

The Digest

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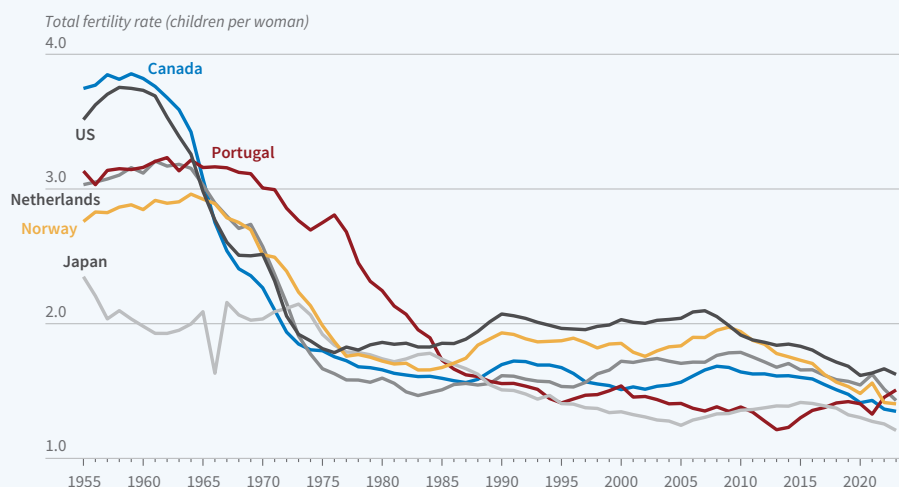
Declining Fertility in Wealthy Nations

Birth rates have fallen to historically low levels across high-income countries, with many nations now well below the 2.1 total fertility rate needed to maintain population size. This demographic shift has raised concerns about workforce shrinkage, economic stagnation, and the sustainability of social insurance programs.

In *Why Is Fertility So Low in High Income Countries?* (NBER Working Paper 33989), researchers [Melissa Schettini Kearney](#) and [Phillip B. Levine](#) document these trends across several countries and explore the reasons for the decline. Using cohort-level data on fertility, they track childbearing patterns across cohorts of women born after 1970 to provide descriptive insight into the nature of recent declines. They document a clear pattern of rising childlessness; in all countries studied, the share of women remaining childless by age 30 has increased to close to 50 percent or more for the youngest cohorts. The documented patterns suggest that recent cohorts of women in countries including the United States, Canada, Japan, and Norway are likely on track to have higher rates of childlessness and lower completed fertility than women who were born in the 1970s and 1980s.

The researchers review the evidence on potential explanations for the recent decline in fertility and find that traditional economic explanations cannot account for much of it. They report that small financial incentives or incremental family-friendly policies may increase births modestly, but these relationships cannot explain recent trends. The financial and time

Total Fertility Rates in High-Income Countries



Source: Researchers' calculations using data from the United Nations.

Falling birth rates in high-income countries are not well explained by traditional economic models but likely reflect a fundamental reordering of adult priorities shaped by social and cultural forces.

trade-offs between parenthood and career advancement are of fundamental importance to working parents and would-be parents in modern economies, but policies that incrementally affect the ability to combine market work and parenthood have at best a small effect on fertility outcomes. Causal studies find that at a micro level, increases in income lead to increases in fertility, but this relationship also cannot explain the widespread decline in fertility in high-income countries in recent decades.

The researchers conclude that a broader perspective is needed to capture the complexity of the modern

