F&D

FINANCE & DEVELOPMENT
INTERNATIONAL MONETARY FUND

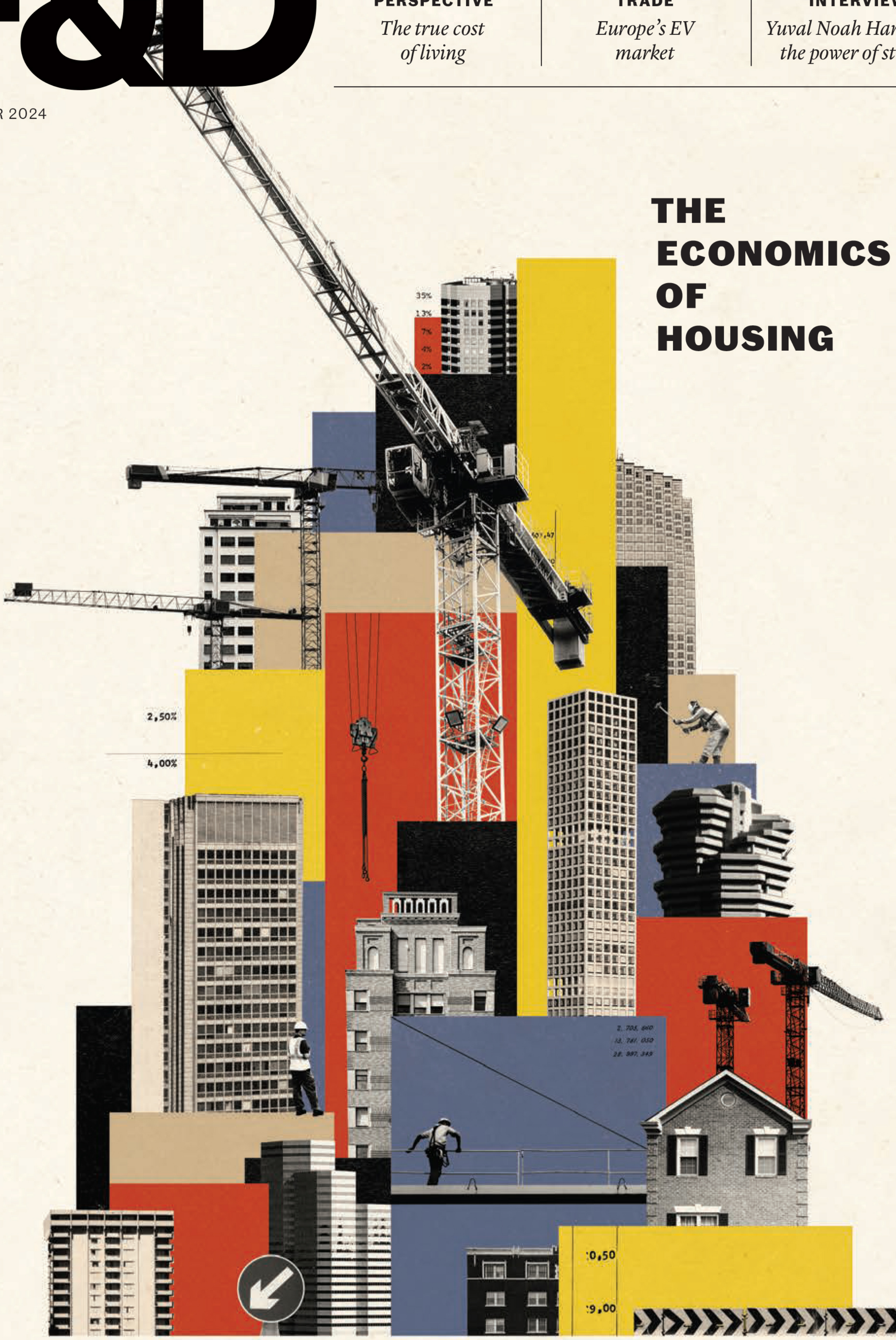
DECEMBER 2024

PERSPECTIVE
The true cost of living

TRADE
Europe's EV market

INTERVIEW
Yuval Noah Harari on the power of stories

THE ECONOMICS OF HOUSING




INTERNATIONAL MONETARY FUND
GLOBAL FINANCIAL STABILITY REPORT
INTERNATIONAL MONETARY FUND
FISCAL MONITOR
INTERNATIONAL MONETARY FUND
EXTERNAL SECTOR REPORT
INTERNATIONAL MONETARY FUND
WORLD ECONOMIC OUTLOOK
Timely.
Topical.
Free.
PUBLICATIONS
Global economics at your fingertips
IMF.org/pubs

Contents

Finance & Development
A Quarterly Publication of the International Monetary Fund
December 2024 | Volume 61 | Number 4

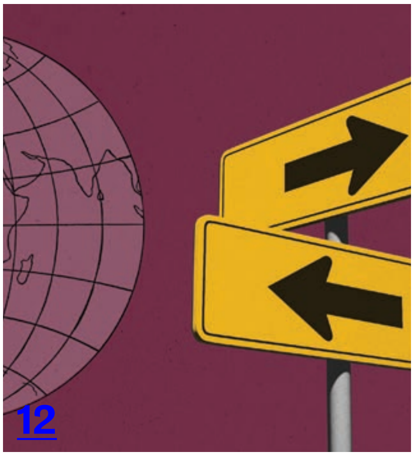
The Economics of Housing

Also in this issue

52

SHOUT

Departments



On the Cover
Lisbon-based cover artist Cristiana Couceiro combines buildings, cranes, and construction workers atop a bar chart to depict the rises and falls in real estate markets.

Subscribe at www.imfbookstore.org/f&d
Read at www.imf.org/fandd
Connect at facebook.com/FinanceandDevelopment

CHANTAL JAHCHAN, JIM GRAHAM

F&D
FINANCE & DEVELOPMENT
A Quarterly Publication of the International Monetary Fund

Subscriber services, changes of address, and advertising inquiries:

IMF Publications
Finance & Development
PO Box 92780
Washington, DC 20090, USA
E-mail: publications@IMF.org

Postmaster: send changes of address to *Finance & Development*, International Monetary Fund, PO Box 92780, Washington, DC 20090, USA.

The English edition is printed at Dartmouth Printing Company, Hanover, NH.

Finance & Development is published quarterly by the International Monetary Fund, 700 19th Street NW, Washington, DC 20431, in English, Arabic, Chinese, French, Russian, and Spanish.
English edition ISSN 0145-1707

FSC FPO

Editor's Letter

Home Truths

WHEREVER I GO THESE DAYS, the conversation inevitably focuses on the rising cost of housing. The concerns span generations, locations, and income levels. Young people may be the most disillusioned as they see their ability to buy or rent diminished just as they plan to start families. The causes are complex and varied, but the stakes are unambiguous: shelter means stability, security, and a sense of belonging. It is an essential part of well-being and a recognized human right.

For society too, housing is a unique economic asset. Homeownership is the biggest source of both debt and wealth. That makes it central to understanding why economies endure boom-and-bust cycles.

In short, the housing sector plays a transformative role in shaping national economic outcomes. Yet housing is often missing in macroeconomic analysis. This issue of *Finance & Development* details how housing markets and the economy interact, the nature of recent challenges—including the property slump in China—and the potential solutions that can make real estate markets work for everyone.

At the root of the current affordability crisis: demand far exceeds supply, with adverse implications for economic mobility, productivity, and growth.

Using a new way of comparing housing affordability across countries, Deniz Igan shows that the pandemic and resurgent inflation set off the worst global housing affordability crisis in more than a decade. As homeownership becomes less affordable, the gap between haves and have-nots increases—heightening popular concern, as reflected in elections around the world this year.

Interest rates also play a big role. Lawrence Summers and coauthors analyze the sharply higher borrowing costs—especially for housing—that have fueled a disconnect between inflation statistics and consumer sentiment. Mehdi Benatiya Andaloussi and coauthors show how housing and mortgage markets are a key and complex component of monetary policy transmission. They conclude that a deep, country-specific understanding of these markets is important to help calibrate monetary policy.

Still, it is not just inflation, tight supply, or zoning laws that raise prices—dirty money is also part of the problem, according to Chady El Khoury. High-end real estate often helps hide or launder illicit fortunes, further distorting housing markets and making homeownership a more distant dream for ordinary people.

"Shelter means stability, security, and a sense of belonging."

No wonder so many say housing markets are broken.

Adequate and affordable housing is also a critical ingredient for healthy, vibrant cities, affecting where and how people live, work, and access services. Elizabeth Johnson explains how São Paulo combines federal and municipal programs to retrofit downtown buildings. Kecia Rust describes how technology can support housing in informal markets in Africa. And Igan suggests lowering regulatory barriers, like zoning laws and building codes; targeting support for low-income households; and incentivizing developers to provide affordable units.

All sectors—public, private, nonprofit—must work together to ensure greater access to housing. A well-functioning housing sector is critical to the health of society, to every economy, and to financial stability. To get our house in order, we must fix what's broken.

Elsewhere in this issue, Yuval Noah Harari describes how, for the first time, the stories that sustain human societies are being told by nonhuman intelligence; Bert Kroese argues that gross domestic product is an incomplete statistic that should be complemented by other measures, and economists Jiaxiong Yao and Robert Zymek trace Europe's shift to electric vehicles amid intensifying global competition. F&D

Gita Bhatt, editor-in-chief

Kaleidoscope

A global view, in brief

THE BIG PICTURE: The Principality of Liechtenstein joined the IMF in October as its 191st member, with Prime Minister Daniel Risch signing the Articles of Agreement at a ceremony in Washington. *Above, a view of Gutenberg Castle in Balzers. Getty Images/Jan Hetfleisch.*

Don't Blame Trade for Poor Outcomes

WORLD TRADE ORGANIZATION Director-General Ngozi Okonjo-Iweala delivered the Per Jacobsson Lecture at the IMF–World Bank Annual Meetings in October, calling for better communication about the benefits of international commerce.

"Trade is sometimes blamed and scapegoated for poor outcomes that really derive from macroeconomic, technological, or social policy for which trade is not responsible," she said, warning that walking away from the trading system would diminish the world's ability to respond to problems affecting people's lives and opportunities.

The memory of the collapse of the international order that Jacobsson observed a century ago echoes today, Okonjo-Iweala said, but the genius of the Bretton Woods institutions that followed is that it turned those vicious cycles into virtuous ones.

Jacobsson was a Swedish economist at the League of Nations and Bank for International Settlements in the 1920s and 1930s who led the IMF in 1956–63.

Today, the world needs new trade rules that fit the times, and countries can have interdependence without overdependence, said Okonjo-Iweala, an economist and international development expert who in 2021 became the first woman and the first African to lead the Geneva-based organization whose terms govern 75 percent of global trade.

"Over the past eight decades, the multilateral economic architecture, including the trading system, has delivered a great deal for the world," Okonjo-Iweala said. "We have reinvented it before. We can do so again, for people and planet."

> "We have reinvented multilateral economic architecture before. We can do it again, for people and planet."
>
> —World Trade Organization Director-General Ngozi Okonjo-Iweala.

Overheard

"If you look at current valuations, market participants seem to have difficulty pricing geopolitical risks... Once these risks manifest themselves, we may have some form of correction."

—Klaas Knot, chair of the Financial Stability Board, speaking at the IMF in October.

"While the global economy has shown resilience, many countries must grapple with high debt and low growth. Uncertainties arising from geopolitics, trade policy, climate events are top of mind."

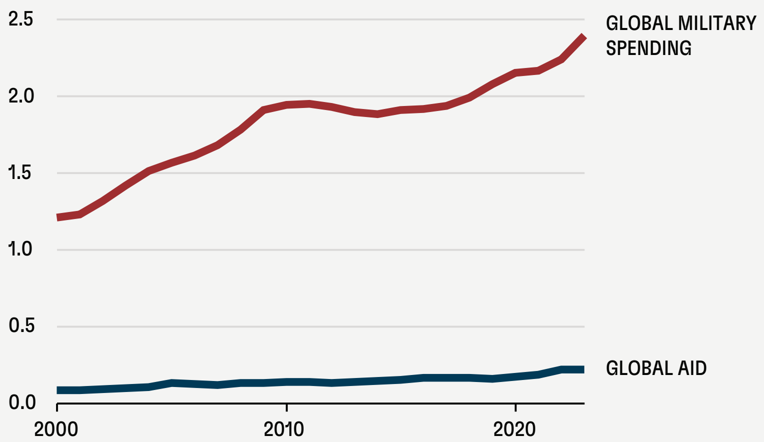
—Gita Gopinath, IMF first deputy managing director, speaking in October.

AROUND AND ABOUT: Kristalina Georgieva, the IMF's managing director, and Ajay Banga, the World Bank president, hosted some of the world's great thinkers at Bretton Woods in September to discuss the future of the global economy. Eighty years earlier, a historic conference in the New Hampshire hotel culminated in the creation of the two multilateral institutions. *IMF Photo/Melissa Lyttle*

By the numbers

Even as development assistance to the world's poorest nations has stagnated, global military spending has surged over the past two decades to almost $2.5 trillion.

TRILLION CONSTANT 2022 DOLLARS



SOURCES: Stockholm International Peace Research Institute; and Organisation for Economic Co-operation and Development.
NOTE: Global aid is measured here as Official Development Assistance (ODA).

Back to Basics

Are Housing Markets Broken?

Many people aspire to own their own home, but it's becoming increasingly unaffordable

Hites Ahir

FEW ECONOMIC ISSUES ARE AS contentious as housing. Concerns about affordability are top of mind for many people, young people especially, as aspirations for homeownership appear increasingly far-fetched. Are housing markets broken?

Thomas Carlyle, the 19th century philosopher, famously lambasted economists for parroting "demand and supply" as the answer to every question. But it must be the starting point for any explanation of the seemingly relentless rise in house prices: income and population growth boosts demand for housing and, unless supply keeps up, house prices continue to rise.

Consider the case of Canada. House prices (adjusted for inflation) have risen at an annual rate of about 5 percent since 2016, driven by steady growth in income and population, including strong immigration. But housing supply has lagged. The Canada Mortgage and Housing Corporation estimates that the country faces a shortage of 3.5 million homes for a population of about 41 million. Similar mismatches in supply and demand are inflating house prices elsewhere, too.

Demand amplification

Of course, economists recognize that housing is different from the other products people buy. Housing is a major long-lasting purchase and investment—for most people, the biggest they will make—and is typically financed by borrowing. This has two important consequences. First, it makes housing demand sensitive to expectations and social narratives about future house prices. Often the fear of missing out can lead people to buy homes at high prices if a narrative takes hold that tomorrow's prices will be even higher.

The Nobel Prize–winning economist Robert Shiller is famous for spotting bubbles in the housing market driven by unrealistic expectations of future prices. In 2003, Shiller noted that US house prices were substantially out of whack with people's incomes and with rents, suggesting prices were not supported by economic fundamentals. House price bubbles form, Shiller argued, from narratives and societal beliefs, often amplified by word of mouth, creating a powerful collective expectation of ever-increasing prices.

A second consequence is that housing demand is sensitive to the availability and cost of mortgage credit. A relaxation in lending standards can impart a strong boost to house prices, as happened in the run-up to the global financial crisis in 2008–09. But even without changes in lending standards, there can be amplification effects related to credit availability. As house prices climb, the value of properties pledged to lenders as collateral also increases, which can lead banks to extend more credit, further inflating the housing market. Shiller noted that the misconception that house prices always rise led to risky lending and investment. These practices, combined with the sale of high-risk loans as securities, exacerbated the impact when the reality of the market's instability was exposed.

Supply constraints

Amplification of demand goes a long way toward explaining soaring house prices, but supply constraints play an equally important role. Building a house requires financing, permits, and approvals, followed by a lengthy construction period. Even under the best circumstances, it takes some time before housing supply catches up with housing demand.

Canada, for instance, must construct 500,000 houses every year to keep

DALE CROSBY-CLOSE

pace with the growing demand, as an IMF assessment noted. Yet for the past two decades it has built only between 150,000 and 250,000 houses annually. To increase housing supply, the authorities are reducing permitting times, freeing up unused government land for homes, and addressing a shortage of construction workers. It will, however, take time for these measures to yield results.

A host of other regulations and zoning requirements add considerably to the supply lag. Economists Edward Glaeser and Joseph Gyourko show that land-use restrictions limit density, curbing the supply of housing and driving up prices. So in heavily regulated cities like New York, house prices soar beyond construction costs. Cities such as Houston, by contrast, have plenty of affordable homes thanks to light regulations and ample land availability.

Global forces

Housing markets are increasingly shaped by forces beyond country borders. Capital inflows from foreign buyers are boosting housing demand in many countries. These inflows are driven by several factors: an increase in wealth, particularly in emerging markets; historically low interest rates between 2008 and 2021, which prompted investors to search for yield by putting their savings into property; and capital flows to safe haven housing markets. Researchers have, for instance, shown that prices in London's high-end housing market tend to increase with geopolitical risks.

While these global trends benefit some wealthier property owners, they often make it more challenging for local residents to get a foot on the housing ladder, leading policymakers to place restrictions on foreign property buyers and regulate short-term rentals to tourists. In 2018, New Zealand passed a law barring foreigners from buying some residential properties. Canada followed five years later with a similar ban and stiff fines for those who breach the rule.

Market management

In short, while not backing away from demand and supply as a framework for explaining housing markets, economists do recognize that the amplification of demand—because of price expectations, credit availability, and capital flows—combined with stringent supply constraints can lead to substantial imbalances between demand and supply. The policy response to help housing markets work better likewise must be multifaceted.

"High house prices can be largely explained by the simple fact that there are too few houses for sale."

To manage credit availability, regulators use microprudential policies such as the risk weighting of mortgage assets, which requires banks to keep a certain amount of capital against risky mortgage loans. Increasingly, such policies are complemented by macroprudential policies to ensure the safety of the financial system as a whole. Often-used policies include setting limits on debt-service-to-income ratios, which keeps households from taking on mortgages that are too large relative to their income, and limits on loan-to-value ratios, which restrict the size of mortgage loans relative to property values and thus effectively require a minimum initial payment.

Central banks also manage housing markets by raising policy interest rates, leading to increases in mortgage rates and more expensive housing loans. But since policy rate hikes would affect all other sectors of the economy, not just housing, monetary policy is considered a blunt tool for managing housing markets.

Authorities may need to consider additional policies to manage increased housing demand from foreign buyers, many of whom use cash rather than mortgages to finance their purchases, thus bypassing any regulations imposed by the local banking regulator. In such cases, a surcharge on nonresident buyers can reduce demand from cash-rich foreigners who are not covered by local lending rules. In Singapore, for instance, the authorities in 2013 doubled the rate of stamp duty paid by foreigners to 60 percent to ease housing pressures in the city-state.

In the end, however, the basic principle of supply and demand still holds. High house prices can be largely explained by the simple fact that there are too few houses for sale. When this happens, just trying to help people buy homes—using demand-focused policies such as debt-to-income ratios, loan-to-value ratios, or changes to interest rates—will not work. The solution must come from supply-focused policies. Above all, we must build more homes. F&D

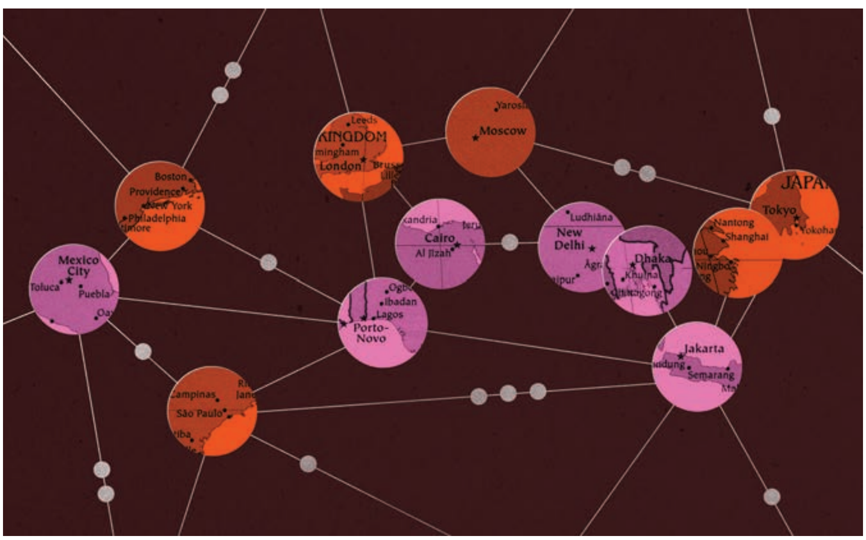
HITES AHIR *is a senior research officer in the IMF's Research Department.*

Point of View

The Mysteries of Cities and Economic Growth

David Cutler and Edward Glaeser

It's impossible to think about economic growth without also thinking about cities' vital role in connecting the world



CITIES ARE THE NODES ON OUR GLOBAL LATTICE of travel and trade. They are the ports of entry for goods, people, ideas—and for viruses. The second of the IMF's three critical missions is "encouraging the expansion of trade and economic growth." Given the vital role that cities play in connecting the world, it's almost impossible to think about the expansion of trade and economic growth without also thinking about cities. It is our belief that improving governance of the world's cities and reducing the barriers that artificially divide them can help trade expand and economies grow.

The link between cities and globalization is long-standing. When ancient Athens was the hub of the Mediterranean region, it attracted human capital from across the Aegean Sea. As Athenians learned from outsiders and from each other, they generated a remarkable flourishing of genius in philosophy, sculpture, drama, architecture, and history. But connection to the outside world brought danger as well as dynamism. As Athens expanded, it went to war with Sparta, a war that halved the city's population. A key moment in that war was the Plague of Athens, which killed perhaps a quarter of the city's inhabitants.

Even today, urbanization is synonymous with economic development. A paper by economists Filipe Campante and David Yanagizawa-Drott showed that areas with fewer flight links to successful cities have less business activity. This is not just because airlines don't fly to less developed areas; the effect works the other way as well. When distance between cities exceeds 6,000 miles, there are more travel regulations, raising the cost of flights and reducing their number. Sure enough, connections and trade between cities drop sharply at the 6,000-mile cutoff.

Within countries there is a similarly strong link between urban neighborhoods' size and integration and their prosperity. A recent paper by one of us coauthored with Radu Barzu, César Hidalgo and Martina Viarengo looks at upward mobility for poor Brazilians who move to urban areas. People who move to cities experience big wage gains, but the effects in southern Brazilian cities are much stronger than in the North. This gap can be explained by the fact that Southern business establishments are much more integrated by skill than Northern establishments.

COURTESY DAVID CULTER, PORTER GIFFORD

Illustration by Chantal Jahchan

The same link between economic integration and growth appears to be true in the United States in recent decades. In explaining economic conglomeration, Alfred Marshall, the British economist, perhaps said it best over a century ago: "The mysteries of the trade become no mystery; but are as it were in the air, and children learn many of them unconsciously."

Face-to-face exchange

One recent worry about cities is that electronic interchange will make face-to-face interactions far less relevant. But this is not true. While electronic interaction substitutes for some face-to-face interactions, it also leads to more relationships, many of which necessitate face-to-face exchange. And electronic interchange makes economic interactions more complex, which also requires in-person connections. The more complex the topic, the more people prefer to meet and discuss in person. We see this in the data. Work from home has boomed since COVID, but it appears to have settled down to a modest rate. In late 2024, 11 percent of the employed in the United States were fully remote and 13 percent did some remote work. Thus, the share of hours worked remotely was about 16 percent. That is of value to workers and their families, but not a sea change in behavior.

The impact on use of existing buildings will be mixed. In many areas, a one-off 16 percent reduction in office space is likely a blip on the road to business growth: the rising demand for office space will offset the desire to work from home in a few years. For some markets where demand is stagnant, however, this spells trouble.

There are three larger risks—war, plague, and climate change—that threaten our urban world much more. Each is centrally related to the IMF and its mission. Three major wars—in Ukraine, the Middle East, and Sudan—impact urban life both directly and indirectly. Cities are being physically destroyed in these conflicts, and it will take many years to rebuild or relocate them. Cities are also indirectly damaged by conflict. The number of foreign visitors to Moscow dropped by 43 percent between 2019 and 2023. The number of foreign visitors to Israel fell by an even larger percentage after the onset of war in the Middle East.

> "The question is not whether, but when, there will be another pandemic."

The IMF can, and likely will need to, play some role in financing the rebuilding of cities in places such as Ukraine and Lebanon. While the European Bank for Reconstruction and Development and the World Bank are likely to play central roles in physical rebuilding, the IMF has a role in focusing on the finances and governance of the countries as a whole. Fiscal and monetary infrastructure is as essential to economic growth as are bricks and mortar. In addition, the Fund has a diplomatic role to play. The IMF promotes peace when it leans on borrowers who want to spend lavishly on arms and when it stresses positive connections among its members. Global cooperation is made, not endowed.

