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INSIDE THIS ISSUE

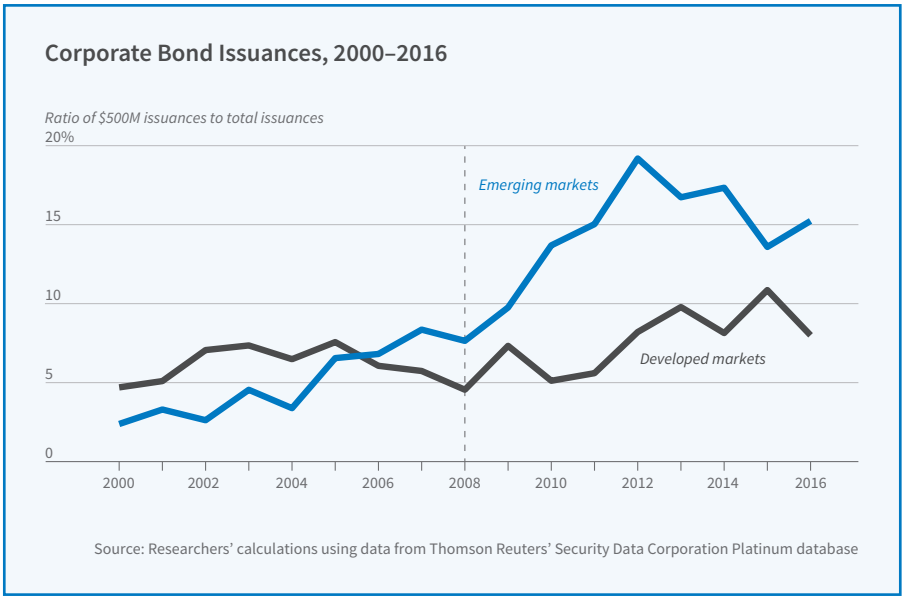
The Rise of $500 Million Bond Offerings by Emerging-Market Firms

After the global financial crisis of 2008, there was a surge in debt issued by emerging-market companies and a sharp uptick in the size of the bond offerings from these firms. Larger bond offerings, in particular those valued at $500 million or more, are associated with lower interest rates, so the attraction for borrowers is clear. But why were bond market investors so attracted to these large issues?

Charles W. Calomiris, Mauricio Larrain, Sergio L. Schmukler, and Tomas Williams, in a new study entitled **Search for Yield in Large International Corporate Bonds: Investor Behavior and Firm Responses** (NBER Working Paper No. 25979), argue that a search for yield by institutional investors following the 2008 crisis is a key component of the explanation. While these investors were prepared to accept the greater risk associated with the debt of emerging-market companies in return for the higher yield that it offered, they targeted their bond purchases to large debt issues included in a key financial market index. This translated into a significantly lower interest rate for these large debt issues. As evidence for this hypothesis, the researchers point out that these patterns are not apparent in the issuance of investment-grade bonds by firms in developed economies.

> Between 2000 and 2008, bond offerings of at least $500 million represented a third of the total debt issued by private-sector emerging-market firms. After 2008, that share nearly doubled.

The researchers show that the financial crisis ushered in a shift in the structure of private-sector emerging-market debt. They examine nearly 20,000 debt issues from 4,965 firms in 68 countries between 2000 and 2016, and find that the yield on newly issued debt fell sharply for emerging-market bond issues of $500 million or more after 2008. The decline was far more pronounced than that associated with smaller bond issues from companies in emerging markets, or than that for large bond issues by investment grade corporations in developed nations. This decline in yields coincided with an increase in the issuance of these bonds. Before the financial crisis, bond issues of $500 million or more represented a third of the total debt issued by emerging-market companies. After 2008, they represented 62 percent of new debt issues, and 18 percent of all bond issuances had a face value of exactly $500 million.



To explain the significance of the $500 million threshold, the researchers note that a key index for emerging-market corporate bonds, the J. P. Morgan CEMBI Narrow Diversified Index, only includes issues that are valued at

$500 million or greater. When the financial crisis ushered in a period of low interest rates, many large institutional investors, looking for higher yields, began to buy up corporate debt in emerging markets. These new or "cross-over" investors, many of them unfamiliar with the market, tended to buy debt that was included in market indexes because the debt was more liquid than other emerging-market corporate debt and thus easier to sell, if needed. Cross-over investors tended to buy more large-denomination bonds than funds that specialized in emerging-market corporate debt. Furthermore, new emerging-market specialist funds, eager to attract investors interested in the emerging-market corporate asset class, sought to hold debts that were included in the index to reduce the risk that they would diverge from the index.