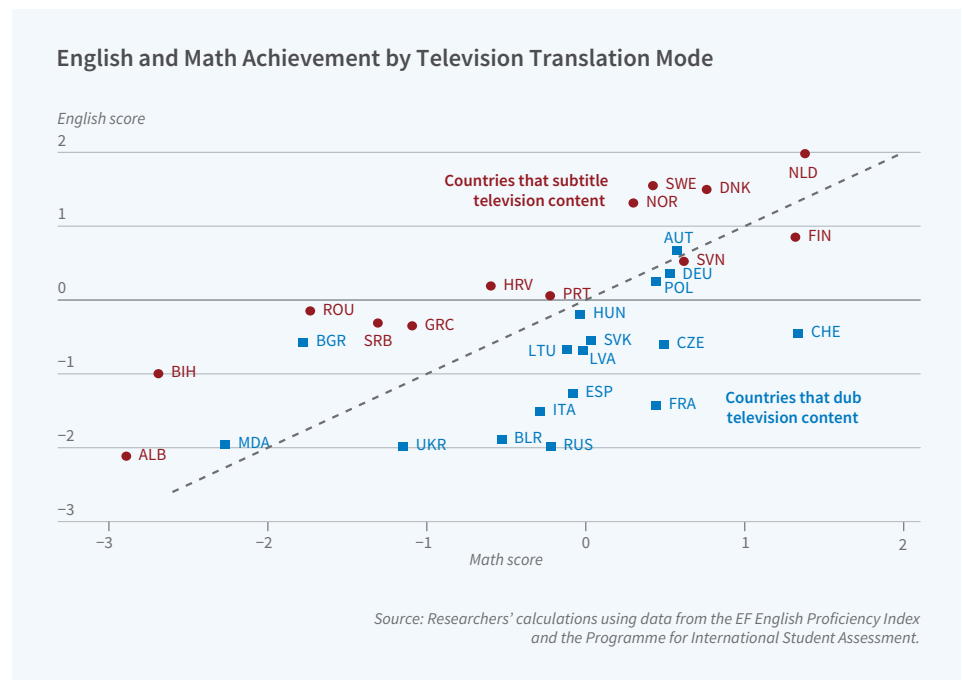
fertility landscape. They conclude that the recent decline in fertility likely reflects “shifting priorities”—or a reordering of adult priorities where parenthood plays a diminished role in life planning—and that these shifts are likely shaped by broad cultural, normative, and structural shifts, such as the increased intensity of parenting, peer effects, media influences, and declining religious observance. The researchers emphasize the need for consideration of and additional research into the role of factors other than opportunity costs, prices, and income that are typically the focus of economics studies of fertility determination.

Movie Subtitles and English Language Acquisition

Most discussions of foreign-language acquisition, particularly English, focus on classroom instruction. But schools are not the only source of English-language skill development. Western entertainment media, primarily movies and TV shows, are disproportionately produced in English. Consuming these products provides another avenue for developing English skills, especially considering that in many developed countries, time spent watching TV is equivalent to time spent in school. In [Out-of-School Learning: Subtitling vs. Dubbing and the Acquisition of Foreign-Language Skills](#) (NBER Working Paper 33984), [Frauke Baumeister](#), [Eric A. Hanushek](#), and [Ludger Woessmann](#) estimate the effect of subtitling versus dubbing on English-language acquisition from cross-country differences. They find a large positive effect of subtitling on skill development.

Countries' choices of whether to subtitle or dub are historical, generally made soon after sound films emerged in the 1920s. Subtitling exposes viewers to the English voice track, while dubbing does not. The sample is evenly divided between countries where subtitling is common, such as the Nordic countries and the Netherlands, and those where dubbing is common. The latter group includes France, Germany, Italy, and Spain.

Under the assumption that math skills are not affected by TV translation mode, cross-country differences provide a measuring stick against which to benchmark whether subtitling affects language skills. To test the impact of subtitling on language outcomes, the authors use three different measures of English proficiency: the EF English Proficiency Index (EF



Countries that use subtitling rather than dubbing for foreign TV content demonstrate significantly higher English proficiency.

EPI), the world's largest ranking of countries by adult English skills; the Test of English as a Foreign Language (TOEFL), a standardized test that is widely used for college applications; and the Adult Education Survey (AES), which draws on representative samples, but proficiency is self-rated rather than test-elicited. The counterfactual math achievement score comes from the Programme for International Student Assessment (PISA), a standardized test of representative samples of 15-year-olds.

