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UPFRONT

Inflation and Development: Central Bank Stabilization Policies Revisited

Anis Chowdhury[1] · **Jomo Kwame Sundaram**[2]

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Abstract
Against the backdrop of an inflationary surge due to war, sanctions and pandemic disruptions, the article argues against dogmatic responses to inflation. Using extant theoretical and empirical literature as well as time-series data, it examines the scope for 'moderate inflation rates', above what is currently targeted. Specifically, it seeks to ascertain the potential developmental gains from moderate inflation (say, 10–15%), the risk of inflation accelerating to harm growth, and the implications of central bank independence during the recent inflation episode and for supporting sustainable development.

Keywords Inflation targeting · Growth · Monetary policy · Central bank independence · Sustainable development

JEL Classification E31 · E52 · E58 · O23

After about two decades of the Great Moderation, taming inflation has returned to taunt policymakers. In its latest assessment at the time of writing, the International Monetary Fund (IMF 2022: xiii) noted, 'Increasing price pressures remain the most immediate threat to current and future prosperity by squeezing real incomes and undermining macroeconomic stability'. It warned, 'worst is yet to come'.

Inflation has been depicted as the main culprit undermining growth and prosperity. The IMF believes 'when (annual) inflation passes the 5% mark [in developing countries,] investment and economic activity…suffer' (IMF 2017: 3). Hence, the Fund's policy guidelines for developing countries are for an inflation target of 5% or less, irrespective of country circumstances. It also projects inflation in developing countries in 2023 will be high at around 8%, but efforts to bring inflation down to 5% can be very costly in both the short- and long-term.

Nonetheless, many emerging market and developing economies (EMDEs) now target inflation at 2% to enhance their creditworthiness by emulating the developed countries' inflation targeting norm. The IMF (2022: xvi) insists, 'front-loaded and aggressive monetary tightening is critical to avoid inflation de-anchoring as a result of households and businesses basing their wage and price expectations on their recent inflation experience'.

However, such advice ignores Milton Friedman's observation, half a century ago, that the relationship between inflation and economic development is not straightforward. 'Historically, all possible combinations have occurred: inflation with and without [economic] development, no inflation with and without [economic] development' (Friedman 1973: 41). While the relationship is fraught with uncertainty, causality can run both ways.

It seems the policy advice to tame inflation at such low levels is driven by 'fervent beliefs' rather than rigorous analytical studies. As the World Bank's former Chief Economist, Michael Bruno and its former Senior Economist, Bill Easterly observed: 'Is inflation harmful to growth? The ratio of fervent beliefs to tangible evidence seems unusually high on this topic' (Bruno and Easterly 1998: 3).

Such advice also ignores recent findings by the IMF's Research Department. The IMF's Zhang and Wang (2022: 40) found 'better IT [inflation targeting] track records do not translate into more favorable economic growth and inflation rates'.

✉ Anis Chowdhury
anis.z.chowdhury@gmail.com

✉ Jomo Kwame Sundaram
jomoks@yahoo.com

[1] University of Western Sydney, Sydney, Australia

[2] Khazanah Research Institute, Kuala Lumpur, Malaysia

As far as 'front-loaded and aggressive monetary tightening' to thwart 'wage-price spirals' and contain inflation is concerned, the IMF's Baba and Lee (2022: 40) found the probability of such 'pass-through' has declined over time due to changes in labour markets resulting in diminished worker bargaining power. They also found, 'the inflation targeting framework is not very good at handling commodity price shocks… The latest spikes in energy and food prices could pose serious challenges for inflation targeters'.

The IMF's Jorge Alvarez and his colleagues have also found scant evidence of wage-price spirals (Alvarez et al. 2022: 2). They conclude that a sustained acceleration of wages and prices was rare and 'an acceleration of nominal wages should not necessarily be seen as a sign that a wage-price spiral is taking hold'. Such acceleration in nominal wages merely allow 'real wages to catch up'.

Similarly, Suthaharan and Bleakley (2022) of the Reserve Bank of Australia (RBA) have not found evidence of wage-price spirals in recent decades. They note workers' bargaining power has declined greatly since the 1980s, with labour market deregulation and casualization. Foreign direct investment accelerated 'offshoring' as technological changes also reduced labour needs. Thus, they concluded that experience and evidence suggest very little likelihood of wage-price spirals in current circumstances.

Meanwhile, synchronized interest rate hikes, ostensibly to fight inflation, is resulting in a self-fulfilling prophecy of global economic slowdown, with serious consequences for developing countries. After growing at 6.6% in 2021, growth in EMDEs is projected to slow to 3.7% in 2023 (IMF 2022). The World Bank's Guénette et al. (2022: 40) warn of a global recession and successive financial crises in EMDEs, causing lasting harm. They observe, 'the cumulative effects of international spillovers from the highly synchronous tightening of monetary and fiscal policies could cause more damage to growth than would be expected from a simple summing of the effects of the policy actions of individual countries in a highly integrated global economy'.

Thus, this article argues against dogmatic 'one size fits all' policy responses to inflation. It begins with a brief overview of the theoretical and empirical literature to reconsider the scope for a 'moderate inflation rate', above what is currently prescribed. Hence, it seeks to ascertain: first, the potential developmental gains from moderate inflation (say, 10–15%); second, the risk of inflation accelerating to harm growth; third, the implications of central bank independence during the recent inflation episode and for supporting sustainable development.

Theory and Evidence

Does inflation negatively affect economic growth? Theoretically, the answer is both yes and no. Economists, mainly of Keynesian persuasion, believe inflation contributes positively to economic growth through several channels:

(a) It redistributes income in favour of profit earners, with higher savings propensity, enhances the availability of investible funds (Keynes-Kaldor effect);
(b) It changes overall investment portfolios, from the financial sector to the real sector, raising capital intensity in the real sector, as financial investment returns decline (Tobin effect); and,
(c) It generates more savings to cope with inflation as people hold more money to maintain the real value of their savings, thus transferring resources to the government for investment (Kalecki effect).

Thus, some inflation is inevitable in efforts to accelerate growth and transformation. As Tobin (1965) noted, inflation lubricates economic growth mechanisms. However, economists, mainly of the neo-classical school, believe inflation adversely affects economic growth, for the following reasons:

(a) Inflation causes uncertainty about future earnings streams, and thus adversely affects investment;
(b) A high rate of inflation leads to greater variability in inflation that sends confusing signals to economic agents. This, in turn, leads to lower investment and, hence, growth;
(c) Since various prices rise at different rates, inflation distorts investment decisions, and thus misallocates resources;
(d) Since inflation reduces the value of financial assets, it encourages people to save in real assets such as precious metals or real estate, adversely affecting financial deepening; and
(e) Higher inflation than trading partners adversely affects export competitiveness.

What is the evidence for both sides of the inflation debate? Fig. 1 plots average annual inflation rates and average per capita GDP growth of 124 developing countries during the period 1961–2021. The seemingly negative relationship between the two is clearly due to a few extremely high inflation cases. For the vast majority of countries, average annual inflation rates over the six decades were below 40%.

Figure 2a plots average inflation and per capita GDP growth data for 1991–2021 for 82 developing countries.

