



# IMF RESEARCH

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*perspectives*

## Policy under Pressure

A Delicate  
Balancing Act



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## IMF RESEARCH *perspectives*

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## NOTE FROM THE GUEST EDITOR

Just as the global economy was recovering from the COVID-19 pandemic at the start of 2022, Russia's invasion of Ukraine sent new shock waves rippling around the globe. Policymakers are used to being under pressure, but rarely have the trade-offs seemed so difficult, the impacts so uncertain, and the stakes as high as they do right now. How much support can governments provide to vulnerable households to cope with the increased cost of fuel and food without threatening debt sustainability? Can central bankers manage the delicate balancing act of raising interest rates sufficiently to tame inflation without imposing too much pain on workers in the labor market? These questions have taken on a desperate urgency as the world faces crisis upon crisis.

The articles featured in this issue of *IMF Research Perspectives* provide important insights into how policymakers should think about these current challenges. They investigate how both firms and households form their expectations about future inflation, evaluate how the lack of bargaining power by workers at large firms shapes the labor market effects of monetary policy, and consider what kinds of sovereign debt tools could be used to help countries manage sudden liquidity shocks. We were also incredibly fortunate that the IMF's new chief economist, Pierre-Olivier Gourinchas, sat down with us for an in-depth interview about his life, career, and views on economics.

~Cian Ruane

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INTERVIEW WITH

Pierre-  
Olivier  
Gourinchas

CHIEF  
ECONOMIST

Illustration: Laura Spofford





**Pierre-Olivier Gourinchas became the new economic counsellor and the director of research of the IMF in January 2022. He sat down with us for an in-depth interview to discuss his life, career, and views on economics, including how the field of international macroeconomics has evolved over the past 30 years.**

**Here is a brief excerpt from the interview:**

**Cian Ruane:** What were your impressions of the IMF as a PhD student at MIT studying international macroeconomics?

**Pierre-Olivier Gourinchas:** While I was a graduate student at MIT Stanley Fisher was on the faculty and I took a few classes with him. He then went to the Fund and became the First Deputy Managing Director. So, the Fund was a place where, if you

were a faculty member at MIT, you could go and you could be doing something that sounded quite exciting and important. And those were also the years where you had the Mexican debt crisis of 1994–95. So, there were all sorts of exciting policy questions. [...] I was always interested in crises and international economics and every time you study crises in the postwar period, the Fund is not very far away.



**Watch the interview or read the full transcript [here](#)**



# INFLATION EXPECTATIONS AND THE SUPPLY CHAIN



Illustration: Jillian Perdos



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The pandemic, together with policy interventions aimed at boosting demand, generated supply chain bottlenecks that put upward pressure on prices in many countries. Even if supply chain-driven price increases turn out to be temporary, inflation can still spiral out of control if people believe it will be higher in the future. For example, if households or firms' managers believe that next year inflation is going to ramp up, they may decide to negotiate higher wages and set higher prices; inflation would materialize as a result.

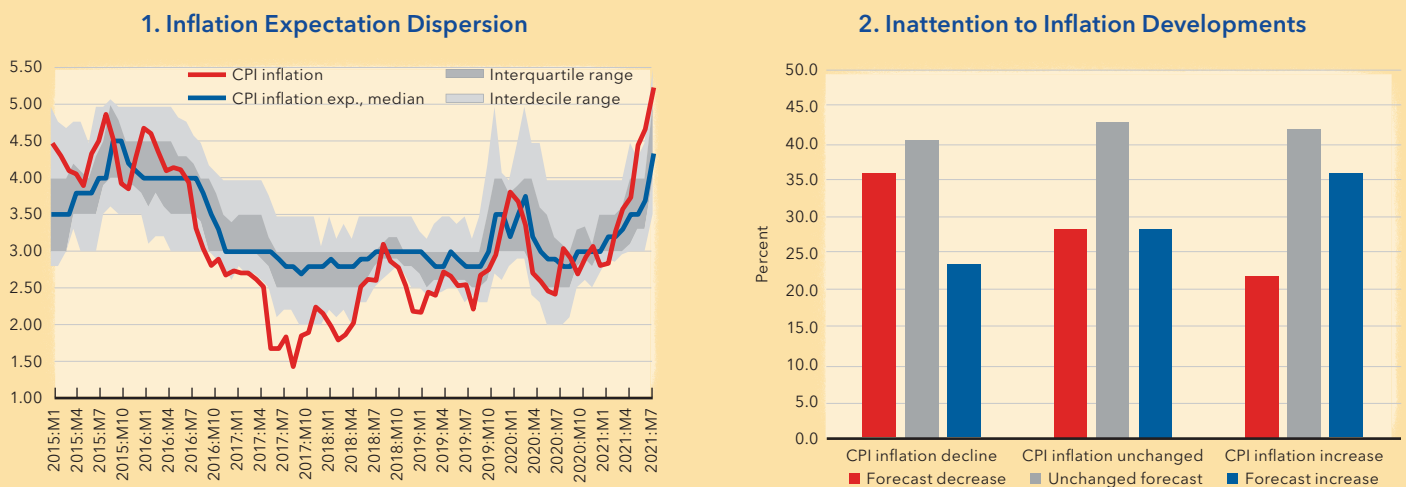
To ensure that inflation expectations do not become entrenched, over the past few months central banks around the world have rushed to raise interest rates. But how do firms—the actual price setters in the economy—form inflation expectations in this context? In our recent IMF working paper ([Albagli and others 2022](#)), we use a unique data set that merges surveys about the inflation expectations of managers at Chilean firms with

price information from administrative records of the value-added tax and customs registries to shed light on whether (1) expectations about aggregate inflation are affected by the prices charged by their suppliers and (2) inflation expectations in turn affect firms' pricing decisions.

### Supply chain inflation and aggregate inflation expectations

Our work shows that Chilean firms differ substantially in their views about the following year's consumer price index (CPI) inflation (Figure 1, panel 1). Moreover, many firms do not appear to take into account past movements in inflation when predicting future aggregate inflation: following an increase in the CPI, roughly half of firms do not change their forecast and one-fifth even expect the CPI to decrease in the future (and vice versa) (Figure 1, panel 2). To explain these facts, economists typically point to difficulties and barriers that prevent firms from accessing and adequately processing relevant information when they are asked what inflation is going to be the following year—so-called information frictions. For example, managers may be too busy to carefully examine the available data, or they may have trouble accessing it, or they may pay attention only to factors that are more immediately relevant to their businesses. In our study

**Figure 1. Disagreement and Inattention**



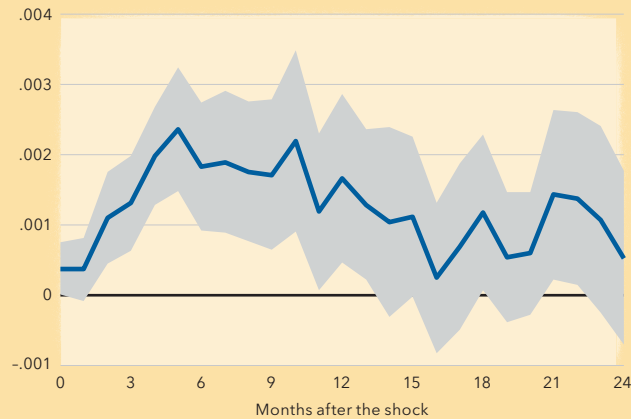
Source: Authors' calculations.