The rise in demand for the $500 million bonds in turn lowered the financing costs of issuing such bonds by roughly 100 basis points — what the researchers call a "size yield discount." That discount made issuing such bonds attractive not only to the largest firms, whose investment plans might require such large debt issues, but also to moderate-size firms that might stretch to issue such a bond because of the lower financing cost, and then hold part of the debt proceeds in cash until future investment opportunities emerged.

— Laurent Belsie

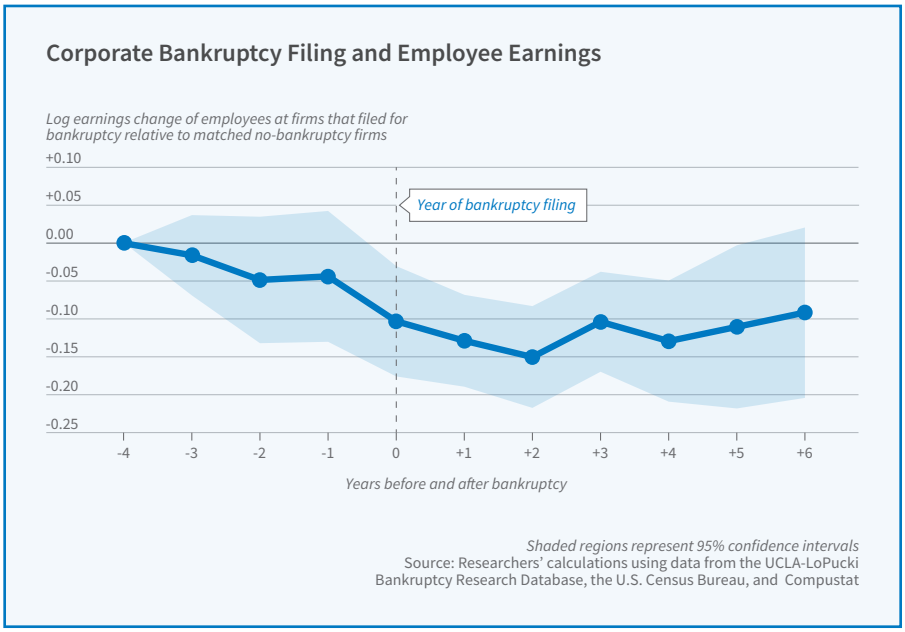
Highly Leveraged Firms Must Pay More to Keep Workers

Debt finance benefits from an important tax subsidy, since firms may deduct their interest payments when computing their taxable income but they cannot deduct dividend payments to holders of equity. However, heavy reliance on debt makes a firm more likely to face bankruptcy, which is disruptive not only for the firm and its investors but also for its workers. When a company goes bankrupt, employees can lose their jobs and suffer from reduced earnings after the corporate shock. Employees recognize this risk of working for a highly leveraged firm, and demand higher wages to work for such a firm, as they would for other workplace risks.

In **Employee Costs of Corporate Bankruptcy** (NBER Working Paper No. 25922), John R. Graham, Hyunseob Kim, Si Li, and Jiaping Qiu calculate wage losses from bankruptcy, estimate the *ex ante* wage premium employees demand to offset the risk of working for highly leveraged firms, and introduce this cost into the calculus of how much a firm should borrow. They find that the higher wages demanded by workers can account for a substantial portion of the gap between the tax benefits of debt and the expected costs of financial distress as usually calculated. They conclude that the overlooked indirect cost of higher wages helps to explain why the tax benefits of debt often appear to be substantially larger than the measured costs of bankruptcy risk.

> Wage demands rise when employees fear job loss in a corporate bankruptcy, which counterbalances the tax benefits of increased corporate borrowing.

The researchers use worker-firm-matched data from the U.S. Census Bureau to show how bankruptcy affects workers' earnings. They use their lost-earnings estimates to calculate the implied annual wage premium that a worker would demand to work for a firm with a greater risk of bankruptcy. This amount is equal to the expected present value of the earnings losses due to the likelihood of the employer filing for bankruptcy in that year. They then compare the capitalized value of the wage premium with the tax benefits of debt, concluding that the induced increase in required wages is "large enough to be an important component of financial distress costs."



