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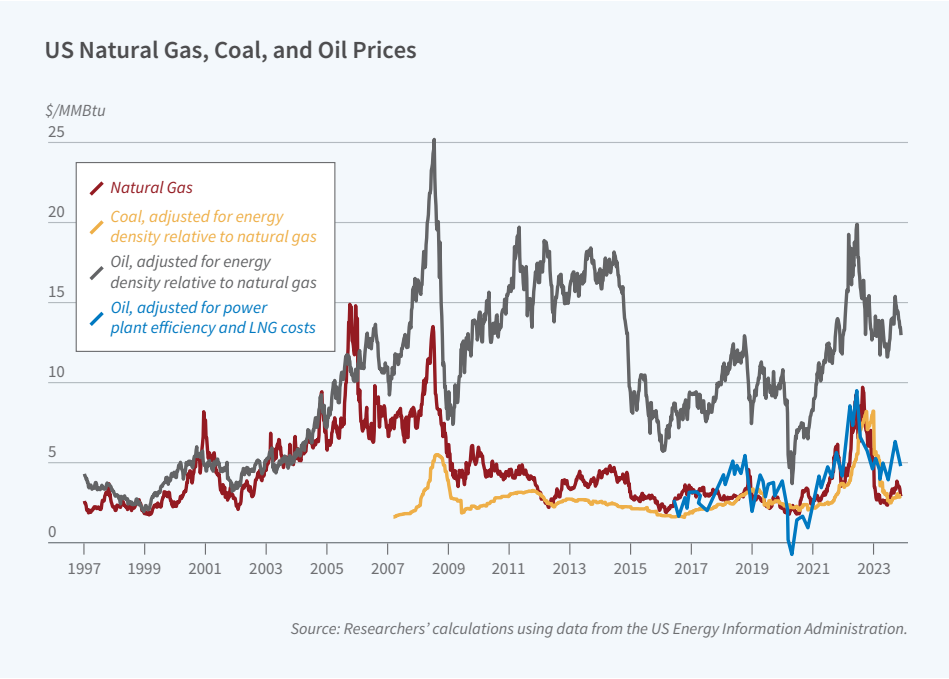
LNG Exports and US Fossil Fuel Use

In less than a decade, the United States has gone from being a net importer of liquified natural gas (LNG) to the world's largest exporter. This change resulted from two developments: the fracking revolution and the construction of a number of LNG export terminals. A decade ago, the US natural gas market was separate from the world market. Because export capacity was limited, rising domestic production due to fracking sharply reduced prices. Today, domestic and global markets are integrated. This has driven up the domestic gas price and put upward pressure on domestic coal prices because coal and gas are substitutes for power generation. Higher prices have reduced domestic demand for both fossil fuels in much the same way a carbon tax would.



Source: Researchers' calculations using data from the US Energy Information Administration.

In The Market and Climate Implications of US LNG Exports (NBER Working Paper 32228), James H. Stock and Matthew Zaragoza-Watkins explain that the US has gone through four distinct stages in its transformation from natural gas importer to exporter. In the first, from the 1990s to around 2006, gas and oil competed to power the steam boiler generators that utilities were bringing on line to replace aging coal-fired plants. This competition helped to align the prices of coal, gas, and oil. The surge in fracked gas, which started in the mid-2000s, initiated a second, transitory stage in which gas prices fell; oil could no longer compete in the electricity-generation business. The correlation between oil and gas prices declined. The third phase began in 2010, when fracked gas flooded the domestic market, and US gas prices became disconnected from both oil and international gas prices. Finally, when the first LNG export facility opened in 2016, the US entered the fourth and current stage. Expanding gas exports mopped up excess supplies, and domestic gas prices re-coupled with oil and international gas prices.

In 2005, the US imported roughly 15 percent of the gas it consumed. By 2017, it was a net exporter and, by 2023, the world's largest exporter. In 2005, coal generated half of the nation's electricity. By 2020, that share was down to 19 percent, largely due to the replacement of coal-fired generation with generation from gas-powered units.