There is a strong positive effect of subtitling on the population's English proficiency. The effects exceed 1 standard deviation in most specifications. The baseline estimate of the subtitling effect on EF EPI scores is 1.4 standard deviations. Average estimates for the representative AES are similar,

which suggests that the results are not driven by selective test taking. In the AES, the effect of subtitling is about 1.5 standard deviations in the youngest group (aged 16–34) but also exceeds 1.2 standard deviations for those between ages 35 and 44. For the TOEFL test, the effects are smaller on average but consistent. The effect on TOEFL scores differs by domain, reaching 1.2 standard deviations in speaking but not reading—in line with oral learning from subtitled TV.

These estimates are best interpreted as long-run effects that capture not only impacts of individual TV viewing but also intergenerational effects running through improved English skills of parents and teachers. This analysis shows the powerful impact of non-school factors on learning.

—Lauri Scherer

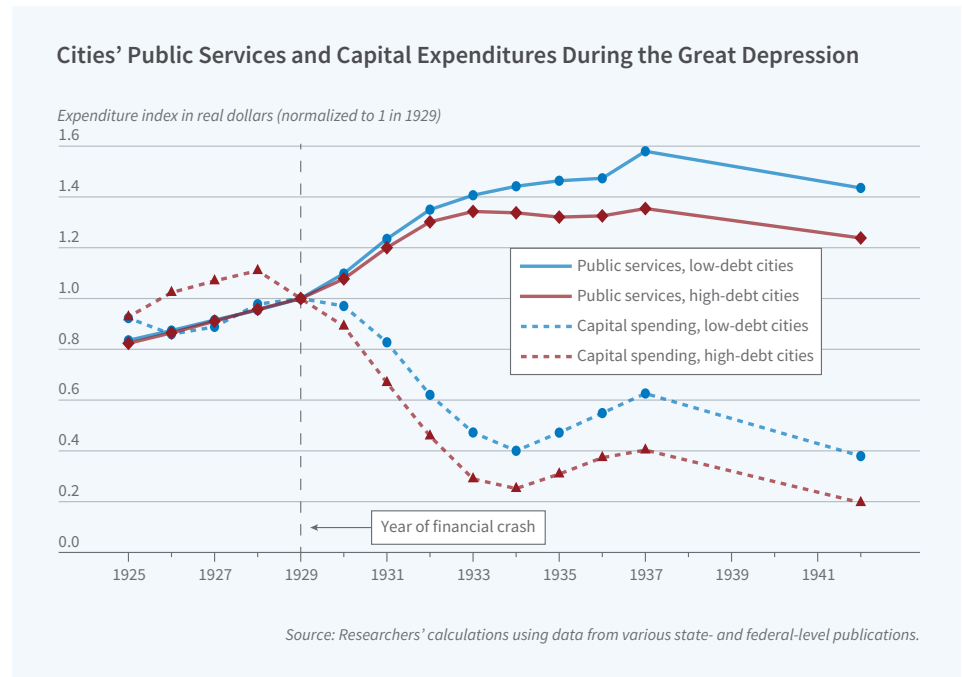
Municipal Debt and Public Services During the Great Depression

The value of the US municipal bond market in early 2025 was \$4.2 trillion. This substantial debt burden exposes local governments to significant financial risks during downturns. While in recent decades US cities have often received federal assistance during recessions—like the \$350 billion Coronavirus Local Fiscal Recovery Fund during the COVID-19 pandemic—such support mechanisms are relatively recent innovations in American fiscal federalism.

In [Public Goods Under Financial Distress](#) (NBER Working Paper 34011), [Pawel Janas](#) examines how municipal debt affected local public services during the Great Depression. This historical setting offers two key advantages for analysis: local governments were the primary providers of public services with minimal higher-level fiscal support, and they sustained severe financial shocks without subsequent aid from the intergovernmental transfers that characterize modern fiscal arrangements.

