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INSIDE THIS ISSUE

Are EU Markets More Competitive than Those in the U.S.?

Until the late 1990s, most U.S. markets were viewed as highly competitive relative to their international counterparts. Many European countries implemented U.S.-style free market regulatory models during this time period.

In **How EU Markets Became More Competitive Than U.S. Markets: A Study of Institutional Drift** (NBER Working Paper No. 24700), Germán Gutiérrez and Thomas Philippon argue that over the last two decades, U.S. markets have gradually become less competitive, and that, because this trend was not echoed in Europe, European markets today are actually more competitive than those in the United States. In many cases, the EU markets exhibit lower levels of industry concentration and excess profitability, as well as fewer regulatory barriers to entry.

The researchers find that starting around 2000, gross profit rates in the United States began to increase while the labor share declined. These developments are much more muted in the EU. A similar trend is observed in measures of industry concentration.

The researchers explore whether industry composition drove the divergence in concentration. They consider whether the emergence of high-tech industries drove the broad increase in concentration observed in the United States. They discount that explanation, noting that "the rise in U.S. concentration since 2000 is pervasive across most sectors, just as the stability/decline in EU concentration is." Industries that experienced significant increases in concentration in the United States, such as telecom and airlines, did not experience parallel changes in the EU.

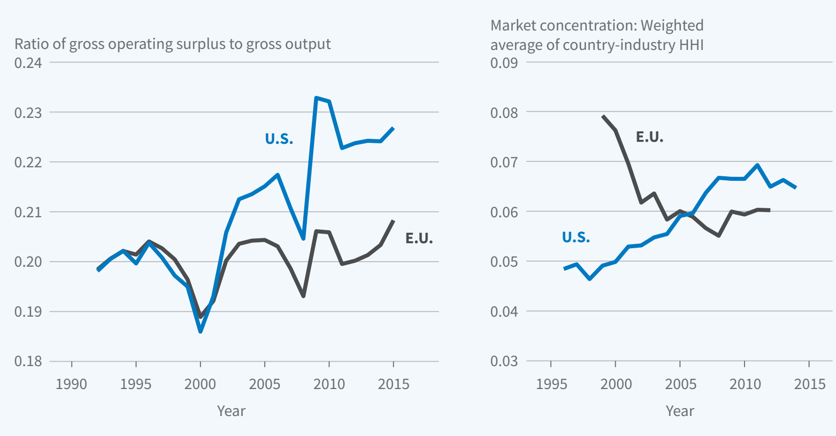
> Since 2000, gross profit rates in the United States have risen and industry concentration has soared, but these trends are not found in the European Union.

In the airline industry, the researchers find, the "rise in U.S. concentration and profits closely aligns with a controversial merger wave that includes Delta-Northwest (2008), United-Continental (2010), Southwest-AirTran (2011) and American-US Airways (2014)."

They suggest that the divergence in market competitiveness between the U.S. and Europe is related to the powers granted to EU regulatory institutions at their inception. They note that both the European Central Bank and the Directorate-General for Competition were given more political independence than parallel institutions in the United States and thus have been able to pursue more aggressive antitrust enforcement in recent years. In the U.S. between 1996 and 2008, they write, the Federal Trade Commission "... essentially stopped enforcing mergers when the number of remaining competitors is 5 or more."

In all areas of antitrust the researchers find decreasing enforcement

Profit and Concentration Levels: United States vs. European Union



HHI is the Herfindahl-Hirschman index, a measure of market concentration
Source: Researchers' calculations using data from the OECD, Compustat, and Bureau van Dijk

in the United States and increasing enforcement in the EU. The Directorate-General for Competition is more likely to pursue "abuse of dominance" cases than is the U.S. authority, and financial penalties in cartel cases tripled as a share of EU GDP between 2000 and 2016.

The decline in U.S. market competitiveness has had meaningful consequences for U.S. consumers, the researchers point out. Broadband internet prices in the U.S., for example, are significantly higher than in the EU, where the telecom industry is less concentrated.

They buttress their case for the comparative lack of political independence of U.S. regulatory bodies by noting the higher levels of both lobbying and campaign contributions in the U.S. than in the EU. Political campaign contributions are 50 times higher in the U.S. than in the EU.