Note: In panel 1 the blue line denotes the median of firms' expectations about CPI inflation, the shaded areas denote the cross-firm interquartile range (dark blue) and the cross-firm interdecile range (light blue); the red line denotes CPI inflation. In panel 2, the red and blue bars denote the shares of firm-month observations that report a decline or an increase in inflation expectations a month after a change in CPI inflation, where a change in CPI inflation is defined as a variation larger than half its standard deviation; the gray bars denote the share of firm-month observations that report unchanged inflation expectations. CPI = consumer price index; exp. = expectation.



## Figure 2. Supply Chain Inflation and Aggregate Expectations

(Response of firms' expectations to a 1 percentage point increase in input price inflation, percent)



Source: Authors' calculations.

Note: The blue line denotes the point estimates, and the shaded area corresponds to the 90 percent confidence interval computed with standard errors clustered at firm and time levels.

we posit that, to get around these frictions, firms use changes in the prices they are charged by their suppliers to form their expectations about aggregate inflation.

To test if this is what is going on, we construct a measure that tracks how expensive the inputs firms buy from their suppliers are, which is effectively a metric of the inflation firms observe along their supply chain. We then examine whether changes in firms' purchase prices influence how they think about future aggregate inflation, but we focus exclusively on changes that are *unrelated* to economy-wide inflation. This makes it possible to test for the rationality assumption typically embedded in macroeconomic models: if firms were rational, they would discard the information coming from changes in supply chain inflation that do not have aggregate effects. We find instead that a typical increase in supply chain inflation leads firms to revise their aggregate inflation expectations up 0.1 percentage point (Figure 2).<sup>1</sup> However, this effect dies out over a 14-month period, likely reflecting the time needed for firms to realize that these changes in input prices do not in fact have aggregate effects.

We argue that in the presence of information frictions, firms do not appear to be able to distinguish between shocks that have aggregate effects and those that do not. Alternatively, firms may care only about shocks that have immediate consequences for their businesses. These results explain the inflation expectation dispersion documented in panel 1 of Figure 1: if firms form their inflation beliefs according to price changes observed along the supply chain and these are heterogeneous across firms, the channel we highlight here can lead to dispersion in inflation expectations.

### Price-setting behavior of firms

Why is it relevant that firms base their expectations about aggregate inflation on the prices at which they settle transactions with their suppliers? If firms act on the basis of their beliefs by setting prices for their goods and services accordingly, forecast disagreement can lead to dispersion in the prices firms are setting. This, in turn, harms consumers because they must search harder for lower prices. In [Albagli and others \(2022\)](#), we document a complete pass-through of changes in inflation expectations to firms' sales prices. Even allowing for sluggish adjustment of these prices, we show that price increases depend on expected future price increases.

These results imply that policy interventions aimed at conditioning firms' expectations may be less effective when this channel is active. For example, central banks' attempts to control expectations may be hampered by the very fact that firms look at their surroundings to form their views. Improvements in central bank communication aimed at reducing firms' inattention to macroeconomic data have the potential to dampen the effects of the information frictions highlighted here. In this regard, experimental studies examining the effects of the type, amount, and way in which information is communicated can be informative.

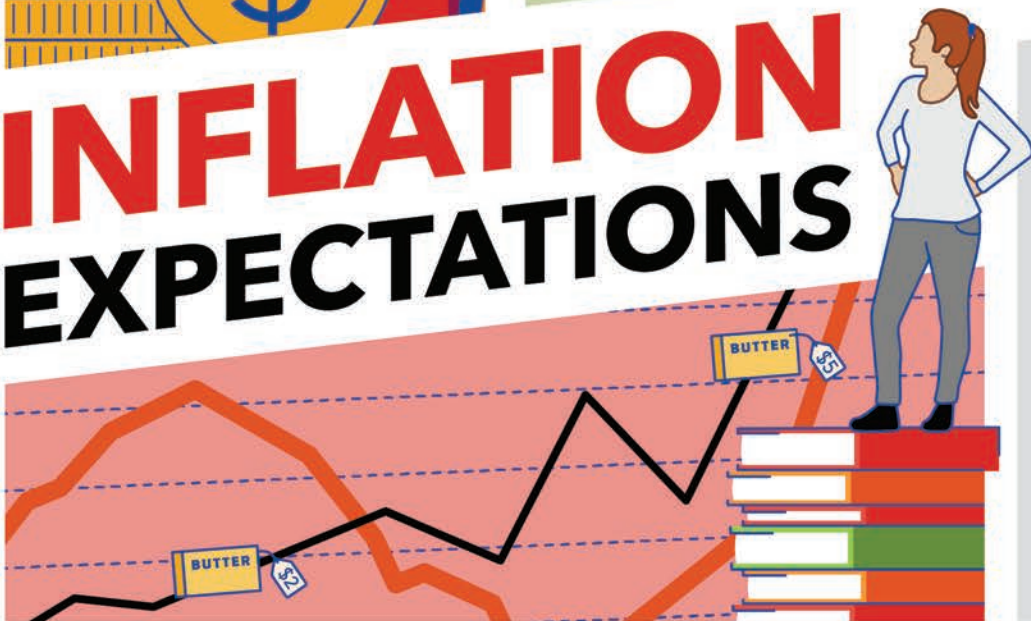
<sup>1</sup> By "typical size increase," we mean a one standard deviation increase in supply chain inflation.



# ANCHORING HETEROGENEOUS HOUSEHOLD



# INFLATION EXPECTATIONS



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## What do you think the inflation rate will be in 2023? How about in five years? This is the main question on the minds of policymakers at the moment.

You may be wondering why it's so crucial to gauge what people expect the level of inflation to be in the future. The reason is that many central banks have adopted an inflation-targeting framework to meet price stability goals that keep long-term inflation hovering around a specific target decided by the central bank. If market participants and the public, both firms and households, trust that the central bank is capable and committed to achieving this target, the level of future inflation that people expect will not deviate significantly from the stated inflation target, with little disagreement among economic participants. In such events, economists say that inflation expectations are **well anchored**. Given that anchoring inflation expectations is the barometer of monetary policy credibility, central banks channel their commitment to price stability and their plans through careful and clear communications.

With the forceful return of inflation, inflation expectations have gained particular prominence as a critical input into how governments will chart a course of future policies to combat inflation. If inflation expectations are not well anchored, the central bank will need to raise interest rates more aggressively than otherwise, and larger adjustments need to be made. For this reason, the behavior of inflation expectations has become one of the most studied topics in economics. In particular, policymakers pay close attention to surveys of households' inflation expectations because households' everyday economic and financial decisions are inherently linked to how they anticipate future price levels.