To investigate these relationships, the researcher constructs a comprehensive dataset covering over 700 US cities between 1924 and 1943. The data include annual financial transactions, outstanding municipal debt, crime statistics, mortality records, and linked census information on local government workers. This allows for analysis of specific city-level spending programs and their impacts on urban communities.

The research identifies financial leverage—particularly the need to refinance existing debt—as a key constraint on public services during the crisis. Cities with higher pre-



Cities with more debt maturing, which were highly exposed to the financial market turmoil of the Great Depression, made larger cuts in public spending.

Depression debt levels made significantly deeper cuts to expenditures during the downturn. Municipalities in the 75th percentile of leverage reduced service expenditures by 3 to 7 percentage points more and capital investments by 15 percentage points more than cities in the 25th percentile during 1929–38.

Cities with more debt maturing during the Depression years faced acute financial pressure regardless of local conditions. They made deeper cuts to both capital projects and ongoing services than cities with more favorable maturity schedules. The effect was especially large in counties experiencing banking panics, suggesting financial intermediation costs were substantial. In contrast, there is limited support for alternative explanations of spending cuts, such as cities

that had recently spent heavily on infrastructure not needing to invest more. Outstanding debt was predictive of spending cutbacks for these cities, too.

A 1 standard deviation increase in debt maturing during the Depression was associated with a 0.9 percentage point reduction in population growth between 1930 and 1940, widening to 2.7 percentage points by 1950. High-debt cities also experienced 107 more property crimes per 100,000 residents in 1933 than other cities—approximately 4 percent above the 1930 baseline—and saw a higher exit rate from public sector employment. Exiting workers generally moved down the occupational ladder, and financial leverage shaped who left—more educated, higher-skilled workers were less likely to remain in high-debt cities.

This research has been supported by the Kellogg Dean's Office Research Grant, the Arthur H. Cole Dissertation Fellowship from the Economic History Association, and the Linde Institute at Caltech.

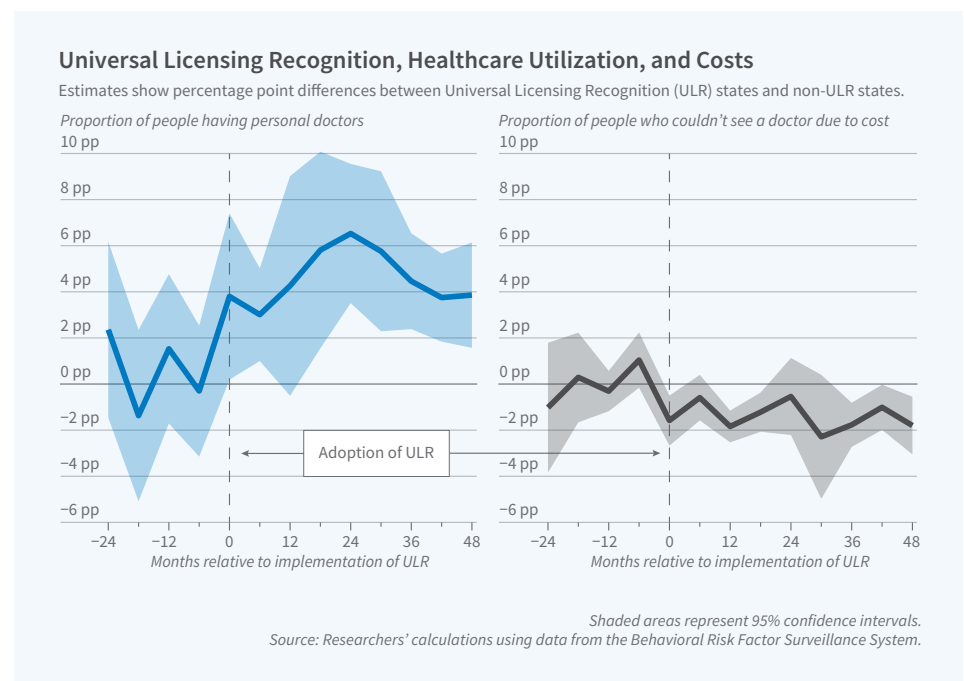
Universal Occupational Licensing Recognition and Healthcare Access

Healthcare shortages in some regions of the United States have prompted policymakers to seek ways to redistribute physicians. Reducing regulatory barriers limiting interstate practice has been highlighted as one way to improve regional healthcare access and patient outcomes.

