

SECOND QUARTER 2017

ECON FOCUS

FEDERAL RESERVE BANK OF RICHMOND



Can “Sin Taxes” be Good for Your Health and the Economy?

**Soda taxes – the latest
example – are gaining favor**

Paying for Public
Broadcasting

The Fed and Foreign
Exchange

Interview with
Jesse Shapiro

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COVER STORY

11

Pricing Vice

Can "sin taxes" be good for your health and the economy?

FEATURES

16

Bankrolling Big Bird

Is there still an economic case for government-supported broadcasting?

20

Credit Unions: A Taxing Question

A tax exemption has helped credit unions since the 1930s, but some argue they should be treated more like banks

DEPARTMENTS

- 1 Message from the Interim President/Financial Services for Lower-Income Communities
- 2 Upfront/Regional News at a Glance
- 3 The Profession/The Role of the Council of Economic Advisers
- 4 Federal Reserve/The Fed's Foray Into Forex
- 8 Jargon Alert/Value-Added Tax
- 9 Research Spotlight/Superstar Firms and the Falling Labor Share
- 10 Around the Fed/Lost Your Job? Call Mom and Dad
- 24 Interview/Jesse Shapiro
- 30 Economic History/Spanish Flu Pandemic of 1918-1919
- 35 Book Review/*Dream Hoarders: How the American Upper Middle Class Is Leaving Everyone Else in the Dust, Why That Is a Problem, and What to Do About It*
- 36 District Digest/The Urban Core in the Tale of Three Cities: Baltimore, Charlotte, and Richmond
- 44 Opinion/Unwinding the Fed's Asset Purchases

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MESSAGE FROM THE INTERIM PRESIDENT

Financial Services for Lower-Income Communities

One of the Richmond Fed's most important jobs as a regional Reserve Bank is understanding the needs of our communities, including how people and businesses in low- and moderate-income (LMI) communities are able to meet their needs for financial services.

These communities make up a substantial portion of our district. As of 2014, more than one-quarter of the Fifth District's population — 8.1 million people — lived in LMI areas. (In the banking industry, a low-income area is defined as one where the median family income is up to half of the median family income for the surrounding region; in a moderate-income community, median family income is between 50 percent and 80 percent of the median family income in the surrounding region.)

Many households in the Fifth District are “unbanked,” meaning they don't have a traditional checking or savings account and instead rely on services such as check cashing, payday or auto title loans, or prepaid debit cards, to name a few. These services tend to come with higher fees and interest rates than traditional banking products. Overall, nearly 7 percent of Fifth District households are unbanked, roughly on par with the national average; the share is as high as 9 percent in South Carolina and 11 percent in the District of Columbia. An additional 21 percent of households are “underbanked,” meaning they do have a traditional checking or savings account but also use one or more alternative financial services. While we don't know the exact overlap between unbanked or underbanked households and households in LMI communities, we do know that consumers who use alternative financial services tend to have lower incomes. They also tend to be younger and have less education.

In some cases, individuals might take out a payday loan or buy a prepaid card because they lack the credit history to qualify for a traditional loan or open a bank account. It's also possible they don't have enough information about the differences between traditional and alternative services. But survey evidence indicates that some consumers actually prefer to use alternative financial services, perhaps because they perceive them as more convenient — there's no waiting period for a check to clear, for example — or they wish to avoid overdraft charges or monthly account fees.

To the extent lower-income consumers do not have sufficient access to, or information about, financial services, Community Development Financial Institutions (CDFIs) aim to fill this gap. CDFIs, which are certified by the Treasury Department, specifically target households and businesses in low-income communities. (CDFIs are

not necessarily the only financial institutions that serve LMI neighborhoods.) There are nearly 100 CDFIs operating in the Richmond Fed's district. A variety of institutions can become CDFIs, including banks, loan funds, venture capital firms, and credit unions.

A credit union is a nonprofit cooperative whose members all share a “common bond,” such as where they work or live. Most credit unions are not CDFIs, but they did develop as a way to provide affordable credit to people who might not otherwise have access to credit. (The Federal Credit Union Act of 1934 stated that credit unions existed to provide credit to “people of small means,” language that persists in the current version of the law.) Rather than requiring collateral, early credit unions relied on their cooperative structure and the social connections among their members to create incentives for risk monitoring and loan repayment.

As we discuss in this issue of *Econ Focus*, credit unions have evolved significantly since the first one opened in 1908. This evolution has prompted a host of questions about the regulations governing them and how they compete with other depository institutions. These questions are of interest not only to the Fed and other financial regulators, but also to consumers, and we hope you find the article both interesting and informative.

In addition to credit unions, this issue features articles on the efficacy of so-called “sin taxes,” the economic and social repercussions of the Spanish flu pandemic of 1918-1919, and the Fed's role in foreign exchange markets, among other topics.

Thank you for reading, and we look forward to hearing from you if you'd like to share your thoughts on these or any other topics.

EF



A handwritten signature in black ink that reads "Mark L. Mullinix".

MARK L. MULLINIX
INTERIM PRESIDENT AND CHIEF OPERATING OFFICER
FEDERAL RESERVE BANK OF RICHMOND



MARYLAND — In May, the Governor's Office of the Deaf and Hard of Hearing held the country's first-ever deaf business summit. The event was aimed at supporting entrepreneurship among deaf and hard of hearing business owners. The summit had a focus on small businesses, with workshops on licensing, leasing, and bank financing. It was attended by more than 60 hearing-impaired business owners.



NORTH CAROLINA — Nearly 500 workers will lose their jobs when cereal and snack firm Kellogg closes two North Carolina distribution centers by mid-August. The centers in Charlotte and Greensboro will close as part of Kellogg's move to ship products to its customers' warehouses instead of directly to stores. Kellogg is making the change in order to reduce costs and complexity after reporting a net loss of \$53 million in fourth quarter 2016.



SOUTH CAROLINA — In early June, Comcast opened its new Center of Excellence in North Charleston. The facility will create 550 customer care and technical support jobs in the next year, doubling Comcast's local workforce. The \$21.4 million, 80,000-square-foot center houses six training rooms for virtual classroom education and a product demo lab. Comcast also operates a customer center in North Charleston that opened in 2015.



VIRGINIA — Essex County, Va., will soon be home to one of the largest solar facilities in the state. Coronal Energy and Dominion Energy are teaming up on the 174-acre, 20-megawatt Essex Solar Center, which will generate enough electricity to power 5,000 single-family homes annually. Dominion will purchase the generated power through a 20-year power purchase agreement. The project is expected to be completed in November and will create between 80 to 100 jobs during construction.



