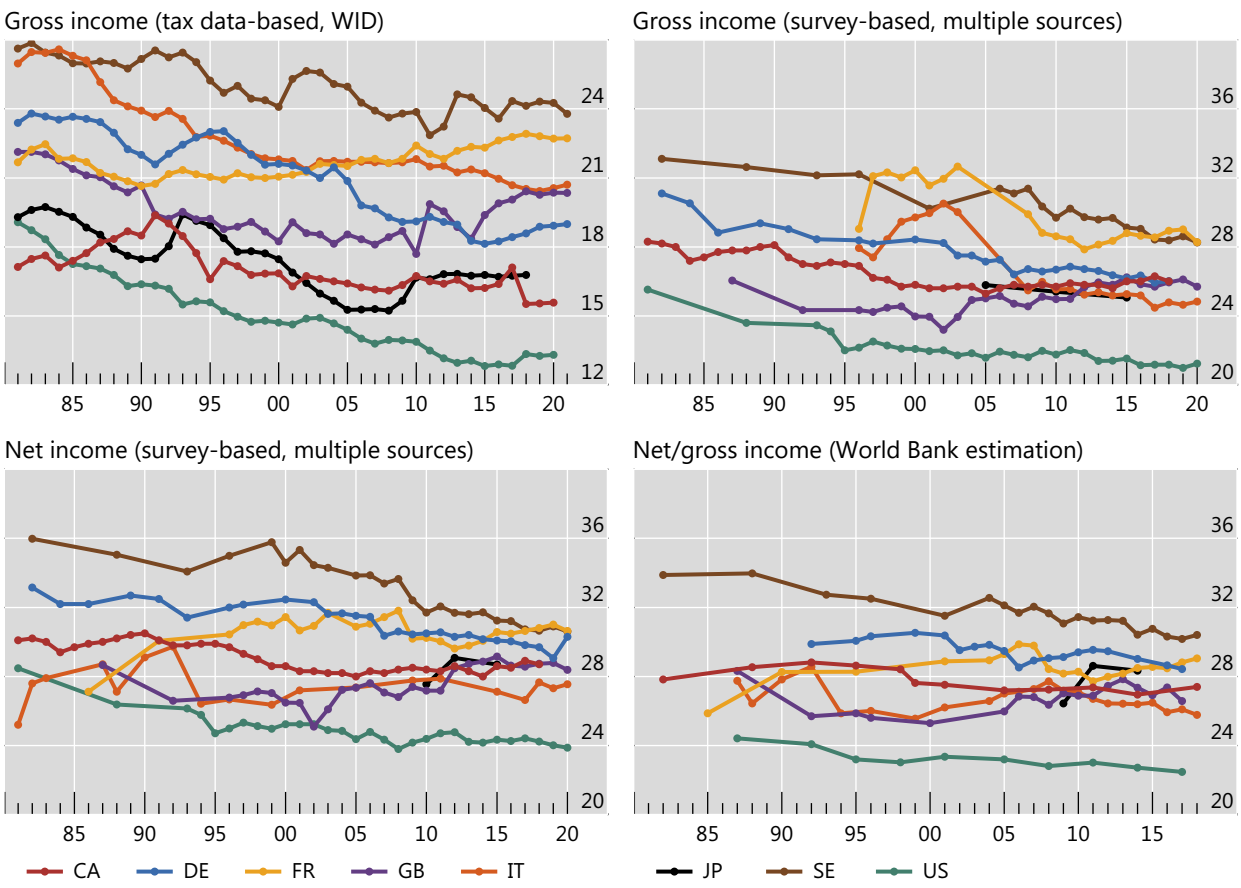
Top 10% share of income represents national income share held by top 10% of population. Survey-based data has been put together from various national and international sources, accounting to the extent possible for the differences in measurements and the employed statistical concepts based on the classification in the WIID.

Sources: OECD; World Income Inequality Database (WIID); World Inequality Database (WID); national data; BIS calculations.

Bottom 50% share of income

In per cent

Graph A.I.2



Bottom 50% share of income represents pre-tax national income share held by bottom 50% of population. Survey-based data has been put together from various national and international sources, accounting to the extent possible for the differences in measurements and the employed statistical concepts based on the classification in the WIID.

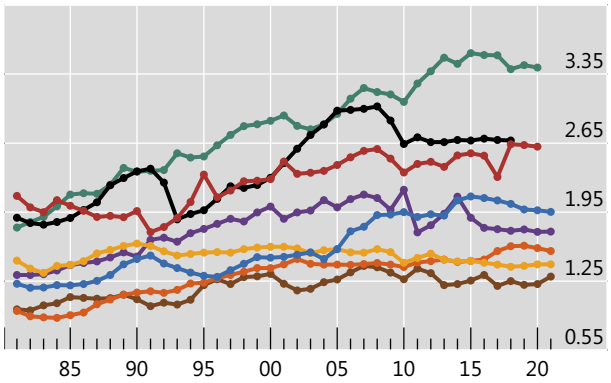
Sources: OECD; World Income Inequality Database (WIID); World Inequality Database (WID); national data; BIS calculations.

Top 10% to bottom 50% share of income

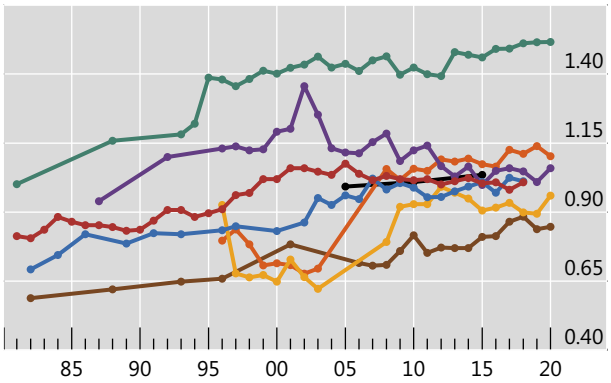
Ratio

Graph A.I.3

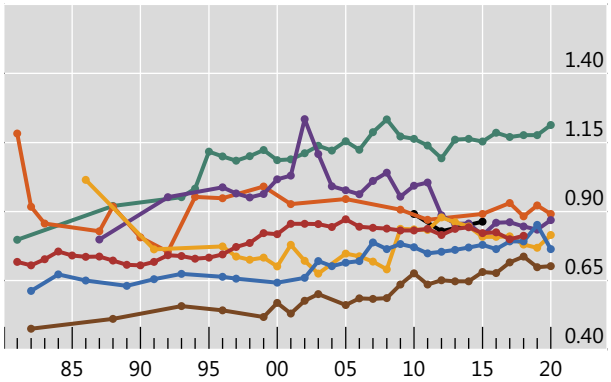
Gross income (tax data-based, WID)



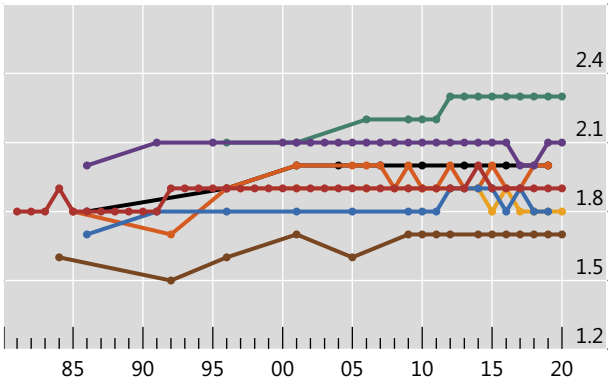
Gross income (survey-based, multiple sources)



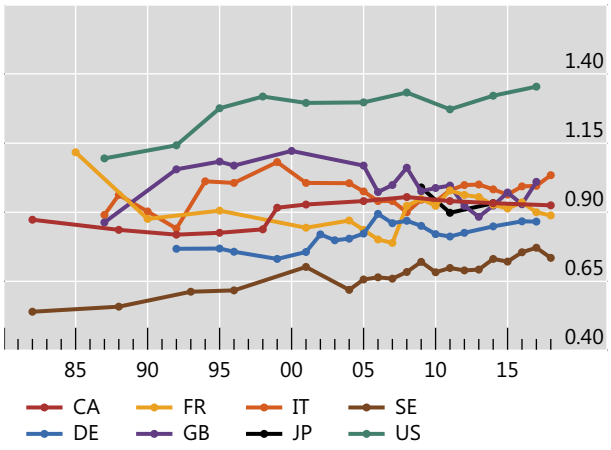
Net income (survey-based, multiple sources)



Net income (OECD estimation)



Net/gross income (World Bank estimation)



The income share of the top 10% of the population divided by the share of the bottom 50%. Survey-based data has been put together from various national and international sources, accounting to the extent possible for the differences in measurements and the employed statistical concepts based on the classification in the WIID.

Sources: OECD; World Income Inequality Database (WIID); World Inequality Database (WID); national data; BIS calculations.

Chapter II: Income inequality and the business cycle: the concept of inequality hysteresis

Income inequality has increased dramatically since the mid-1980s in several OECD countries and also in many large EME countries. The Covid-19 pandemic has given yet another push to these pre-existing trends, further aggravating inequality. On this occasion, it was clearly low-skilled workers who were hardest hit by the pandemic – particularly those working in high-contact service sectors. For instance, while 55% of workers with a college degree were able to work remotely, only 19% of those without a high school diploma were able to do so.[14] As a result, they were also much more likely to find themselves unemployed. Particularly in EMEs, many workers were forced to leave the labour force altogether, a phenomenon that seems to have affected women in particular.

This chapter looks at the broad cyclical patterns and long-run trends in inequality, and identifies key mechanisms that tend to reinforce it. Such reinforcing mechanisms can give rise to what we define as inequality hysteresis. The chapter first documents the secular rise in within-country income inequality, and the driving forces behind it. It then shows how the pandemic has impacted households, suggesting that we may need to think of an increasingly polarised economy, in which poor and rich households respond to shocks in very different ways. While poorer households cannot cut back on consumption (since they consume mainly essential goods) and may easily come under financial stress, rich households tend to substantially increase their savings rates, often for precautionary reasons.

The chapter also shows how rising inequality impacts macroeconomic outcomes. Inequality has two major implications: it lowers the overall income elasticity of consumption and flattens the Phillips curve. These reasons help to explain how inequality may influence the effectiveness of macroeconomic stabilisation policies. The chapter concludes by discussing how income inequality impacts the post-Covid economic outlook.

Documenting the rise in income inequality: broad trends

Basic facts

The concern about rising inequality has prompted a number of studies and conferences over the last decade (see Ostry et al (2019), Blanchard and Rodrik (2021)). The effects of the Covid-19 pandemic have underlined the issue of income inequality, as well as highlighting the high degree of heterogeneity across households. Given the magnitude of the divergence between different income groups, the topic has gained more and more attention in policy circles. In addition, great efforts have been made to document the various angles through which the rise in inequality can be tracked, including the establishment of the World Inequality Database (https://wid.world/), a systematic data set. It is increasingly apparent that inequality has evolved from being an academic issue to an urgent policy matter, in which the macroeconomic

[14] See eg Foucault and Galasso (2020).

consequences can no longer be assumed to be self-correcting. Without rephrasing a number of existing surveys on inequality (for advanced economies, see Chancel (2021)), we start by looking at the broad trends that have been driving inequality in the recent past.[15]

Income inequality has been on a steady rising trend since the mid-1980s in almost every advanced country. This is most visible for the share of the income that goes to the top decile of the income distribution. This share has risen to no less than 45% in the United States, 43% in Japan, 37% in Germany and 35% in the United Kingdom (Graph II.1).[16] At the same time, the share accruing to the bottom 50% has been declining steadily. In the United States, it accounts for only 13.5% of total income, which is a lot lower than the 21% earned in 1970. In other countries, the income of this sector of the population has been eroded at a more moderate rate, but the overall trend is broadly similar. In the United Kingdom, the income share of the bottom 50% is now 21.5%, in Japan 19.5% and in Germany 19%.

For wealth inequality, data are harder to come by, not least because measurement difficulties are typically much larger. Even information from tax records suffers from shortcomings in measuring total wealth, and declared asset values may not always properly reflect market values. The very partial picture that emerges from the countries with most reliable data is that wealth concentration has always been much larger than income concentration (right-hand panel). In France and in the United Kingdom, the top 10% own an estimated 50–55% of all wealth, whereas in the United States, this share is closer to 70%. Interestingly, in contrast to income inequality, wealth inequality within these countries has not been rising that much, at least if one looks at the share held by the top decile.[17] One fundamental reason for this is the rise in house prices. As house ownership in many countries is widely distributed, a generalised rise in the price of housing assets tends to reduce wealth inequality according to some metrics.

As for EMEs, the share of income earned by the top 10% has also been on the rise in China, India and several other countries (Graph II.2, left-hand panel). Defying this trend, Brazil has seen roughly stable shares, if at high levels. Large-scale social transfer programmes seem to have stopped the trend towards increasing concentration. Also the share of wealth held by the top decile has been rising in most countries (right-hand panel). One important aspect to consider is that rising inequality metrics can be a natural side effect of the development process, as highlighted by Kuznets (1955). This is because the move from traditional subsistence living to market activities is gradual. If, initially, most of the population earns only subsistence income, inequality is bound to increase when a certain fraction of households eventually achieves a higher income through their integration into the more modern and

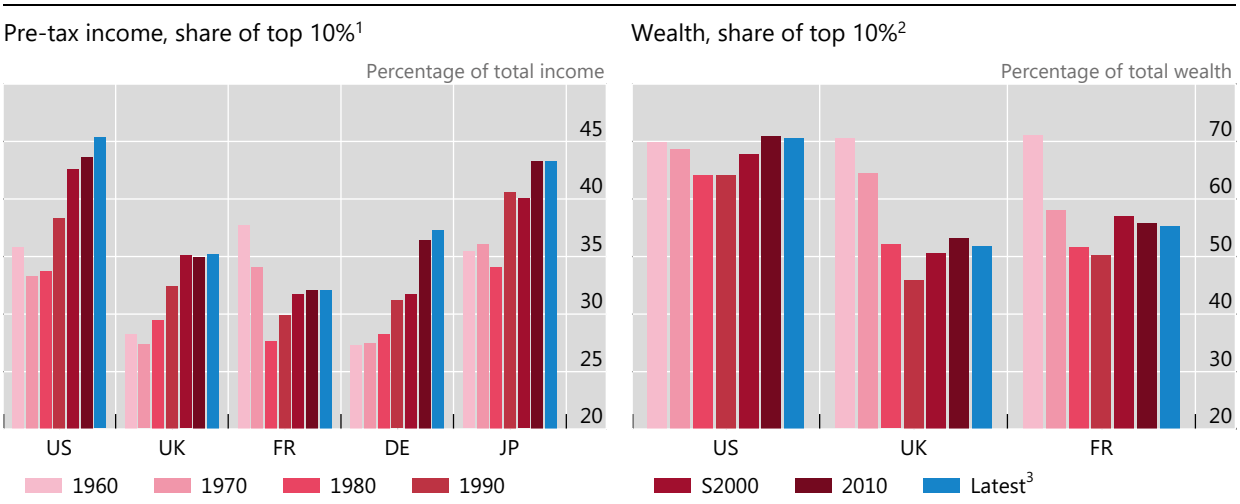
[15] Inequality has several metrics: income inequality can be assessed by differences in flows of revenue. It can be more or less comprehensively assessed either by looking at the difference between the top and the bottom deciles or percentiles of the income distribution or by calculating a Gini coefficient (eg the difference between two curves, one representing perfect distribution and the second with actual distribution, hovering between 0 for perfect equality and 1 for perfect inequality. Wealth inequality can be assessed by differences in stocks of the overall physical and financial assets, also more or less comprehensively assessed. There are also other, more comprehensive metrics, for details, see Bourguignon and Atkinson (2015), Introduction, pp. xvii–lxiv.

[16] The figures here refer to shares of pre-tax national income. Later, when measuring its effects on policy effectiveness, we use post-tax income shares.

[17] That said, a different picture emerges if one looks at the share of the top 1%.

productive sectors of the economy. This is the case even if the development was in general a Pareto improvement, that is, if all were left better off.

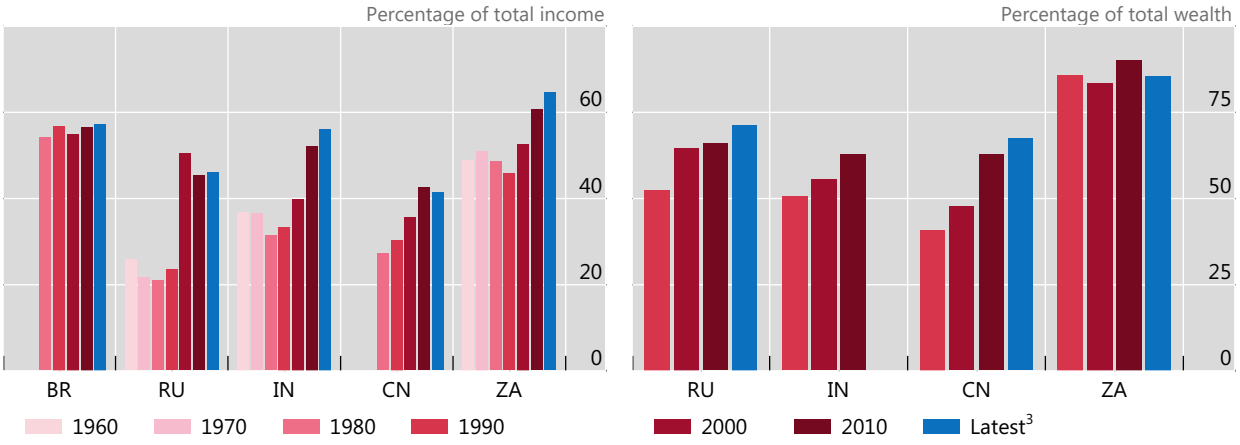
Inequality has been rising in most advanced economies — Graph II.1



[1] Pre-tax income, top 10%. [2] Net personal wealth, top 10%. [3] For income share of top 10%, latest is 2019. For wealth share of top 10%, latest is 2019 for US, 2012 for UK and 2014 for FR.

Sources: World Inequality Database (WID); BIS calculations.

Inequality has also been rising in emerging market economies — Graph II.2



[1] Pre-tax income, top 10%. [2] Net personal wealth, top 10%. [3] For income share of top 10%, latest is 2019 for RU, 2018 for BR, 2015 for CN and 2014 for IN and ZA. For wealth share of top 10%, latest is 2017 for ZA, 2015 for CN and RU.

Sources: World Bank; World Inequality Database (WID); BIS calculations.

Key traditional drivers of inequality

The academic literature has identified powerful secular trends that have contributed to the steady increase in income inequality in advanced economies. Most notably, skill-biased technical change (SBTC) – an environment in which rapid technological advances tend to favour skilled workers due to strong technology-skill complementarities – has been a pervasive feature of the economic landscape in

recent decades (see Acemoğlu (2002), Chusseau et al (2008), Atkinson (2015) and Atkinson and Bourguignon (2015)).

Atkinson and Bourguignon (2015) in particular note that trends in inequality can be the outcome of a race between technology and globalisation and the acquisition of skills (ie education) – an idea that goes back to Tinbergen. Both technology and globalisation lift the demand for skilled workers. If the supply of such workers does not keep up, the wage premium for educated workers rises. Thus, countries that cannot keep up a supply of skilled workers to the labour market will tend to experience a rise in cross-sectional wage dispersion. Income inequality measures will not increase only if there is a sufficient critical mass of workers who can acquire skills rapidly enough and thus move to higher-wage jobs. This is precisely what Verdugo (2014) shows in his comparison of the wage structure of France, the United Kingdom and the United States. Tertiary education boomed in France during the 1990s, much more than it did in the United Kingdom and the United States. This partly explains a contraction of its wage structure as well as its lower level of income inequality, as shown in Graph II.1.

The ubiquity of computers for business applications since the 1980s is a powerful indicator that an age of skill-biased technical change has arrived. Their effective use often requires considerable skill. The premium for a strong education background and fast learning speeds thus seems to have increased.[18] And these changes coincided with the rapid globalisation of goods and labour markets. A recent analysis, by Burstein and Vogel (2017), finds that trade liberalisation increased the skill premium almost everywhere. This is partly because trade reallocates factors towards skill-intensive producers within each sector.

Technology and globalisation have also led to the emergence of "winner takes all" industries in some sectors (eg the GAFAM companies (Google, Apple, Facebook, Amazon and Microsoft), Tesla, retail trade, finance). "Superstar firms" tend to concentrate a large share of activity within their sector because of higher productivity and scale effects (see Autor et al (2020)), leading to increased market power and eventually price mark-ups. Relatedly, Andrews et al (2015) found that productivity growth for firms at the technological frontier has been robust, but that at the same time technological diffusion to firms below the frontier is typically quite slow. Graph II.3 shows that increases in total factor productivity – a proxy for the impact of technology on the production process – have been positively related to rises in income inequality (left-hand panel). Similarly, countries that went further on globalisation – as measured by changes in the KOF globalisation index – also saw a greater concentration of incomes (right-hand panel).[19] This does not of course contradict the fact that greater economic openness has generally been good for aggregate income growth.

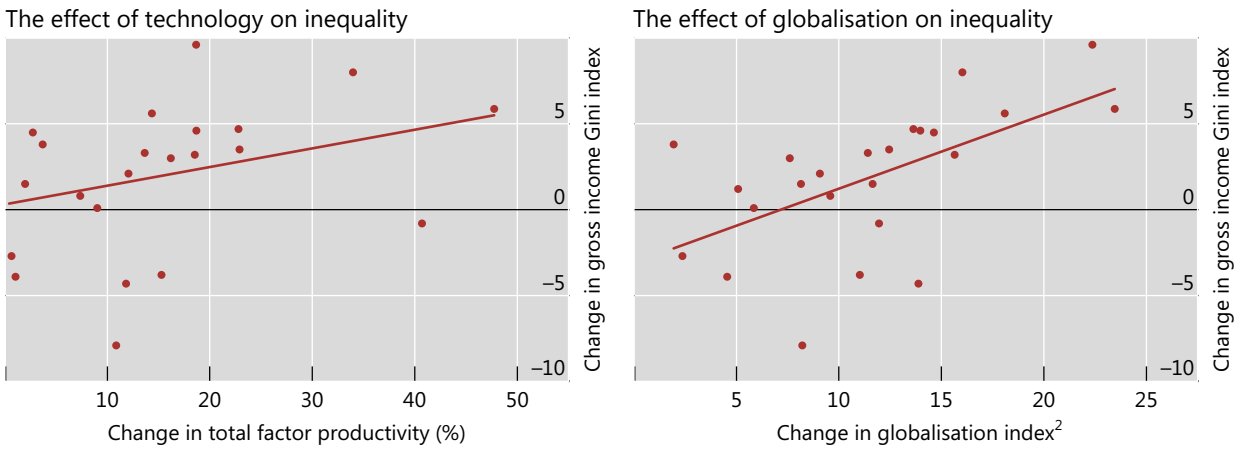
In combination, the above factors have been connected to rising income concentration, primarily through their negative effects on workers' bargaining power and labour income. First and foremost, international trade can subject easy-to-replicate low-skilled jobs to increased competitive pressure. This is particularly so in areas where work can be easily outsourced to lower-wage countries. What is clear is that "the gains from globalization are not evenly distributed" (Milanovic (2016)). The

[18] On the sharp increase in the skill premium post-1980, see Krusell et al (2000).

[19] This graph is reproduced from BIS (2021),

process has generated clear winners, but also losers that governments have usually failed to compensate.

Structural forces have increased inequality[1] Graph II.3



[1] The sample includes 15 AEs and nine EMEs; changes are computed over the period 1981–2015 (or shorter, depending on country-level data availability). [2] Based on the KOF Globalisation Index.

Sources: S Gygli, F Haelg, N Potrafke and J-E Sturm (2019); OECD; UNU-WIDER, World Income Inequality Database (WIID); World Bank; Penn World Table; BIS calculations.

The challenges of the pandemic for households

An unprecedented shock…

We want to focus our analysis on how inequality evolves during large macroeconomic shocks. Clearly, the assumption is that it may worsen but the devil might be in the details. Indeed, looking at the Covid-19 pandemic, it affected household income in a very uneven way. Low-income workers were much more likely to be laid off (Graph II.4, left-hand panel). In France, the likelihood of a job loss for low-income workers was more than three times higher than the one for high-income workers. This difference was even starker in Italy and Spain. In the United States, while the employment of high-income workers barely changed, that of low-income workers initially dropped by 30% (right-hand panel). Even one year after the shock it was still more than 20% lower than before the pandemic. This stark difference underscores the effects of the pandemic on inequality.[20]

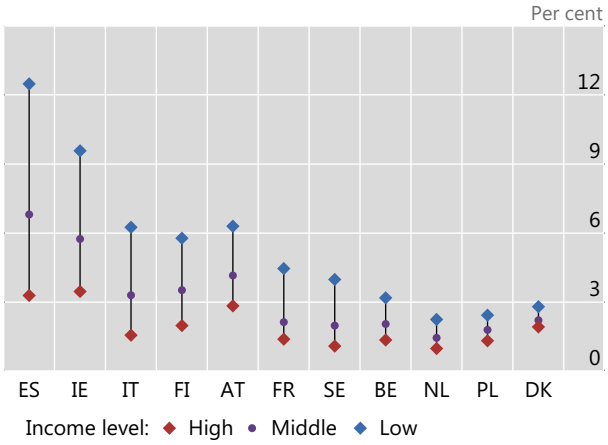
Besides income, the pandemic has also scarred household consumption patterns and finances. From an aggregate, economy-wide standpoint, consumption fell dramatically, with larger initial declines in countries where the virus hit harder (Graph II.5, left-hand panel).

[20] A recent study by Blanchet et al (2022) finds that factor income in the United States collapsed by 33% for the bottom 50% between February and April 2020, 10% for the next 49% and 19% for the top 1%. The bottom 50% recovered their pre-pandemic factor income in 20 months, while for the top 1% it took 10 months. As a result, the share of income earned by the top 1%, at 19.5%, reached a new post-WWII record.

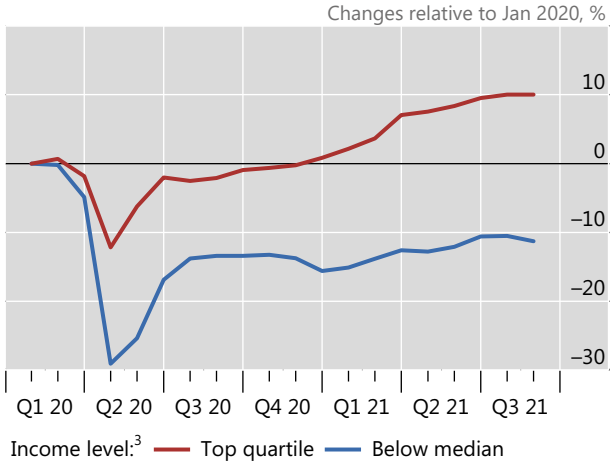
The pandemic hit low-income workers harder

Graph II.4

EU: risk of job loss by income during the pandemic[1]



US: employment by income[2]



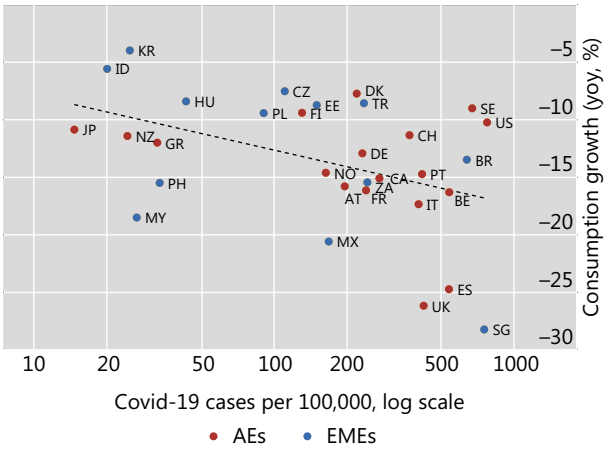
[1] Probability of job loss is estimated by Eurostat using a logit model with controls for age, gender, skill level required by the occupation, sector of activity and type of work contract. The reference period for the labour market information is Q2 2020 and using data from the Labour Force Survey. High = individuals in deciles 8, 9 and 10; middle = deciles 4, 5, 6, 7; low = deciles 1, 2 and 3. [2] Number of active employees. Monthly averages of daily data up to 10 August 2021; not seasonally adjusted. [3] Top quartile = employment level for workers in the top quartile of the income distribution (incomes approximately over $60,000); below median = employment level for workers in the bottom half of the income distribution (incomes under approximately $37,000).

Sources: World Bank; Eurostat; Opportunity Insights Economic Tracker; BIS calculations.