In [Does Universal Occupational Licensing Recognition Improve Patient Access? Evidence from Healthcare Utilization](#) (NBER Working Paper 34030), researchers [Yun taek Oh](#) and [Morris M. Kleiner](#) examine whether Universal Licensing Recognition (ULR)—a policy that allows out-of-state physicians to practice without relicensing—affects healthcare utilization.

The researchers distinguish ULR from the Interstate Medical Licensure Compact (IMLC), which only facilitates license portability between participating states. ULR is more comprehensive. Because it recognizes licenses from any US state, it potentially expands the pool of available physicians. While the IMLC covers about 80 percent of US physicians, ULR could enable the remaining 20 percent to practice across state lines without lengthy relicensing processes.

Using data from the Behavioral Risk Factor Surveillance System from 2018 to 2023, the researchers measure how healthcare utilization changed after states adopted ULR. They supplement this with data from IPUMS USA, IPUMS CPS, and the Centers for Medicare & Medicaid Services to examine changes in physician mobility and practice patterns.



Universal occupational licensing recognition allows physicians from any state to practice without relicensing, increasing patient access to personal doctors and reducing cost barriers.

The proportion of individuals with personal doctors or healthcare providers significantly increased in states that adopted ULR. This effect was particularly pronounced among older individuals (ages 45–64) and seniors (ages 65–79), populations with higher healthcare needs. There was also a significant reduction in the proportion of individuals who reported not seeing a doctor due to cost constraints.

The researchers did not find any significant increase in interstate migration of physicians following ULR adoption. Instead, expanded healthcare access came through increased use of out-of-state practices—physicians practicing across state lines without relocating, including temporary and telehealth physicians. Interestingly,

states that adopted ULR but imposed residency requirements showed no significant rise in healthcare utilization, suggesting that such requirements effectively nullified the effects of license recognition.

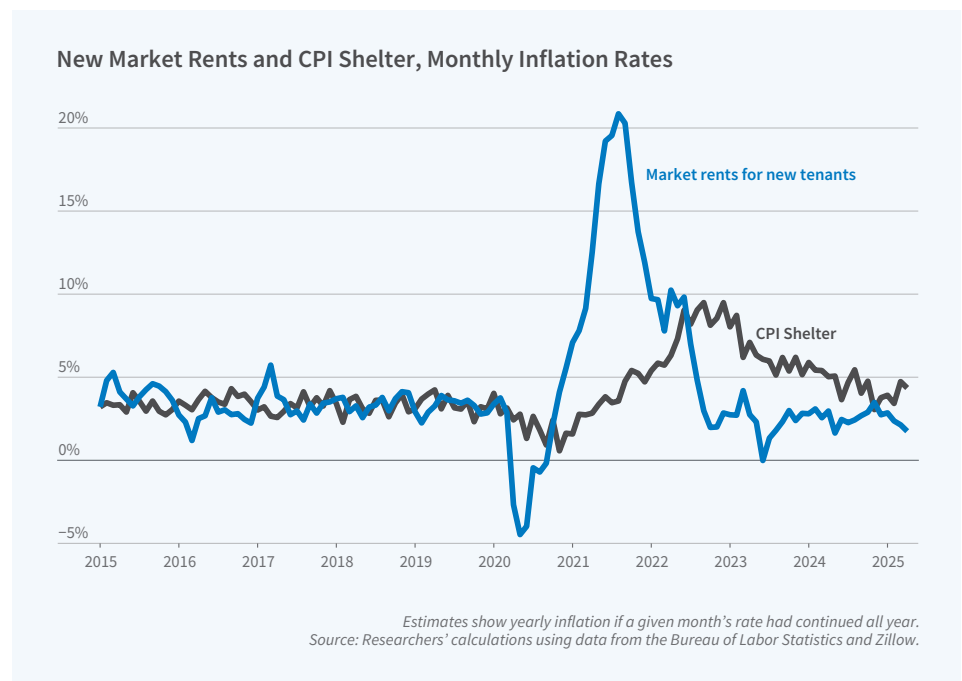
The researchers find that the observed expansions in healthcare access were specifically attributable to universal reciprocity of physician licenses rather than other factors related to ULR adoption. The effects remained consistent even when controlling for Medicaid expansion and other potentially confounding factors. The findings suggest that ULR can affect the regional distribution of physicians and increase healthcare access without requiring physical relocation of the workforce.