The surge in LNG exports has buoyed domestic gas and coal prices, reducing domestic consumption. The researchers estimate domestic gas prices through 2030 would be approximately 54 percent higher relative to a scenario without the export-driven recoupling to global prices. The effect of that price increase is comparable to that of imposing a $30 per metric ton carbon tax on domestic natural gas combustion. Domestic coal prices would be about 64 percent higher in 2030 under recoupling because of their connection to domestic gas prices. That amounts to about a $20 per metric ton carbon tax in terms of impact on demand.

The researchers point out that the reconnection of US gas and coal prices

to international energy markets has important implications for greenhouse gas emissions. They calculate that by 2030, if gas markets remain integrated and current trends continue, the US power-generation sector will emit 145 million fewer metric tons of CO_2 than it would have absent integration. This is about a one-third reduction in the CO_2 emissions from the power sector, mostly due to the nation switching from fossil fuels to non-fossil alternatives.

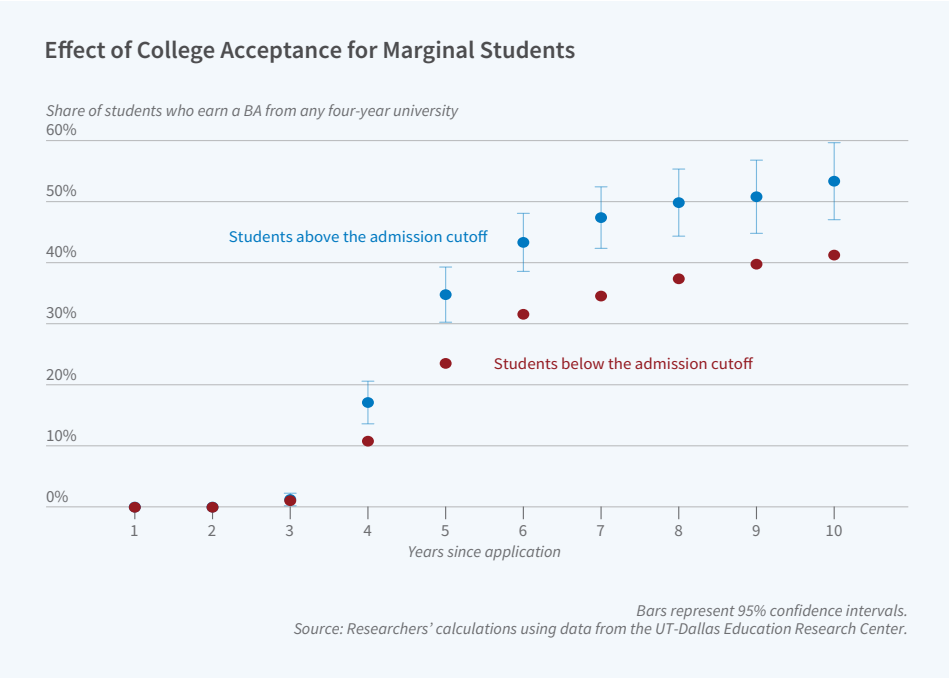
— Laurent Belsie

New Evidence on the Returns to Attending College

Attending a four-year college eventually results in higher earnings, even for "marginal" students whose high school records do not guarantee admission. In Marginal Returns to Public Universities (NBER Working Paper 32296), Jack Mountjoy studies the post-college earnings of students in Texas who are on the margin of being admitted, based on their standardized test scores, to state universities.

This research provides new evidence on the long-standing question of whether college-bound students are inherently distinct from those who do not attend college, which would make it difficult to attribute later-career earnings disparities to college attendance. By looking at students whose SAT or ACT scores were only slightly above an arbitrary cutoff line, Mountjoy argues, he is studying "marginally admitted" students who are not meaningfully different from rejected students with scores just below the cutoff. Indeed, Mountjoy shows that observable measures of students' academic preparation and family background are well-balanced across the cutoff, with only the likelihood of admission jumping discontinuously.