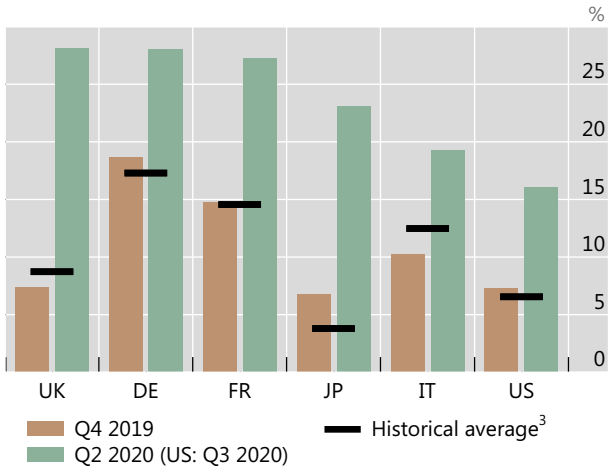
The pandemic had large effects on households

Graph II.5

Higher Covid-19 infection rate reduced consumption...[1]



...and saving rates[2] have spiked



[1] Private consumption growth for Q2 2020. Covid-19 cases per 100,000 people for Q1 and Q2 2020. [2] Gross savings divided by gross disposable income plus change in pension entitlements. For the United States, personal savings divided by disposable personal income. For Japan, net savings ratio. [3] From Q1 2000 to the latest available data.

Sources: WHO; national data; BIS calculations.

...hit stronger household balance sheets

In this context, the more positive aspect was that household balance sheets were not exceptionally stretched at the onset of the pandemic. In advanced economies, the starting point was generally better than before the GFC as significant deleveraging

had taken place in major economies. For instance, in the United States, household debt fell from 136% of gross disposable income in 2008, to just 98% at the end of 2019. Similarly, in the United Kingdom, household debt fell about 20 percentage points over the same period (from 143% to 125%), while in the euro area, it has been broadly stable, albeit at significantly lower levels (about 95%). Moreover, household debt service ratios, ie the share of income spent to service debt obligations, were typically below historical averages, a joint consequence of lower debt levels and falling interest rates. This translated into a lower probability of stress situations at the macroeconomic level. It may also mean that many households were able to borrow in order to smooth out their consumption patterns.

That said, aggregate numbers certainly mask considerable heterogeneity and thus the degree of strain that some households faced. In particular, low-income households may have struggled to stay current on their rental payments and utility bills, and to purchase essential consumption goods. Some countries and regions introduced temporary rent freezes, rent relief programmes and eviction moratoriums to protect the most vulnerable. On the whole, the evolution of defaults on rent and mortgage payments has been relatively benign in most countries – particularly if one considers the sheer magnitude of the shock. In the United States, the share of unpaid apartment rents rose from 4.1% in December 2019 to 6.2% at the end of 2020.[21] That said, the poverty rate jumped from 9.3% to 11.8% in the second half of 2020. Among households whose head had only a high school qualification or less, it rose much more, from 17% to 22.5%. (Han et al (2020))

Saving rates have spiked beyond previous records…

The effects of the pandemic can be observed well beyond the lowest-income groups. One piece of evidence is the striking spike in savings rates across the world (Graph II.5, right-hand panel). Be it for precautionary motives – given highly uncertain conditions, not least the perceived risks to employment – or lack of spending opportunities, wealthier households put a very significant fraction of their income aside. During the second quarter of 2020, for instance, households saved more than a quarter of their disposable income *on average* in the United States, the United Kingdom, France and Germany. As savings are typically concentrated among the wealthy, this implies that the wealthier households were saving even beyond this staggering rate.

These savings levels are all but unprecedented in recent times. Whereas the personal savings rate in the United States peaked at no less than 34% of disposable income in April 2020, the peak was only 8% during the GFC and 7% during the bursting of the dotcom bubble. Also in the euro area, the average savings rate of 25% in the second quarter of 2020 was the highest ever recorded since the creation of the euro.

Forced or intentional savings?

While part of this spectacular rise in saving rates was temporary, and influenced by the inability to consume normally during a lockdown, as well as by exceptional government transfers in some cases, at least a portion of the spike could persist.

[21] National Multifamily Housing Council Rent Payment Tracker.

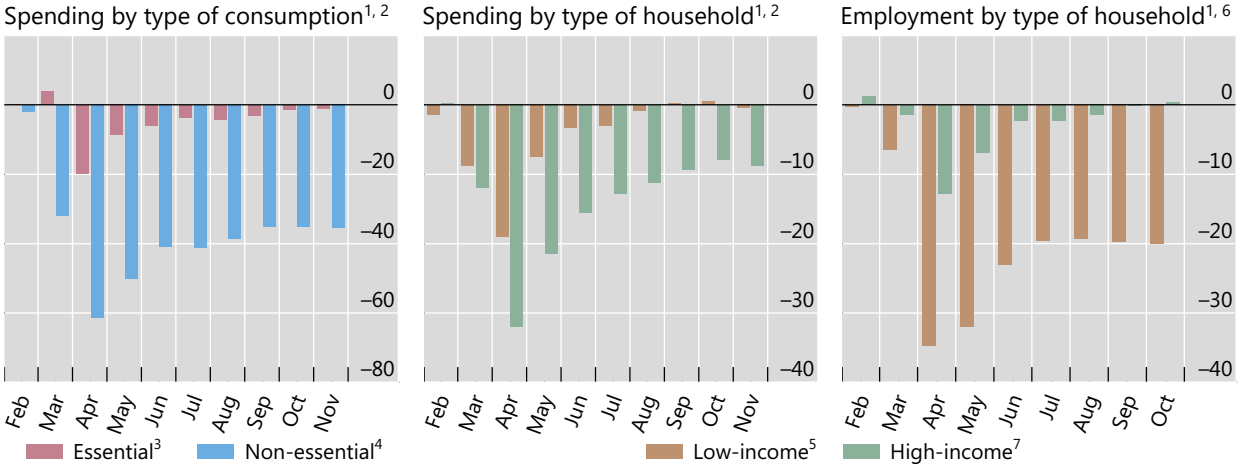
Households may be reluctant to release their accumulated savings buffers until they have sufficient confidence in the recovery, and on job security in particular.

A survey by the Bank of Canada, for instance, revealed that 49% of households intended to retain most of their recently accumulated savings, indicating a highly defensive attitude. Similarly, a Bank of England survey found that only 10% of households whose savings rose during the pandemic intended to spend the money in the near future.[22] Overall, such a reluctance to spend can make recoveries rather uneven.

At the same time, it is clear that a significant portion of initial savings was involuntary, as evidenced by cut in expenditure on services that were no longer offered (eg travel and leisure). Disaggregated consumption data from the United States allow us to look deeper into short-term post-Covid consumption patterns. Consumption of essential goods fell 20% in March 2020, but then recovered very quickly to pre-crisis levels. Yet consumption of non-essential goods dropped 60%. This component remained 35% below pre-crisis levels even at the end of 2020 (Graph II.6, left-hand panel). Naturally, as non-essential consumption represents a larger share of consumption by high-income households, their consumption has fallen by much more than that of low-income households. This sharp retreat occurred despite the fact that their employment status was much less affected (centre and right-hand panels).

High-income US households have cut consumption more

Changes relative to January 2020, in per cent — Graph II.6



[1] Simple average of daily figures in the months, where daily data are presented as a seven-day lookback moving average. For spending, up to 8 November 2020 (weekly figures in the last two weeks); for employment, up to 22 October 2020. [2] Purchase data from consumer credit and debit card spending; seasonally adjusted. [3] Simple average: grocery and health care. [4] Simple average: apparel and general merchandise, restaurants and hotels, entertainment and recreation and transportation. [5] For spending, median household income less than $46,000 per year; for employment, wage less than $27,000 per year. [6] Number of active employees; not seasonally adjusted. [7] For spending, median household income greater than $78,000 per year; for employment, wage greater than $60,000 per year.

Sources: Opportunity Insights, Economic Tracker; BIS calculations.

[22] Bank of Canada (2020) and Bank of England (2020). A separate survey in major economies shows a broad-based pullback in consumption intentions across countries. China and India are notable exceptions to this pattern (McKinsey (2020)).

A polarised economy with diverging propensities to consume

The above facts hint at very uneven spending patterns across the population. Indeed, the extent of spending behaviour heterogeneity across households with different wealth has been made clear by a recent granular study based on bank account data from a large French bank. Landais (2021) finds that households in the bottom quartile of liquid savings had consumed 30% of welfare payments in August 2020 within a week. In contrast, households with liquid savings above the median had spent less than 10%. Put differently, the marginal propensity to consume of poor households was roughly three times as high as that of wealthier households.[23]

What is clear is that an understanding of distributional considerations is crucial for policymakers who seek to design economic policies to support a steady recovery. This is because the design of such policies should take into account the differing responses of various household segments. One segment of the population is affected by its job prospects and runs the risk of cutting its consumption even of essential goods, while the wealthier and more fortunate segment has high savings buffers, which tend to increase during times of stress for precautionary reasons. As the response of these two groups to economic shocks is divergent, how income is divided between the two groups shapes the path of aggregate consumption. A higher income share for the wealthiest 10% in the population may imply, first, a reduced ability to smooth consumption among the other 90%. In addition, it may also mean a higher increase in precautionary savings. Both effects increase the reaction of consumption to income in a recession, perhaps explaining why recessions are deeper in economies where income is more unequal.

Implications for recoveries from recessions

As income distribution may matter for business cycle adjustments and the response of consumption to income, we turn to how this could affect recoveries from recessions, and from the pandemic in particular. For instance, higher savings by high-income households could represent a key element when we seek to understand aggregate consumption responses. How rapidly these households return to a more normal behaviour after a recession, and release those savings, could be critical for a rebound in private consumption and ultimately for a speedy recovery.

If households retain a large part of their savings, and saving rates on new income do not decline rapidly, there can be a substantial drag on recoveries. This is particularly relevant as in many countries fiscal and monetary policy now have rather limited room to manoeuvre. And with private consumption held back, business investment is unlikely to bounce back strongly. Weak aggregate demand can thus put negative pressure on labour markets, leading to a subdued recovery in jobs and payrolls, and potentially even a vicious circle.

On the other hand, a quick recovery in consumer confidence – eg in the current context due to successful booster vaccination campaigns, or to other effective policy measures – can release pent-up demand and lead to a stronger economic rebound. At the same time, this could unlock the share of forced saving during the Covid-19 recession, due to the necessary restrictions on travel and leisure activities. A virtuous circle of this kind could boost consumption and investment, and lead to strong

[23] On the aggregate average, 37% of the welfare payments had been spent within five weeks.

growth. This would then boost job creation. At the same time, it will tend to increase inflation pressure.

In the case of the United States, personal saving rates moved up persistently after the GFC, from very low levels. Even a decade later, in 2018, the average rate was still at 8% (compared with just 3% immediately before the GFC). During the Covid-19 recession, the average saving rate was still 5 percentage points above pre-pandemic levels after one year. But by the end of 2021, it was already below pre-pandemic levels, at 7%. Even so, the excess savings accumulated during the first quarters of the pandemic represent pent-up demand. In addition, the vigour of transfers implemented by the administration has increased the disposable income of the bottom 50% households by as much as 20% between 2019 and 2021 (Blanchet et al (2022)). As these households have a higher propensity to consume out of income, it could explain why aggregate demand rebounded so much in 2021.

In any event, policies that aim at stimulating aggregate demand should take into account that their effects on consumption may depend even more than usual on *who* is most affected – either the lower-skilled and poorer households or the better-off higher-skilled. The former have a much greater propensity to spend their income than the latter do – perhaps an order of magnitude greater. Targeted stabilisation policies are therefore more likely to be successful.

Cyclical contributors to income inequality

Recessions and inequality: inequality hysteresis

As argued in the previous section, inequality and the business cycle may influence each other through various mechanisms. However, with many forces at play, it remains to be seen whether these mechanisms add up to material effects. We therefore turn to the data to test how recessions affect inequality. For this we performed two separate yet complementary exercises.

First, we analysed 40 recessions in 12 advanced economies based on quarterly GDP series. The precise timing of recessions was based on the Bry-Boschan-Harding-Pagan algorithm for the real seasonally adjusted output series of Australia, Canada, France, Germany, Italy, Japan, Norway, Spain, Sweden, Switzerland, the United Kingdom and the United States since 1980, as in the study of Rees et al (2022). Selection of countries was based on data availability. We then compared post-tax income Gini at the inception of each recession with those five years thereafter.[24]

This advanced economy-based analysis revealed that the post-tax income Gini was on average 0.58 points above the pre-recession level even five years after the start of the recession. The increase is just over twice the size of the estimated trend increase in inequality for the same countries over a similar period (0.28 points). Of course, these are averages, and there is substantial variation between episodes, including in the extent of compensating fiscal responses in each recession. In 18 of the 40 recessions, the increase in the post-tax income Gini was above 1 point, while in six of the 40 cases the indicator dropped by more than 1 point.

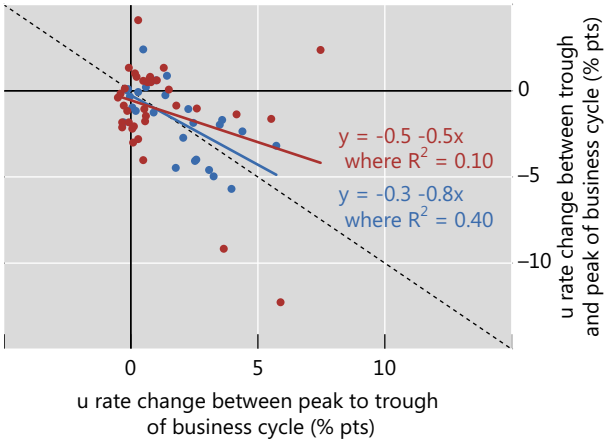
[24] Note that in order not to restrict the sample further, in this exercise we used interpolated inequality metrics whenever the last survey was not older than five years.

Further, we examined the mechanisms that are behind this rise in income inequality. Rees et al (2022) divided the 12 countries in a group of countries that have low levels of job protection, according to the Employment Protection Legislation index of the OECD, and one with higher levels of job protection. Each blue dot in the left-hand panel of Graph II.7 corresponds to one business cycle observation in the lower job protection group, while each red dot to one cycle in the higher job protection countries.

The aftermath of recessions in advanced economies

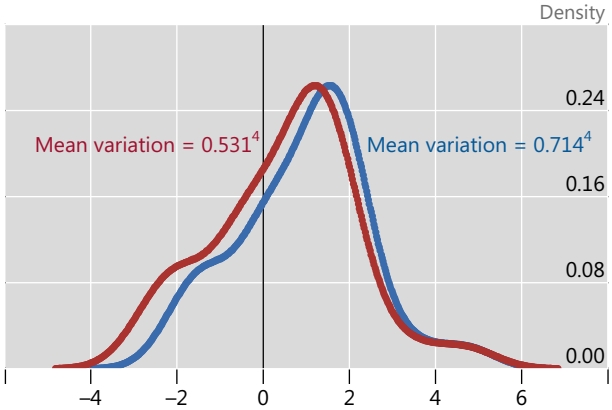
Graph II.7

Unemployment rate recoveries are more complete in economies with more flexible labour markets[1]



• Less flexible labour markets[2] • Flexible labour markets[3]

… but that does not mean that increases in inequality after recessions are smaller



Kernel density function:
• Less flexible labour markets[2] • Flexible labour markets[3]

[1] Each dot represents one business cycle. For instance, peak to trough change stands for the change in the unemployment rate between the quarter of the peak of the GDP cycle, and the quarter of the trough of the GDP cycle in the respective country. [2] CH, DE, ES, FR, IT, JP, NO, SE. [3] AU, CA, GB, US. [4] Based on data since 1981.

Sources: D Rees, E Kohlscheen, R Moessner, "The shape of business cycles: a cross-country analysis of Friedman's plucking theory", mimeo, BIS; OECD; World Bank; national data; authors' calculations.

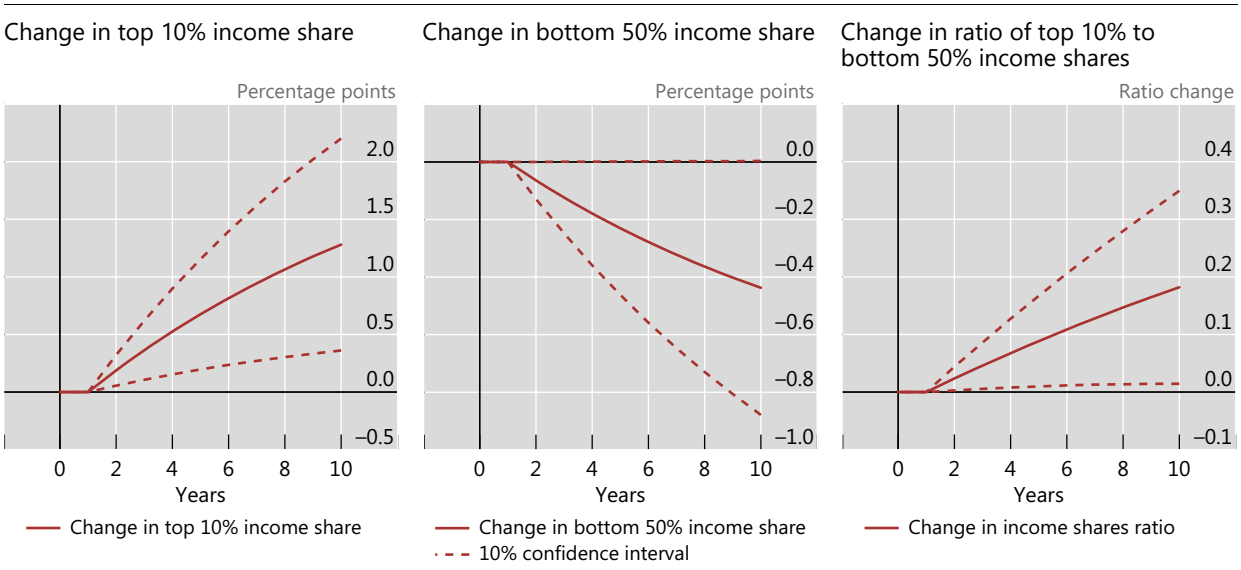
A complete unemployment rate recovery would imply a coefficient of –1 for the best fit line, meaning that the entire increase in the rate during the recession phase is reversed during the subsequent recovery phase. What is clear is that, from a coefficient of –0.8 in the (mostly English-speaking) countries with very flexible dismissal regulation, the unemployment rate recovery is faster than in the other group (which comprises continental Europe, Scandinavia and Japan, and has a slope coefficient of –0.5). The right-hand panel, however, shows that this fact does not prevent the income Gini from rising in the five years that follow a recession in this group too. This is probably due to the combination of two factors: first, workers who are re-hired may re-enter the labour market in lower-paying jobs relative to those who stayed employed; second, the temporarily high unemployment rate could depress wage increases for lower-wage job stayers, as these face stiff competition from the pool of unemployed.

As a second exercise, we analysed the inequality hysteresis question based on a much broader data set, with the caveat that in this case we had to rely on annual data only. This sample contains annual GDP growth rates and measures of income inequality from 70 countries with at least 10 years with available data on income

share. Given the limited historical depth in the measurement of income inequality, our second sample includes 1,700 country-year observations, for which actual survey data were available. Among these we identify 182 recession events that allow us to compare the path of inequality after recessions, ie after years when GDP decreases (ie its annual growth rate is negative).

The broad-sample estimated path of income inequality following recessions is reported in Graph II.8. However, results are qualitatively similar on alternative country samples, notably across large EMEs or in samples of advanced economies when using population weighted estimations. The panels show the dynamic effects of a recession on income shares. The results of the exercise are very striking. Recessions are followed by an increase in inequality as one would expect. The increase is statistically and economically significant as well as highly persistent. Six years after the recession, the share of the bottom 50% remains 0.3% below its pre-recession level, while the income share of the top 10% is still 0.7 % above its initial level. In other words, there is substantial hysteresis in income inequality measures.

Changes in income shares following a recession[1] Graph II.8



[1] The graph report the impulse response based on a panel regression of income shares (or their ratio) on dummies that identify a recession, ie, a reduction in the level of GDP from the year before. Panel of 70 countries over 1983-2020, with 182 recessions identified among 1700 country-year observations.

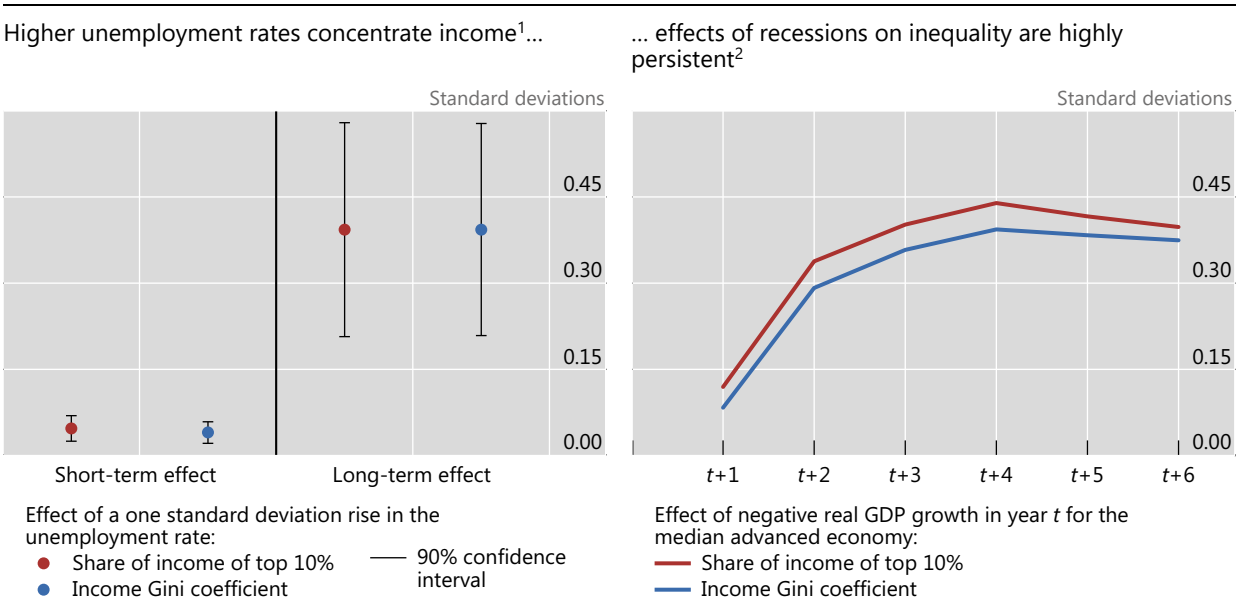
Sources: Authors calculation using WIID income shares and OECD and IMF data on GDP.

This characteristic, which has yet to be explored in the literature, we call "inequality hysteresis". And it may have implications for policy, beyond the structural measures used to address inequality. In this book, we will argue in later chapters that the existence of hysteresis may imply that redistribution policies need to be considered when seeking to stabilise the macroeconomy. Further, cyclical mechanisms that reinforce the redistribution of income (and wealth) across households will need to be addressed. Our finding also complements many of the measures proposed by Atkinson (2015) to contain the rise in inequality.

A separate exercise further confirms that downturns have economically significant and long-lasting effects on income inequality: for a median broader-sample advanced economy, a year of negative real GDP growth is associated with

only a slight increase in both the share of income of the top 10% and the income Gini coefficient during the subsequent year (Graph II.9, right-hand panel). But four years after the recession, both income inequality measures are about 0.4 standard deviations above their pre-recession levels. And income inequality remains noticeably higher even six years after the downturn.[25] What is clear is that the effects of recessions take a very long time to dissipate. The key driver of this persistence is that employment tends to lag the recovery, so that protracted periods of unemployment weaken workers' skills as well as their future employment (and income) prospects.

Income inequality rises with unemployment and recessions … Graph II.9



Sample of countries used for the estimations: AU, AT, BE, CA, CH, DE, DK, ES, FI, IE, IT, JP, KR, NL, NO, PT, SE, UK and US.

[1] Estimated effects of a one standard deviation rise in the unemployment rate on the inequality measures, also in standard deviations. The black poles represent the 90% confidence interval. [2] The effects of one year of negative GDP growth on the share of income of the top decile and on the Gini coefficient of the median advanced economy in years t+1 to t+6. All effects are based on estimates of a panel fixed effect model. Sample period is 1980–2019.

Sources: World Bank; BIS calculations.

A key reason for the lasting effects of recessions on inequality measures is that labour markets typically do not heal from a recession swiftly. Firms may find it optimal to wait until they have confidence that the recovery boom will last, before they fill vacancies at the same rate as before the recession. Sharp downturns may lead firms to downsize or accelerate automation to save on labour costs, making job losses permanent. And limited job vacancies during a recovery further weaken workers' bargaining power, potentially forcing them to accept lower entry wages or lower skill occupations. There is evidence that the earnings of low-skill workers and new entrants into the labour market are still lower even 10 to 12 years after a recession (Cockx and Ghirelli (2016), Rothstein (2020)).[26] Recessions can have scarring effects.

[25] These findings for the advanced economies are consistent with Meyer and Sullivan (2013), who document a significant rise in US income inequality in the wake of the GFC. Specifically, they show that incomes of households in the top decile of the income distribution changed little in the years after the GFC, while incomes of households in the bottom decile dropped sharply.

[26] Huckfeldt (2022) documents that the earnings cost of job losses is heavily concentrated among workers who find re-employment in lower-skill occupations.

Avoiding repeated or lengthy recessions and crises and the spread of long-term unemployment may thus be a necessary channel through which stabilisation policies need to work – while also helping to counter the rising trend in inequality.

Sources of inequality hysteresis

Recessions and the acceleration of automation

Hysteresis effects may be strengthened at present by the combination of a strong adverse shock with the shift to further automation, which could make some of the job losses hard to reverse. The need for social distancing may have pushed businesses to bring forward the adoption of technologies that involve less human contact. At the same time, a more digital economy seems prone to creating global corporate giants or "superstar firms". Workers in some sectors may find themselves in a situation where they have to offer their labour services to de facto monopsonies.

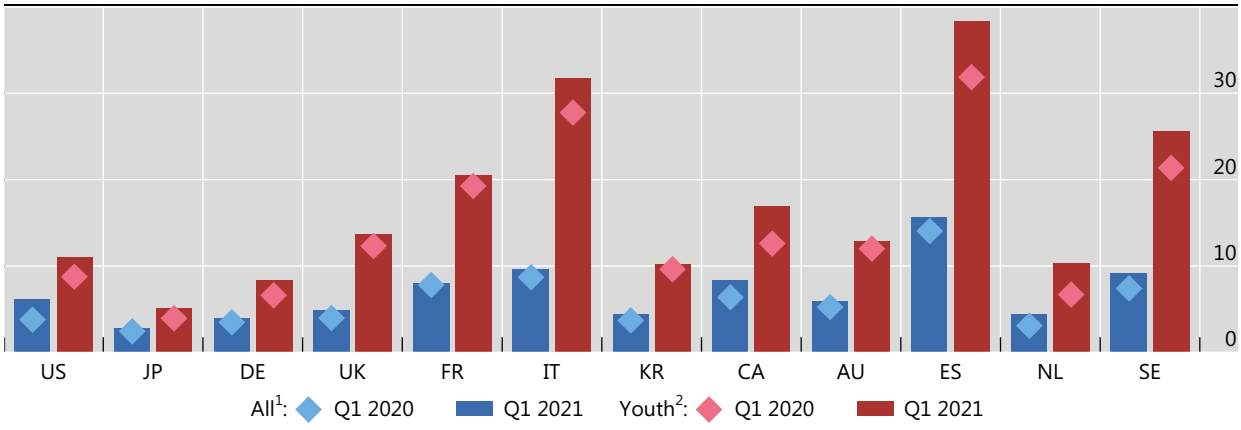
Youth unemployment

Another powerful factor that can bolster hysteresis is that the young have been particularly hard hit by unemployment. While the overall unemployment rate in advanced economies increased by 1.2 percentage points on average during the first four quarters of the pandemic, the youth unemployment rate jumped by 2.7 percentage points (Graph II.10). This makes it particularly hard for young workers to acquire skills and stay current with technological developments. Income losses could be very persistent and re-entry into the market prove challenging. Several studies have documented the long-term scarring effects for cohorts with more extensive youth unemployment. For instance, Gregg and Tominey (2005) find that men who were unemployed for more than 13 months between the ages of 15 and 24 would still earn 20% less at age 33, and 13% less at age 42, all else equal. Similarly,

Youth unemployment increased by more

In per cent

Graph II.10



[1] From 15 to 74 years for DE, while from 15 and above for the rest. [2] From 15 to 24 years.

Sources: OECD; Eurostat.

Oreopoulos et al (2012) find evidence of substantial losses for students who graduate from college during a recession.