Understanding the Lag Between CPI Shelter Inflation and Market Rents

Housing costs represent about 35 percent of the Consumer Price Index (CPI), making shelter inflation a critical factor in overall inflation dynamics. The relationship between market rents—what new tenants pay when moving into a dwelling—and CPI shelter inflation has become particularly important as housing costs have significantly influenced inflation trends in recent years.

In [Market Rents and CPI Shelter Inflation](#) (NBER Working Paper 34113), researchers [Laurence M. Ball](#) and [Kyung Woong Koh](#) investigate why CPI shelter inflation responds with substantial lags to changes in market rents. They find three specific reasons. First, about 60 percent of rental dwellings are covered by 12-month leases, meaning rents cannot adjust to market changes until lease renewal. Second, when leases are renewed, landlords typically smooth rent increases for continuing tenants rather than immediately adjust to current market rates. Third, the two largest components of the CPI shelter index, Rent of Primary Residence, which accounts for 21.1 percent of the index, and Owners' Equivalent Rent, which accounts for 74.1 percent, are derived by comparing rents in a given month to rents six months earlier. This creates an additional lag in measured inflation.

The researchers use monthly data from 2015 to 2025 to develop a model that predicts CPI shelter inflation based on market rent movements. They employ the Zillow Observed Rent Index (ZORI) as their measure of market rents and



Landlords' significant smoothing of rent increases for continuing tenants is a key factor in the CPI shelter index's slow response to market rent changes.

adjust for differences between ZORI properties and CPI-measured properties.

They use a variety of data sources to estimate three key parameters that affect measured CPI inflation. One is the fraction of tenants who have month-to-month rentals, which they find to be about 35 percent. A second is the tenant mobility rate, which they find to be 1.8 percent per month. The third parameter is the fraction of the change in market rent since a lease was extended that landlords pass through to continuing tenants when they renew their lease. This parameter is estimated by selecting the value that delivers the best fit between their model of CPI inflation

and the time series reported by the Bureau of Labor Statistics. The researchers estimate this parameter to be 21 percent, which implies that if market rents have risen by 10 percent since the tenant's previous lease began, on average, landlords only raise the rent by 2.1 percent.