From the perspective of central banks, in their communications to the public, they often set an *average* household as their target audience. Indeed, the standard metric used to assess the behavior of inflation expectations is the average inflation expectations. One obvious question here is, To what extent does the average value represent

the population accurately? Using an average inflation expectation of household responses would be an innocuous summary of the survey if inflation expectations were broadly similar across all households in the survey. But what if this isn't the case?

We investigate this question in a [recent IMF working paper](#) by asking to what extent inflation expectations differ across households and to what degree demographic and socioeconomic characteristics like education and income level play a role. We use US household inflation expectations from the University of Michigan's Survey of Consumers, conducted monthly since 1978, which asks several hundred households the question, "About what percent do you expect prices to go (up/down) on average, during the next twelve months (or next five to ten years)?"

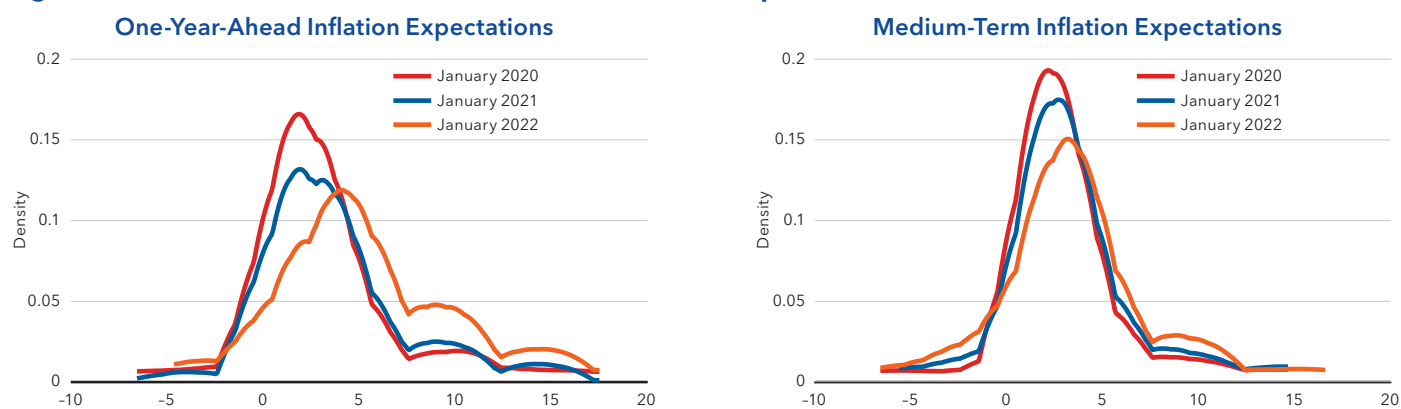
First, we present Figure 1, which illustrates the change in the distribution of US household inflation expectations for one-year-ahead (panel 1) and medium-term (panel 2) inflation expectations to make the point that the average values do not adequately reflect the entire distribution. The charts show three subperiods: a pre-pandemic month (January 2020, red), a post-pandemic month before inflation began to increase (January 2021, blue), and a post-pandemic month after which inflation began to pick up (January 2022, orange). The shape of the distribution for one-year-ahead inflation expectations changed noticeably from the pre-pandemic period (red) to the post-pandemic period (blue) as the curve flattened and the concentration of survey responses at the modal value fell sharply. The curve flattened more in the later sample (orange) but also shifted to the right. A similar story can be told for medium-term inflation expectations, with the changes in the shapes of the entire distribution of inflation expectations not fully captured by the change in the average values.

### Demographic and socioeconomic factors matter

To better understand what underlies the distribution of inflation expectations at a given point, we examine inflation expectations using household demographic and socioeconomic factors. We find that even when the average inflation



**Figure 1. Evolution of the Distribution of Household Inflation Expectations**



Source: [Chang, Gómez-Rodríguez, and Hong \(2022\)](#).

Note: Both series are from the University of Michigan's Survey of Consumers. The distributions of inflation expectations at monthly frequency are separated into three subperiods: January 2020 (red), January 2021 (blue), and January 2022 (orange). Panel 1 plots one-year-ahead household inflation expectations. Panel 2 shows medium-term household inflation expectations. The x-axis shows households' responses concerning inflation expectations, the y-axis shows response densities.

expectations were in line with the Federal Reserve's 2 percent target, or inflation expectations were well anchored, there was large variation of inflation expectations across households, consistent with several recent studies ([Weber and others 2022](#); [D'Acunto and others 2022](#)).

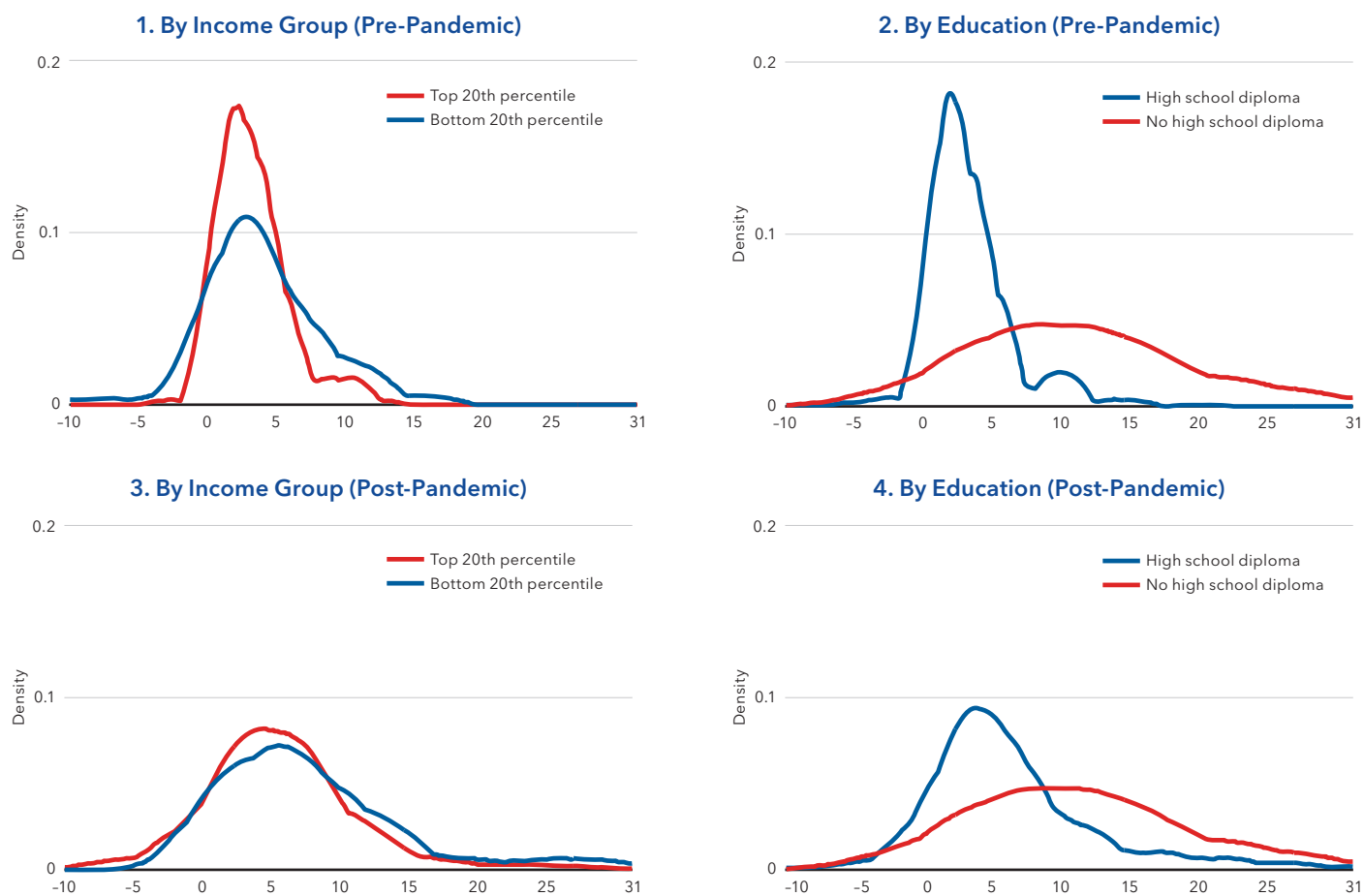
Figure 2 depicts the average distribution of medium-term inflation expectations by income group and education level for two sample points: January 2020 for the pre-pandemic and January 2022 for the post-pandemic sample. To note, the January 2020 sample is representative of the pre-pandemic period, as there is little difference across samples. There are striking differences in what households with different characteristics expect about future inflation. Panel 1 shows that before COVID, inflation expectations were better anchored for high-income households (top 20th percentile) compared with low-income households (bottom 20th percentile), with a greater number of households believing that future inflation would be about 2 percent. Low-income households showed higher average inflation expectations and larger disagreement among them than high-income households, a sign of less-well-anchored inflation expectations. Panels 2 and 4 compare the distribution by education level. Panel 2 shows that households with higher education (at least a high school diploma) had much-better-anchored inflation expectations than those without high school diplomas. Things changed during the pandemic