—*Dwyer Gunn*

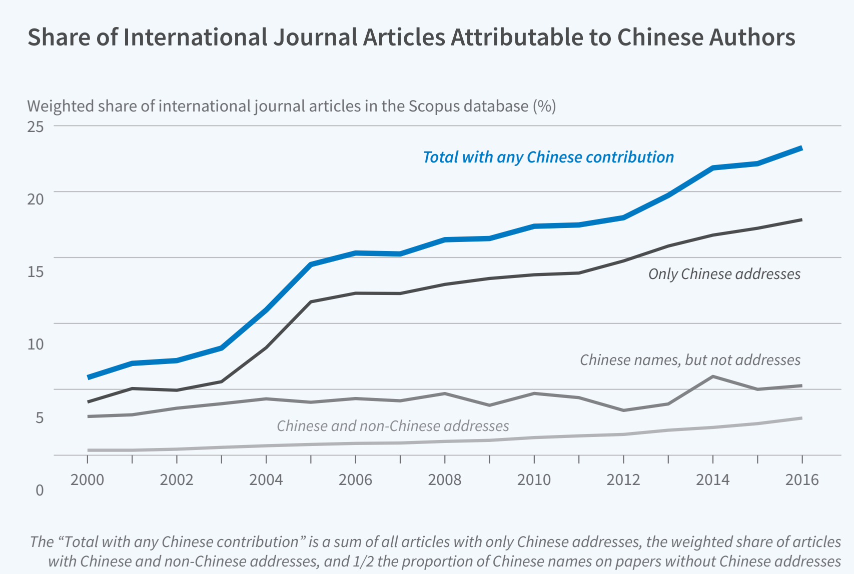
Measuring the Explosive Growth in Chinese Research

Between 2000 and 2016, the number of papers in scientific journals in the physical sciences, engineering, and mathematics by Chinese researchers increased dramatically. In 2000, China's share of papers in Scopus, a bibliometric database, was only 4 percent; by 2016, it was 18.6 percent, higher than the United States' share.

In **Bigger Than You Thought: China's Contribution to Scientific Papers** (NBER Working Paper No. 24829), Qingnan Xie and Richard B. Freeman suggest that this metric likely understates the extent of China's growing influence in the research sphere because it does not encompass papers written by Chinese researchers outside the country and ignores publications in most Chinese-language journals. To assess the full nature of the Chinese research sector's transformation, these researchers construct and analyze several alternate measures of the country's scientific contributions.

The researchers first document a significant increase in papers authored by Chinese researchers. The number of Scopus papers authored exclusively by researchers with Chinese addresses increased from 4.0 to 17.9 percent of all papers between 2000 and 2016; international collaborations (those authored by researchers with both China and non-China addresses) increased from 0.4 percent to 2.8 percent. The percentage of papers authored by researchers with Chinese names living outside the country increased from 2.9 to 5.3 percent. The researchers also found that, during the same time period, the percentage of papers published in Scopus with any association with China increased from 12.4 percent to 34.5 percent.

The number of papers Chinese scholars are publishing in scientific journals today may be four to five times greater than it was in the year 2000.



The "Total with any Chinese contribution" is a sum of all articles with only Chinese addresses, the weighted share of articles with Chinese and non-Chinese addresses, and 1/2 the proportion of Chinese names on papers without Chinese addresses
Source: Researchers' calculations using data from the Scopus database

Quantity, of course, does not equal quality, so the researchers also attempt to assess the impact of Chinese scholarship by analyzing citations of papers. They find that, between 2000 and 2013, the country's share of global citations increased from 7.4 percent to 19.5 percent. Chinese researchers are also publishing at higher rates than in 2000 in two prominent and prestigious journals, *Nature* and *Science*. In 2016, 20 percent of authors in these two journals had Chinese names, and nearly 9 percent of authors had addresses in China.

The increase in Chinese researchers' publications in international journals does not appear to have come at the expense of publication in Chinese-language journals. The number of Chinese-language papers indexed in a comprehensive database of Chinese journals shows an increase between 2000 and 2016. The paper's authors found that Chinese researchers at the country's highest quality universities published fewer papers in Chinese journals and more English-language papers. Researchers at less prestigious universities filled this gap, increasing their contributions to Chinese journals.

The study attributes the dramatic increase in Chinese researchers' influence to significant government investment in research and development between 2000 and 2016. The authors note that China increased its R&D spending tenfold in constant purchasing power parity terms. China's R&D spending now exceeds EU spending and is approaching that in the United States. Largely as a result of this investment, the number of faculty members in China doubled between 2000 and 2016, and the number of researchers tripled.

The authors conclude that "[t]he way China deploys its newly developed scientific resources will help drive the direction of science and technology into the foreseeable future; and given the role of scientific and engineering knowledge in modern economies and society, give the country a huge role in developing the global knowledge-based economy."