WASHINGTON, D.C. — The Fannie Mae redevelopment site in Friendship Heights has found its anchor. Wegmans announced in May that it will open its first D.C. store as part of the mixed-use village that will replace what is currently Fannie Mae's headquarters. Last fall, Roadside Development and North America Sekisui House jointly purchased the 10-acre property for \$89 million, with a plan to convert it into condos, townhomes, and retail and office space. Construction won't begin until Fannie Mae vacates the property in late 2018, with Wegmans slated for a 2021 opening and the entire redevelopment expected to be completed in 2024.



WEST VIRGINIA — The Appalachian Regional Commission, a federal, state, and local economic development partnership, in June awarded \$5.9 million in grants to economic development projects in Summersville, Logan, Charleston, Bluefield, and Fairmont. The five grants will help fund a regionally connected bike trail system, workforce retraining programs for displaced coal workers, a feasibility study for a specialized health college, and equipment for the Center of Excellence in Manufacturing Engineering at Bluefield State College. The funded programs are expected to increase tourism revenue, create businesses, and provide re-employment opportunities for displaced workers.

The Role of the Council of Economic Advisers

BY AARON STEELMAN

The Employment Act of 1946 is best known for stating that the federal government has a responsibility to, among other things, “promote maximum employment, production, and purchasing power.” That will sound familiar to many: It closely resembles the Fed’s “dual mandate” that was adopted in 1977 and reinforced with the passage of the Humphrey-Hawkins Act of 1978, itself an amendment to the 1946 Act. Less well known is the 1946 law’s creation of the Council of Economic Advisers, or CEA.

The CEA is part of the Executive Office of the President and has three members, including a chair, as well as staff economists who report to them. The chair is nominated by the president and confirmed by the Senate, and the other two members are appointed by the president. The CEA’s role is largely what the president makes it. Preparation of the annual *Economic Report of the President*, which contains forecasts of economic activity and analysis of economic issues the administration deems important, is its only statutory responsibility.

The CEA got off to a rocky start. According to a chapter in the 2016 *Economic Report of the President* discussing the CEA’s 70th anniversary, there was significant internal policy disagreement among members during the Truman administration. Such turmoil was exacerbated by the fact that the chair and the other two members had functionally equivalent roles, each effectively with one vote, making it difficult for the CEA to provide coordinated advice. It wasn’t clear that the CEA would survive during the Eisenhower administration. However, the CEA adopted a new structure and under the direction of Chair Arthur Burns received significant credit for providing advice to help end the 1953-1954 recession. (Burns would chair the Federal Reserve in the 1970s, the first of four CEA chairs to later move into that role. Alan Greenspan served as CEA chair in the Ford administration, Janet Yellen in the Clinton administration, and Ben Bernanke in the George W. Bush administration.)

The CEA perhaps enjoyed its greatest influence during the Kennedy administration. Kennedy worked closely with Chair Walter Heller on many issues, most notably a significant tax reduction that was eventually adopted in 1964, during the early part of the Johnson administration. Martin Baily, chair of the CEA from 1999 to 2001, says that the “effectiveness of the CEA depends to a large degree on the curiosity of the president, whether he has a natural inclination to value technical advice. And it also depends on personalities — how well the CEA chair gets along with the president.”

The closeness between the CEA and the president has been a point of contention. Is it the job of the CEA to provide neutral scientific analysis or to act in support of the administration’s goals? At a 2016 conference on the history of the CEA held at the Brookings Institution, several past chairs and members said it’s a bit of both: to use the tools of economics to examine issues objectively but also to present arguments in a way that’s understandable and persuasive to not only the president and his staff but also Congress. The potential for CEA members to veer too heavily in the direction of advocacy is mitigated by a desire to maintain professional reputations, since most will later return to academia.

While the CEA does advocate policies it thinks would be helpful, it frequently finds itself in the opposite position. As Randall Kroszner, a member of the CEA from 2001 to 2003 who later served as a governor of the Federal Reserve Board, told this magazine in 2003, “I think the tradition at the CEA basically has been to prevent bad policies from being implemented. Often proposals can sound great and very creative, but economists have a framework to look at them and explain their unintended consequences.”

The CEA works closely with the National Economic Council (NEC), created in 1993 largely to help monitor implementation of the president’s economic policy agenda. As such, the NEC is often headed by a noneconomist with more practical political experience. Baily says the NEC can be valuable in “coordinating interaction among the various agencies charged with handling economic issues and to synthesize the views they present.”

At the Brookings conference, Martin Feldstein, CEA chair from 1982 to 1984, argued that the CEA has also played the important role of training “large numbers of senior economists about economic policy ... how the policy process works, but also understanding many of the technical issues involved.” For instance, future Nobel Prize winner Paul Krugman worked at the CEA while Feldstein was chair, and fellow Nobel laureates Kenneth Arrow and Robert Solow were on the CEA staff during the Kennedy administration.

While the influence of the CEA has waxed and waned over its more than 70 years, it has proved remarkably resilient. Roger Porter of Harvard University’s Kennedy School of Government told the Brookings audience that of “the more than four dozen entities that have been lodged at one time or another in the Executive Office of the President, there are only 11 which remain today.” **EF**

The Fed's Foray Into Forex

Although very uncommon now, the Fed used to intervene regularly in foreign exchange markets

BY TIM SABLİK

Every quarter, the New York Fed sends a report to Congress detailing its foreign exchange, or forex, operations on behalf of the Federal Reserve System and the Treasury. For most of the last two decades, these reports have stated something along the lines of the most recent one: “U.S. monetary authorities did not intervene in the foreign exchange markets.”

This hands-off approach hasn't always been the norm, though. From the 1960s to the mid-1990s, the Fed and the Treasury intervened in currency markets on numerous occasions. The reasons why are rooted in the international monetary system established after World War II.

Confronting the Impossible

In July 1944, a month after D-Day, 44 countries met at Bretton Woods, N.H., to discuss how to rebuild the world's financial system after the war. Their goal was to build stability and cooperation that would avoid another global economic depression. The United States agreed to peg the dollar to gold at \$35 an ounce, and other member countries would fix their currencies to the dollar.

Throughout the 1950s, dollars flowed from the United States to Europe to help finance reconstruction and get Europe's economies back online. This spelled trouble for the Bretton Woods system, however. By the early 1960s, there were more dollars abroad than the United States could credibly commit to convert to gold.

The excess dollars overseas posed a dilemma for U.S. monetary authorities — or more accurately, a trilemma. The trilemma or “impossible trinity” of international finance states that a country can maintain only two of the following three conditions at the same time: a fixed exchange rate, free capital movement, and an independent monetary policy. The United States had committed to the first two, which in theory should have left domestic monetary concerns subordinate to international ones.