Existential problem

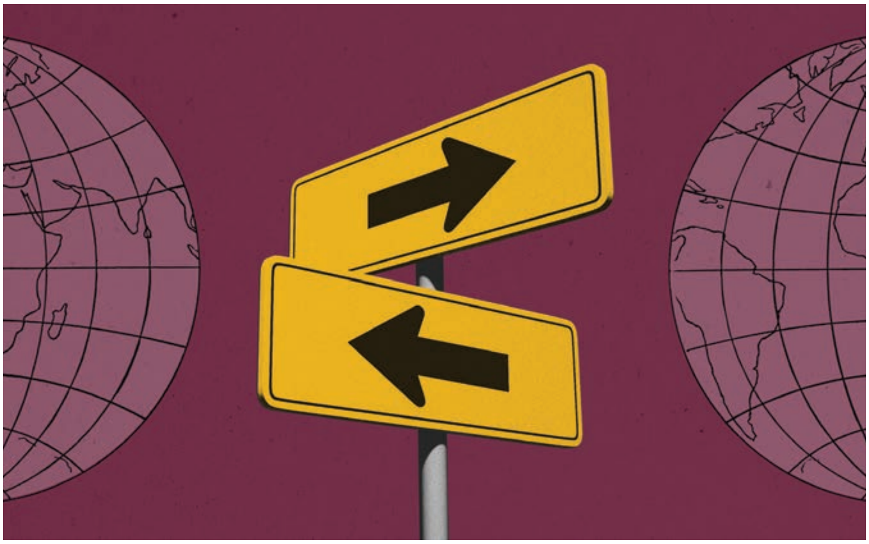
Pandemic disease is an existential world problem, and the IMF must play a role there too. COVID has subsided into a manageable, endemic disease, but that doesn't mean the world is safe. The question is not whether, but when, there will be another pandemic. COVID was a major economic as well as health event. The IMF responded appropriately with significant lending. If it wants to be ready for the next event, it must think about future health risks and plan for their arrival.

The IMF can even do more to reduce the risks of future global pandemics by keeping continued focus on these risks. We learned during COVID that many countries were woefully underprepared for a pandemic. Since the outbreak, we have not changed our institutions to plan for and protect against a new outbreak of disease. The IMF is not a medical organization, but as long as health risks create major financial risks, it can continue to shine a light on the topic. It might, for example, work with entities such as the US National Institutes of Health and the World Health Organization to keep the issue of pandemics and the needed response front and center.

The IMF has already embraced sustainable development, but that's not what the world's most vulnerable cities actually need to be safe. Low-lying metropolises in tropical areas are vulnerable to heat and flooding, and they have limited financial resources and public capacity to address these issues. It is only partly known how to keep these places safe from rising seas, water pollution, and large temperature increases. Support for a learning agenda that encourages scholars to develop practical tools that better protect poor world cities against climate change would be an important step forward.

The IMF is a great institution that connects the world. Those connections are critical to the success of cities—our central economic engine. However, the future is full of new challenges. The IMF's core mission is not directly related to the three great challenges currently facing the urban world, but the Fund is not divorced from them either. Sound policy can improve governance, enhance financial stability, and connect the world's leaders in ways that promote their commitment to addressing these common goals. F&D

DAVID CUTLER *is the Otto Eckstein Professor of Applied Economics at Harvard University, where* **EDWARD GLAESER** *is the Fred and Eleanor Glimp Professor of Economics.*



Emerging Markets' Two-Way Traffic

David Lubin

Financially fragile economies are pursuing market-friendly reforms, while some stronger emerging market economies are doing the opposite

It is always the case that some countries embrace market-friendly reforms, while others do the opposite. And most of the time, there seem to be few distinct patterns in the choices different countries make.

But these days there is a more visible trend in policymaking across emerging market and developing economies: the most financially fragile countries are pursuing disciplined market-friendly reforms, while some of the more historically stable developing economies seem to be moving in the opposite direction. Call it "two-way traffic" in emerging markets.

This year has been remarkable for the sheer number of financially fragile emerging market economies adopting economic reforms aimed at eliminating vulnerabilities. Argentina, Ecuador, Egypt, Ethiopia, Kenya, Nigeria, Pakistan, Sri Lanka, Türkiye, and others are making efforts to end distortions in their foreign exchange markets, rein in the growth of public debt, accumulate foreign exchange reserves, and set the stage for sustainable growth.

At the same time, several middle-income emerging market economies with healthier macroeconomic fundamentals and more stable relationships with international capital markets are adopting, or soon seem likely to adopt, looser policies that threaten to erode public sector balance sheets and push up country risk premiums. Examples include Brazil, Hungary, Indonesia, Mexico, Poland, and Thailand.

Bond prices in emerging markets have responded in a predictable way to these trends: credit spreads of countries that are fragile but improving have narrowed disproportionately. In the first nine months of 2024, sub-investment-grade dollar-denominated sovereign debt in emerging markets returned more than 15 percent. By contrast, investment in more creditworthy countries returned less than 5 percent during the same period.

High-yield bonds can outperform investment-grade assets by more than 10 percentage points in the first nine months of a calendar year, but it is unusual. Over the past three decades, it's happened only three times, in 1999, 2003, and 2009.

Aftermath of a crisis

What those historical episodes have in common is that each was in the aftermath of a crisis of some sort. That makes intuitive sense: when risk appetite returns to a market after a crisis, investors tend to bias their portfolios toward riskier countries that will benefit disproportionately from a rise in confidence.

But this time is a little different, in that there hasn't been a major financial crisis, either for emerging markets or the world in general. Indeed, the stock of sovereign debt in default was a mere half percent of global GDP last year, according to a database on sovereign default maintained by the Bank of Canada and the Bank of England. Although that's higher than a few years ago, the prevalence of default is nevertheless way lower than in the late 1980s, when the stock of defaulted debt was more than 2 percent of global GDP.

One explanation is that the dangers posed by vast yet volatile capital flows are much better managed today than in the 1970s and 1980s. That's because many developing economies have learned two important lessons: keep current account deficits within limits and accumulate foreign exchange reserves.

PHOTOGRAPH: DAVID LUBIN

Illustration by Chantal Jahchan

The former insulates countries from the "flow vulnerability" of too much dependence on external financing. The latter insulates against the "stock vulnerability" of having too few dollars when financing sources dry up.

And this may help explain why so many financially fragile countries have embraced reform. The benefits of self-insurance—and the need to limit both flow and stock vulnerability—are so well known now that fragile countries may be getting the message that living permanently beyond their means is not a viable policy choice, particularly when the US is tightening monetary policy.

More spending

Some of the fiscal adjustments being undertaken by historically fragile countries are highly ambitious. In Argentina, for example, the authorities are aiming to turn a primary budget deficit of 3 percent of GDP in 2023 into a 1 percent surplus next year. Egypt's government is targeting a primary surplus of 5 percent in the fiscal year ending June 2027. Türkiye plans to turn a primary deficit of 2.6 percent of GDP in 2023 into a surplus of 0.5 percent of GDP next year.

By contrast, countries with stronger national balance sheets and fewer recent memories of financial instability seem determined to spend more. Mexico's President Claudia Sheinbaum has inherited a 2024 budget deficit of some 6 percent of GDP, the largest since 1989. Market participants have valid concerns that a sustained period of fiscal loosening may be starting.

Brazil's government is struggling to persuade investors that President Luiz Inácio Lula da Silva's tilt toward fiscal loosening is compatible with financial stability. Notwithstanding a sovereign upgrade by Moody's, a rating agency, market participants worry that a recent surge in GDP growth is keeping the economy growing faster than potential, and that weaknesses in the government's financial position will quickly come to light when growth slows.

Indonesia's President Prabowo Subianto has raised the prospect of a big hike in government debt to complete the construction of a new capital city, raise defense spending, and provide free school meals. He says he has "no problem" letting the debt-to-GDP ratio rise to 50 percent, up from 39 percent at present.

One way of explaining this two-way traffic in emerging markets is to keep in mind the distinction between financial globalization, which in recent decades created space for a surge in volatile capital flows, and real globalization, which during the same period made room for a surge in trade.

Looking back to the 1980s and 1990s, two decades marked by intermittent financial crises in emerging markets, it's easy to suggest now that developing economies faced the negative consequences of financial globalization even while enjoying the positive consequences of real globalization. Global trade growth was predictably robust back then, except in a small number of years when the world economy fell into recession. Global capital flows, by contrast, were unpredictably volatile.

"Countries with stronger national balance sheets and fewer recent memories of financial instability seem determined to spend more."

World trade hostility

The opposite may now be true. Global capital flows are still volatile, for sure, but emerging market economies have learned ways of managing the risks, or at least responding sooner than they used to.

The bigger problem today seems to be with real globalization: global trade growth has been markedly weak compared with GDP growth in the past two years, as it has for much of the past decade. And global trade hostility seems more likely than not to bite harder in the future. That leaves exports less reliable as a path toward growth for emerging market economies—and it may be this weakening external trade environment that is encouraging countries with healthy balance sheets to consider spending some of their accumulated reputational capital to support domestic demand. The demands of the climate transition and national defense will amplify this trend.

If fiscal easing is moderate, boosts productivity, and adds to potential growth, these cases of looser policy may not cause market participants particular concern, and the two-way traffic now visible in emerging markets will not be a bad thing. But if the problems associated with real globalization get worse—if, in other words, global trade suffers a steeper or more protracted collapse—public sector balance sheets will deteriorate further. Market participants are then likely to charge higher rates to supply credit.

The future of global trade could, therefore, play an important part in deciding the kind of traffic patterns we end up with in emerging markets and whether they embrace market-friendly reform—or the opposite. F&D

DAVID LUBIN *is the Michael Klein Senior Research Fellow at Chatham House's Global Economy and Finance Programme. He was formerly head of emerging market economics at Citi, and is author of* Dance of the Trillions: Developing Countries and Global Finance.

HOUSING COSTS MOUNT

Price rises are piling pressure on the poorest and adding to intergenerational strife

AFTER RETREATING DURING THE global financial crisis, house prices have resumed their relentless rise. Over the past decade, the cost of a home across the OECD's mostly high-income countries has risen by 37 percent in real terms, according to the organization's analytical house price indicators. Prices are up 16 percent relative to incomes, on average.

Rising house prices are straining relations between the generations, with younger people yet to get a foot on the property ladder more concerned than their parents. Sixty percent of OECD survey respondents aged 18–39 said they worried about housing affordability, compared with 38 percent of those aged 55–64. The generation gap was greatest in Ireland, Canada, and the United States.

Differences in affordability partly explain stark contrasts in the proportion of people who own a home, though history, culture, and other factors matter, too. Homeownership is highest in Eastern Europe's former communist countries, with 94 percent of Romanians owning their home outright. That compares with just 5 percent of the Swiss.

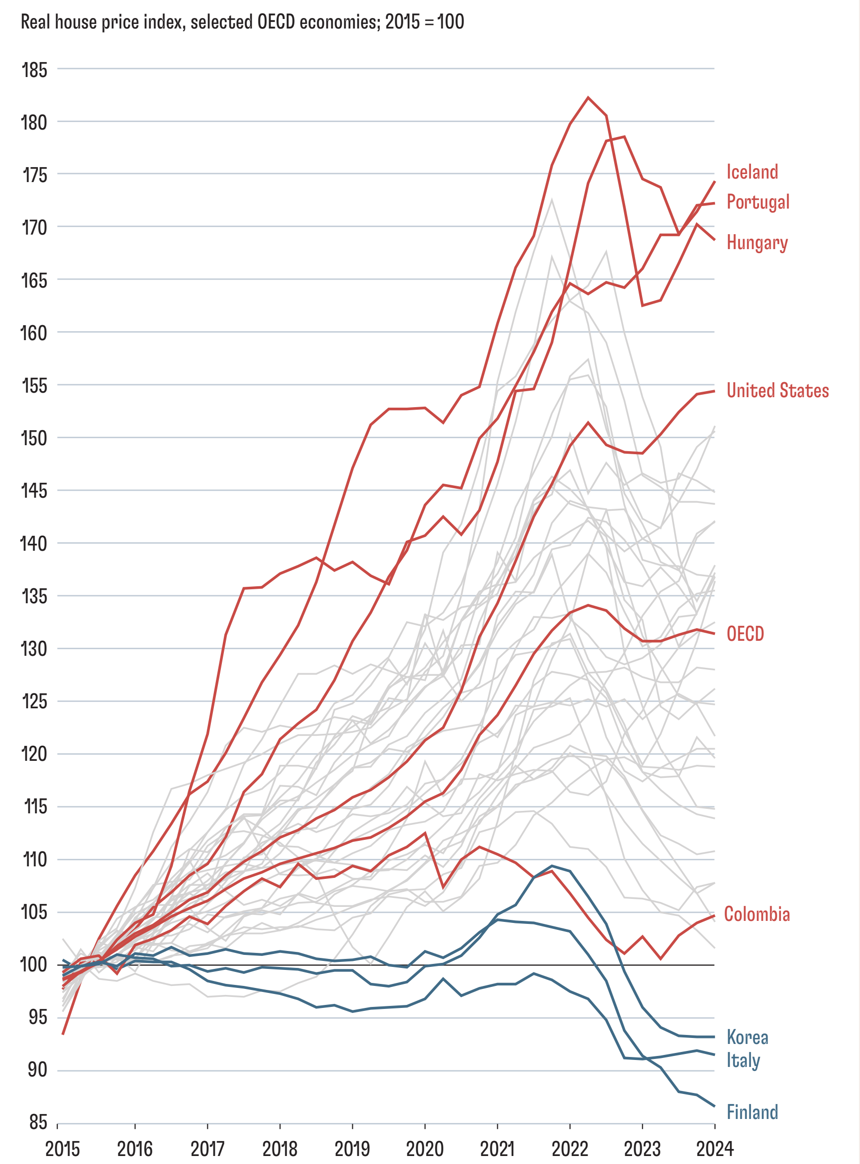
On average, 16 percent of people rent from private landlords in the countries the OECD tracks. For the poorest, it can be cripplingly expensive. In Colombia, 82 percent of renters in the lowest income quintile hand over more than 40 percent of their income to private landlords. Its rental market is also one of the least regulated.

Higher interest rates mean homeowners who have yet to pay off mortgages don't have it easy, either. In Colombia and Luxembourg, more than half of the poorest who own a home spend at least 40 percent of their income on repayment. F&D

MARTA DOROSZCZYK *is on the staff of* Finance & Development.

Relentless rise

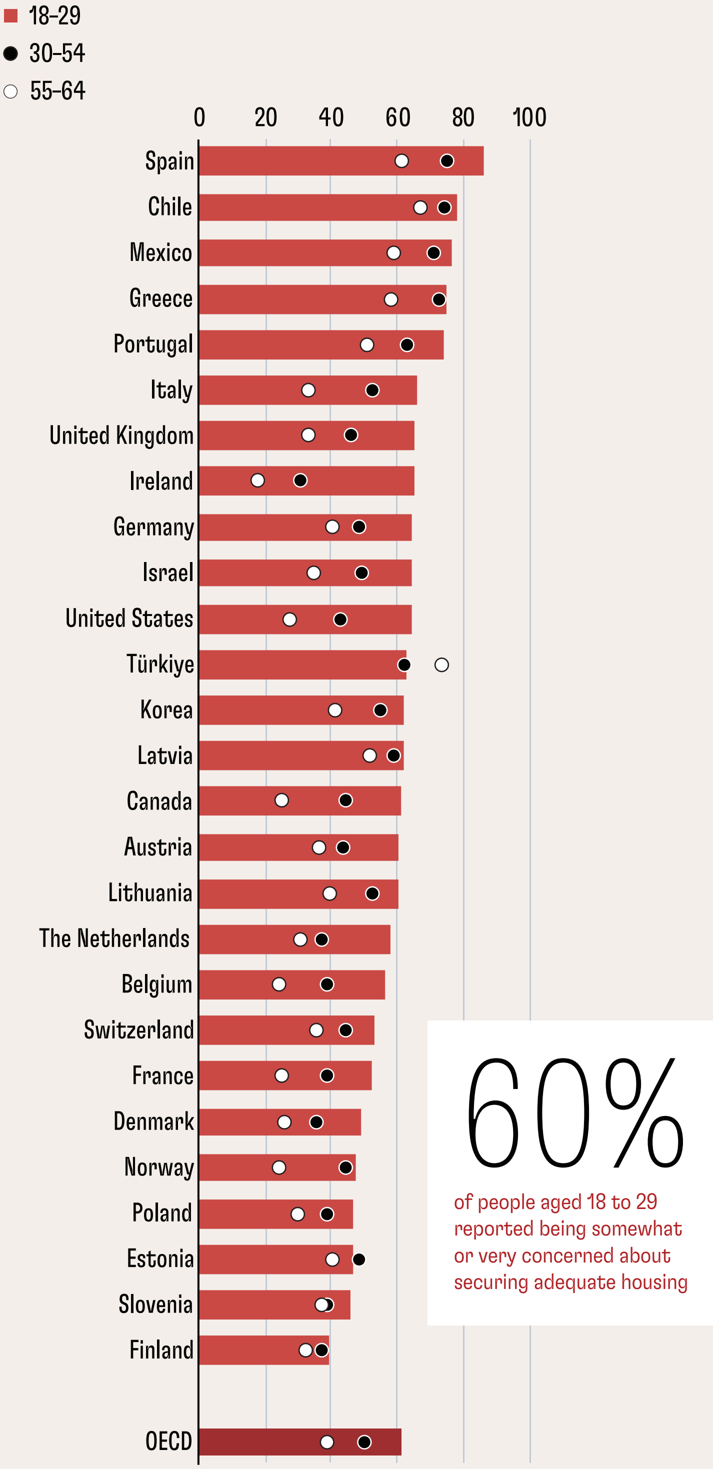
Home prices have increased in every OECD country except three over the past decade, rising by more than a third on average and by over 50 percent in the US alone.



SOURCE: Organisation for Economic Co-operation and Development (OECD), Affordable Housing Database.

Generation gap

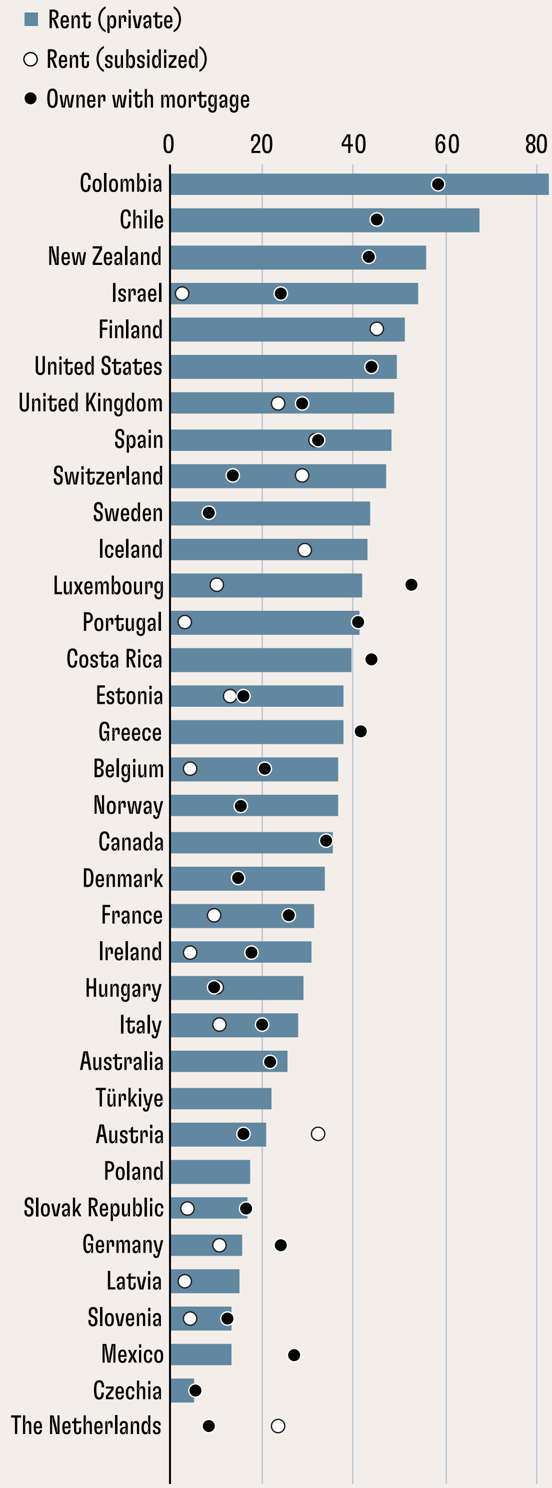
Proportion of respondents in selected OECD countries who report they are somewhat or very concerned about finding or maintaining adequate housing, by age group, 2022



SOURCE: Organisation for Economic Co-operation and Development (OECD), Risks that Matter Survey 2022.

Rent distress

Percent of low-income households in selected OECD countries spending more than 40 percent of disposable income on mortgage and rent, by tenancy status, 2022 or latest year



SOURCE: Organisation for Economic Co-operation and Development (OECD), Affordable Housing Database – HC1.2 Affordable Housing.

WALKWAYS, NOT WALLS

There are benefits to better connecting macroeconomics with real estate economics

Prakash Loungani

Illustration by Cristiana Couceiro

Macroeconomics, by definition, focuses on the big picture. It neglects smaller micro developments at the business or sectoral level. In 2007, Edward Leamer, an economics professor at the University of California, Los Angeles, pointed out the high costs of this neglect by arguing that it's meaningless to try to understand business cycles without paying attention to the housing sector. As he argued in a now-famous paper titled "Housing IS the Business Cycle," the housing market is central to understanding why economies go through booms and busts. He pointed out that nearly all recessions in the United States since World War II were preceded by problems in the housing sector. Macroeconomics would, in other words, be better served by building walkways to housing economics rather than simply walling it off.

After all, housing's impact on the macroeconomy is evident everywhere. Cities are among the world's most productive places, brimming with creativity and innovative ideas and powering economic expansion. Yet accommodation in many cities is prohibitively expensive even for relatively high-paid professionals, let alone essential workers on lower pay who keep cities safe, clean, and running smoothly. Many of these workers—police officers, teachers, nurses, delivery drivers—must turn up to work in person. They cannot take advantage of the shift toward remote work to find more affordable places to live and raise a family.

Across the Organisation for Economic Co-operation and Development's mostly rich countries, house prices have risen by almost 40 percent in real terms over the past decade, with the cost of a home in the United States up by about 50 percent. Demand for housing has been extremely strong in recent years, spurred by increases in population and income. At the same time, housing supply has failed to keep up, partly because of land-use regulations (such as preventing neighborhoods with single-use housing from allowing multifamily housing), which restrict how many housing units can be built on a particular plot of land. Among other effects, this risks exacerbating intergenerational inequality: 60 percent of people aged 18–29 reported being somewhat or very concerned about securing adequate housing. Affordability is a growing concern for businesses, too, as they say it's forcing them to pay higher wages and budget for higher labor costs.

And it's not just a problem for the rich world. Affordable housing is especially scarce for the poorest. In Colombia, for instance, 82 percent of renters in the lowest income quintile hand over more than 40 percent of their income to private landlords, according to the OECD.

Expensive homes and high rents can push people to take on too much debt. Household borrowing can boost economic growth in the short term, but it imposes serious costs later on: consumers cut spending to make repayments, the economy slows, and unemployment rises, as the IMF has shown. In China, for instance, a housing downturn has had a significant impact on consumption. To take it up a level, a sudden economic shock—such as a collapse in home prices—can trigger a spiral of credit defaults that shakes the financial system.

"Had walkways been in place between macroeconomics and real estate economics, we might have better anticipated developments during the global financial crisis."

Had walkways been in place between macroeconomics and real estate economics, we might have better anticipated developments during the 2008–09 global financial crisis. We might also have better understood more recent policy conundrums , as the articles that comprise this issue's cover package show.

This year, macroeconomists faced two central challenges. The first is understanding the sources and likely duration of the 2021–22 upsurge in inflation. The second is figuring out how to bring about a "soft landing" by slowing down the economy to tame inflation without tipping it into recession. Macroeconomists would have done a better job on both central policy issues with a deeper knowledge of developments in real estate markets.

The stubbornly high rate of inflation in the United States reflected a complex and shifting mix of demand and supply factors. Yet one surprise was the role of housing, which sent prominent macroeconomists scrambling to understand the minutiae of how house prices and rents are reflected in measures of the cost of living. Indeed, the increase in borrowing costs for housing contributed to the puzzling pessimism in consumer sentiment about economic conditions and led to much hand-wringing by economists determined to explain the disconnect with the consumer price index.

Central banks faced the challenge of figuring out how the increases in interest rates that they were engineering to subdue inflation would affect the housing sector and the economy overall. This is no easy task. The channels through which interest rates affect housing markets are complicated and shift over time—they require a study of housing markets with a depth of knowledge that would be rare in macroeconomics textbooks, just as Leamer noted almost two decades ago, when he lamented his failure to find a single textbook that placed real estate "front and center, where it belongs."

One channel that affects the impact of interest rates on housing is the prevalence of fixed-rate mortgages, which can vary from close to zero in South Africa to more than 95 percent in Mexico and the United States. Other factors that affect monetary policy's potency include the extent of homeowner debt, the extent of supply restrictions, and the extent of house price appreciation and possible overvaluation, which can be very difficult to measure.

As if all this did not already make for a complicated picture, the strength of these channels changes over time. The share of fixed-rate mortgages has, for instance, increased recently in many countries. The availability of refinancing also differs across economies and over time. A deep country-specific understanding of housing and housing markets is needed to calibrate monetary policy.