Mountjoy chose to study Texas because of its high-quality administrative data and its large size: Texas public universities enroll 10 percent of all public university students in the US. He analyzed all applicants to these universities between 2004 and 2016 and identified two groups of "marginally admitted" students. Students in one group were admitted to at least one other Texas public university, and thus had another (typically less selective) four-year college option to fall back on if rejected. Students in the second group had no such option and mostly fell back to a two-year community college if rejected; they saw much larger benefits of four-year college admission than students in the first group.



By eight years after high school graduation, students who just barely won admission to a four-year college see an earnings premium and ultimately more than offset their college costs.

The data show that marginally admitted students attend colleges with peers who had better high school test scores, who were less likely to have received free or reduced-price lunch in high school, who have a higher six-year bachelor's degree completion rate, and who have higher post-college earnings. Marginally admitted students themselves become 12 percentage points more likely to earn a bachelor's degree than students whose standardized test scores were just below the admissions cutoff score.

Marginally admitted students attend schools with higher posted tuition costs, but these costs are largely offset by increased grant aid. These students take out about $5,000 more in loans to finance additional consumption costs, such as room and board, relative to their barely rejected counterparts.

In the first four years after high school, marginally admitted students earn less than their peers whose scores were just below the acceptance line, in large part because they are more likely to be enrolled full time in higher education. They do not see an earnings premium in years 5 to 7 after finishing high school, but starting in the eighth year, their average earnings are 5 to 10 percent greater than those of their barely rejected peers. Taxpayers, who subsidize the majority of this additional education, eventually reap a return as well: after 25 years, the increased tax revenue from marginal students' higher earnings surpasses the costs of attending college.

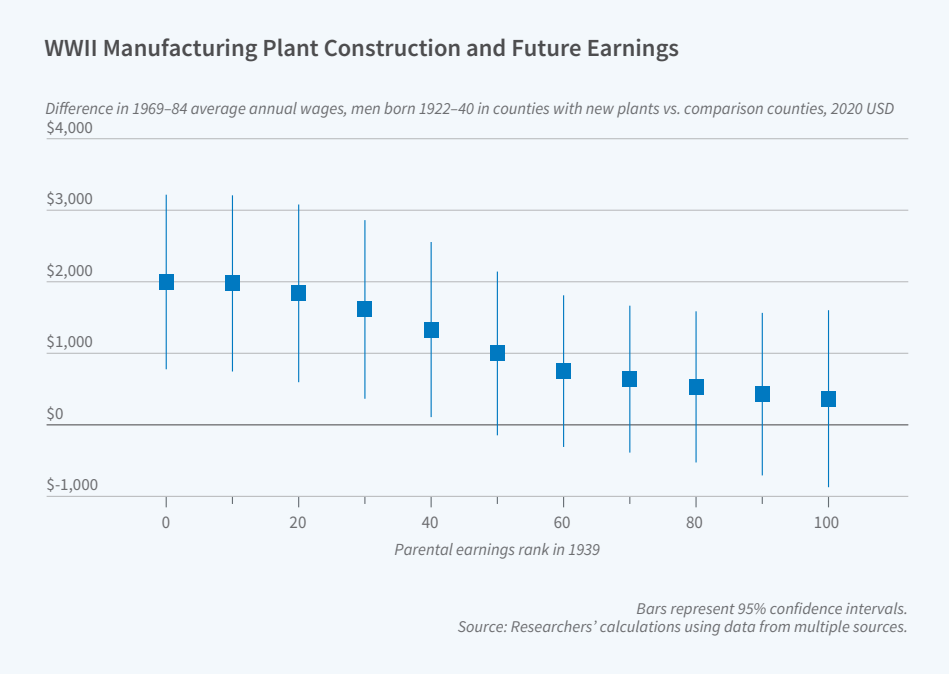
— Greta Gaffin

Public Investment Spurred Regional Economies: Evidence from WWII

There is currently substantial interest in public policies that encourage firms to locate new manufacturing plants in regions with limited opportunities for the economic advancement of their residents. Yet whether such efforts improve economic opportunities for local workers, particularly in the longer term, remains an open question.

