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New Evidence that Unions Raise Wages for Less-Skilled Workers

Tapping into eight decades of private and public surveys, a new study finds evidence that unions have historically reduced income inequality.

For **Unions and Inequality over the Twentieth Century: New Evidence from Survey Data** (NBER Working Paper No. 24587), [Henry S. Farber](#), [Daniel Herbst](#), [Ilyana Kuziemko](#), and [Suresh Naidu](#) assembled a household-level database on union membership dating back to 1936.

The U.S. Bureau of the Census has tracked wages and education consistently since 1940. Aggregate data on union membership goes back to the early 20th century, but data on individual workers were not readily available until the census bureau started asking about union affiliation in 1973. By that time, unions were already in decline, and higher-skilled workers accounted for an increasing share of their membership.

The researchers draw on more than 500 surveys conducted by Gallup and other pollsters from 1936 through 1986, extending their dataset into the present day with

information from government surveys and other sources.

Their study finds that the salary premium for union members compared to workers with comparable skills and demo-

The salary premium for union members compared to nonunion workers with comparable skills has remained relatively steady over the last 80 years.

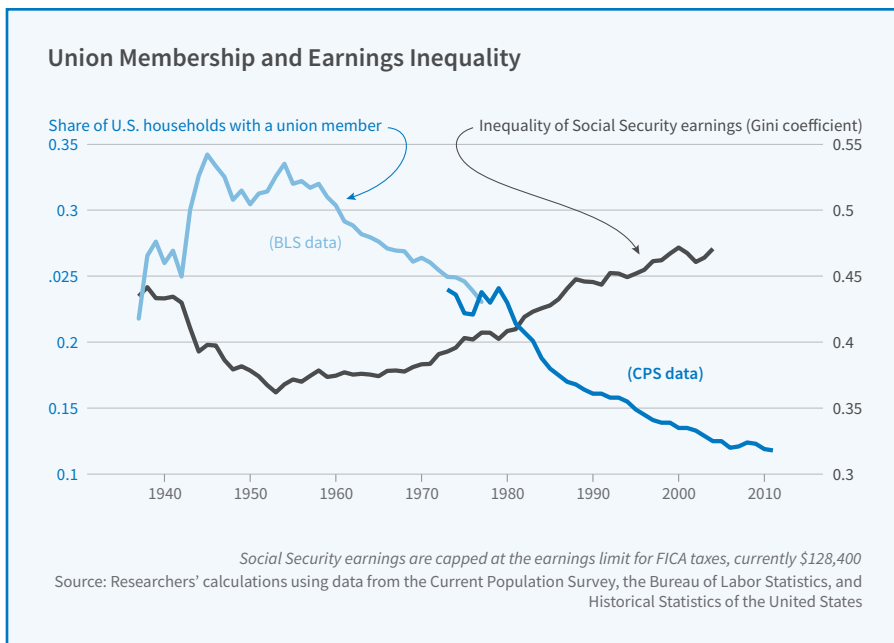
graphic characteristics has remained relatively steady over the last 80 years despite large swings both in the overall number of union members and in their education levels. The less skilled the workers were, the greater the wage premium associated with their union membership. The

researchers find a negative correlation between unionization rates and measures of inequality such as the Gini coefficient.

Between 1940 to 1970, when unionization peaked and income inequality

narrowed, unions were drawing in the least-skilled workers. Before and after that period, unions were smaller and a higher fraction of their members were drawn from the ranks of high-skill workers. The 1940–1970 period also coincided with the highest share of union members drawn from minority groups.

The clear implication of the researchers’ analysis is that, because unions offer a larger wage premium to less-skilled workers, unions have an important equalizing effect on the income distribution to the extent that they are successful in organizing the less-skilled. Recent decades have seen growth in educational attainment in the workforce, and, importantly, not



only has the overall share of workers who are unionized declined, but unions have also become relatively less successful in organizing less-skilled workers. The remaining unionized workforce is

more highly educated than it was earlier. The combination of the declining presence of unions in the labor market and the increased skill level of the remaining union workers means that the important

equalizing effect of unions on the income distribution that was seen in the middle of the 20th century has diminished substantially.

— Steve Maas

Debt Markets Are Biased toward Home Country Currencies

Almost all owners of foreign bonds hold that debt in their own currencies, rather than in the currency of the nation where the debt was issued. This home currency bias is so strong that, if one knows the currency in which a bond is issued, it is possible to make a very good guess about the nationality of its owner without knowing the nationality of the debt issuer, according to findings in **International Currencies and Capital Allocation** (NBER Working Paper No. 24673).