Food, clothing, and shelter are considered to be basic needs of humankind. Indeed, the 1948 Universal Declaration of Human Rights and other such international treaties have recognized the right to adequate housing. The eradication of hunger is very prominent in the UN's Sustainable Development Goals (SDG 2 is to end hunger). UN agencies such as the World Food Programme swing into action when food prices spike, and even the IMF launches new loan programs to help people and countries cope with the effects of food price shocks. Shelter is a poor cousin. Housing gets barely a mention in the SDGs. This is despite the fact that housing affordability is a pervasive problem, affecting many, if not most, of the world's major economies. Little wonder then that housing has surfaced as a major issue in several national and local electoral races. F&D

PRAKASH LOUNGANI *is director of the applied economics master's program at Johns Hopkins University.*

THE HOUSING AFFORDABILITY CRUNCH

Deniz Igan

A newly developed dataset shows how the pandemic's aftermath ushered in the worst housing affordability crisis in more than a decade

The pandemic and subsequent return of inflation set off the world's worst housing affordability crisis in more than a decade. It spilled across some of the largest advanced economies and contributed to widespread anger and resentment about economic conditions.

Affordability fell in the United States, the United Kingdom, Australia, Canada, Germany, Portugal, and Switzerland. On average across countries, housing is less affordable today than during the house price bubble that preceded the global financial crisis of 2007–08, according to a newly developed dataset.

This put housing at the top of households' list of pressing issues, ahead of health care and education, according to public opinion surveys around the world (Romei and Fleming 2024). It's a central issue facing policymakers in many countries, given housing's key role in economic activity. Unlike other assets, housing has a social component, and people often see homeownership as a right of citizenship, even as speculative motives can also drive investment in housing and push up prices.

The affordability crunch reflects higher borrowing costs since central banks jacked up interest rates to counter inflation. At the same time, housing shortages and robust demand amid strong household formation kept prices high. The complex postpandemic economy brought long-simmering structural problems in the global housing market into sharp focus.

Measuring affordability

Housing affordability is a crucial yet subtle concept, especially when it comes to making comparisons among countries with very different housing markets and financing structures. Until now, the most widely used indicators focused on the basic commonsense notion of the relative cost of housing, such as the price-to-income ratio or the share of income spent on housing.

While useful, these indicators do not fully account for mortgage market dynamics and the characteristics of typical housing and household units. My research colleagues Nina Biljanovska and Chenxu Fu and I sought to fill this gap by developing a new cross-country dataset using a mortgage-based indicator of housing affordability (Biljanovska, Fu, and Igan 2023).

The approach focuses on a household's ability to make regular mortgage payments on a typical property occupied by a family of ordinary size without scrimping on other essential needs. Specifically, our housing affordability index calculates the ratio of actual household income to the level of income required to qualify for a typical mortgage. This offers a more nuanced view of affordability and

Illustration by Shout

complements other metrics. A housing affordability index reading above 100 indicates more affordable housing, and lower values signal less affordability.

Postpandemic crisis

We calculated the index across 40 countries over the past 50 years. What stands out is a sudden deterioration in affordability over the past couple of years. In the US, the world's largest economy, housing affordability plunged from about 150 in 2021 to the mid-80s by 2024. In the UK, affordability index readings fell from 105 in 2021 to the low 70s in 2024.

Similar declines took place in Austria, Canada, Hungary, Poland, Portugal, Türkiye, and the Baltic countries. This represents a sudden reversal of generally improving affordability over the past several decades. As with resurgent inflation, the dramatic switch in direction had an enormous psychological impact on many households.

How did this happen? During the COVID-19 recession, housing prices surged in many nations (Ahir and others 2022). That was a break with past economic downturns, in which housing markets usually weakened (Igan, Kohlscheen, and Rungcharoenkitkul 2022). It was because of a mix of demand and supply factors, including lockdown-related constraints on construction. The unexpected rapid increase in house prices prompted concerns about an impending correction.

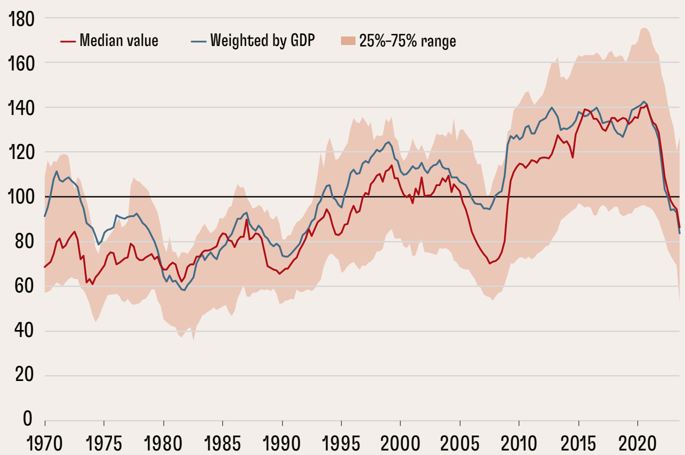
As central banks around the world started raising interest rates to combat inflation, many observers expected the correction to finally take place. House prices did cool somewhat, but much less than expected, even as mortgage rates surged. To understand what is going on, a look into the evolution of housing affordability over time and its drivers is helpful.

CHART 1

Affordability crunch

Houses across 40 countries are less affordable than at any time since 2008.

(housing affordability index)



SOURCE: Biljanovska, Fu, and Igan 2023.

NOTE: The housing affordability index is the ratio of household income to household income needed to qualify for a typical mortgage for a typical house. A reading above 100 indicates that a household has more income than necessary for approval; readings below 100 signal less income than needed.

Affordability over time

Housing affordability has ebbed and flowed over the past half century. From the 1970s to the mid-1990s, the median affordability index we calculated was below 100, indicating less affordability (see Chart 1). In the late 1990s, affordability improved, consistently topping 100 before deteriorating in the following decade. After the global financial crisis, housing became more affordable again and remained steady until the aftermath of the pandemic.

The drivers of these affordability trends are the time-varying components of our index: nominal mortgage rates, household income, and house prices (Chart 2). In the mid-1970s and early 1980s, affordability declined because of rising house prices and borrowing rates. Household incomes didn't keep up.

During the global financial crisis, housing prices fell, then slowly recovered as central banks embarked on low-for-long interest rates to stimulate ailing economies. The lower borrowing costs and lower housing prices improved affordability during this period.

But then the pandemic reversed the trend, first as house prices surged and then as mortgage rates climbed.

This broad analysis, however, has some limitations. The index focuses on affordability from the perspective of a prospective homeowner looking to finance a purchase with a mortgage, so interest rates play an important role. The metric does not capture affordability along other dimensions, such as outright ownership without a mortgage or renting. The focus on the average household also overlooks crucial differences across the income distribution and across generations.

It also masks country-specific variations. For one, affordability tends to be worse and more volatile in emerging markets, in part reflecting their less developed mortgage markets. Also, reduced borrowing costs benefit mainly households in countries without inflated house prices. In several countries with strong price growth, low interest rates were insufficient to offset the impact of high property prices on affordability. For example, in Belgium, affordability improved as lower rates balanced moderate house price increases. But in Canada, affordability declined due to strong house price growth.

What does the future hold?

The affordability index does not fully address the sustainability of homeownership in the face of interest rate and income shocks. An existing homeowner who would be able to service a mortgage when rates are low may not be able to do so if the rate resets to a higher level. This point is crucial, especially now: the median index improved in the couple of decades before the pandemic mainly due to low interest rates. But this captured only current mortgage affordability. The gains reversed sharply as rates rose.

Can affordability be restored other than through a sharp drop in house prices? Perhaps. Lower mortgage interest rates would help, although that seems unlikely to provide much relief. For one thing, we find that over the half century of our study, changes in mortgage rates accounted for just over a quarter of movements in affordability. For another, most forecasts predict higher long-term interest rates than before the pandemic. Moreover, as rates decline, more households may enter the housing market, increasing demand and pushing up prices (Banerjee and others 2024).

What to do about this? Macroeconomic policymakers could increase the odds of a benign scenario by continuing to usher their economies into a soft landing.

But authorities also need to address the structural problems surrounding housing affordability. Removing regulatory barriers to improve the elasticity of supply could be a first step. An array of rules such as building codes, land use restrictions, and administrative requirements control residential construction and rehabilitation. In many cases, these rules are there for good reason—to mitigate negative externalities and maintain certain quality-of-living standards. But they can also become overly burdensome. For example, building codes might simply enrich materials manufacturers, going beyond what would reasonably meet health and safety considerations.

Structural problems may also reflect a lack of competition in resources, construction, or sales. Policymakers may need to break up oligopolies.

In some cases, more precise policy interventions might help. For instance, governments could consider targeted support for low-income households or those living in informal housing. Incentives for developers to provide affordable units, for instance in the form of extra development rights, could also play a role.

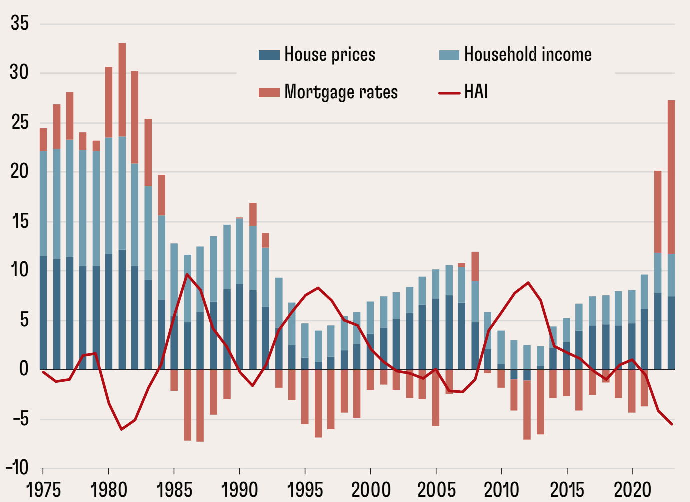
Certainly, the disruptions to housing markets from the pandemic and its aftermath featuring elevated uncertainty and fragile political dynamics should serve as a warning that governments can't ignore the world's housing affordability crisis. Accelerating climate change—with sea level rise, widespread wildfires, and extreme weather events—now threatens an already inadequate global supply of housing. And surging migration puts even more stress on shelter and its affordability. Policymakers need to rise to the challenge of making housing affordable again, this time on a sustainable basis through a comprehensive plan. F&D

CHART 2

Mortgage misery

Higher mortgage rates in recent years are a major driver of declining affordability.

(housing affordability index and components, percent change, five-year moving average)



SOURCE: Biljanovska, Fu, and Igan 2023.
NOTE: Average year-over-year growth rates, weighted by US dollar GDP. HAI = housing affordability index.

DENIZ IGAN *is head of macroeconomic analysis at the Bank for International Settlements.*

REFERENCES

Ahir, Hites, Nina Biljanovska, Chenxu Fu, Deniz Igan, and Prakash Loungani. 2022. "Housing Prices Continue to Soar in Many Countries around the World." *IMF Blog* Chart of the Week, October 18.

Banerjee, Ryan, Denis Gorea, Deniz Igan, and Gabor Pinter. 2024. "Housing Costs: A Final Hurdle in the Last Mile of Disinflation?" *BIS Bulletin* 89 (July 15).

Biljanovska, Nina, Chenxu Fu, and Deniz Igan. 2023. "Housing Affordability: A New Dataset." BIS Working Paper 1149, Bank for International Settlements, Basel.

Igan, Deniz, Emanuel Kohlscheen, and Phurichai Rungcharoenkitkul. 2022. "Housing Market Risks in the Wake of the Pandemic." *BIS Bulletin* 50 (March 10).

Romei, Valentina, and Sam Fleming. 2024. "Concern over Housing Costs Hits Record Highs across Rich Nations." *Financial Times*, September 2.

THE TRUE COST OF LIVING

Lawrence Summers, Marijn Bolhuis, and Judd Cramer

Sharply higher borrowing costs, especially for housing, fueled a disconnect between inflation statistics and consumer sentiment

Americans are, at last, starting to feel more cheerful about the economy. Consumer sentiment, as measured by the University of Michigan Index of Consumer Sentiment, rose in March to the highest level in almost three years. Sentiment has softened since, but consumers for the most part seem to think that their fortunes are on the up.

It's about time. Americans have been unremittingly miserable about the state of the economy since the pandemic. Consumer sentiment sank to the lowest level on record as inflation surged to a 40-year high in mid-2022. It stayed stubbornly down in the depths for much of 2023 despite a slew of indicators pointing toward a broader economic recovery, including stronger growth, rising employment, and slackening inflation.

Economists have puzzled over this apparent paradox: their predictions of how people would respond to positive economic news didn't square with the persistent broadly negative consumer sentiment. Some argued that it takes time for people to benefit from slower inflation, others spoke of bad vibes, while still others pointed to high prices for the goods consumers value most, such as gasoline and groceries. Researchers have bundled these theories and others into the "referred pain" hypothesis. It suggests that noneconomic concerns may now drive economic sentiment.

We don't dismiss any of these arguments. But in a recent paper with Harvard's Karl Oskar Schulz we argue that this explanation overlooks a crucial mechanism that economists and policymakers appreciated more in the past: the rising cost of money.

For consumers, the cost of money is part of the cost of living. Thus, as interest rates leapt to 20-year highs in the second half of 2023, consumers felt the financial squeeze. Home prices in the US are still up more than 50 percent since the start of the pandemic, and mortgage rates have roughly doubled. The interest payment on a new 30-year mortgage for the average house is up almost threefold since the end of 2019. The payment on a new car loan has nearly doubled. As a result, households' interest payments grew by about 30 percent in 2023, the

Illustration by Andre Da Loba

fastest rate on record (see Chart 1).

None of these increases, however, are captured directly by the consumer price index (CPI). This was not always the case. When Arthur Okun introduced his "misery index" in the 1970s, which combined inflation and unemployment, the Bureau of Labor Statistics included mortgage rates and car financing rates in the CPI. It removed these two components in 1983 and 1998, respectively. Today's misery index, therefore, misses key components of consumer spending.

The statistics bureau took mortgage rates and car financing rates out of its index for good reasons, and we don't think it should restore them. But we do believe that this gap in the current measure is crucial to understanding the state of the American consumer. Once this change is addressed, it's possible to test the other hypotheses.

Missing money

We make our argument in three steps. First, we show that variation in the University of Michigan consumer sentiment index that cannot be explained by inflation and unemployment has historically shown a strong correlation with proxies for higher consumer borrowing costs.

It's possible to group underlying data in the university's survey into concerns about income and concerns about the cost of living. Income concerns reached a low comparable to the prepandemic level in 2023. Such worries were thus consistent with an environment of low unemployment and do not explain the consumer anomaly.

Concerns about the cost of living tend to correlate strongly with official inflation. They peaked during the inflationary cycle of the early 1980s, the early 1990s, the late 2010s, and the recent post-COVID period. The share of cost-of-living concerns that cannot be explained by variations in official inflation has increased sharply during this cycle, however. This unexplained piece correlates strongly with both the real growth of interest expenses for mortgages and the banks' willingness to make consumer installment loans. These results suggest that excluding the cost of money from official measures explains a lot about the gap between consumers' level of concern and official inflation rates.

Borrowing costs

In addition, we show that other questions in the survey offer direct evidence that consumers' worries about borrowing costs reached record highs in 2023, surpassed only during Paul Volcker's chairmanship of the Federal Reserve from 1979 until 1987. We construct an index that summarizes variations in answers to questions about borrowing costs for durable goods, vehicles, and homes.

Consumer concerns over interest rates show two clear peaks. The first is during the Volcker era, when the federal funds rate and mortgage rates spiked above 15 percent. Concerns dropped sharply after the Fed eased policy in 1982. The second peak in consumer concern occurred in 2023. As interest rates begin to come down, this measure should improve.

Finally, we present alternative measures of the cost of living that explicitly incorporate the cost of money. The Bureau of Labor Statistics' current methodology relies solely on the rental market to explain changes in owners' equivalent rent (Bolhuis, Cramer, and Summers 2022). Before 1983, the CPI included a measure of the cost of homeownership that reflected mortgage rates and home prices. Similarly, the official statistics exclude borrowing costs for vehicles and other personal interest payments (credit card debt, for example) that better reflect actual costs borne by consumers.

With these points established, we present alternative CPI measures that reflect mortgage interest payments, personal interest payments for car loans and other nonhousing consumption, and vehicle lease costs. Our main alternative inflation measure reconstructs the pre-1983 CPI measure and expands it using the costs of homeownership and personal interest payments. These alternative measures show both a much higher peak and continued high inflation throughout 2023 (Chart 2).

Our alternative methodology for CPI inflation does much to solve the puzzle of continued depressed consumer sentiment in an environment of low unemployment and falling official inflation. Throughout 2023, the consumer sentiment gap, after accounting for unemployment, official CPI inflation, and growth in the US stock market, was at record levels. Accounting for the costs of homeownership and personal interest payments closes more than two-thirds of this gap for 2023.

Since the release of our paper, some scholars have suggested that the factors that most affect consumer sentiment are gasoline and grocery prices rather than borrowing costs. We find, however, that the gap is practically unchanged, even after we account for changes in grocery and gas prices.

Tangible explanation

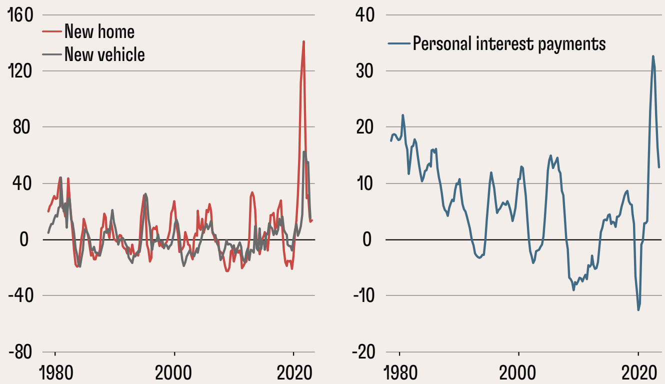
The gap between economists' measurements of economic well-being and what consumers actually said they were feeling puzzled many researchers. Commentators spoke of a "vibecession"—a recession experienced not in rising costs of living or growing unemployment but in "vibes"—by the middle of 2023. Did poor consumer sentiment—

CHART 1

Increase in borrowing costs

Sharply higher borrowing costs for homes and vehicles since the pandemic have resulted in unprecedented growth in interest payments.

(year-over-year growth, percent)



SOURCES: Bolhuis and others 2024; and authors' calculations. Source data from US Bureau of Economic Analysis, Federal Housing Finance Agency (FHFA), Freddie Mac, Bureau of Labor Statistics, and Federal Reserve.

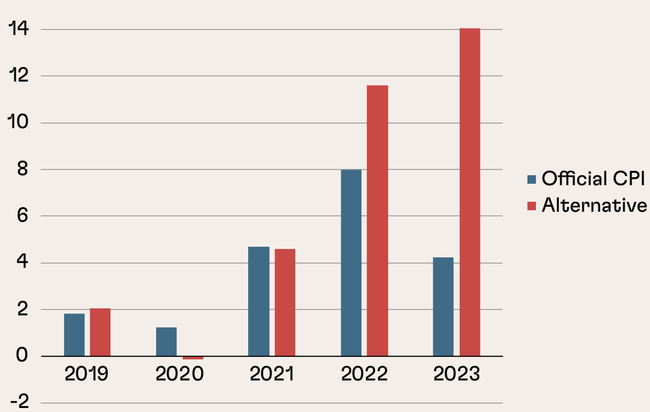
NOTE: Borrowing costs for typical house are defined as the average 30-year mortgage rate multiplied by the FHFA home price index. Borrowing costs for vehicles are defined as the average 48-month financing rate for new autos multiplied by the consumer price index new vehicles index. Personal interest payments include mortgage interest payments.

CHART 2

Estimates of the cost of living

An alternative measure that includes home and vehicle purchases shows that in 2022 and 2023 the cost of living outpaced the consumer price index.

(average year-over-year growth, percent)



SOURCES: Bolhuis and others 2024; and authors' calculations. Official CPI data from Bureau of Labor Statistics.

NOTE: Alternative measure estimates cost of homeownership using pre-1983 methods and includes personal interest payments. CPI = consumer price index.

which should have been overwhelmingly positive given strong GDP growth, declining prices, and continued job creation in 2023—presage a recession? Would everything turn around if gasoline and grocery prices fell back to more normal levels?

We present a more tangible explanation for the departure of consumer sentiment from economic fundamentals: how consumers feel about their own economic well-being includes the cost of money. Economists and official measures miss this crucial component.

The sentiment gap seen in 2023 was not unique to the US or to this cycle, our work shows. Consumers worldwide digested economic data in a way consistent with consumer sentiment during previous bursts of high inflation and rising interest rates. Evidence across countries confirms that consumers around the world care about the cost of money: the countries that saw the largest spikes in borrowing costs were usually those where consumer sentiment undershot fundamentals the most. We found little evidence that the US—despite rising partisanship, social distrust, and extensive reports of overall "referred pain"—differed meaningfully from other Western democracies.

Since the release of our paper, there has been greater recognition that housing costs are a leading concern for consumers in rich countries (Romei and Fleming 2024). Lower interest rates are not a panacea for the sclerotic housing market in the US and beyond, but they could help lift consumer sentiment if more housing is built and people have better access to affordable financing. If the housing supply remains depressed and lower interest rates only inflate prices, consumers may wind up even more pessimistic than the misery index suggests. F&D

LAWRENCE SUMMERS, *a former US Treasury secretary, is the Charles W. Eliot University Professor at Harvard University, where* **JUDD CRAMER** *is a lecturer in economics.* **MARIJN BOLHUIS** *is an economist in the IMF's Research Department.*

REFERENCES

Bolhuis, M. A., J. N. Cramer, and L. H. Summers. 2022. "Comparing Past and Present Inflation." *Review of Finance* 26 (5): 1073–100.

Bolhuis, M. A., J. N. Cramer, K. O. Schulz, and L. H. Summers. 2024. "The Cost of Money Is Part of the Cost of Living: New Evidence on the Consumer Sentiment Anomaly." NBER Working Paper 32163, National Bureau of Economic Research, Cambridge, MA.

Romei, V., and S. Fleming. 2024. "Concern over Housing Costs Hits Record High across Rich Nations." *Financial Times*, September 2.

CHINA'S REAL ESTATE CHALLENGE

Kenneth Rogoff and Yuanchen Yang

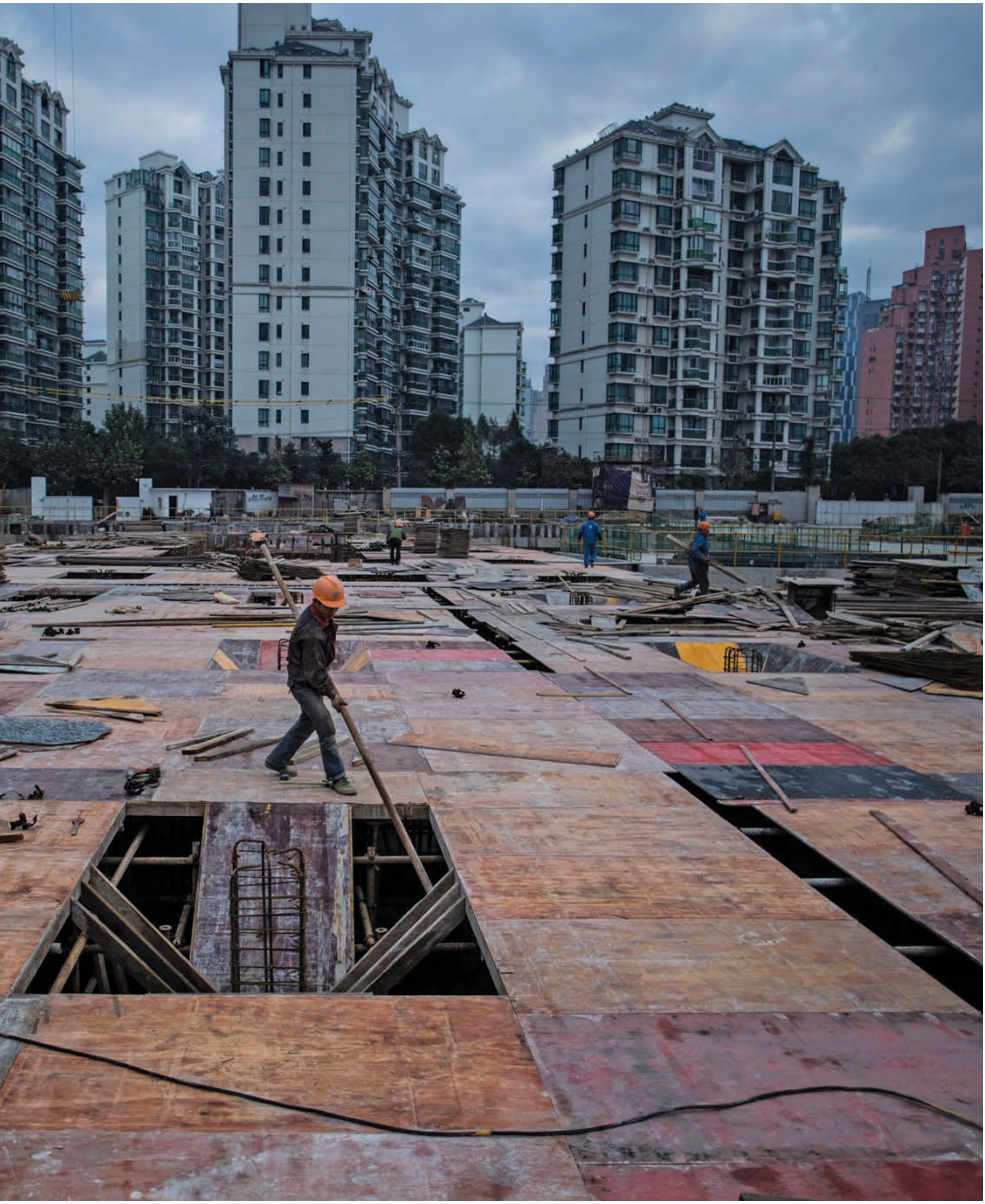
Sliding property prices may presage a painful economic adjustment

A construction site of a residential apartment building in Shanghai, China, November 2016.