To compare workers who were employed by firms that went bankrupt with similar workers at non-bankrupt firms, the researchers created a sample of 140 corporate bankruptcy filings between 1991 and 2005, and followed 277,000 workers from those firms for up to six years using data from the U.S. Census Bureau's Longitudinal Employer-Household Dynamics program. They compare them to workers in 140 non-

bankrupt firms, matched along key firm characteristics such as book assets, return on assets, and total number of employees. They then explore how employee earnings are related to the leverage of the firm they work for, while holding constant other firm and worker characteristics such as education, work experience, and gender. The resulting dataset includes 2.7 million worker-year observations.

For employees who worked for firms that went bankrupt, earnings are 14 percent lower two years after the bankruptcy than the earnings of comparable workers at firms that did not go bankrupt. After six years, the present value of earnings losses is 67 percent of pre-bankruptcy annual earnings. For workers at small firms or in thin local labor markets, the earnings losses are larger.

Employees appear to be aware of the risk of working for a firm that might go bankrupt, and *ex ante* they demand higher wages as a result. The researchers find that "employees of highly levered firms are indeed paid higher wages outside financial distress," with higher compensation for workers who are most vulnerable to post-bankruptcy earnings losses.

Aggregating the increase in wages that a firm can expect to pay as it borrows and comparing this wage cost with the tax benefits of additional debt suggests that labor market effects are an important consideration in the corporate borrowing decision.

—Anna Louie Sussman

Official Statistics Overstate China's Growth Rate

Local officials in China have an incentive to inflate their reports of investment and overall economic activity because they are rewarded for meeting economic growth targets. China's National Bureau of Statistics (NBS) has recognized the overstatement of local reports of output but has no power to control the actions of local governments. Instead, the NBS uses the local governments' data but adjusts these numbers to arrive at the official number for Chinese national GDP. The sum of local GDP estimates exceeds the value of national GDP estimates by between 5 to 6 percentage points between 2003 and 2016.

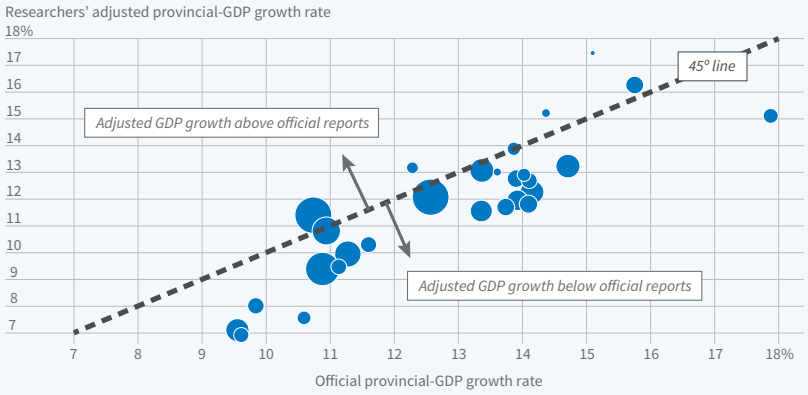
Investigating this discrepancy, Wei Chen, Xilu Chen, Chang-Tai Hsieh, and Zheng Song find that the corrections made by the NBS to numbers provided by local governments were roughly accurate until 2008. After that, the corrections seem too small, and they appear to fall further behind over time. In **A Forensic Examination of China's National Accounts** (NBER Working Paper No. 25754), they conclude that even after the adjustments made by the NBS, the growth rate of officially reported national GDP growth from 2010 to 2016 is overstated by about 1.8 percentage points.

The researchers explore the process by which economic statistics are constructed at both local and national levels. On the production side, statistical agencies at both levels estimate output using a census of state- and privately owned firms. Since 2008, the census has not reported firms' value added, so local statistical bureaus impute this information using survey data on gross output. When the researchers applied the imputation procedure used by these governments to data for 2012 and 2013, they obtained estimates of value added that exceeded the official numbers. On the expenditure side, local investment is based on reports of local investment projects by local governments.

> Local governments in China have incentives to over-report economic activity and the sum of local GDP estimates often exceeds the national value.

To construct their own measures of GDP and other economic aggregates, the researchers use other data sources that are available to government statistical agencies but that are not currently utilized. For example, they use data on value-added tax payments by firms in manufacturing, retailing, and wholesale trade to estimate value added in these sectors. They also examine a number of other economic indicators that are unlikely to be manipulated by local officials. Their resulting alternative estimates of both local and national GDP suggest that local over-reporting of output has increased since 2008, while the NBS has applied a constant correction factor.