The only country for which this pattern does not hold is the United States, because the dollar is an international currency. Foreign debt-holders are willing to hold U.S. debt issued in U.S. dollars, and this pattern has grown stronger in the last decade. This willingness of foreign investors to hold dollar-denominated bonds means that many U.S. companies can tap foreign markets to borrow more easily than firms in many other countries.

The study, by Matteo Maggiori, Brent Neiman, and Jesse Schreger, draws on Morningstar data on \$27 trillion in holdings in mutual funds in 50 countries. It finds that “home country bias,” the tendency to hold assets denominated in the home currency of the investor,

holds whether the debt issuer and buyer are from the same country or not. The bias is not surprising when they share the same nationality.

Many investors avoid currency risk when buying debt issued by borrowers in foreign countries, but the U.S. dollar’s international status makes dollar-denominated debt an easier sell.

The case of Canada is illustrative. When Canadians are buying Canadian corporate or sovereign debt, 95 percent of those holdings are in Canadian dollars. But when foreigners buy Canadian

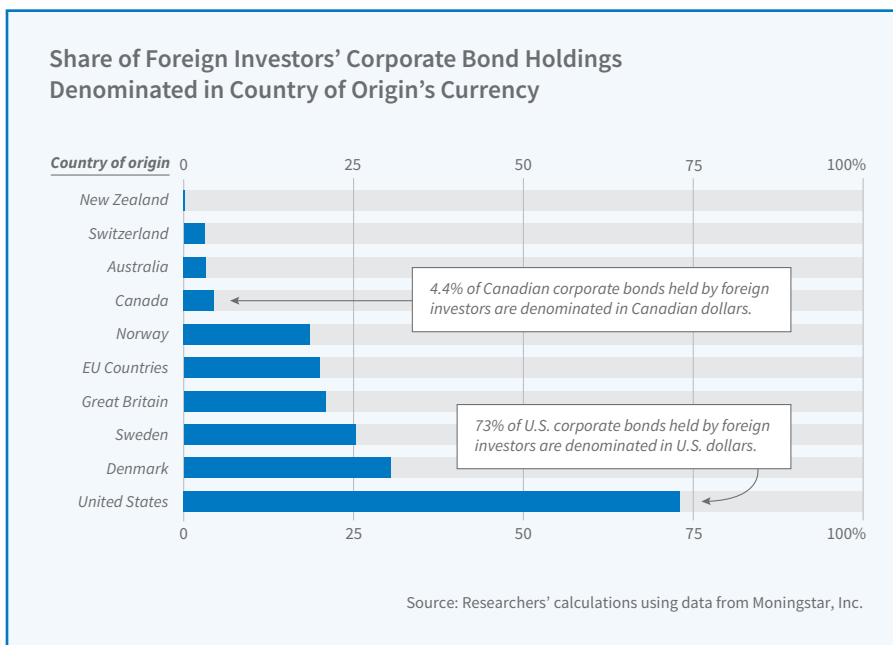
eigners is denominated in Canadian dollars. Small- and medium-sized businesses prefer to borrow in local currency, so most of their debt is held domestically.

While foreign investors hold shares of many of these firms, they rarely hold their debt.

The U.S. is the lone exception to the patterns identified by the researchers. Foreign investors do hold the debt of U.S. companies in dollars as well as in their own currencies. This exceptionalism appears to have strengthened during the last decade. A decade ago, only about 45 percent of global cross-border holdings of corporate debt was denominated in U.S. dollars, while the euro accounted for 35 percent. Now, the dollar share is greater than 60 percent and the euro share less than 20 percent.

“Global portfolios shifted sharply away from the euro and toward the dollar after the 2008 financial crisis, further cementing the dollar’s international role and potentially amplifying the benefit its status brings to the U.S.,” the researchers report.

— Laurent Belsie



debt, less than 20 percent of it is denominated in Canadian dollars. Instead, it is usually denominated in the foreign investors' own currencies. The home currency bias is especially pronounced in corporate bonds. Less than 10 percent of Canadian corporate debt held by for-

Market Anticipation of FOMC Policy “Shocks”

Studies of the effects on asset prices of U.S. Federal Open Market Committee (FOMC) policy decisions often focus on narrow event windows of 30 to 60 minutes around the time decisions are announced. In **Monetary Momentum** (NBER Working Paper No. 24748), [Andreas Neuhierl](#) and [Michael Weber](#) suggest that such a narrow focus may underestimate the effect of monetary policy. They show that asset prices change for as long as 25 days before and 15 days after officially announced policy changes, even when by some measures the policy changes appear to be unexpected.