(Figure 2, panels 3 and 4). Regardless of demographic and socioeconomic factors, the distributions shifted to the right and became flatter, implying that households deviated from the announced inflation target of 2 percent. Still, higher-income and better-educated households have less dispersed and lower levels of inflation expectations, but the gap has narrowed.

Interestingly, how households think about future economic conditions plays an increasingly important role in shaping inflation expectations (Figure 3). Prior to the pandemic, there was little difference across households, regardless of what they expected labor market conditions to be the following year (Figure 3, panel 1). More recently, households with pessimistic views (expecting a higher unemployment rate the following year) shifted their distributions the most and show less-anchored inflation expectations (Figure 3, panel 2). More optimistic (expecting lower unemployment the following year) or neutral (no change) households became less anchored during the pandemic, but to a lesser extent.

Given these facts, it is natural to wonder what explains why certain households have better-anchored inflation expectations than others. Previous studies may provide useful insight. Several potential drivers are mentioned by [D'Acunto and others \(2022\)](#). Households may receive different price signals because shopping

**Figure 2. Distribution of Medium-Term Inflation Expectations by Household Characteristics**



Source: [Chang, Gómez-Rodríguez, and Hong \(2022\)](#).

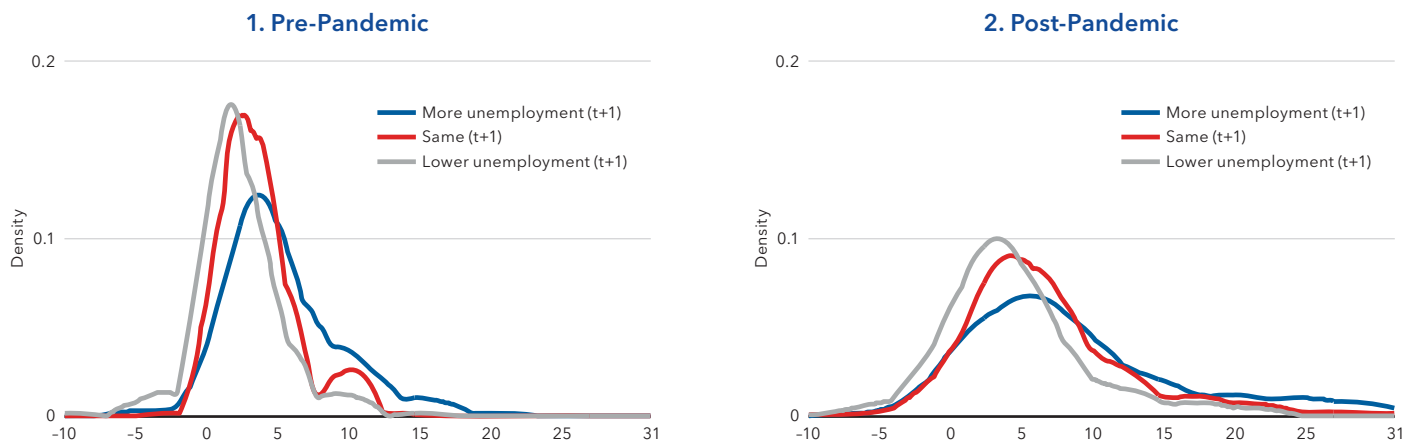
Note: January 2020 sample is used for pre-pandemic distributions. Post-pandemic distributions use January 2022 sample.

habits differ depending on demographic or socio-economic factors. Analyzing shopping patterns at grocery stores, studies found that households that observe price increases in their own consumption bundles—for instance, driven by price hikes of specific items they consume—tend to revise their expectations for aggregate inflation up ([D’Acunto and others 2021](#)). Evidence also shows a vastly different consumption pattern of food and durable goods across income groups, which explains why some households may be more exposed to price increases for certain items ([Attanasio and Pistaferri 2016](#)). Past experience with inflation, as well as exposure to media and communications, may also shape households’ inflation expectations. Finally, some studies point to households’ experiences with house prices ([Kuchler and Zafar 2019](#)) and reactions to measures of economic policy ([D’Acunto, Hoang, and Weber 2022](#)).

These findings give rise to several policy implications. First, our study underscores the significance of a deeper understanding of the underlying causes of diverse expectations across households when it comes to managing inflation expectations. More specifically, central banks can potentially do a better job communicating with ordinary households, recognizing that they vary significantly. Anchoring inflation expectations may not be as effective if the target audience of the central bank’s communications is the average household. Rather, the key audience for better central bank communications is households whose inflation expectations are less well anchored. These households are likely to suffer more price shocks—for instance, from food and energy price hikes. Honing policy messages to households particularly exposed to those shocks will pay off handsomely in anchoring inflation expectations. Another key takeaway from our study



**Figure 3. Distribution of Medium-Term Inflation Expectations by View of Future Labor Market Conditions**



Source: [Chang, Gómez-Rodríguez, and Hong \(2022\)](#).