In The Long-Run Impacts of Public Industrial Investment on Local Development and Economic Mobility: Evidence from World War II (NBER Working Paper 32265), Andrew Garin and Jonathan L. Rothbaum study the government-led construction of manufacturing plants during World War II outside of prewar manufacturing centers. They investigate whether wartime plant construction led to long-run improvements in local labor markets that in turn benefited the individuals who were living there when the plants were built. They draw on an array of longitudinally linked administrative and survey data sources to identify individuals' prewar birth locations and to study the impact of wartime construction on their earnings and other outcomes as adults, regardless of where they wound up.

The researchers compare counties where plants were built to similarly populated ones and present three central findings. First, wartime plant construction had large and persistent impacts on affected counties' labor markets. In the 40 years after the war, affected counties saw typical family earnings increase by 5–10 percent, reflecting higher average wages and employment shares in manufacturing jobs, particularly semiskilled blue-collar occupations. Second, wartime plant construction substantially increased the long-run earnings of men born in affected counties in the 18 years before the start of the war, increasing their average annual wage earnings on their tax returns between 1969 and 1984 by 2.5 percent relative to those born in other counties. These effects were largest for those from families with lower prewar earnings; there were no effects on those with high-income parents. Third, the effects were larger for Black men, especially those from higher-earning families, than for White men.



Construction of new manufacturing facilities in rural US counties during WWII created a ladder to the middle class, particularly for sons in low-earning families.

Men born in counties where plants were built appear to have benefited primarily from the local expansion of higher-wage jobs to which they had access as adults, rather than as a result of human capital development during childhood. The finding that the earnings impacts were largest for children of parents with low prewar earnings suggests that local manufacturing jobs acted as a ladder to the middle class for economically disadvantaged residents.

The researchers note that while access to higher-wage jobs was a key mechanism benefiting local children after wartime plant construction, more recent plant sitings have not increased local average wages in the manner observed during World War II. In contrast to today, the postwar economy featured high global demand for US manufactured goods, limited international competition, and relatively strong unions, all of which facilitated persistent blue-collar wage gains.