—Dwyer Gunn

Pride in National Football Teams Can Ease Ethnic Tensions

Nations struggling with ethnic, linguistic, or regional tensions appear to come together when their national soccer teams are successful.

Building Nations Through Shared Experiences: Evidence from African Football (NBER Working Paper No. 24666), a study by Emilio Depetris-Chauvin, Ruben Durante, and Filipe R. Campante, finds that after African national teams won key matches in major international tournaments, many of the winning countries experienced a decline in the fraction of their citizens identifying with their ethnic group over the nation as a whole. They also saw an increase citizens' trust of other ethnicities and a distinct drop in political violence.

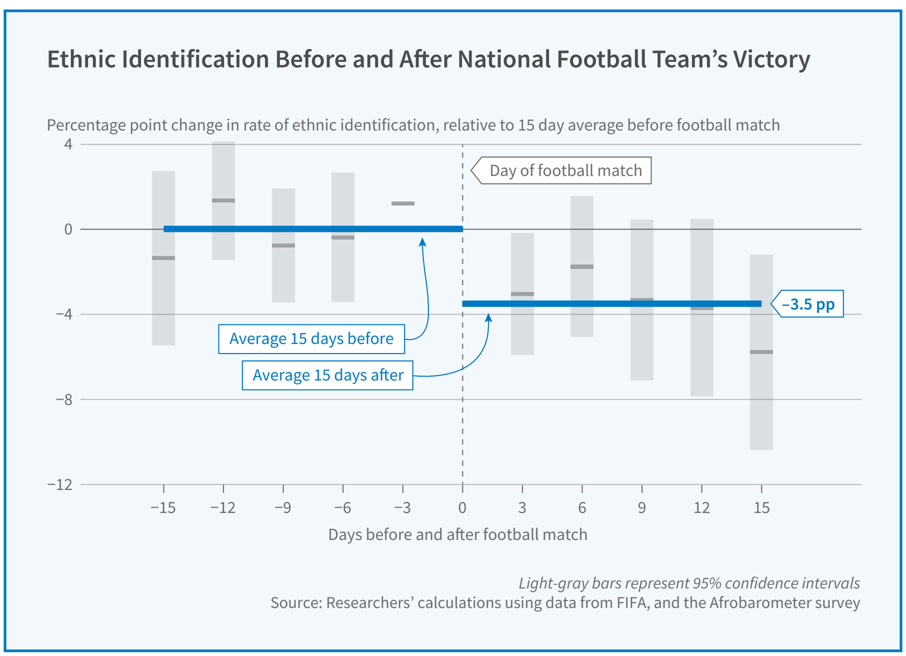
Prior studies have explored the efforts of countries struggling with internal divisions to forge common national identities through education, military service, or ambitious infrastructure projects. The new study looks at whether specific nation-unifying events and collective experiences can build trust and reduce political tensions.

The researchers focus on matches played in the Africa Cup of Nations (CAN) and FIFA World Cup qualifying and tournament competitions. In addition to information on the results of these matches, they compile data from Afrobarometer surveys gauging attitudes on a range of issues across the continent and from the Armed Conflict Location & Event Data Project. In all, they examine data from 47 Afrobarometer surveys covering 24 sub-Saharan nations. Their data sample spans the 2000–2015 period.

Africans interviewed after key national team victories were 4 percentage points less likely to report a strong sense of ethnic identity than those interviewed just before the match.

The researchers find that football victories were associated with heightened national identification. For example, in 2002, 30 percent of respondents in Mali emphasized their ethnic backgrounds over their nationality, while in 2013, after the Malian national team placed an impressive third in the CAN tournament, only 15 percent responded that way. While such statistics were suggestive, the time lags between surveys like these were deemed too large to permit definitive conclusions.

So the researchers then focused on surveys conducted only a few weeks before or a few weeks after high-profile international matches. They found that individuals interviewed after key national team victories were 4 percentage points less likely to report a strong sense of ethnic identity than those interviewed just before the match, a 20 percent decrease in the average probability of identifying by ethnicity. The attitudes persisted for at least 30 days after a major match. Post-victory respondents also were more likely to trust people of other ethnicities.



Ethnic Identification Before and After National Football Team's Victory

Source: Researchers' calculations using data from FIFA, and the Afrobarometer survey

The effect was weaker in places where the state was more present in providing services. It was stronger in nations with greater ethnic diversity and where the national team reflected that diversity.