Note: January 2020 sample is used for pre-pandemic distributions. Post-pandemic distributions use January 2022 sample.

is the way drivers of inflation expectations change over time and the importance of policymakers' mindfulness of relevant drivers at each point in time. In recent months, households' perspectives on future economic conditions appear to have a strong correlation with inflation expectations.

A corollary of this finding is that sound macroeconomic policies that can contain economic costs will help anchor inflation expectations, spurring a virtuous cycle that will make policymaking easier and trade-offs smaller.



# MONETARY POLICY TRANSMISSION IN THE PRESENCE OF LABOR MARKET POWER

Evidence from 250 Million  
Online Job Postings



Illustration: Stefan Lipsky



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## Labor market power among US firms may make the Fed’s job of bringing down inflation more difficult.

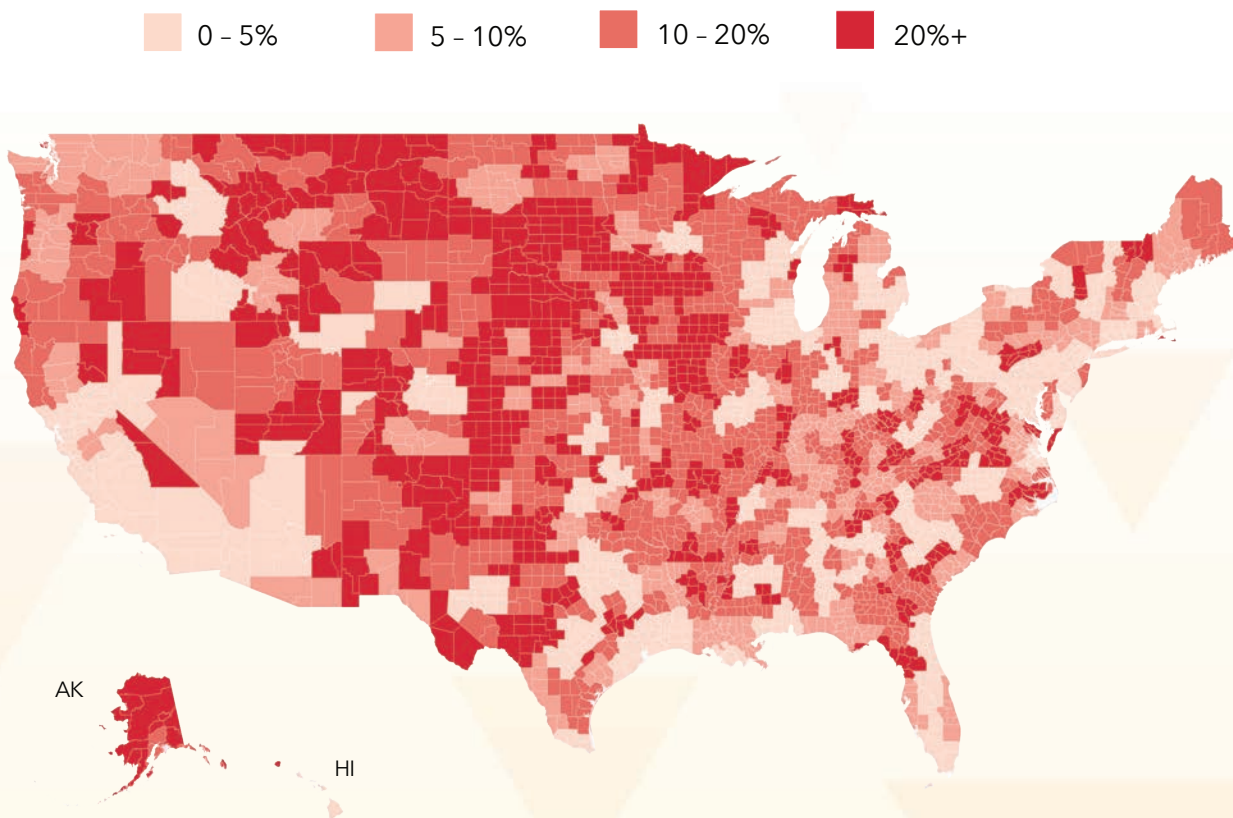
Elevated inflation in the US is prompting the Federal Reserve to raise rates at the fastest pace in more than 40 years. The implications of the rapid tightening of monetary policy on the labor market deserve an in-depth analysis, especially in the context of the increase in US corporate concentration. US firms are well known not only for their product market power but also for significant labor market power, allowing them to mark down wages below the marginal product of labor. Does labor market power amplify the impact of monetary policy on hiring? Are there different responses across skill groups? Can labor market power help explain what economists have referred to as a flattening of the wage Phillips curve following the global financial crisis—namely, a flatter trade-off between unemployment and wages?

## Labor market power: more prevalent in poorer, rural areas of the US

Using a panel data set of 250 million online vacancy postings in the US from Lightcast, a recent IMF working paper studies how employers respond to monetary policy surprises—unexpected interest rate hikes or cuts—and whether that reaction depends on the degree of employers’ labor market power. Details for each vacancy include information on the firm, location, posted date, job requirements, and offered wage, among others. The highly disaggregated data allow us to construct firm-region-specific vacancy shares, which serve as our measure of labor market power. Employers accounting for a large share of jobs in a local area are inferred to have high labor market power.

The data show that employers with labor market power are located mostly in less densely populated rural areas, where average incomes tend to be lower and job seekers have fewer employers to choose from (Figure 1). Labor market power is

**Figure 1. Dominant Employers**  
(Prevalence of dominant employers, percent)



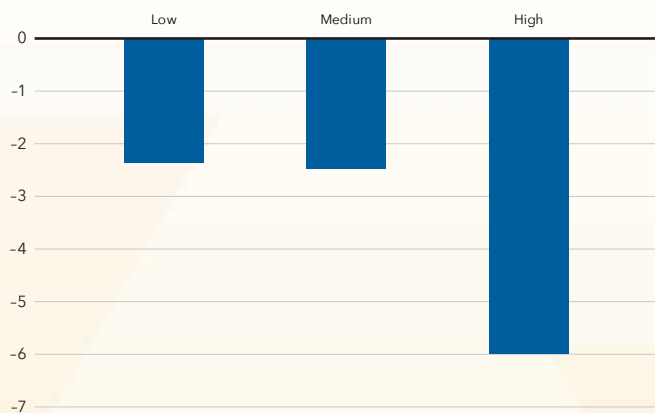
Source: Burya and others, (2022).

found to be more prevalent in industries like health care, agriculture, and mining. The data also confirm that employers with more labor market power tend to offer lower wages, even conditional on a large set of observed and unobserved firm, region, and vacancy characteristics, such as the occupation and requirements for education, software knowledge, and experience, among others. These findings are consistent with previous studies finding that employers with labor market power mark down wages relative to the marginal product of labor (Yeh, Macaluso, and Hershbein 2022; Berger, Herkenhoff, and Mongey 2022; CEA 2022).