Sectoral reallocation of activity

At the same time, it is important to recognise that the Covid recession was unique in many respects. Whole sectors have been impaired, most notably transport, hospitality and leisure services. Some of the sectoral losses could be permanent and consolidation might be needed to restore efficiency. Yet uncertainty about which sectors are viable in the long term is very large. It involves unknown factors such as the pandemic's dynamics and whether and to what extent it will have triggered changes in consumption habits and business models. And with such lingering uncertainty, investment in these sectors will probably continue, with negative effects on productivity. The macroeconomic effects of these developments will be sizeable, particularly in economies where tourism is key.

Changing labour relations and the falling share of labour income

Since wages are the main source of income for most households, labour markets are key to understanding past trends and future prospects for income inequality. More specifically, rising labour force participation, employment and wages that benefit the middle classes are powerful factors in reducing inequality.

While labour market institutions played an important role in sharing productivity gains widely and hence reducing income inequality up to the early 1980s,[27] the subsequent four decades saw a decline in the labour share of income in several advanced economies. Indeed, this trend has broken down one of the central regularities underpinning traditional macroeconomic theory – that the share of income accruing to labour was constant.[28]

Several landmark studies, such as Elsby et al (2013), Karabarbounis and Neiman (2014), Piketty and Zucman (2014) and Grossman et al (2017) all point to a sizeable loss in labour income, relative to capital income. What is more, their findings indicate that the phenomenon is rather global.[29] Karabarbounis and Neiman (2014), for instance, identify a negative trend in labour's share in more than 70% of countries. These include China, France, Germany, Japan and the United States. Their analysis concludes that the fall was mostly due to the dynamics within industries, rather than to changes in the relative importance of industries.

There is far less agreement as to what the key mechanisms driving this broad fall in the labour share might be. Possible factors include production offshoring (Elsby (2013)), a secular decline in the relative price of capital goods (Karababournis and Neiman (2014)), automation (Acemoğlu and Restrepo (2016)) and the emergence of

[27] For instance, Jenkins (1995) found that UK wage inequality declined during the 1970s. Gosling and Machin (1995) concluded that some of the increase in earnings inequality in industries thereafter was linked to lower trade union recognition.

[28] Checchi and Garcia Peñalosa (2010) conclude that a 5 percentage point increase in the labour share in OECD countries would reduce their income Gini by 3.5 percentage points.

[29] On the last point, Cette et al (2019) hinted at measurement issues that might weaken this pattern outside the United States.

"superstar firms" (Autor et al (2020), Kehring and Vincent (2017)). Some of these mechanisms may reinforce each other.

The rise of income inequality went hand in hand with more meagre wage gains — Graph II.11

Real wages lagged behind labour productivity[1]

Productivity gains factor less into wages

Sample of countries used for the estimations: AU, BE, CA, DE, DK, ES, FR, GB, IE, IT, JP, NL, SE and US.

[1] Simple average. [2] Real compensation (deflated by GDP deflator) per total hours worked. [3] Real GDP per total hours worked. [4] Estimate of the coefficient on labour productivity growth in a wage Phillips curve. The estimate is based on a panel regression of compensation per total hours worked (y-o-y change) on lagged real GDP per total hours worked (y-o-y change, four-quarter moving average), lagged core inflation (annualised q-o-q change, four-quarter moving average), the unemployment gap and time and country fixed effects. Based on rolling estimates on windows of 20 years (the time scale matches the last quarter in the rolling sample), for the period of Q1 1970–Q4 2018. [5] Based on robust standard errors, clustered at the country level.

Sources: OECD; BIS calculations.

Taking a longer-term perspective, Grossman et al (2017) added to the debate by enhancing the standard neoclassical growth model with capital-skill complementarity to show that declining global productivity growth and a falling share of labour go hand in hand. Furthermore, a recent study by Acemoğlu and Restrepo (2019), which is based on a detailed analysis of data for the United States, concludes that a significant shift in the task content of production was responsible for a 10% reduction in the demand for labour since the mid-1980s. They find that, while the pace of introducing labour-reinstating technologies has fallen, there has been an acceleration of displacement. This adverse effect for labour is particularly evident in the manufacturing sector, where the labour share has fallen most.

In any case, what is clear is that since the mid-1980s, a clear wedge has opened between labour productivity gains and real wage increases. While labour productivity in advanced economies have grown by 80% since 1980, real wages have risen by only 60% (Graph II.11, left-hand panel). In other words, workers have been unable to retain their share of aggregate income.

The flattening of the Phillips curve

The erosion of the workers' share of income is further confirmed by a more systematic sensitivity analysis, which shows that real wages in most advanced economies have become unresponsive to labour productivity gains (Graph II.11, right-hand panel). While up to 2010, about 30% of productivity gains ended up in the form of higher

nominal wages, this ratio has plummeted recently – even to the point where it has become statistically indistinguishable from zero.

Weaker bargaining power in wage negotiations means that workers earn less and less of the surplus generated by their employment. One possible mechanism through which this may flatten the Phillips curve[30] is that of firms' incentives to hire new employees – ie to adjust their labour input on the extensive vs the intensive margin. When workers' bargaining power is weak, firms secure more of the surplus generated by a new hire, and so they have a greater incentive to hire more people – adjusting the extensive margin – to meet increasing demand. This is even more the case when reduced bargaining power makes it easier to lay off employees if demand falls. By contrast, when workers' bargaining power is stronger, a new employment relationship is less valuable and more burdensome for firms, which may then resort to overtime to tackle strong demand – ie adjust the intensive margin. As overtime is typically more expensive – employees are paid more – compensation is more sensitive to the business cycle when workers' bargaining power is strong, and so too are firms' marginal costs, and hence their pricing decisions.

Interestingly, the evolution of the bargaining power of workers and its influence on the slope of the Phillips curve may have also resulted from the ageing of baby-boomers.[31] Mojon and Ragot (2020) and the Bank of Japan (2019) both find evidence that the increasing participation of older workers in the labour market has reduced the slope of the Phillips curve. For one, the ageing of workers has been a rather striking phenomenon. Across the OECD, the participation of workers above 55 in the labour market has increased from 33% in 1996 to 55% in 2016. In the euro area, 6 million of the 7 million jobs created between 2013 and 2017 were filled by those aged above 50. In the United States, the share of workers in the workforce aged above 55 has almost doubled from 12% in 1995 to 23% in 2016. In Japan, even the participation of workers aged above 65 has increased by nearly 4 million since 2007.

A Bank of Japan (2018) study also shows that the wage elasticity of the labour supply is twice as high for the elderly as for men aged 15–64. This in turn helps to explain why Japanese wages have stagnated in spite of the steady decline of the unemployment rate. This overall negative effect of greater participation by older workers on wage inflation in the period is consistent with estimates reported by Mojon and Ragot (2020) in both a cross section of OECD countries and across over 200 regions of the euro area. A higher participation rate for workers above 55 lowers the response of wages to changes in the unemployment rate. This is consistent with the declining bargaining power of workers, but could also be explained by different preferences among older workers, for instance concerning work time and leisure. Both could imply that employers would rather adjust their number of employees (the extensive margin) than the level of wages (the intensive margin). All in all, a reduction in workers' bargaining power points to a flattening of the Phillips curves – both for prices and for wages.

The fact that employee compensation has become less sensitive to cyclical conditions – which include labour market slack – implies that wage gains remain

[30] See Lombardi et al (2020) for a detailed discussion in the context of a general equilibrium model with a wage bargaining mechanism between firms and workers.

[31] The role of demography on labour markets and inflation has received more attention recently in Goodhart and Pradhan (2020). The authors argue that, after the baby boomers retire, we should anticipate an end to the excess supply of savings and labour that has pushed down real rates and inflation. Thus, we should expect a pickup in real rates and inflation at some point in the next 20 years.

subdued and contribute little to reducing inequality even during upswings. Indeed, a striking feature of pre-Covid growth was that real wage gains in advanced economies were very modest. The reduction in workers' bargaining power is broadly compatible with the widely documented decline of trade unions and growing international contestability in a globalised labour market.

What are the macroeconomic effects of lasting inequality?

In Section II.2, we briefly outlined the trend of increasing inequality and its main secular drivers. In Section II.3, we noted that the Covid-19 recession is best analysed by taking the bifurcation of modern economies into consideration, given the starkly different economic responses of richer and poorer households. Section II.4 presented estimates point towards an "inequality hysteresis" – ie that recessions have a persistent adverse effect on income inequality. We now assess whether this lasting income inequality itself influences the business cycle. Indeed, besides adverse political and social implications, another reason to monitor inequality is that it may also have material macroeconomic reverberations. More unequal countries and regions could, for instance, experience different degrees of recession.[32]

Whether lasting inequality is damaging from a macroeconomic viewpoint is ultimately an empirical question. We test this hypothesis on a broad panel of 91 countries for which data are available.[33] More specifically, we test how aggregate consumption per capita evolves in the aftermath of an economic recession, conditioning on the level of inequality in each country at a given time. We also include fixed effects, to control for unobserved differences between countries. What we find is that, internationally, more unequal countries experience larger declines in private consumption when the business cycle turns. A country at the 90th percentile of the post-tax inequality distribution (ie a very unequal country) sees consumption fall by 3 percentage points more than a country at the 10th percentile (a country in which social equity prevails) (Graph II.12, left-hand panel). In other words, the cost of a more unequal society is exposed during times of economic stress. And it is a very substantial effect from a macroeconomic point of view.

Another illustration comes from the within-country variation during the GFC. Declines in private consumption in the United States during the GFC were significantly larger in states with higher income inequality. (Graph II.12, right-hand panel). Even after controlling for the change in state unemployment and in house prices between 2007 and 2009, the share of income of the top 10% still explains 26% of the variation in consumption growth across states.

Second, as we shall show in Chapter IV, greater income inequality may erode monetary policy effectiveness. Stimulative policies have less of an effect when income is not in the hands of those who would more naturally tend to spend it.

All in all, we have suggested in this chapter that we need to update the vast body of literature that relates inequality to long-term trends in the economy and society.

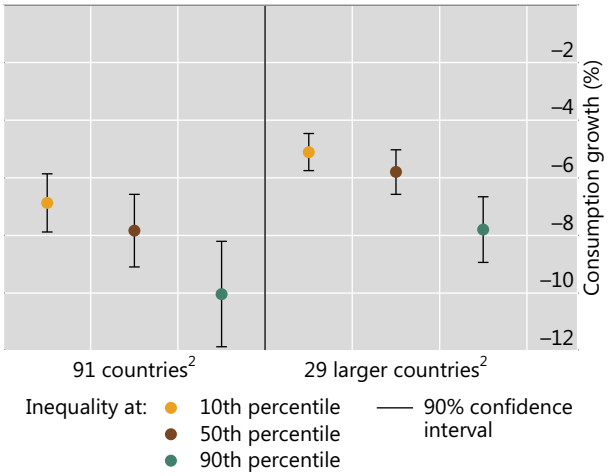
[32] We are not, of course, the first to assess the effects of inequality on growth outcomes. Ostry et al (2014) find that less net inequality drives faster and more durable growth. Earlier, Stiglitz (2012) discussed a variety of channels through which inequality affects economic fluctuations. See also Atkinson (2015).

[33] See also Kohlscheen et al (2021).

This knowledge underlines the importance of long-term structural policies to reduce inequality. What we find here is that inequality also has short-term policy implications. Stabilisation policies have been quite successful when designed around metrics that look at averages and representative agents, even if they have not necessarily paid attention to inequality and the heterogeneity of economic agents. If we want to put the recovery on a stronger footing, policymakers might need to consider the "hysteresis" of inequality too, a topic we address in Chapter V. For now, it appears increasingly costly to disregard developments in income inequality in recoveries, especially from large shocks such as Covid-19. The next chapter discusses how fiscal policy, and tax progressivity in particular, are crucial for keeping inequality in check. Chapter IV then examines how inequality might affect the conduct of monetary policy.

The cost of income inequality: steeper declines in private consumption — Graph II.12

Recessions in more unequal countries lead to steeper declines in consumption[1]



More unequal US states saw steeper declines in consumption during the GFC[3]

[1] Estimated declines in real per capita private consumption during a recession at the specified percentile of income inequality. Recessions are defined as a year of negative real GDP growth and the share of income of the top 10% is taken as the indicator of income inequality. Estimates are based on a dynamic panel specification that includes fixed country and time effects. Specifically, real per capita private consumption growth is regressed on its lag, a recession indicator, the share of income held by the top 10% and the interaction between the latter two variables. The sample period is 1972 to 2019. The all-countries sample contains 129 countries and the global economy meeting sample contains the 43 countries that participate in the meeting. [2] Among AEs and EMEs. [3] Partial correlation between state-level per capita consumption growth between 2007 and 2009 and the pre-GFC state-level income shares of the top 10% earners. The y-axis shows the residuals from the cross-sectional regression of per-capita consumption growth between 2007 and 2009 on the change in unemployment and the growth in house prices over the same period; the x-axis shows the residuals from the cross-sectional regression of income shares of the top 10% of earners in 2006 on the change in unemployment and the growth in house prices over the 2007–09 period.

Sources: Bureau of Economic Analysis; BIS calculations.

Chapter III: Inequality, fiscal redistribution and macro stabilisation

Introduction

A wide range of factors accounts for the steady rise in inequality in both advanced (AEs) and emerging market economies (EMEs) over the last 40 years. These include secular forces such as globalisation and technology (see Chapter II) outside the direct perimeter of macroeconomic stabilisation policies. In addition, hysteresis over the business cycle has meant that income inequality has increased to new and higher levels following recessions. This has proved difficult to reverse in subsequent expansions, creating a ratchet effect and increasingly turning business cycle downturns into events that worsen inequality, as described above.

Fiscal policy can deploy an array of instruments that can heavily affect inequality. An indication of the power of fiscal policy in shaping the income distribution is the difference between pre- and post-tax and transfer income inequality. In all countries, the post-tax and transfer Gini index for inequality is significantly lower – about 40% lower on average across AEs and 20% lower across EMEs – than the pre-tax and transfer Gini index for inequality (Graph III.1, left-hand panel).[34] Taxes and transfers redistribute income from high- to low-income households, thereby reducing inequality. Similarly, in many countries, the pass-through is very low from the pre-tax and transfer Gini index for inequality to the post-tax and transfer Gini index for inequality (Graph III.1, right-hand panel).[35] This means that inequality after taxes and transfers typically barely responds to changes in pre-tax and transfer inequality. In other words, these low-sensitivity estimates confirm that fiscal policy can to a very large extent neutralise changes in pre-tax and transfer inequality.

Changing paradigms in fiscal policy have, however, helped to reduce redistribution, with possibly adverse consequences for inequality.[36] Two important blocks of fiscal policy can illustrate this trend: personal income taxation and unemployment insurance.[37] Both have undergone major changes over the last 20 years. On personal income, governments have generally reduced tax burdens. Both high and low-income households now face lower tax rates than 20 years ago. But in the meantime, governments have also made personal income taxation less progressive, meaning that taxes on high-income households have fallen more quickly

[34] At one end, Finland and Belgium have the largest pre- and post-tax and transfer inequality gap, the latter being about 50–55% of the former. At the other end, Korea and Switzerland have the smallest gap, post-tax and transfer inequality being respectively 90% and 80% of pre-tax and transfer inequality.

[35] Interestingly, Norway and Korea, the two countries with the highest pass-through estimates (right-hand panel), are also the two countries with the lowest pre-tax and transfer Gini index (left-hand panel).

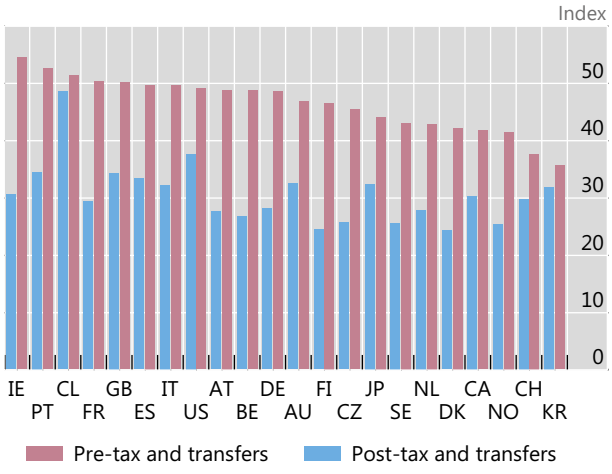
[36] See Berg et al (2018) for how the increase in inequality has, in fact, been a political choice and a discussion of policies to achieve a more inclusive economy. See Blanchard and Rodrik (2021) on how inequality affects productivity and growth.

[37] In most countries, the public sector provides insurance against unemployment risk. In some, the insurance is not directly run by the government, but surpluses and deficits of the unemployment insurance fund are included in the general government accounts.

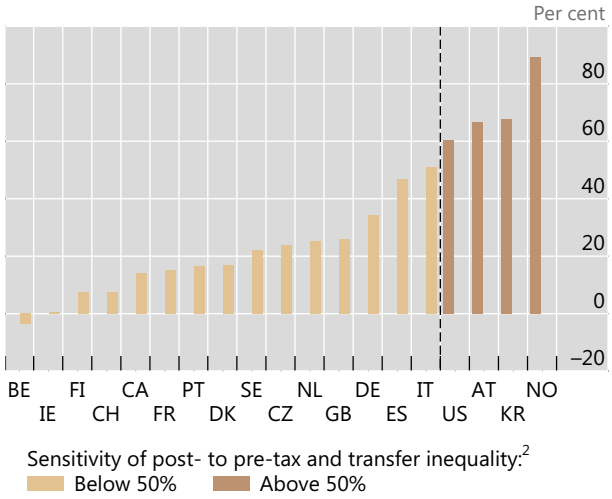
than taxes on low-income households.[38] Turning to insurance against unemployment risk, replacement ratios have been significantly reduced over the last 20 years, particularly for longer unemployment durations.[39] Periods of unemployment therefore imply larger revenue losses, especially when unemployment spells tend to last longer.

Fiscal policy can significantly limit inequality — Graph III.1

Taxes and transfers reduce Gini inequality levels[1]



In many countries, taxes and transfers significantly dampen fluctuations in Gini inequality



[1] Gini indices are computed as simple averages over 2004–18, except for CH, CL, DE, DK, ES, FR (2005–18), IE (2004–17), IT (2006–17), JP (2006–15), KR (2006–18), NL (2005–16) and US (2005–17). [2] Sensitivity is the coefficient on pre-tax and transfer Gini index in country-level regressions of post-tax and transfer Gini on its one-year lagged value, a constant and pre-tax and transfer Gini index.

Sources: OECD; author's calculations.

Unsurprisingly, tax progressivity (the extent to which higher-income households face higher tax rates) and the degree of insurance against unemployment risks (the extent to which the income of the unemployed is maintained) both show a tight negative correlation with inequality. Based on a sample of 22 countries between 2001 to 2019, higher tax progressivity is systematically associated with lower levels of inequality (Graph III.2, left-hand panel), as measured by the Gini coefficient and the income of the 10% richest relative to the median. Most likely, this is because high tax progressivity narrows the after-tax distribution of income, by imposing a larger tax burden on high-income earners. Interestingly the correlation between inequality and the average or median level of tax burdens is much weaker – about half the correlations with tax progressivity – irrespective of the specific measure (Gini index or 10% richest income relative to the median). It is therefore the distribution, much more than the level, of tax burdens on the population that seems to matter for inequality.

Turning to unemployment insurance, based on the same sample of 22 countries spanning data from 2001 to 2019, the replacement ratio and inequality measures are significantly and negatively correlated.[40] Hence whenever unemployment insurance

[38] The methodology used to estimate tax progressivity is detailed in Appendix A1. For a discussion of these policy changes, see Saez and Zucman (2019).

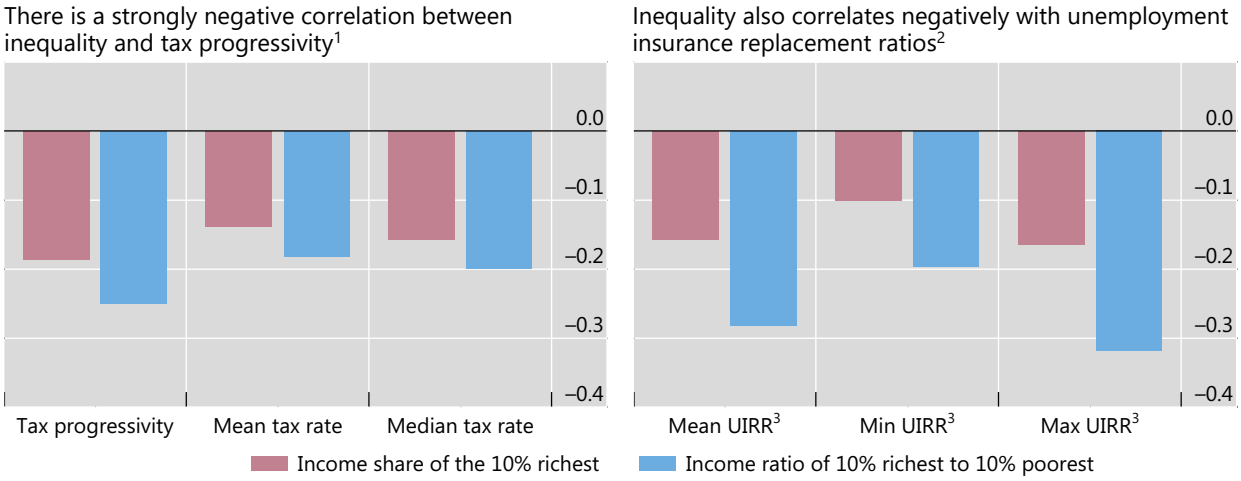
[39] Replacement ratios measure a person's income when unemployed relative to their last income when still on the job.

[40] Replacement ratios correspond to unemployment durations ranging between 12 and 18 months.

offers higher replacement ratios, income inequality tends to be lower, this being particularly true for inequality at the bottom of the income distribution (right-hand panel). The probable reason is that many households who lose their jobs suffer a material drop in income. As a result, the low end of the income distribution features a higher share of unemployed. Hence, a high unemployment insurance replacement ratio limits the drop in income for many households at the bottom of the income distribution, reducing inequality. Similarly, higher unemployment insurance replacement ratios, insofar as they are matched with higher unemployment insurance contributions, would act to reduce the revenues of households who are employed. This also acts to reduce inequality as these households are more likely to earn higher revenues, especially relative to the unemployed.

Higher redistribution goes hand-in-hand with lower inequality

Correlation coefficients — Graph III.2



[1] Semi-elasticity of average personal income tax rate to personal income estimated for each country and year. Average personal income tax rates are computed using marginal tax rates and personal income brackets for personal income running from 4% to 400% of GDP per capita. Mean (median) of average personal income tax rates. [2] Mean, minimum and maximum of the replacement ratio for each country and year in the sample of replacement ratios for unemployed persons with unemployment duration ranging between 12 and 18 months. [3] UIRR = unemployment insurance replacement rate.

Sources: OECD; World Bank; author's calculations.

Reduced redistribution through less progressive taxes and lower unemployment insurance replacement ratios has had important macroeconomic implications, not least for fiscal policy, that we propose to investigate in this chapter.

In a nutshell, reduced redistribution has been a driving force behind the weakening of fiscal automatic stabilisers. This has made fiscal policy less countercyclical and hence less capable of cushioning fluctuations in economic activity. In practice, this has meant that governments have run lower surpluses during expansions. By contrast, weaker redistribution has not affected the deficits run during recessions. As a result, the pace of public debt accumulation has increased, as expansion phases have not allowed governments to replenish fiscal buffers.

This rest of the chapter develops these points in more detail. It first sets out stylised facts about the evolution of taxation and unemployment insurance in OECD economies over the last 20 years. Second, it investigates how the cyclical properties of fiscal policies have changed over in that period. Last, the chapter assesses the impact of tax progressivity and unemployment insurance across different phases of

the business cycle, highlighting the asymmetry between expansions and recessions. Then, via simulations, the chapter derives implications for the path of public debt under different tax progressivity and unemployment insurance parameters. In conclusion, the chapter draws broader conclusions on the optimal policy mix for stabilisation and growth.

Structural changes in fiscal policy: less progressive taxes and weaker insurance against unemployment risk

Macroeconomists who analyse the stabilisation properties of fiscal policy usually focus on fiscal deficits, public debt, or the size of the government in the economy as proxied by fiscal revenues or expenditures in relation to GDP.[41] While these are all important elements to look at, especially when considering questions related to the fiscal sustainability, we propose to expand the analysis to fiscal variables that are usually associated with the redistribution function of fiscal policy.

Personal income taxation, for instance, has changed considerably over the last 20 years.[42] First, looking at averages across countries, personal income tax rates have dropped from the early 2000s for about a decade from 25% to 21%, before starting a slow recovery in the wake of the European debt crisis that brought tax rates back to 23% on average in 2019 (Graph III.3, left-hand panel, blue line). In addition, household taxation has become steadily less progressive.[43] To give a sense of the magnitudes involved, consider a high-income household earning five times the median income. Then the average tax rate applied to this household has dropped about 10 percentage points over the last two decades relative to the average tax rate applied to a median-earner household. Interestingly, the evolution of the tax progressivity distribution across countries shows that tax progressivity has fallen particularly in countries where tax systems were highly progressive, as the drop in the upper whisker illustrates (right-hand panel). By contrast, the fall in the group of countries whose progressivity is in the middle, neither high nor low, has been much more limited, as reflected by the stable median. The drop in tax progressivity therefore reflects a convergence of countries on the least progressive tax systems, not a broad shift with all countries cutting tax progressivity.[44]

In parallel to the changes in tax schemes, unemployment insurance has also evolved considerably.[45] This is most visible in replacement rates, which measure the income that an unemployed person would receive in relation to their income in their previous occupation. Comparing replacement rates in 2001 with those in 2019 shows a significant drop for unemployment durations of 18 months and above (Graph III.4, left-hand panel). While they have been broadly stable for shorter durations, replacement ratios for longer durations have fallen dramatically. The average rate

41 See for instance Blanchard and Perotti (2002) or Fatas and Mihov (2012).

42 We will use household and personal income taxation interchangeably in what follows.

43 Appendix A.1 presents the methodology used to estimate tax progressivity.

44 See Piketty and Saez (2007) for historical and cross-country complementary evidence on the drop in tax progressivity.

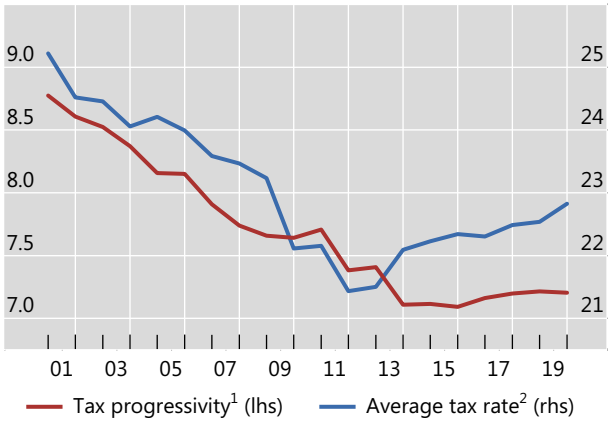
45 Unemployment insurance shows up in both fiscal expenditures and revenues. Payments to the unemployed are typically counted as public expenditures while contributions that fund unemployment insurance are counted as revenues from social contributions.

dropped by about 10 percentage points on average (right-hand panel), from 40 to 30 percentage points, while the median replacement rate dropped by 17 percentage points, from 42% in 2001 to 25% in 2019. This latter figure means that, for the most recent period, in half the countries we look at, people unemployed for more than a year and a half, received unemployment benefits amounting to less than a quarter of their income in their last paid jobs (right-hand panel).

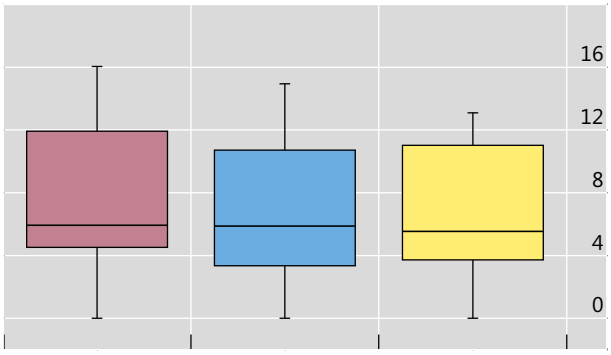
Tax progressivity has been steadily falling in AEs

In per cent — Graph III.3

Cross-country average tax progressivity close to historical lows while tax burden recovering since 2011



Most tax-progressive countries drive the overall fall in personal income tax progressivity



Country sample: AT, AU, BE, CA, CH, DE, DK, EE, ES, FI, FR, GB, GR, IE, IS, IT, JP, LT, LU, NL, NO, NZ, PL, PT, SE and US.