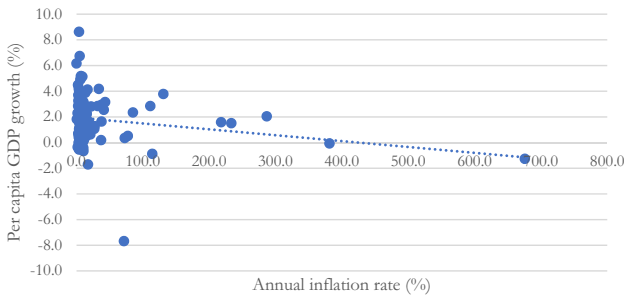

Fig. 1 Average annual inflation rate & per capita GDP growth, 1961–2021. *Source*: World Bank on-line database

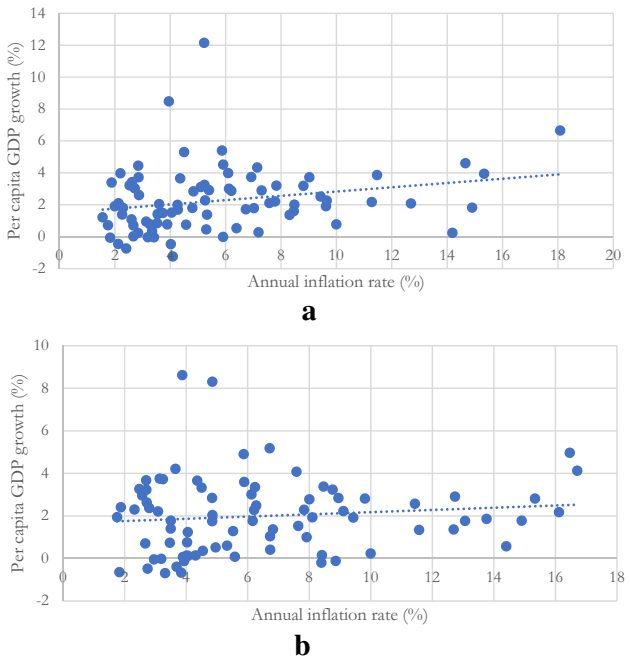

Fig. 2 **a** 82 developing countries average inflation & per capita GDP growth, 1991–2021. *Source*: World Bank, on-line database. **b** 82 developing countries average inflation & per capita GDP growth, 1981–2021. *Source*: World Bank, on-line database

It excludes exceptional cases—e.g., Somalia, a 'failed state', or Equatorial Guinea, a small, very unequal, oil-rich state—excessively impacted by commodity price volatilities. The sample also excludes countries with inflation over 20%. It shows a positive relationship between per capita GDP growth and inflation. The positive relationship was maintained, albeit slightly weakened (Fig. 2b), even when the developing countries were in debt crises in the 1980s.[1]

Inflation and Poverty

It is often claimed inflation harms the poor. Figures 3a, b show that like the inflation-growth relationship, the inflation-poverty relationship is also influenced by extreme values or outliers. Poverty can be high or low for inflation up to 20%. This holds for both extreme poverty (below US$1.90/day) and near poverty (US$3.20/day).

To summarize, contrary to some popular narratives, both the inflation-growth and inflation-poverty relationships are positive as long as inflation remains moderate in the range of 10–20%. Moreover, the correlation between the two variables does not imply causality. This observation is broadly consistent with extant empirical literature on the inflation-growth relationship.

Empirical Literature

Earlier research (Wai 1959; Bhatia 1960–61) failed to establish any meaningful relationship between inflation and economic growth. Examining 70 countries, including 48 developing economies, during 1960–1989, Paul et al. (1997) found no causal relationship between inflation and economic growth in 40% of them; they found bidirectional causality in about 20% of the countries, and a unidirectional relationship (either inflation to growth, or vice versa) in the rest. The relationship was found to be positive in some cases, but negative in others.

Cross-country studies finding inflation negatively affecting economic growth include Fischer (1993), Barro (1996) and Bruno and Easterly (1998). The first two found inflation had a very small negative impact on growth. Fischer (1993) found a 10-percentage point rise in inflation (from 5 to 15%) correlated with a fall in output growth of only 0.4% per annum. Similarly, Barro (1996) estimated that 1% extra inflation reduced economic growth by 0.02–0.03% per annum.

Yet, Fischer (1993: 281) concluded, 'however weak the evidence, one strong conclusion can be drawn: inflation is not good for longer-term growth'.

Likewise, Barro (1996: 159) noted, 'the magnitude of effects is not that large, but is more than enough to justify a keen interest in price stability'.

Similarly, Anderson and Gruen (1995: 302) justified the RBA's low-inflation monetary strategy. They found, 'The estimated coefficient on inflation is negative for all thirty regressions … In about half the regressions, this negative estimate is statistically significant at a 5% level, while in the other half, it is statistically insignificant. Average inflation is, therefore, a fragile explanation of economic growth'.

[1] The 1960s are not considered as many developing countries were still colonies for part of the period and there was much turmoil after decolonization. The 1970s are also excluded due to the consequences of severe commodity price volatilities, including the two oil price shocks.