The researchers defined a monetary policy surprise, or “shock,” as a policy announcement for which the FOMC announced a rate that was lower or higher than the rate that had been predicted by federal funds futures contracts prior to the FOMC meeting. There were 137 FOMC meetings during the 1994–2009 sample period and eight inter-meeting policy announcements. The average monetary policy surprise was zero. The largest unexpected interest rate cut was more than 45 basis points and the largest unpredicted increase about 16 basis points.

Using excess returns data from the Center for Research in Security Prices’ value-weighted stock price index, the researchers found positive returns as much as 25 days before expansionary monetary policy shocks. Returns were slightly negative, or indistinguishable from zero, before contractionary shocks. Returns were positive on the days before both types of announcements. While returns continued to be positive

after an expansionary announcement, contractionary announcements were followed by negative or zero returns for the next 20 days. The cumulative difference in the return drift between expansionary and

Stock returns are positive for several weeks before “unexpected” expansionary monetary policy announcements.

contractionary announcements was about 4.5 percent.

The drift in stock prices in the month or so around “surprise” FOMC announcements affected firms in almost all industries and extended to many equity markets outside of the United States. The abnormal returns tended to be in the same direction for cross-sectional return premia such as size, value, profitability, or investment. Around contractionary policy shocks, loser stocks tended to

differences in stock returns around these shocks, the researchers compared Sharpe ratios for a buy-and-hold strategy and a monetary momentum strategy for various event windows around the FOMC meet-

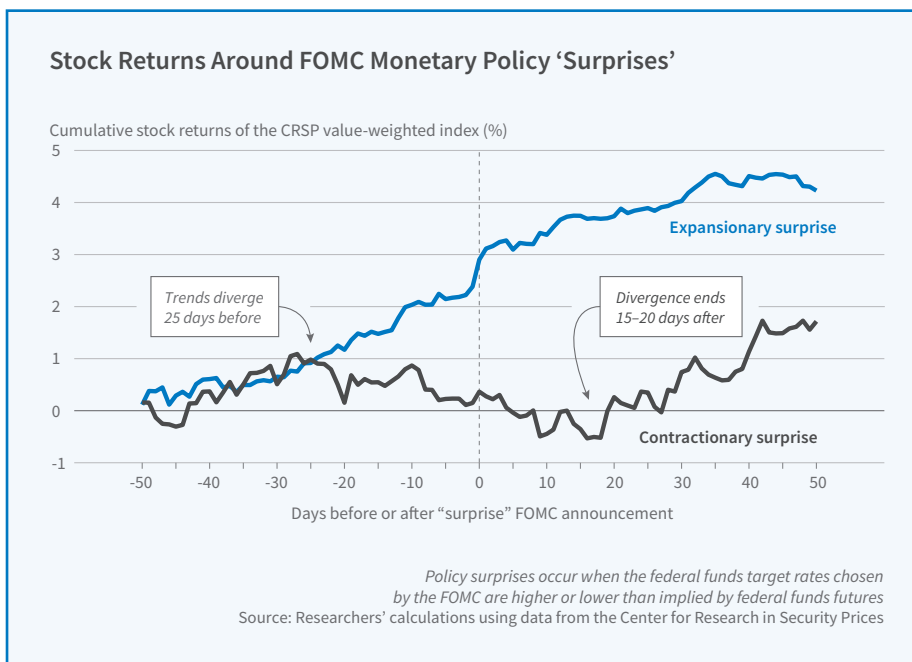
ings. The Sharpe ratio measures portfolio reward per unit of portfolio risk.

Buying-and-holding the market throughout the year produced an annualized Sharpe ratio of 0.31. After adding a monetary momentum strategy of shorting the market for 15 days following any contractionary monetary policy shock to the buy-and-hold strategy, the annualized Sharpe ratio increased to 0.46. The researchers found that monetary momentum was economically different from time-

series momentum, which they define as a strategy of investing in the market 15 days before an FOMC meeting whenever the stock market had positive excess returns over the preceding 12 months, and shorting the market when the market’s excess return was negative.

The researchers conclude that what have to date been considered surprise changes in target FOMC interest rates might be partially predictable, a fact that would have “... important implications for the large literature in macroeconomics and monetary economics that tries to understand the real effects of exogenous monetary policy shocks on real consumption, investment, and GDP.”