[1] Tax progressivity is estimated for each country and year as the semi-elasticity of average personal income tax rate to personal income. Average personal income tax rates are computed based on marginal tax rates for different income brackets for 100 hypothetical personal incomes, from 4% to 400% of GDP per capita with a 4 percentage point increment. [2] Average tax rate is the mean across countries of average personal income tax rates, averaged over the 100 hypothetical personal incomes.

Sources: OECD; author's calculations.

Changes in tax progressivity and unemployment insurance are the outcome of several forces. A key factor that has pushed governments to reduce tax progressivity and unemployment insurance is the view that high progressivity and broad unemployment insurance can erode work incentives, thereby harming the whole economy.[46] In addition, when labour is mobile across countries, governments may want to reduce tax progressivity, hoping this will help attract or at least retain the most productive workers, expanding the overall tax base.

High as well as progressive taxes have indeed been shown to reduce the incentives to take better jobs (Gentry and Hubbard (2004)), while skills-biased technical change, ie technical change that preferentially benefits highly skilled workers, typically calls for lower tax progressivity (Heathcote et al (2020)). On the other hand, tax progressivity can usefully substitute for missing credit and insurance markets despite redistribution-induced distortions (Benabou (2003)). In addition, tax progressivity – as well as unemployment insurance – can help to stabilise inefficient business cycles (McKay and Reis (2016, 2020), with significant welfare benefits when monetary policy is constrained by the zero-lower bound. Finally, Berg et al (2018)

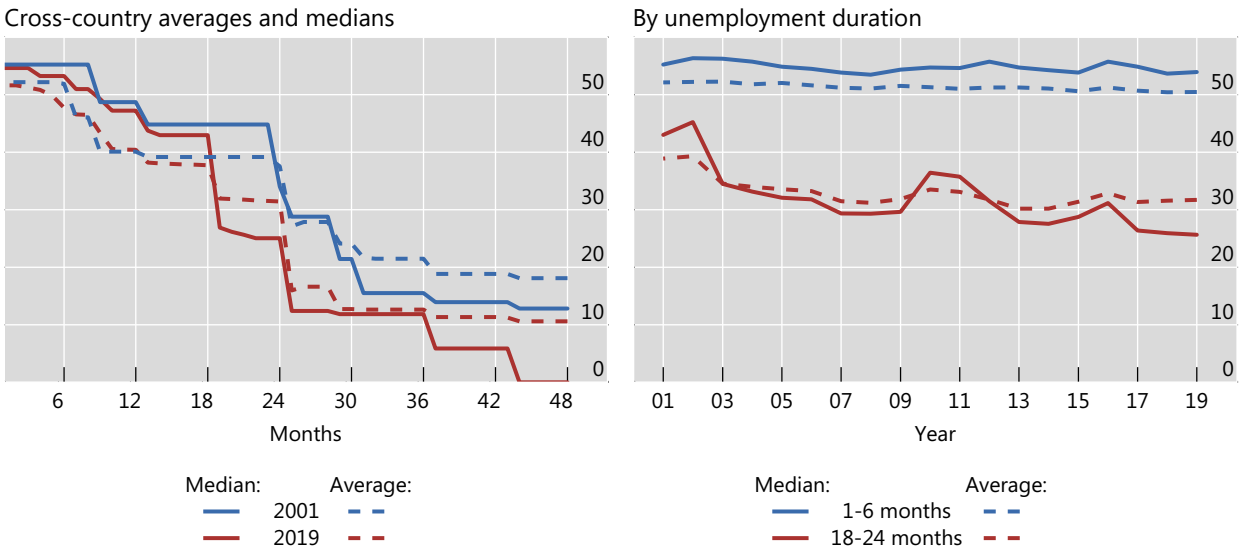
[46] Saez and Zucman (2019) argue, for instance, that the drop in capital taxation mainly relates to a change in politics and ideology.

show that lower levels of post-tax and transfer inequality are robustly correlated with faster and more durable growth.[47]

Unemployment replacement rate[1]

In per cent

Graph III.4



Country sample: AU, BE, CA, CH, DE, DK, ES, FI, FR, GB, IT, JP, NL, NO, NZ, PT, SE and US.

[1] Cross-country average and median across six different family statuses (single w/o children, couple without children and partner in/out of work, couple with children and partner in/out of work).

Sources: OECD; author's calculations.

On unemployment insurance, there is a widely held view that high replacement ratios, particularly for longer unemployment durations, discourage the unemployed from taking jobs, thereby reducing the labour supply and possibly leading to adverse effects through unemployment hysteresis. For instance, Meyer (1990) provides evidence showing that higher unemployment insurance benefits typically reduce the likelihood of recipients leaving unemployment. Likewise, the rise in the number of people exiting unemployment around the end of unemployment insurance benefits (Moffit (1985)) has long been considered as evidence for the distortions that social insurance schemes introduce in labour supply decisions (Feldstein (2005)).[48] More recently, Johnston and Mas (2018) provide evidence that a cut in the duration of unemployment insurance leads to a significant reduction in non-employment spells, even in periods of high unemployment. From a normative standpoint, Mitman et al (2015) even argue that optimal unemployment insurance should be procyclical over

[47] On the determinants of tax progressivity, Lyon and Waugh (2018) argue that tax progressivity should increase with openness to trade while Chunzan (2021) shows that an ageing population and high interest rates typically imply less progressive taxes.

[48] Card et al (2007) have challenged this evidence, claiming that the observed spike corresponds rather to people leaving unemployment for administrative reasons as exhausted benefits imply a mechanical exit from the category of the unemployed. Schmieder et al (2012) also dispute the idea that unemployment insurance creates moral hazard, using data from Germany over a 20-year period.

long time horizons, ie that a higher unemployment rate should lead to a cut in unemployment insurance benefits.[49]

Finally, there was a belief (up to the GFC) that, with limited aggregate fluctuations – the so-called Great Moderation – the focus of fiscal policy should not be macroeconomic stabilisation, a task left to monetary policy, but rather reducing distortions in the economy, implementing pro-growth structural policies and ensuring that public debt remains safe and low.[50] The occurrence within a decade of two major recessions (the Great Recession and the Covid recession) has, however, prompted a major rethink of the respective role of fiscal and monetary policies in macroeconomic stabilisation, particularly since the GFC (Blanchard and Summers (2020)).

To wrap up, advanced economies have experienced a steady rise in income inequality over the last decades. In the meantime, fiscal policy has become noticeably less redistributive, as illustrated by falling tax progressivity and unemployment insurance replacement rates. While reduced redistribution has probably contributed to rising inequality, the consequences have likely been wider, notably for the macroeconomic stabilisation properties of fiscal policy. This is what we investigate in the next section.

Tax progressivity, unemployment insurance and fiscal policy cyclicality?

Fiscal policy cyclicality

While the steady increase in public debt in most AEs over the last 20 years has received considerable attention, it is less well known that in the meantime fiscal policy has become significantly less stabilising. Estimates of the sensitivity of the total and the primary fiscal balance – expressed as a share of potential GDP – to the output gap indeed show a gradual downwards trend, reaching a trough after the GFC and recovering only modestly since (Graph III.5, left-hand panel).[51] In the early 2000s, a 1 percentage point increase in the output gap used to translate into a 0.5 percentage point of GDP increase in the total fiscal balance. Any increase in economic growth would therefore reduce fiscal deficits or increase the fiscal balance considerably. But more recently, a similar 1 percentage point increase in the output gap would increase fiscal balances only by 0.1 percentage point of GDP, an 80% drop relative to the early 2000s.

If anything, the primary fiscal balance, which better captures the stance of fiscal policy, shows a very similar pattern (Graph III.5, right-hand panel). The primary balance countercyclicality also dropped significantly for a decade starting in the early 2000s. In addition, the drop in countercyclicality was actually stronger as estimates show that fiscal policy turned significantly procyclical during the European sovereign

[49] The intuition for this result is that a rise in unemployment raises the *social* not the *private* gains from posting vacancies. The generosity of unemployment insurance therefore falls in the long run, in response to a rise in unemployment.

[50] Kirsanova et al (2009) provide a discussion of this consensus assignment and its possible limitations.

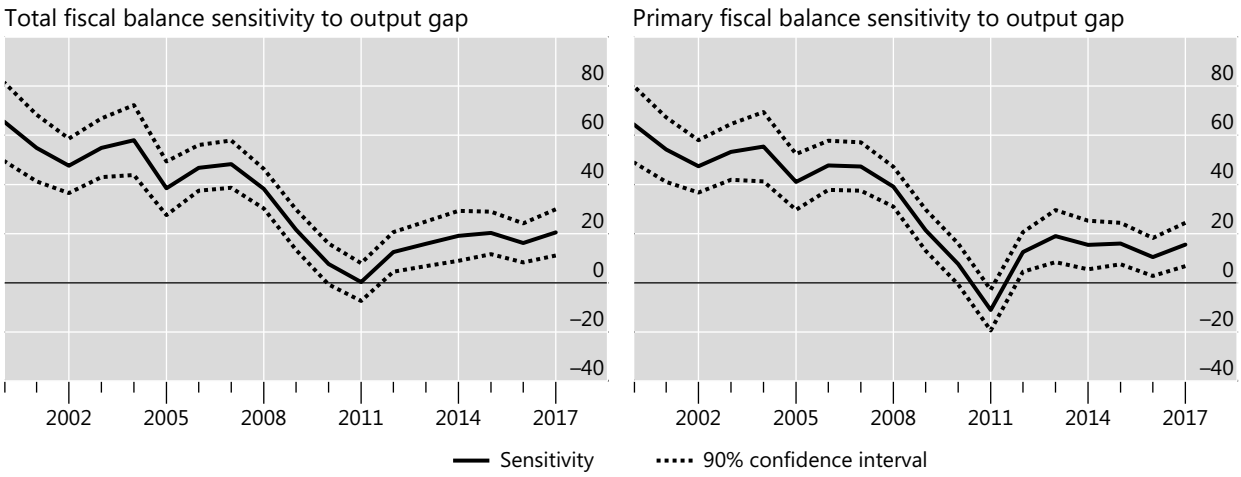
[51] Time-varying sensitivities are estimated based on rolling-window regressions, centred on the year for which the estimates are reported See Appendix A.2 for more details.

debt crisis. More recently, the level and the evolution of the primary balance sensitivity has been very similar to that of the total balance.[52]

Fiscal policy became less stabilising in AEs[1]

In per cent

Graph III.5



Country sample: AT, AU, BE, CA, CH, DE; DK, ES, FI, FR, GB, IE, IS, IT, JP, KR, NL, NZ, NO, PT, SE and US. Reference period: 2001–19.

[1] Total (primary) fiscal balance sensitivity to output gap is the coefficient on the output gap in a cross-country panel regression where total (primary) fiscal balance to potential GDP is regressed on its one-year lagged value, the one-year lagged public debt to potential GDP and the current output gap, controlling for country and time fixed effects. See Appendix 2 for details of the econometric methodology.

Sources: OECD; author's calculations.

The question we investigate below is to what extent the reduction in fiscal policy countercyclicality is related to the changes in tax progressivity and unemployment insurance.

Tax progressivity

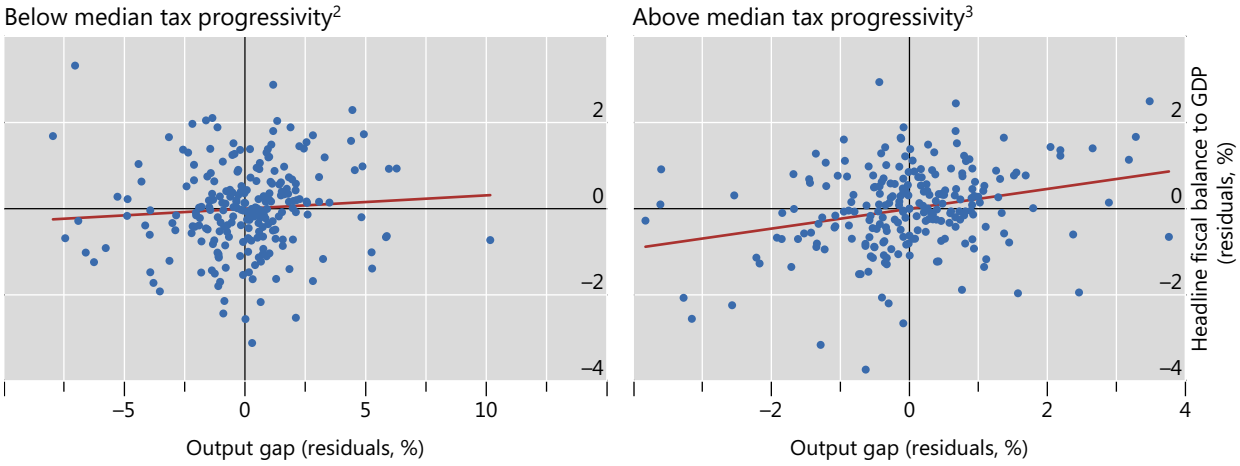
When taxes are progressive, marginal tax rates increase with income so that higher-income households face higher average tax rates than lower-income households. Applying this logic to the business cycle, where household income is relatively high in expansions but relatively low in recessions, means that the government is imposing higher tax rates in expansions than in recessions, and the more so, the higher the progressivity of taxes. In other words, government taxation revenues tend to increase faster with the pace of growth when taxes are more progressive. Everything else constant, fiscal policy is therefore more countercyclical when taxes are more progressive, because the fiscal surplus is larger in expansions and the fiscal deficit is larger in recessions.

Applying this intuition to the data, the fiscal balance should be more sensitive to the business cycle in countries/periods where taxes are more progressive. Based on a panel of AEs for the last 20 years, the evidence confirms this view. A simple test shows that in country-years where tax progressivity was relatively low, the fiscal balance was

[52] In EMEs, however, fiscal policy has moved in an opposite direction. In the early 2000s, fiscal policy was significantly procyclical. But following the GFC, fiscal policy turned countercyclical. Things have, however, deteriorated since, as fiscal policy has turned roughly acyclical, meaning that the fiscal balance is broadly unresponsive to output gap fluctuations.

basically acyclical as the sensitivity to the output gap was essentially zero (Graph III.6, left-hand panel). By contrast, in country-years where tax progressivity was relatively high, the fiscal balance was significantly countercyclical as the sensitivity to the output gap was positive and significant (right-hand panel). In this case, a one standard deviation reduction in the output gap – about 4 percentage points – translates into an increase or decrease in the fiscal deficit (surplus) of about 1 percentage point of potential GDP.

Progressive taxes make fiscal policy countercyclical[1] Graph III.6



Country sample: AT, AU, BE, CA, CH, DE; DK, ES, FI, FR, GB, IE, IS, IT, JP, KR, NL, NZ, NO, PT, SE and US. Estimation period: 2001–19.

[1] Correlation between the headline fiscal balance to potential GDP and the current output gap, controlling for one-year lagged public debt, one-year lagged headline fiscal balance to potential GDP, and country and time effects. See Appendix 2 for details of the econometric methodology. [2] Data sample restricted to country-year observations where tax progressivity is below the full sample median. [3] Data sample restricted to country-year observations where tax progressivity is above the full sample median.

Sources: OECD; author's calculations.

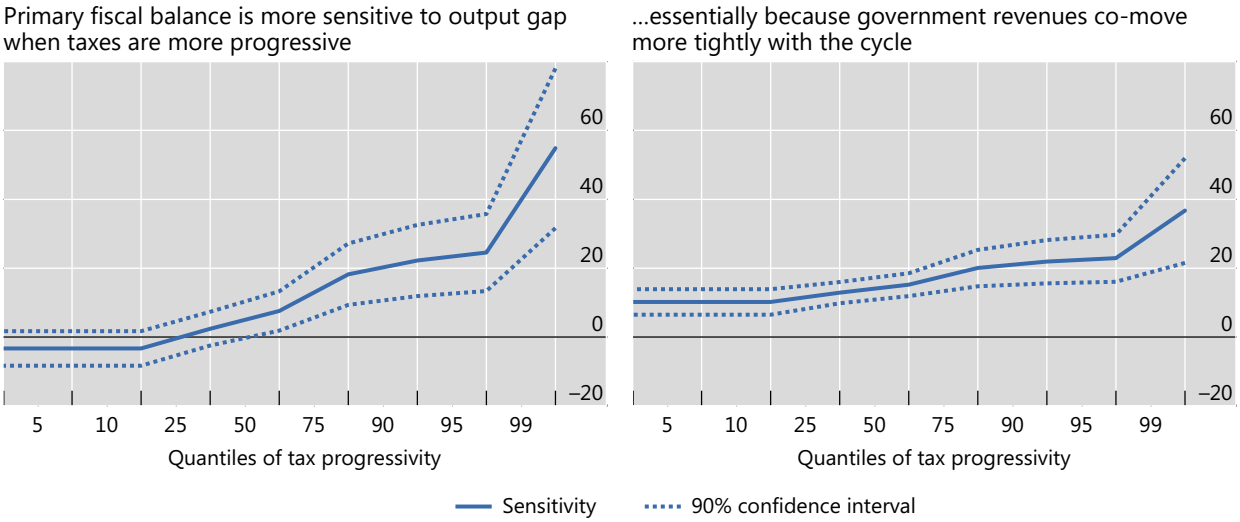
Interestingly, running a similar exercise with the average or median tax rate shows no similar difference. The fiscal balance does not seem to be either more or less sensitive to the business cycle when the average (median) tax rate is relatively low or relatively high. In other words, the progressivity, not the level, of taxes is what affects the cyclical pattern of fiscal policy.

Importantly, the positive relationship between tax progressivity and fiscal policy countercyclicality also holds when considering the primary balance, which excludes interest payments and revenues, and hence provides a complementary measure of the fiscal policy stance (Graph III.7, left-hand panel). In addition, as would be expected, high progressivity raises the fiscal balance countercyclicality essentially by tightening the co-movement of fiscal revenues with the cycle (right-hand panel). For instance, fiscal revenues are roughly twice as sensitive to the business cycle when tax progressivity is relatively high – looking at the 25% of observations with the highest progressivity of taxes – than when it is relatively low. By contrast, and consistent with a simple intuition, tax progressivity does not seem to have any meaningful impact on the sensitivity of fiscal expenditures to the cycle.

Progressivity turns fiscal policy countercyclical through its impact on revenues[1]

In per cent

Graph III.7



Country sample: AT, AU, BE, CA, CH, DE; DK, ES, FI, FR, GB, IE, IS, IT, JP, KR, NL, NZ, NO, PT, SE and US. Reference period: 2001–19.

[1] Sensitivity of primary fiscal balance (government revenues) to the output gap is estimated in a cross-country panel regression where the primary fiscal balance (government revenues) to potential GDP is regressed on its one-year lagged value, the one-year lagged public debt to potential GDP, the one-year lagged tax progressivity, the current output gap and the interaction between the current output gap and the lagged tax progressivity, controlling for country and time fixed effects. The sensitivity of the primary fiscal balance (government revenues) to the output gap is evaluated for different values of tax progressivity using the estimated coefficients on the output gap and the interaction between the output gap and tax progressivity. See Appendix 2 for details of the econometric methodology.

Sources: OECD; author's calculations.

Unemployment insurance

Unemployment insurance consists of providing an income to those who have lost their jobs, funded by contributions raised on the income of those holding a job. This type of insurance has two aspects. One is cross-sectional: at any given point in time, contributions from the employed fund the benefits going to the unemployed. Another is intertemporal: in expansions, unemployment insurance tends to run surpluses as many people hold a job and therefore pay contributions while the pool of unemployed who receive benefits is limited. By contrast in recessions, unemployment insurance tends to run deficits as contributions from the pool of people on the job tend to shrink while the number of people unemployed who are eligible for unemployment benefits tends to expand.

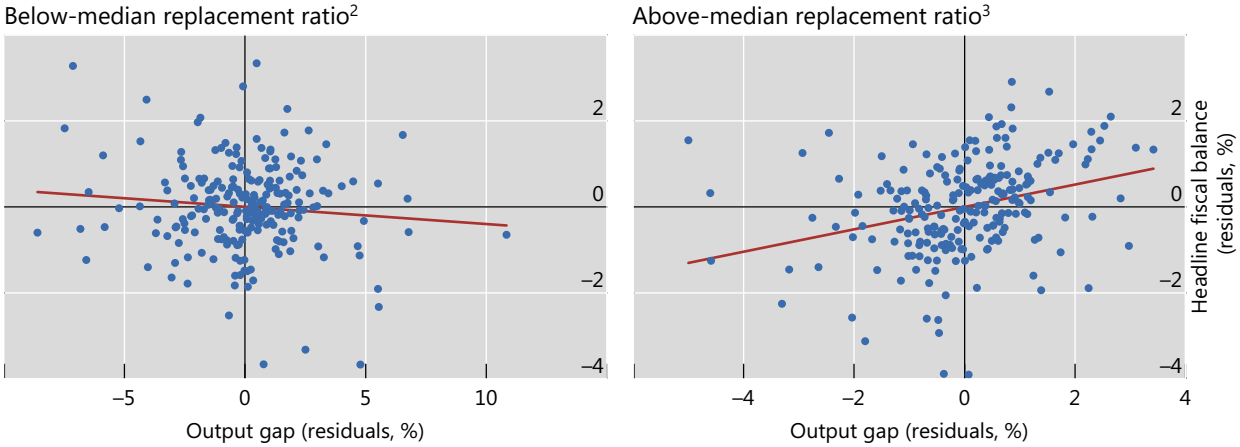
The intertemporal dimension embedded in unemployment insurance schemes suggests that, wherever unemployment insurance coverage is broader, fiscal policy should be more countercyclical in the sense that the fiscal balance should move more closely with the cycle, with larger surpluses in expansions, and larger deficits in recessions.[53] Moreover, given that unemployment insurance funds need to balance their budgets over the cycle, high replacement ratios must go hand in hand with high contributions. As a result, wider unemployment insurance could affect both fiscal expenditures, as higher replacement ratios imply higher disbursements, and fiscal

[53] To be more specific, unemployment insurance replacement ratios should affect how the fiscal balance responds to fluctuations in (un)employment. For simplicity, we overlook this difference and assume here that output and employment gaps are close to each other.

revenues, as higher replacement ratios imply higher contributions and hence higher receipts.

Empirical evidence based on the same sample of AEs over the last 20 years shows that, in country-years where the unemployment insurance replacement ratio is relatively low, total or primary fiscal balance was approximately acyclical (Graph III.8, left-hand panel). By contrast, in countries where the average replacement ratio for the unemployed was relatively high, then fiscal policy was significantly countercyclical as the fiscal balance increases hand in hand with the output gap (right-hand panel).

High replacement ratio makes fiscal policy more stabilising[1] Graph III.8



Country sample: AT, AU, BE, CA, CH, DE; DK, ES, FI, FR, GB, IE, IS, IT, JP, KR, NL, NZ, NO, PT, SE and US. Reference period: 2001–19.

[1] Correlation between headline fiscal balance to potential GDP and the output gap, controlling for one-year lagged public debt, one-year lagged headline fiscal balance to potential GDP, and country and time effects. The unemployment replacement ratio is the average ratio for unemployment durations running from 12 to 18 months. See Appendix 2 for details of the econometric methodology. [2] Data sample restricted to country-year observations where the unemployment insurance replacement rate is below the full sample median. [3] Data sample restricted to country-year observations where the unemployment insurance replacement rate is above the full sample median.

Sources: OECD; author's calculations.

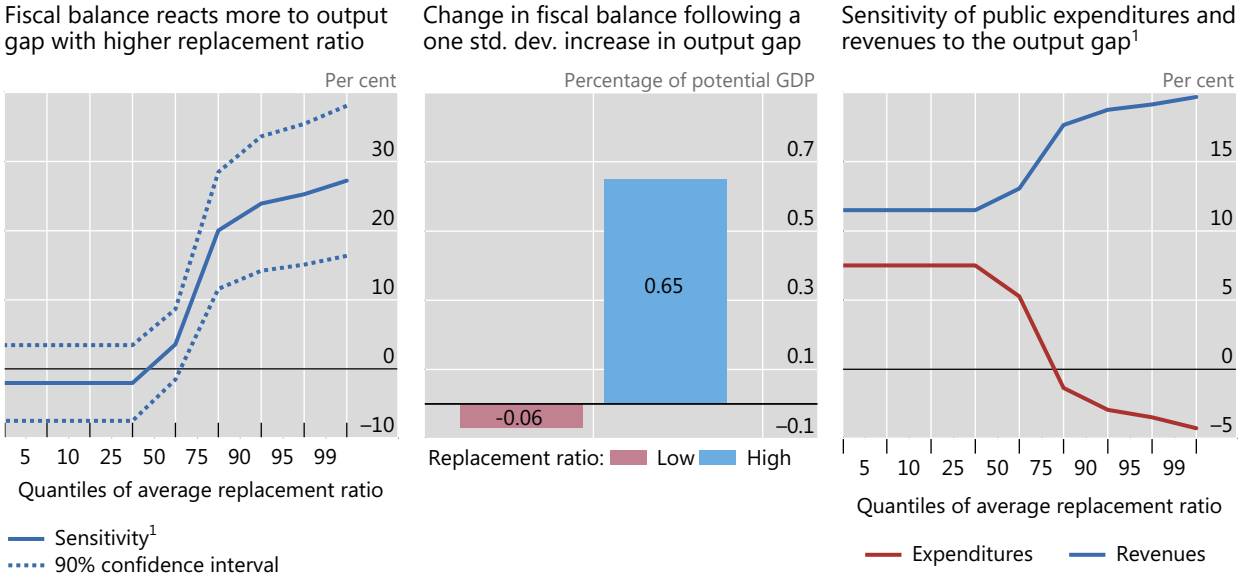
A more detailed analysis confirms that the fiscal balance is basically acyclical when the average replacement ratio for the unemployed is below the sample median but becomes significantly countercyclical when the unemployment insurance replacement ratio reaches the third quartile of the sample distribution (Graph III.9, left-hand panel). In this case, a standardised increase in the output gap is roughly associated with an increase in the fiscal balance of about two thirds of a percentage point of potential GDP (centre panel). Last, consistent with the view that unemployment insurance affects both government revenues and expenditures, higher replacement ratios are typically associated with a higher sensitivity of government revenues and government expenditures to the cycle, government revenues becoming more strongly countercyclical while government expenditures turn from mildly procyclical to mildly countercyclical as the unemployment insurance replacement ratio increases (right-hand panel).

To wrap up, weaker redistribution in the form of less progressive taxes and reduced unemployment insurance have probably been a contributing factor to the increase in inequality. Further, they have also reduced governments' ability to stabilise the economy. This has had two consequences for fiscal policymakers. On the one hand, they have been left with few alternatives to discretionary policy in addressing

major downturns, such as the GFC or the Covid-19 recession. On the other hand, rebuilding fiscal buffers when the economy is rapidly expanding and drawing down public debt has proved more difficult, as the steady rise in public debt over the last 20 years illustrates. To confirm these hypotheses, let us now look at the impact of redistribution on fiscal policy cyclicality in the different phases of the business cycle.

High replacement ratio turns fiscal balance countercyclical through impact on revenues and expenditures

Graph III.9



Country sample: AT, AU, BE, CA, CH, DE; DK, ES, FI, FR, GB, IE, IS, IT, JP, KR, NL, NZ, NO, PT, SE and US. Reference period: 2001–19.

[1] Sensitivity of primary fiscal balance (fiscal revenues, fiscal expenditures) to the output gap is estimated in a cross-country panel regression where primary fiscal balance (fiscal revenues, fiscal expenditures) to potential GDP is regressed on its one-year lagged value, the one-year lagged public debt to potential GDP, the one-year lagged unemployment replacement ratio, the current output gap and the interaction between the current output gap and the lagged unemployment replacement ratio, controlling for country and time fixed effects. The sensitivity of the primary fiscal balance (fiscal revenues, fiscal expenditures) to the output gap is evaluated for different values of unemployment replacement ratio using the estimated coefficients on the output gap and the interaction between the output gap and tax progressivity. See Appendix 2 for details of the econometric methodology.

Sources: OECD; author's calculations.

The impact of redistribution across different phases of the business cycle

Fiscal policy is more stabilising with progressive taxes and/or strong unemployment insurance. But does the relationship between redistribution and the fiscal balance's co-movement with the business cycle come mainly from expansions, from recessions or equally from both?