To stem the bleeding of U.S. gold reserves, the Federal Reserve needed to tighten monetary policy to strengthen the dollar. But in 1960, the country was also in the midst of a recession, which called for easing policy. The Fed initially prioritized international concerns and raised interest rates, but along with the Treasury, it began exploring a tool that might allow the United States to get the best of all worlds, maintaining a fixed exchange rate while still pursuing independent monetary policy. That tool was intervention in foreign exchange markets.

The Forex Awakens

The Fed had delved briefly into forex operations early in its history. Benjamin Strong, the influential first leader of the New York Fed, established accounts with the Bank of England and other European central banks that he used to help those countries resume the gold standard after World War I. In the early 1930s, after Strong had died, Carter Glass, one of the architects of the Federal Reserve Act, denounced those actions. He argued the New York Fed had overstepped its bounds by acting for the system in international affairs, and the 1933 Glass-Steagall Act contained a provision that any such activities required the consent of the Fed's Board of Governors.

The Gold Reserve Act signed the following year created a replacement for the Fed's foreign exchange operations in the Exchange Stabilization Fund (ESF). The ESF, which was controlled by the Treasury, was authorized to buy and sell gold or foreign currencies to maintain the dollar's peg to gold. The ESF, then, was the natural candidate to intervene in support of the dollar's peg to gold during the Bretton Woods era. There was just one problem. After World War II, the U.S. government reallocated 90 percent of the ESF's initial funding to help establish the International Monetary Fund (IMF). Barring an additional appropriation of funds from Congress, the ESF now had little capacity to intervene in exchange markets.

Rather than go to Congress, however, the Treasury turned to the Fed. In 1961, the Federal Open Market Committee (FOMC) considered a proposal from the Treasury to establish “swap” arrangements with foreign central banks to purchase foreign currency, similar to the arrangement Strong had used decades earlier. The Fed could then use that foreign currency to purchase dollars, raising the dollar's price and stemming gold outflows. Since foreign central banks ultimately wanted to hold fewer dollars, the Fed would agree to reverse the swap at a later date at the same exchange rate. This guarantee protected foreign central banks from the risk that the dollar would depreciate in the meantime, reducing their incentive to exchange those dollars for gold, which would have exacerbated the U.S. gold reserve problem. The Treasury also asked the Fed to help supply the ESF with dollars to continue its operations by temporarily exchanging them for foreign currencies held by the ESF — a process called “warehousing.”

The debate on the FOMC over the proposal was contentious. First, it wasn't clear that the Fed had the legal



authority to buy and sell foreign exchange. The Federal Reserve Act contained some language authorizing foreign transactions, and Board Counsel Howard Hackley interpreted this as legal authority to engage in the swaps. Warehousing was slightly more complicated. The Fed is not allowed to purchase U.S. bonds from the Treasury directly; it has to purchase them from the market (which is why such actions are called “open market operations”). But Hackley argued that the Treasury was part of the open market for foreign exchange, since that exchange was not directly issued by the U.S. government. This, he argued, allowed the Fed to engage in warehousing for the ESF.

The FOMC settled the legal question fairly quickly, but some members of the committee had still another objection. The Fed was considering undertaking these operations at the request of the Treasury, and warehousing in particular was seen by some as providing funding for Treasury operations. The Fed had declared its policy independence from the Treasury just a decade earlier, and some members of the FOMC saw these operations as a threat to that newly won independence. By creating the ESF, Congress had given the Treasury the primary responsibility for exchange markets. If the Fed agreed to participate, some on the FOMC reasoned that it would be doing so as a junior partner. Ultimately, a majority of the committee voted on Jan. 23, 1962, to proceed with the operations.

Over roughly the next decade, the Fed engaged in a number of swap operations to support the dollar’s peg to gold. All of these operations were “sterilized,” meaning that if the Fed purchased foreign exchange, it would sell an equivalent amount of dollar-denominated securities so that the monetary base remained the same. Unsterilized purchases would have expanded the monetary base, producing an expansionary monetary policy effect, and the Fed wanted to keep its domestic monetary policy and forex operations separate.

In their 2015 book *Strained Relations*, chronicling the Fed’s foreign exchange operations, Michael Bordo of Rutgers University, Owen Humpage of the Cleveland Fed, and the late Anna Schwartz argued that these operations provided a temporary solution to the gold reserve problem but “did not address the system’s deep-seated weaknesses.” Ultimately, President Richard Nixon suspended the dollar’s gold convertibility in 1971, and the Bretton Woods system of fixed exchange rates collapsed in March 1973. The Fed’s swap lines, however, remained.

Intervening in a Floating Exchange World

The end of Bretton Woods offered a different solution to the trilemma for U.S. monetary authorities. With the dollar no longer fixed to gold, the Fed could now pursue independent domestic monetary policy with free capital flows. But many officials had concerns about letting the dollar float freely.

“Many policymakers at the time, like Fed Chairman Arthur Burns, had grown up under the gold standard,” says Humpage. “They were worried that trading among countries wouldn’t work, or would be greatly affected, if we had floating exchange rates.”

Initially, global officials thought that Bretton Woods (or something like it) would be reinstated. But it soon became clear that floating exchange rates were here to stay. The dollar began depreciating soon after the adoption of floating rates, and the Fed believed that intervention was necessary to correct these “disorderly conditions” in exchange rate markets. After a brief pause, the Fed and the Treasury began intervening in exchange markets again in 1973 to support the falling dollar.

The Fed’s tools for these interventions were still the same. It used swap lines to borrow foreign currency from other central banks to buy dollars. But it was not immediately clear how effective these tools would be under the new regime. During Bretton Woods, the Fed’s primary goal was to reduce pressure on U.S. gold reserves. Providing foreign central banks with protection by agreeing to buy back dollars at a fixed rate through the swap lines helped accomplish that goal. Now the Fed was primarily trying to influence the value of the dollar in the market.

Unsterilized intervention would have had a direct impact on interest rates and the value of the dollar, the same effect as domestic open market operations undertaken by the Fed. But as it did in the 1960s, the Fed continued to sterilize its foreign exchange operations. Theoretically, sterilized operations could indirectly affect exchange rates in a number of ways. First, they could communicate to the market policymakers’ views on the dollar’s value, helping to coordinate market expectations. Second, sterilized interventions would alter the composition of the assets held by the public. If investors see dollar and foreign securities as imperfect substitutes, they may choose to rebalance their portfolio in response to an intervention, which would shift exchange rates in the direction desired by monetary officials. Third, forex interventions could



signal the future direction of monetary policy, prompting a response from the market.