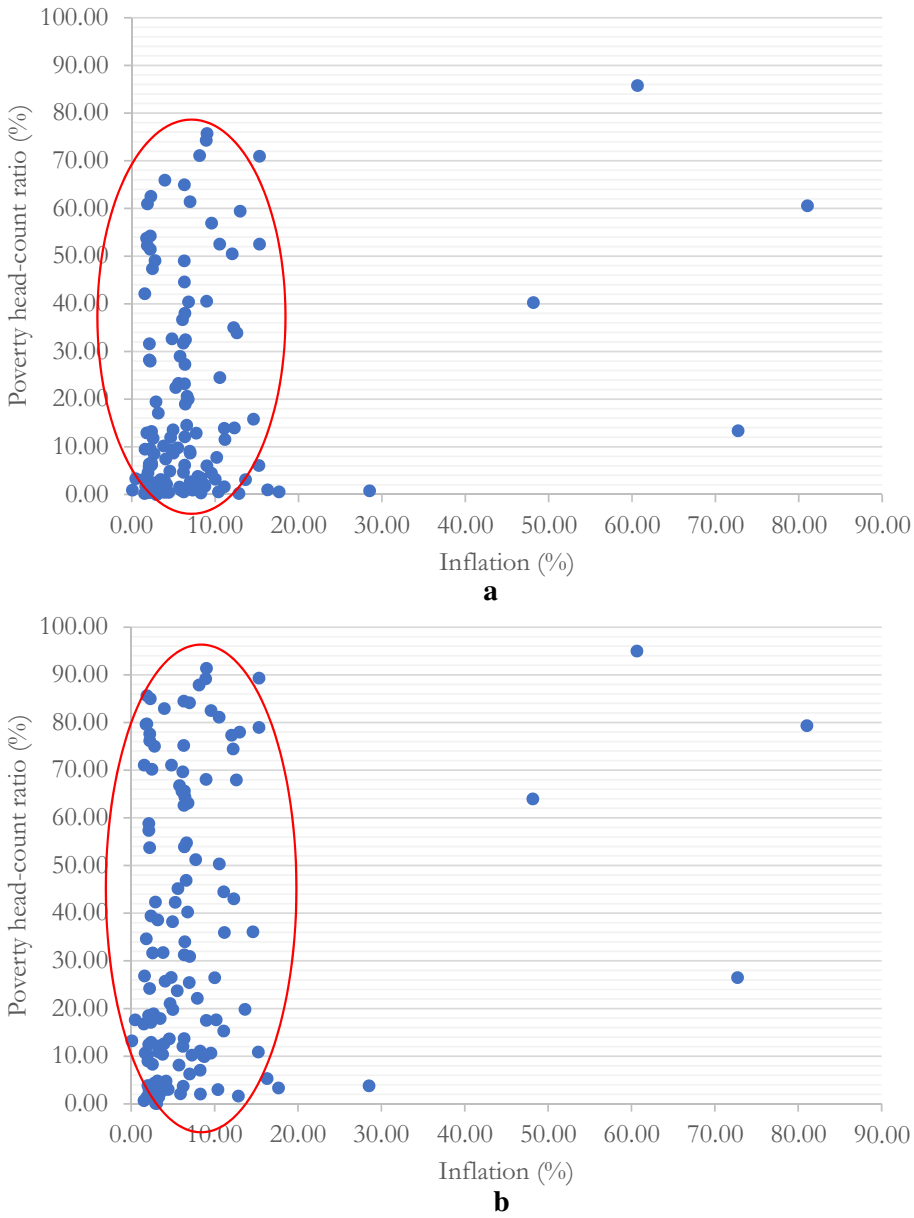

Fig. 3 **a** Inflation & poverty (US$1.90/day) (av. 2000–2019, 130 developing countries). *Source*: World Bank on-line data. **b** Inflation & poverty (US$3.20/day) (av. 2000–2019, 130 developing countries). *Source*: World Bank on-line data

Even then, they went on to claim, 'The overwhelming impression … is that … higher average inflation is correlated with lower average economic growth', and concluded, 'While the results are not as robust as one would like, the most obvious interpretation of the evidence … is that the negative correlation between inflation and growth arises from a causal relationship' (Anderson and Gruen 1995: 303, 306).

Such strong claims based on 'fragile' or 'non-robust' estimates suggest anti-inflation policy conclusions are driven by faith, or 'fervent beliefs', in the words of Bruno (1995) and Bruno and Easterly (1998). Their work should have ended the debate as it confirmed the more conclusive findings of Dornbusch (1993), Dornbusch and Reynoso (1989), Levine and Renelt (1992) and Levine and Zervos (1993) that the inflation-growth relationship is influenced by countries with extreme values (either very high or very low inflation).

Empirical research has also explored the possibility of a non-linear relationship between inflation and economic growth. Such research attempts to synthesize Keynesian and neo-classical approaches and recognizes a positive relationship up to a certain ('threshold') inflation rate, beyond which inflation negatively impacts economic growth.

Bruno and Easterly (1998), Easterly (2003), Dornbusch and Fischer (1993) and Fischer et al. (2002) found a threshold level ranging between 25 and 40%. Research within the IMF by Sarel (1996) and Khan and Abdelhak (2001) reported much lower thresholds, between 7 and 12%. Khan

and Abdelhak used data from 140 developed and developing countries for 1960 to 1998. They concluded the threshold level of inflation, above which inflation significantly slows growth, was 11–12% for developing countries. They also noted that 'The positive effect of inflation on growth is only present for inflation rates lower than…. 18% for developing countries' (Khan and Abdelhak 2001: 16), implying an upper bound of 18%.

Using panel data from both developed and developing countries, Sepehri and Moshiri (2004) showed the estimated turning points varied widely from as high as 15% per year for lower-middle-income countries to 11% for low-income countries, and 5% for upper-middle-income countries. For 80 countries during 1961–2000, Pollin and Zhu (2006) found higher inflation associated with moderate gains in GDP growth up to a threshold of 15–18% inflation. Muzaffar and Junankar (2014) questioned the empirical foundation for keeping inflation at 5% or less in developing economies. They found no robust empirical justification for targeting inflation so low. They concluded the inflation thresholds for these countries is around 13%, and could range between 7 and 14%, depending on the level of development.

Therefore, Dornbusch and Fischer (1993: 1) stressed, 'such [moderate] inflations can be reduced only at a substantial … cost to growth'. In an IMF study of low-income countries, Selassie et al. (2006: 17) concluded, 'pushing inflation too low—say, below 5 percent—may entail a loss of output and seigniorage revenue, suggesting a need for caution in setting very low inflation targets in low-income countries… In particular, inflation targets should be set so as to help avoid risks of an unintended contractionary policy stance'. They acknowledged, 'identifying the growth effects of moving from, say, 20 percent inflation to 5 percent has been challenging' (Selassie et al. 2006: 14).

Muzaffar and Junankar (2014) suggested developing countries can gain from moderate levels of inflation and should not be alarmed when inflation crosses the 5% threshold. Also, research at the US Federal Reserve Bank of San Francisco concluded, 'developing economies that adopted an inflation target did not show any substantial gains in growth in the medium term compared with those that did not adopt a target' (Hale and Philippov 2015: 1).

Neo-classical Anomalies

The arguments of those who view inflation as growth-inhibiting and hence favour very low inflation rates suffer from a number of anomalies. The first is the belief that money is 'neutral'. That is, 'in the long- term monetary policy can influence nominal, but not real variables'. However, they also believe that 'high inflation harms growth and the equitable distribution of income; and expectations and credibility significantly influence the effectiveness of monetary policy' (Roger 2010). These two propositions seem to be at odds with each other. If monetary policy (money) affects inflation which, in turn, affects growth, surely money is not neutral, but affects real variables as well.

The second anomaly is that most proponents of strict inflation targeting presume that inflation is caused by excess money. As Milton Friedman (1970: 24) famously asserted, 'inflation is always and everywhere a monetary phenomenon'. The US Federal Reserve Bank and other major central banks, such as the Bank of England, were engaged in unconventional monetary policies. This essentially amounted to 'printing money' after the 2008–2009 global financial crisis (GFC). Yet, as is well known from recent experience, too much money chasing too few goods did not translate into accelerating inflation. Meanwhile, Japan has been facing deflationary pressures despite greatly easing monetary policy since 1995.

Many central banks in EMDEs, e.g., Indonesia and the Philippines, pursued expansionary monetary policies during the COVID-19 pandemic (Felipe et al. 2020). They suspended, at least temporarily,[2] legislative prohibitions on central banks financing government deficits to enable their governments to respond to the health and economic crises. They also did not experience accelerating inflation until the Russian-Ukrainian War and sanctions disrupted global food and fuel supplies. In sum, the evidence undermined alarmist claims that massive expansion of the monetary base would inexorably lead to high inflation, à la Friedman.

For the New York Fed president,[3] these 'developments make a compelling case that traditional textbook views of the connections between monetary policy, money, and inflation are outdated and need to be revised' (Williams 2012: 1–2). Williams observed, 'The worry is not that the Fed is literally printing too much currency. The quantity of currency in circulation is entirely determined by demand from people and businesses. It's not an independent decision of monetary policy and, on its own, it has no implications for inflation. The Federal Reserve meets demand for currency elastically. If people want to hold more of it, we freely exchange reserves for currency' (Williams 2012: 2).