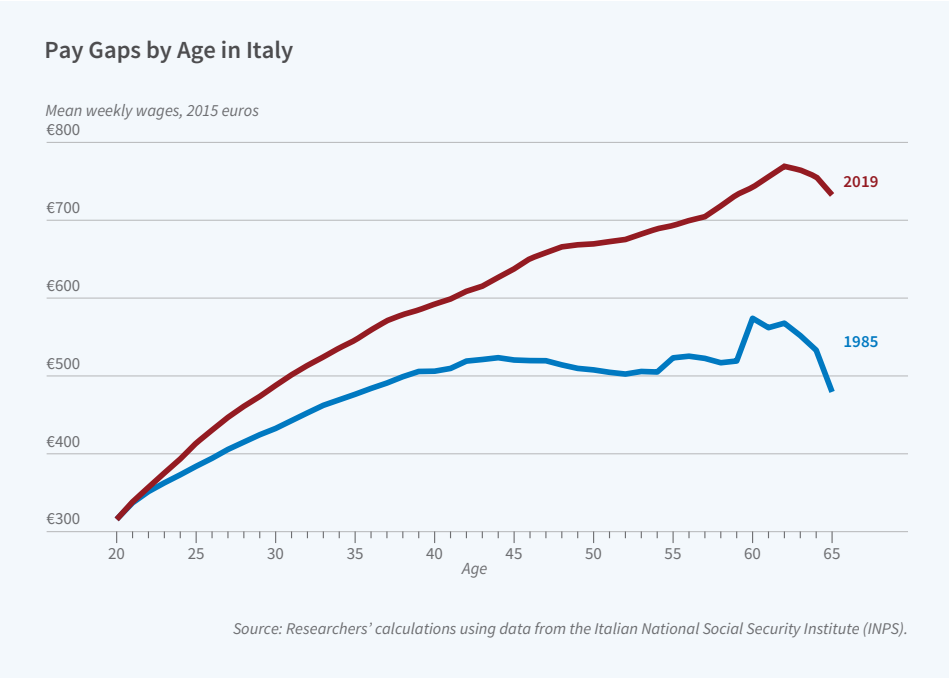
— Lauri Scherer

Pay Trajectories for Younger and Older Workers in Europe

As the workforce in Europe and the US has grown older, the average wages of older workers have risen more rapidly than those of their younger colleagues. This seems inconsistent with a simple supply-and-demand analysis, which would suggest that as the supply of older workers grows, their wages should fall; it raises the question of what other factors could be responsible for the growing age-pay gap.

In Countries for Old Men: An Analysis of the Age-Pay Gap (NBER Working Paper 32340), Nicola Bianchi and Matteo Paradisi analyze administrative data covering 38 million workers at 3.7 million firms in Italy and Germany, along with survey data on an additional 6.6 million workers from 14 high-income countries, to test whether the presence of older workers in a firm has negative career spillover effects on its younger workers.

The researchers document that the wage rate growth of younger workers has slowed, and that these workers have struggled to secure more senior positions. In Italy, the likelihood that workers under 35 are in the top quarter of earners declined by 34 percent between 1985 and 2019, while the probability of being in the top quartile of earners rose for those over 55 by roughly the same amount. During the same period, the share of managerial roles held by workers under 35 fell from 8 to 3 percent, while the share held by workers over 55 rose from 12 to 28 percent.



Source: Researchers' calculations using data from the Italian National Social Security Institute (INPS).

The difference in the rates of wage growth between those under 35 and those over 55 is greater in older, larger firms with slower employment growth.

These divergent trends, rather than changes in the level of wages paid to workers at different ranks, are responsible for most of the growing age-pay gap. Young workers tend to enter the labor market with lower wages than those of older workers, and the typical wage growth experienced by workers during the first few years of their careers has slowed over time.

The age-pay gap has grown more in firms that face constraints on adding higher-ranked positions to their organizational hierarchies: namely older, larger firms with less employment growth. Moreover, the share of firms that fit this description has expanded over time. The pay gap between younger and older workers has expanded more at high-paying than at low-paying firms, while younger workers have also become less likely to secure positions at these firms. Thus, both within-firm and across-firm factors have contributed to the growing pay gap. A rising fraction of older workers work at firms in the top decile of mean pay, and a declining fraction work at firms in the bottom decile.