JOHANNES EISELE/GETTY IMAGES

Are China's real estate problems different? When we published our paper "Peak China Housing" (based on pre-COVID data) in 2020, our thesis—that China was facing a difficult transition from real-estate-led growth to more balanced growth—was far out of consensus. Most experts believed that any slowing of China's property price and construction boom would be very gradual, with little impact on trend growth.

True, China's house prices had risen tenfold since the early 1990s—an order of magnitude greater than the housing price increases experienced by Ireland, Spain, and the United States in the run-up to the 2008–09 global financial crisis. But China's prices were growing from an extremely low base, with the price of a one-bedroom apartment in the center of Beijing still only 25 percent of a similar apartment in Manhattan. Moreover, the Chinese economy had enjoyed spectacular growth for four decades, and most experts were projecting only a modest slowdown.



Real estate bubbles have played a central role in postwar financial crises, not only in Europe and the US but also in East Asia and Japan in the 1990s. *This Time Is Different* (Reinhart and Rogoff 2009) showed the remarkable quantitative similarities in the aftermath of financial crises across time and across countries, not only in the effects on real estate prices, but on growth, unemployment, stock prices, and public debt. Although many researchers have since explored alternative approaches to marking the onset of crises, focusing mainly on growth, few have challenged that book's broader narrative on the economy-wide effects of credit-fueled real estate bubbles.

"Real estate bubbles have played a central role in postwar financial crises, not only in Europe and the US but also in East Asia and Japan in the 1990s."

Chinese exceptionalism

Yet most researchers and commentators argued that China was different, on top of its extraordinary growth trajectory. For one thing, learning from Western financial crises, Chinese policymakers adopted much more stringent rules on down payments, typically requiring 30 percent or more. Before the subprime mortgage crisis in the US, banks sometimes dropped the down payment requirement entirely. With rising prices, borrowers would have substantial equity in their homes after a few years anyway, or so the theory went.

Equally important, China's government had consistently shown enormous competence and flexibility in dealing with financial problems, for example in sorting out the corporate bankruptcies that had occurred in the 1990s following the unification of China's exchange rate regime in 1994.

After all, one of the reasons that financial crises lead to such deep and lingering effects on growth is that it can take years to apportion the losses from bankruptcies after real estate prices drop. With its strong central government, China could be expected to shortcut such problems.

Last but not least, restrictions on the range of assets that Chinese citizens are allowed to hold could be expected to continue channeling a large percentage of wealth into housing.

What then were some indicators five years ago that a real estate problem might be brewing, with broad systemic implications, even if it did not take the form of a conventional Western-style financial crisis? There were many.

First, home-price-to-income ratios in Beijing, Shenzhen, and Shanghai had reached levels nearly double those of London and Singapore, and three times those of Tokyo and New York. There is no question that in the long run, apartment costs in China's marquee cities should have been on par with those in other great cities of the world, but prices seemed to be getting ahead of themselves.

Second, the pace at which Chinese households have been taking on debt is remarkable, with the household-debt-to-GDP ratio tripling from less than 20 percent in 2008 to more than 60 percent by 2023.

And third, inequality in China had risen (like everywhere else), so that many families were starting to hold multiple homes that lower-income families could not necessarily afford to rent. Our paper pointed to many other factors as well.

Diminishing returns

The most powerful argument, though, was evidence suggesting that China might be running into diminishing returns. As Table 1 illustrates, real estate, including both residential and commercial real estate—and taking into account both

TABLE 1

Real estate contribution

Real estate and infrastructure contribute a significant share to China's economy.

(real estate and infrastructure as a percent of GDP, including direct and indirect demand, in 2021)

	Direct value added (percent)	Total final demand (percent)
Real estate construction	4.9	16.5
Real estate services	6.8	5.0
Imported component	n/a	2.9
Total real estate activity	11.6	24.4
Infrastructure construction	2.1	7.3
Real estate and infrastructure contribution to economy	**13.7**	**31.7**

SOURCE: Rogoff and Yang 2024b.

direct and indirect demand—accounted for 25 percent of China's economy in 2021 (about 22 percent excluding imported content). The share rises to 31 percent if infrastructure is included. This far exceeds the United States (18 percent combining real estate and infrastructure) and rivals Spain and Ireland at the peak of their construction booms.

The issue is not only the scale of current construction, but also the fact that it comes on top of two decades of rapid buildup, particularly since 2010, when China's much-lauded stimulus plan to counter the global financial crisis turbocharged the construction sector.

Anyone who has traveled to China is aware of its world-class infrastructure, even in its outermost provinces. The buildup of real estate across small and medium-size cities in China is remarkable both in quantity and quality. Indeed, per capita housing space in China now exceeds that of any major European country, even though China's per capita GDP is only a third as high.

Even five years ago, it should have been clear that a significant adjustment was inevitable, or at least so we suggested. But some scholars countered that China's adjustment to a smaller real estate sector could in principle be very gradual, if resources were deployed for rebuilding substandard housing over a period of decades.

This view does not stand up to scrutiny, however. Much of China's housing is relatively new at this stage, and many of the dilapidated units are in parts of the country where the population has long been shrinking.

More recently, others have suggested that China can repurpose its construction sector to deal with the green transition. But real estate and its related sectors, which account for about 15 percent of employment, are just too big to be easily absorbed elsewhere.

In fact, very few countries have found it easy to maintain growth when the real estate sector runs into trouble, often leading to a financial crisis. Singapore is perhaps an exception. But the city-state is a small open economy with a population less than half a percent of China's.

China can also build up its exports. One would think that countries serious about the green transition would welcome its low-cost electric vehicles. However, geopolitical frictions and populist politics in the US and Europe make this shift difficult.

City-by-city approach

What evidence is there that China's slowing growth has actually been the result of diminishing returns and not, say, of recovery from the pandemic? Looking at detailed city-by-city growth and real estate investment data, and constructing measures of cumulative real estate construction, it's possible to test the diminishing returns effect over time and space.

We did this in a November 2024 paper, making use of appropriate instruments and controls. We found that cities that have already substantially built up their real estate stock do indeed gain significantly less benefit from new real estate investment. These cities have also had greater problems with high local government debt, in part because growth has not come to offset the investment costs.

As Chart 1 shows, our calculations make it possible to compare the evolution of prices over the past couple years across China city groupings, where tier 1 cities correspond to Beijing, Shenzhen, Guangzhou, and Shanghai and tier 2 cities are provincial capitals and administrative cities, while tier 3 cities represent the smaller and generally poorer cities.

Prices in tier 3 cities, which account for 60 percent of China's GDP, have been falling. It's quite normal for real estate problems to be concentrated in certain parts of the country. During the US subprime financial crisis, for instance, the problems were acute in only four or five states. However, this still led to a banking crisis that spread across the country.

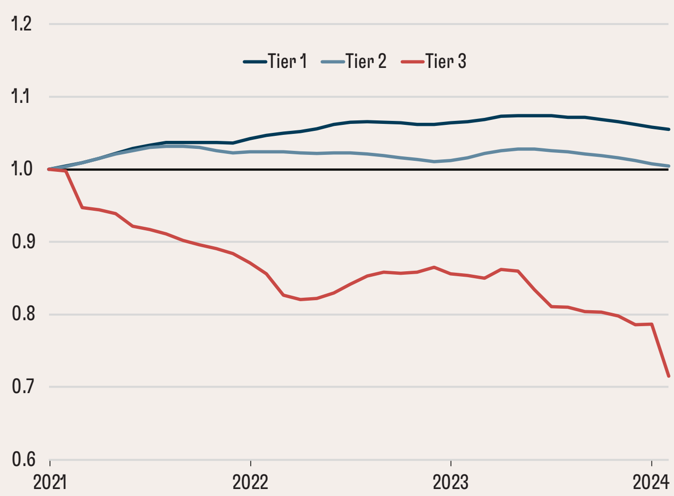
By the same token, not all China's tier 3

CHART 1

Price variation

China's smaller tier 3 cities have seen the sharpest slide in property prices.

(house price changes by city tier; Jan. 2021 = 1)



SOURCES: National Bureau of Statistics of China; and author calculations in Rogoff and Yang 2024a.

“Like many other countries in the past, China too is facing the difficult challenge of countering the profound growth and financial effects of a sustained real estate slowdown.”

cities have been experiencing real estate collapses. Some smaller cities, in the south especially, are thriving. A great many others, though, are suffering from an exodus of young people and jobs.

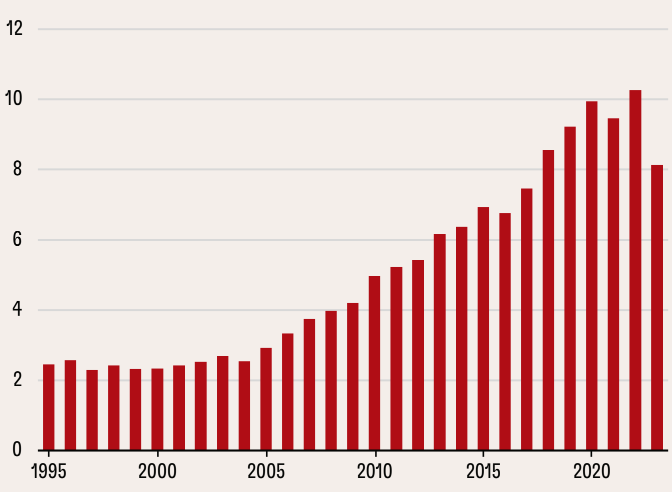
Chart 2 shows another measure of strain, the ratio of construction projects outstanding in a given year to completed projects. The rising ratio over time suggests an increase in projects going into default, buyers pulling out, or properties under dispute. We have concentrated on real estate, but there are many measures suggesting that infrastructure is also overbuilt in some parts of China.

CHART 2

Unfinished projects

A rising ratio of houses under construction to houses completed points to an increase in troubled projects.

(housing under construction over housing completed)



SOURCES: National Bureau of Statistics of China; and author calculations in Rogoff and Yang 2024b.

Difficult transition

All this points to the difficulties of the transition out of real estate, even without a Western-style financial crisis. Our original 2020 paper, based on aggregate input-output data, calculated that a 20 percent fall in the size of China’s real estate sector would lead to a 5–10 percent fall in output, cumulatively over a number of years, even absent a financial crisis.

Our more recent work, based on growth regressions covering about 300 Chinese cities, shows that diminishing returns on real estate can account for perhaps 2 percent of the slowdown in China’s growth rate. Again, this finding does not take into account financial problems such as the fragility of local government debt, or the effects on consumption if housing prices fall further, so it should be considered a lower bound on the potential growth impact.

We will not speculate here on policy going forward, although it appears that a loss of confidence in real estate has significantly impacted consumption, and that the financial problems facing local governments are formidable. Regardless, it is now painfully clear that China is not as different as most scholars still thought just five years ago. Like many other countries in the past, it too is facing the difficult challenge of countering the profound growth and financial effects of a sustained real estate slowdown. **F&D**

KENNETH ROGOFF *is Maurits C. Boas Professor of Economics at Harvard University and a former chief economist and Research Department director at the IMF.* **YUANCHEN YANG** *is an economist in the IMF’s Western Hemisphere Department.*

REFERENCES

Reinhart, Carmen, and Kenneth Rogoff. 2009. *This Time Is Different: Eight Centuries of Financial Folly*. Princeton, NJ: Princeton University Press.

Rogoff, Kenneth, and Yuanchen Yang. 2020. “Peak China Housing.” NBER Working Paper 27697, National Bureau of Economic Research, Cambridge, MA.

Rogoff, Kenneth, and Yuanchen Yang. 2024a. “A Tale of Tier 3 Cities.” *Journal of International Economics* 152 (November): 1–27.

Rogoff, Kenneth, and Yuanchen Yang. 2024b. “Rethinking China’s Growth.” *Economic Policy* 39 (119): 517–48.

SÃO PAULO RECLAIMS ITS CENTER

Elizabeth Johnson

Brazil's megalopolis combines federal and municipal programs to retrofit buildings in the downtown area

São Paulo—the Southern Hemisphere's largest city, with a population of nearly 11.5 million—has a shortage of 400,000 housing units. That's more than the total number of residences in Washington, DC, or San Francisco.

The city and the rest of Brazil are taking another stab at fixing a problem that has become deeply entwined with local and national politics. This time around, São Paulo is applying lessons learned more than a decade ago, when the federal government launched a massive low-income-housing program, which succeeded in adding more than 8 million housing units but stumbled over complaints that it accentuated inequality and added to urban sprawl.

São Paulo is emblematic of Brazil's dramatic urbanization over the past six decades. Since 1960, the nation's city dwellers surged from 45 percent to 87 percent of the population. The sprawling São Paulo metropolitan area of 20 million gained roughly 2 million new residents in the past decade, according to Brazil's statistics agency, IBGE.

The city is Brazil's largest economic engine. Over a history of often chaotic growth, São Paulo has been the destination of huge immigration movements. Migrants came from Europe, Asia, and the Middle East. They also came from other parts of Brazil. Since the early 1900s, waves of *retirantes*—as migrants from the poor and arid northeast region were once called—have headed to São Paulo seeking work and a better life.

They included seven-year-old Luiz Inácio Lula da Silva in 1952. He became Brazil's president last year for a third term, after holding office from 2003 to 2011. His current administration is building on a housing policy he launched in 2009 known as Minha Casa, Minha Vida—MCMV, *My House, My Life*.

Lula's predecessor, former President Jair Bolsonaro, dramatically reduced the program while in office. But Lula revived MCMV with expanded subsidies, lower interest rates, and higher maximum property values following his 2022 reelection. In one year, it sold more than 1 million units, half the target set for the end of 2026.

Learning curve

Since its inception, families in the program's lowest income threshold (earning no more than $516 a month) are eligible for free housing available through local lotteries. But in the program's early years, most new projects were located far from city centers. Critics say the program exacerbated inequality by pushing poor people to areas with limited public services, far from jobs and requiring long commutes on often strained public transportation.

That prompted more than half of lottery winners to ultimately opt out of the program, according to a study of recipients in Rio de Janeiro, Brazil's second-largest city.

"They turned down a free house because of the perceived downside of moving far away from jobs and social networks," said economist Carlos Alberto Belchior, one of the study's authors.

The researchers found that the program failed to reduce poverty. Depending on the location of a new home, recipients were less likely to be formally employed after moving. Residents of regions without jobs and infrastructure spent fewer months each year formally employed and were more likely to switch jobs.

Returning to the center

The Lula administration's updated program, relaunched in 2023, includes more incentives to improve access to jobs and services. It builds on São Paulo's "master plan" for urban development, approved in 2014, when today's finance minister, Fernando Haddad, was mayor.

The plan aims to increase population density along urban transportation corridors, allowing housebuilders to construct taller buildings in exchange for expanding the number of smaller lower-cost units. The plan doubled the number of priority regions—including the moribund city center—for the construction of low-income housing, directing a large share of the housing budget to acquiring land for low-income projects.

The downtown area, once the city's cultural center, has been on a downward spiral since the late 1960s, when the banking sector moved first to the still iconic Avenida Paulista and then farther away to its current location on Avenida Faria Lima. As a result, an estimated 20 percent of central area buildings are now empty.

Revitalizing the downtown district and providing low-income housing became a major campaign issue in this year's municipal elections. In June, at the start of his successful reelection campaign, Mayor Ricardo Nunes announced the expropriation of five buildings for conversion into low-income housing through public-private partnerships.

There are 164 additional properties that meet the criteria for expropriation. Nunes—backed by São Paulo state Governor Tarcísio de Freitas and Bolsonaro—said he plans to work closely with the

TUANE FERNANDES

state government, which has an ambitious plan to transfer government offices from the high-income region of Morumbi to the city center. Housing is a significant component of the program, and a share of the 268,000 low-income housing units that Freitas promised to build by the end of his term are downtown.

In the October election, Nunes defeated Guilherme Boulos, who rose to national prominence advocating low-income housing—including organizing occupations of abandoned buildings through

Aerial view of downtown São Paulo, Brazil.

the Homeless Workers Movement (MTST). His housing plan included subsidies for companies with MCMV projects located close to transportation and other services and targeting vacant buildings owned by various government agencies. For example, the federal social security administration has dozens of empty downtown properties that could be retrofitted into low-income housing.

One early success story for this model is the Dandara building, on the famous Ipiranga Avenue in the heart of the city. Formerly a federal labor court, the building was occupied in 2009 by the social movement Unification of Tenement and Housing Struggles (ULCM). The building's superintendent, Marli Baffini, has been an activist with ULCM for nearly two decades and a resident since 2017. Marli and her husband, Regis, previously applied several times for mortgages, but their lack of assets and relatively low income kept them out of the market.

"I don't have words to express my joy when I was finally given the key to my apartment," Marli

TUANE FERNANDES

Buildings slated for redevelopment as part of the MCMV program on Rua Floriano Peixoto, São Paulo.

said. She and her husband previously lived in a rental in the northwestern part of the city. To work a shift in the wealthy Moema district across town, Regis had to leave home at 5 a.m. for a two-hour one-way commute.

"Today, it takes just 20 minutes for Regis to get to work, and we have three subway stops within walking distance," Marli said.

São Paulo–based architecture and engineering firm Integra was responsible for retrofitting Dandara and works closely with ULCM and other social movements on projects around the city. Activists play a central role in decision-making about renovations and contribute to their success, according to Adelcke Rossetto, a founding partner of Integra.

The company is seeking approval for four other projects in São Paulo led by social movements, two of them in the city center.

"Policymakers finally understand that the downtown area needs housing," Rossetto said. This model is best suited for government-owned buildings, he said, because the cost of purchasing private property for low-income housing is prohibitive.

Private sector in driver's seat

With changes to the revived program, MCMV has emerged as one of the main drivers for the expansion of Brazil's housing market. The nation posted record new-home sales in the second quarter of this year. Almost half of the more than 93,000 units sold were new MCMV housing, according to the Brazilian Construction Industry Chamber.

Success in this segment hinges on understanding the needs of lower-income homebuyers and on being able to build quickly on a tight budget, according to Ricardo Zylberman, operations director of home-building company Magik LZ. The company developed a list of requirements to guarantee the success of its MCMV projects.

"Access to public transport is fundamental," Zylberman said. Developments cannot be more than

Marli Baffini and her husband, Regis, in their apartment at the Dandara Building, São Paulo.

10 minutes by foot from public transportation. Projects also need access to nearby basic services, including supermarkets, pharmacies, and bakeries, as most residents do not own automobiles.

Magik adapted its projects to the changing needs of the local workforce. Party rooms are equipped with high-speed Internet and air-conditioning so that they can double as coworking spaces for the growing remote workforce.

"We have found a formula that works," Zylberman said. Building a large number of units is "an industrial process, which requires quickly building a high-quality apartment that requires limited maintenance."

For Zylberman, downtown São Paulo still offers multiple opportunities for low-income housing because there is available land at reasonable prices near public transportation and retail outlets.

Still, despite its scale, MCMV provides just one piece of the puzzle. Inês Magalhães is vice president of Brazil's largest mortgage lender, Caixa Econômica Federal, which manages the program. For her, addressing the low-income housing deficit requires a broad array of policies. They should include more partnerships between states, municipalities, and the federal government, she said, citing state and local programs that offer subsidies to families to help them come up with the down payment for a new housing unit.

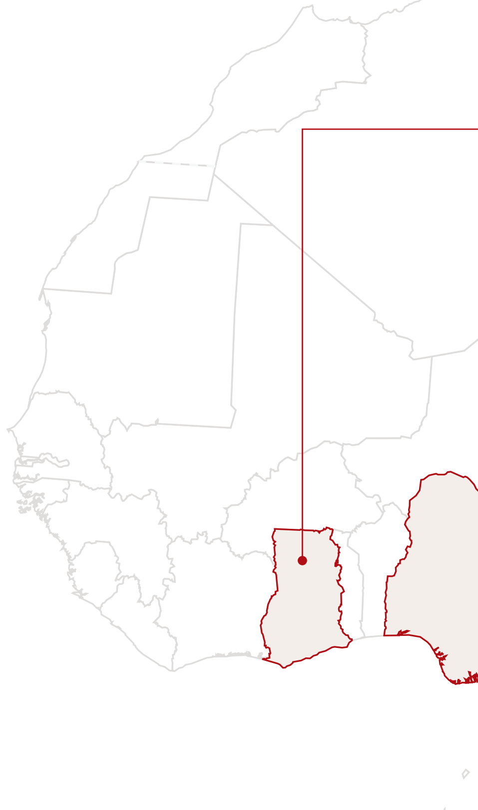
"Coming up with the down payment is often the greatest challenge for families to participate in MCMV, because most are paying rent, which makes it harder for them to save," she said. "Brazil needs 1 million to 1.5 million new units per year to keep the housing deficit from increasing. The housing deficit is not easy to solve, but with the right policies, it's possible to make a difference." F&D

ELIZABETH JOHNSON *is director of Brazil research at TS Lombard, a global macroeconomic consultancy.*

HOUSING AFRICA'S GROWING POPULATION

Kecia Rust

Deeper understanding of informality and better use of technology can build more sustainable housing markets



Informality dominates Africa's cities. Creative, chaotic hubs of job seekers, migrants, and young people—visibly overcome by traffic congestion, street trading, and informal housing—they are nonetheless vibrant economic centers and pivotal to Africa's ability to achieve its economic growth expectations.

At the center of cities is housing. Adequate and affordable housing is a key driver of urban growth because, aside from the construction process itself, it directly affects where and how people live, work, and access services. When housing is carefully planned and integrated into city infrastructure, it can support efficient urban development, manage and leverage the opportunities of increased population density, and stimulate local economic growth.

But in Africa's cities, more houses are built by informal than formal builders. There are more instances of lending for, and investing in, housing that happen informally—whether from hand to hand, through rotating savings and credit associations or cooperatives, or in the form of remittances—than are formally extended through regulated channels. And although informal processes are ultimately inefficient and expensive, opaque and exploitative, they are also nimble and responsive, with few barriers to entry. And critically, they are expressive of the priorities, needs, and capacities of the majority of people across the continent.

Technology offers valuable opportunities to support housing in this informal environment. By leveraging digital platforms, mobile technology, data analytics, and smart city systems, city governments and the people who work in them can build a bridge between the adaptive flexibility of the informal economy and the structured governance processes necessary to enable sustainable growth. The challenge for policymakers, regulators, and the private sector is not to constrain informal efforts with false trust in the formal, but rather to leverage them through better understanding of what leads to, emboldens, and calls for the informal. This will help investors—whether public or private, institutional or individual—target their housing investments correctly, for the right market, and will build a sustainable market accessible to and used by all the residents of the city. F&D

KECIA RUST *is the executive director of the Centre for Affordable Housing Finance in Africa. This article and case studies draw on the recently published 15th edition of* Housing Finance in Africa: A Review of Africa's Housing Finance Markets.

Technological Opportunities

Blockchain technology can be used to create decentralized property registries or enforceable digital contracts that bypass cumbersome bureaucracy. This is being used by mortgage lenders in a number of countries to record liens on properties outside the formal cadastral system, which is less well trusted. The approach has also been tested in informal settlements, including in **KUMASI, GHANA**, where a single ledger of land holdings was produced and paper-based evidence was converted into a digital format.