The changed relationship between money supply and inflation may be due to various factors. First, it may be due to a 'liquidity trap' as people hold excess cash instead of spending it. This can happen if people expect prices to

[2] In December 2022, Indonesia's parliament widened the central bank's mandate to include supporting sustainable economic growth and formalize direct purchases of government bonds.

[3] John Williams is president and chief executive officer of the Federal Reserve Bank of New York, having also served as president of the Federal Reserve Bank of San Francisco from 2011 to 2018. He currently serves as vice chairman of the Federal Open Market Committee.

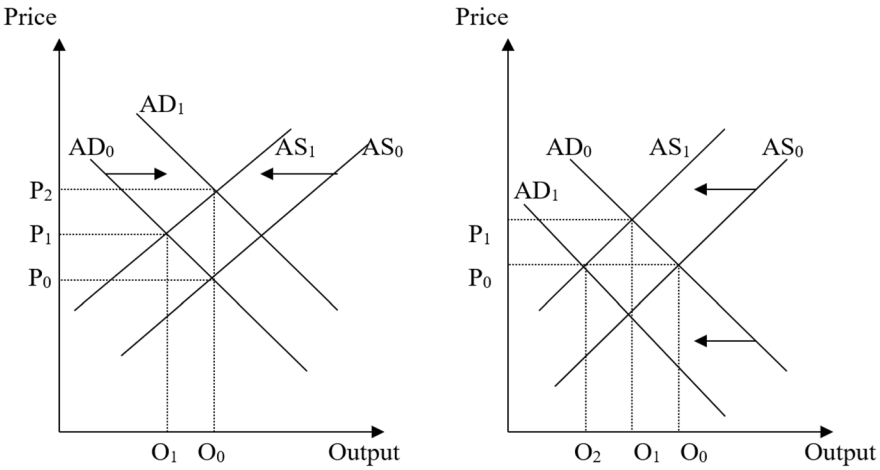

Fig. 4 Adjustment to supply shocks

Panel 1: Expansionary or supportive response Panel 2: contractionary response

Notes: AS = Aggregate Supply; AD = Aggregate Demand; 0 = before shock; 1 = after shock

fall further, or fear losing jobs/income, or when the opportunity cost of holding cash is less in an environment of extremely low interest rates. Second, when output is much below potential, excess spending by people to get rid of excess cash can be accommodated without raising prices. Third, it could be due to the availability of a large range of consumer products from cheaper production locations, e.g., China, India, Viet Nam or Bangladesh.

The third anomaly relates to so-called 'second-round' effects due to wage-price spirals. As mentioned earlier, IMF and RBA research found a significantly diminished probability of wage-price spirals due to changes in labour market institutions, e.g., industry or economy-wide collective bargaining, wage indexation, and declines in unionization. Workers in developing countries are less organized, and hardly any developing country has centralized wage-setting mechanisms. Most workers in developing countries are in the informal sector, including agriculture. Thus, the possibility of 'second-round' effects in developing countries is very low.

The fourth anomaly is the belief that 'central banks cannot consistently pursue and achieve multiple goals, such as low inflation and low unemployment, with only one basic instrument — the policy interest rate' (Roger 2010: 46).

Most central banks presume a trade-off between low inflation and low unemployment except with a miraculous 'divine coincidence' of both (Blanchard and Galí 2007: 35). The perceived trade-off is probably true when central banks insist on only using one instrument. However, central banks can use more policy tools, e.g., reserve requirements, open market operations, the discount rate, and interest on excess reserves (Amadeo 2021).

Sources of Inflation

Most developing countries are vulnerable to supply shocks due to heavy dependence on agriculture. Heavy dependence on primary commodity exports and imported energy also make them prone to external shocks. For example, the food and energy price spikes due to supply disruptions caused by the pandemic, Russian-Ukrainian War and sanctions have badly hit developing countries. Chowdhury and Islam (2012) found the correlation coefficient between median inflation rates in least developed countries (LDCs) and the global food price index during 2006–2008 was 0.82. Food price hikes then pushed over 44 million people into poverty, according to the World Bank (2011).

Today, high and rising food and oil prices pose major policy challenges.

The energy crisis triggered by the Russian-Ukrainian War could push 141 million people worldwide into extreme poverty (Guan et al. 2023). Poorer households in low-income countries, already facing severe food shortages, were at greater risk of poverty due to higher energy costs.

Supply-side shocks may, thus, simultaneously reduce growth and raise inflation. Tightening monetary policy in response to this kind of shock may make the situation worse (Friedman and Kuttner 1996; Chowdhury 2006). Output fluctuations will be greater when macroeconomic policies focus on price stability in the face of supply shocks as the burden of adjustment falls on only one variable, namely output (Fig. 4).

The choice between output and price stabilization becomes starker in the face of supply shocks. In Panel 1,

the response to an adverse supply shock is expansionary macroeconomic policies to stabilize output at O_0, whereas in Panel 2, the response is contractionary macroeconomic policies to stabilize the price level at P_0. When the response is expansionary, the price level rises further to P_2, causing higher inflation. On the other hand, when the objective is price stabilization using contractionary macroeconomic policies, output declines further to O_2. Thus, addressing supply-side inflation by raising interest rates makes monetary policy contractionary. This will depend on the relative weight of supply-side factors in causing inflation and the discretion monetary authorities have.

Beddies (1999) has demonstrated that IT macroeconomic policies do not achieve output stabilization in the face of supply-side shocks. In other words, a price-stabilization target leads to greater variations or fluctuations in output and employment. Gramlich (1979) has shown that accommodation policies in response to supply shocks are likely to be less costly.

Monetary tightening in response to supply side inflation will undermine output growth due to excessive in growth volatility. Selassie et al.'s (2006: 17) IMF study noted, 'These [low-income] countries tend to be subject to larger output volatility and more pronounced price shocks'. Empirical research points to a robust negative cross-country relationship between growth and growth volatility, and a significant negative correlation between growth and medium-term business cycle fluctuations (Ramey and Ramey 1995; Kroft and Lloyd-Ellis 2002).

Therefore, IT must be flexible enough to respond differently, depending on the source of inflation. The role that monetary policy can play in dealing with supply shocks is limited, and central banks should refrain from using the policy interest rate to deal with such supply side forces, especially when inflation surges are due to food price increases. Government interventions to enhance food security may be more appropriate.

Countercyclical macroeconomic policies help cushion the incomes of the poor from business cycles and shocks, also mitigating income inequality. Romer and Romer (1999) showed that, excluding extreme values (outliers), average incomes of the poor rise when the economy is stabilized (as reflected in lower variations in nominal GDP). As expected, inequality (proxied by the Gini coefficient, the most common measure of inequality) also declined.

The logic for such outcomes is obvious. Unskilled low-income wage workers tend to be the first to lose jobs in an economic downturn. Therefore, their jobs and incomes are protected when the economy is stabilized. This conclusion is supported by studies of European Union (Dossche et al. 2021) and Latin American countries (Lustig 2000).