—Linda Gorman



plummet, creating potential returns for momentum investment strategies.

A monetary momentum strategy invests in the market when a monetary policy shock is expansionary, and shorts it when the shock is contractionary. To test whether there are trading strategies that could profitably exploit the observed

More Affordable Travel Alters Chemistry of Collaborations

As the internet ushered in an era of low-cost, global communication, many predicted geographic distance would diminish in importance when it came to the circulation of ideas, goods, and services. But for scientific collaboration, face-to-face interactions matter, and the cost of travel remains a key barrier, according to a study by [Christian Catalini](#), [Christian Fons-Rosen](#), and [Patrick Gaulé](#).

In **How Do Travel Costs Shape Collaboration?** (NBER Working Paper No. 24780), researchers find that the introduction of low-cost airline routes by Southwest Airlines between 1993 and 2012 substantially increased subsequent collaborations between chemists at either end of the new routes. Further, they find that reduction in travel costs was associated with scientists undertaking more novel, exploratory projects that entailed more risk than incremental projects.

When choosing collaborators, scientists face a decision-making process that typically involves “a trade-off between less choice locally, and increased communication and travel costs over distance,” the researchers write. When projects are incremental and involve mostly established ideas and techniques, the returns to tapping into a global talent pool for collaborators may be relatively limited. For more ambitious or novel projects, however, finding just the right collaborators may be considerably more important, and lower airfares can make accessing best-in-world collaborators more cost-effective.

The researchers studied the effects of new Southwest routes that served airports near universities. They matched

those routes to pairs of research collaborators — focusing on chemists — and collected data on publications and additional outcomes such as the novelty of the research, its quality, and how equipment-intensive it was. They controlled for other factors that could potentially influence the ability to collaborate, such as a scientist’s

Collaborations increased by approximately 50 percent among scientists who were newly connected by discount air service. The novelty of their projects rose, too.

age and the size of departmental research and development budgets. Their final data sample included 758 pairs of scientists, corresponding to 845 individuals, who were studied over an average of 17 years.

The results showed an increase in collaboration of approximately 50 percent between researchers who were newly connected by discount air service. The rise in

driven by at least one “talented” scientist — the researchers measured talent as having higher productivity than local peers. “[T]he cheaper fares seem to be particularly helpful for individuals that are talented, but potentially do not have access to co-authors of comparable quality within their local environments,” the researchers write.

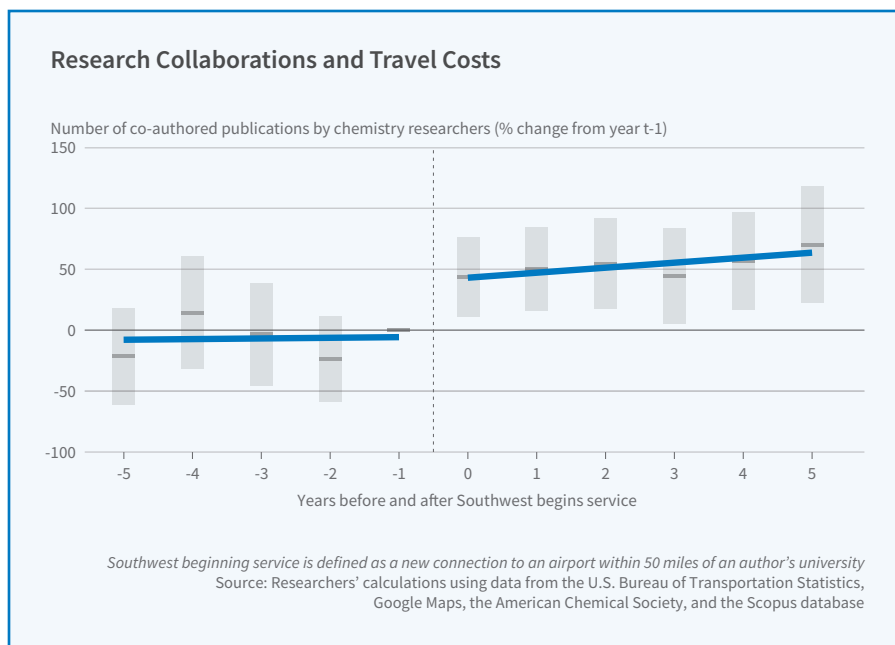
Lower travel costs appeared to enable scientists to work more readily with colleagues in different subfields, leading to more cross-disciplinary, risky collaborations. The researchers theorize that these types of collaborations are easier to manage with face-to-face interaction because they may require sharing complex information for which the research partners lack a shared vocabulary or

common sets of assumptions. Such challenges may not arise when researchers are from the same subfield.