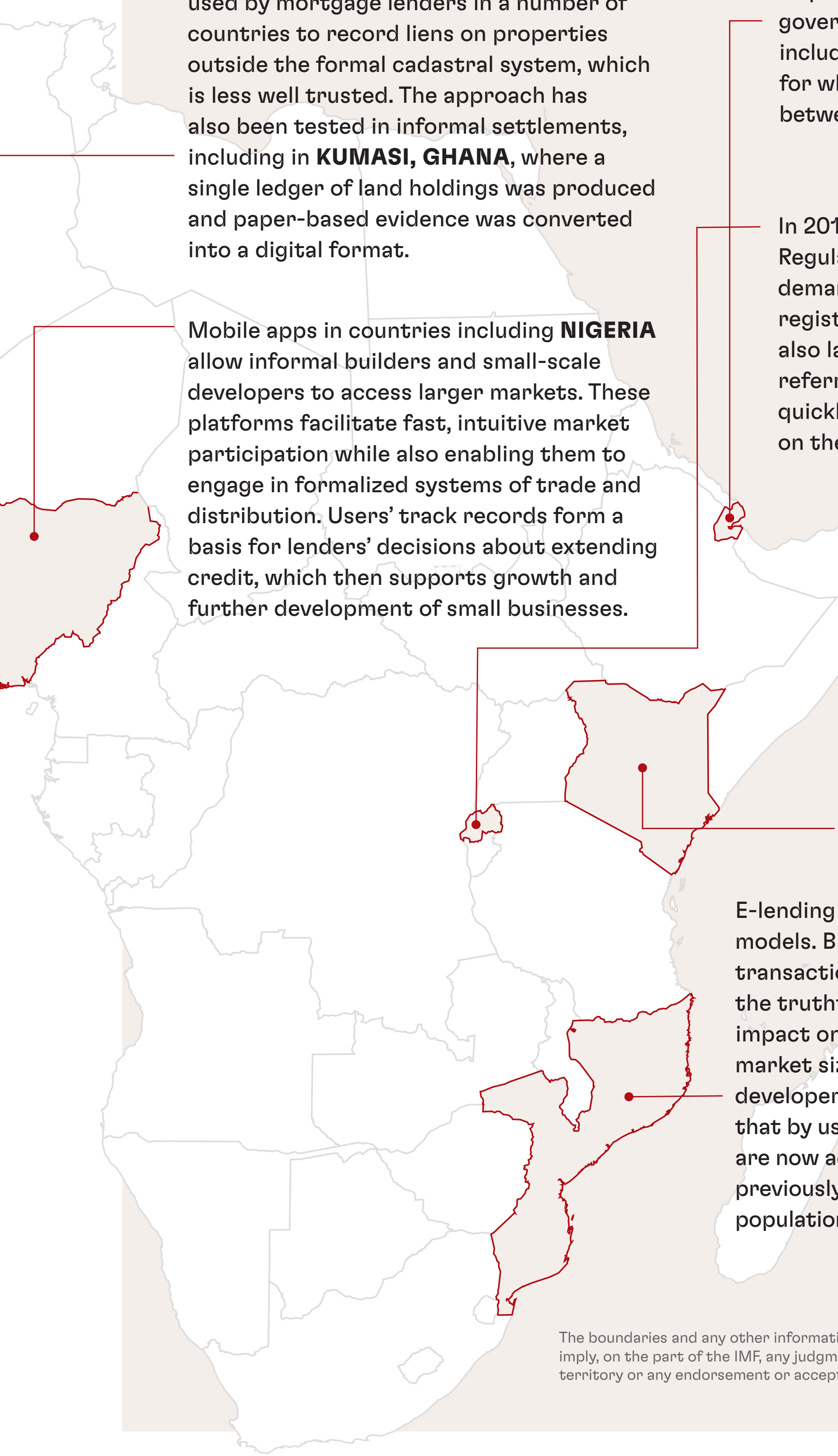
Credit underwriting is an area where technology can help better quantify risk and thereby establish the opportunity for return. In an effort to promote financial access, the **DJIBOUTI** government has set up a guarantee fund that includes a provision of up to DF 10 million ($56,000) for what it calls "precarious households" that earn between $450 and $1,518 a year.

Mobile apps in countries including **NIGERIA** allow informal builders and small-scale developers to access larger markets. These platforms facilitate fast, intuitive market participation while also enabling them to engage in formalized systems of trade and distribution. Users' track records form a basis for lenders' decisions about extending credit, which then supports growth and further development of small businesses.

In 2013, **RWANDA** introduced the Land Tenure Regularization program, which involved the demarcation, land adjudication, digitization, and registration of all parcels of land. Rwanda has also launched an electronic certificate system, referred to as "e-Title," so that landowners can quickly and cheaply access their title certificates on the National Land Authority's official website.

Geographic information systems, drones, and satellite imagery can help map the informal economy. This can provide real-time data on informal settlements, markets, and economic activities, allowing city planners to understand and respond to informal dynamics more effectively. In the coming year, the Centre for Housing Affordability in Africa is going to explore these policies and practices with the Lincoln Institute for Land Policy in **KENYA**.

E-lending approaches can support rent-to-buy models. Blockchain technology reduces the cost of transactions, especially in terms of how it validates the truthfulness of data. This has had a profound impact on housing affordability for households and on market size and opportunity for developers. A housing developer in **MOZAMBIQUE**, for example, has found that by using this technology the homes it produces are now accessible to 80 percent of the population—previously they were accessible to only 3 percent of the population based on the existing mortgage model.



The boundaries and any other information shown on the map do not imply, on the part of the IMF, any judgment on the legal status of any territory or any endorsement or acceptance of such boundaries.

ROCKY RELATIONS

Maria Petrakis

Some countries are turning against foreign buyers as soaring property prices become political

Sea cliffs at Vaucluse and Watsons Bay, Sydney, Australia.

ANDREW MERRY/GETTY IMAGES

Built in 1890, the four-bedroom Victorian terrace house at 9 Kensington Road ticks a lot of boxes for the foreign buyers that Ross Savas, managing director at Kay & Burton, a real estate agency, sees regularly. Situated on one of Melbourne, Australia's, most desirable tree-lined streets, the property's grand façade, conservatory, stately garden, and proximity to top-tier schools are all factors contributing to its $A 8 million (US$5.4 million) price tag.

International buyers have been a mainstay for Kay & Burton, a business that has been selling high-end homes in Melbourne since 1938. Waterfront homes, private estates, newly built properties, and move-in-ready homes hold the most appeal, according to Savas.

"Australia's eastern seaboard cities in particular are seen as a refuge, offering a high standard of living with access to world-class restaurants, shopping, medical facilities, and schooling," he said. "In many ways, Australia is viewed as a 'promised land' for these international buyers."

But the selling points of 9 Kensington Road appeal to Australians as well, even if the price tag is out of reach for the average homebuyer. Mindful of a perception that cash-rich foreign buyers are pushing locals out of the market, Australia's government this year tripled fees for foreigners to buy existing houses and doubled taxes for those who leave dwellings vacant.

It's not just Australia. Attitudes toward foreign ownership of residential properties are shifting in many countries amid concern that local buyers are being priced out. New Zealand passed a law preventing foreigners from buying some residential properties in 2018. And in Canada, a two-year ban on foreign ownership, due to end January 1, 2025, has been extended to 2027.

As 70 countries held elections in 2024, wealthy people seeking properties abroad faced a global landscape of multiple moving parts, including restrictions on foreign buyers and holiday rentals, planning regulations, and property taxes, according to global real estate consultancy Knight Frank in its 2024 *Wealth Report*.

"As public debt escalates and housing affordability diminishes across advanced economies, policymakers are poised to scrutinize wealth and property even more, injecting another dimension into strategic considerations for ultra-high-net-worth individuals," Kate Everett-Allen, head of international and country research, wrote in the report.

Golden promise

Nations around the world have long tapped wealthy individuals' desire to buy properties away from their native land—to give their families a better education and lifestyle, to protect their wealth from high-taxing domestic regimes, and, sometimes, to hide ill-gotten gains from authorities.

Once the preserve of small island nations such as St. Kitts and Nevis, so-called golden visa programs—residency or citizenship in return for a certain level of investment, most often in property—became standard offerings in an increasing number of countries, thanks to the dollar inflows international buyers brought with them.

Greece, for example, launched its golden visa program in 2013 as it struggled to emerge from a debt crisis that threatened its euro area membership. Portugal has a similar arrangement for "non-habitual residents," who are taxed at lower rates.

But the programs in European Union countries such as Greece and Portugal also caused concern among authorities that citizenship and residency rights were being acquired by criminals and facilitating money laundering, a worry echoed in other countries around the world that had offered incentives to wealthy individuals to invest in property.

Spain announced in April this year that it would wind down its program; the European Commission, which considers citizenship-by-investment plans illegal under EU law, has taken Malta to the Court of Justice and challenged its program.

Yet even as some countries wind back incentives that drew foreign buyers—Singapore doubled the stamp tax paid by foreigners to 60 percent to ease housing pressures there—others are still trying to drum up business. Dubai is offering residency in the tax-free United Arab Emirates to those who invest in real estate, are entrepreneurs, or have specialized skills, such as doctors or software engineers.

Bank of Mum and Dad

A little farther up Kensington Road, in an apartment building at No. 10, a different cohort of would-be homebuyers recently slugged it out for sidewalk supremacy. An auctioneer tried to squeeze a few more thousand dollars into the selling price of a two-bedroom apartment.

"Home is here," he intoned, as he slapped his palm with rolled-up brochures and pointed at the latest bidder, listing the cafés, public transportation, and other advantages of the affluent inner-Melbourne suburb of South Yarra. The crowd applauded politely when the bidding closed, and a middle-aged man bought the apartment for his daughter—for $A 855,000, about $A 70,000 above the top asking price.

Housing woes cannot all be blamed on rich foreigners seeking homes, of course. A generation of Australians have ridden the wave of house appreciation since the 1980s, catapulting them into the ranks of the world's wealthiest, thanks to the equity in their homes.

According to Jones Lang LaSalle's second quarter 2024 report on apartments, premium suburbs close to the central business district of Sydney are experiencing strong demand for luxury boutique projects, driven by "downsizers" who are taking advantage of their substantial equity and are willing to pay higher prices.

Some are helping out their children. The "Bank of Mum and Dad" is where some younger Australians turn for help when they are unable to come up with the down payment on a home. They tap their parents' borrowing power to buy a property—as at 10 Kensington Road—or for help with a down payment to qualify for a mortgage, an amount that can now take more than a decade to amass, according to ANZ Bank research.

The ANZ data show that, across Australia, it is getting harder for first-time homebuyers to get into the housing market. The proportion of income required to service a new 25-year mortgage is at a record high of 50.3 percent; it takes 10.6 years on average to save for a down payment on a home.

Homeownership is central to what Australians believe it takes to build wealth. Assumptions about how much is needed for retirement are based on the notion of owning a home.

But the public discourse is increasingly fraught: the rising cost of housing means that younger, or more vulnerable, Australians find themselves struggling not just to buy a home but even to rent one.

"Foreign ownership is not a big part of the mess," said Alan Kohler, author of *The Great Divide: Australia's Housing Mess and How to Fix It*. "There isn't much foreign ownership of empty houses. The common thread may be [high] immigration versus low construction."

Australia's population hit 27.1 million on March 31, 2024, according to the Centre for Population's latest figures. Although annual population growth has slowed from a peak of 2.6 percent in July–September 2023, net overseas migration—the net gain or loss of population through immigration and emigration—was 510,000 in the year ending March 31, 2024, and 134,000 in January–March alone, contributing to strong growth in demand for housing.

More than 80 percent of new arrivals to Australia are renters, ANZ estimates. A cap on international student numbers imposed by the government in August was seen, in part, as an attempt to alleviate the pressure on the rental housing market.

In its latest statement on Australia, the IMF said a comprehensive approach is needed to address the significant housing supply shortfall, including more construction workers, relaxed zoning and planning restrictions, and reevaluation of property taxes (including tax concessions to investors).

Meanwhile, Jamie Mi, head of international sales at Kay & Burton, expects currency effects and the long-term value of Australian property to keep demand in the luxury market strong, despite the shift in attitudes.

"I haven't seen a significant drop in confidence among foreign buyers," she said. "Top-end buyers are less concerned with additional fees or taxes and remain focused on securing high-value assets."

Australia remains the top choice for wealthy Chinese buyers seeking an overseas property, according to Knight Frank.

Ultimately, though, Australia's housing mess isn't unique to Australia. "It's a global housing affordability crisis," said Kohler. "But each country is unhappy in its own way—and for its own reasons—to quote what Tolstoy said about unhappy families." F&D

MARIA PETRAKIS *is a freelance journalist in Melbourne.*

Hidden Fortunes

How dirty money distorts real estate markets

Chady El Khoury

Why are home prices skyrocketing beyond reach? It's not just inflation, low supply, or zoning laws—dirty money is part of the problem, too. Criminal networks, corrupt politicians, and tax evaders use global real estate as a safe place to park illicit wealth, driving property prices up in cities such as New York, Miami, London, and Dubai. By funneling billions through luxury properties, these secretive buyers contribute to housing bubbles that push local buyers out of the market.

The playbook is simple: instead of buying a $10 million penthouse directly, they use shell companies, trusts, and offshore accounts established by professional enablers to hide ownership. Developers rarely question the source of the money. As a result, entire neighborhoods—particularly in major global cities—fill up with high-end empty properties owned by anonymous entities. In London alone, foreign companies held £73 billion worth of properties in 2018, with about 90 percent of these purchases made by entities registered in tax havens, according to a paper by economists Jeanne Bomare and Ségal Le Guern Herry.

But it isn't a problem just for wealthy Western cities. In African cities, including Lagos, Nairobi, and Johannesburg, speculative investments create similar real estate bubbles. Weak regulations and informal housing markets make these regions attractive for questionable money, driving prices up and squeezing out local buyers.

Two decades ago, the international community prescribed that real estate agents, like banks, conduct due diligence and report suspicious transactions. Yet, unlike banks, those in the real estate sector are not held to strict anti-money-laundering standards consistently. Detection and enforcement remain weak globally. Efforts to close these loopholes are underway. Countries such as Canada and the US are exploring requirements for property buyers to disclose their true identity—the "beneficial owner." Public agencies should verify this ownership information and make it accessible to authorities investigating suspicious transactions when red flags arise. If privacy laws allow, making this information public would also enhance transparency.

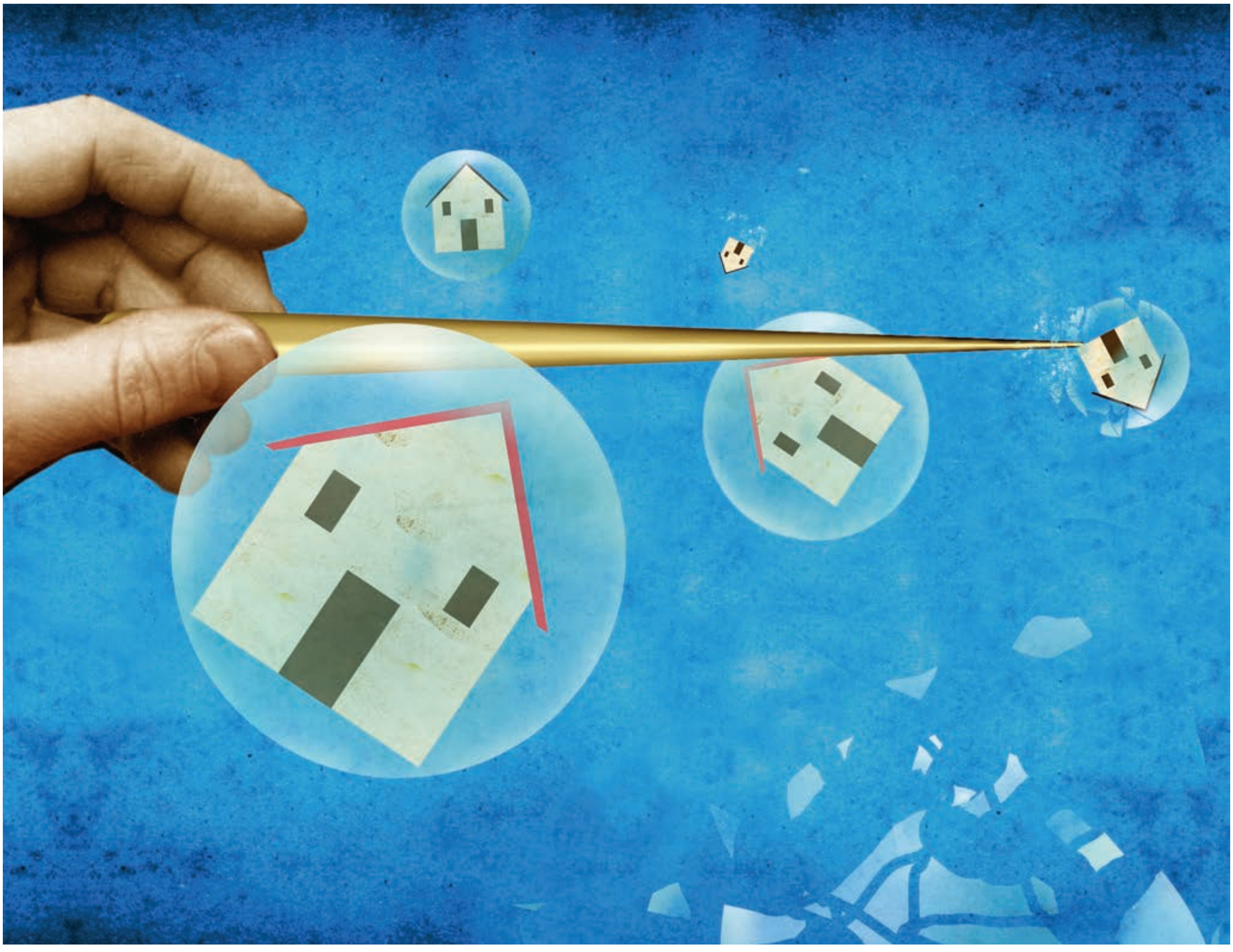
Without more transparency and enforcement, real estate will continue to serve as a safe haven for concealing illicit fortunes, further distorting housing markets and making homeownership for ordinary people an even more distant dream. F&D

CHADY EL KHOURY *is a deputy division chief in the IMF's Legal Department.*

HOW TO SPOT HOUSING BUBBLES

Enrique Martínez García

Early detection and mitigation can help deflate asset bubbles before they burst



MICHAEL MORGENSTERN

The global financial crisis of 2008–09 came amid the collapse of a housing bubble that few saw coming. Today, housing bubbles remain poorly understood, even though they have drawn increased attention for their effects on financial stability and monetary policy transmission. But with real-time monitoring tools policymakers can help mitigate unsustainable booms.

This starts with better methods for identifying asset price bubbles. Standard asset pricing models show that prices are influenced by current returns and expected resale values in the future. A bubble occurs when an asset's price exceeds its intrinsic value, driven by expectations of continued appreciation. The housing market, characterized by stubbornly inelastic supply, exemplifies this dynamic, often fueled by fear of missing out or speculative behavior.

Earlier detection methods relied on modeling intrinsic value, which often proved inadequate because it's difficult to know true intrinsic values. This leads to biased estimates and delayed recognition of bubbles—as seen in the global financial crisis.

Recent advances in time series and panel techniques—designed to analyze data over time and across groups or locations—make it possible to detect bubbles in real time by focusing on statistical patterns that indicate bubbles, without the need to model intrinsic value.

Among these patterns is explosive price growth—or "exuberance," as we call it. This approach identifies bubbles based on observable symptoms, akin to using blood pressure as an early warning health indicator.

The exuberance detection methodology, pioneered by Peter Phillips and coauthors, is the cornerstone of the Dallas Federal Reserve Bank's International House Price Database, which has quarterly data on house prices and disposable incomes for 26 countries stretching back to 1975 (Mack, Martínez García, and Grossman 2019). The database supports the monitoring work of the International Housing Observatory.

These two initiatives, which have benefited from further advances in detection methods (Phillips, Shi, and Yu 2015; Pavlidis and others 2016), aim to increase awareness of housing bubbles and provide user-friendly codes to manage financial stability risks in real time.

Measures of exuberance

Detecting bubbles in housing markets starts with close monitoring of real house prices, since exuberance in nominal house prices may arise from an upsurge in inflation rather than a bubble. Expressing house prices in real terms prevents any confusion that may occur during periods of hyperinflation, as in the cases of Croatia, Israel, and Slovenia in the late 20th century.

Housing affordability—how prices align with buyers' purchasing power—is just as significant. Lenders often reference the debt-to-income ratio, which measures the share of disposable income allocated to debt payments. A reliable proxy for this measure (assuming stable loan-to-value ratios) is the price-to-income ratio.

As the price-to-income ratio rises, financing becomes harder to obtain, reducing demand and pushing down prices. The price-to-income ratio is crucial for distinguishing expectations-driven bubbles from other market dynamics, as exuberance in this ratio signals the severity of a nonfundamental bubble more reliably than real house price exuberance alone.

Chart 1 compares exuberance episodes in real house prices and price-to-income ratios. It reveals three important insights.

First, housing exuberance has become more widespread and synchronous in the post–Bretton Woods era of flexible exchange rates and open capital accounts. It also shows a global wave of real house price exuberance ahead of, and accelerated by, the pandemic. But thanks to stricter lending standards and prudential regulations, exuberance in the price-to-income ratio was limited to just four countries—Portugal, The Netherlands, Luxembourg, and Germany.

This contrasts with widespread bubbles that formed before the global financial crisis and affected price-to-income ratios more widely. Although the pandemic-induced housing boom was intense, it was short-lived: macroprudential policies curbed credit, deflated the bubble early, and preserved banking and financial stability.

Second, credit growth and stock market volatility are key drivers of housing exuberance. Rapid credit expansion fuels speculative leveraged buying, pushing house prices beyond fundamentals. This credit-driven exuberance can unravel quickly if conditions deteriorate or borrowing tightens.

Similarly, stock market volatility prompts investors to seek perceived safer or higher returns in real estate, inflating prices further. In uncertain times, housing often serves as a hedge, attracting investors and driving prices up even without fundamental support.

International capital flows synchronize housing cycles, spreading exuberance and increasing vulnerability to simultaneous housing downturns, as Efthymios Pavlidis, Valerie Grossman, and I highlighted in a 2019 paper. Understanding these drivers helps identify patterns of cross-country contagion and global housing boom-bust cycles.

Third, financial spillovers from other asset classes, such as real stock market growth, and a steepening yield curve (the spread between long- and short-term rates) also increase the likelihood of housing exuberance, which often persists once triggered. During a stock market boom or when the yield curve steepens under expansionary conditions, investors may flock to housing, reallocating their portfolios in search of yield and driving up prices, Grossman and I noted in a 2020 article.

This self-reinforcing behavior, where rising prices seem to validate the expectations of higher returns that attracted investors in the first place, sustains bubbles—sometimes for long periods. It underscores the importance of monitoring yield curve shifts and emerging bubbles in other asset classes to detect financial contagion.

CHART 1

Housing exuberance

Rapid growth in house prices, sometimes accompanied by rising price-to-income ratios, occurs increasingly in global waves.

SOURCES: Federal Reserve Bank of Dallas, International House Price Database; International Housing Observatory; and author's calculations.

Pandemic lessons

The house-price-to-rent ratio, similar to the price-to-earnings ratio for stocks, reflects how much investors are willing to pay for each dollar of rent

"Self-reinforcing behavior, where rising prices seem to validate the expectations of higher returns that attracted investors in the first place, sustains bubbles—sometimes for long periods."

generated by a property. When house prices significantly exceed rents—often exacerbated by slow rent adjustments because of fixed contracts—buyers may opt to rent instead, potentially reducing demand to buy and prompting a price correction.

This ratio serves as a long-term anchor for housing market profitability. But, if it continues to rise at an explosive pace, it may indicate that house prices are being driven by speculative expectations rather than underlying fundamentals.

The International Housing Observatory breaks down the price-to-rent ratio into expected housing returns and projected rent growth, with the remainder incorporating the contribution of bubbles when they arise. These advanced techniques show that speculative pressures during the pandemic were limited, with significant signs detected only in Germany and the US after adjusting for interest rates and rents.

Germany's housing market experienced a prolonged boom, worsening during the pandemic, followed by a sharp overcorrection as the price-to-rent ratio fell below fundamental levels. The US largely avoided exuberance in the price-to-income ratio, but not in the price-to-rent ratio. Hence, it faced persistent inflationary pressures as rents started to catch up, leading to more aggressive monetary policy.

Although the US has avoided a severe correction in real house prices so far, housing affordability eroded during the pandemic and remains a long-term challenge.

Policy considerations

Before the 2008–09 crisis, financial stability relied on prudential regulation of individual institutions, with limited macroprudential tools for systemic risks. In response to gaps exposed by the crisis, policymakers strengthened frameworks to curb credit growth, asset price inflation, and leverage, particularly in real estate.

Concerns remain that current prudential regulations do not fully address risks from housing bubbles. Countercyclical macroprudential tools better tailored to housing cycles rather than to business cycles and stronger international coordination are needed, along with more attention to contagion, global capital flows, shadow banking, and off-balance-sheet funding.

Moreover, clear central bank communication, including forward guidance, is crucial for managing expectations and enhancing financial system resilience. A comprehensive risk management approach—using early detection tools to identify and track housing bubbles, assessing impacts, and implementing mitigation strategies (including financial guidance)—along with integrated monetary and prudential policies, is essential to safeguard financial stability.

Asset price bubbles, particularly in housing, require heightened attention as a significant source of financial vulnerabilities and risks. Incorporating innovative tools to monitor exuberance and analyze expectations-driven bubbles allows policymakers to better manage the risks these bubbles pose to the broader economy and financial system. F&D

ENRIQUE MARTÍNEZ GARCÍA *is an assistant vice president and international group head in the Research Department at the Federal Reserve Bank of Dallas.*

REFERENCES

Mack, A., E. Martínez García, and V. Grossman. 2019. "A Cross-Country Quarterly Database of Real House Prices: A Methodological Note." Federal Reserve Bank of Dallas Globalization and Monetary Policy Institute Working Paper 99.