GDP of Chinese Provinces: Officially Reported vs. Researchers' Estimates



Circle size represents relative size of provincial GDP
Source: Researchers' calculations using data from China's National Bureau of Statistics and State Administration of Taxation

The researchers find the latest disparities in estimates of industrial output, which affects GDP measurement, and in investment. They conclude that actual GDP growth from 2010 to 2016 was about 1.8 percentage points lower than the growth rate calculated from the official numbers. They also conclude that in 2016, the investment and savings rate was about 7 percentage points lower than what official reports suggest. The researchers' estimates suggest that growth in recent years was lower than what official statistics indicate, the return to capital is higher than these data indicate, and that consumption plays a larger role in Chinese growth than official data suggest.

—Laurent Belsie

Accounting for the High Percentage of Veterans in Public Service

Agencies at all levels of government generally give hiring preference to veterans of the armed services, and veterans represent a much higher share of the public-sector than the private-sector workforce. Is this differential attributable to hiring preferences, or might those who have served in the armed forces be predisposed to public service both in military and civilian capacities?

In **Military Service and Public Sector Employment** (NBER Working Paper No. 25859), Tim Johnson and Dalton Conley try to answer this question with respect to federal government employment. They find that men who were called—at random, based on their birthdays—for induction in the Vietnam Era Selective Service Lotteries were more likely to be employed by the executive branch of the federal government than their contemporaries with different birthdays who were not called for military service.

"These results," they write, "suggest that large-scale military mustering in times of war or the maintenance of large peacetime armies may have important long-term consequences on the composition of public and private sector labor markets."

The researchers studied the cohort of men born between 1950 and 1956. At age 19, they were subject to induction under the Vietnam Era Selective Service Lotteries, which randomly assigned draft numbers based on birthdates. Because the war wound down in the early '70s, only the first three years of the lottery led to actual call-ups.

The researchers also obtained data on all employees who worked for the executive branch of the federal government between June 2011 and March 2016, except for those in the Department of Defense and the U.S. Postal Service.

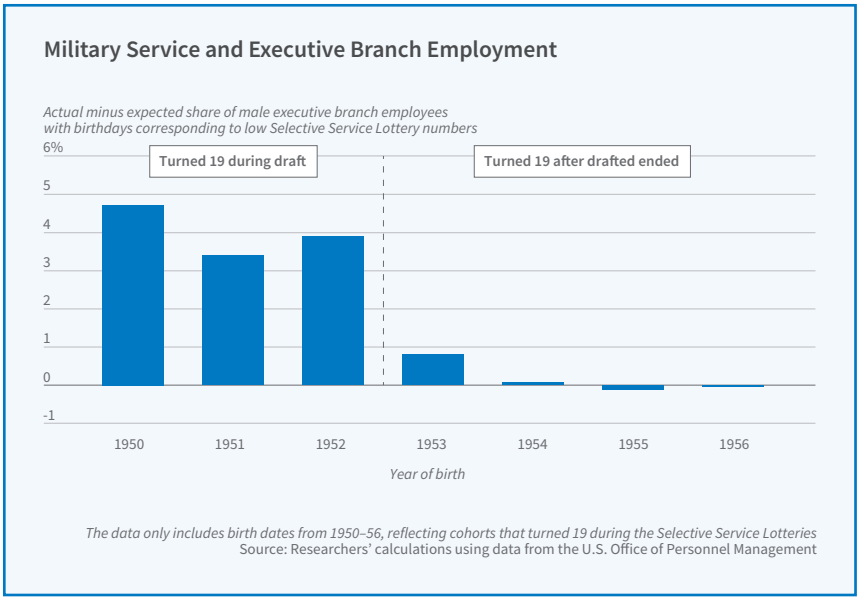
They found that birthdates associated with lottery numbers subject to call-up under the draft appeared disproportionately among the sampled federal workers in the 1950–52 birth cohort. Take, for example, the cohort born in 1950, when draft-eligible men with numbers up to 195 were most likely to be called for induction. Among the male workforce in the sample, 58 percent had birthdates associated with draft numbers subject to call-up. Had birthdates been uniformly distributed, only 53 percent (the ratio of 195, the draft cutoff, to 365 days) would have had these birthdates. Birthdates associated with lower draft numbers, meaning a higher probability of serving, were even more common in the federal employee database.

> Veterans constitute less than 10 percent of the U.S. population and more than 25 percent of federal government employees. Why?

The researchers did not find any significant correlation between birthdates and federal employment among men in the 1953–56 birth cohort, who came of age after the military stopped inducting draftees. Such was the case, too, for all cohorts of women, who were not subject to the draft.