Central Bank Independence

Following advanced countries' switch to a strict IT monetary policy framework and legislating central bank independence to pursue such objectives since the early 1990s, the IMF advised developing countries to follow suit. Central bank 'independence' (CBI)—from political processes and governments—is necessary to pursue credible policies to lower inflation.

However, many doubt the role of CBI in lowering inflation. Jenkins (1996) found the claimed tight CBI-low inflation relationship due to the 'placebo' effect of omitting other relevant variables. Subsequent research has not offered more favourable assessments. Debelle (2017: 5) observed, 'How much [low inflation] can be attributable to central bank independence or the inflation target is difficult to disentangle …[Favourable] assessment mostly relies on *assertion*, *rather than empirical proof*' (emphasis added). While doubting 'nice' outcomes imply causation or correlation, he attributed a 'significant disinflationary impulse' due to China's integration into the world economy.

Rossi (2021) also found, 'central bank independence has no clear effect on inflation'. Baumann et al. (2021: 30) have found, 'exchange-rate arrangements turn out to be more successful in explaining inflation than inflation targeting. Countries' political setup and in particular central bank independence and transparency, *which in academic papers and public debates rank high*, exhibit only a weak association with inflation' (emphasis added).

CBI, with a singular anti-inflationary mandate, has been found to be too restrictive, particularly for a central bank developmental role. At the time of the initial euphoria with CBI, Mas (1995) cautioned, 'Merely establishing an independent central bank may not bring about its professed benefits in developing countries with shallow financial markets where there is limited scope for a truly independent monetary policy'.

Shallow financial markets mean domestic capital markets are not developed enough to meet investment needs, particularly for governments to borrow domestically. Monetary financing (MF) of government deficits is often blamed for enabling public debt, balance of payments deficits, and runaway inflation. For example, Easterly and Schmidt-Hebbel (1993: 211) noted, 'Fiscal deficits received much of the blame for the assorted economic ills that beset developing countries in the 1980s: over indebtedness and the debt crisis, high inflation, and poor investment performance and growth'.

Monetary Financing

Recent IMF research (Agur et al. 2022: 22) insists MF 'involves considerable risks', but the authors acknowledge MF 'did not jeopardize price stability' during the pandemic. A Bank of International Settlements paper (Tsatsaronis et al.

2022) found MF enabled developing countries to respond countercyclically to the shock. Asian Development Bank research (Felipe and Scott, 2022) also reported similar findings.

MF leading to runaway inflation has been exceptional, e.g., Bolivia in the 1980s or Zimbabwe in 2007–08. These were often associated with the breakdown of political and economic systems, as when the Soviet Union collapsed.

Bolivia suffered major external shocks. These included US interest rate spikes in the early 1980s, much reduced access to international capital markets, and commodity price collapses. Political and economic conflicts in Bolivian society hardly helped (Morales and Sachs 1989). Similarly, Zimbabwe's hyperinflation was partly due to conflicts over land rights, worsened by government mismanagement of the economy and British-led Western efforts to undermine the Mugabe government (Van Lerven n.d.).

Developmental Central Banks

Historically, central banks have played developmental roles, e.g., by financing public investment (Dafe and Volz 2015). Although many statutes are not explicit about developmental roles, the two oldest CBs—the Bank of England and Sweden's Riksbank—are not prohibited from vigorously promoting other priorities, e.g., the Riksbank's active promotion of housing for all.

The Bank of England even pioneered creating specialized development institutions, e.g., the Industrial and Commercial Finance Corporation, the Finance Corporation for Industry, and the Bankers' Industrial Development Company.

The US Federal Reserve Act is committed to realize 'the economy's long run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates…in furtherance of the purposes of the Full Employment and Balanced Growth Act of 1948'.

Central banks of Italy, Germany, Japan and the Netherlands have used various means to finance areas underserved by credit markets. These include lowering bank reserve requirements and lending for priorities such as housing, agriculture, exports, small business and underdeveloped regions.

The statutes of some developing country central banks established in the 1970s and 1980s with IMF technical assistance have specific provisions for developmental roles, e.g., in Bhutan, Botswana, Fiji, Maldives, Solomon Islands, Swaziland and Vanuatu (Chandavarkar 1987). This is in line with IMF Article of Agreement IV, 'each member shall endeavor to direct its economic and financial policies toward the objective of fostering orderly economic growth with reasonable price stability, with due regard to its circumstances'. The preamble expects monetary policy to simultaneously attain both reasonable price stability and orderly growth, taking into consideration country-specific situations.

Indian Lessons

Former Reserve Bank of India Governor Y.V. Reddy (2000: 3) noted fiscal-monetary coordination had 'provided funds for development of industry, agriculture, housing, etc. through development financial institutions' besides enabling borrowing by state-owned enterprises (SOEs) in the early decades. For him, less satisfactory outcomes—e.g., continued 'macro imbalances' and 'automatic monetization of deficits'—were not due to 'fiscal activism per se but the soft-budget constraint' of SOEs, and 'persistent inadequate returns' on public investments.

Monetary policy is constrained by large and persistent fiscal deficits. For Reddy (2000: 1), 'undoubtedly the nature of interaction between [fiscal and monetary policies] depends on country-specific situation'. He urged addressing monetary-fiscal policy coordination issues within a broad common macroeconomic framework. Several lessons can be drawn from Indian experience.

First, 'there is no ideal level of fiscal deficit, and critical factors are: How is it financed and what is it used for?' (Reddy 2000: 7). There is no alternative to SOE efficiency and public investment project financial viability. Second, 'the management of public debt, in countries like India, plays a critical role in development of domestic financial markets and thus on conduct of monetary policy, especially for effective transmission' (Reddy 2000: 8). Third, 'harmonious implementation of policies may require that one policy is not unduly burdening the other for too long' (Reddy 2000: 8).

Chinese Lessons

Zhou (2016), the former People's Bank of China (PBoC) Governor, emphasized central banks' multiple responsibilities—including financial sector development and stability—in transition and developing economies. He noted, 'monetary policy will undoubtedly be affected by balance of international payments and capital flows'. Therefore, 'macro-prudential and financial regulation are sensitive mandates' for central banks.

PBoC objectives—long mandated by the Chinese government—include maintaining price stability, boosting economic growth, promoting employment, and addressing balance of payments problems. Multiple objectives have required more coordination and joint efforts with other government agencies and regulators. Therefore, 'the PBoC … works closely with other government agencies'.

Zhou acknowledged, 'striking the right balance between multiple objectives and the effectiveness of monetary policy

is tricky'. By maintaining close ties with the government, the PBoC could facilitate needed reforms. He also emphasized the need for policy flexibility as appropriate. 'If the central bank only emphasized keeping inflation low and did not tolerate price changes during price reforms, it could have blocked the overall reform and transition'.

During the pandemic, the PBoC developed 'structural monetary'[4] policy tools, to help sectors hit hard by COVID-19. Structural tools helped keep inter-bank liquidity ample, and supportive of credit growth. More importantly, its targeted monetary policy tools were increasingly aligned with the government's long-term strategic goals (Liao and Chang 2020). These include supporting desired investments, e.g., in renewable energy, while preventing asset price bubbles and 'overheating'.