In practice, economists have found mixed evidence for the efficacy of sterilized interventions. One problem with the signaling or coordination explanation was that the Fed's interventions at the time were not announced beforehand, which would hamper any signal the Fed might want to send markets. Regarding the portfolio balance explanation, the size of the operation necessary to meaningfully shift portfolios is unclear. Today, most economists agree it would take a very large operation to affect exchange rates through this channel, and the size of the Fed's operations in the 1970s were limited. Moreover, because the Fed's operations were conducted through swap lines, they were only temporary. At some point, the Fed would have to reverse the swaps, undoing any changes to the market's portfolio.

"As the 1970s went on, the dollar kept depreciating," says Humpage. "It didn't seem like the interventions had much of an effect. You can't say they had no effect. They did seem to moderate dollar movements sometimes. But it was very hit or miss."

Off Again, On Again

Soon after the Reagan administration came into office in 1981, the Treasury announced it was taking a "minimalist" approach to intervention. Newly appointed Undersecretary of the Treasury for Monetary Affairs Beryl Sprinkel argued that the dollar's weakness was primarily due to rising inflation, and intervening in exchange markets only "treated the symptoms" not the cause. Sprinkel also believed that exchange markets had improved over a decade of experience with floating rates and that regular interventions by monetary authorities only contributed to disarray.

Not everyone agreed. As U.S. interest rates soared in the early 1980s to combat inflation and the dollar strengthened, foreign central banks began asking the United States to intervene again. In a June 1982 meeting of the Group of 7, U.S. officials agreed to participate in a study of exchange rate interventions.

"It was the first systematic research effort looking at the effects of foreign exchange market intervention," says Edwin Truman, a senior fellow at the Peterson Institute

for International Economics. Truman served as the director of the Division of International Finance at the Fed's Board of Governors from 1977-1998 and participated in the G7 work group on exchange rate intervention. "Prior to that, there was only a small amount of academic literature on this topic, partly because the data were not generally available."

The group released its report (dubbed the Jurgensen Report, after the head of the work group, Philippe Jurgensen) in 1983. It found that sterilized interventions had much smaller effects on exchange rates than unsterilized interventions. Moreover, the effects of sterilized interventions were largely short-term.

"The people who were inclined to think that interventions had no effect had to concede there could be some marginal benefits," says Truman. "And the people who thought that foreign exchange market intervention was quite effective were, I think, somewhat discouraged by the results. Either that or they ignored them."

The latter response seems to have been most common at the time. Under Reagan's second administration in 1985, new Secretary of the Treasury James Baker put an end to the minimalist approach. The United States along with France, West Germany, Japan, and the United Kingdom pledged to intervene to bring the value of the dollar down (in what became known as the Plaza Accord), and the Treasury and the Fed resumed intervention operations.

The Turning Point

On "Black Monday," Oct. 19, 1987, the U.S. stock market suffered its largest ever one-day loss in percentage terms. The Fed responded immediately, issuing a statement the following morning that it was ready to serve as a source of liquidity for the financial system. It loaned millions of dollars to banks through open market operations and the discount window. These actions lowered interest rates, but they also depreciated the dollar.

Earlier that same year, the countries involved in the Plaza Accord along with Canada met to discuss new developments in the dollar. The coordinated forex interventions by these countries seemed to have worked: The dollar had depreciated. In fact, they now worried the depreciation had gone too far. The countries met in February 1987 and agreed to intervene to stem the

dollar's decline. In line with this agreement, the Treasury and Fed conducted sterilized interventions to support the dollar, which involved purchasing dollars using foreign exchange.

After the crash of October 1987, however, this intervention ran counter to the Fed's crisis response. On one hand, the Fed was supplying dollar liquidity to the financial system, and on the other, it was purchasing dollars in an effort to appreciate the dollar. Cleveland Fed President Lee Hoskins and his successor, Jerry Jordan, were some of the most vocal early critics of these actions on the FOMC, arguing that the Fed was sending confusing signals and undermining its credibility, which it was still trying to build up after the Great Inflation.

"The foreign exchange operations were sterilized and shouldn't have had any effect on monetary policy," says Humpage. "But Hoskins and others were concerned that the market just didn't get this and it would start to question what the Fed was doing. Does it care about the dollar or about the rate of inflation? How much is it willing to give up on the rate of inflation to stabilize the dollar?"

In the early 1990s, Richmond Fed President Al Broaddus and director of research Marvin Goodfriend resurrected another argument against the interventions. As some FOMC members had argued in the 1960s, Broaddus and Goodfriend contended that undertaking these operations at the behest of the Treasury jeopardized the Fed's monetary policy independence. This argument came into sharp focus in 1994-1995 when the Fed agreed to help finance a Treasury loan to Mexico through warehousing after Congress declined to approve a bailout package. (See "The Fed's 'Tequila Crisis,'" *Econ Focus*, First Quarter 2017.)

After 1995, the Fed stopped intervening in exchange markets almost entirely. By the turn of the century, intervention operations were largely shelved by central banks in developed economies. But why? Did the arguments made by Hoskins, Jordan, Broaddus, and Goodfriend about a conflict between monetary policy and intervention win the day? Or did the Jurgensen Report and the studies that followed eventually change policymakers' minds about the effectiveness of intervention?

Fed Chairman Alan Greenspan alluded to both factors in a 1999 speech. "Empirical research into the effectiveness

of sterilized intervention in industrial country currencies has found that such operations have at best only small and temporary effects on exchange rates," he said. "A more recent strand of research into this topic claims that intervention operations can be effective when they signal future monetary policy operations... The problem with this view is that it means that sterilized intervention is not an independent tool that can be used to influence exchange rates. It needs a supporting monetary policy stance to be effective."

Another factor may have also played a role. In a 2008 article by Christopher Neely of the St. Louis Fed surveying central bankers in 23 different countries about exchange market intervention, some respondents agreed that intervention could distract policymakers from more necessary changes. U.S. monetary policymakers experienced that during the Bretton Woods system and during the Great Inflation of the 1970s. Intervention was sometimes effective at treating the symptoms of monetary problems but never the root cause.

The Modern Era

Whatever the reason for scaling back intervention, the proof, as they say, is in the pudding. Since 1995, the Fed has conducted just three interventions: in 1998, to strengthen the Japanese yen during the Asian financial crisis; in 2000, to support the euro following its introduction; and in 2011, to stem the yen's appreciation in the wake of the Tohoku earthquake and tsunami. It also reopened swap lines with European central banks to provide liquidity during the global financial crisis of 2007-2008.