### Employers with labor market power cut more jobs following rate hikes

We find that employers with labor market power are more responsive to changing interest rates—they cut back more on vacancies when rates are rising relative to other employers (Figure 2). Our results are robust to controlling for unobserved and observed time-varying regional and firm-time characteristics, ruling out many other potential channels unrelated to labor market power (such as financial constraints or product market power). Using firm-level data from Compustat, we confirm that fewer vacancies are in turn associated with lower employment. The basic intuition for our findings is that when interest rates rise, demand for products declines, production costs rise, and the need for

**Figure 2. Responding to Rates**  
(Vacancy response to a rate hike by firms' labor market power, percentage points)



Source: Burya and others, (2022)

Note: The chart shows the response of vacancies one year after a monetary tightening of 10 basis points, depending on the extent of firms' labor market power (low, medium, and high).

workers decreases. Because employers that enjoy labor market power can usually hire more easily, they are more likely to fire staff.

To give a sense of magnitude, a firm in the top 5 percent of labor market power is found, in response to monetary tightening, to decrease its hiring 30 percent more than a similar firm without such labor market power. This amplification effect is found to be even larger for vacancies that do not require a college degree or specific technological skills. Monetary policy cycles can thus generate significant heterogeneity in labor demand across the skill distribution, something that is consistent with recent data on the polarization of the labor market.

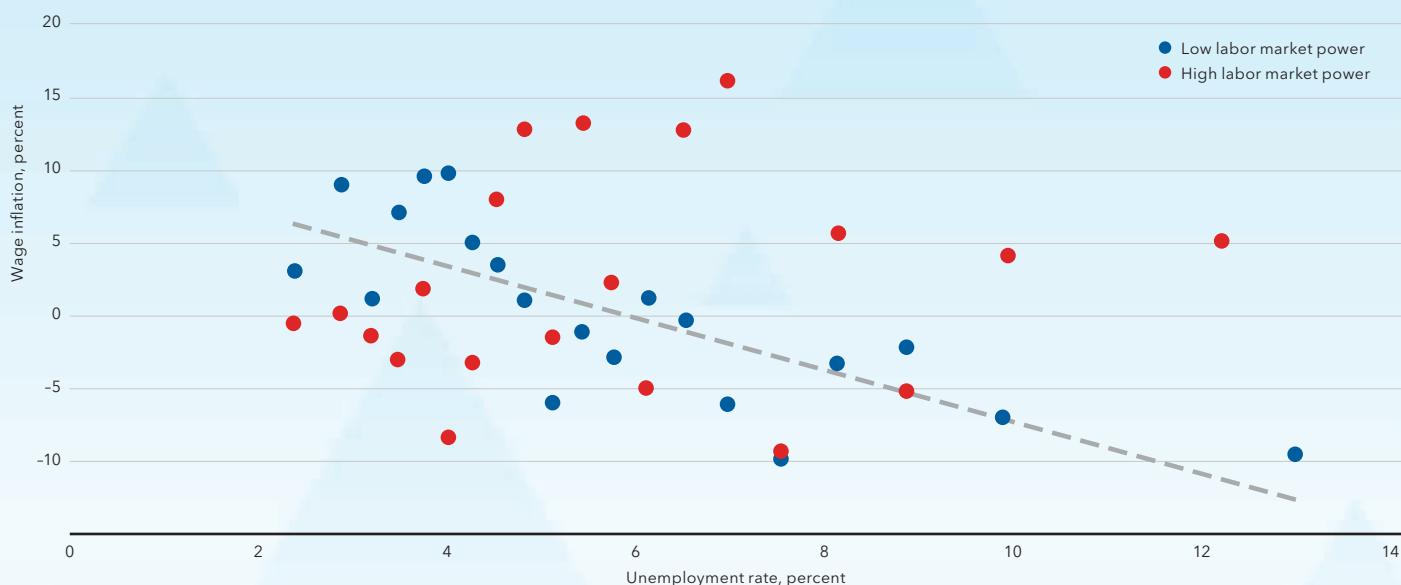
### Wages at firms with labor market power are less reactive to slack in local labor markets

On the other hand, the analysis shows that all employers cut wages when interest rates are rising, and employers with labor market power do not differ in this regard from other employers. These patterns are consistent with aggregate trends between 2010 and 2019, when the unemployment rate—particularly for low-skilled individuals—fell quite significantly but wage growth was tepid, particularly for the less skilled. This implies a flattening of the relationship between wages and labor market slack—the wage Phillips curve. Our empirical results are corroborated by a search and matching model: it predicts that firms with labor market power can hire more workers by posting more vacancies without increasing wages if they benefit from more efficient job matching or lower vacancy posting costs.

To analyze the implications of labor market power for the wage Phillips curve directly, we estimate the curve at the commuting-zone level and exploit regional variation in the degree of labor market power. The findings of this exercise corroborate the idea that wages at firms with labor market power are less reactive to the degree of slack in local labor markets. In commuting zones where employers are smaller and more competitive, there appears to be a much steeper relationship between wages and unemployment (Figure 3). Wage offers by firms with high labor market power, on the other hand,



**Figure 3. Wage Growth and Unemployment**



Source: Burya and others, (2022).

Note: The chart shows the response of vacancies one year after a monetary tightening of 10 basis points, depending on the extent of firms' labor market power (low, medium, and high).

are not statistically related to the level of unemployment. Thus, the presence of labor market power may present challenges when it is necessary to disinflate the economy, since unemployment must rise more than it would otherwise to bring wage inflation down.

**Concluding remarks**

To bring down inflation, the Fed needs to raise interest rates. Historically, small increases in the unemployment rate have reduced wage and price pressures significantly, but our analysis shows that this relationship has weakened, pointing to an

important role of labor market power in explaining this weakening. Reducing wage and price pressures may thus be difficult without creating high unemployment when employers have labor market power. Since regions where labor market power is more prevalent tend to be poorer to begin with, rising interest rates will push unemployment up precisely where incomes are lowest and will disproportionately affect less-educated workers. This mechanism could thus exacerbate income polarization within and across regions as the Fed raises interest rates, with significant social and political implications.

# SOVEREIGN COCOS



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In response to COVID-19, governments implemented large fiscal stimulus programs that pushed public debt to historically high levels. The combination of higher public debt and challenging economic conditions has elevated sovereign default risk, tightening governments' borrowing constraints and triggering a wave of sovereign debt downgrades, especially in emerging market economies and low-income countries. These developments have revived discussions about policies to mitigate the likelihood and the costs of sovereign debt crises.