In other words, the PBoC coordinates monetary policy with fiscal and industrial policies to achieve desired stable growth, thus boosting market confidence (Sun 2022). As a result, inflation in China has remained subdued. According to *The Economist* (2022), 'Worries about inflation in China have been overhyped'. Consumer price inflation (CPI) has averaged only 2.3% over the past 20 years. Contrary to global trends, China's CPI fell to 2.5% in August, and rose to only 2.8% in September,[5] despite its 'zero-Covid' policy stance and related measures such as 'stay in shelter' lockdowns.

Conclusion: Implications for Policy and Reforms

Central banks should not overreact to inflation as over-reaction can be damaging to growth and development. Beyond monetary and regulatory functions, historically, central banks have had developmental roles. Targeting low, single-digit inflation is not good developmental macroeconomic, or even monetary strategy.

Central banks should distinguish between the need to safeguard price stability as a principle, and the restrictive notion of targeting a specific inflation rate. Unlike the strict IT regimes now in force, the preamble of the IMF's Article IV does not specify any specific quantitative target. There is also no analytical basis for inflation targets of less than 2% or 5% target now widely invoked with little regard to country circumstances.

Central banks should not presume all inflation is due to excessive money supply. Developing countries are much more prone to supply shocks, exchange rate fluctuations and imported inflation. The policy interest rate is an inappropriate tool for dealing with such inflation. Interest rates affect all sectors of the economy indiscriminately. However, sectors to be promoted or those facing structural constraints may need more credit on preferential terms, including lower interest rates. Even before India's independence in 1947, the Reserve Bank of India observed, 'it may be desirable for Central Bank credit to be made available in a larger number of ways and with less restrictions' (Chandavarkar 1987: 35).

Central banks must satisfy the credit needs of a growing and transforming economy by elastically supplying currency to both the government and private sector. Such a monetary policy setting is unlikely to lead to runaway inflation. Even though monetary expansion may not translate into significantly higher consumer prices, it can translate into significantly higher prices for capital assets, particularly real estate and equities.[6] Therefore, monetary policymakers should be watching asset prices, not just consumer prices.

Central banks need to develop policy instruments, beyond the traditional ones (interest rate, reserve requirements, open market operations, discount rates, and interest on excess reserves), to facilitate sustainable development and green transitions. The Bangladesh Bank, a pioneer in promoting financial inclusion, adopted a 'sustainable finance' policy in 2011 to promote green investment and sustainable agriculture.[7]

Ninety developing country central banks have since signed the Maya Declaration to promote financial inclusion.[8] Financial inclusion, promoting productive employment and social protection are critical to address the rising inequality observed in many developing countries since the 1990s' neo-liberal reforms involving privatization, deregulation and liberalization.

While central banks can use traditional interest rate instruments to keep inflation moderate, regulating credit

[4] China's Central Bank Highlights Structural Tools to Aid Economy, Bloomberg News, 7 May 2022, https://www.bloomberg.com/news/articles/2022-05-06/china-s-central-bank-highlights-structural-tools-to-aid-economy?leadSource=uverify%20wall accessed 23 February 2023.

[5] https://www.reuters.com/markets/asia/chinas-sept-consumer-prices-rise-fastest-pace-since-april-2020-2022-10-14/ accessed 23 February 2023.

[6] Those who find it easiest to borrow money these days are hedge funds and private equity firms. Through leveraged buy outs, they easily acquire companies and, by improving their cash flows, boost their valuations. This has been the source of asset price bubbles. Once such bubbles burst, they can lead to major recessions. The problem of asset price bubbles seems to be a permanent feature resulting in a permanent break in the money-inflation relationship. Therefore, monetary policy makers should be watching asset prices, not just consumer prices.

[7] https://www.bb.org.bd/mediaroom/circulars/gbcrd/dec312020sfd05.pdf accessed 24 February 2023.

[8] https://www.afi-global.org/global-voice/maya-declaration/ accessed 24 February 2023.

allocation can be a second instrument to promote green transitions and productive employment creation. Of course, specialized and directed credit programmes create distortions in financial markets and may be prone to abuse and rent-seeking. However, the costs of such distortions must be weighed against the costs of financial market imperfections. Quite often, countries that have abandoned specialized credit programmes as part of financial sector reforms have seen massive resource shifts from rural and petty enterprises to urban and corporate activities. This has had adverse effects for desired structural transformations, employment and poverty.

Central banks can consider various options in designing specialized credit programmes. For example, in 1998, India introduced a directed credit programme which required all banks (public and private) to lend at least 40% of their net credit to 'priority sectors'. If banks failed to do so, they had to lend to specific government agencies at very low interest rates as a penalty. Studies by Banerjee and Duflo (2014) found most banks complied with the regulation, and the programme contributed significantly to agriculture and small industry expansion. The programme ended with the 2000 financial sector reform. Contrary to the claims of reform proponents, they did not find evidence of directed credit being used as a substitute for other types of credit. Instead, the credit was used to finance more production, resulting in greatly accelerating growth of sales and profits, drastically reversed by the reform.

Central banks can also use some carrot-and-stick measures by combining Indian-type penalties with incentives such as asset-based reserve requirements, support for pooling and underwriting small loans, or utilizing the discount window to support green investments. Central banks can also open special discount windows to offer credit, guarantee or discount facilities to institutions on-lending to firms and cooperatives, engaged in climate change adaption and transitions to renewable energy.

Such developmental roles of central banks beyond price stabilization require appropriate institutional design to ensure effective and meaningful coordination between central banks and various government ministries, especially the ministry of finance and planning authorities. Central bank independence is inimical to such coordination. An IMF working paper showed, 'neither legal independence of central bank nor a balanced budget clause or a rule-based monetary policy framework … are enough to ensure effective monetary and fiscal policy coordination' (Laurens and Piedra 1998: 29).

Appropriate institutional and operational arrangements will depend on country-specific circumstances, e.g., the level of development and depth of the financial sector, as noted by both Reddy and Zhou. Hence, especially when the financial sector is shallow and countries need dynamic structural transformation, setting up independent fiscal and monetary authorities is likely to hinder, not improve stability and sustainable development.

Understanding each other's objectives and operational procedures is crucial for setting up effective coordination mechanisms—at both policy formulation and implementation levels. Such an approach should better achieve the coordination and complementarity needed to mutually reinforce fiscal and monetary policies.

This also means designing fiscal and monetary policies to support dynamic structural transformation, including greening the economy and expanding productive capacity. In the absence of such linkages between macroeconomic policies and sectoral strategies, MF may spill over to worsen balance of payments problems and inflation. Macro-prudential regulations may also be needed to avoid possible adverse impacts of MF on exchange rates and capital flows.

To be sure, poorly accountable governments often take advantage of real, exaggerated and imagined crises to pursue macroeconomic policies for regime survival, and to benefit cronies and financial supporters. Undoubtedly, much better governance, transparency and accountability are needed to minimize both immediate and longer-term harm due to 'leakages' and abuses associated with increased government borrowing and spending. Citizens and their political representatives must develop more effective means for 'disciplining' policy making and implementation. This is needed to ensure public support to create fiscal space for responsible counter-cyclical and development spending.