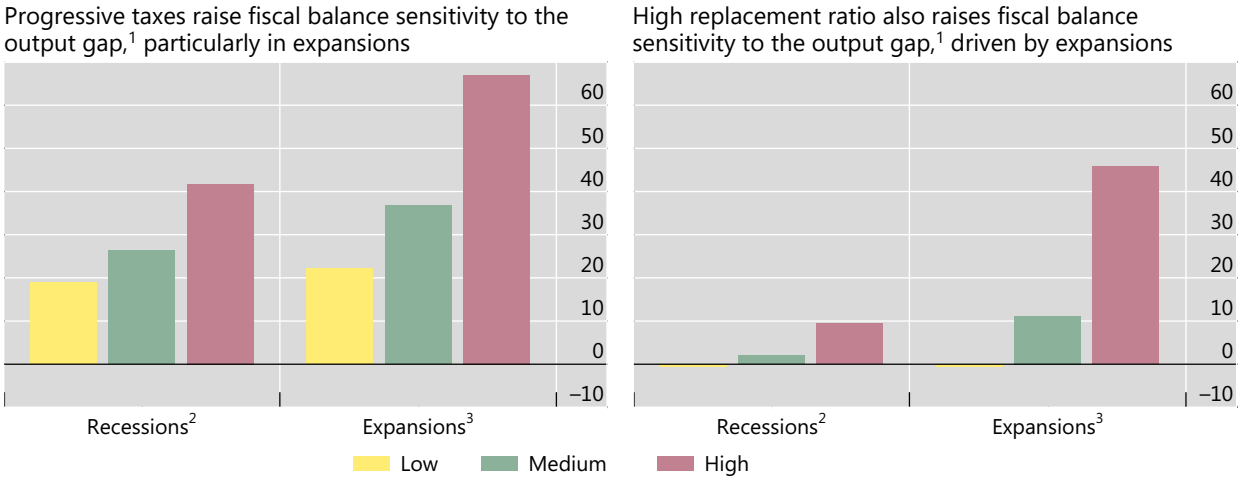
Separating expansions and recessions, ie periods of respectively positive and negative output gaps, shows that the fiscal balance responds more strongly to the business cycle under progressive taxes or strong unemployment insurance mainly during expansions, not during recessions (Graph III.10). Expansions, not recessions, therefore, seem to be driving the reduced response of fiscal policy to the business cycle when tax progressivity or unemployment insurance replacement ratios are low.

In expansions, higher incomes should lead to higher government revenues but less so, with less progressive taxes. Similarly, unemployment insurance benefits and contributions need to match over ups and downs in economic activity, so that in expansions rising employment should lead to higher government revenues, but less so with lower contributions and lower replacement ratios.

Progressivity and replacement ratio make a larger difference in expansions

In per cent

Graph III.10



Low, medium and high respectively correspond to the first, second and third quartile values of tax progressivity (unemployment replacement ratio). Country sample: AT, AU, BE, CA, CH, DE; DK, ES, FI, FR, GB, IE, IS, IT, JP, KR, NL, NZ, NO, PT, SE and US. Reference period: 2001–19.

[1] Sensitivity of primary fiscal balance to the output gap is estimated in a cross-country panel regression where primary fiscal balance to potential GDP is regressed on its one-year lagged value, the one-year lagged public debt to potential GDP, the one-year lagged tax progressivity (unemployment replacement ratio), the current output gap, the interaction between the current output gap and lagged tax progressivity (unemployment replacement ratio), separating positive and negative output gaps. See Appendix 2 for details of the econometric methodology. [2] Observations with negative output gap. [3] Observations with positive output gap.

Sources: OECD; author's calculations.

With weak redistribution, governments therefore maintain fiscal accommodation during recessions, despite less progressive taxes and lower unemployment insurance replacement ratios, most likely through discretionary measures.[54] This, however, means that governments do not compensate for such ad hoc expansionary measures with correspondingly ad hoc contractionary measures in expansions, eg tax hikes or expenditure cuts, and hence the difference in the fiscal response to expansions and recessions. The conclusion, arguably surprising, is that weak redistribution and automatic stabilisers prevent governments from running large enough surpluses in expansions, surpluses that would be necessary to rebuild fiscal space and draw down public debt.

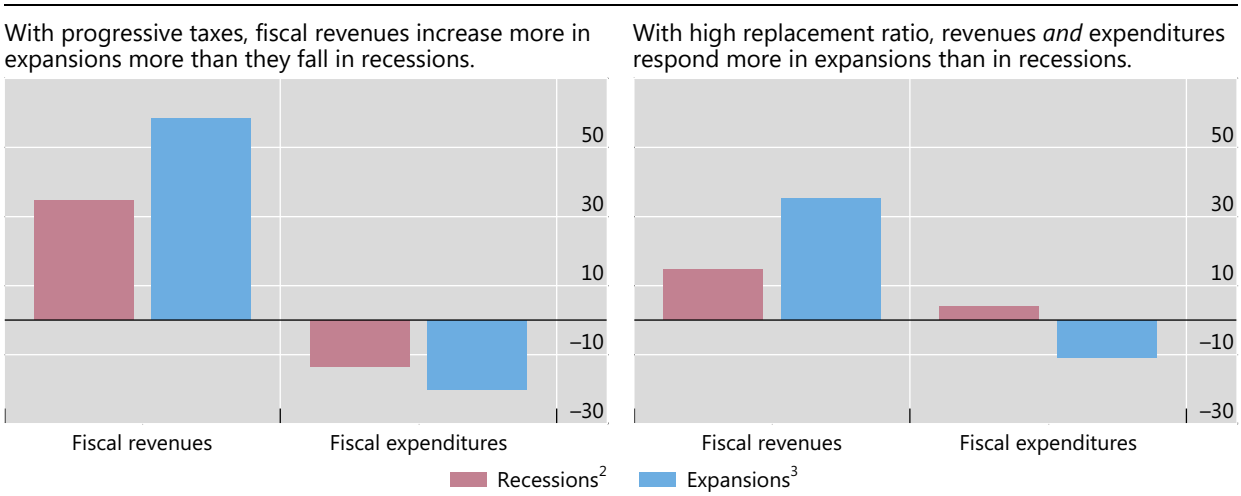
Both revenues and expenditures could account for the asymmetry in the response of the fiscal balance to the business cycle. Starting with tax progressivity, revenues seem to be the main driver: progressive taxation makes fiscal revenues significantly more sensitive to the output gap in expansions than in recessions (Graph III.11, left-hand panel). This is consistent with taxes being rather flat for low-income earners and more progressive for high-income earners, so that the benefits

[54] While governments can still run deficits in recessions in spite of low tax progressivity, Ferriere and Navarro (2020) show, using a heterogeneous-agent New Keynesian model, that fiscal expansions funded through progressive taxes are typically associated with larger fiscal multipliers.

of high progressivity tend to materialise in expansions where the pool of high-income earners tends to be larger, and incomes tend to be higher. Conversely, strong unemployment insurance makes both revenues and expenditures respond asymmetrically to the business cycle (right-hand panel). As expected, with strong unemployment insurance, government expenditures drop significantly in expansions as the amount of distributed unemployment benefits drops sharply. However, revenues also increase more significantly when unemployment insurance is stronger. Intuitively, higher replacement ratios imply higher contribution rates. Expansion phases that coincide with strong increases in employment therefore lead to larger increases in government revenues.

Progressive taxes and high replacement ratio lift fiscal revenues in expansions[1]

In per cent — Graph III.11



Country sample: AT, AU, BE, CA, CH, DE; DK, ES, FI, FR, GB, IE, IS, IT, JP, KR, NL, NZ, NO, PT, SE and US. Reference period: 2001–19.

[1] Sensitivity of fiscal revenues (expenditures) to the output gap is estimated in cross-country panel regressions where fiscal revenues (expenditures) to potential GDP is regressed on its one-year lagged value, the one-year lagged value of public debt to potential GDP, the one-year lagged value of tax progressivity (the unemployment replacement ratio), the current output gap, the interaction between the current output gap, when positive and lagged tax progressivity (unemployment replacement ratio) and the interaction between the current output gap, when negative, and lagged tax progressivity (unemployment replacement ratio). Sensitivity estimated for the value of tax progressivity (unemployment replacement ratio) at the third quartile. See Appendix 2 for details of the econometric methodology. [2] Observations with negative output gap. [3] Observations with positive output gap.

Sources: OECD; author's calculations.

Once again, the bottom line is that redistributive policies and automatic stabilisers – progressive taxes and strong unemployment insurance – make fiscal policy not only more countercyclical but also allow governments to replenish fiscal buffers more quickly, especially by raising government revenues disproportionately in expansions.

Box A

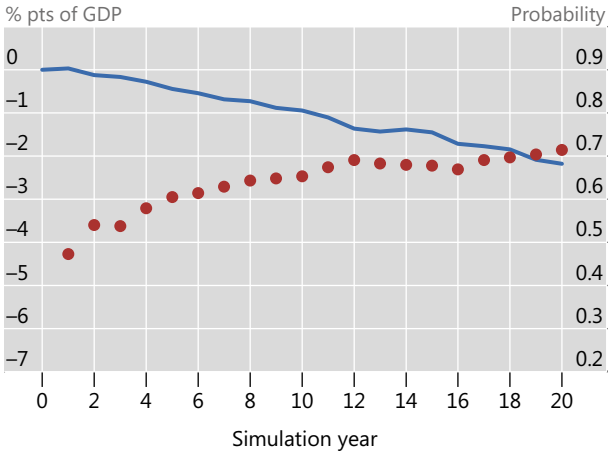
Public debt and redistribution

The asymmetrical impact of tax progressivity and unemployment insurance across different phases of the business cycle suggests that redistribution choices are likely to affect the pace of public debt accumulation. Public debt could indeed increase more sharply over the long run, in countries with weak automatic stabilisers, if this were to prevent governments from running large surpluses in expansions and replenishing fiscal buffers. To be sure, this impact undoubtedly depends on the sequence of shocks that economies meet with. To the extent that strong redistribution implies a marginally stronger policy response in recessions, a succession of negative shocks could send public debt temporarily higher in economies with relatively stronger automatic stabilisers. Moreover, the temporary increase could then turn permanent through the snowball effect of public debt, something that could take place when the financial cost and the level of public debt are sufficiently high. Conversely, a short sequence of positive shocks could lead to a permanently lower level of public debt if strong automatic stabilisers lead to large surpluses whose legacy is felt for a long time.

Redistribution and automatic stabilisers reduce public debt

Graph III.12

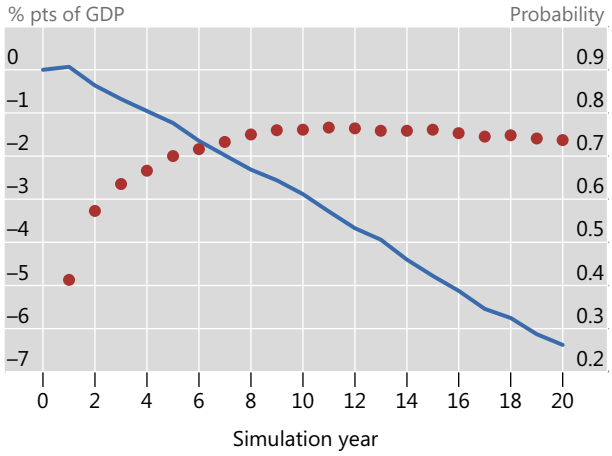
Progressive taxes very likely to cut public debt in the long run, albeit marginally[1]



Lhs:[2] High-low tax progressivity gap

Rhs:[3] Likelihood progressivity cuts public debt

High unemployment insurance replacement ratios significantly cut public debt in the long run[1]



Lhs:[2] High-low UI replacement rate gap

Rhs:[3] Likelihood UI replacement rate cuts public debt

Country sample: AT, AU, BE, CA, CH, DE; DK, ES, FI, FR, GB, IE, IS, IT, JP, KR, NL, NZ, NO, PT, SE and US. Reference period: 2001–19.

[1] Change in public debt to GDP one to 20 years ahead relative to public debt to GDP level in year 0. The public debt level d is simulated using the law of motion $d=(1+r-g)d_{-1}-b$; r-g, the interest-growth differential is set to zero, d_{-1} is the one-year lagged debt to GDP level, which starts at 100% in year 0 and b, the primary fiscal balance to GDP, is simulated using estimated sensitivities to the output gap, the considered values for tax progressivity or unemployment insurance replacement ratio and random draws of the output gap from its empirical distribution. [2] Low and high tax progressivity (unemployment insurance replacement rate) represent, respectively, the median change in public debt at the relevant horizon for the 10th and 90th percentile values. The gap is the difference between the two median public debt levels. [3] Likelihood progressivity (unemployment insurance replacement rate) cuts public debt show the fraction of simulations for which public debt to GDP is lower under higher tax progressivity (unemployment insurance replacement ratio) at any given horizon.

Sources: OECD; author's calculations.

In practice, differences in tax progressivity and unemployment insurance replacement ratio can have a significant impact on the path of public debt. To get a sense of this impact, we simulate the path for public debt under differing assumptions for tax progressivity or unemployment insurance replacement ratio, assuming for simplicity that the financial cost of public debt is equal to nominal growth. Specifically, we start running random draws in the empirical distribution for the output gap. This allows the corresponding primary balance to be computed, using the estimated

using these simulated primary balances, we can rely on the law of motion of public debt to compute the path for public debt. Finally, we run a thousand such simulations to compute the median path for public debt and the difference in these median paths when tax progressivity (unemployment insurance) is high as compared with low.

The simulation results show that high tax progressivity can cut public debt-to-GDP levels by about 2.5 percentage points after 20 years, as compared with the case of low tax progressivity (Graph III.12, left-hand panel). After 20 years, public debt also ends up being lower under high tax progressivity in about 70% of our simulations. High tax progressivity, insofar as it prompts governments to run larger deficits in recessions, can indeed lead to higher public debt if a large fraction of the output gap draws turns out to be recessions.

For unemployment insurance replacement ratios, the drop in public debt is more impressive: with high unemployment insurance replacement ratios, public debt-to-GDP levels end up about 6 percentage points lower after 20 years relative to the case of where unemployment insurance replacement ratios are low (Graph III.12, right-hand panel). The likelihood that public debt ends up lower under a high unemployment insurance replacement ratio is roughly similar, at 70%, to the figure obtained for tax progressivity.

This exercise therefore suggests that redistribution and automatic stabilisers through steeper taxation and/or a higher unemployment insurance replacement ratio can improve fiscal sustainability and reduce the pace of public debt accumulation. The additional tightening that strong automatic stabilisers bring in expansions therefore translates, in most of our simulations, into lower public debt in the long run, despite stronger accommodation in recessions. In addition, unemployment insurance appears to be a significantly more effective policy tool than tax progressivity in cutting public debt, about two to three times more so. Redistributive policies that strengthen automatic stabilisers can therefore help to slow the pace of public debt accumulation and improve fiscal sustainability.

Conclusions

Fiscal policies in AEs have changed in several dimensions over the last two decades. In this chapter, we have focused on the reduction in the progressivity of taxes and the reduction of unemployment benefits and analysed their impact on the cyclical properties of fiscal policy. This chapter argues that lower tax progressivity and less generous unemployment benefits have weakened fiscal automatic stabilisers, helping to increase public debt. Moreover, the reduced redistribution that has contributed towards rising inequality in many places since the 1980s has also conspired to make monetary policy less effective (see Chapter IV). As a result, the ability of both fiscal and monetary policy to stabilise the economy has suffered from the reduction in their redistribution capacity, probably forcing fiscal policymakers to rely more extensively on discretionary measures, particularly when dealing with large recessions.

The evolution of tax progressivity and unemployment insurance suggests that governments' views about their respective costs and benefits have shifted over time. During the Great Moderation, the potential benefits from more forceful redistribution/stabilisation appeared small relative to the gains that could be expected in terms of a wider tax base or larger labour supply. This may explain the broad-based move towards a reduction in redistribution through fiscal policy.

In addition, this chapter shows that, contrary to widespread beliefs, the reduction in redistribution through fiscal policy has coincided with a faster not slower pace of public debt accumulation. Yet, steadily rising public debt is not simply a fiscal problem. It can also act as a major constraint on monetary policy. High public debt and large financing needs can put pressure on central banks, forcing them to adopt a more accommodative stance, possibly above and beyond what output and inflation stabilisation would prescribe.

More broadly, these changes in fiscal policy have implications for the policy mix. With fiscal policy being less countercyclical, monetary policy needs to bear a larger share of the macroeconomic stabilisation burden. While this assignment may have been sensible during the "great moderation" period,[55] where business cycle volatility was contained, large shocks such as the GFC or the Covid-19 recession exemplify the need to rethink the balance between fiscal and monetary policy.[56] If anything, this would rather call for strengthening, not weakening, automatic stabilisers. In this respect, bringing the focus back to more ambitious redistributive policies would undoubtedly be the way to link the policy agenda for reducing inequality with a adequately balanced set of macro stabilisation policies.

[55] The "Great Moderation" refers to the period between 1984 and 2007 which was characterised in advanced economies with low and stable inflation, relatively rare recessions, and limited economic fluctuations overall.

[56] Kocherlakota (2021) shows, in the context of a Heterogenous Agents New Keynesian model, that stabilising inflation or output using interest rates (monetary) is not possible when public debt is large.

Appendix

Appendix 1: Estimating tax progressivity

Estimating personal income tax progressivity requires three types of information: first, marginal tax rates; second, corresponding income brackets; third, actual incomes. The OECD Tax database provides data on the distribution of marginal tax rates and income thresholds for up to 23 different cases. I then consider for each country and year, 100 different incomes running from 4% to 400% of nominal GDP per capita, with a 4 percentage point increment, ie 4%, 8%, 12%, 16%, 20% ... 384%, 388%, 392%, 396% and 400% of nominal GDP per capita. For each of these hypothetical incomes, I then compute the average tax rate using the data on income brackets and marginal tax rates from the OECD database. Denoting respectively τ^k and m^k, the marginal tax rate and the income threshold that correspond to the k^{th} income bracket, the average tax rate *t(y)* applied for an income *y* is computed as

$$t(y) = \frac{1}{y}\sum_{k=1}^{k=n(y)} (min\{y; m^k\} - m^{k-1})\tau^k \text{ with } m^0 = 0 \text{ and } m^{i-1} \leq m^i$$
$$\text{and } m^{n(y)-1} \leq y \leq m^{n(y)} \quad (1)$$

We end up for each country *c* and year *s* with a series of 100 incomes and average tax rates, ie $\big(y; t(y)\big)_{c,s,i}$ for $i = \{1; \dots; 100\}$. I then estimate personal income tax progressivity $\beta_{c,t}$ for each country *c* and year *s*, as the semi-elasticity of the average tax rate *t* to income *y* using the following OLS cross-sectional regression:

$$t\big(y_{c,s,i}\big) = \alpha_{c,s} + \beta_{c,s} ln\big(y_{c,s,i}\big) + \varepsilon_{c,s,i} \quad (2)$$

In addition, we consider for each country *c* and year *s*, the average and median tax rates, respectively denoted $\overline{t_{c,s}}$ and $t_{c,s}^{50}$, and computed as:

$$\overline{t_{c,s}} = \frac{1}{100}\sum_{i=1}^{100} t\big(y_{c,s,i}\big) \text{ and } t_{c,s}^{50} = t\big(y_{c,s,50}\big) \quad (3)$$

Appendix 2: Estimating fiscal policy cyclicality

To estimate fiscal policy cyclicality, I run a series of cross-country panel regressions. The starting point is a standard regression where the dependent variable is the fiscal balance to potential GDP (FB). In addition to country and year fixed effects (α), the independent variables are the one-year lagged fiscal balance to potential GDP (FB_{-1}), the one-year lagged log of public debt to GDP (D_{-1}) and the current output gap (Y), ie the ratio of current to potential output, the latter being computed using a Hodrick-Prescott filter. The estimated sensitivity of the fiscal balance to the output gap β_2 then captures fiscal policy cyclicality.

$$FB_{c,s} = \alpha_c + \alpha_s + \beta_0 FB_{c,s-1} + \beta_1 D_{c,s-1} + \beta_2 Y_{c,s} + \varepsilon_{c,s} \quad (4)$$

Then to obtain time-varying sensitivities, I re-estimate regression (4) for each year *s* in the sample, weight observations using a normal distribution centred on year *s*, with a standard deviation such that 90% of the distribution mass is comprised between year s–2 and year s+2.

In addition, denoting *Red*, the considered redistribution variable (tax progressivity or unemployment insurance replacement ratio), I infer the impact of redistribution (*Red*) on fiscal policy cyclicality estimating the cross-country panel regression:

$$Z_{c,s} = \alpha_c + \alpha_s + \beta_0 Z_{c,s-1} + \beta_1 D_{c,s-1} + \left(\beta_2 + \beta_3 Red_{c,s}\right) Y_{c,s} + \beta_4 Red_{c,s} + \varepsilon_{c,s} \quad (5)$$

The variable Z can be either the fiscal balance (total or primary), or the fiscal revenues or the fiscal expenditures, all expressed as a ratio of potential GDP.

Last, I allow the impact of redistribution policies on the cyclicality of fiscal policy to depend on the specific phase of the business cycle. Denoting Y^+ the output gap when positive (expansions) and Y^- the output gap when negative (recessions), I estimate the extended specification:

$$\begin{aligned} Z_{c,s} = \alpha_c + \alpha_s + \beta_0 Z_{c,s-1} + \beta_1 D_{c,s-1} + \left(\beta_2^+ + \beta_3^+ Red_{c,s}\right) Y_{c,s}^+ \\ + \left(\beta_2^- + \beta_3^- Red_{c,s}\right) Y_{c,s}^- + \beta_4 Red_{c,s} + \varepsilon_{c,s} \end{aligned} \quad (6)$$

Chapter IV: Monetary policy and inequality

The role inequality plays in shaping the business cycle and the hysteresis effects, as highlighted in Chapters I and II, have far-reaching implications for monetary policy. Monetary policy itself has inevitable distributional consequences that policymakers need to factor in. This is even more important in a context in which, as argued in Chapter II, inequality helps to make recessions deeper and longer and can linger as the economy eventually recovers, and as seen in Chapter III, fiscal policy has, over the last three decades, become less effective at containing income inequality.[57] Relatedly, an environment featuring deeper and longer recessions calls for ever-growing monetary stimulus, which can eventually overburden central banks and hamper their effectiveness.

This chapter explores the complex and multi-faceted relationship between monetary policy and inequality. It first reviews how inequality relates to the broader objectives of monetary policy and how monetary policy decisions have distributional consequences. Then, it explores how and to what extent a more unequal environment can hamper the transmission of monetary policy.

Inequality and the objectives of monetary policy

The traditional mainstream view of central banks and inequality (see for example Romer and Romer (2004)) emphasises the stabilisation role of monetary policy. Keeping inflation in check and preventing economic downturns, to the extent possible, will improve welfare for all households, especially the poorest, as these are the ones that typically suffer more from unemployment and high inflation. Hence, central banks can contribute to a more equitable society by delivering on their mandated objectives of stable inflation and maximum sustainable employment.[58]

Such a view[59] can be summarised as follows: if it effectively stabilises economic fluctuations and thereby reduces the frequency of workers moving into unemployment, a successful monetary policy can mitigate increases in income inequality that are due to the business cycle. And in addition to dampening cyclical fluctuations, more stable output and inflation are also conductive to longer-term growth, which should eventually increase the likelihood of better living standards for all, including the poorer segments of the population.

Taken at face value, however, this view implies that the role of central banks with respect to inequality is rather narrow and passive: when properly run, monetary policy ensures that recessions are ameliorated and the ensuing spells of unemployment are

[57] Economists, including in central banks, are growing increasingly aware of the role of inequality for the transmission of monetary policy, as well as of the consequences of their decisions on inequality, See eg Feiveson et al (2020).

[58] The mandate of most central banks is to pursue price stability; one notable exception is the US Federal Reserve, whose mandate is to foster economic conditions that achieve both stable prices and maximum sustainable employment. However, many consider "maximum sustainable employment" as the level of employment which keeps inflation stable. Hence, inflation targeting central banks that successfully stabilise inflation near their targets would also implicitly deliver maximum sustainable employment. This is a form of "divine coincidence" as we explain shortly.

[59] See BIS (2021), Chapter II.

as short as possible. Hence, the income inequality that arises in the business cycle will follow the same pattern: it will rise during a downturn but fall in the subsequent recovery, returning to its previous pre-recession level. Therefore, the more pervasive effects of recessions should also be limited. In this way, a pattern similar to the unemployment hysteresis à la Blanchard and Summers (1986) should not occur.

Interestingly, this applies not only to central banks that follow a dual mandate, such as the US Federal Reserve, and which therefore need to focus on keeping unemployment to a minimum as one of their primary objectives. In a world where very simplified and stylised assumptions about agents' behaviour are enforced, the so-called "divine coincidence" holds, meaning that stabilising inflation also ensures the best possible outcomes in terms of unemployment. This is because stable inflation implies that the economy is neither above nor below the full and sustainable employment of its productive capacity, since being above or below would be either inflationary or deflationary. Hence, if central banks focus only on their inflation mandate, the inequality that arises in the business cycle should be "divinely" dampened away.

Stabilising cyclical fluctuations is certainly important in containing an unwelcome increase in inequality, yet many of the contributors to rising inequality are of a secular nature, and well beyond the reach of monetary policy. To be sure, income inequality has been rising steadily since the Great Moderation.[60] That was precisely the moment when monetary policy became more effective in stabilising cyclical fluctuations, with unemployment and inflation trending down from their highs reached in the late 1970s. Graph IV.1 illustrates this point in five large advanced economies: unemployment and, even more so, inflation volatility have declined since 1990 (left-hand and centre panels). Yet inequality has increased in all countries except France,[61] and particularly so in the United Kingdom and the United States. This suggests that powerful secular trends due to factors well beyond the reach of central bankers have pushed inequality up over the past decades, and that the benefits of more stable business cycles have only partially counteracted such trends.

The consequence of such trends is that inequality can no longer be treated as something given and stable over time, which at most fluctuates with expansions and recessions. Instead, greater inequality has to be considered part of the environment under which monetary policy operates and is formulated. As we will see below, monetary policy can leave scars in the shape of inequality if it fails to deliver on its mandated objectives. Moreover, its effectiveness can be dampened in a highly unequal environment.

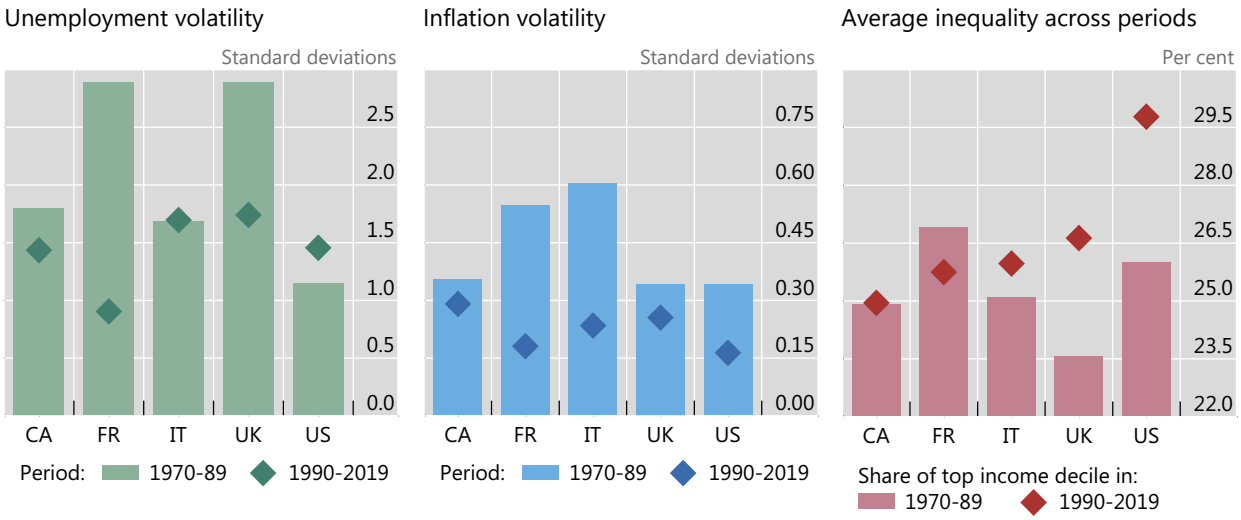
This explains the growing interest of central banks in this theme. Indeed, inequality loomed large in the recent review of the monetary policy strategy at the Federal Reserve. The supporting background research explicitly tackled the impact of great inequality on the transmission of monetary policy (Feiveson et al (2020)). The review also highlighted that strategies that provide more accommodation during a recovery can produce positive effects on inequality by bringing households with lower skills into the labour market. By this token, properly run monetary policy will

[60] The Great Moderation generally refers to the period between 1984 and 2007. During this period, inflation was typically close to 2% in advanced economies, with recessions less frequent and milder than in the previous 20 years.