While the findings cast doubt on the view that veterans were highly represented in the federal workforce solely because they had a predisposition for both the military and civilian public sectors, it does not address other factors which may have influenced them to seek government jobs. For example, the researchers suggest that military service may have entitled some veterans to public sector jobs via preferential hiring, may have made them less competitive in the private sector because they missed out on private-sector work experience, or may have led them to develop a preference for working in the sort of organizational structures that are common to both military and civilian public bureaucracies.

—Steve Maas



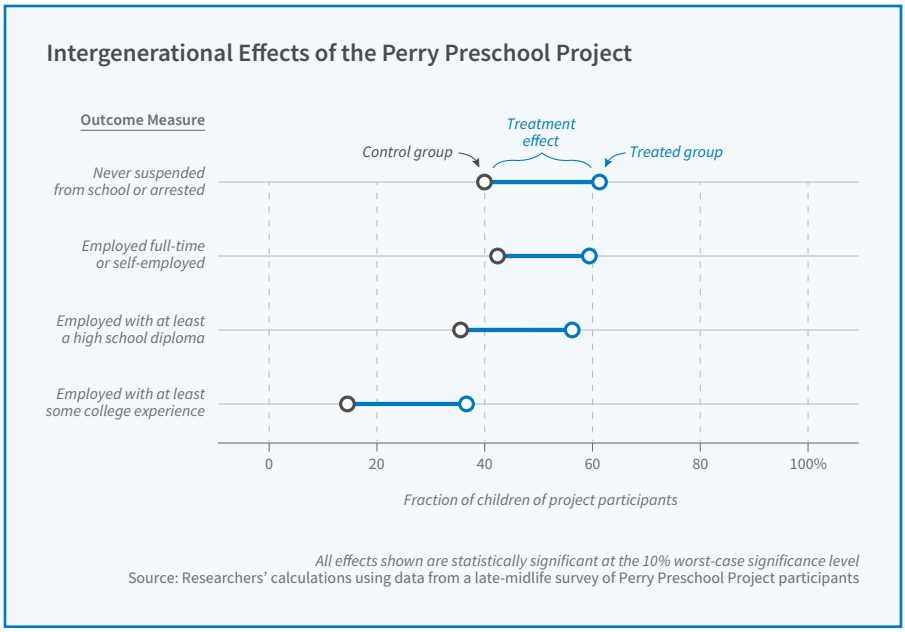
Perry Preschool Project Outcomes in the Next Generation

For several years in the 1960s, 58 low-income, African-American three- and four-year-old children attended a high-quality, free preschool program in Ypsilanti, Michigan. The children were randomly assigned to treatment. The program included weekly home visits — most for two years. Researchers have been tracking the participants ever since in a long-running experiment known as the Perry Preschool Project. While the boost in IQ from the intervention initially appeared to fade out after several years, researchers have since documented significant long-term benefits. In comparison to a control group of peers, Perry participants enjoy better academic, labor market, behavioral, and health outcomes in adulthood. They also exhibit better executive functioning and socioemotional skills, which are the main factors producing program success.

In **Intergenerational and Intragenerational Externalities of the Perry Preschool Project** (NBER Working Paper No. 25889), James J. Heckman and Ganesh Karapakula use survey data to examine how the children of the original Perry Preschool Project participants have fared in adulthood. They find substantial positive effects. In comparison to the children of those in the control group, Perry participants' children are more than 30 percentage points less likely to have been suspended from school, about 20 percentage points more likely never to have been arrested or suspended, and over 30 percentage points more likely to have a high school diploma and to be employed. While the researchers do not have earnings data on the Perry participants' children, they note that the children "likely earn more than those in the control group, perhaps due to enhanced cognitive and noncognitive skills."

Among male children of participants, the researchers find the program had positive effects on health, college graduation rates, and employment rates. Female children of Perry participants, meanwhile, were more likely to have graduated from high school without ever having been suspended.

> Children of the low-income African Americans who participated in the 1960s program are more likely to have a high school degree and to be employed, and less likely to have been arrested.



"About 8 percent of the second-generation male children of the male participants in the treatment group are employed college graduates compared to none in the control group," the researchers report. "About 26 percent of those in the treated families are employed with some college experience, while no such children exist in the untreated families."

The researchers explore, but are not able to conclusively determine, why the children of Perry participants fare so well. They find no meaningful differences in the types of neighborhoods in which the children of Perry and control group participants grew up. They find that Perry Preschool participants, particularly male participants, are more likely to raise their children in stable, two-parent homes. Male participants' children also grow up in households with higher parental earnings.