The Fed still maintains assets denominated in foreign currencies and the tools to intervene in forex markets to counter "disorderly market conditions," as stated on the New York Fed's website. But the operations of the past two decades have been undertaken to provide support for foreign currencies or to supply dollar liquidity to other central banks rather than to influence the dollar per se. Moreover, the conditions that justify forex operations seem to crop up less frequently now. Either that, or the bar for intervention may be higher.

"The longer you go without using a tool," says Truman, "the less likely you are to dig it out of the toolbox." **EF**

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Value-Added Tax

BY TIM SABLİK

Earlier this year, newspapers reported that the Trump administration was weighing a value-added tax (VAT) as part of its tax reform proposal. While a VAT was ultimately not part of the final proposal, it has been a perennial topic of U.S. tax reform discussions for decades. Indeed, the United States is one of the few countries today that does not have a national VAT.

A VAT is a tax on consumption, similar to a sales tax. But unlike a sales tax, which is charged only at the final point of sale to consumers, a VAT is levied on all sales of inputs throughout the chain of production.

Take, for example, a wooden chair that retails for \$100. Suppose this is the chair's production chain: A lumber company first harvests the wood to sell to the furniture maker. If it sells this wood for \$30, it has added \$30 to the value of the chair. If the furniture maker then turns this wood into a chair and sells it to a retailer for \$70, its value added is \$40 (\$70 minus the \$30 contributed by the lumber company). Finally, if the retailer sells the chair to a consumer for \$100, its value added is \$30 (\$100 minus \$70).

A 10 percent VAT would collect revenue from each link in this production chain. There are different ways of calculating and collecting a VAT, but by far the most common is the credit-invoice method. Under this method, each business pays the full VAT but receives a refund of any tax amount previously paid on the item. In the chair example, the lumber company would owe a \$3 tax on its \$30 sale of lumber to the furniture maker. The furniture maker would owe \$7 on its \$70 sale to the retailer but receive a \$3 credit from the tax authority for the amount already paid by the lumber company. The retailer would owe the full \$10 tax on the sale of the \$100 chair but receive a \$7 credit for the amounts paid by the lumber company and the furniture maker.

In the end, the total tax collected would be \$10, just as it would be under a 10 percent sales tax. Also like the sales tax, the incidence of a VAT is typically passed up the chain and ultimately falls on the consumer. So the lumber company would charge \$33 for the wood, the furniture maker would add his or her tax to the cost and charge the retailer \$77 for the chair, and the retailer would charge \$110 to the consumer.

Given that the outcome of a sales tax and VAT is largely the same, why do many countries favor the more

involved VAT? A VAT creates a chain in which each buyer has an incentive to make sure the seller below them has paid the tax. The only way for a buyer to be reimbursed is to submit receipts to the tax collector showing the portion of the VAT already paid by the seller. In theory, this chain of accountability makes a VAT easier to enforce.

Increased enforceability is helpful given that VAT rates can be high. For example, the European Union requires member countries to have a minimum 15 percent VAT, and several have rates higher than 20 percent. High rates on a broad base mean VATs raise substantial revenue. For example, in 2009, VATs

accounted for an average of 19 percent of the revenue raised by other countries within the Organisation for Economic Co-operation and Development. The Congressional Budget Office estimates that even a 5 percent broad-based VAT in the United States would raise \$2.7 trillion over 10 years.

Economists generally favor a VAT because it can be less distortionary to economic activity than other types of taxes. A broad-based VAT raises the price of all goods and services equally, leaving consumers' preferences

unchanged (though it could provide some disincentives to work, since a general price increase would be equivalent to a wage decrease).

Despite calls from numerous policy think tanks for a U.S. VAT to address the growing fiscal imbalance, the idea has so far proven unpalatable to both sides of the political spectrum. Liberals tend to criticize the VAT as regressive, since poorer households consume a larger portion of their income and thus proportionally bear a greater burden of the tax. To address these concerns, many governments with VATs exempt things like food or medical care from the tax, but this makes the VAT more distortionary.

Conservatives have argued a VAT would collect too much revenue in a way that is largely invisible to taxpayers, ultimately growing the federal government. VATs are typically included in the price of goods and services rather than listed separately as with sales taxes, which can obscure the cost of the tax for consumers. There is also the administrative challenge of implementing a national VAT on top of state sales taxes, which many states rely on for a substantial portion of their revenue. **EF**



Superstar Firms and the Falling Labor Share

BY KODY CARMODY

In 1961, economist Nicholas Kaldor observed that the labor share, the percentage of a nation's GDP paid as wages, is roughly constant across countries and time. Until the 1980s this was broadly true — labor consistently received about two-thirds of GDP. Since then, however, there has been a marked decline in the labor share within most countries, including the United States. This trend has recently seen considerable attention from economists, policymakers, and the media, as it is central to discussions of growing wealth inequality. A declining labor share means that GDP growth might not translate into real wage growth.

Recent years have seen many explanations that rely on aggregate- or industry-level analyses. In a recent *American Economic Review* paper, David Autor, Christina Patterson, and John Van Reenen of the Massachusetts Institute of Technology, David Dorn of the University of Zurich, and Lawrence Katz of Harvard University argued that these macro-level analyses obscure important firm-level effects.

Autor and his co-authors presented a model of “superstar firms.” They argued that the fundamental character of U.S. markets has changed since the 1980s — industries have become increasingly “winner-take-most,” causing highly productive superstar firms to control larger shares of the market. By definition, more productive firms need fewer workers for a given level of production, and a market shift toward superstars could cause the aggregate labor share of income to fall, even as the average firm's labor share stays stable.

The researchers looked at six large sectors in the United States and found strong evidence of such a shift. For each sector, the concentration of sales, the share of sales going to top firms, and the concentration of employment have increased substantially since the 1980s. In 1982, the largest four retail trade firms accounted for less than 15 percent of sales; by 2012, that number had risen to about 30 percent. For most industries, concentration of employment is far below concentration of sales, suggesting that the top firms are capturing larger shares of the market while employing relatively fewer workers.

One possible explanation is that markets are becoming more competitive — increased international trade and Internet shopping, for example, may have made consumers more sensitive to price differences. It's possible, however, that larger firms are just better at lobbying to prevent competition. If so, dominant firms would have less incentive to

innovate and their productivity growth would be relatively stagnant. Instead, the authors found that manufacturing industries that have become more concentrated also saw the largest increases in productivity. This doesn't rule out the idea that markets are becoming less competitive in some ways, but it does suggest that differences in firm productivity, as opposed to anti-competitive practices, are an important driver of increasing market concentration.