Martínez García, E., and V. Grossman. 2020. "Explosive Dynamics in House Prices? An Exploration of Financial Market Spillovers in Housing Markets around the World." *Journal of International Money and Finance* 101 (March): 102103.

Pavlidis, E. G., A. Yusupova, I. Paya, D. A. Peel, E. Martínez García, A. Mack, and V. Grossman. 2016. "Episodes of Exuberance in Housing Markets: In Search of the Smoking Gun." *Journal of Real Estate Finance and Economics* 53 (4): 419–49.

Pavlidis, E. G., E. Martínez García, and V. Grossman. 2019. "Detecting Periods of Exuberance: A Look at the Role of Aggregation with an Application to House Prices." *Economic Modelling* 80: 87–102.

Phillips, P. C. B., S. Shi, and J. Yu. 2015. "Testing for Multiple Bubbles: Historical Episodes of Exuberance and Collapse in the S&P 500." *International Economic Review* 56 (4): 1043–78.

The views in this article are those of the author and do not necessarily reflect the views of the Federal Reserve Bank of Dallas or the Federal Reserve System. Any errors or omissions are the sole responsibility of the author.

HOUSING MARKETS AND MONETARY POLICY

Mehdi Benatiya Andaloussi, Nina Biljanovska, and Alessia De Stefani

Comprehensive, country-specific understanding of housing and mortgage markets can help calibrate monetary policy

Central banks in late 2021 kicked off the steepest and most coordinated series of interest rate hikes in four decades to contain the postpandemic inflation outbreak (see Chart 1). Many economists expected a sharp global slowdown, but many economies have instead held up relatively well, with only some seeing significant decelerations.

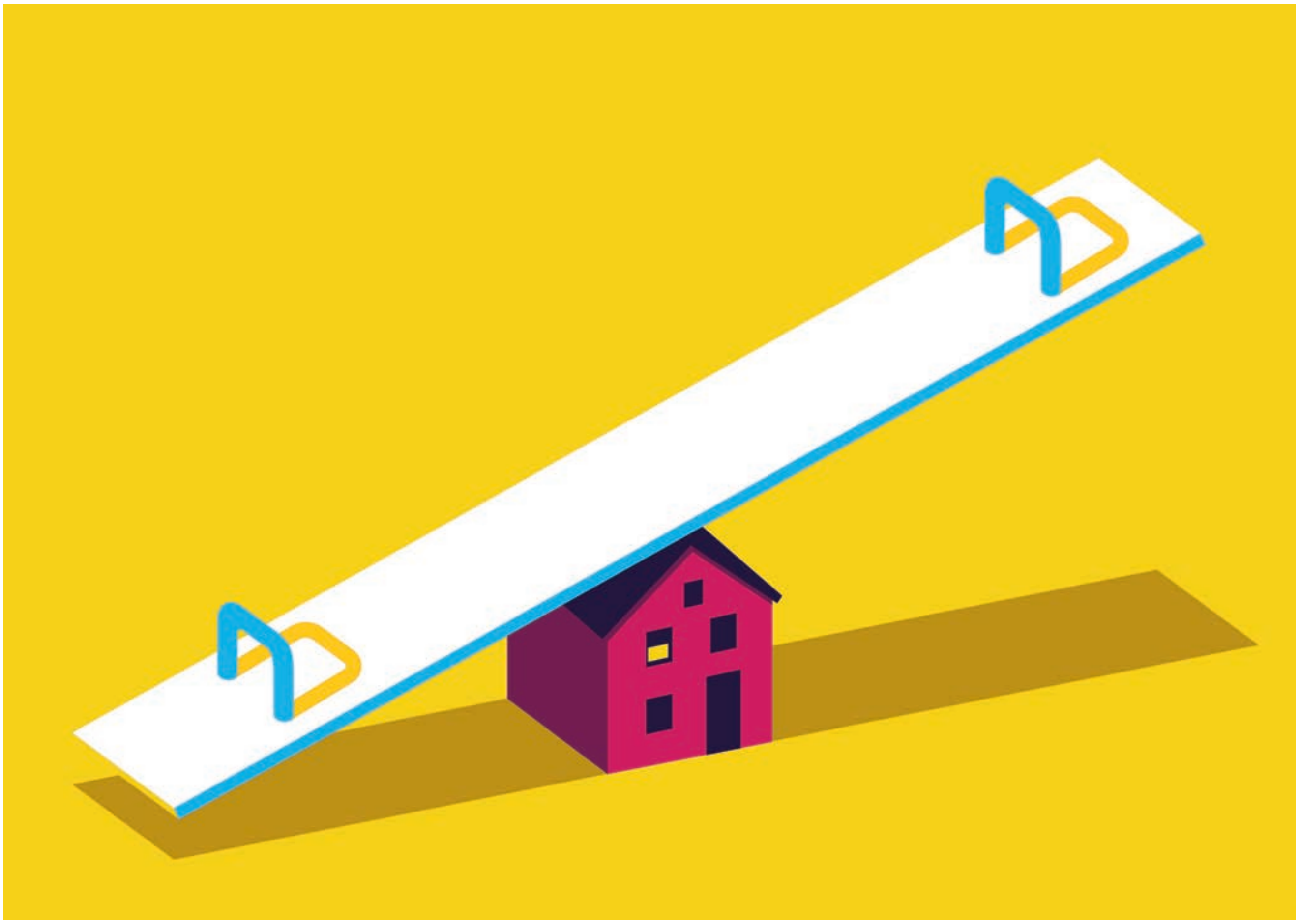
Why did some countries feel the pinch from higher rates and not others? Explaining this is especially timely as many central banks are now cutting rates. Housing and mortgage characteristics, which vary widely across countries and have changed in recent years, are one key reason, our research in a chapter of the IMF's April 2024 *World Economic Outlook* suggests.

Housing has been an important driver of economic shocks, largely due to its central role in private sector balance sheets. Mortgages are often the largest liability for households and housing their most significant form of wealth. Real estate also accounts for a large share of consumption, investment, employment, and consumer prices in most economies. Banks and financial intermediaries are also often heavily exposed to the housing sector, making it a key component of monetary policy transmission.

Housing channel

Since the global financial crisis, economists have made significant progress explaining how monetary policy operates through housing markets, specifically in identifying the transmission channels that operate through housing and mortgage markets. We summarize a few of these channels below, by focusing on those related to household demand.

First, policy rate changes directly affect monthly mortgage payments for homeowners with adjustable-rate mortgages. Payments also rise when policy rates do, depressing disposable income and sometimes consumption, through what is commonly referred to as the "cash flow channel," according to research by Marco Di Maggio and others.



Second, home prices are very sensitive to changes in interest rates, through evolving discount rates and via expectations about future returns. This expectations channel, also referred to as the risk premium channel, can impact how much buyers are willing to borrow and for how long, which in turn affects housing prices and credit conditions.

Third, when property prices fluctuate in response to changing policy rates, wealth effects can affect consumption by homeowners. In addition, owners in many countries can use their homes as collateral to borrow and finance consumption. When real estate prices fluctuate, so does the volume of collateralized credit, and consumption follows, as work by Atif Mian and Amir Sufi shows.

Transmission potency

These transmission channels depend on key housing and mortgage market characteristics. For example, the relative strength of the cash-flow channel is determined by the share of fixed-rate mortgages—which, by definition, do not adjust to changes in policy rates—out of all outstanding mortgages. More fixed-rate loans mean fewer borrowers feel the pinch of rising policy rates, or benefit from their decline.

Our research shows that some key characteristics vary widely across countries. For example, the share of fixed-rate mortgages outstanding can vary from close to zero in South Africa to more than 95 percent in Mexico and the United States (Chart 2).

Could such differences explain why the degree of monetary policy transmission differs across countries? We find that policy has greater effects on economic activity in countries where the share of fixed-rate mortgages is low. In countries with a large share of fixed-rate mortgages, changes in policy rates will affect monthly payments for fewer households, and aggregate consumption will tend to be less affected.

Similarly, we see stronger monetary policy effects in countries where more households have

Illustration by Ben Wiseman

debt and higher amounts of borrowing, as many more households will be exposed to changes in mortgage rates.

Housing market characteristics also matter: monetary policy transmission is stronger when housing supply is more restricted. For example, lower rates imply lower borrowing costs for buyers and increase demand. Slimmer supplies boost prices. Existing owners become wealthier and consume more, including by borrowing against homes.

The same holds true where home prices have been overvalued. Sharp price increases are often driven by overly optimistic views about appreciation. These are typically accompanied by excessive borrowing that, when interest rates rise, can lead to foreclosures and falling prices, and in turn lower incomes and less consumption.

Weaker transmission

Moreover, housing and mortgage markets have changed since the global financial crisis and the pandemic. At the beginning of the postpandemic hiking cycle, effective mortgage rates in many countries had fallen to multidecade lows, as households took advantage of low interest rates to secure low-cost loans in the 2010s and early 2020s. In addition, the average maturity of mortgages increased during that time, as the share of fixed-rate mortgages increased in many countries.

Meanwhile, many financial supervisors tightened macroprudential policies for housing financing after the global financial crisis. These policies aimed at limiting the risky lending that fueled boom-bust cycles in many countries during the mid-2000s. This paid off by 2020, with improved creditworthiness and reduced leverage. Separately, the pandemic prompted people to shift away from city centers and to areas with more supply.

Our research indicates that these shifts helped weaken or at least delay some monetary policy transmission channels in several countries. Transmission strengthened in some economies, such as those with fewer fixed-rate mortgages, higher debt levels, and constrained housing supply. But it weakened in others, where those factors moved in the opposite direction.

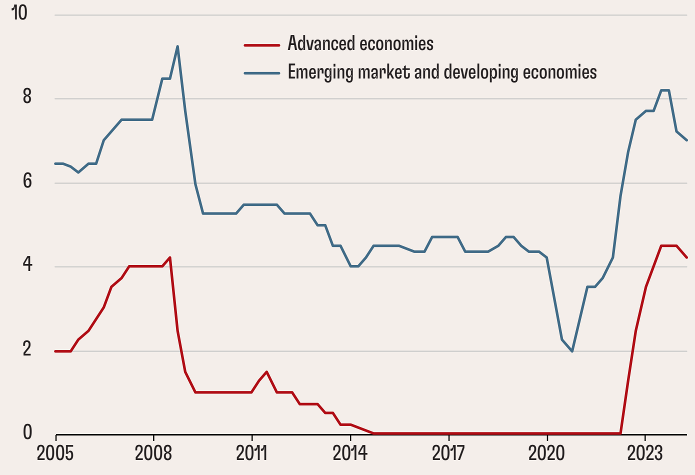
Our findings suggest that a deep, country-specific understanding of housing and mortgage markets is important to help calibrate monetary policy. In countries where transmission through housing channels is strong, monitoring housing market developments and changes in household debt-servicing ratios can help identify early signs of overtightening. Where monetary policy transmission is weaker, more forceful early action can be taken when signs of inflationary or deflationary pressures first emerge.

CHART 1

Sharp rate increases

Synchronized and steep postpandemic monetary tightening followed an extended period of low interest rates.

(nominal policy rates, country group median, percent)



SOURCES: Haver Analytics; and IMF staff calculations.

Loosening cycles

With many central banks now easing as inflation recedes, it's natural to ask how housing and mortgage market characteristics will affect transmission in a loosening cycle. The housing channels we describe are active in both tightening and loosening phases, hence transmission depends on country-specific housing and mortgage market characteristics when policy moves in the other direction as well. Similarly to what happened during the postpandemic tightening cycle, we can expect a global easing cycle to affect each economy differently—and with important asymmetries.

History shows that tightening episodes are generally more powerful in restraining booms than similar size loosening episodes are in stimulating demand, according to research by Silvana Tenreyro and Gregory Thwaites. Yet most recent large and coordinated loosening cycles were followed by global recessions. During these periods, weakened private sector balance sheets prolonged economic slumps despite monetary easing, according to Atif Mian, Kamalesh Rao, and Amir Sufi.

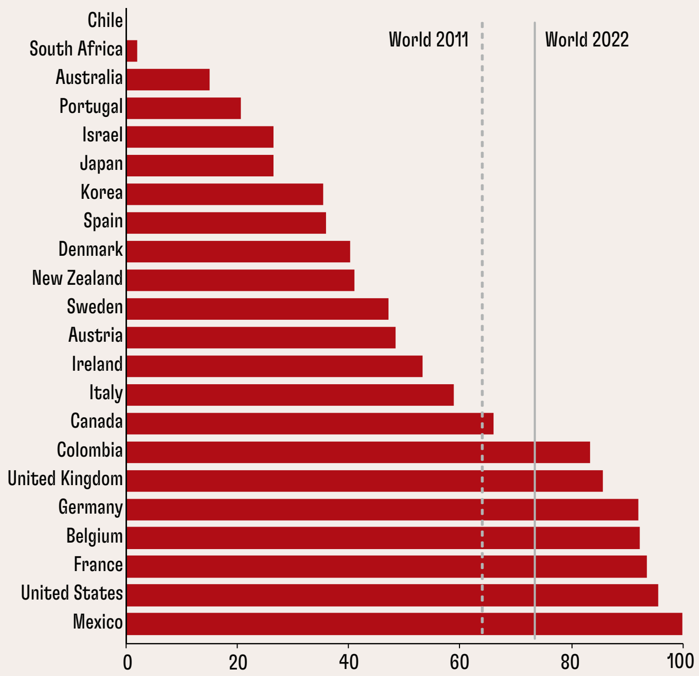
The current easing cycle comes as household finances in advanced economies are stronger than during the years after the global financial crisis, and

CHART 2

Vast differences

Fixed-rate mortgages have become more prevalent globally, though their share of loans varies widely across countries.

(country-level share of fixed-rate mortgages, percent, 2022:Q4)



SOURCES: European Central Bank; national authorities' data; and IMF staff calculations.
NOTE: Mortgages are deemed fixed-rate if nominal payments do not reset within a year. Fixed-rate mortgages exclude mortgages that adjust for inflation (as in Chile).

sometimes even relative to the prepandemic period. Similarly, there hasn't been a significant increase in household default rates. The preexisting conditions of this loosening cycle differ substantially from historical experience, so its effects may also be different from usual.

Another key difference is the historically high share of fixed-rate mortgages as a proportion of outstanding debt. Typically, a high share of fixed-rate mortgages dampens the transmission of monetary policy during a tightening cycle, as homeowners with such loans are insulated from rising rates. In a loosening cycle, fixed-rate mortgages impair transmission less, as households with such loans may want to refinance at even lower rates, activating what is known as the refinancing channel of monetary policy, Martin Eichenbaum, Sergio Rebelo, and Arlene Wong show.

This time could be different, however. Many borrowers in advanced economies locked in historically low fixed rates during the 2010s and the pandemic. These mortgages may remain well below current rates despite monetary easing, leaving many households with little incentive to refinance.

In the United States, for example, the average rate for all outstanding mortgages was 3.9 percent as of late 2024, government data show, well below the 6.7 percent average for new 30-year fixed loans. This means that mortgage rates would have to decline about 3 percentage points for the average borrower with a fixed-rate loan to have an incentive to refinance. Homeowners with fixed rates are therefore likely to remain locked in despite lower borrowing costs, with important consequences on both spending and house prices.

Of course, monetary policy operates through many channels other than housing markets. Ultimately, the degree of transmission of any easing cycle to the real economy depends on many factors: the relative speed and strength of the loosening impulse; the pass-through of monetary policy to lending rates; the government's fiscal stance; and supply-side factors, such as the cost of materials, many of which are beyond the direct influence of central banks.

Yet our results highlight that housing and mortgage markets are a key component of the transmission mechanism. Central banks should therefore closely monitor housing markets to best calibrate policy. F&D

MEHDI BENATIYA ANDALOUSSI *and* **ALESSIA DE STEFANI** *are economists in the IMF's Research Department.* **NINA BILJANOVSKA** *is a senior economist in the European Department.*

REFERENCES

Di Maggio, Marco, Amir Kermani, Benjamin J. Keys, Tomasz Piskorski, Rodney Ramcharan, Amit Seru, and Vincent Yao. 2017. "Interest Rate Pass-Through: Mortgage Rates, Household Consumption, and Voluntary Deleveraging." *American Economic Review* 107 (11): 3550–88.

Eichenbaum, Martin, Sergio Rebelo, and Arlene Wong. 2022. "State-Dependent Effects of Monetary Policy: The Refinancing Channel." *American Economic Review* 112 (3): 721–61.

Mian, Atif, and Amir Sufi. 2011. "House Prices, Home Equity-Based Borrowing, and the US Household Leverage Crisis." *American Economic Review* 101 (5): 2132–56.

Mian, Atif, Kamalesh Rao, and Amir Sufi. 2013. "Household Balance Sheets, Consumption, and the Economic Slump." *Quarterly Journal of Economics* 128 (4): 1687–726.

Tenreyro, Silvana, and Gregory Thwaites. 2016. "Pushing on a String: US Monetary Policy Is Less Powerful in Recessions." *American Economic Journal: Macroeconomics* 8 (4): 43–74.

GDP in the Future

Bert Kroese

COMPLEMENTARY MEASURES HELP ASSESS OUR PLANET'S TRUE WEALTH AND HOW TO INCREASE IT SUSTAINABLY

Gross domestic product (GDP) is one of the world's most-watched statistics. It's the benchmark of economic performance and a yardstick of national power; even small changes to this single statistic can move financial markets. Since its debut as an economic indicator some 90 years ago, GDP has been a cornerstone of economic policy.

But it's far from perfect. GDP is a poor measure of welfare. It tallies up all the goods and services produced in an economy—putting equal value on \$100 whether it's spent on concert tickets or courtroom litigation. It misses much of life's essence and the things we love most—family and friends, the breathtaking beauty of an unspoiled landscape, the heartwarming moment of a child's smile. Many of these are beyond the realm of economics, although some researchers have attempted to capture them, including through the *World Happiness Report*.

Even as an economic statistic, GDP is incomplete. It focuses on the present and ignores the future. Today's production can deplete resources and damage the planet, but GDP doesn't reflect these costs. Two complementary approaches can help build measures that tell us whether our economic activity is sustainable.

The first is net domestic product (NDP). It subtracts the depreciation of capital (and will soon subtract the depletion of natural resources, too) from the value of production to reflect more accurately the sustainability of national income and our future prosperity. The second approach is comprehensive wealth. It elevates measures of national wealth to focus on whether we are getting richer or poorer, and what we will leave for future generations, using a much broader definition than just what we produce.

Illustration by Luke Best

Net domestic product

While GDP measures total economic output, a fraction of the physical capital used to generate that output is lost due to wear and tear in the production process. A factory cog can break, or a machine might seize up, for example. New gadgets become obsolete and are discarded. The pace of depreciation tends to speed up as economies develop and make greater use of technological assets that have shorter productive lives.

NDP subtracts this depreciation from GDP and thus recognizes the two-way impact economic activity has on physical capital—building new stock while degrading old stock. As such, it's a better indication of resources that can be allocated between current and future consumption.

Not all countries have collected the information they need to measure annual depreciation accurately. Even so, the data that are available suggest that the average country's NDP is about 10–20 percent lower than its GDP.

Physical capital is not the only factor of production that can be depleted by the production process, of course. Mineral resources used for today's production—the fossil fuels that fire power stations or the rare earths in smartphones and electric vehicles—won't be available tomorrow. It would make sense, therefore, to refine the concept of NDP by subtracting the depletion of nonrenewable resources from the value of production as they are used up.

At the IMF, we are working with our partners to do precisely this as part of an update of the internationally agreed framework for compiling measures of economic activity, known as the System of National Accounts (SNA). We are proposing to adjust NDP for the costs of nonrenewable resource depletion in the updated system of accounts that will be finalized next year. This will be a better gauge of future income flows given the available stock of nonrenewable resources.

The updated accounting standards will have a relatively small impact on NDP in most countries. But the additional requirement to subtract the value of nonrenewable resource depletion will have a greater impact on countries that depend heavily on mining and mineral extraction. NDP in these countries could be more than 30 percent lower than GDP. It will be a much better indicator of future prosperity for these countries.

Importantly, the refined measure of NDP will also affect economic activity's growth rates—which are typically watched more closely than levels. Higher output driven by accelerated resource extraction would give less of a boost to the headline growth rate.

DATA

30%

In mining-dependent economies, net domestic product could be more than 30 percent lower than gross domestic product.

Further refinements are worth considering, too. Air pollution, for instance, can reduce worker productivity and directly impact the economy's productive potential. More significantly, it lowers people's quality of life and shortens their lifespans. Greenhouse gas emissions affect the ability of the atmosphere to regulate climate. While we may want to account for the deterioration of the atmosphere in NDP conceptually, it's not easy. It's particularly difficult in the case of greenhouse gases because the effects are global rather than local and persist for centuries.

GDP will, of course, retain its significance as the go-to measure of economic output. But we believe more countries should compile NDP statistics and make greater use of them in policy analysis and decision-making. NDP should complement GDP, not replace it, by adding a much-needed sustainability perspective.

Comprehensive wealth

Policymakers have come to appreciate the importance of incorporating both flows and stocks into economic analysis. Various crises have taught us to focus not only on budget deficits but also on government debt; not only on income but also on the assets and liabilities of people or companies; and not only on current account deficits but also on international reserves. Similarly, it's essential to consider not only indicators of economic activity, such as GDP or NDP, but also measures of wealth.

Greater wealth today allows us to enjoy higher consumption tomorrow. It raises living standards. A measure of wealth should include all the resources

that will enable us to purchase or produce new goods and services. Traditionally, we count financial assets and physical capital, but that's a narrow view. As Kristalina Georgieva, the IMF's managing director, said in a recent speech, "We also recognize the need to put in place better measurement of wealth that goes beyond the traditional GDP, that values not only produced capital, but also nature, people, and the fabric of societies."

This means broadening our measures of wealth to include human capital (education and health), natural capital (mineral resources, renewable resources, ecosystems, water), and social capital (good governance, civic-mindedness). According to the World Bank, human capital constitutes the largest share of global comprehensive wealth, at 64 percent. Physical capital accounts for 31 percent. The remainder is split equally between renewable and nonrenewable natural capital.

Next year's updated SNA will spotlight measures of wealth in national accounts and how wealth is distributed. It expands the definition of natural capital, which has hitherto been limited largely to mineral wealth, to include renewable energy resources such as solar and wind. In addition, it will place greater emphasis on compiling human-capital accounts as extensions to the main sequence of national accounts.

All of this will contribute to a more comprehensive measure of wealth and provide policymakers with clearer signposts toward an economy that's better for people and planet.

Keeping up

The world is changing, and economic statistics must keep up. Technological advances are disrupting traditional ways of working, and economic structures are evolving continuously. The new SNA will better account for the digital revolution by including the value generated by data, in both gross and net domestic product.

We must not delay incorporating new developments into statistical manuals. We must also get better at integrating different standards for measuring and categorizing economic performance; government activities; cross-border flows of goods, services, and capital; greenhouse gas emissions; and more. Without a mutually compatible set of accounts, it's almost impossible to construct a clear, consistent, and comprehensive view of the economy. This makes it difficult to design effective policies that address economic, environmental, and social challenges.

We do not underestimate the obstacles. Defining NDP and comprehensive wealth is conceptually and technically difficult. Moreover, our standards must work for economies at different levels of development and with different industrial structures.

"The imperative to look beyond mere production statistics has also increased as the importance of economic, environmental, and social sustainability is recognized more widely."

Internationally recognized standards alone are not enough, however. It falls to national authorities to compile comprehensive measures of wealth that are comparable across countries and use them in their decision-making. Many statistical agencies struggle to collect data and calculate national accounts that meet higher standards. Even as we move toward finalizing the 2025 SNA, quite a few countries have yet to implement the previous update agreed 16 years ago, in 2008.

At the IMF, we are determined to overcome these challenges. We are working closely with other international institutions, national statistical agencies, and others to establish conceptually sound standards. And through our capacity development activities, often conducted in partnership with other institutions, we are helping countries produce more reliable and relevant estimates of GDP and related statistics so that they all have the data they need to support good policies.

The imperative to look beyond mere production statistics has also increased as the importance of economic, environmental, and social sustainability is recognized more widely. At the same time, our ability to paint a more complete picture of economies and societies has advanced, too, thanks to developments such as AI, big data, and satellite imagery. We can, for example, now combine AI with satellite data to measure ecosystem degradation—helping to assess the value of natural capital and the costs of humanity's impact on it.

Governments all over the world strive to grow their economies and raise their GDP. It's a measure of just how powerful statistics can be in the policymaking process. But we should not focus on one statistic at the expense of all others. Complementary measures that give a more complete picture of our planet's wealth and people's well-being deserve attention, too. F&D

BERT KROESE *is the IMF's chief statistician and director of the Statistics Department.*

Sharing the Road

Jiaxiong Yao and Robert Zymek

CHINESE ELECTRIC CARS WILL HELP SOME EUROPEAN ECONOMIES AND HARM OTHERS, BUT TARIFFS WOULD LEAVE EVERYONE WORSE OFF

Workers assemble electric vehicles at a factory in Jinhua, China, April 2024.