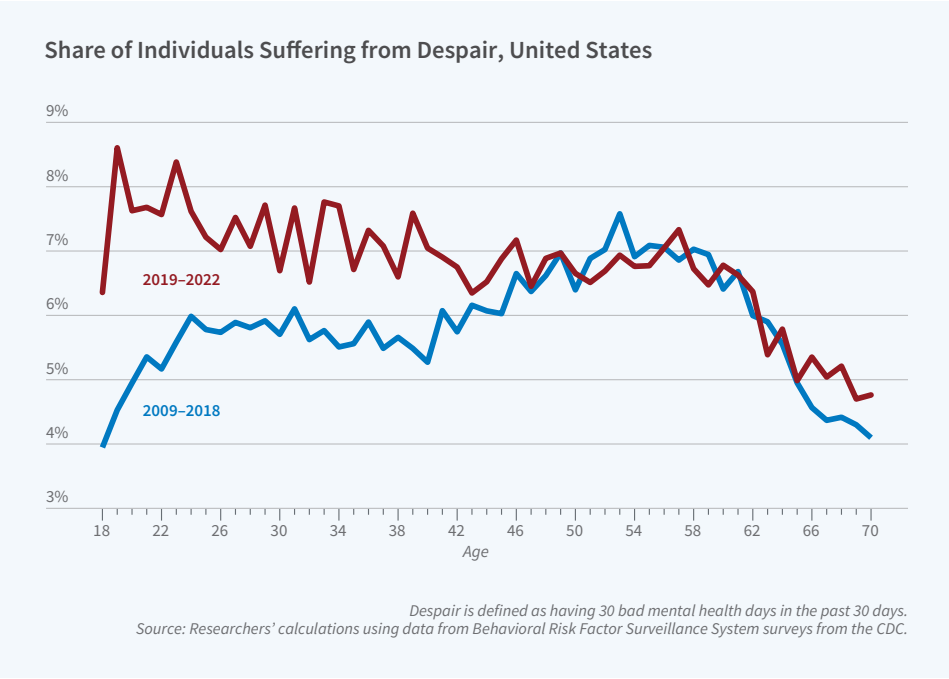
— Abigail Hiller

The Declining Mental Health of Youth

For many years, surveys and other evidence showed that life satisfaction, perceived financial security, sense of worthwhileness, and happiness declined in early adulthood, reached a low point in midlife, and then rose in later life. This U-shaped pattern in wellbeing was mirrored by a hump-shaped pattern for despair, psychiatric admissions, and antidepressant use that peaked in midlife. A new study by David G. Blanchflower, Alex Bryson, and Xiaowei Xu, The Declining Mental Health of the Young and the Global Disappearance of the Hump Shape in Age in Unhappiness (NBER Working Paper 32337), finds that the deterioration of mental health among young people in recent years has altered these historical patterns.

The researchers analyze survey data from the US (1993–2022) and the UK (2009–2021) for individuals aged 18–70. They find that the proportion of individuals in the US who suffered from despair — those who reported 30 bad mental health days in the past 30 days — nearly doubled from 3.7 percent in 1993 to 7 percent in 2023, with the effect concentrated among those aged 18–24. In the UK, rates of despair for young men and women doubled, with young men's despair surpassing that of older age groups in 2019.

The hump-shaped pattern of despair across an individual's lifespan was evident in both the US and the UK from 2009 to 2018. However, this pattern appears to have shifted after 2018, replaced by a decline in despair with age driven by gradually rising despair levels since 2011 among those under 45, particularly those in their mid-20s. The COVID-19 pandemic exacerbated the effects, particularly in the UK where young people experienced worse mental health outcomes due to lockdowns and increased social isolation.



Historically, the incidence of despair peaked in midlife, but recent increases in despair among the young has replaced this pattern with a steady age-related decline.

Expanding their analysis to 34 countries from 2020 to 2023 using data from the Global Mind Project, the researchers find that the hump-shaped pattern of despair has disappeared globally as well. In 2023, 27 percent of individuals were "distressed and struggling" with their mental health. Worldwide, the mental health of young women under 25 is worse than that of young men. The researchers also find that mental health is worse among the less educated, women, the unemployed, and those unable to work.

Potential explanations for the decline in mental wellbeing among young people include the effects of the Great Recession on new cohorts entering the labor market, the underfunding of mental health services, and the impact of smartphones on young people's self-perceptions and social comparisons.