The reprofiling of sovereign debt—extending the maturity of debt instruments or imposing a debt service standstill when the government faces adverse liquidity shocks—has always played a central role in these discussions. For instance, [previous research](#) proposes a universal debt rollover option that entitles (both private and sovereign) borrowers to extend performing debt for a specified period at a penalty rate. In the [2014 review of its lending framework](#), the IMF states that “in circumstances where a member has lost market access and debt is considered sustainable but not with high probability, the Fund would be able to provide exceptional access on the basis of a debt operation that involves an extension of maturities (normally without any reduction of principal or interest).”

More recent proposals entail governments issuing “CoCos” (contingent convertible bonds) or extendible bonds with a trigger clause that allows reprofiling of debt payments without causing a credit event. A commonly discussed liquidity shock that would trigger reprofiling is an increase in the government’s funding cost. Ideally, the trigger for reprofiling would be closely tied to the government’s ability to repay but would not be manipulable by the government.

Proposals for sovereign CoCos are motivated in part by rapid growth in the issuance of bank CoCos (which convert debt into equity or automatically write down debt after adverse contingencies) after the 2007–09 financial crisis. Advocates of sovereign CoCos argue that these instruments can enhance overall macro-financial stability by mitigating default risk (since triggered bonds would not be deemed a credit event) and can facilitate the response to crises. In turn, reprofiling debt payments would create fiscal space and, hence, allow the government to conduct more counter-cyclical fiscal policy. Moreover, CoCos could help limit both creditor and debtor moral hazard: expectations of a creditor bailout from the official sector would be reduced, and CoCos could impose more market discipline on sovereigns through higher interest rates for economies approaching a crisis. Such market discipline, critics argue, could however lead creditors to scramble out of the market if it seems likely that reprofiling clauses will trigger—and could cause a liquidity crisis. Thus, CoCos could ultimately increase the likelihood of debt crises and hurt sovereigns.

### A quantitative evaluation

In a [recent IMF working paper](#), we present a formal quantitative analysis of sovereign CoCos. Would they reduce or increase the frequency of crises and the sovereign spreads paid by the government? Would they benefit the government? Should the reprofiling mandated by CoCos be accompanied by debt forgiveness? We address these questions using a standard quantitative model of sovereign default that has been widely used in studies of fiscal policy for countries with default risk.

We augment the baseline model with a shock to the lenders’ risk aversion, a liquidity shock commonly mentioned as a possible trigger for reprofiling in policy discussions. This liquidity shock could for example capture spikes in sovereign spreads due to increased global risk aversion. Our model is calibrated to capture the historical relationship between the levels of aggregate income, sovereign debt, and spreads in economies facing default risk (Table 1). Thus, model predictions match several features of the data, including



average levels of sovereign debt and spreads, the countercyclicality of spreads (default risk increases during recessions and decreases during booms), and the implied procyclicality of fiscal policy (fiscal deficits tend to rise during economic expansions). This makes us confident that the model can provide useful quantitative insights into the effects of introducing CoCos for which payments are suspended in periods with an adverse risk-premium shock.

### Effects of introducing CoCos

We evaluate the effects of CoCos by comparing simulation results in the benchmark economy without CoCos with those obtained when we assume the government can issue both noncontingent bonds and CoCos. We find that, as argued by proponents of sovereign CoCos, they reduce the frequency of sovereign defaults triggered by liquidity shocks and lessen the volatility of consumption, increasing welfare (Table 1, Figure 1). However, as anticipated by critics, CoCos increase the overall frequency of sovereign defaults, which is reflected in higher spreads (Table 1). This occurs because when CoCos are available, the government chooses to carry higher debt (Table 1). By mitigating concerns about liquidity, CoCos make indebtedness and thus default risk more attractive. CoCos also augment the increase in spreads triggered by adverse liquidity shocks

because (1) lenders dislike suspensions of payment triggered by risk-premium shocks (unless the suspension greatly reduces the probability of default) and (2) the suspension of payment triggered by risk-premium shocks leads to higher debt while the government faces these shocks.

### Should CoCos Trigger Debt Forgiveness?

Following existing proposals, the previous results assume that CoCos suspend all debt payments and do not imply debt forgiveness (that is, a face-value haircut). But is this level of debt relief implied by CoCos optimal? We find that the sovereign does not want less debt relief (welfare decreases if a smaller fraction of debt payments is suspended; Figure 1, panel 1). In fact, the government wants more debt relief: it obtains larger welfare gains if the reprofiling of debt payments triggered by CoCos is accompanied by debt forgiveness (Figure 1, panel 2). This is because when CoCos trigger only suspension of debt payments, the level of debt increases, raising the default probability and the spread. This impairs the government's ability to borrow in order to mitigate consumption declines. In contrast, with debt forgiveness, CoCos lower the level of debt, the default probability, and the spread, improving the government's ability to borrow in order to mitigate consumption declines (Table 1).

**Table 1. Key Statistics in the Data and the Simulations**

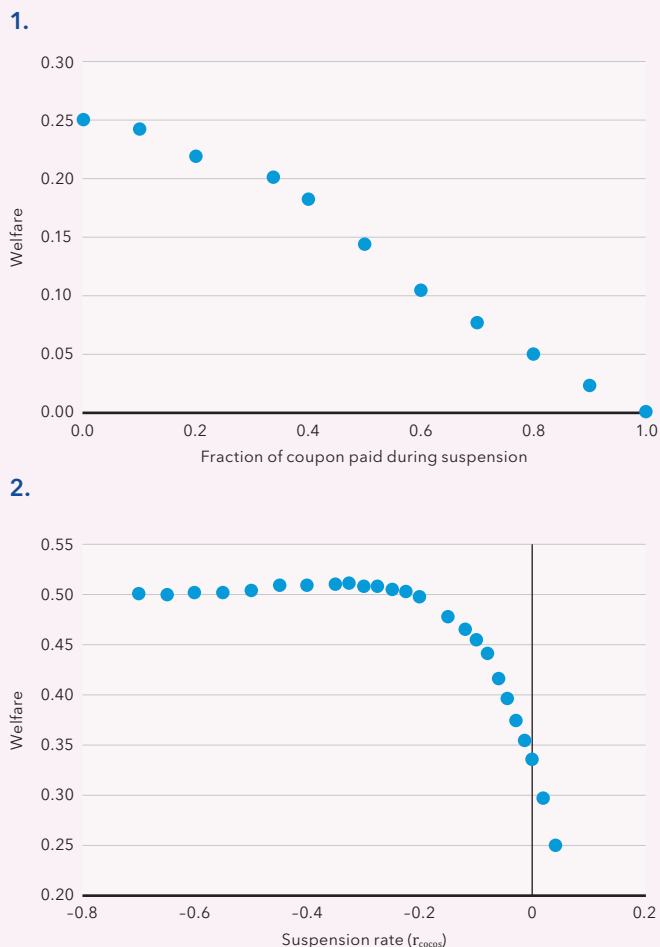
|  | Data        | Benchmark without CoCos | With CoCos  | With Debt Forgiveness |
|--|-------------|-------------------------|-------------|-----------------------|
| Mean debt (% GDP)                      | <b>43.0</b> | <b>43.1</b>             | <b>52.9</b> | <b>55.6</b>           |
| of which CoCos (%)                     | <b>n.a.</b> | <b>n.a.</b>             | <b>93</b>   | <b>81</b>             |
| Mean spread (\$)                       | <b>2.4</b>  | <b>2.4</b>              | <b>2.8</b>  | <b>1.8</b>            |
| Consumption std. dev./income std. dev. | <b>1.0</b>  | <b>0.99</b>             | <b>0.97</b> | <b>0.92</b>           |
| Default per 100 years                  | <b>n.a.</b> | <b>6.2</b>              | <b>6.8</b>  | <b>4.6</b>            |

Source: Authors' calculations (Hatchondo and others, (2022)).