Comparing countries whose teams barely qualified for the Africa Cup of Nations finals with those whose teams barely failed to qualify, the researchers found that success on the field was associated with a statistically significant lessening of civil conflict for six months. Countries whose teams barely qualified experienced a reduction of 18 percent in the number of conflict episodes and a 20 to 23 percent decline in the number of fatalities compared to nations whose teams narrowly failed to qualify.

—Jay Fitzgerald

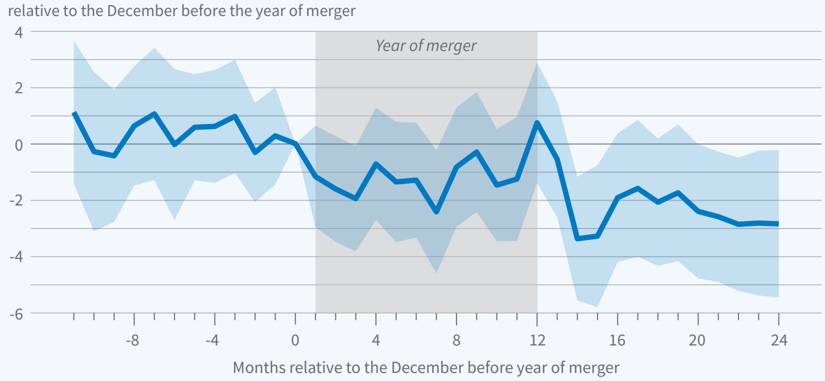
Hospital Mergers Generate Relatively Small Cost Savings

Most hospitals are part of integrated health systems that encompass multiple facilities. These systems are often the result of horizontal mergers in which one hospital acquires another. Reduced care costs and improved care quality are often invoked to justify such mergers.

In **Mergers and Marginal Costs: New Evidence on Hospital Buyer Power** (NBER Working Paper No. 24926), Stuart Craig, Matthew Grennan, and Ashley Swanson study hospital purchases of medical supplies before and after horizontal consolidations to test whether mergers influence the prices hospitals pay for various inputs. They find that "target" hospitals, those that are acquired in a merger, save 1.5 percent on purchases post-consolidation, but "acquirer" hospitals see minimal effects.

Hospital Mergers and the Cost of Surgical Implants

Percentage change in the cost of surgical implants for acquired hospitals relative to the December before the year of merger



The light-blue bands represent 95% confidence intervals

Source: Researchers' calculations using data from the ECRI Institute, the Centers for Medicare and Medicaid, the American Hospital Association, and Cooper et. al (2015)

The researchers analyze a dataset of hospital purchases from 2009–2015, comparing supplies bought in hospitals that were either targets or acquirers to hospitals that were not part of an acquisition. The product markets in their data account for 23 percent of hospital operating costs. They classify products into three groups: physician-preference items (PPIs), which are brand-name products used in advanced procedures such as cardiac surgery; commodities, which have broad use within a hospital setting; and other surgical items, which are used in invasive procedures but may not carry the brand loyalty of PPIs.

Hospitals may purchase goods directly from vendors or rely on purchasing organizations which aggregate orders to negotiate purchases of large numbers of goods, often depending on the product category. Merging parties often cite the wide variation in prices paid across hospitals and argue that consolidation of hospitals could reduce marginal costs if the integrated system adopts the most efficient practices of each entity or negotiates discounts on behalf of the entire system. This variation is indeed large, with a coefficient of variation of 0.26 for the average product category for the same brand-month.

> There is no evidence of cost saving by acquiring hospitals; costs at merger targets decline about 1.5 percent.

For target hospitals, the researchers find no significant effects of consolidation on prices of commodities or other surgical items, but a 2.6 percent reduction in prices of PPIs. These savings are due to within-brand rather than across-brand price decreases, suggesting that the consolidation led to more efficient bargaining rather than to brand-switching. For acquirer hospitals, the price of commodities decreased by 6.4 percent, other surgical products saw no effect, and PPI prices increased by 1.1 percent. Taken together, these effects imply a 1.5 percent reduction in the prices paid by target hospitals, or approximately 10 percent of the *ex ante* potential savings suggested by the Gini coefficients. For acquirers, the increase in PPI spending offsets the savings on commodities.

The researchers categorize acquirer hospital systems by their size, designating small systems as those with fewer than four hospitals, and large systems as those with four or more facilities. They find that, holding brand choices fixed, target hospitals' savings on PPIs are similar for transactions with small and large acquirers, suggesting that any merger efficiencies are not strictly increasing with firm size. For acquirers, within-brand commodity savings are larger for small acquirers than for large ones.