— Leonardo Vasquez

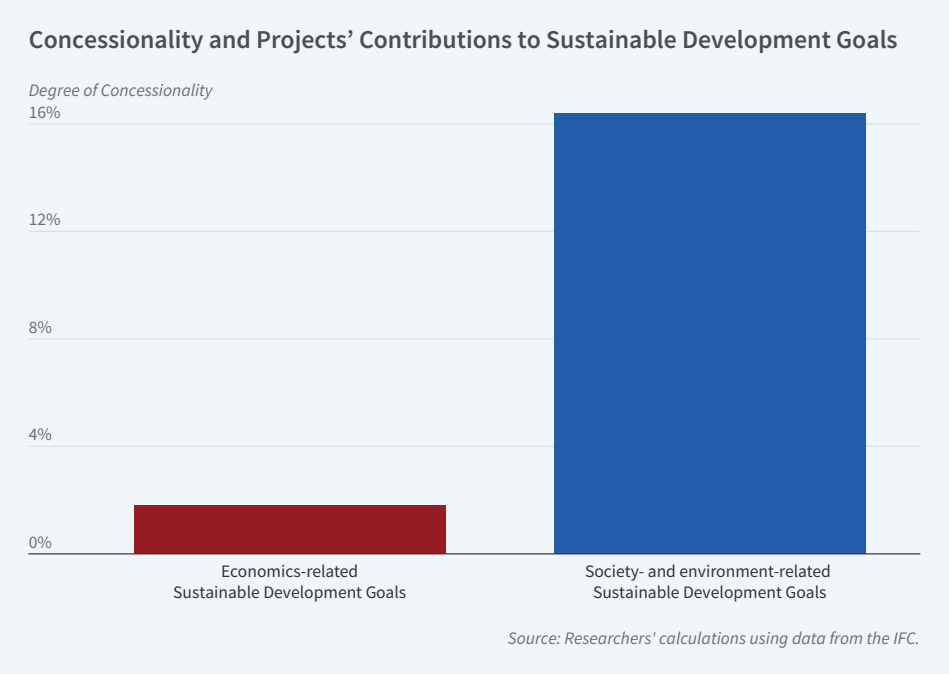
Encouraging Private Capital to Invest in Solving Social Problems

Initiatives to mitigate societal challenges have historically been financed primarily with public and philanthropic resources. In Blended Finance (NBER Working Paper 32287), Caroline Flammer, Thomas Giroux, and Geoffrey Heal examine World Bank initiatives to attract private investors to support projects that create societal value but are perceived to have low prospective profitability or high potential risk of failure. They focus on the International Finance Corporation (IFC), the private-sector branch of the World Bank, which strives to promote sustainable development through its commercial investments.

Public and philanthropic capital absorbs risks and provides subsidies which can take a number of forms, including loans at below-market rates, first-loss guarantees, performance-based incentives, and hedges against currency fluctuations. In one example, the IFC provided 40 percent of the financing at below-market rates for a €100 million project promoting sustainable cocoa farming in Côte d'Ivoire. The remaining funds were provided by other lenders at market rates.

The study analyzes 173 projects supported by the IFC between 2018 and 2023. For each, the IFC calculated the degree of concessionality as the subsidy from the blending (taking into account all blending provisions), expressed as a percentage of the project cost. About half the projects were in Africa, with the remainder in a range of other locations.

The researchers examine the correlation between a project's degree of concessionality and its potential impact on various United Nations Sustainable Development Goals. The average number of sustainable goals advanced by the projects in the data sample was 3.52, of which 2.53 were societal or environmental. These measures of sustainability impact are based on projections, not achievements, because many of the projects were still underway at the time of the study. The researchers find that the degree of concessionality depends primarily on a project's anticipated environmental and societal impact as opposed to the project's economic impact. Moreover, the degree of concessionality is higher when a project is being undertaken in a country with higher political risk and a more opaque business environment. In such settings, the IFC's support is more likely to include risk-management provisions on top of financial incentives.



With 'blended financing,' philanthropic and public funders serve as a catalyst for private investors to take on projects they would otherwise reject as too risky or unprofitable.

Blended finance has the potential to crowd in more private capital. Yet, the researchers also caution that more work is needed to understand the effectiveness and system-level implications of blended finance.

— Steve Maas

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