Note: n.a. = not applicable; std. dev. = standard deviation.



**Figure 1: Welfare Gains**  
(Consumption increase, percent)

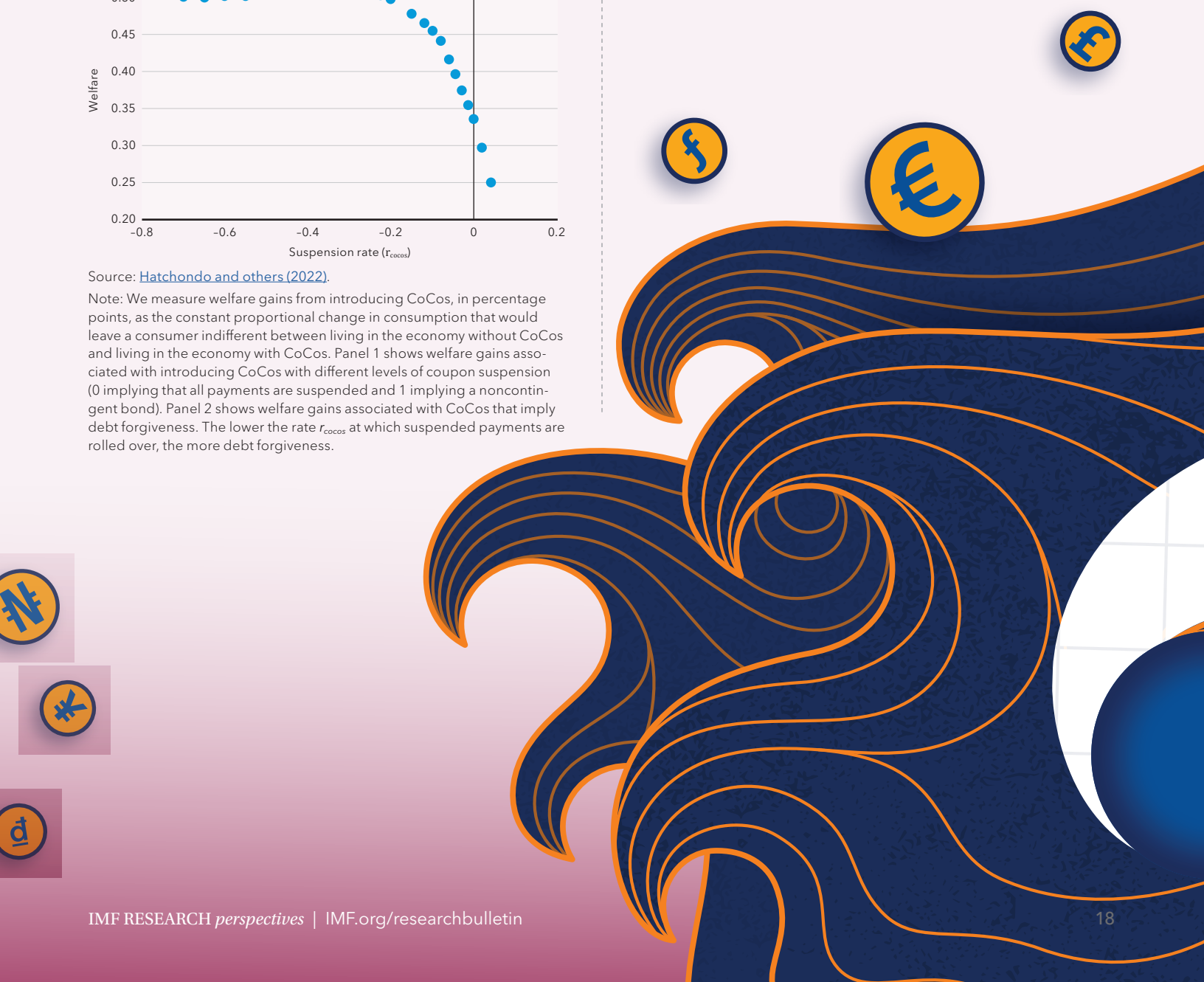


Source: [Hatchondo and others \(2022\)](#).

Note: We measure welfare gains from introducing CoCos, in percentage points, as the constant proportional change in consumption that would leave a consumer indifferent between living in the economy without CoCos and living in the economy with CoCos. Panel 1 shows welfare gains associated with introducing CoCos with different levels of coupon suspension (0 implying that all payments are suspended and 1 implying a noncontingent bond). Panel 2 shows welfare gains associated with CoCos that imply debt forgiveness. The lower the rate  $r_{cocos}$  at which suspended payments are rolled over, the more debt forgiveness.

## Conclusions

Our findings carry important implications for how we think about dealing with sovereign debt risks. CoCos proposals rely on reprofiling of debt service without debt forgiveness. However, we find that governments could benefit from debt forgiveness, which would also reduce default frequency while allowing for more fiscal space and a more counter-cyclical fiscal policy. Note however, that our analysis abstracts from important considerations that have affected the success of sovereign state-contingent bonds, including countries' inability to issue these bonds at a reasonable premium.



# THE GLOBAL ECONOMY

Looking BACK

Moving FORWARD

Honoring MAURICE OBSTFELD

## 23rd Jacques Polak Annual Research Conference

The IMF Research Department held the 23rd Jacques Polak Annual Research Conference November 10-11, 2022.

This year's conference was held in person for the first time in three years. The event focused on ["The Global Economy: Looking Back, Moving Forward"](#) and honored Maurice Obstfeld's contributions to economic policy and research. The conference provided a forum to discuss innovative research on a wide range of topics relevant to the global economy and facilitated the exchange of ideas among researchers and policymakers.

Linda Goldberg delivered the Mundell-Fleming Lecture, in which she highlighted the importance of global liquidity in sustaining financial stability in the current world economy.

In the policy panel on the second day, titled "The Global Economy: Old Tradeoffs and New Challenges," Jason Furman, Philip Lane, Maurice Obstfeld, Carmen Reinhart, and Pierre-Olivier Gourinchas talked about the challenges of the global economy and economic policies adopted by countries around the world.

Obstfeld offered personal remarks on the life and work of Robert Mundell, live-streamed from Mundell's memorial, which was held at St. Paul's Chapel in New York City.



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