The study also compares the change in prices when the acquirer and the target hospitals are in the same region, an in-market merger, with out-of-market mergers. In-market mergers are the source of the within-brand reductions in PPI prices for targets, and in commodity prices for acquirers. This accords with the effects by hospital size, as small independent hospitals are more likely to acquire in-market hospitals while larger systems have greater reach across regions.

— Morgan Foy

The Lingering, Lethal Toll of America's Crack Crisis

Reverberations of the crack epidemic of the 1990s continue to take a deadly toll on young black males in the United States.

In **Guns and Violence: The Enduring Impact of Crack Cocaine Markets on Young Black Males** (NBER Working Paper No. 24819), William N. Evans, Craig Garthwaite, and Timothy J. Moore estimate that murder rates of black males aged 15 to 24 doubled soon after the crack epidemic hit their cities and that 17 years later, these rates were still 70 percent higher than they might otherwise have been.

The researchers attribute this persistence of elevated fatality rates to the surge in gun possession that occurred as dealers armed themselves for ferocious turf battles when crack first hit the streets. While demand for crack has declined and the market has moved underground, higher gun possession has persisted in cities where the crack epidemic was particularly severe, and has spread far beyond drug dealers as other young black males armed themselves in response to the more dangerous environment.

The researchers studied 57 cities where crack arrived between 1982 and 1994. They examined data from eight years before the influx and 17 years after in each city. They looked at subgroups by race, gender, and age. They find that the crack epidemic has had the longest-lasting impact on young black males. In the pre-crack era, murder rates and trends were similar among younger and older black men. While the crack crisis also drove up murder rates for other races, only the rate among black males aged 15–24 failed to decline to previous levels. In recent years, their murder rate has stayed at three times the level of that for black men over the age of 35. Young black males accounted for a 45 percent greater share of all murders 17 years after the crack markets emerged than they did beforehand. For young black men, there was also a sharp rise in gun-related murders and also gun-related suicides after the arrival of crack, but no corresponding change in murders and suicides without guns.

Murder and suicide rates among young black males remain elevated years after crack cocaine-related violence swept America's cities, likely because of the increase in guns during the crack era.

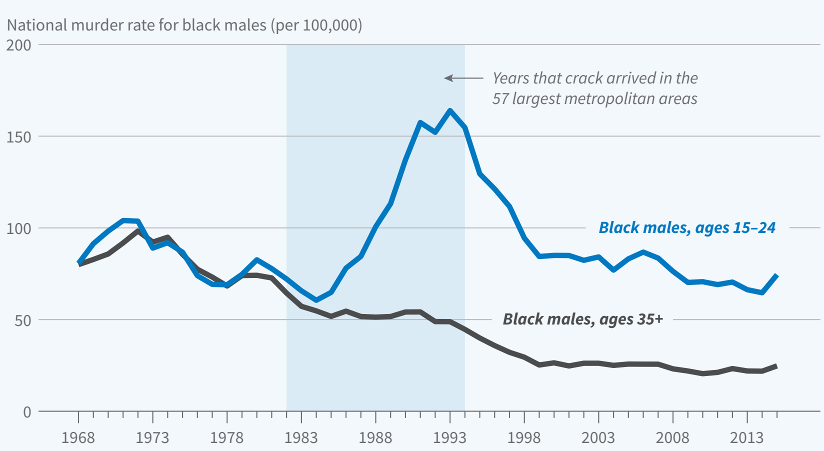
Domestic disputes — those between family members and intimate partners — turned more deadly thanks to ready access to guns. While the murder rate for domestic disputes that did not involve guns remained unchanged in the post-crack era, it increased markedly when guns were a factor, the researchers report.

Rates of gun possession being difficult to measure, the researchers used gun-related suicides as a proxy. They divided the sample cities based on whether the arrival of crack cocaine coincided with an above- or below-median increase in the fraction of gun-related suicides. Seventeen years out from crack's emergence, the murder rate among young black men in cities with an above-median increase in such suicides was 50 percent higher than the rate in cities with a below-median increase. The researchers did not find any difference across these cities in murder rates of black males aged 35 years and older.

The researchers estimate that in 2010, the elevated rate of gun possession led to 970 additional murders of black males aged 15–24. That represented 40 percent of all murders of black males in that age group that year. The study also attributes nearly a quarter of the suicides of young black males that year to the higher prevalence of guns. The authors find that "… even today, nearly 25 years after the peak of the systemic violence in the retail crack market, crack-related violence and suicide may explain approximately one-tenth of the gap in life expectancy between white and black males."