If superstar firms are behind the falling labor share, we would expect the fall to be largest in industries that have seen the largest increases in concentration. In an MIT working paper, Autor and his co-authors tested this relationship for each five-year period between 1982 and 2012. In the first period, 1982-1987, they found no relationship between changes in concentration and labor share. For

the next period, 1987-1992, an increase in concentration predicted a small drop in labor share, and the effect became larger in each five-year period following. By 2007-2012, a 1 percentage point increase in an industry's concentration predicted a 0.4 percentage point fall in its labor share. That the

relationship didn't exist at first, but became stronger over time, is consistent with the idea that the rise of superstar firms was driven by a fundamental change in the character of markets.

Other authors have found results consistent with the superstar firms model. A 2017 working paper from Matthias Kehrig of Duke University and Nicolas Vincent of HEC Montreal looked closely at the U.S. manufacturing sector and concluded that a small number of “hyperproductive plants” are responsible for that sector's labor share decline. A 2017 working paper from Daniel Berkowitz of the University of Pittsburgh, Hong Ma of Tsinghua University, and Shuichiro Nishioka of West Virginia University provided evidence for the recent emergence of superstar firms in China.

Macro-level factors like trade, technology, housing, and the broader economy might explain some of the labor share's decline. But Autor and his co-authors, in their working paper, argued that their results are consistent with the superstar firms model and made the case for “a somewhat neglected firm-level perspective on the changes in the labor share.” They suggested that future research should further test their model, explore what allowed superstar firms to gain market share, and explore the links between superstar firms, the labor share, and inequality. **EF**

“Concentrating on the Fall of the Labor Share.” By David Autor, David Dorn, Lawrence F. Katz, Christina Patterson, and John Van Reenen. *American Economic Review: Papers & Proceedings*, May 2017, vol. 107, no. 5, pp. 180-185.

Lost Your Job? Call Mom and Dad

BY HELEN FESSENDEN

“Parental Proximity and the Earnings Consequences of Job Loss.” Patrick Coate, Pawel Krolkowski, and Mike Zabek, Federal Reserve Bank of Cleveland *Economic Commentary* No. 2017-03, Feb. 9, 2017.

Does having your parents nearby make a difference if you lose your job? For younger workers, the answer is yes — with benefits that are both significant and long lasting, according to research from the Cleveland Fed. Analyzing a dataset of 35,000 individuals over 20 years from the Panel Study of Income Dynamics, the authors found a correlation between displaced workers’ earnings recovery over time and distance to their parents. On average, young adults (age 25 to 35) who lost their jobs and lived near home (roughly speaking, a locality) did comparatively well: They almost recovered their previous hourly earnings after six years. But those who lived farther away suffered a larger drop in earnings following dislocation, and even 10 years on, their wages hadn’t recovered to pre-shock levels. In contrast, for adults older than 35, the correlation didn’t hold at all.

Parental help is still no cure-all for younger workers, however. All displaced workers had a lower wage trajectory than those who stayed continuously employed. Still, parental proximity may provide a safety net in tough times. This may take the form of short-term housing, food, child care, or access to a network of family friends who can help out on the job hunt. As for the reason the effect didn’t hold for adults older than 35, the authors wrote that this is a question for future research to take up. But they suggested one reason may be that a greater share of older adults may choose to live closer to parents who need their help as they age.

“Minimum Wages and Consumer Credit: Impacts on Access to Credit and Traditional and High-Cost Borrowing.” Lisa J. Dettling and Joanne W. Hsu, Federal Reserve Board of Governors, *Finance and Economics Discussion Series* 2017-010, Jan. 15, 2017.

Economists have long studied the minimum wage in the context of labor markets. Lisa Dettling and Joanne Hsu of the Federal Reserve Board of Governors used a wider lens to study the interaction between minimum-wage increases and access to credit among lower-income households, asking whether a boost in pay for the poorest workers expands their access to credit and improves their credit scores. By looking at an array of credit products — from car loans to credit cards — across states with differing minimum wage policies, they tried to determine whether higher take-home pay lowers the incidence of costly borrowing.

The authors found that a boost in the minimum wage

did ease credit constraints on the poorest households, as well as shift borrowing away from more expensive varieties of credit. Raising the minimum wage helped these households secure lower-cost credit and reduced the need for payday borrowing (short-term loans with very high rates). For every \$1 increase in the hourly minimum wage, poor households saw a 7 percent increase in credit card offers, while delinquency rates fell by 5 percent. More dramatically, payday borrowing dropped by 40 percent.

Borrowing volume still rose among low-paid workers who got a boost in the minimum wage, but the rate of default dropped for those loans in the medium run. As their repayment rates improved, so too did their credit scores — which, in turn, led to more favorable loan and credit card offers. Given that 19 states and 21 localities raised their minimum wage this past January, researchers will have even more data to work with as they assess the effects.

“Measuring News Sentiment.” Adam Hale Shapiro, Moritz Sudhof, and Daniel Wilson, Federal Reserve Bank of San Francisco *Working Paper Series* No. 2017-1, Jan. 4, 2017.

Survey-based indices of consumer sentiment, such as those published by the University of Michigan and the Conference Board, are widely followed due to their reputation for predictive accuracy. The challenge for researchers is that such surveys are often expensive to conduct and confined to a small sample of individuals. So tech firms have been developing software to conduct “computational text analysis,” which processes vast amounts of text quickly to analyze emotions and sentiment. Economists and other data scientists are increasingly employing this software to analyze volumes of data that couldn’t be processed before.

Adam Shapiro and Daniel Wilson of the San Francisco Fed, working with Moritz Sudhof, a data scientist with the firm Kanjoya (since acquired by Ultimate Software), applied this new tool to assess how well it did compared to traditional surveys measuring consumer and economic sentiment. They employed computational text analysis of financial news articles in 16 major newspapers from 1980 to 2015 to see how closely news sentiment correlates with business cycle indicators, using an algorithm to assign “negativity” or “positivity” to particular words. They found not only a strong relationship between news sentiment and standard indicators; they also discovered that most news sentiment indicators actually outperformed the University of Michigan and Conference Board measures when it came to predicting the federal funds rate, employment, inflation, and other indicators. **EF**

Pricing Vice

Can “sin taxes” be good for your health and the economy?

By Helen Fessenden

It's rare for a tax to become trendy. But that's what's been going on in cities across the United States when it comes to soda taxes — levies on sugary beverages ranging from colas to sports drinks. For years, soda taxes failed at the ballot box, and in 2013, New York City's then-mayor Michael Bloomberg suffered a major defeat in court when he proposed a ban on large soda servings. A turning point came in 2014, when Berkeley, Calif., passed a soda tax after fierce debate. Philadelphia and four other cities followed suit in 2016, and just this past June, Seattle's City Council approved a soda tax of 1.75 cents per ounce to be levied on distributors. In all of these cases, the measure's backers argued the tax would cut consumption and help address obesity. On the opposing side were retailers and beverage industry groups, who charged it would hurt small businesses and disproportionately burden low-income consumers.