Similarly, they found that the collaborations that seemed to emerge when airfares dropped were more likely to use specialized equipment, which they measured by the frequency of equipment-related keywords in the scientists’ publications. The researchers noted that “...at least within chemistry, equipment may play a key role in how scientists select into

distant collaborations.”

The researchers tested their theory using a similar dataset for mathematicians, treating them as a control group of sorts, since collaboration-boosting factors such as specialized lab equipment are less relevant for math. They found a similar effect, but of



collaboration included both new undertakings between people who had never worked together before and an even stronger effect for existing collaborators. The increase translated to nearly 300 additional copublications per year.

The rise in collaboration was often

a lesser magnitude, with a 25 percent increase in copublication versus a 50 percent increase for chemists. As with chemists, the effect was

stronger for the more productive mathematicians. They note their findings have implications for the private sector too, such as

at firms that have researchers and inventors working across multiple locations.

—Anna Louie Sussman

When Financing Terms Are Generous, Car Buyers Pay More

The supply of auto loans, and the terms of these loans, play a central role in the auto market. The relationships between the behavior of lenders, auto dealers, and consumers are complex. In **The Capitalization of Consumer Financing into Durable Goods Prices** (NBER Working Paper No. 24699) Bronson Argyle, Taylor D. Nadauld, Christopher Palmer, and Ryan D. Pratt examine one aspect of this market. They test whether consumers pay more for used cars when they have access to loans that allow a longer time for repayment. All else constant, they find that a 12-month reduction in the term available for loan repayment is associated with about a three percent decline in the selling price for the car.

The researchers recognize that the maturity of the auto loan that a potential buyer can access depends on many factors. For example, most lenders reduce the maturity of the loans they offer as the age of the car increases. However, many lenders reduce their maximum loan length offer at the beginning of the calendar year, resulting in different repayment requirements for otherwise identical cars purchased just a few weeks apart. A loan for a car in December may allow a 72-month maximum period for repayment, but a loan for the same car in early January may require repayment within 60 months. The researchers use this discontinuity in loan

terms to compare prices paid by consumers who have access to loans of different maturities, even though they and the cars they are buying are otherwise similar. They

When prospective buyers have access to longer-term loans with lower monthly payments, the transaction prices for automobiles increase.

find that borrowers pay about 3.6 percent less for their cars when the loan maturity they are offered declines by 12 months. Auto dealers are able to charge more when consumers have access to more generous credit that lowers their monthly payment for a given purchase price.

The researchers consider the confounding possibility that those given shorter maturities receive different interest rates. They find that interest rates are

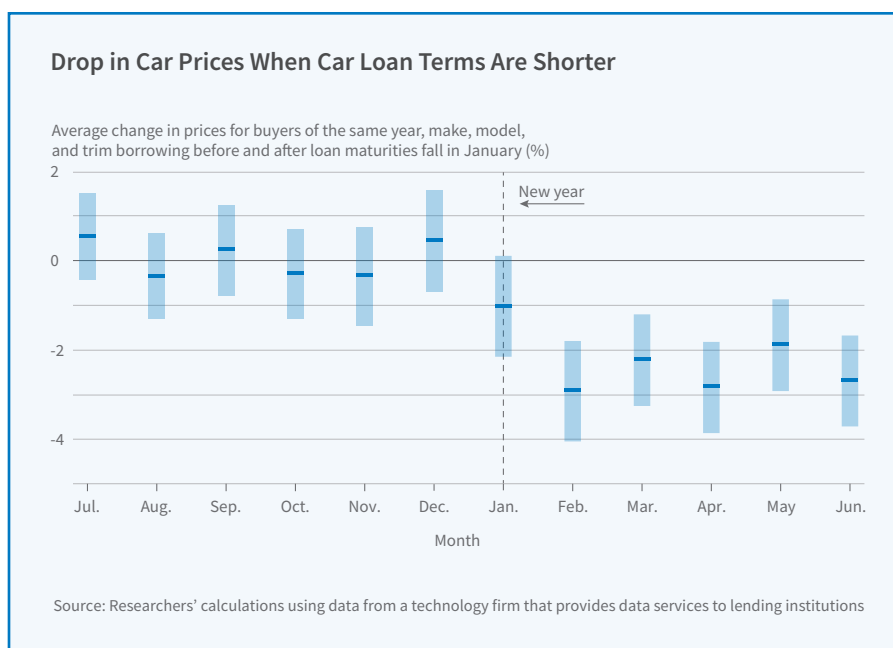
across year end; changes in loan maturity account for the other 80 percent. After allowing for the effect of loan maturity on interest rates, they find that being

offered a 12-month shorter maturity loan is associated with a 2.8 percent decline in the purchase price. They interpret this as evidence that buyers who are offered shorter-maturity loans, with correspondingly higher monthly payments, value the car-cum-loan package less than those who have access to longer-term loans, and that market prices reflect this.