"The children of the treated participants excel in various life domains despite growing up in neighborhoods that are similar to or slightly worse off than the neighborhoods of the control group ... The evidence ... suggests that the home environment matters more than the neighborhood in explaining the intergenerational program effects on the adult outcomes of the children of the Perry participants."

The researchers also study the siblings of the original Perry Preschool participants. They find that siblings, especially male siblings, who were already present but ineligible for the program when families began the intervention were more likely to graduate from high school and be employed than the siblings of those in the control group. They conclude that high-quality preschool programs can contribute to lifting multiple generations out of poverty.

— Dwyer Gunn

New Estimates of the Stock Market Wealth Effect

The "wealth effect" is the notion that when households become richer as a result of a rise in asset values, such as corporate stock prices or home values, they spend more and stimulate the broader economy. While well-grounded in theory, it has always been difficult to estimate the magnitude of the wealth effect, because changes in asset prices rarely occur without other macroeconomic changes.

In **Stock Market Wealth and the Real Economy: A Local Labor Market Approach**, (NBER Working Paper No. 25959), Gabriel Chodorow-Reich, Plamen T. Nenov, and Alp Simsek find that for every dollar of increased stock market wealth, consumer spending rises by 2.8 cents per year.

The researchers solve the problem of measuring the wealth effect by taking advantage of geographic variation in stock market holdings within the United States. They estimate stock market wealth for each county, using anonymized dividend income data from tax returns. They link that information to the returns on the S&P 500 index to estimate a quarterly, county-level stock market wealth shock that they then merge with payroll and employment data from the Quarterly Census of Employment and Wages.

The researchers find that in addition to greater consumer spending, a rise in a county's stock market wealth is associated with increases in local employment and payrolls. To gain a clearer understanding of the channels through which the stock market wealth effect operates, they break down the employment effects into industries they call "tradable" — goods-producing sectors such as agriculture, fishing, mining, oil extraction, and manufacturing, and "non-tradable" — such as food services and retail sales. Consistent with economic theory, they find that both employment and payrolls go up in non-tradable industries, but that there is no response of employment in tradable industries. They also find that the residential construction sector is highly responsive to rising stock market wealth.

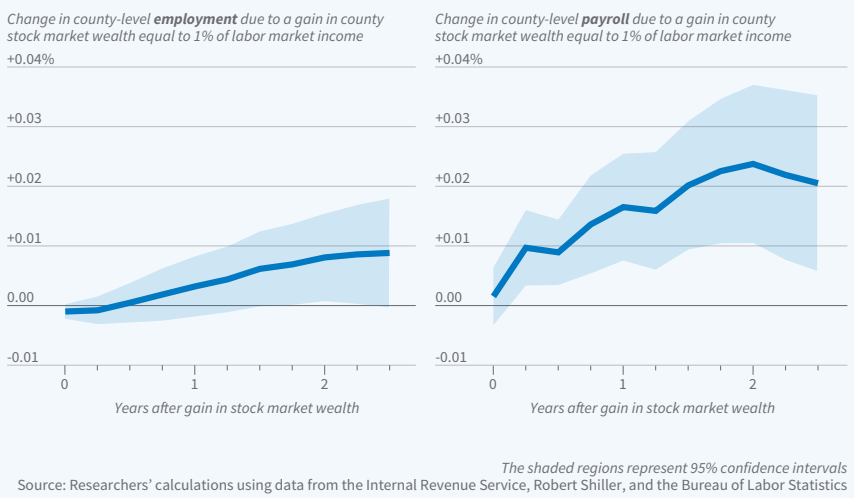
County-level data on U.S. stock market holdings suggest that rising share prices induce consumer spending, which raises employment and wages.

The researchers decompose the effects of rising stock market values on economic activity into the product of stockholders' marginal propensity to consume — how much of an extra dollar of wealth they spend — and the Keynesian multiplier for the local economy. This multiplier is a measure of how much a one-dollar increase in spending will ultimately raise economic activity; it recognizes that the new spending induces follow-on spending by those who benefit from the initial boost.

The researchers note that the aggregate, or national, impact of stock market wealth shocks could be greater than their local economy estimates suggest, because the Keynesian multiplier is likely to be larger in the aggregate than at the local level.

— Anna Louie Sussman

Stock Market Wealth and Local Employment Effects, 1989–2015



The shaded regions represent 95% confidence intervals

Source: Researchers' calculations using data from the Internal Revenue Service, Robert Shiller, and the Bureau of Labor Statistics

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