The movement is gaining ground beyond the United States as well. Citing rising obesity rates worldwide, the World Health Organization has called upon governments to consider soda taxes — along with a broad mix of health policies — as part of an international campaign against childhood obesity. Mexico enacted a nationwide soda tax in January 2014, and almost 30 other countries are considering or experimenting with similar measures. (See table on next page.) Although there's variety in how these taxes are structured, they usually take the form of excise taxes levied on the retailer or distributor, who to date have passed most or all of the cost along to consumers. Another common feature is that they cover not just soda but most drinks with added sugar, from flavored waters to energy drinks, collectively known as “sugar sweetened beverages” (SSBs).

Soda tax proponents often cite the campaign against tobacco as a playbook. U.S. smoking rates have plummeted in recent decades, and in tandem with other reforms — package warnings, ad restrictions,

and smoking bans, to name a few — tobacco taxes have risen sharply. These advocates have drawn the lesson that higher soda taxes will cut consumption and lead to better health outcomes. They focus in particular on illnesses correlated with obesity, such as diabetes and heart disease, which have been on the rise globally. Since these diseases often consume a large share of public health spending, some economists and policymakers argue that obesity could be considered an “externality” akin to the effects of smoking — that is, the “external” cost of an individual's decision that society must pay for, like illnesses from secondhand smoke.

Others, including some who support anti-obesity measures for health reasons, see the externality comparison as inexact. For one, while obesity is strongly correlated with an array of diseases and health risks, there's still vigorous debate over the extent of obesity's causal role. Moreover, it's difficult for researchers to separate the effects of soda consumption on obesity from the effects of the rest of the foods in our diets, not to mention genetics and exercise. (Soda contributes about 7 percent of all calories in an average American diet.) And taxes may not have the desired effect if consumers have ways to get around price hikes — say, by finding other caloric fixes that are untaxed or crossing state borders if soda is less pricey there. Finally, some scholars, including those who favor less government intervention, argue that taxation may overlook the potential of other approaches — from education to “nudge” mechanisms — that promote healthier habits.

Soda taxes are only the latest example of “sin taxes” — levies on goods or activities seen as undesirable or harmful. Over time, justifications have ranged from raising revenue to addressing the external costs of private decisions to improving personal decisionmaking for its own sake. But when does it make economic sense to put a price on “bad” habits?

A Brief History of Sin Taxes

For centuries, governments have imposed taxes on tobacco and alcohol. Cleopatra taxed beer to help fund her wars and reduce public drunkenness. Tobacco was taxed early on in the American colonies, and in the 1790s, Pennsylvania farmers revolted against the first new levy imposed by the new republic, on their whiskey. Most of these measures were justified primarily on fiscal grounds, as a revenue source for limited public purposes like military funding. Even the Scottish economist Adam Smith embraced sin taxes with the justification that if the government was to raise revenue, it may as well tax nonessential goods.

Sin taxes have also been viewed as a way to curb behavior seen as costly to society. In the early 20th century, the economist Arthur Pigou formalized the idea of taxing externalities: If an individual acts in a way that imposes costs on others without having to pay for it, then the costs of the consumption will exceed benefits — and some parties will be harmed involuntarily. A tax on the good, however, can push the private cost closer to the social cost, reducing consumption and benefiting society as a whole. Unlike many other taxes, then, “Pigouvian” taxes are more about changing behavior than raising revenue. If there’s no externality, however, using taxes to alter private choices may invite the charge of paternalism and can make both consumers and producers worse off: Taxing a good prevents people from consuming something that gives them enjoyment, however unsavory it may seem to others. It also reduces production and associated jobs.

Outright bans — such as Prohibition in the 1920s — are an alternative to taxes if a government wants to curb an unwanted or illicit activity. When weighing the two approaches, though, most economists have advocated the use of taxes. For example, Gary Becker and Kevin Murphy of the University of Chicago famously argued banning activities such as drug use is likely to be less effective and

more costly to society than taxes: Rather than eliminating demand, they drive the activity underground, leading to violence, costly prison sentences, and wasted police resources. More recently, some economists have promoted “nudges” — simple, targeted mechanisms that rely on predictable psychological responses — to help people make “better” personal choices without restricting the set of options available. For example, rather than banning junk food outright, retailers could place fruit and vegetables at eye level.

Taken together, these insights have helped shape tax and health policy in recent decades. Policymakers have justified sin taxes in several ways, but they are seen as most likely to benefit society if they counter an externality. So for economists, the key issue in studying sin taxes often turns on the question: To what extent does an externality exist?

Private Choices, Public Cost

Take smoking: In terms of human cost, it’s the top preventable cause of death in the United States, causing about 480,000 premature deaths a year, including 41,000 due to secondhand smoke. Economists usually consider the health costs and deaths of nonsmokers to be an externality, as well as the amount of public health care funding on tobacco-related illnesses. A 2015 study estimated that total tobacco-related health care costs come to \$170 billion annually, 60 percent of which is covered by public dollars. Moreover, long-term smokers typically die 10 years earlier than nonsmokers — although some economists consider this, however tragic, as partially offsetting the externality due to fewer Social Security and Medicare outlays.

These statistics have made it relatively easy for U.S. policymakers to justify over the years a series of federal, state, and local tax hikes on tobacco, though state and local taxes still vary. In 1962, the federal tax per 1,000 cigarettes was just \$4.00 (adjusted for inflation), compared to \$50.50

Anti-Obesity Taxes Around the World

Selected countries that have adopted taxes to fight obesity

Country	Year enacted	Current taxes	U.S. \$ equivalent
France	2012	0.075 euros per liter of SSBs (excise)	\$0.08 per liter
Hungary	2011	0.22 euros per liter of SSBs (excise)	\$0.25 per liter
Mauritius	2013	30 rupees per kilogram of sugar in SSBs (excise)	\$0.88 per kilogram
Mexico	2014	1 peso per liter of SSBs (excise); 8 percent VAT on high-calorie snacks (ad valorem)	\$0.06 per liter; N/A for VAT
Chile	2014	5 percent value added tax (VAT) on SSBs (ad valorem)	N/A
Belgium	2016	0.03 euros per liter of SSBs (excise)	\$0.03 per liter
United Kingdom	approved 2016 for 2018 enactment	18 or 24 pence per liter of SSBs depending on sugar content (excise)	\$0.23 to \$0.31 per liter

NOTE: In some cases, these levies were part of a broader tax package that covered items such as salty snacks, alcohol, etc. The exact definition of sugar sweetened beverages (SSBs) varies by country. The currency conversion rates are based on exchange rates as of June 15, 2017. One liter equals 1.05 U.S. quarts, and one kilogram equals 2.2 U.S. pounds.