When credit is looser, buyers can expect to face higher prices for used cars. The researchers calculate that if a prospective buyer has an annual discount rate of less than 8.9 percent — that is, the buyer would prefer \$100 now rather than any amount less than \$108.90 in a year's time — then the benefits of a longer loan term are more than offset by the higher purchase price such loan terms may induce. They point out that increases in the prices of automobiles and other durable goods in periods of

relatively looser credit may attenuate the link between credit market changes and aggregate economic activity.

—Morgan Foy



higher on loans of longer maturity, by 24 basis points per month. However, interest rate variation explains only 20 percent of the change in the price variation

Who Gains When a City Has a Productivity Spurt?

When a city's manufacturing sector experiences a spurt in productivity, who wins? In **Who Benefits from Productivity Growth? Direct and Indirect Effects of Local TFP Growth on Wages, Rents, and Inequality** (NBER Working Paper No. 24661), [Richard Hornbeck](#) and [Enrico Moretti](#) find that national statistical averages mask wide disparities in workers' gains in purchasing power at local and regional levels. They conclude that the biggest winners are local low-skilled workers who own their homes. Higher-skilled workers and renters benefit more in other locations, indirectly through spillover effects.

The study draws on plant-level manufacturing data and on information on local labor markets, housing markets, and demographic data for 193 metropolitan statistical areas from 1980 to 2000. Renters make up about a third of the workers in the sample.

The researchers use total factor productivity (TFP) to measure productivity gains that result from innovation and increased efficiency both within the factory and without. These gains could arise from factors such as adoption of new technology by a plant, improved transportation networks, or changes in the regulatory environment. The change in purchasing power growth is calculated as the change in earnings minus the change in the local cost of living.

The researchers find that a 1 percent increase in local productivity leads to a

1.12 percent medium-run increase in earnings for lower-skilled workers, nearly double the 0.6 percent gain for the more highly skilled. As a result, productivity growth reduces inequality at the local level.

A 1 percent increase in local productivity leads to nearly twice as much purchasing power gain for local lower-skilled workers than it does for local high-skilled workers.

They attribute this effect to highly skilled, more highly paid workers tending to be more mobile geographically, and more likely to move to a booming area. Their swelling ranks reduce the premium they can command for their skills.

Meanwhile, the pool of lower-skilled workers is less geographically mobile and so remains fairly constant in the face of productivity-induced increases in the demand for their services.

The influx of workers drawn by a growth surge raises the cost of housing. Existing homeowners benefit more than renters, who see two-thirds of their earnings absorbed by higher costs for housing and other goods and services.

There are also spillover effects from one city's productivity gains to other cities. One city's economic boom draws workers away from other cities, and reduces demand in those areas for housing and other goods and services. Thus, renters in a non-booming city may gain at the expense of renters in a growing one. Likewise, skilled workers leaving a non-booming city strengthen the bargaining position of those they leave behind.

The researchers point out that although the average U.S. worker saw purchasing power grow by 0.5 to 0.6 percent annually from 1980 to 2000, there are important differences across regions, cities within regions, and types of workers within cities. Disaggregation is therefore important for understanding who benefits from local productivity growth.

— Steve Maas

Average Effect of City-Level TFP Growth Shocks on Households' Real Purchasing Power

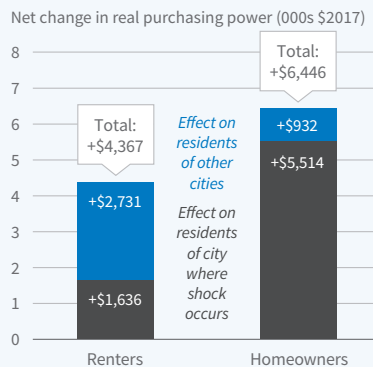


Chart shows the average effects across all cities for 1980–2000 from TFP shocks between 1980 and 1990
Source: Researcher's calculations using data from the United States Census Bureau

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