[61] The share of the top income decile in France has been shown to reflect the late 1980s policy of having 80% of each cohort finish high school, making them eligible for tertiary education. Fraisse et al (2012) pp 1081–112, showed that skill premia in France have declined since 1990 as the proportion of the population with higher diplomas increased substantially.

reduce inequality not only by stabilising the business cycle, but also by facilitating the employment of the more disadvantaged. And it is important to keep in mind that letting labour markets run hot with the aim of lifting as many households out of poverty as possible is much more effective if it comes in an environment where inflation is stable and expected to remain so. In the jargon of central banks, inflation expectations are firmly anchored. This being said, labour markets are not the only channel through which monetary policy affects inequality. The next section will review other possible channels.

Lower inflation and unemployment volatility did not curb inequality trends — Graph IV.1



Sources: World Inequality Database (WID); Datastream; national data; BIS calculations.

Heterogeneity, inequality and monetary policy

Monetary policy actions have inevitable distributional consequences. Even the most basic and conventional form of monetary stimulus – lowering the policy rate – directly transfers income from lenders to borrowers. Similarly, balance sheet policies are bound to increase asset prices and hence the wealth of those who own the assets. These "direct" effects of changes in monetary policy on different sources of financial income and wealth affect agents unevenly, depending on the characteristics and the portfolio of each household. That said, the "indirect" effects of monetary policy – that is, those due to its impact on the macroeconomic environment – play a much larger role: by affecting the transition of workers in and out of unemployment, monetary policy has extremely powerful "indirect" effects on income inequality.

The first-order impact of business cycle shifts in income inequality relates to changes in the rate of unemployment. These are what matters for a large share of the population, and what ultimately plays a role in shaping macroeconomic outcomes. This stands somewhat in contrast with the public debate on inequality, which is often focused on the growing income and wealth of the top 1% or the top 0.1% richest in the population. To be sure, that has relevance in the public debate for entirely legitimate reasons. Many in the public find it shocking that lower interest rates have generated gigantic capital gains for billionaires and all the owners of large stock

portfolios. However, their capital gains reflect in part the trend decline in real interest rates, which is outside the control of monetary policy.[62] That said, the changes in the net worth of a few super-rich is unlikely to impact aggregate consumption: it is arguably less cyclically sensitive, and the amounts are in any case too small to affect the aggregate. Hence, the wealth of the super-rich matters little to our objective of analysing macroeconomic stabilisation policies and their effectiveness.

For these reasons, the strongest channel through which monetary policy affects income inequality – especially at the business cycle frequency – is that of unemployment. This is because the change in income for people who enter the working force has a larger effect on their consumption and aggregate consumption than any changes in the income of the top 1% or top 0.1% would. As enormous as the consumption of the wealthiest may be, their propensity to consume their income and wealth is very small and their share of aggregate consumption negligible because they add up to only 1% and 0.1% of the population.

To illustrate why changes in employment and unemployment matter most for income inequality through the business cycle, it is useful to consider what happens in a typical recession. When the economy-wide unemployment rate increases by 4 percentage points, say, from 4% to 8% in the United States or from 8% to 12% in the euro area, this means that among the low-skilled workers, it increases by much more, typically from 15% to 30%. For those who lose their job, the drop in current income is very significant. This drop will depend on the replacement rate of the unemployment insurance. Perhaps even more importantly, the newly unemployed will not necessarily find a job as good as their previous job, if they find a job at all. Given that these households also have higher propensity to spend their income, the drop in their income implies a material decline in their own consumption as well as in aggregate consumption.

Keeping this type of consideration in mind, we will focus on various dimensions of monetary policy and inequality in decreasing order of macroeconomic relevance.

Transfers and wages are the largest source of income for most people. While the predominant transfers, including pensions, hardly change through the business cycle, cyclical movements of unemployment are likely to play a large role in explaining the dynamics of household income. And as unemployment hits only some households, it also explains changes in the distribution of income across households and inequality – and especially at the business cycle frequency.[63] It is mainly for this reason that a stabilising monetary policy that prevents recessions or at least mitigates their depth and length would definitely curb the increases in inequality that arise during and in the aftermath of recessions.[64] Moreover, a stabilising monetary policy that keeps

[62] See Marx et al (2021) for an up-to-date discussion on the determinants of interest rates. In particular, population ageing in the OECD countries and China explains an increase in savings worldwide and the increased share of EMEs (whose large share of foreign assets takes the form of foreign exchange reserves invested in OECD treasuries) can explain the increasing gap between a relatively stable return on capital and the declining interest rate on treasury bonds. In addition, in a world where recessions are associated with deflation episodes, bonds offer a better hedge for stocks, which reinforce their appeal to investors, further reducing their yield relative to periods such as the 1970s and 1980s, where recessions typically involved episodes of rising inflation.

[63] Note that such movements can to a certain extent be mitigated by fiscal transfers to the workers that lose their jobs, as we will discuss more in detail in the next chapter.

[64] Limiting the occurrence and containing the depth of recessions also had the additional advantage of mitigating their effects on public debt. Indeed, recessions typically see large increases in public debt. This is in part because social safety net payments carry on while taxable income and tax receipts drop.

inflation firmly on target also dampens fluctuations in inequality due to changes in real incomes. While below-target inflation would preserve the real income of workers earning fixed and non-indexed wages, it also leads to a redistribution of income (and wealth) from borrowers to lenders. Higher inflation, as experienced in 2021, erodes the purchasing power of those whose income is not indexed, and redistributes wealth from lenders to borrowers.[65] As younger members of the middle class make up the majority of borrowing households, changes in inflation imply redistribution and changes in inequality in terms of the income available to households after interest on mortgage borrowing has been paid, as well as in terms of wealth.

Yet labour is not the only source of household income, especially where wealthier households are concerned: assets – held unevenly by the population – also generate income or quasi-income. Of particular importance is housing wealth. Changes in the price of housing induce inequality between owner-occupiers, renters and would-be owners. The trend increase in house prices and rents over the last two decades implied sizeable capital and income gains for house-owners while access to property has become unaffordable for the next generation.

Finally, the fraction of households for whom financial income is of the same order of magnitude as labour income is tiny, less than 1% in most OECD countries. Moreover, monetary policy affects financial income in a more nuanced way than it influences labour income through unemployment. For example, a tighter monetary policy is likely to produce higher interest income for bondholders, who typically tend to be among the wealthier households – especially pensioners.[66] Yet a tight monetary policy can also depress asset valuations for holders of bonds and of stocks.

The ultimate impact of monetary policy on inequality will work through all these different and counteracting channels. Hence, it will depend on heterogeneity in the population with respect to sources of income and portfolio composition. For example, the impact of a monetary easing on poorer households at the fringes of labour market will be felt mainly through lifting them out of un- or underemployment. Middle-class households who rely on more stable jobs, instead, will probably see less of a boost to their incomes, but they may be able to take advantage of better credit conditions, and may even see their debt burdens be eroded by inflation. Richer households who own real estate and other forms of financial wealth are likely to see their financial income increase. The overall impact on inequality, therefore, will depend upon the composition of all such effects. While it is very difficult to assess and measure each of these effects in isolation, we can still assess whether, in the experience of the last 50 years, inequality has had an impact on monetary policy as well as whether monetary has had an effect on inequality.

To get a sense of how such income and wealth heterogeneity may matter in practice, we first look at the composition of income and wealth across different income groups. The top left-hand panel of Graph IV.2 is based on the ECB's survey of Household Finance and Consumption and reports household income sources for five quintiles of the income distribution. The degree of heterogeneity is striking, especially

To be sure, public debt increased on average by 30% of GDP on average across OECD countries after the 2009 recession and it is forecasted to increase as much due to the Covid recession.

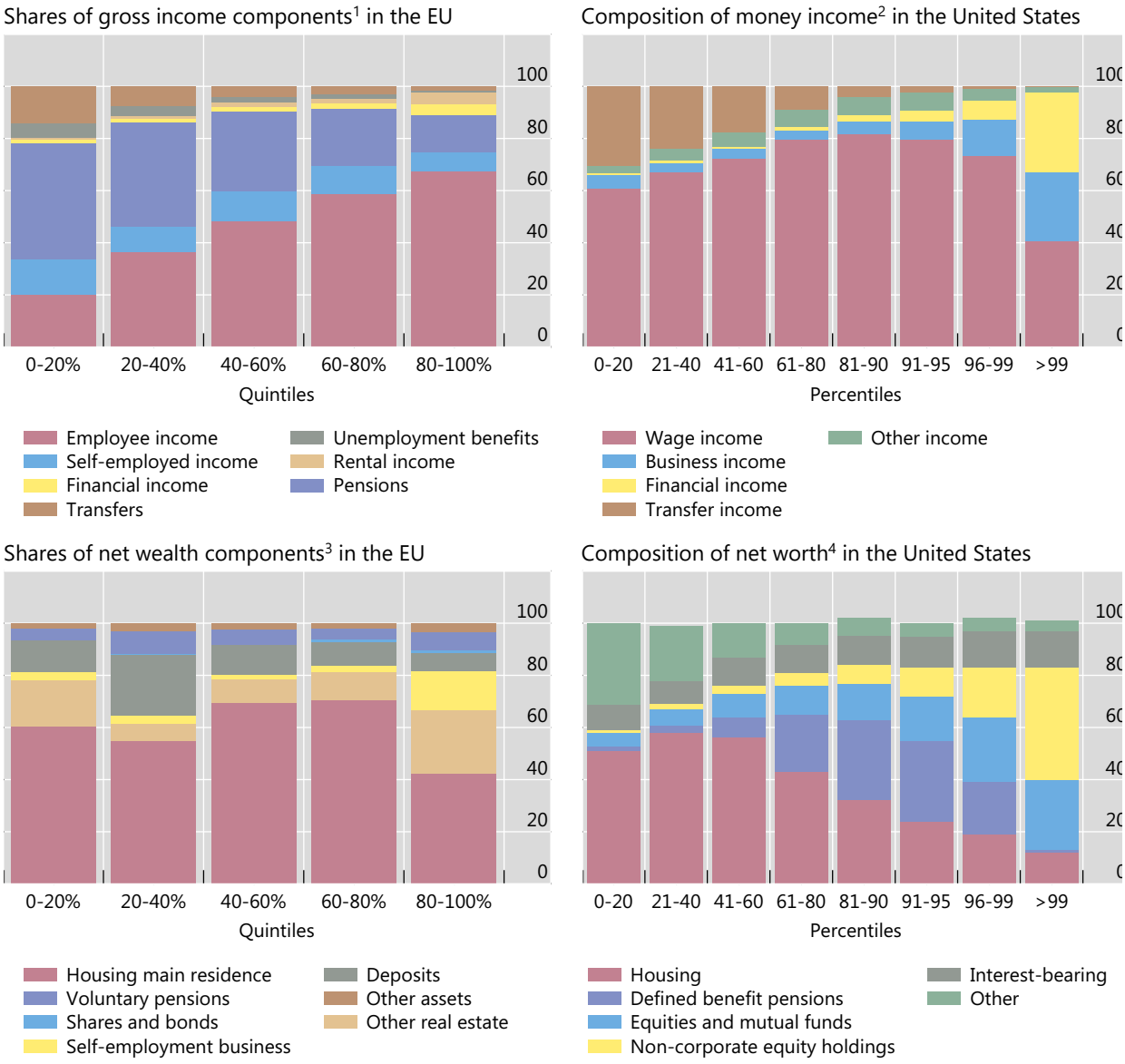
[65] See Doepke and Schneider (2006) and Adam and Zhu (2016). It has to be said that a direct comparison of inequality developments in inflation targeting countries and those with other policy regimes does not hint at large differences.

[66] However, interest rates have remained extremely low since 2009 in most OECD countries and since 2000 in Japan.

Heterogeneity in the sources of income and wealth

In per cent

Graph IV.2



EU includes 17 countries from the euro area as covered in wave 2 of the Household Finance and Consumption Survey (HFCS).

[1] Unemployment benefits and transfers include regular social transfers (except pensions) and private transfers, as a percentage of total euro value. [2] After-tax and transfer income in 2016 over a working age group (age below 65), with all percentages out of total money income (excluding non-cash compensation and imputed income). [3] In total assets, with other financial assets including managed accounts, mutual funds and money owed to households, as a percentage of total euro value. [4] In 2016 over a working age group (age below 65), with all percentages out of total assets.

Sources: Feiveson et al (2020); Lenza and Slacalek (2018).

as Europe is a region where income is relatively more broadly distributed than in the Anglo-Saxon countries and EMEs (see BIS (2021) Chapter 2). For the bottom quintile, the social safety net – that is unemployment benefits, transfers and pensions – provides the lion's share, accruing to over 60% of the total, while labour income covers the rest. The role of labour income nearly doubles between the second and third quintile, ie those covering middle-income households. Arguably, this is due to the increasing contribution of households with better professional skills, and the

increasing role of dependent employment in such skills groups. Income from financial assets and housing, instead, plays a negligible role except for the top 20% of earners, but in that case too it accounts for only 10% of total income. Data for the United States, collected by the Congressional Budget Office (top right-hand panel), offer a clearer picture of the role of financial income, since the top percentiles can be singled out more explicitly. For the top 1% of earners, labour income is around 40% of total income, while the share accruing to financial and business income makes up the rest.

The bottom part of the graph focuses on wealth heterogeneity. Looking at the EU (bottom left-hand panel) first, housing – more specifically the primary residence – provides the lion's share for all quintiles except the top one. Financial assets such as bonds and equities (including households' own businesses) only seem to matter for the top 20% of households, while voluntary pensions and deposits play a larger role for the bottom two quintiles. In the United States (bottom right-hand panel) housing is also very important for the bottom quintiles, but financial assets – more precisely corporate and non-corporate equities – become predominant for the top 5%.

Such heterogeneity implies that different households will reap different benefits from a monetary policy easing: poorer households will be affected mainly by transitions out of unemployment, even if they are credit-constrained and cannot borrow, while wealthier ones will benefit mainly from a boost in the value of their assets. So, on the one hand the impact and potency of monetary policy on aggregate income will depend on how different households react to the monetary stimulus. But on the other hand, this heterogeneous response will also determine how inequality itself will be affected.

To quantify the overall impact on inequality of the ECB's monetary policies over the past years, Lenza and Slacalek (2018) compute the impact on different sources of income and different asset prices of the ECB's unconventional policy measures, and then relate such impacts to the distributions presented in Graph IV.2. Their first key result is that the ECB's unconventional policies benefited mainly households at the bottom quintile of the income distribution (Graph IV.3): their income was boosted by over 3 percentage points, compared with a boost below 1 percentage points for the other income quintiles. This effect took place overwhelmingly through the extensive margin of labour, ie by lifting households out of unemployment, rather than by boosting the salaries of those already employed. The role of the intensive margin of labour – ie higher salaries for those who already have an occupation, due to job-to-job transition and more in general to tight labour markets – seems to play a major role only for the two top quintiles.[67] Factoring in the effects of financial income does not alter the picture. These accrue mostly to the top quintile, and represent a sizeable share of income growth there. Yet, overall, the additional financial income growth that accrues to the richer households is dwarfed by the effect of higher labour income that accrued to poorer households.

Other empirical analyses also generally find that monetary policy affects income inequality overwhelmingly through its effect on labour markets. Coibion et al (2017) and Mumtaz and Theophilopoulou (2017), for example, report that in the United States and the United Kingdom, contractionary monetary policy increases income inequality.

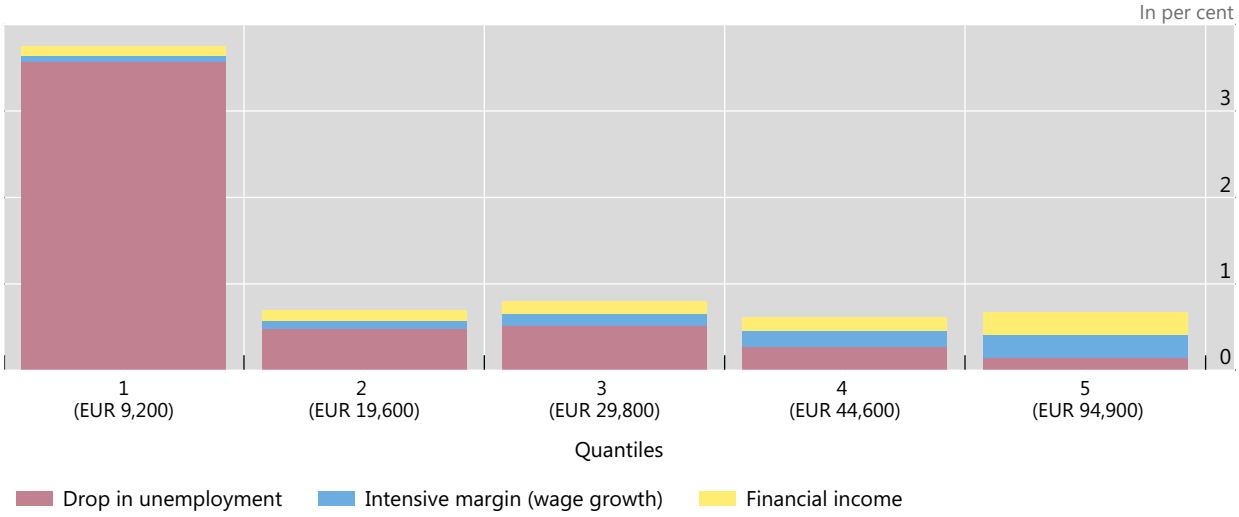
That said, it has to be kept in mind that most of the above-mentioned empirical results deal with income inequality – not least because this is what more directly

[67] This might also reflect the diminished bargaining power of lower-skilled workers, who after spells of unemployment have no option but to accept low-paying jobs. See also Chapter II for a discussion.

impacts consumption and investment than wealth inequality does. Moreover, it is an easier concept to measure than wealth inequality. Yet monetary policy also affects wealth inequality, not only through the flow effects of its impact on income, but through its direct impact on asset prices.[68] In particular, quantitative easing policies have often been criticised for boosting asset valuations, which benefit primarily wealthier households. The ultimate effect of such policies on wealth inequality depends, again, on how assets are distributed across households. Housing, for example, is widely distributed across the population in several countries, and wealth concentration may not change much – in fact, it may even decrease – as a result of policies that have an especially pronounced effect on house prices and which ease access to mortgage credit. Here a different dimension of inequality that may be more relevant is that between the young and the older generations: the benefits of rising house prices would accrue mostly to the latter, while the former will find homes increasingly difficult to buy. Ownership of equities, on the other hand, tends to be much more concentrated in most countries, especially in the hands of the super-rich, so that prolonged periods of accommodative monetary policy may indeed lead to an increase in wealth concentration. While it is important to keep such considerations in mind, it is also worth stressing that, compared with income inequality, wealth inequality has increased much less over the last 50 years in OECD countries.

The ECB's unconventional monetary policies boost the income of the poorest[1]

Additional effect on financial income[2] Graph IV.3



The numbers in brackets show the initial levels of mean gross household income.

[1] Aggregate of Germany, Spain, France and Italy. [2] Percentage increase in mean income and its components across quintiles of gross household income.

Sources: Lenza and Slacalek (2018).

Income inequality and the transmission mechanism

Results in the previous section highlighted the role of monetary policy in affecting inequality. Yet the distributional effects of monetary policy also matter the other way

[68] For more on the link between monetary policy and wealth inequality, see Domanski et al (2016).

around, ie by influencing the effectiveness of monetary stimulus: different households are likely to react differently to monetary stimulus given their wealth and income composition. So the flipside of the coin is the extent to which secular trends in inequality might actually hamper the transmission of monetary policy.

The broad-based instruments of monetary policy are less suited to targeting different types of household. So, greater inequality may weaken the transmission mechanism because the consumption of wealthier households is less responsive to monetary stimulus. At the same time, poorer households may not benefit from easier credit conditions since they cannot borrow easily, or can only do so at prohibitive interest rates. Such credit-constrained (or even unbanked) households are likely to be prevalent in countries with large informal sectors, as in many EMEs.[69] But in AEs too, unemployed or furloughed workers may be unable to benefit due to lack of collateral or poor repayment prospects, even when monetary policy interventions manage to preserve credit flows.

Moreover, luring middle- and low-income households into indebtedness at times of low rates may lead to problems down the road (Rajan (2011)). As policy eventually normalises and interest rates increase, debt service payments may hit these households disproportionately, and force them to curtail consumption. Hence, an accommodative policy could provide short-term support to the economy at the price of heightened macroeconomic instability when the time to normalise monetary policy comes.[70]

We therefore conducted a systematic empirical analysis to assess the effects of inequality on the effectiveness of monetary policy. We first analysed a sample of 20 OECD countries over the last 20 years. For these countries, we estimated the effects of a monetary stimulus (that is, a decline in the short-term interest rate, implementing state-of-the-art simulation methodologies, as explained in the appendix) on consumption and used the cross-sectional dimension to compare such effects for various levels of income inequality.

Our main result is that, by and large, monetary policy transmission is weaker under conditions of greater income inequality. Graph IV.4 shows the effects of a monetary easing on consumption growth under very low, low, medium, high and very high levels of income inequality (ie for countries in the 10th/25th/50th/75th/90th percentiles of the income distribution), in the same year and a few subsequent years.[71] First of all, had inequality not played any role on the ability of the central bank to stimulate consumption, all the dots would have been aligned. Second, and in line with our conjecture, the boost to consumption provided by monetary policy is largest in countries where the share of income that accrues to the top decile is lowest (ie the 10th percentile).

One limitation of cross-country results like the ones presented above is that they are based on the assumption that monetary policy is transmitted uniformly in different countries. Moreover, the estimation of the monetary policy impulse is based on a common and very simple approach, with results that do not necessarily mean that the monetary policy episodes under review are fully comparable across countries. As a further check on these findings, we resort to another empirical exercise,

[69] There is indeed evidence that a large informal sector dampens the effectiveness of monetary policy; see Pereira (2021) and Alberola and Urrutia (2020).

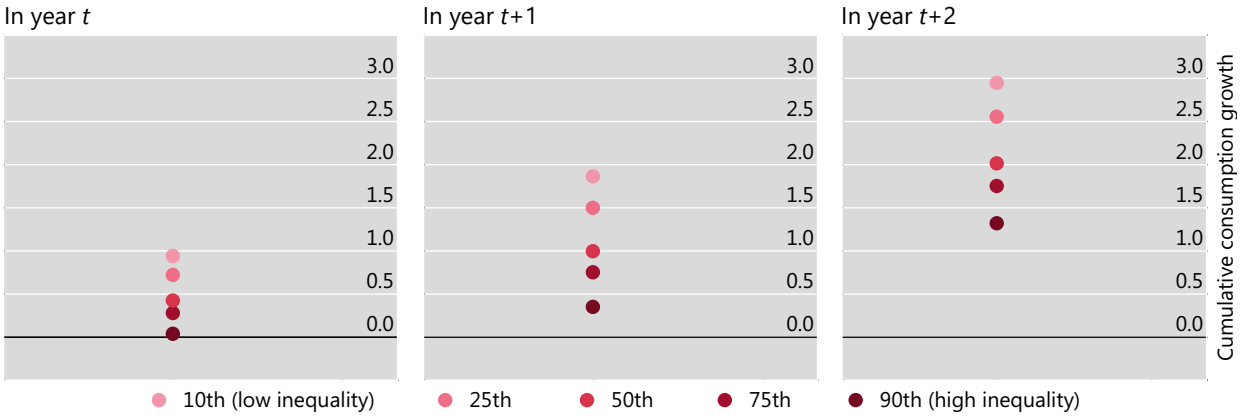
[70] See Atif et al (2020).

[71] See appendix for details of the estimation.

Monetary policy is stronger in stimulating consumption when inequality is low

In per cent

Graph IV.4



The dots represent the estimated response of consumption from year *t*–1 to the specified year to an expansionary monetary policy shock of 100 basis points in year *t*, over percentiles of income inequality distribution across 20 AEs. Data are quarterly, from Q1 1999 to Q4 2019, for a total of 1,600 observations. See appendix for details of the estimation.

Sources: World Bank; authors' calculations.

employing state-level data on personal income and income inequality from the United States. The appeal of using US state-level data is not only that the transmission of monetary policy across different states is likely to be more homogeneous than across different countries, but also that we can rely on common (ie federal) monetary policy shocks and check their differential impact across states according to their level of income inequality, after netting out US-level and state-level fixed effects. There is indeed a quite large degree of heterogeneity across US states, not only in terms of real personal income growth (Graph IV.5, left-hand panel), but also in terms of inequality (right-hand panel). While the dispersion of income seems to have diminished over time, that of inequality has increased, together with its median level. Asymmetry in inequality has also been on the rise, with more and more states showing extremely high levels of inequality.

Graph IV.6 reports the estimated effects of a monetary easing, using state-of-the-art approaches to simulations of such changes in the monetary policy stance, for low, medium and high levels of income inequality (ie the 25th/50th/75th percentiles across US states) in the same year and a few subsequent years.[72] The boost is largest in states with lower income inequality, ie where the share of income that accrues to the top decile is lowest, and becomes statistically insignificant for states in the top quartile, ie the most unequal ones.

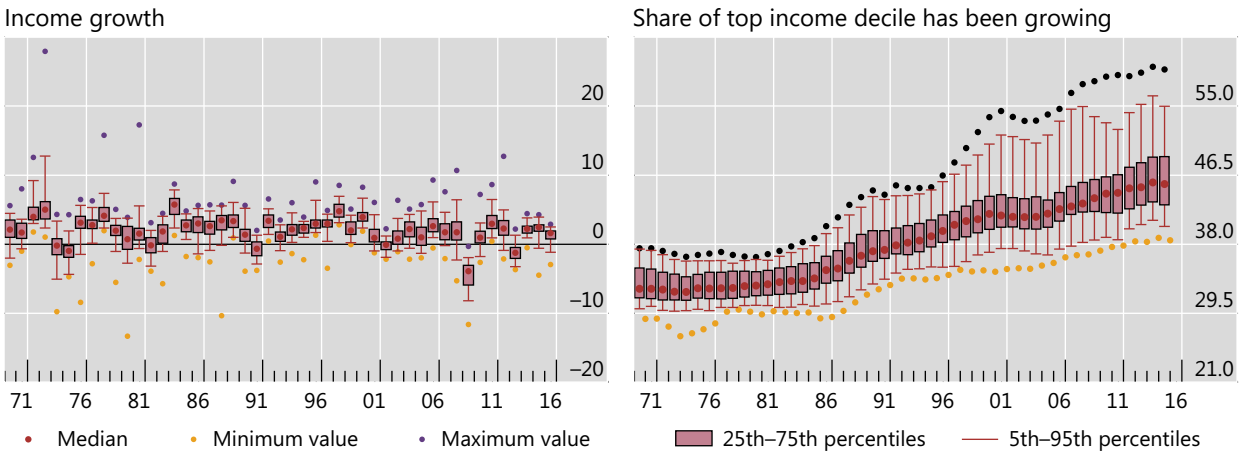
Our results show that, in the United States, changes in the stance of monetary policy induce varying effects on personal income in different states. Part of the variation in the responses of state-level income to changes in the stance of monetary policy can be explained by different levels of income inequality: in states with a more unequal income distribution, personal income reacts less to monetary stimulus. Importantly, since we control for changes in unemployment, this result is net of the monetary policy impact through the labour market channel.

[72] See appendix for details of the estimation.

Income growth and inequality across US states

In per cent

Graph IV.5



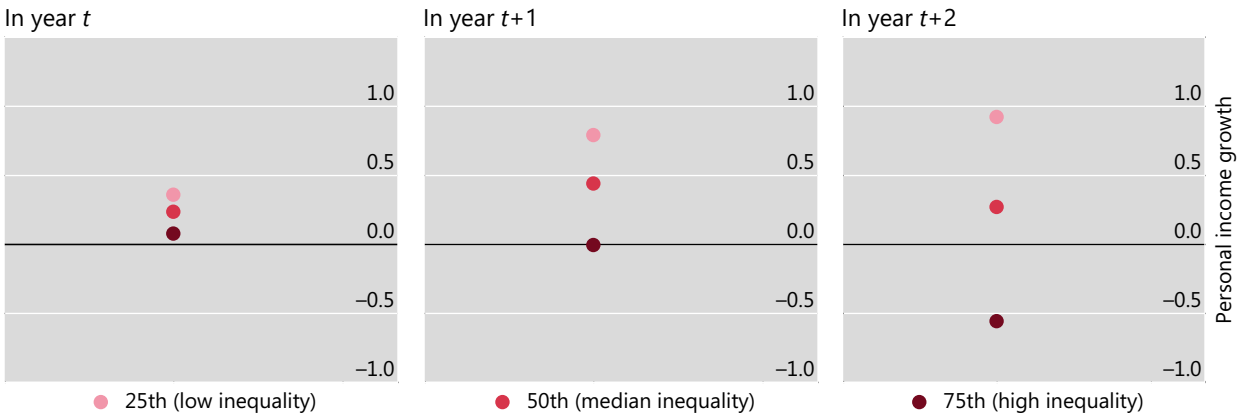
Sources: Sommeiller and Price (2018); BIS calculations.