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References

Agur, Itai, Damien Capelle, Giovanni Dell'Ariccia, and Damiano Sandri. 2022. Monetary Finance: Do Not Touch, or Handle with Care? IMF Research Departmental Paper DP/2022/001, Washington, DC: International Monetary Fund.

Alvarez, Jorge, John Bluedorn, Niels-Jakob Hansen, Youyou Huang, Evgenia Pugacheva, and Alexandre Sollaci. 2022. Wage-Price Spirals: What is the Historical Evidence? IMF Working Paper 22/221, Washington, DC: International Monetary Fund.

Amadeo, Kimberly. 2021. Monetary Policy Tools and How They Work. *The Balance*, 21 December. https://www.thebalancemoney.com/monetary-policy-tools-how-they-work-3306129h accessed 23 February 2023.

Andersen, Palle, and David Gruen. 1995. Macroeconomic Policies and Growth. In P. Anderson, J. Dwyer, and D. Gruen (eds.). *Productivity and Growth*. Sydney: Reserve Bank of Australia, Sydney.

Baba, Chikako, and Jaewoo Lee. 2022. Second-Round Effects of Oil Price Shocks—Implications for Europe's Inflation Outlook. IMF Working Paper WP/22/173, 9 September, Washington, DC: International Monetary Fund.

Banerjee, Abhijit, and Esther Duflo. 2014. Do Firms Want to Borrow More? Testing Credit Constraints Using a Directed Lending

Program. *The Review of Economic Studies*, April 81(2), 287: 572–607.
Barro, Robert. 1996. Inflation and growth. *Federal Reserve Bank of St. Louis Review*, 78: 153-69.
Baumann, Philipp, Enzo Rossi, and Alexander Volkmann. 2021. What drives inflation and how? Evidence from additive mixed models selected by CAIC. Swiss National Bank Working Paper 12/2021.
Beddies, Christian. 1999. Monetary Policy and Public Finances: Inflation Targets in a New Perspective. IMF Working Paper WP/99/26, March, Washington, DC: International Monetary Fund.
Bhatia, Rattan. 1960–61. Inflation, deflation and economic development. *IMF Staff Papers*, 8: 101–14.
Blanchard, Olivier, and Jordi Galí. 2007. Real wage rigidities and the new Keynesian model. *Journal of Money, Credit and Banking*, 39(s1): 35-65.
Bruno, Michael (1995). Does high inflation really lower growth?. *Finance and Development*, vol. 32, pp. 35-8.
Bruno, Michael, and William Easterly. 1998. Inflation crises and long-run growth. *Journal of Monetary Economics*, 41(1): 3-26.
Chandavarkar, Anand. 1987. Developmental Role of Central Banks: Beyond monetary policy and regulatory functions. *Finance & Development*, 1 December: 34–7.
Chowdhury, Anis. 2006. The 'stabilisation trap' and poverty reduction - what can monetary policy do? *Indian Development Review*, 4(2): 407-32.
Chowdhury, Anis, and Iyanatul Islam. 2012. Inflation Targeting in Developing Countries. G-24 Policy Brief No. 68, 4 May. https://www.g24.org/wp-content/uploads/2016/01/G24-Policy-Brief-68-4-5-2012.pdf accessed 21 February 2023.
Dafe, Florence, and Ulrich Volz. 2015. Financing Global Development: The Role of Central Banks. German Development Institute (D.I.E.) Briefing Paper, 8/2015. https://www.idos-research.de/uploads/media/BP_8.2015.pdf accessed 23 February 2023)
Debelle, Guy. 2017. Central Bank Independence in Retrospect. Address at 'Bank of England Independence: 20 Years On' Conference, London, 28 September.
Dornbusch, Rüdiger.1993. *Stabilization, Debt, and Reform: Policy Analysis for Developing Countries*, New York: Harvester Wheatsheaf.
Dornbusch, Rüdiger, and Stanley Fischer. 1993. Moderate inflation. *World Bank Economic Review*, 7(1): 1-44.
Dornbusch, Rüdiger, and Alejandro Reynoso. 1989. Financial factors in economic development. *American Economic Review*, vol. 79 (Papers and Proceeding): 204–9.
Dossche, Maarten, Jiří Slačálek, and Guido Wolswijk. 2021. Monetary policy and inequality. *ECB Economic Bulletin*, issue 2: 84-103.
Easterly, William. 2003. National policies and economic growth: A reappraisal. Working Paper no. 27, Washington, DC: Center for Global Development.
Easterly, William, and Klaus Schmidt-Hebbel. 1993. Fiscal Deficits and Macroeconomic Performance in Developing Countries. *The World Bank Research Observer*, July 8(2): 211–237.
Felipe, Jesus, Scott Fullwiler, Gemma Estrada, Maria Hanna Jaber, Mary Ann Magadia, and Remrick Patagan. 2020. How 'Monetization' Really Works—Examples from Nations' Policy Responses to COVID-19. ADB Economics Working Paper No. 627, December, Manila: Asian Development Bank.
Felipe, Jesus and Scott Fullwiler. 2022, How 'Monetization' Really Works — Examples from Three Asian Nations' Responses to Covid-19. Review of Political Economy, Vol. 34(3): 397–419.
Fischer, Stanley. 1993. The role of macroeconomic factors in economic growth. *Journal of Monetary Economics*, vol. 32: 485–512.
Fischer, Stanley, Ratna Sahay, and Carlos Végh. 2002. Modern Hyper- and High Inflations. *Journal of Economic Literature*, 40(3): 837-880.
Friedman, Milton. 1973. *Money and Economic Development*. Toronto: Lexington Books.
Friedman, Milton. 1970. Counter-Revolution in Monetary Theory. Wincott Memorial Lecture, Occasional paper 33, London: Institute of Economic Affairs.
Friedman, Benjamin, and Kenneth Kuttner. 1996. A Price Target for U.S. Monetary Policy? Lessons from the Experience with Money Growth Targets. *Brookings Papers on Economic Activity*, vol 27(1): 77–146.
Guan, Yuru, Jin Yan, Yuli Shan, Yannan Zhou, Ye Hang, Ruoqi Li, Yu Liu, Binyuan Liu, Qingyun Nie, Benedikt Bruckner, Kuishuang Feng and Klaus Hubacek. 2023. Burden of the global energy price crisis on households. *Nature Energy*, 16 February. https://www.nature.com/articles/s41560-023-01209-8
Gramlich, Edward. 1979. Macro policy responses to price shocks. *Brookings Papers on Economic Activity*, vol 1(1): 125-166.
Guénette, Justin, M. Ayhan Kose, and Naotaka Sugawara. 2022. Is a Global Recession Imminent? World Bank Equitable Growth, Finance, and Institutions (EFI) Policy Notes, September, Washington, DC: World Bank.
Hale, Galina, and Alexej Philippov. 2015. Is Transition to Inflation Targeting Good for Growth *Federal Reserve Bank of San Francisco (FRBSF) Economic Letter*, No. 14, 4 May.
IMF. 2022. *World Economic Outlook: Countering the Cost of Living Crisis*. October. Washington, DC: International Monetary Fund.
IMF. 2017. IMF-supported programs—frequently asked questions. 28 July. http://www.imf.org/external/np/exr/faq/progfaqs.htm#q4 accessed 21 February 2023.
Jenkins, Michael. 1996. Central Bank Independence and Inflation Performance: Panacea or Placebo? *BNL Quarterly Review*, No. 197 (June).
Khan, Mohsin, and Abdelhak Senhadji. 2001. Threshold Effects in the Relationship between Inflation and Growth. *IMF Staff Papers*, 48(1): 1-21.
Kroft, Kori, and Huw Lloyd-Ellis. 2002. Further Cross Country Evidence on the Link between Growth, Volatility and Business Cycles. Queens University Working Paper. http://qed.econ.queensu.ca/pub/faculty/lloyd-ellis/papers/kory.pdf accessed 21 February 2023.
Laurens, Bernard, and Enrique Piedra. 1998. Coordination of Monetary and Fiscal Policies. IMF Working Paper WP98/25, March, Washington, DC: International Monetary Fund.
Liao, Carol, and Stephan Chang. 2020. Assessing China's Structural Monetary Policy. Blog 1, PIMCO, October. https://blog.pimco.com/en/2020/10/assessing-chinas-structural-monetary-policy accessed 23 February 2023.
Levine, Ross, and David Renelt. 1992. A sensitivity analysis of cross-country growth regressions. *American Economic Review*, vol. 82: 942-63.
Levine, Ross, and Sara Zervos. 1993. What have we learned about policy and growth from cross-country regressions? *American Economic Review*, vol. 82: 426-30.
Lustig, Nora. 2000. Crises and the poor: socially responsible macroeconomics. Sustainable Development Department Technical Papers Series, February, Washington, DC: Inter-American Development Bank. https://publications.iadb.org/publications/english/document/Crises-and-the-Poor-Socially-Responsible-Macroeconomics.pdf accessed 31 August 2021.
Mas, Ignacio. 1995. Central bank independence: A critical view from a developing country perspective. *World Development*, 23(10): 1639-1652.
Morales, Juan, and Jeffrey Sachs. 1989. Bolivia's Economic Crisis. In Jeffrey Sachs (ed.). *Developing Country Debt and the World Economy*. University of Chicago Press, Chicago: 57-80.