SHI KUANBING/VISUAL CHINA GROUP/GETTY IMAGES

BYD Qin, Nio ES, and Xpeng P—these are popular series of Chinese electric vehicles (EVs). Well-built and affordable, they are not currently household names in Europe, but millions of them are already on the road in China and other emerging markets, such as Brazil. And with China now the largest automobile exporter in the world overall—accounting for 60 percent of global EV sales in 2023—these cars could soon come to a road near you.

The rise of China as a major EV producer has posed a dilemma for policymakers looking to promote the transition to a low-carbon economy. The European Union (EU) has set itself ambitious EV adoption goals: 100 percent of new car purchases by 2035, up from 15 percent today—a goal that could be achieved more easily by importing low-cost Chinese cars, which retail for about 20 percent less than similar French, German, or Italian models in the EU. However, several central and eastern European economies rely heavily on car and parts manufacturing for the leading European brands. Losing market share to Chinese car makers could put high-value jobs at risk and undermine political support for the green transition.

In new IMF research, we ask how the EU would be affected if it were to pursue its proposed EV adoption goals while permitting Chinese manufacturers to capture a significant share of its car market. We use state-of-the-art macroeconomic and trade models to quantify the impact of such an "EV shock" scenario on EU economies, relative to a hypothetical world in which EV adoption and China's market share remain fixed at their pre-2023 values.

A crucial ingredient in the analysis is how much EU market share Chinese imports could capture. This depends on how strong a comparative advantage China is able to establish in a global car sector that is shifting toward EV production. Given the relative novelty of EVs, and the highly dynamic nature of technological innovation in this industry, projecting the evolution of comparative advantage is naturally difficult. For this rea-

son, we turn to a historical episode and use it as a yardstick for our scenarios.

High fuel prices in the 1970s raised US consumer demand for low-cost, fuel-efficient vehicles. This helped promote Japan's emergence as a global auto exporter. Between 1970 and 1985, the share of imported Japanese cars in the US rose from almost 1.7 to nearly 15 percent, before shrinking as trade tensions grew. Japan's entry transformed US and global car markets.

Our scenarios assume that China's rise could prove similarly transformative, leading to a 15 percentage point increase in its share of the EU market absent trade impediments, albeit over a shorter period. This serves as an illustration, not a forecast, as China's penetration of the EU market is unlikely to mirror Japan's entry into the US market exactly. The EU has already imposed new tariffs on Chinese EVs, up to 45 percent in some cases, so the import surge from China could prove weaker than in this earlier episode. It could also prove stronger, if China emerges as a more dominant producer in the car sector than Japan did.

We find that the GDP impact from an EV shock is very small for the EU as a whole, but varies widely across its members (see Chart 1). Two countervailing forces are at work here. The increased supply of cheap Chinese vehicles benefits consumers throughout the EU. But it reduces demand for European car manufacturing, an economically important sector because of its high profitability and labor productivity. The resulting income loss is modest for Germany, France, and Italy. Despite being home to Europe's major car brands, their economies are large and very diversified. Instead, the hardest blow is on smaller eastern European countries, where manufacturing in the supply chain for European cars makes up a large share of economic activity. Our model results show that Hungary and the Czech Republic are the worst-affected economies, with a decline in real GDP of 1 percent and 1.5 percent over five years, respectively.

Beyond the headline GDP impacts, the shock would imply a significant labor reallocation away from the automobile sector. Our models show that the dislocated workers amount to as much as 2.6 percent of the workforce in the Slovak Republic and 1.7 percent in Hungary (Chart 2). Although these workers would ultimately be reemployed in other sectors—primarily services—labor reallocation on such a scale may have significant social, economic, political, and psychological costs, which are outside the scope of our models.

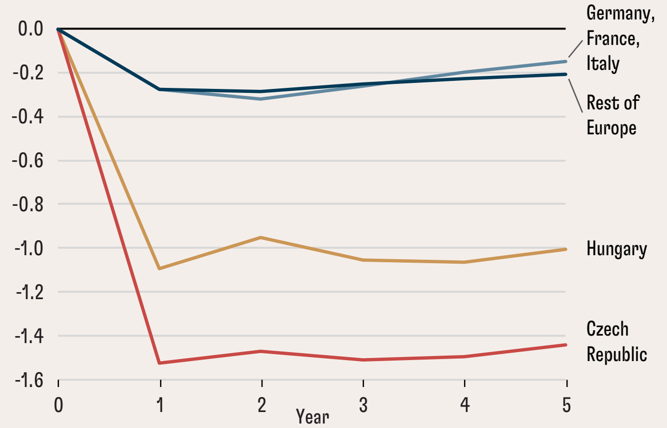
What should governments do to cushion the economic impacts? Some restrictions on Chinese EV imports may appear tempting, and the EU has gone

CHART 1

Output losses

Eastern Europe's smaller economies would be hit hardest by a large increase in China's share of the electric vehicle market.

Short-term GDP impact of EV shock (percent of GDP, deviation from no-shock steady state)



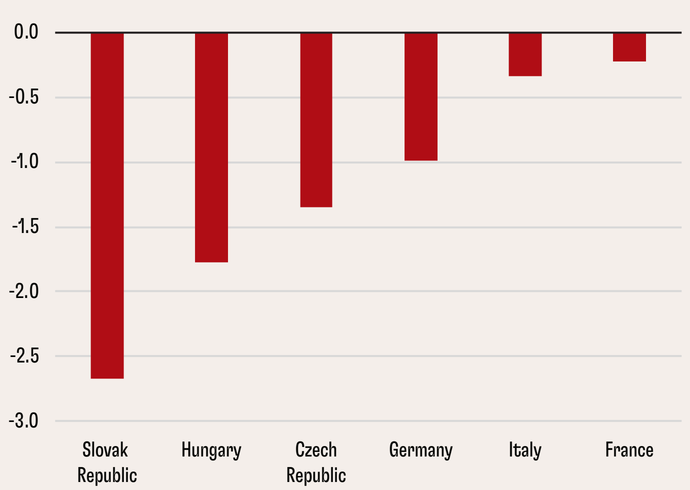
SOURCE: Wingender and others 2024.
NOTE: "EV shock" represents a productivity increase in China combined with a preference shift in the EU leading to a 15 percentage point increase in China's share of the EU car market over five years. EV = electric vehicle.

CHART 2

Disappearing jobs

A large increase in China's market share could cause job losses in Europe's major car producers.

Long-term employment change in motor vehicle industry (percent of total workforce)



SOURCE: Wingender and others 2024.

down this route to some extent with the new tariffs on EV imports from China finalized in October.

But trade barriers are not the right answer. Our model simulates the effects of a 25 percent and a 100 percent average tariff on Chinese automotive imports into the EU in the face of the EV shock. Far from lessening the economic costs, we find that tariffs make the situation worse, both in the short and long run (Chart 3). While the tariffs protect domestic auto production and yield limited revenue gains, they raise consumer prices as well as production costs in sectors that could use Chinese vehicles as inputs. These costs outweigh the benefits, leaving all EU countries poorer, with an especially adverse effect on economies that do not have a sizable domestic auto sector. The tariff protection will also not make European carmakers more competitive in the global market.

Beyond their economic impact, it has been argued that tariffs on Chinese EVs could slow the EU's climate transition, resulting in additional CO_2 emissions. On this point, our modeling results offer a more nuanced picture. The price effect of tariffs does cause consumers to buy some more traditional vehicles over the next decade, which adds to emissions. However, as long as the EU sticks to a path of policies that achieve its adoption target of 100 percent EV purchases by 2035, the overall fallout for emissions is minimal. In this case, the main effect of the tariffs is to raise the price tag of the transition. However, in practice a higher price tag may very well create pressure to delay EV adoption targets—and such a delay would cause a much more severe impact on emissions.

If not tariffs, what else might dampen the job and output losses of the EV shock? The key lies in investment and productivity. Our modeling shows that if higher EV demand in Europe is met by Chinese firms producing directly in Europe, via increased foreign direct investment, adverse impacts could be lessened. This is how Japanese automakers began to serve the US market beginning in the 1980s. We also find that realistic productivity gains in the European car sector could go a long way toward softening the macroeconomic impact on the worst-affected EU economies. A removal of remaining intra-EU barriers to trade and capital flows could allow car manufacturers to better exploit economies of scale, thereby incentivizing investment in research and development.

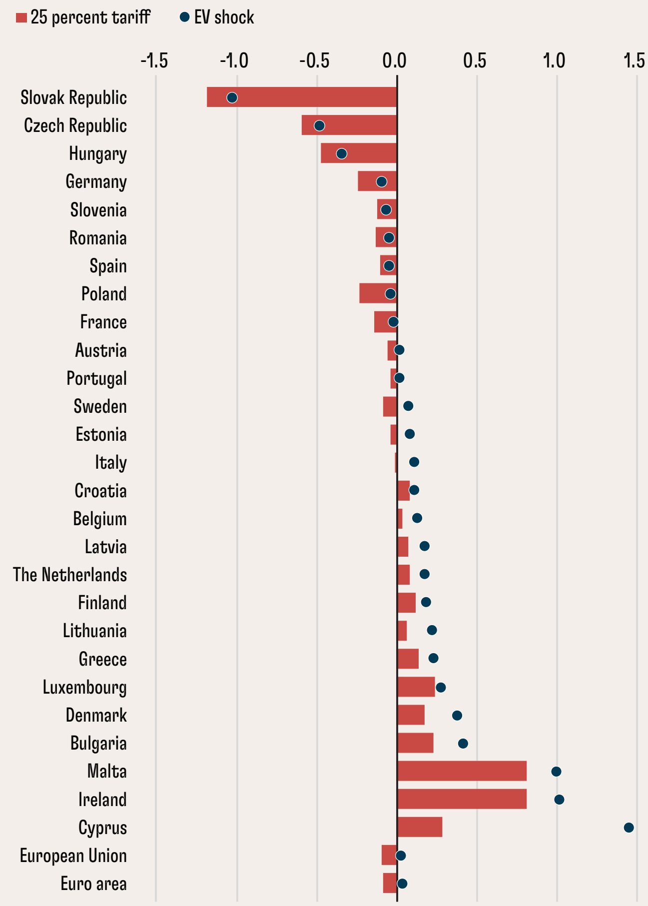
This points toward a middle-ground solution to the EU's dilemma of whether to preserve high-value manufacturing jobs or stand firm on climate goals. It would involve active policies to encourage investment and productivity gains in the auto sector and to assist with any job transitions—while making room for BYDs, Nios, and Xpengs on European roads. **F&D**

CHART 3

Tariff effects

Far from lessening economic costs, trade tariffs could make Europe's situation worse.

Long-term GDP impact of EV shock, with and without tariffs (percent of GDP, deviation from no-shock steady state)



SOURCE: Wingender and others 2024.
NOTE: "EV shock" represents a productivity increase in China combined with a preference shift in the EU leading to a 15 percentage point increase in China's share of the EU car market over five years. EV = electric vehicle.

JIAXIONG YAO *is a senior economist in the IMF's European Department.* **ROBERT ZYMEK** *is an economist in the IMF's Research Department.*

This article draws on IMF Working Paper 2024/218, "Europe's Shift to EVs amid Intensifying Global Competition," by Philippe Wingender, Jiaxiong Yao, Robert Zymek, Benjamin Carton, Diego A. Cerdeiro, and Anke Weber.

How to Heal Health Financing

Victoria Fan and Sanjeev Gupta

INTERNATIONAL INITIATIVES MUST COMPLEMENT, NOT DUPLICATE, NATIONAL HEALTH STRATEGIES

Failure to learn from the response to COVID-19 could have grave consequences for global health. The pandemic exposed significant holes in the current international framework, including lack of coordination among multiple organizations and unequal vaccine distribution between high- and low-income countries.

Global health authorities now risk repeating past mistakes in response to the mpox outbreak in sub-Saharan Africa. This crisis underscores the familiar challenge of fragmented donor coordination, leading to slow and insufficient increases in funding. Countries on the front line of the outbreak still lack the systems and financial resources to effectively manage spread of the disease.

Low- and middle-income countries urgently need additional health resources. But existing resources must be spent efficiently, and coordination between international donors, public and private, should be improved. Developing economies do not allocate sufficient domestic resources to health, and a cumbersome donor architecture undermines external financing.

A multipronged approach that prioritizes strengthening country health systems and integrates global initiatives into national strategies could have a lasting impact on health outcomes in these countries.

Daunting diagnosis

There is no single reason for the poor state of health systems in so many developing economies. It reflects a combination of weak public finances, insufficient external assistance, and poor coordination between national governments and international donors.

Small and unspent budgets: Public spending on health in low- and middle-income countries has stagnated at below 2 percent of GDP recently, about half what these countries spend on education—perhaps reflecting finance ministers' perception that donors are doing enough. Spending increased during COVID-19, but many countries have since cut it back to prepandemic levels, preliminary data suggest.

This is particularly concerning given the growing demand for health services and the increasing burden of noncommunicable diseases, such as cardiovascular disease, cancer, and diabetes, which are rising because of aging populations, more environmental pollution, and changing lifestyles associated with higher incomes.

And money allocated to health budgets is often not fully spent, especially in sub-Saharan Africa. Underspending in the health sector is estimated to lead to a loss of $4 per person, based on constant 2020 prices. That loss equals what low-income sub-Saharan African countries spend on primary health care per person.

Low revenue, high debt: Tax collection in low- and middle-income countries has flatlined and deprived health and other social sectors of resources. In some low-income countries, tax revenue is less than 10 percent of GDP, significantly below the 15 percent recommended by the IMF.

Meanwhile, some developing economies spend over a third of the tax revenue they do collect servicing domestic and foreign debt, further constraining spending on education and health. The benefits of earlier debt relief initiatives, such as the Heavily Indebted Poor Countries Initiative of the mid-1990s and the Multilateral Debt Relief Initiative of 2005, have eroded as countries became indebted again.

Stagnant donor assistance: Health aid remained stuck at about 1 percent of low- and middle-income countries' GDP for the two decades or so before the pandemic, with only a small increase afterward. The outlook for future aid appears bleak given fiscal pressure on donor countries and shifting geopolitical dynamics.

As donor countries prioritize reducing their own high debt and spend more on defense and care for aging populations, a significant increase in health aid to low- and middle-income countries seems unlikely.

Fragmentation: External health aid is often volatile and prioritizes global agendas over national needs. Disease-specific programs, known as "vertical funds," have proliferated and have led to a fragmented landscape of multiple donors operating independently, duplicating efforts, and breeding inefficiency.

Over the past 15 years, the number of donors of all types of aid has doubled, and the number of donor agencies has tripled. Yet donor financial flows have grown only by 50 percent, and the size of both official grants and official flows has decreased (see Chart 1).

The requirements donors impose on aid-receiving countries to ensure that funds are spent properly, driven by concerns about governance, are well-intentioned but cumbersome. They increase the cost of absorbing external resources and make it more expensive for countries to develop their own government capacities in health agencies.

Aid "localization": Many bilateral donors channel aid through nongovernment agencies on the ground rather than directly through the receiving country's health authorities. Recent initiatives, including by the US Agency for International Development, have increased local nongovernment participation in health aid, a process known as "localization."

Continuing off-budget grant financing through local NGOs may prolong dependence on foreign aid and lead to perverse incentives for increasing domestic financing. It can also draw essential health workers away from local health ministries and create coordination challenges between country authorities and other donors.

Health workers walk between wards at an mpox treatment center north of Goma, Democratic Republic of the Congo, August 2024.

Integrated approach

Treating this complex diagnosis requires a shift from single-focus interventions, aimed at controlling a specific disease, toward integrated approaches that consider the complex interplay between health, economic, and social factors. There is no need for a revolutionary approach: the 2023 Lusaka Agenda called for greater alignment of global health initiatives with country health systems and primary health care in Africa, consistent with the 2005 Paris Declaration on aid effectiveness.

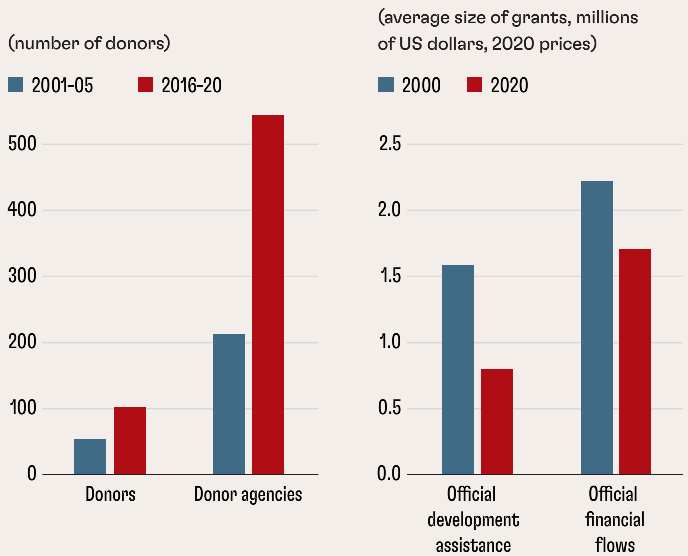
To advance this agenda, the global health community would do well to recognize the need for reform and commit to an approach that strengthens countries' health systems and integrates global initiatives with national strategies. After all, no country, regardless of income level, has achieved universal health coverage without major increases in public spending.

On the domestic side, countries must rely progressively more on their own resources, which are more stable. The goal should be to finance all or most core health activities domestically. For that, low- and middle-income countries need to

CHART 1

Fragmented aid

The number of donors has risen even as the average size of official development grants and financial flows has fallen.



SOURCE: Nishio, Akihiko. 2023. "Insights on the Proliferation and Fragmentation of Aid in the Health Sector." Presentation at the World Bank, Washington, DC, June 29.

increase revenues. These countries could raise an additional 5–9 percent of GDP over time, according to IMF estimates.

Countries can do this if they strengthen domestic tax systems by broadening the tax base and improving tax compliance. To generate additional revenue quickly, many countries are considering raising taxes on tobacco. This approach may provide additional revenue in the short term, but such taxes are not a long-term solution: consumption will likely decline over time—a primary goal of the tax. Ultimately, the objective should be less dependence on donor funds for the health sector.

At the international level, donors should align their efforts with countries' priority of universal health coverage. This can significantly improve the coordination of disease-specific vertical health funds, allowing gradual expansion of benefits and less spending inefficiency. The medicine is not new: the 2005 Paris Declaration aims to improve the impact of aid and could provide the necessary framework to align donor activities with national health strategies. (Tensions, though, are always likely because donors often favor vertical funds that demonstrate results to their own legislators and other stakeholders.)

A permanent global health and finance coordinating body would be another step toward improving coordination and accountability. The Group of Twenty Joint Finance and Health Taskforce, established in response to the COVID-19 pandemic, is a model for such a body. It brought together finance and health ministries and key global health actors, which led to better coordination and helped reduce duplication. Together with the World Bank and World Health Organization (WHO), a permanent coordinating body would be a forum for dialogue, collaboration, and transparency between global health and finance stakeholders.

Sustainable systems

This coordination should also include better procurement. Pooled systems for donor funds can reduce inefficiency and strengthen receiving countries' public financial systems and procurement capacity.

Consolidation could start with organizations such as the Global Alliance for Vaccines and Immunization and the Global Fund, which could adapt their reporting systems to use pooled procurement effectively. Over time, this approach could include other key donors, such as UNICEF, WHO, and entities mandated to procure health products.

To complete the treatment, finance and health ministries must understand why it can be difficult to spend budgets they already have. The IMF and multilateral development banks provide assistance to strengthen public financial management broadly, but they should emphasize better budget execution within the health sector. A finance minister probably won't raise the budget allocation if a health minister cannot spend the existing budget.

Most low- and middle-income countries are well behind their health-related Sustainable Development Goals. Maternal mortality remains high: over 287,000 women died from pregnancy and childbirth complications in 2020. Child mortality reductions are too small to meet targets, and preventable problems such as neonatal conditions, pneumonia, and diarrhea still led to nearly 5 million deaths in 2022. Despite available low-cost, effective technologies, 59 countries are expected to miss the target for under-five child mortality.

The global health community can ditch the status quo and chart a new course toward integrated, sustainable health systems aligned with broader economic and development goals. Commitment and collaboration will build a healthier, more equitable world for all. F&D

VICTORIA FAN *is a former senior fellow at the Center for Global Development, where* **SANJEEV GUPTA** *is a senior fellow emeritus.*

JIM GRAHAM

People in Economics

The Longevity Economist

Gary Seidman profiles Princeton's **Anne Case**, who studies the intersection of health and economics

FOR DECADE AFTER DECADE IN THE UNITED STATES, children typically stayed healthier and lived longer than the generation that came before them. The country, it seemed to Anne Case, had been doing something right. By the late 1960s, advances in vaccines and antibiotics had helped extend the average American lifespan to nearly 70, about 50 percent longer than at the start of the century. By the 1980s, the introduction of antihypertensive drugs had reduced cardiovascular disease, among the leading causes of death in the United States. And through the postwar years, a steady drumbeat of government campaigns to quit smoking, improve workplace safety, regulate pollution, build safer highways, and expand medical access had prevented millions of premature deaths—remarkable feats of public policy.

But then, says Case, coauthor with Angus Deaton of the 2020 *New York Times* bestseller *Deaths of Despair and the Future of Capitalism*, something "important, awful, and unexpected" began to derail America's century-long progress in reducing mortality. It involved a slew of factors: job displacements, substance abuse, fraying social ties, and ultimately, the failure of capitalism in recent decades to adequately care for working-class Americans. It was a situation that was tailor-made for Case's approach to economics.

Case's work is a reminder of the importance of using economic analysis to improve the human condition and has ignited a national discussion about the challenges facing working-class Americans.

Empathetic upbringing

The umbrella over much of Case's research is how poor people manage through difficult circumstances. "Growing up with parents who cared dearly about what happened to people less well off than themselves, that's what led me to focus on how poorer people cope, how exactly they hold body and soul together," she told F&D.

Case grew up in upstate New York in the 1960s and 70s and "had a ringside seat for watching deindustrialization." Around her, shoe manufacturers and business machine factories were closing up shop and shedding workers. Local communities were feeling the pinch. The push for free trade and job offshoring was starting. "The high-water mark for blue-collar wages for men was 1972," she points out. Labor unions were weakening, church attendance was waning, marriage rates were beginning to slide, and some of the traditional pillars that had long kept communities humming and thriving, she said, were disappearing. IBM, the pioneering computer maker, and an integral employer in Case's local community, she remembers, was starting "to move on and move out."

As a teenager, Case had become interested in social science and mathematics, "and I really wanted to do something for the common good." She enrolled at the State University of New York in Albany, and after her first undergraduate economics course she was hooked. Econometrics became a passion. "I liked the fact that there was empirical work, and I very much liked statistics." She pursued a master's degree in public affairs from the Woodrow Wilson School at Princeton, and then, after a year working for the World Bank, returned to Princeton to earn her PhD in economics in 1988. Today, she is the university's Alexander Stewart 1886 Professor of Economics and Public Affairs and the winner of many academic accolades. "I was captured by the life in academia. I love the combination of teaching and research and being able to take a step away and go to the field," she said.

In the 1990s, she went to South Africa to witness firsthand the tragedy of AIDS and the damage that midlife mortality inflicted on the society and the economy. Some of that time she collaborated to study how *early-life health* influences *later-life outcomes* with her friend and fellow economist Christina Paxson, who is now the president of Brown University. She chronicled how *disruptions to health* impacted incomes. "People who are ill, or are in a lot of pain, or are having mental health problems are not going to be successful in the labor market," she said. "I always thought that was really, really terrific work," said Deaton, Case's husband, frequent coauthor, and winner of the 2015 Nobel Prize in economics. And when Case returned to Princeton, she segued her research to look at how *disruptions to incomes* affected the health and well-being of workers in the United States.

Case has a unique "attention to detail and ability to make data understandable," said Jonathan Skinner, a professor who studies health economics at Dartmouth College. She can "pull things out of data that maybe people hadn't looked at before."

Capitalism's fatal flaws

What she and Deaton began to discover was that the well-being of Americans who did not have a college degree was deteriorating in all walks of life: economically, socially, emotionally, and medically. It was manifesting in how much pain they were physically experiencing (and self-reporting on US government surveys) and how many deaths were occurring as a result of drug overdoses, liver failure, and suicide. The life expectancy for adults without a college degree reached its peak around 2010 and has been falling ever since. By 2021, people without a bachelor's degree were living "roughly eight and a half years less than people with college degrees," Case and Deaton wrote in a *New York Times* essay last year. The country's ever-transitioning economy had slowly beaten down the US working class over the past few decades, and they weren't feeling good about it. It had eliminated many of their jobs, shrunk their paychecks, narrowed their employment opportunities, hollowed out their communities, taken a toll on their status in society, and led some to turn to unhealthy behaviors to cope.

Tim Besley, of the London School of Economics, said that Case and Deaton's "initial work created quite a stir." He remembers hearing a story that at a White House gathering, then-President Barack Obama cornered the two to talk about their findings.