The reasons why other channels of transmission of monetary policy may be weaker in more unequal states could have several explanations. For instance, while a monetary easing should induce households to borrow and anticipate their future consumption, these adjustments could be less meaningful in states where the income distribution is much polarised. For one, richer households may anyway have less propensity to consume. In addition, the poorer ones may be credit-constrained, especially if they lack collateral. These conjectures warrant more research, however, if they are to be confirmed.

Effect of a monetary policy shock on personal income across US states

In percentage points

Graph IV.6



The dots represent the estimated response to personal income from year *t*–1 to the specified year to an expansionary monetary policy shock of 100 basis points in year *t*, over percentiles of income inequality distribution across US mainland states. Data are annual, from 1960 to 2008. See appendix for details of the estimation.

Sources: Sommeiller and Price (2018); author's calculations.

Overall, our empirical results concur, across both OECD countries and US states: we fail to reject the hypothesis that income inequality reduces the effectiveness of monetary policy. This new empirical result is important. First, it helps to explain why

recessions are deeper in countries (and states) with higher levels of inequality. Indeed, the stabilisation role of monetary policy appears less effective. Second, it is income inequality that determines how strongly consumption and aggregate demand will respond to monetary policy. It therefore deserves careful attention by central banks, central bank watchers and macroeconomists.

Inequality and monetary policy strategies

The previous sections highlighted the mutual interactions between monetary policy and inequality. More precisely, we investigated how monetary policy actions can shape inequality, as well as how inequality affects the transmission of monetary policy. In this section, we will build upon these results to discuss how monetary policy strategies should factor in inequality.

From a normative standpoint, the relevance of our empirical findings on the heterogeneous impact of monetary policy imply that the latter should be taken seriously in monetary policy models. To be sure, central bankers are well aware of the importance of households' income and wealth heterogeneity for the potency of monetary policy.[73] Hence the recent surge of interest in macroeconomic models featuring heterogeneous agents,[74] not only among academics but also in central banks. These models dispense with the standard assumption of a single representative household, allowing, for example, for a highly skewed and unequal distribution of wealth. In such models, different configurations of wealth distribution imply significant differences in the transmission of standard business cycle shocks, including those associated with monetary policy.

The direct implication of models featuring heterogeneous households is that policymakers need to take into account the heterogeneous impact of their policy decisions.[75] The Federal Reserve's recent strategy review features a background paper (Feiveson et al (2020)) that explores how various groups of households (low-skilled, minorities, young, middle-aged and pensioners, poor and rich) are impacted by monetary policy and the effects of heterogeneity on the effects of recessions. This paper argues that focusing on the employment of the more disadvantaged categories would lead to shorter recessions. The paper then reviews alternative monetary policy strategies, concluding that those that provide more accommodation and refrain from derailing a recovery (eg average inflation targeting in its variants) yield even better results when household heterogeneity is taken into account.[76]

Taking into account heterogeneity, however, does not necessarily imply adopting inequality as a policy objective. To be sure, if taken literally, such models could give rise to a line of thinking that advocates a change in monetary policy objectives (eg Hansen et al (2020)), adding to political economy pressures on the central bank and

[73] See eg Daly (2020) for a recent example and Graph I.2.

[74] See eg Kaplan et al (2018).

[75] See eg Acharya et al (2020).

[76] This is also consistent with the recent literature suggesting that the impact of monetary policy on welfare through income distribution is substantially larger than through price stability. In fact, in models with heterogeneous agents, the welfare costs of inflation are typically lower than in standard representative-agent models due to redistribution effects; see eg Chiu and Molico (2010) and Biilbie (2018). Using micro data on individual satisfaction, Blanchflower et al (2014) present evidence that the welfare costs of unemployment are five times as large as those of inflation.

putting at risk its accountability on its macroeconomic mandates. One important caveat is that these results are typically obtained via models that do not consider other policies that are better suited to tackling economic inequality, notably fiscal policy.

In particular, and as argued in Chapter III, fiscal measures aimed at leaning against the inequality trends would have the side benefit of lowering the macroeconomic stabilisation burden of central banks. Reducing income inequality would make recessions milder and shorter, preserving the effectiveness of monetary stimulus. In turn, this means that there would be less of a need for monetary policy to stimulate the economy, reducing the macroeconomic stabilisation burden of the central bank.

Fiscal policymakers may therefore wish to consider policies and instruments explicitly aimed at tackling inequality, as discussed in the previous chapter.

Finally, in addition to fiscal (and especially tax) policies, we know that a number of structural policies (eg labour market policies, training and skill acquisition, public goods such as education and health, the way trade policies operate etc) have a profound impact on inequality. Since this chapter shows that the transmission of monetary policy becomes less effective when levels of inequality are high, it is important to consider how these structural policies can be enhanced so that monetary policy can operate with maximum efficiency. This issue is addressed in the final chapter of this volume.

Appendix

Cross-country estimation

The cross-country estimation of the transmission of monetary policy shocks to consumption is based on a two-step empirical exercise. In the first step, we estimate a standard panel vector autoregression (PVAR), using quarterly data from 1999 to 2019 for 20 AEs. In addition to country and time fixed effects, the PVAR includes three endogenous variables: CPI inflation, real GDP growth and the short-term policy interest rate. This simple empirical framework makes the standard assumption that short-term policy rates across our sample of AEs are set systematically in response to current and past fluctuations in real GDP and inflation. Based on this PVAR, we identify country-specific monetary policy shocks as quarterly innovations to policy interest rates that are orthogonal to those to economic growth and inflation.[77]

In the second step, we aggregate the quarterly monetary policy shocks to an annual frequency and estimate the following local projections specification:

$$\Delta_h c_{i,t+h-1} = \rho^h \Delta c_{i,t-1} + \alpha^h \, m_{i,t} + \beta^h m_{i,t} \times I_{i,t-1} + \gamma^h I_{i,t-1} + \lambda_i^h + \epsilon_{i,t+h-1},$$

where $c_{i,t}$ denotes the logarithm of real (per capita) consumption in country i in year t; $m_{i,t}$ is the average of the quarterly monetary policy shocks in country i during the same year; and $I_{i,t}$ is a measure of country-level income inequality, namely, the share of income accruing to the top 10% of earners. In this specification, the coefficient α^h captures the effect of an unanticipated change in the stance of monetary policy on consumption growth from year $t-1$ to year $t+h-1$, while β^h captures how this effect varies with a (pre-determined) level of income inequality. The specification also includes country fixed effects (λ_i^h), which capture unobservable (time-invariant) differences in consumption processes across countries.[78]

Monetary policy, consumption and income inequality — Table IV.1

	Consumption growth over		
Effect of	*t*–1 to t	*t*–1 to t+1	*t*–1 to *t*+2
monetary policy shock$_t$	4.076***	7.147**	8.614**
	(1.313)	(2.513)	(3.555)
mp shock$_t$ * income share of top 10%	0.145***	0.245**	0.263*
	(0.048)	(0.094)	(0.133)
estimated differential effect for a one std deviation mp shock (75th–25th percentile)	0.177***	0.299**	0.321*
	(0.059)	(0.114)	(0.163)
R^2	0.698	0.531	0.429

Entries in the table show the estimated response of the growth in real (per capita) consumption over the specified horizon to a monetary policy shock of 40 basis points in year *t* (see the annex text for details). Standard errors clustered at the country level are reported in parentheses below coefficients. */**/*** denotes statistical significance at 10/5/1% level, respectively.

Source: Authors' calculations.

[77] Monetary shocks for euro area countries are the same.

[78] To ensure that our estimates are not unduly influenced by the GFC, we also include separate dummy variables for 2008 and 2009.

These second-step estimation results are presented in Table IV.1. An expansionary monetary policy shock (ie a negative interest rate surprise), leads to a significant increase in consumption in the same year and in the following two years (first row). Notably, more concentrated income (ie a higher share of post-tax income accruing to the top decile) tends to significantly attenuate this effect (second row). For a one standard deviation easing shock – a country at the 75th percentile of the income inequality distribution experiences an increase in consumption that is 0.321 percentage points smaller after two years than that experienced by one at the 25th percentile in the same year (third row).

US-based estimation

The estimation exercise underlying the results of Graph IV.6 is based on tracing out the response of personal income growth at the state level to a common monetary policy shock, while allowing the income responses to differ with state-level income inequality. Monetary policy shocks are common at the US level, so we do not need a two-step approach. They are defined as unanticipated changes in the federal funds rate, based on the narrative approach pioneered by Romer and Romer (2004).[79]

Results are based on the estimation of the following local projections specification:

$$\Delta_h y_{s,t+h-1} = \lambda_s^h + \rho^h \Delta y_{s,t-1} + \alpha^h m_t + \beta^h m_t \times I_{s,t-1} + \gamma^h I_{s,t-1} + \delta^h X_t + \epsilon_{s,t+h-1},$$

where $y_{s,t}$ denotes the logarithm of real (per capita) personal income in state *s* in year *t*; m_t is the average of the unanticipated changes in the federal funds rate during the same year; and $I_{s,t}$ is a measure of state-level income inequality, defined as a five-year backward moving average of the share of income accruing to the top 10% of earners.

The coefficients of interest in this specification are α^h and β^h, which measure, respectively, the baseline impact of monetary policy shocks on state-level income growth (from year $t-1$ to year $t+h-1$) and their differential effect as a function of state-level income inequality. The specification also includes state fixed effects (λ_s^h), which capture unobservable (time-invariant) differences in income processes across states and a set of (time-varying) controls at the national level (X_t), including unemployment, inflation, the returns on the SP500 index and the change in the BA-Treasury 10-year spread.

The estimates of the coefficients are shown in Table IV.2, together with their standard errors (clustered at the state level). The top panel of the table presents the key results for the full sample period (ie 1960–2008), while the bottom panel contains the same estimates for the 1990–2008 subsample, where we can also control for changes in unemployment and social spending at the state level. A monetary policy shock that lowers interest rates corresponds to an (unexpected) loosening and hence has a positive effect on income growth. A negative coefficient on the interaction of the monetary policy shock with state-level income inequality therefore implies that high income inequality subtracts from the potency of monetary policy in stimulating income growth. The estimates of coefficient β^h on the interaction term $m_t \times I_{s,t-1}$ are statistically significant at conventional levels at all three horizons, indicating that higher income inequality attenuates the response of personal income to

[79] These monetary policy shocks are identified for each FOMC meeting. Given that the state-level income and income inequality data are annual, we calculate annual shocks by averaging the meeting-specific shocks within each calendar year. Data are available from 1960 to 2008.

unanticipated changes in the stance of (conventional) monetary policy: following a common monetary stimulus deployed at the federal level, personal income increases less in states with greater inequality. Differences in income inequality across states therefore significantly influence the response of personal income to monetary policy shocks: the differential effect of a monetary policy shock between the top and the bottom quartile of the distribution amounts to almost 1.5 percentage points of personal income growth after two years. Results in the bottom panel are qualitatively similar, hinting at the robustness of these findings.

Monetary policy transmission and inequality in the United States — Table IV.2

Real personal income growth from	*t*-1 to *t*	*t*-1 to *t*+1	*t*-1 to *t*+2
	Sample period:	*1969–2008*	
m.p. $shock_t$	15.920**	42.865***	74.126***
	(4.741)	(6.681)	(8.390)
m.p. $shock_t$ * income share of top 10%	–0.373**	–1.058***	–1.964***
	(0.117)	(0.166)	(0.211)
estimated differential effect for a one std deviation mp shock	0.281***	0.797***	1.480***
(75th–25th percentile)	(0.088)	(0.125)	(0.159)
R^2	0.175	0.348	0.303
	Sample period:	*1990–2008*	
m.p. $shock_t$	23.757***	41.850***	39.825***
	(6.133)	(8.232)	(10.721)
m.p. $shock_t$ * income share of top 10%	–0.516**	–1.023***	–1.131***
	(0.155)	(0.206)	(0.266)
estimated differential effect for a one std deviation mp shock	0.388***	0.770***	0.852***
(75th–25th percentile)	(0.117)	(0.155)	(0.200)
R^2	0.351	0.548	0.504

This table shows the estimated contribution of monetary policy shocks (based on Romer and Romer (2004)) interacted with income inequality to the growth rate of real personal income for a panel of 48 US states. The specification also includes the lagged dependent variable, the lagged income share of the top 10%, unemployment and inflation at the national level, returns on the S&P 500 equity index and the change in the BA Treasury 10-year spread, and state fixed effects. For the 1990–2008 sample, the change in unemployment and growth in social spending (both at the state level) are also included as control variables. Cluster-robust standard errors are reported in parentheses below coefficients. */**/*** denote statistical significance at 10/5/1% confidence level, respectively.

Source: Authors' calculations.

Chapter V: Inequality hysteresis and its policy implications: could structural and stabilisation policies complement each other better?

The concept of inequality hysteresis has important policy implications, which we will examine in this concluding chapter. As noted in Chapter II, the interaction between inequality and the business cycle has given rise to the notion of inequality hysteresis. As such, it calls for a re-thinking of how best to articulate the proven structural poverty- and inequality-reducing policies and the traditional macroeconomic stabilisation policies, ie fiscal and monetary. We show that, although these policies have been effective in the past, inequality has increased over the last 40 years within countries. This leads us to ask whether the way these policies are combined should be rethought. Could the effects of the two types of policy reinforce one another and jointly contribute to a virtuous circle, reducing both inequality and macroeconomic instability?

Chapters II, III and IV provide us with examples of such synergies. Given that inequality worsens in the aftermath of recessions (Chapter II), avoiding long recessions could limit or reverse the increase in income inequality. Greater income inequality implies deeper recessions (Chapter II), reducing the effectiveness of monetary policy (Chapter IV). Therefore, policies that reduce income inequality could imply, as a side benefit, a more stable economic cycle both directly and indirectly, by restoring the effectiveness of monetary policy. As seen in Chapter III, income tax structure and the strength of unemployment insurance influence the effectiveness of macroeconomic stabilisation by fiscal policy.

Of course, such synergies should not become an argument for leaning systematically toward interventionist policies with highly distortive tax rates or for maintaining stimulative fiscal and monetary policies in all phases of the business cycle, regardless of risks. On the contrary. For synergies to increase the effectiveness of both policies, they need to go hand in hand with balanced and sustainable interventions that are state-contingent and country-specific. Otherwise, macroeconomic imbalances such as high inflation and rapid debt accumulation will resurface, eventually leading to macroeconomic crises that harm everybody, and the poor most of all. For, as noted in Chapter I, the current price rises for food and energy tend to hurt the poor disproportionately. Thus, to combat inequality it is now paramount that monetary policy focuses on curbing inflation while incurring the least possible collateral damage in terms of reduced economic activity.

Still, within a more cost-effective approach, we could envisage a different balance of burden-sharing between fiscal and monetary policies, where the former takes a more active stabilising role that squarely addresses inequality. In particular, we will discuss below the leading role that can be played by targeted fiscal instruments. A better targeted and more synergistic set of policies could be more effective and less costly for the public finances and financial stability than deploying highly accommodative quasi-fiscal and monetary packages across the entire population for long periods.

In Chapters I and II, we briefly documented the increase in inequality over the past four decades, in terms of both income and wealth. This has been extensively

discussed in the academic literature, in policy circles and among a wider public. In line with the increased focus on poverty reduction over the past decade, the debate has shifted toward admitting that inequality could hurt growth and productivity in the long run. Hence containing or reducing inequality could bear fruit in the form of higher productivity. In addition, inequality foments socio-political instability, thus affecting the viability and the effectiveness of macroeconomic policies and the capacity to implement structural reforms, creating a vicious circle. The debate has also shifted because the statistical facts on inequality are better documented, thanks to larger and more comprehensive income databases for a larger number of countries. These enable a more precise analysis, better informing policy discussions. That said, there is still ample scope for progress. Most data about inequality are still produced with long lags, and data frequency is typically low, on annual or even multi-year terms. But as showed by Blanchet et al (2022) for the United States, it is feasible to collect more granular and higher-frequency data on income inequality in real time. Such data could be used to test and improve the design and the implementation of stabilisation and structural policies.

As noted in Chapter I, the key long-term drivers of the increasing trend in inequality have been extensively analysed.[80] Chief among them are structural factors such as technological progress and globalisation, changes in labour markets and tax and transfer policies. In particular, the first two increase inequality by boosting the premium associated with skill-based technological change (SBTC).[81] Granted, globalisation has also increased productivity, allowing a better distribution of economic opportunities across countries. While this has indeed reduced income inequality across countries, the collateral effect has been higher on within-country inequality, as productivity gains have benefited mostly the more skilled workers and wealthier households. Acting in parallel have been the post-1980s changes in the social protection and insurance policy frameworks that were originally inspired by Beveridge and Keynes in the post-World War II period. These post-1980s changes have reversed the more progressive tax policies,[82] broad government-provided insurance against social risks and other means-tested transfers. Indeed, despite an increase during the 1980s in "social spending" by governments,[83] advanced economies have seen a shift towards less redistributive frameworks in recent decades. These shifts reflect a combination of political economy factors, coordination failures between countries and myopic cost-benefit analyses of policy effectiveness. This shift towards less redistributive tax and transfer systems has probably exacerbated the effects of the powerful structural factors that have raised income inequality. In particular, as we argue in Chapter III, the shift of fiscal policies away from redistribution has had two undesirable side effects. It has eroded the macroeconomic stabilisation properties of fiscal policy while increasing the use of discretionary fiscal policy to combat recessions. In addition, the shift away from redistribution has also

[80] For a summary of cross-country evidence of the main causes of inequality in OECD countries, see Foster and Tóth in Atkinson and Bourguignon (2015) pp 1729–843.

[81] See the seminal intuition of Tinbergen (1972, 1975) on this mechanism. In the context of outsourcing and GVCs, there could be a "race" between the wage premium of educated workers vis-à-vis other less skilled workers. Globally, there is a relative scarcity of skills vis-à-vis the oversupply of low-skilled workers, where the dynamic catching-up process tends to favour skilled workers.

[82] For an analysis of this reversal in the United States, see Saez and Zucman (2019) and for the United Kingdom, see Atkinson (2015).

[83] See below our discussion on fiscal policies and social spending.

hampered the transmission of monetary policy, as we argue in Chapter IV. Hence, it has increased the burden of macroeconomic stabilisation for central banks[84].

More recently, economic conditions may have changed from the time when policy space to pull the economy out of entrenched recessions was constrained by the zero lower bound on interest rates. At the time of writing, the macroeconomic outlook is very atypical. Inflation has reached levels not seen in 40 years in many advanced economies. This is the result of massive monetary and fiscal stimulus in response to Covid-19, bottlenecks in global value chains and rising energy and food prices, among other factors. The post-Covid recovery has been especially vigorous in 2021 and, at least in the United States, wage increases have accelerated. The main challenge for central banks is to bring inflation down. However, while it is too early to assess the legacy of this atypical cycle in terms of income inequality, a discussion is still warranted of the implications of inequality hysteresis as it manifested itself in previous recessions.

The evolution of stabilisation policies in combating inequality

We start discussing in this section how some macroeconomic stabilisation policies have already evolved in ways that are relevant for income inequality. Interestingly, some Covid-related fiscal policy packages deployed in 2021, for example in France, Germany, Italy and the United States, aimed to prevent deeper recessions developing as a result of lockdowns but these downturns still inflicted potentially long-lasting scarring effects.[85] More generally, it should be acknowledged that stabilisation policies have evolved considerably in the last two decades and are being actively re-evaluated in order to adapt them to the effects of the GFC and the Covid-19 pandemic. Although for the latter, they were not explicitly meant to address inequality, they facilitated a rapid rebound of economic activity. We therefore see merits in discussing four dimensions of the ongoing debates on economic policies. These relate to (i) monetary policy; (ii) fiscal policies; (iii) the role of new technologies for targeting better public policies; and (iv) the horizon and governance of the policies involved.

First, on the monetary policy front, many central banks have been re-evaluating their monetary policy frameworks (eg adding to their flexible versions of inflation targeting new unconventional instruments such as forward guidance, negative interest rates, expanded credit operations and asset purchase programmes) and more recently changes in their operational price stability objective (adopting a more symmetrical inflation target for the ECB or average inflation targeting for the Fed). In addition, they have been considering the pros and cons of other monetary policy frameworks (GDP or nominal income targeting etc) and the inclusion of other objectives – above all, full employment and an inclusive labour market – that have a more direct bearing on inequality, while also planning to adapt their operations to climate change challenges.

[84] See BIS (2021) Chapter II, and Carstens (2021).

[85] For a comparison of losses during pandemics, showing that the measures taken did reduce expected losses, see Rungcharoenkitkul (2021) or Doleschel and Manu (2021).

Despite these additional instruments, the difficulty – until recently – in achieving inflation targets has led to a broad discussion about what is hampering the transmission of the very accommodative stimulus (see Chapter III). Central bankers are integrating more openly into their analysis the importance of inequality as a feature of the macroeconomic environment in which monetary policy operates. They are making efforts to incorporate inequality into the models used for policy analysis. The recent reviews of the monetary policy frameworks carried out at major central banks[86] featured inequality prominently. This is relevant because the policy prescriptions based on models with heterogeneous agents can be radically different from those obtained from standard representative agent models, depending on how resources are distributed across households in the economy. For example, Ricardian equivalence – that is, the long-run neutrality of fiscal stimulus – breaks down if wealth is heterogeneously distributed across households. Fiscal policy reactions to monetary policy decisions therefore matter in determining the overall intensity of the stimulus.

This of course does not mean that inequality should be an explicit policy objective. However, more recent frameworks, especially those that put an emphasis on the importance of maximum employment and inclusive labour markets, should be better equipped to mitigate the risks of inequality hysteresis.

Purely price stability-oriented mandates, while providing the nominal stability pillar of an equitable growth, put less emphasis on labour market outcomes. Single-mandate central banks may still factor in a secondary objective for an "inclusive labour market". For example, the recent strategy review of the Bank of Canada – an inflation targeting central bank – foresees "probing" strategies with respect to the labour market. This means that, given the substantial uncertainty around the degree of maximum sustainable employment, the bank could decide to let labour markets run hot until wage pressures (and hence inflation) start surfacing.

That said, it is important to stress that these recent reviews did not lead to new paradigms, but rather to incremental adjustments to legacy frameworks. More radical alternative strategies, such as targeting nominal GDP, were assessed to be less appropriate than the status quo.[87] Nominal GDP targeting (NGDPT) has its own conceptual and legal limitations. Moreover, it could also pose major communication challenges for central banks. In particular, it requires a view to be taken on the (growth rate of) potential output, a variable that is not a directly observable and must be estimated. Furthermore, NGDPT may not be consistent with existing central bank mandates, which put a premium on price stability. Another layer of complication would be to publicly explain such a radical shift away from inflation targeting.

[86] This is especially true in the case of the Federal Reserve and the Bank of Canada. The former has a dual mandate for price stability and full employment. The latter is mandated to stabilise inflation. However, its December 2021 monetary framework statement also gives prominence to employment: *"recognizing the limits of monetary policy, the Government and the Bank also acknowledge their joint responsibility for achieving the inflation target and promoting maximum sustainable employment"*. A dual mandate or aiming to promote maximum employment enables the central bank to cope with tighter labour markets (at least to the extent inflation does not spin out of control), so that it can facilitate the employment of the most disadvantaged that are often at the fringes of labour markets. These workers typically struggle to find employment until the labour market becomes very tight. Yet bringing them into the labour market has obvious benefits not only in terms of inequality – as employment lifts these households out of poverty – but also in terms of overall growth: these workers are typically discouraged, having been unemployed for a long time, so that bringing them back into the labour market increases overall growth potential.

[87] Nominal GDP targeting is a relatively old framework proposed in the 1980s by James Meade, James Tobin and Ben MacCallum. It was revived after the GFC and was discussed in academic circles and also at the Bank of England, the ECB and the Fed around 2010–11.

However, such strategies may be especially suitable in mitigating income inequality, as they mechanically balance economic growth and inflation over time.

The present surge in inflation requires us to consider a further issue. Although inflation does not itself explain an increase in inequality (Atkinson and Bourguignon (2015)), there is an established literature[88] which shows that high inflation compounds and worsens income inequality. There are three known channels through which it exerts this effect.

First, the wage channel erodes the purchasing power of wages, as mentioned in Chapter I and in BIS (2021). When prices rise faster than nominal wages, inflation increases inequality by reallocating income from wages to profits. It is even more damaging when, as in 2022, price hikes are concentrated in categories such as food and energy that represent larger shares of the income of low-income groups. Second, the financial channel proceeds from the better ability of high income groups to protect their revenues and wealth against inflation. Atkinson (2015), for instance, points to inflation as a threat to the income of small savers. He recommends offering savings bonds with positive real interest rates applying a maximum holding per person including for poor households. Finally, the growth channel is due to the association of high-inflation economies with more intense redistributive conflicts. In turn, inequality harms growth because such distributional conflicts deter investment and capital deepening (eg Person and Tabellini (1994)). This aspect is related to the literature on "middle-income growth traps".

Second, on the fiscal policy front, treasuries or ministries of finance typically cooperate with their colleagues in social affairs to design anti-poverty and social safety nets that strike a balance between incentives and the protection of the most vulnerable. According to data and recent studies,[89] "public social spending" has grown in most OECD countries from an average of 16.6% of GDP in 1980 to around 22% in 2016. However, this increase was due mainly to demographic factors that have played an important role in the increase in transfers (ie pensions and healthcare expenditures) and it did not go pari passu with an increase in redistributive programmes. Hence, this rise in social spending failed to contain the increase in income inequality.

What can public policies do better? We set out some practical points in the following sections. Here we simply suspect that one general avenue is to use more granular data, beyond traditional household surveys, to better target social programmes and safety nets, drawing on comprehensive data sets on both tax records and social characteristics to improve policy design. Various survey-based anti-poverty programmes of recent decades, especially in EMEs, show that improving the effectiveness of such successes is within reach, given new technologies and data.

Therefore, treasuries and social affairs ministries could use such data to reassess the cost and benefits of specific redistributive initiatives (eg capital endowments to SMEs, innovation and start-ups). They could also analyse the effectiveness of cyclical

[88] Many empirical studies found a strong positive correlation between inflation and income inequality: Albanesi (2007) across 51 advanced and developing countries between 1966 and 1990, Erosa and Ventura (2002) for the United States, Blejer and Guerrero (1990) for the Philippines, Datt and Ravallion (1998) for India, and Ferreira and Litchfield (2000) for Brazil. Tellingly, Easterly and Fischer (2000) used a large sample of household survey data and find that the poor are much more apt to cite inflation as a problem than the rich are.

[89] See the OECD Social Expenditure database (SOCX) and recent studies (see Florian et al (2020): "public social spending" has indeed grown in most OECD countries from an average of 16.6% of GDP in 1980 to around 22% in 2016.)

anti-inequality measures (eg more aggressive means-tested transfers – conditioned on the state of the economy, higher unemployment insurance schemes etc). These are points that we will return to.

The third observation is about the role of new technologies for targeting better public policies. The new technology that can be used to deploy policies aiming at addressing inequality, specifically taking into account progress in the area of digital infrastructures and information, can transform policy effectiveness. As showed by Blanchet et al (2022), income inequality can now be measured in real time. In addition, a new and common role for all principal agents could be to help build the type of more granular information set that allows for a better targeting of policies. This revolves around the type of universal digital ID[90] and public platforms for financial services[91] that could enhance the capacity and outreach of targeted social policies.

Technological innovation has enormous potential to increase social welfare and financial inclusion, hence contributing to reduced inequality. We can see this in improvements in credit access, as well as efficiency gains in trade financing and insurance coverage.[92] Nevertheless, it can also have also other distributional effects if and when the relative differences between different groups widen, which could increase inequality.[93]

We do not pretend in the space of this volume to provide evidence for this intuition and cannot discuss it at length. It is, however, likely that, with these new tools in hand, the effectiveness of fiscal and monetary policy could be significantly enhanced. This implies using digital ID, with a potential role for central bank digital currency (CBDC) and fast payments systems, given their ability to target groups in a much more accurate, cost-effective way. Obviously, this has to be conducted under the strict guidelines of data privacy protection and with the proper safeguards for users and beneficiaries. But better targeted policies, in the context of those deployed on an unprecedented scale by the United States administration recently, could have had a larger effect on reducing income inequality (as noted in Blanchet et al (2022)) at the cost of a more moderate impulse to aggregate demand than policies that are deployed across the board.