Muzaffar, Taneem, and P.N. (Raja) Junankar. 2014. Inflation-growth relationship in selected Asian developing countries: evidence from panel data. *Journal of the Asia Pacific Economy*, 19(4): 604-628.

Paul, Satya, Colm Kearneyn and Kabir Chowdhury. 1997. Inflation and economic growth: A multi-country empirical analysis. *Applied Economics*, 29(1): 387-401.

Pollin, Robert, and Andong Zhu. 2006. Inflation and economic growth: a cross-country nonlinear analysis. *Journal of Post Keynesian Economics*, 28(4): 593-614.

Ramey, Garey, and Valerie Ramey. 1995. Cross-Country Evidence on the Link between Volatility and Growth. *American Economic Review*, 85(5): 1138-1151.

Reddy, V.V. 2000. Fiscal and Monetary Policy Interface: Recent Developments in India. Presentation at Workshop on Budgeting and Financial Management in the Public Sector, Cambridge, MA: John F. Kennedy School of Government, Harvard University, 10 August. https://rbidocs.rbi.org.in/rdocs/Bulletin/PDFs/17185.pdf accessed 23 February 2023.

Roger, Scott. 2010. Inflation Targeting Turns 20. *Finance & Development*, March: 46–49.

Romer, Christina, and David Romer. 1999.. Monetary policy and the well-being of the poor. *Federal Reserve Bank of Kansas City Economic Review*, 1st quarter: 21–49.

Rossi, Enzo. 2021. Central bank independence and inflation: Weak causality at best. *VoxEU-CEPR*, 2 July.

Sarel, Michael. 1996. Nonlinear effects of inflation on economic growth. *IMF Staff Papers* 43 (March): 199-215.

Selassie, Abebe, Benedict Clements, Shamsuddin Tareq, Jan Martijn, and Gabriel Bella. 2006. Designing monetary and fiscal policy in low-income countries. IMF Occasional Paper, No. 250, Washington, DC: International Monetary Fund.

Sepehri, Ardeshir, and Saeed Moshiri. 2004. Inflation-growth profiles across countries: Evidence from developing and developed countries. *International Review of Applied Economics*, 18(2): 191-207.

Sun, Guofeng, 2022. China's monetary policy in 2022: The way forward. *China Daily*, 28 February. https://global.chinadaily.com.cn/a/202202/28/WS621c31b0a310cdd39bc893c6.html accessed 23 February 2023.

Suthaharan, Neyavan, and Joanna Bleakley. 2022. Wage-price Dynamics in a High-Inflation Environment: The International Evidence. *Reserve Bank of Australia Bulletin*, September.

The Economist. 2022. Worries about inflation in China have been overhyped. *The Economist*, 9 September. https://www.economist.com/graphic-detail/2022/09/09/worries-about-inflation-in-china-have-been-overhyped accessed 23 February 2023.

Tobin, James. 1965. Money and economic growth. *Econometrica*, 33: 671-684.

Tsatsaronis, Konstantinos, Michael Chui, Tirupam Goel, and Aaron Mehrotra. 2022. The monetary-fiscal policy nexus in the wake of the pandemic. *BIS Papers* No 122, Bank of International Settlements: 1–25.

Van Lerven, Frank. n.d. Hyperinflation: How Wrong Lessons Were Learned from Weimar and Zimbabwe. Positive Money Blog. https://positivemoney.org/2015/12/hyperinflation-how-the-wrong-lessons-were-learned-from-weimar-and-zimbabwe-a-history-of-pqe-part-2-of-8/ accessed 23 February 2023.

Wai, U. Tun. 1959. The relation between inflation and economic development: a statistical inductive study. *IMF Staff Papers*, vol. 7: 302-17.

Williams, John. 2012. Monetary Policy, Money, and Inflation. Presentation to the Western Economic Association International, San Francisco, 2 July. https://www.frbsf.org/wp-content/uploads/john-williams-0702.pdf accessed 23 february 2023).

World Bank. 2011. *Food Price Watch*, February. https://documents1.worldbank.org/curated/en/240161468338505130/pdf/643610BRI0Food00Box0362535B0PUBLIC0.pdf accessed 21 February 2023.

Zhang, Zhongxia, and Shiyi Wang. 2022. Do Actions Speak Louder Than Words? Assessing the Effects of Inflation Targeting Track Records on Macroeconomic Performance. IMF Working Paper WP/22/227, November, Washington, DC: International Monetary Fund.

Zhou, Xiaochuan. 2016. Managing Multi-Objective Monetary Policy: From the Perspective of Transitioning Chinese Economy. Michel Camdessus Central Banking Lecture, Washington, DC: International Monetary Fund, 24 June. https://www.imf.org/en/News/Articles/2016/07/06/17/45/SP062416-Xiaochuan-Zhou-Michel-Camdessus-Central-Banking-Lecture accessed 23 February 2023.