—Steve Maas

The Crack Cocaine Epidemic and the Murder Rate for Black Males



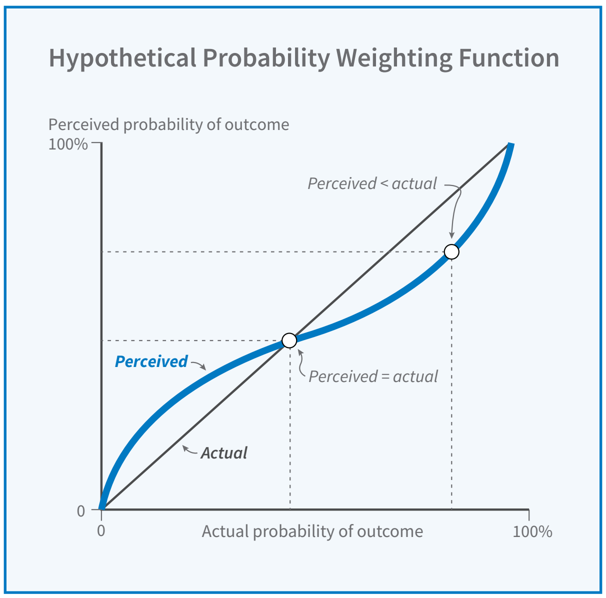
Source: Researchers' calculations using data from the Multiple Cause of Death records

How Probability Weighting Affects Household Investment Decisions

Many individuals appear to assign probabilities to events that differ from the objective likelihood of these events taking place. Despite the demonstrably slim odds of winning the lottery, millions of hopeful people buy tickets every day. One explanation for this behavior is that many individuals substantially overstate their likelihood of winning. The tendency for individuals to over-weight low probability events, while also under-weighting high probability outcomes, is known as "probability weighting."

> Many investors choose to hold stocks in individual firms, hoping to pick the 'the next Apple,' despite knowing that such investments are riskier than mutual funds.

In **Household Portfolio Underdiversification and Probability Weighting: Evidence from the Field** (NBER Working Paper No. 24928), Stephen G. Dimmock, Roy Kouwenberg, Olivia S. Mitchell, and Kim Peijnenburg establish a relationship between the extent to which an individual "probability weights" and his or her stock market engagement. They find that probability weighting leads investors to under-diversify their stock holdings, hoping to win big when picking "the next Apple," but thereby taking on more risk than necessary and missing out on improved financial performance.



The researchers elicited individuals' probability-weighting preferences by administering a short, purpose-built, internet survey to several thousand respondents in the RAND Corporation's American Life Panel. The survey, which involved choosing between high-probability payouts for small sums of money and low-probability payouts for larger sums, allowed the researchers to calculate the guaranteed amount that an individual required to forego an opportunity for a more uncertain, but higher expected payout. Participants were playing with real money.

The researchers found most respondents overestimated the probability of rare events, and underestimated the likelihood of more certain, but lower-value, payouts. "On average, when the probability of winning a lottery is only 5 percent, our subjects' certainty equivalent is greater than the expected value of the lottery, which is consistent with overweighting the small probability of winning," they report. "By contrast, when the probability of winning a lottery is higher (e.g., 50 percent), our subjects' certainty equivalent is less than the expected value of the lottery."

How do these probability weighting preferences translate to real-life decisions? The stronger someone's probability-weighting tendency, the more likely she or he is to bet the farm on individual stocks, rather than investing in a mutual fund that tracks the market. Among those who own individual stocks, 75 percent held five or fewer, and half held stocks in just one or two individual companies. Among those in the sample who participated in the stock market, the average share of their portfolio allocated to individual stocks was 45 percent. When high, this can be a tell-tale sign of under-diversification.

Under-diversification reduces investors' risk-adjusted returns relative to a fully diversified portfolio. The researchers estimate that the average stockholder's reliance on probability weighting reduces that investor's risk-adjusted portfolio income by about $2,500 per year.

When investigating the factors that affect stock ownership, the study controlled for age, income, financial wealth, and education, as well as factors more specifically related to financial decision-making, such as risk aversion, financial literacy, trust, optimism, and numeracy. There was no evidence that probability weighting was greater for individuals who were less intelligent or less educated, nor was it correlated with optimism.

—Anna Louie Sussman