What the Princeton duo later described in their 2020 book is a torrent of bad breaks that began to rain down on middle-aged, working-class, less-educated Americans over several decades. No race or gender was spared. But middle-aged white Americans who had not graduated from college did not fare particularly well, especially in regions where manufacturing and blue-collar jobs were once plentiful and rewarding. It was a familiar story for Case. It started with misfortune from economic shifts that had been slowly brewing for years, like the offshoring of US jobs to cheaper labor markets and the yawning disparity between the rich and the poor. And it generated resentment that leached into lifestyle behaviors. If it continued, it foretold a disturbing potential to accelerate social, economic, and educational polarization in the country.

The economy's tilt was beneficial to some but deeply demoralizing for those it left behind. And this time around there was one big twist that Case and Deaton realized was making things exponentially worse. The overprescribing of painkillers such as OxyContin in the late 1990s, followed by the availability of cheaper heroin and then synthetic opioids such as fentanyl, led to an unusual spike in overdose deaths.

The drug epidemic arrived at a vulnerable moment in the United States, when the workforce was evolving, the Internet economy was dawning, and a lot of people were trying to find their balance. Case was poring over the government's data and trying to connect the dots. "This work took on a life of its own, which was my life," she said. "Once we started digging, it was just hard to stop." "Sometimes I think Anne carries every piece of every number in the US statistical system in her head somewhere," said Deaton.

"Growing up with parents who cared dearly about what happened to people less well off than themselves, that's what led me to focus on how poorer people cope, how exactly they hold body and soul together."

"We found that the things that were rising were suicide, alcohol use, liver disease, and drug overdoses," Case noted. "They're all deaths by one's own hand," she said, and in the early 2000s those types of deaths began to pile up and have a profound impact on mortality rates in the country. "I thought they all signaled a certain amount of despair."

Charles Fain Lehman, of the Manhattan Institute, is skeptical that all the dots connect so neatly. "I don't necessarily think that the evidence supports the narrative that they were advancing," he said. He believes that easy access to ever-stronger drugs on the street is more to blame for the rise in mortality than the economy-induced despair narrative that Case describes.

Other rich-world countries, Case points out, contended with many of the same challenges regarding globalization, automation, and the impact on their workforces. "But they did not unleash a drug that is basically heroin in pill form with an FDA label on it and give any doctor with a script pad the ability to prescribe this drug," she said. "Congress just looked the other way."

Unlike those other developed economies, the United States let "Purdue Pharma blanket the country with marketers who, with maps, targeted areas where people were in pain, where people had lost jobs, where people were less well educated, and they targeted those places." Those pills had to land on fertile soil, she said.

Skills reconsidered

About two-thirds of the US working population does not have an undergraduate degree. It's an important demographic to consider as the economy's relentless modernization creates new jobs that overwhelmingly require increasingly digital and technical skills. The country, Case said, is more divided than ever by education levels, which has led to a pervasive and worrisome sense of injustice and inequality. "People without a BA don't see hope for themselves. And perhaps as important, they don't see hope for their children. They think that that they live in a system that's rigged against them," Case said. "It's pretty understandable."

She is encouraged by some of the efforts underway today to address the situation. One solution that is gaining traction is to prohibit discrimination based on educational attainment. During the past two years, according to the Brookings Institution, more than 20 states have expanded access to state government jobs by dropping requirements for an undergraduate degree. They are expanding hiring to workers who "gained their skills through community college, the military, partial college, certification programs, and, most commonly, on-the-job training."

As an economist with a deep focus on how health issues affect income and how income disruptions affect health, Case believes that "capitalism needs to be put back on the rails," particularly when it comes to access and affordability of health care.

Case's journey from a young woman growing up in a region grappling with deindustrialization to a leading health and labor economist has been driven by profound compassion for those left behind by economic change. "I've been really moved by the number of people who have written to me personally," she said. "They would tell stories about what has happened to them or to their sister or brother or father."

Her work serves as a reminder of the importance of using economic analysis to improve the human condition, and it has ignited a national discussion about the challenges facing working-class Americans. Case's work isn't a "narrow empirical exercise," said Besley, it's "a piece of social science that joins everything together." Ultimately it offers a stark and sobering assessment of the current state of US capitalism and the policies and investments that are needed to create a more equitable environment for workers, strengthen safety nets for those falling behind, and address the opioid epidemic. F&D

GARY SEIDMAN *is a Seattle-based journalist who has written for the* Economist, *the* New York Times, *Reuters, CNN, and MSNBC.*

Café Economics

Humankind's Comparative Advantage

Humans have dominated the planet by telling stories; **Yuval Noah Harari** says we may soon no longer hold the pen

Unlike the fictional Homo economicus, the hyperrational model used to explain our financial choices, the decisions of Homo sapiens have always been highly influenced by social settings and the emotional drives prompted by stories.

A seeker at an early age, Yuval Noah Harari has written about human evolution as a philosopher and historian. *Sapiens: A Brief History of Humankind*, published in 2014, became an international phenomenon and is available in nearly 40 languages worldwide. His latest book, *Nexus: A Brief History of Information Networks from the Stone Age to AI*, looks at the evolution of human communication networks and how artificial intelligence could ultimately beat us at our own game.

Harari is currently a lecturer in history at the Hebrew University of Jerusalem and a distinguished research fellow at Cambridge University's Centre for the Study of Existential Risk. He spoke to F&D's Bruce Edwards about storytelling, trust, and AI.

With the rise of AI, the stories that sustain human societies are generated by a nonhuman intelligence, Harari tells F&D.

F&D: One of the basic principles you build your history of sapiens on is our unique ability to imagine the future. How has our storytelling allowed us to prevail over other species evolving alongside us?

YNH: Our power is cooperation. Chimpanzees, for instance, can cooperate only in very small numbers, but Homo sapiens can cooperate in unlimited numbers. You have 8 billion people in the world today who—despite many differences and many conflicts—are almost all part of the same trade networks. The food we eat, the clothes we wear, the energy we consume—it often comes from the other side of the world, from people we've never met. These large networks of cooperation are our superpower and are based on trust. So how do you build trust between strangers? The answer is "stories."

We build trust by inventing stories that many people believe. It's easiest to understand in the case of religions, where millions of people can cooperate on charitable enterprises, like building hospitals, or on waging holy wars, because millions of strangers believe in the same mythology. But it's also true in the case of the economy and the financial system, because the most successful story ever told is the story of money. It's basically the only story that everybody believes.

F&D: And yet you've described money as being nothing more than a cultural artifact.

YNH: Yes. Money is a story, a fiction—it has no objective value. You can't eat or drink currencies like banknotes and coins. However, you can go to a stranger and hand them a worthless piece of paper in exchange for some bread that you can eat. It's all based on everybody believing the same stories about money, and when people stop believing in the

Illustration by Sonia Pulido

story, everything collapses. We've seen examples of this throughout history, and we also see it today with the rise of new types of currencies. What are Bitcoin, Ethereum, and all these cryptocurrencies? They're stories. Their value depends on the stories that people tell and believe about them. And you see the rise and fall of people's trust in the story in the rise and fall of the value of Bitcoin.

F&D: In your latest book, *Nexus,* you say we're moving away from the money economy to one based on the exchange of information rather than currencies. What does the information economy look like?
YNH: To start with an example, one of the most important corporations in my life is Google. I use it every day, throughout the day. But you would never know from my bank account, because no money is changing hands. I don't pay Google anything in money, and Google doesn't give me money. I get information from Google.

F&D: And Google gets information from you.
YNH: Exactly. Google gets a lot of information from me about my likes, dislikes, opinions—whatever—and then uses this information. More and more transactions in the world follow this format of information in exchange for information and not something in exchange for money. And power, wealth, the meaning of wealth shift from having a lot of dollars to having a lot of petabytes of information. What happens if the most powerful people and corporations are wealthy in the sense that they have huge stores of information that they don't even bother to monetize, to exchange for money, because they can get anything they want in exchange for information? Why do we need money? If you can buy services and goods with information, then you don't need money.

F&D: So *Nexus* builds on this idea that our power structures and belief systems have emerged throughout human evolution from stories and puts it in the context of today's technology. What does the book tell us about the perils of these increasingly sophisticated information networks?
YNH: The first, almost philosophical, message is that information isn't truth. Most information is fiction, fantasy, and delusion. The truth is costly; you need to do research, you need to gather evidence; you need to invest time, effort, money in producing the truth. And the truth is often painful, so the truth is a very small subset of information.

Another message is that we're in the process of unleashing on the world the most powerful technology we've ever created: AI. AI is fundamentally different from printing presses, atom bombs—from everything we've invented so far. It's the first technology in history that can make decisions and create new ideas by itself. An atom bomb could not decide who to bomb; AI can. AI can make financial decisions and invent new financial devices by itself, and the AI that we're familiar with today, in 2024, is just the very primitive first step in the AI revolution. We haven't seen anything yet.

And one important thing, especially relevant for the IMF, is that a very small number of countries are leading the AI revolution. Most countries are very far behind and, if we're not careful, this will be a repeat of the Industrial Revolution, on steroids. In the 19th century a few countries—Britain and then the US, Japan, Russia—industrialized first. Most countries did not understand what was happening. What is this thing with steam engines and telegraphs? Yet within a few decades the entire world was either directly conquered or indirectly dominated by those few industrial powers. There are many countries that are only now beginning to recuperate from the damage done as a result of this industrial conquest.

And now we have this tsunami of AI. Think of what the steam engine and the telegraph did to equality in the world, then multiply it by 10, by 100, by 1,000. Then you start to understand the consequences of just a few countries monopolizing the enormous power of AI and all the others left behind to be exploited and dominated in ways we have no precedent in history for.

> "AI is fundamentally different from everything we've invented so far. It's the first technology in history that can make decisions and create new ideas by itself."

F&D: So unchecked AI is dangerous, as you say in your book *Nexus.* But humans, as you also make clear in *Sapiens,* have run roughshod over the planet with impunity, "like gods who don't know what they want." Is there something that economics can offer to soften the impact of these two potentially destructive forces coming together?
YNH: Economics is all about shaping priorities. You have limited resources with

so many different desires and needs, so there is the truth question and the desire question. What are the facts, and what do we want?

When it comes to the desire question, the best system we've come up with is democracy, where you ask people what they want. And the desires of somebody with a PhD in economics or a Nobel Prize are no more important than the desires of somebody who did not finish high school. The aim of the democratic system is to give equal weight to everyone's desires. Then you have the question of truth: what are the facts? Democracy is not an ideal system for deciding that. If you want, for instance, to know whether the earth's climate really is heating up, and whether this is a consequence of human action or of some natural cycle of the sun or whatever, this should not be a question for democratic elections. This is a question of truth, not a question of desire.

One thing we've learned about humans over thousands of years is that people often desire the truth to be different from what it is—for personal reasons, for religious reasons, for ideological reasons. If you want to know the facts, you need to build institutions of experts who know how to analyze the evidence, but they should not dictate our desires or tell us what to do. You have experts telling us, yes, climate change is real, these are the causes—then the ball goes to the democratic playground.

F&D: But the democratic decisions people make are based on the stories they hear, so what happens when those stories are no longer told by humans?

YNH: We have an earthquake. Human societies are based on trust; trust is based on information, on communication, and a major change in communication technology destabilizes trust between people. The result is a social and political earthquake. With the rise of AI, we see for the first time that the stories that sustain human societies are generated by a nonhuman intelligence.

These can be religious stories or financial stories: all previous financial devices in history have emerged from the human imagination. But now we will start seeing financial devices invented by AIs. The danger is that AIs could invent financial devices that no human being is capable of understanding, let alone regulating.

AI can do enormously beneficial things for us, but it's an existential danger if it gets out of our control. I think of AI as an acronym—not for artificial intelligence, but for alien intelligence. Not alien in the sense that it's coming from outer space, but in the sense that it's coming from our own laboratories. It's alien in the sense that it makes decisions and invents ideas in a fundamentally different way than human beings. It's an alien type of intelligence. And it's very dangerous to release billions of alien agents into the world without having a way to control them and make sure they use their enormous power for our benefit. F&D

This interview has been edited for length and clarity. Visit www.imf.org/podcasts to hear the full interview.


IMF WEEKEND READ
Sign up now for cutting-edge research and analysis of key economic, finance, development, and policy issues shaping the world.
SIGN UP TODAY!

Book Reviews

Foundation for Human Flourishing

“Our entire world revolves around this strange, invented notion.”

Jeff Kearns

PROFICIENCY WITH THE “INGENIOUS TECHNOLOGY” of money accompanied innovations like writing, math, law, democracy, and philosophy. But does money enable such breakthroughs, or did they guide money’s evolution? This chicken-or-egg question animates David McWilliams’s surprisingly memorable joyride through 5,000 years from early coins to crypto.

Money: A Story of Humanity opens by noting that writing came about only because of money—the oldest name to have survived in written form is, naturally, a debtor. Throughout, McWilliams is an enthusiastic narrator of “one of the most seductive and enduring ideas,” a skillful, conversational storyteller unpacking money’s joys and horrors.

“Our entire world revolves around this strange, invented notion,” writes McWilliams, who puts human history into the sweeping context of “one foundational technology, often overlooked, that underpinned and animated human flourishing.”

People predominate. McWilliams chronicles the rise of money through Nero, Jesus, Johannes Gutenberg, Charles Talleyrand, Alexander Hamilton, and Charles Darwin, whose theory of life leapt from the pages of an economics book by Thomas Malthus. Some are brilliant characters, others scoundrels. Many use money to divide, or worse. Empires use money as warfare. European financial innovations unleash colonialism.

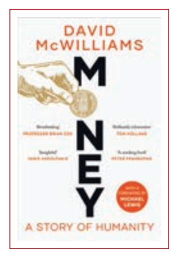
McWilliams makes his sixth book a lively tale. He may be uniquely qualified to do so. He was a monetary economist at the Central Bank of Ireland and forecaster for commercial banks before flourishing as an author, journalist, documentarian, and host of what must be the only economics and comedy festival, Kilkenomics, in Kilkenny, Ireland. He kicked around some of the yarns later used in the book on his eponymous podcast. The self-described chatty writer has said it helps him frame concepts to better resonate for all.

He calls the book “a romp with an economist,” but one disappointed in “his own tribe’s ability to tell the story of money.” He faults the profession for taking the fun out of money, and not always understanding it—plumbers aware of how pipes work but not “why water is essential for life.” McWilliams makes money exciting and shows how it changes us and fuels our deepest urges, good and evil.

McWilliams draws from and builds on authors with like titles, including *Money* by Eric Lonergan and Felix Martin’s *Money: The Unauthorised Biography*. He credits a shelf of histories, including *The Price of Time: The Real Story of Interest* by Edward Chancellor.

Some may wonder why a story of universal human experience so centers on Europe, touching other cradles of money, like China, only in passing. The Dublin-based author cites a need for selective focus on linking innovation in money to human progress. He acknowledges that others elsewhere tell equally valid stories. His chapter on transitioning into the 20th century is even more local, profiling James Joyce as an artist-entrepreneur opening Dublin’s first cinema in 1909. But even this digression somehow weaves the Suez Canal, Karl Marx, and the role of thriving, tolerant, open cities like Trieste into an improbable lesson on Europe’s economic gains—soon undone by war.

Money delivers the romp, establishing how an abstraction binds us and defines us. F&D



MONEY: A Story of Humanity
David McWilliams
Simon & Schuster
London, 2024, 416 pp., £25

JEFF KEARNS *is on the staff of* Finance & Development.

Math, Maps, and Real Life

"The fusion of maps and mathematics opens doors to a deeper understanding of the world."

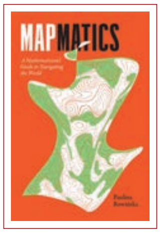
Elizabeth Van Heuvelen

"BEHIND EVERY MAP, THERE'S MATHEMATICS," Paulina Rowińska writes in *Mapmatics*, her engaging exploration of how maps are made and how they inform and influence our view of the world. Clear explanations and historical examples make complex mathematical concepts accessible. As a result, the reader comes to appreciate that maps serve not only as navigational tools but as powerful visual aids that solve real-life problems.

One example is the book's explanation of graph theory's origins and its links to today's seamless logistics systems. We may wonder at first what Leonhard Euler's proof of the famous math puzzle of the Königsberg bridges has to do with everyday life, but we aren't left in the dark for long. To solve the puzzle—Is it possible to walk through the city (now Kaliningrad, Russia) by crossing each of its seven bridges only once, starting and ending at the same point?—Euler developed a method of representing relationships between objects in graphic form. Turning maps into graphs, it turns out, meant that questions about routes could be converted into a language computers can comprehend, unlocking answers to questions that were beyond human computational abilities.

It's not hard to imagine the contributions this thinking has made to the functioning of an interconnected world. More than two centuries after Euler considered the Königsberg bridges, UPS engineers and mathematicians used this same thinking as the basis for an algorithm to optimize delivery routes, saving the US company hundreds of millions of dollars a year through improved efficiency.

Similarly, Rowińska gives a crash course on fractals and the very practical reasons we ignore them at our own peril. She introduces us to "the coastline paradox" in which, counterintuitively, a coastline's length increases when measured in smaller units. It's easy to underestimate how important this is. Yet Rowińska shows how repeated failures to grasp this concept—or even acknowledge its existence—have tripped up policymakers by causing disagreement about what might be considered an indisputable fact: the length of a coastline.



MAPMATICS: A Mathematician's Guide to Navigating the World

Paulina Rowińska

Harvard University Press

Cambridge, MA, 2024, 284 pp., $29.95

Coastline length is foundational to such things as the law of the sea, international borders, fishing rights, and determining funding for coastal areas. The coastline paradox will always exist, but establishing a uniform "length of measure" would do much to prevent misunderstandings and disputes that arise from differing measurements.

Rowińska delves into many other practical applications of maps and math, including gerrymandering of electoral districts, tracking disease outbreaks, and measuring seismic activity. What comes across clearly from the author—a mathematician with a PhD from Imperial College London and a science communicator—is that the fusion of maps and mathematics opens doors to a deeper understanding of the world. With or without a background in math, the reader comes away from this book with a greater appreciation for the power of math and maps as an enduring problem-solving tool. F&D

ELIZABETH VAN HEUVELEN *is a senior economist in the IMF's Strategy, Policy, and Review Department.*

Tomorrow's Electricity

"It is the broad adoption of technology across the economy that drives growth, not leading industries."

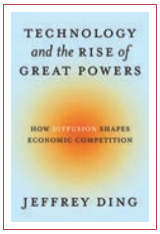
Chris Wellisz

In the 1980s, the US policy establishment was gripped by fear that Japan would overtake the United States as the world's preeminent economic power through its dominance in pioneer industries, such as consumer electronics and semiconductors. Today, China and the United States are racing to gain mastery over artificial intelligence, which has been compared to electricity as a general-purpose technology (GPT) that could spawn the next economic superpower.

In his new book, *Technology and the Rise of Great Powers*, George Washington University political scientist Jeffrey Ding argues that competition to get a lock on the next big thing is based on a widely accepted—but misplaced—theory of past industrial revolutions. Popularized by influential historians such as Paul Kennedy, author of *The Rise and Fall of the Great Powers*, the so-called leading sectors theory holds that the country that is first to adopt a disruptive technology in key industries will rise to global economic dominance. In the First Industrial Revolution, Britain overtook its rivals after breakthrough inventions transformed the textile and iron industries. Similarly, this view attributes the US rise in the early 20th century to its commanding position in chemicals, steel, and motor vehicles.

Ding reexamines the historical record to dispute the leading sectors theory. Its proponents, he contends, fail to explain precisely how innovation fuels long-term economic growth. In Britain's case, cotton production surged after the adoption of the spinning jenny and the water frame, but the textile industry accounted for only a small portion of subsequent increases in productivity, industrial production, and per capita GDP. And Ding points to Japan's economic stagnation in the 1990s to argue that the technological pacesetter doesn't always win the race.

Rather, countries rise to dominance only after innovations percolate through a broad range of sectors over a period of decades, not years. In Britain, according to Ding's GPT diffusion theory, it was not the iron or cotton textile industries that fueled the Industrial Revolution but the widespread mechanization of industry and the adoption of the factory system. In the United States, the invention of the electrical generator in 1871 didn't bring widespread electrification of industry until decades later.



TECHNOLOGY AND THE RISE OF GREAT POWERS
How Diffusion Shapes Economic Competition

Jeffrey Ding

Princeton University Press

Princeton, NJ, 2024, 320 pp., $29.95

It is the broad adoption of technology across the economy that drives growth, not leading industries, Ding argues. He attributes US and British success to "GPT infrastructure"—a system of education and training that cultivates deep pools of engineering skills. In the 1980s, Japan failed to capitalize on its status as technological front-runner because it was slow to adopt widespread computerization.

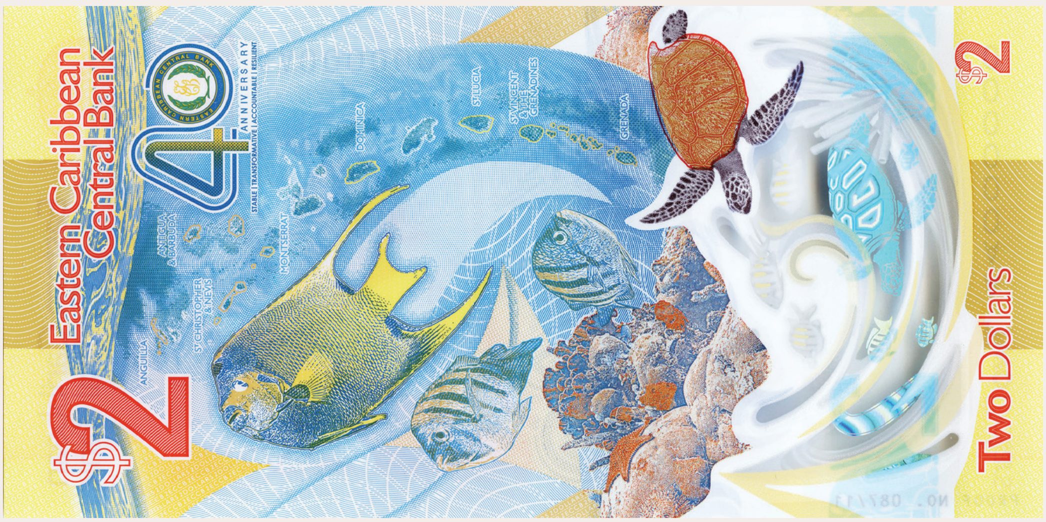
Today, policymakers in both China and the United States may be misreading the lessons of the past, Ding argues. Neither country can gain a monopoly on artificial intelligence; both focus too much on investments in research and development. They would do better, he suggests, to offer technology training to less-skilled workers who can embed the next GPT throughout the economy. "GPT infrastructure, not the flashy efforts to secure the high ground in innovation, will decide which nation owns the future." **F&D**

CHRIS WELLISZ *manages communications for the World Bank's trade team.*

From Corals to Cricket

Salsa Mazlan

The East Caribbean $2 award-winning banknote features fecund reefs and a fearless batsman



The ECCB's colorful new banknote showcases the region's rich marine life.

SEA TURTLES AND BRIGHTLY colored tropical fish circle coral reefs and conch shells while cricketing great Sir Viv Richards pulls a loose delivery away to the boundary. The Eastern Caribbean Central Bank's (ECCB's) striking new $2 banknote is a celebration of the islands' marine life and sporting legends.

The monetary authority wanted something special to mark its 40th anniversary in 2023. So it worked with British company De La Rue, the world's largest commercial printer of banknotes, on a commemorative bill. The design aims to showcase the currency union's exciting future, according to Camillo Gonsalves, Saint Vincent and the Grenadines' finance minister.

It's the ECCB's first note that doesn't feature the British monarch, who remains head of state in all but one of the six nations and two overseas territories that use the East Caribbean dollar.

As well as its eye-catching appearance, the banknote incorporates several innovations to prevent counterfeiting. Security and design features combine to form a single scene showing hawksbill turtles and damselfish in a complex polymer window that spotlights the biodiversity of the archipelago's spectacular reefs.

The East Caribbean note saw off stiff competition from nearly 100 other candidates to claim the International Bank Note Society 2023 Bank Note of the Year prize. Despite impressive offerings from Jamaica, Peru, and South Africa, it was the overwhelming favorite from the start of voting, the society said.

It was also named best commemorative banknote by the International Association of Currency Affairs and received a third award from High Security Printing Latin America.

Antiguan cricketer Richards, one of the world's greatest batsmen and popularly known as the "Master Blaster," was reserved away from the pitch. But he was a formidable force at the batting crease. He helped the West Indies to victory against Australia in the 1975 Cricket World Cup and did it again against England four years later.

As captain from 1984 to 1991, he led the West Indies in 50 test matches, the most prestigious form of cricket, and remains the team's only captain who never lost a series. He played his entire 17-year career without a helmet.

Speaking at its launch in Antigua and Barbuda, Timothy Antoine, the ECCB governor, said he hoped the new banknote would inspire people across the region to similar feats of fearlessness. **F&D**

SALSA MAZLAN *is on the staff of* Finance & Development.

COURTESY DE LA RUE

Antigua's legendary cricketer Sir Viv Richards is featured on the ECCB's new $2 banknote.

English: F&D, December 2024

MFIEA2024004