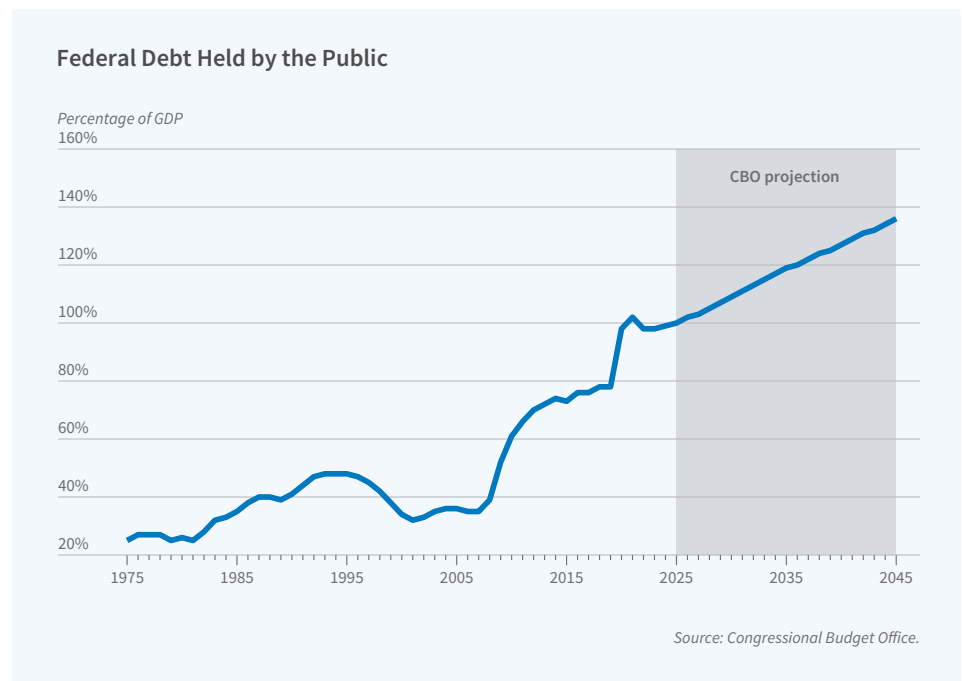
The researchers' model sheds light on the lagged responses of CPI shelter inflation to market rent movements, particularly during the period in 2021 when rents rose sharply and the subsequent period when they fell. It suggests that rent smoothing for continuing tenants is essential for explaining the observed data patterns.

Revisiting the Relationship Between Interest Rates and Government Borrowing

The relationship between interest rates and federal borrowing is central to assessing the economic consequences of fiscal policy. It determines the impact of budget deficits on investment and is critical for projecting future debt service costs. In [Revisiting the Interest Rate Effects of Federal Debt](#) (NBER Working Paper 34018), researchers [Michael Plante](#), [Alexander W. Richter](#), and [Sarah Zubairy](#) present new estimates of this relationship.

The researchers examine data for the period 1976:Q1 through 2025:Q1. They relate the five-year-ahead five-year Treasury rate, a measure of an expected long-term nominal interest rate, to the Congressional Budget Office's (CBO's) forecast of the US debt-to-GDP ratio in five years. The rationale for using the five-year-ahead Treasury rate is that it is less sensitive to business cycle fluctuations than the current debt-to-GDP value.

One of the key observations of the authors is that the close relationship between expected interest rates and expected inflation broke down in the early 2000s. They also observe that while the debt-to-GDP ratio moved within a relatively narrow band and satisfied a statistical property known as stationarity in the early part of the data sample, this was not the case for the more recent period. The breakdown of stationarity coincides with a period of generally rising debt-to-GDP ratios, reaching close to 100 percent today. In response to these findings, the researchers



A 1 percentage point increase in the US debt-to-GDP ratio raises the five-year-ahead five-year Treasury rate by about 3 basis points.

diverge from past practice, which typically estimated how the level of the nominal interest rate moved with the level of the debt-to-GDP ratio. Instead, they relate changes in expected nominal interest rates to changes in the CBO's debt-to-GDP projections.

The new estimates suggest that a 1 percentage point rise in the debt-to-GDP ratio raises the five-year-ahead, five-year Treasury rate by about 3 basis points. The effect is similar when the interest rate measure is the five-year-ahead 10-year Treasury rate. Long-term interest rates capture both expectations of future short-term real rates and a term premium,

the extra compensation investors demand for holding longer-maturity debt. The estimates indicate that roughly three-quarters of the increase is due to a rise in the term premium, while the remainder is due to a rise in expected future short-term real interest rates.

The researchers note that the CBO currently projects that the US debt-to-GDP ratio will increase by 56 percentage points over the next 30 years. Their estimates imply that, if other factors remain constant, the projected debt increase could raise long-term interest rates by about 170 basis points.

—Laurent Belsie

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