Fourth, layers of complexity are added by the different horizon and governance of structural and anti-inequality policies vis-à-vis those for stabilisation. Structural policies are implemented over a long horizon by various agents with different mandates such the treasury (or ministry of finance), financial market regulators and/or the monetary authority and the government with various ministries (labour, social affairs etc). These policies usually seek to set up stable, socially accepted, long-term mechanisms to redistribute revenue from high-income households to lower-income ones, while curbing distortive production incentives. In many cases, policies entail institutional reforms and new legal settings. Among these, reforms can also consist

90 See eg India's biometric digital ID (Aadhaar) to enhance the delivery of many services and social programmes. See D'Silva et al (2019), Gelb and Mukherjee (2019).

91 We cannot discuss in this limited space the extensive literature of research and practices that can be found at the BIS. For an overview, see BIS (2020), Chapter III "Central banks and payments in the digital era".

92 See Gambacorta et al (2021), Jagtiani and Lemieux (2018), Tang (2019), Sahay et al (2015), Boissay et al (2021).

93 Indeed, some observers argue that the use of new digital technologies in lending and insurance – but also areas such as college admissions, advertising and even prison sentencing can lead, through the use of AI, to discrimination and other forms of inequality. See O'Neil (2016) and for a discussion, Pereira da Silva et al (2019).

of specific incentives for enhancing market functioning and fair competition but also to prevent special interest groups from acquiring and then exerting excessive market power. Finally, structural policies can help to manage the inequality consequences of skill-based technical change (SBTC, also called by some the "Tinbergen race") by applying specific structural reforms.[94]

Stabilisation policies in the form of fiscal and monetary measures are implemented across phases of the business cycle and can be adapted under specific (crisis) circumstances by the treasury (or ministry of finance) and the central bank. They can serve, by design, as automatic stabilisers, and be geared up or down along the cycle. For example, during the Covid-19 recession, additional transfers in the shape of furlough schemes and credit guarantees were deployed in addition to the social safety nets already in place.

How can structural and stabilisation policies complement one another to combat inequality?

How could structural policies and macroeconomic stabilisation policies complement each other to forestall the hysteresis effect of inequality?

Table 5.1 below provides an overview of these potential synergies. Regarding structural policies, the table lists most of the traditional structural policy package that could be used to address the main features of inequality. It includes a combination of structural and long-term fiscal, tax and social policies (Atkinson and Bourguignon (2015), Atkinson (2015), Blanchard and Rodrik (2021)). All the measures considered in this chapter are drawn largely from this body of work, which provides comprehensive and up-to-date reviews of the policies that are considered feasible and efficient for leaning against income inequality.

To begin our discussion of how structural and stabilisation policies can complement each other to combat inequality, we classify the main measures into the following five main areas (in the first column of Table 1): (a) tax policy; (b) the provision of public goods; (c) credit markets; (d) labour market; and (e) competition policies in various markets. In each of these areas, we will describe how structural policies and stabilisation policies could complement each other to contain or reduce income inequality. We list many of the potential complementarities without, however, conducting a full cost-benefit analysis of each individually or of any of their possible combinations. This list should be seen as identifying opportunities where policymakers could explore synergies if they wished to rein in the steep increases in inequality that arise after recessions. Our role is just to set out the potential complementarities between the structural and cyclical policies.

The specific calculations that policymakers need in order to choose between alternatives and implement a given policy package require assessments that go

[94] Beyond encouraging technological innovation and broad adoption, government should assess its different dimensions. Innovation should be welcome, but it should also consider the employability of all workers (ie foster the creation of higher-quality jobs) while discouraging what Acemoğlu and Respreto (2020) call excessive automation. The authors report evidence that US tax incentives have usually favoured an excessive adoption of automation technologies. Public policies could foster the acquisition of skills and human capital accumulation (by enhancing training, transitions and skill-specific education policies) more specifically among workers whose skills have become obsolete.

beyond the limited ambition of this volume.[95] We instead sketch out a new policy and research agenda.[96] As stated earlier, the objective is to be able to compare and estimate the net benefits of reducing inequality when using inequality-reducing structural policies in isolation or to complement business cycle stabilisation policies. The premise is that using their synergies would be cost-effective and welfare-enhancing. So we now discuss in turn each of these major areas of reforms.

Regarding tax policies, there is a structural direction of change that the results of Chapter III of this volume indicate to combat inequality. That is, a return to the more progressive tax system that was in place after World War II, with marginal tax top rates that were much higher than today. Hence, tax policies need to be reconsidered more forcefully for their redistributive consequences.[97] Among other structural features of the literature on the effectiveness of tax architecture[98] inequality can also be reduced by more progressive inheritance and real estate taxation. There are also conditions when the recourse to a wealth tax allows other, more distortive, taxes to be reduced. In many of these areas there is a broad consensus across the political spectrum (Blanchard and Tirole (2021), Bozio et al (2020)).[99]

Then, but still on the structural side, fiscal frameworks should be reconsidered for their net effects. The aim of fostering labour supply through flatter tax rates and weaker unemployment insurance, as in the past two decades, has led to fiscal policies that are overall less countercyclical, less able to stabilise the business cycle more effectively and hence have several negative collateral effects.

Hence, such policies are more prone to increase inequality by reducing redistribution and by less effective dampening of business cycles that, in turn, foster persistent increases in inequality. Then, by virtue of their weaker automatic stabilisation properties, they are apt to expose governments to the need for more costly countercyclical policies when needed. A greater fiscal effort is therefore necessary during crises to obtain the same economic response. Indeed, weaker automatic stabilisers have in fact led to larger reliance on discretionary fiscal policy in recessions and accelerated public debt accumulation.

[95] One example of such evaluation is available in Atkinson (2015), Chapter 11, "Can we afford it?". Atkinson uses tax benefit models that are built on household survey data to put a price tag for the United Kingdom on each of his proposals and to show that, in aggregate, they can become revenue-neutral since most of the taxes and transfers can be designed to, in aggregate, become a zero-sum game. Other models can be used to estimate the general equilibrium effects of implementing such packages or subsets of them.

[96] Blanchard and Rodrik (2021) stress that by embracing a research agenda focused on reducing inequality "economists can be at the vanguard of policy reform rather than playing their habitual role of naysayer (we can't afford it", "we don't have enough evidence", "incentives will be distorted",...). We hope that our discussion can be seen as a step, even if a very modest one, in that direction.

[97] One area not covered by this volume but of high importance for inequality is the redistributive consequences of climate change and its greater impact on poor households in terms of physical and transition risks (eg severe and more frequent weather events, disruption of production processes, relocation of activities, severe heat etc). In particular, adequate carbon taxation and policies to combat global warming will have an important and quite negative effect on inequality if not at least partially offset by transfers. For a discussion see Bolton et al (2020).

[98] One area where there has been recent progress is the establishment of a level playing field in global taxation with the accord on a global tax regime for corporates (ie a minimum level). That could perhaps be extended to reach very wealthy individuals and enhance the capability of cross-border taxing.

[99] Blanchard and Tirolle (2021) and Bozio et al (2020).

Last but not least, when the fiscal authority provides less automatic stabilisation during downturns, it implicitly puts more weight on the shoulders of the central bank. Engineering ad hoc fiscal and redistributive policy packages is difficult and takes time, so that, as the recession unfolds, central banks may find themselves in the uncomfortable position of being the "only game in town" for countercyclical policy support.

The results in Chapter II and IV hinted at a perverse amplification mechanism: once inequality is left to grow unchecked, deeper and deeper recessions demand additional policy support, but at the same time monetary stimulus loses traction, so that the central bank needs to deploy bolder and bolder instruments, which in turn may also produce undesirable side effects in terms of wealth inequality. Hence, the lack of stabilisation provided by the fiscal authority turns into a burden for the central bank.

Turning to stabilisation policies, in order to better deal with inequality and to break the perverse amplification mechanism outlined above, we suggest that the following factors should be considered.

Speed is of the essence. Stabilisation needs to be deployed promptly and adequately during certain phases of the business cycle. For example, in the face of the 2022 upsurge in inflation and mindful of the negative effect of inflation on inequality, stabilisation policies need to be swiftly activated. Since some of the price increases come from supply shocks and bottlenecks, targeted fiscal measures could be considered. To the extent that the shock is temporary, absorbing part of the increase in prices could reduce their transmission into higher wages and prices. From an inequality perspective, the additional issue is how to shield the more vulnerable segments of the population, whether through subsidies or targeted fiscal transfers?[100] However, the negative supply shock may turn out to be persistent, and some of these measures are notoriously difficult to roll back, further distorting pricing and possibly fuelling inflation down the road, particularly where fiscal sustainability could become an added difficulty for policy frameworks.

Turning now at prolonged economic downturns weak automatic stabilisers could be strengthened by additional ad hoc transfers operating with better targeting of recipients to tackle rising inequality in the lower segments of the income and wealth distribution. These additional fiscal transfers could be scaled up to either work in synch with monetary policy stimulus once recessions hit or to provide the lion's share of the macroeconomic stabilisation effort once the effectiveness of monetary policy is limited by the zero (or close to) lower bound on interest rates.

In the area of the provision of public goods and other social programmes, most structural policies seek to enhance the provision of high-quality, universally available and affordable public goods (some of which may be provided by the private sector). This comprises public health care,[101] public transportation services, education and public safety. In addition, social programmes mostly in EMEs have been built around conditional cash transfer (CCT) programmes and other means-tested transfers, as advocated in the literature and proven in many countries. Other, more controversial policies in the literature include universal basic income and capital endowments for specific groups (eg youth, SMEs, start-ups under specific conditions etc).

[100] In France, for instance, measures amounting to 1% of GDP have been put in place to limit the fallout of rising energy prices on households (Pisani-Ferry (2022)).

[101] For a discussion on health inequality see O'Donnell et al (2013) also Case and Deaton (2020).

Turning to stabilisation policies, an important question to ask is whether these programmes should be adapted to business cycle conditions and if doing so would improve their effectiveness, while, at the same time, helping to stabilise the business cycle. As we know, many of these programmes run in the background of cyclical fluctuations, irrespective of their effective implementation and their sustainability.

As stressed above, timeliness is of the essence. Therefore, ensuring the continuation in the delivery of high-quality public goods and rapidly adjusting transfer policies can help to keep the most vulnerable households afloat (eg the supply of health care, training etc, extending safety nets, temporary job protection and partial public remuneration of current employment). This would help to prevent such households from falling into poverty traps, and protect them from personal bankruptcies. While such programmes have long been advocated by economists (Atkinson (2015), as mentioned above), new technologies could be a game changer for their effectiveness. In particular, the use of digital ID, geographical location and other technological means to assist would be paramount.[102] Our point is that, with more effectiveness, the amount and duration of more traditional fiscal and monetary stimulus needed to cushion recessions and foster recoveries could be scaled down. The more effective targeted fiscal policies are in stabilising aggregate demand, the less the need for an accommodative fiscal and monetary stance in recessions. As long as targeted fiscal policy is not improved, and provided inflation stays low, monetary policy should be deployed boldly to foster inclusive labour market outcomes.

In the area of credit, capital and financial markets, the fundamental role is to ensure financial stability through regulatory frameworks and policies. During expansionary phases, macroprudential policies can limit the insurgence of financial excesses and vulnerabilities that would deepen and prolong the ensuing downturn.[103] In addition, most of the long-term policies aim at enhancing the access of low-income groups to the credit and insurance markets. There is a delicate balance between improving access to credit for the poor while shielding them from over-indebtedness, as this deepens inequality. Here again, technology can increase the scope for better and cheaper insurance of the informal sector, SMEs and low-income groups. All these elements will contribute to boost financial inclusion, access to credit, while proper consumer protection can limit risks of over-indebtedness and debt overhang. Such schemes help weaker households to self-insure against hardship. Last but not least, governments could, as many do, build a social welfare fund for bad times that would allow them to enhance their social policies and room for manoeuvre during recessions.

What can stabilisation policies do to support structural measures in this area? Some regulatory and prudential provisions, that relate to housing market conditions in poor real estate districts could be modulated along the cycle. Housing is an important asset of low-income groups, especially for the lower middle class. Recessions may bring hardship in the form of foreclosures and personal bankruptcies.

[102] The research agenda of Rob Townsend on these policies is particularly inspiring. See Kinnan et al (2021) and Ru and Townsend (2020).

[103] The extensive literature produced at the BIS on this topic includes eg Borio (2006). New changes in inflation targeting (IT) are suggested as an ongoing practice in EMEs. Higher macro-financial volatility and limits to countercyclical fiscal and monetary policy have led central banks to use more instruments in an integrated way to smooth excessive volatility in financial markets and the exchange rate. In addition to the policy rate, they calibrate macroprudential policies, FX interventions and capital flow management. Less volatility in local business cycles affects inequality notably by reducing the pass-through of exchange rates into domestic inflation. See the ACC (2020) and CCA (2021) reports on MPFs and Agénor and Pereira da Silva (2019).

Some reflection on the conditions for a targeted forbearance on mortgages and loans for the low-income segment of the market would seem useful in order to ascertain the social costs and benefits through the cycle.

Central banks, supervisors and financial regulators can assess whether micro and macroprudential instruments can help to limit debt trap-related distress either among households or SMEs and whether this brings benefits in preventing inequality hysteresis. More attention could be paid to the distributional and geographical effects of such policies. Active stabilisation of credit conditions will reduce the risks of inequality hysteresis and prevent a spiral that would make future downturns more costly to tackle.

In the area of labour markets, many long-term policies have been described in the literature, with most revolving around establishing an adequate level for the minimum wage, providing some form of job guarantee and, as mentioned above, setting an adequate unemployment insurance scheme. Policies also focus on guaranteeing certain established international floors for labour income and more general employment standards. Some schemes aim to ensure a minimum level of employment, as defined by public authorities, and provide for a public employment programme as necessary during severe recessions. The evidence reported in Chapter II also indicates that the bargaining power of labour declined steadily since the 1980s. Another potential goal is to improve how social partners assess the effects of compensation, productivity gains and inflation on inequality. Strengthening labour bargaining power would result in a more balanced allocation of productivity gains between workers and employers, as was the case in the 30 years after World War II in most OECD countries. Wage bargaining processes that factor in the price stability objective of the central bank would greatly facilitate the stabilisation of inflation.[104]

What can stabilisation policies do to support structural measures in this area? The key point is that structural reforms which improve workers' risks in the labour market have to be combined with stronger insurance against these risks. Many ideas have been debated but novel schemes have appeared during the Covid pandemic. The pandemic has seen a significant effort to maintain employment and activity through partial employment schemes, and to offer public work or training programmes when needed. The example of stronger recoveries even in countries that have robust automatic stabilisers and social protection, for example in Europe, is a case in point. In addition, some central banks are explicitly looking beyond average unemployment levels, towards a more comprehensive and inclusive notion of full employment.

We will not investigate this topic further here but we should mention that the preservation of real income during recessions entails looking at pricing practices related to competition policies in various markets. This can be done by establishing adequate regulation and anti-trust laws. The pandemic provides a good illustration of this challenge: specific supply bottlenecks related to the recovery can lead to sudden price rises for much-needed services used by low-income groups. Therefore, another important measure for reducing inequality is to incentivise a pricing behaviour that avoids any oligopolistic or opportunistic re-pricing of basic services (eg transportation fares, gas, energy, internet access, mandatory insurances, health

[104] Pereira and Mojon (2019) review five historical episodes where social partners reached a consensus to lower inflation. These episodes show how labour market institutions, such as wage negotiation practices, can be extremely powerful levers in the transmission mechanism of monetary policy, even though such institutions may be well beyond the reach of monetary policy instruments (interest rates, reserve requirements, collateral frameworks, asset purchases etc).

services etc). These are sensitive areas for low-income groups, and recent social upheavals in many AEs and EMEs have shown that attention should be paid to the pace and magnitude of adjustments in these areas. State-contingent stronger competition standards could help limit the windfall gains that accrue to producers when prices peak together with marginal costs of production, as has been the case for natural gas prices in Europe in 2021.

An open agenda: more effective structural and stabilisation policies to combat inequality

The cyclical dimension of inequality has been somewhat neglected, as policymakers have naturally paid more attention to the long-term determinants, as well as the structural factors and policies mentioned above. Our results suggest that the lack of a specific policy response to adverse shocks that takes into account the heterogeneity of agents can produce inequality hysteresis and exacerbate long-run inequality trends. It follows that the short- and long-term dimensions of income inequality should be understood and addressed jointly. And policy responses to inequality should aim not only at mitigating structural increases, but also at containing the emergence of inequality hysteresis.

Hysteresis compounds long-run trends, and progressively worsens macroeconomic outcomes over time. This is because limiting the surge of inequality has an intrinsic value – in addition to any preference for a more equal distribution of resources on the grounds of fairness and social cohesion. This is because greater inequality bakes in negative aggregate macroeconomic effects. We have shown that more unequal societies are typically prone to deeper recessions. We have highlighted that monetary policy stimulus loses traction amid high inequality. This means that, left unchecked, inequality hysteresis will progressively worsen the outcomes of upcoming downturns or recessions. Thus, acting both pre-emptively and when a crisis breaks out to prevent hysteresis from setting in would deliver not only short-term benefits but also longer-term gains in the form of a more stable business cycle.

Ministries of finance, central banks and regulatory authorities can play their part – and they have recently done so quite effectively during the Covid-19 pandemic. When recessions hit, monetary policy can speed up the economic recovery by providing enough monetary accommodation for an adequate period of time. But fiscal policy can apply instruments that are better targeted and redistributive, so that the role it can play in limiting inequality hysteresis is crucial. As we saw, tax and transfer systems can be recalibrated to reduce inequality in normal times, but they can also be boosted in a more state-contingent fashion to better support those most severely affected when a recession hits, thereby curbing inequality hysteresis. Conversely, when inflation surges during the business cycle, both monetary and fiscal policymakers should seek to play their traditional stabilisation role while keeping in mind the redistributive effects of their policies.

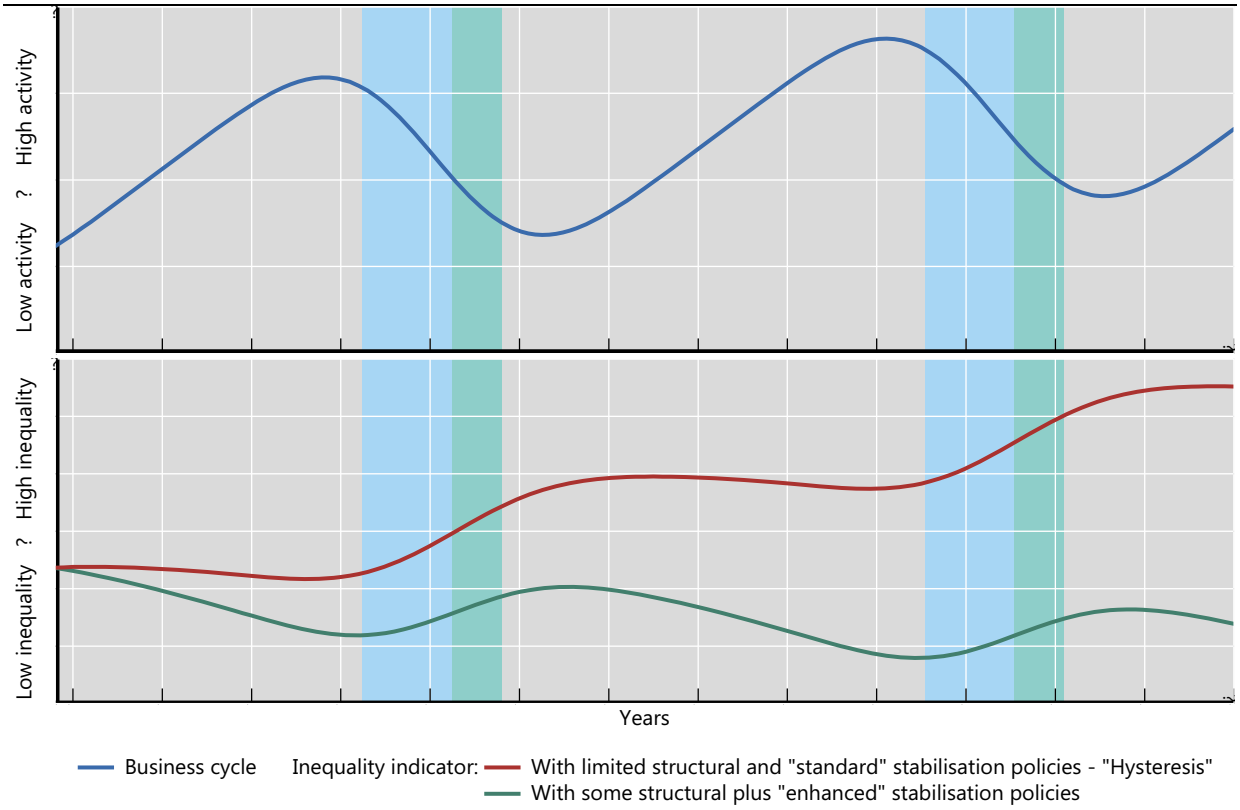
Our suggestion, therefore, is to make both the fiscal and the monetary countercyclical impulse more effective and hence, get more bang for the buck for both inequality-reducing and stabilisation purposes. If so, then the scale of these policies can be reduced. Better data and tools to target the right areas of activity and the right income groups should be more cost-effective. In addition, as advocated

above, the division of labour between monetary and fiscal policy should be revisited by addressing inequality more squarely with fiscal instruments, thereby relieving monetary policy of the excessive burden it has taken on recently.

When all these policy dimensions are considered, the compound effect of both structural and stabilisation policies working in tandem against rising inequality could deliver effectiveness gains, as illustrated in the stylised curves of Graph V.1. When we look at a given indicator of the business cycle, say activity (the blue line), its fluctuations have been addressed during a given policy window (the light blue area). If we add an inequality consideration, it might be that – as long as inflation is muted and policies are not creating other macroeconomic imbalances such as too much debt – this policy window has to be stretched further, in order to reduce the risk of inequality hysteresis (the light green window). That means that countercyclical policies might need to get more traction, as we have seen during the GFC. But it could also be that, if our "synergy" hypothesis kicks in, the policy window might actually be reduced. That is, better articulated policies would actually facilitate doing less. In any event, only an adequate state-contingent and country-specific analysis could provide an answer to the question of how and when, if needed, more accommodative policies should be maintained for a given period of time.

Stylised representation comparing more effective structural and stabilisation policies to combat inequality

Graph V.1



The blue areas indicate the window for implementing standard stability policies during the business cycle. The green areas indicate the extra-window for implementing enhanced stability policies.

Now linking the business cycle with a given inequality indicator (say the Gini index or the top decile of the income distribution), the traditional way to smooth the business cycle might have ended with the inequality that always rises in downturns

but in addition has also displayed a rising "trend" since the 1980s (the red line below, in parallel with the blue line of the business cycle). This is what we here call "hysteresis". Existing structural policies to reduce inequality have failed and stabilisation policies may not have given sufficient attention to this dimension. It might be that, when and if these structural policies are enhanced (eg the bulk of the policies described in Table V.1 are deployed more systematically and in tandem) and stabilisation policies are recalibrated to take inequality more into consideration, the outcome for the inequality indicator will be the green line, representing a business cycle of reduced amplitude and without a ratchet effect following recessions.

While the jury is out on how this insight can be effectively translated into practical policy, this volume aims at stimulating the debate on a new policy angle. Could policies be more effective if they more explicitly account for the influence of inequality on the business cycle? A key question is what needs to be done, regarding inequality, in addition to the traditional and important role of stabilisation policies in controlling inflation and smoothing activity. We see such questions as only the beginning of the journey. Many bridges already exist between long-term structural policies aiming at reducing inequality and short-term policies implemented during the Covid pandemic and to meet the subsequent challenges, including a possible new inflation regime and new trends in globalisation. This volume, by applying the concept of inequality hysteresis, aims to shed light on these bridges in a novel way.

Complementing structural and stabilisation policies under inequality hysteresis Table V.1

	A. Long-term, structural measures and policies			B. Supportive short-term stabilisation policies during downturns and recessions	
	Public finance, fiscal and para-fiscal	***Financial markets, prudential policies***	***Structural Reforms***	***Fiscal***	***Monetary***
Principal agent in charge of policy implementation	*Ministry of Finance*	*Financial markets regulator and/or monetary authority*	*Government with Public Development Agencies and Social Affairs Ministries*	*Ministry of Finance*	*Central Bank*
Tax policy	Progressive income tax system returning to post-WWII levels of marginal taxation; higher inheritance and estate tax; wealth tax; negative tax rates for special cases (eg, poor groups, child allowance) (A, AB, BR)			Strengthen automatic stabilisers (transfers, UI, Chap III) with better targeting of recipients to smooth adjustments in expenditures and avoid debt traps in low income groups	
Public Goods and other Social Programs	Enhance financing of public goods (health & education policies); scholarships for higher education; conditional cash transfer (CCT) programs (A, AB, BR)	Data sets and public plateforms to allow enhancement of policies to measure income inequality on higher frequency	More comprehensive social insurance, income-tested transfers, universal basic income and capital endowment youth policy (A, BR)	Increase supply of public goods in crisis (health, training, etc); maintain safety nets and enhance for most vulnerable households (Chap III); use digital ID, geographical location and technology for better targeting	Assess transmission of MP (Chap IV) policies, with distributional consequences, state-contingent, country-specific
Credit markets	Build social welfare Fund for bad times (A)	Financial inclusion, access to credit (A); positive savings rate with maximum holding per person (A); Develop infrastructure for better assessment of idiosyncratic credit risk using AI, Big data;	Enhance access to insurance market; increase scope for insurance of informal sector, SMEs		Special regulatory and prudential attention to housing market conditions in poor districts; consider state contingent forebearance for middle-class and low income groups
Labour market	Establish adequate minimum wage, job guarantees, adequate Unemployment Insurance scheme (A, AB, BR)		Ensure employment objective and establish public employment schemes; strengthen representation and bargaining power of labour unions (A, BR)	Effort to maintain employment and activity through partial employment schemes; offer public work programs when needed	Look beyond average unemployment levels including in communication of policy directions (Chap IV); nudge trade unions to index unit labour costs increases at the level of the inflation target

Source: authors drawing from Atkinson (2015) pp. 237–39, Atkinson and Bourguignon (2015) pp lix, Blanchard and Rodrik (2021) pp xix. Measures in this table are attributed to each set of authors by their initials (A, AB, BR).

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Promoting global monetary and financial stability

Growing economic inequality has become a matter of increasing public and policymaking concern in recent years, driven by the compounded effects of technical change and rapid globalisation not fully offset by anti-poverty and inequality mitigating policies. Resurgent food and energy inflation in 2022 and deep recessions related to the Covid-19 pandemic are aggravating this trend, and some would argue that unconventional monetary policies which have boosted asset valuations and wealth inequality have also reinforced this perception.

For their part, central banks can most effectively contribute to a more equitable society by deploying the necessary tools to deliver on their mandated objectives of price and macroeconomic stability. For example, when facing an inflationary upsurge as in 2022, central banks are likely to achieve the best outcome in terms of equality if they act promptly to curb inflation that hurts the poor and to preserve the purchasing power of money and nominal income.

This volume highlights a new facet of inequality: its persistence or "hysteresis" after recessions. The authors show that inequality increases faster and more persistently in the aftermath of recessions. Furthermore, greater income inequality is associated with deeper recessions, and with the reduced effectiveness of monetary policy in steering aggregate demand.

Taken together, these results point to the risk of an adverse feedback loop: recessions persistently worsen inequality, and greater inequality serves to deepen recessions. These in turn call for additional monetary stimulus, which becomes ever less effective as inequality rises.

To break such feedback loops, stabilisation policies – monetary but also fiscal – need to be deployed quickly and decisively, to prevent inequality from entrenching itself. But the last two decades have witnessed significant cutbacks in the progressiveness of fiscal and para-fiscal stabilisation tools. Overall, fiscal policy has become less inequality-reducing, losing some of its countercyclical power, and thus shifting the main onus for macroeconomic stabilisation onto the shoulders of monetary policy.

In that light, more complementarity is warranted and could be achieved if fiscal authorities were to consider a strengthening of their traditional post-World War II redistribution objectives in areas such as tax and unemployment policies. Inequality could be addressed more effectively by fulfilling their respective mandates, complementing anti-inequality structural policies (eg those favouring skills acquisition and protecting low-income groups) but also adapting fiscal stabilisation policies to counter the cyclical hysteresis of income inequality.

"This volume investigates the cyclical dimensions of inequality. The aim is to extend previous studies and examine a new facet of inequality: its persistence or "hysteresis" after recessions."

Agustín Carstens,
General Manager, BIS
from the Foreword

"The book's main and novel thesis is that inequality is a concern for central banks precisely because it undermines stabilisation and the effectiveness of monetary policy as a stabilisation tool."

Jean Pisani-Ferry,
Tommaso Padoa-Schioppa chair, EUI;
Senior Fellow, Bruegel and PIIE,
from the Preface

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