SOURCE: The World Health Organization, “Fiscal Policies for Diet and Prevention of Noncommunicable Diseases,” May 2015; media reports.

in 2014. On average, all combined taxes now make up about 44 percent of the total price of a pack of cigarettes.

Alcohol — especially its role in drunk driving — is another case. The U.S. National Highway Traffic Safety Administration estimates that there are more than 10,000 alcohol-related fatalities on the road annually, or about 30 percent of all driving fatalities. Of drunk-driving fatalities in 2014, roughly 36 percent were non-drivers. It has also calculated the total economic cost of these accidents at about \$44 billion. (Overall, the nominal number of U.S. drunk-driving deaths has been more than halved since 1980, but it's still relatively high compared to other industrialized countries.) Excluding drunk driving, the government estimates that alcohol causes around 30,000 deaths directly each year; that number rises to almost 90,000 when alcohol is indirectly involved.

In contrast to smoking, though, most health experts agree that there are safe levels of alcohol consumption. Moreover, to the extent that the goal is to reduce drunk driving, the activity that's targeted is a step removed from the activity being taxed. The result is that some people are being taxed who are not causing externalities, making society worse off. This raises the question of whether there are more targeted and efficient ways to counter the externality — with the qualification that other alternatives (say, increased highway checkpoints) may be even costlier on net.

When it comes to soda consumption, the potential externality cited by soda tax advocates — obesity — has become a pressing public-health concern. One in three Americans is obese, up from one in seven in the early 1960s. Obesity is also skyrocketing around the world, a trend that has caused alarm among public-health experts because it's correlated with illnesses such as heart disease and diabetes. In the United States, these diseases account for around 10 percent of all health care spending. However, the medical community remains divided over how and when obesity causes these diseases compared to other health risk factors.

“The key externality with obesity is the significant health care costs that publicly funded insurance programs pay for,” says economist and public-health expert Frank Chaloupka of the University of Illinois at Chicago. “There's very strong evidence that obesity causes diabetes, as well as a number of other diseases, with many of these chronic conditions requiring treatment for many years. But other externalities of obesity are likely to be minimal, certainly not like secondhand smoke exposure for nonsmokers.”

Consumption of sugary drinks is considered an important contributor to obesity because unlike solid food, they contain less-filling “empty” calories that aren't offset by caloric reductions elsewhere; a diet heavy on soda amounts to a substantial increase in calories over time. In addition, children consume much more soda than adults do, and kids who become obese are more likely to be obese

adults. The challenge for researchers, however, is that soda's worldwide popularity means there is no counterfactual to work with: Had sugary drinks been unavailable over the last several decades, would the obesity epidemic have occurred anyway?

As with alcohol, medical experts also generally agree there are safe levels of soda consumption, and many people drink soda without becoming obese. So it's not clear that soda taxes are the most effective way to address externalities. And there are some who contend that obesity has a much greater “internal” cost than an external one. For example, Jay Bhattacharya of Stanford University and Neeraj Sood of the University of Southern California have argued that since obese individuals are often less healthy and work and earn less than the non-obese, they actually bear most of the economic cost.

A Success Story?

Whether sin taxes benefit society or improve health outcomes depends in part on whether they actually have an effect on consumption. The rich economics literature on tobacco suggests that, on balance, higher prices via taxes do tend to have that effect, everything else equal. The United States has witnessed a slew of policies since the 1960s, including smoking bans, restrictions on tobacco advertising, health education, and graphic package labeling. A 1990s settlement with tobacco companies channeled billions of dollars toward anti-smoking efforts. And all the while, smoking rates have sharply dropped for adults and teens. In 1964, 42 percent of adults smoked compared to 15 percent today. Among seniors in high school, the rate dropped from about 36 percent in 1997 to 19 percent in 2011. For economists studying consumption effects, then, it's important to isolate the tax effects from other policy changes.

The degree to which higher taxes reduce demand depends on the “price elasticity of demand,” which measures how sensitive consumers are to price changes. For example, economists have found that a 10 percent price increase for cigarettes will reduce adult smoking by between 2 percent and 6 percent, but for teens, it will reduce smoking by as much as 13 percent. In short, teens react more strongly to higher prices by buying less. This is important as the teen years are when most smokers start.

One major increase was the 2009 hike in federal tobacco taxes, boosting the per-pack tax from about \$0.40 to \$1.00 and lifting taxes on other tobacco products significantly as well. In a 2012 study, Chaloupka and Jidong Huang of the Georgia State University School of Public Health analyzed the immediate effect on prices and consumption by comparing poll results asking high school students before and after the hike whether they smoked in the last 30 days; they then controlled those results for individual and state-specific factors. They found that cigarette prices went up around 22 percent, while the share of smokers dropped by a range between 9.7 percent to



Even with addictive substances, the law of demand still applies. People consume less when the price goes up.

— Erik Nesson, economist, Ball State University

13.3 percent. The authors concluded this tax hike led to a drop of up to 287,000 fewer smokers just that year.

To be sure, researchers have long noted that smokers may work around taxes by trying to find cheaper substitutes, such as buying fewer — but higher-tar — cigarettes. To analyze this effect, a 2016 study published in the *American Economic Journal: Economic Policy* looked at nationwide purchasing data from 2004 to 2012 to see how households changed consumption patterns over time. On balance, with other factors held equal, every \$1 in extra taxes reduced the quantity of cigarettes purchased by 17 percent. This drop greatly outweighed a slight increase in tar and nicotine quantities that resulted from some smokers switching to higher-tar products.

Economists have also looked at whether the differences in state and local taxes weaken the impact of taxation, letting consumers avoid high taxes by crossing state or city lines to buy. Many studies have found that this “leakage” exists, but it usually doesn’t offset the overall drop in demand. For example, an analysis of Maryland’s 2003 tobacco tax hike of 36 percent (from \$1.00 to \$1.36) found that leakage shaved about 5 percentage points off the tax revenue. But in Washington, D.C., which is small and borders two states, the same hike would bring in only 17 percent. On average, the authors found, a typical smoker will travel three miles to save \$1, so this effect would dissipate once a smoker travels more than a few miles away from a low-tax state.

“Even with addictive substances, the law of demand still applies,” says Erik Nesson, an economist at Ball State University who co-authored the 2016 study on consumption changes. “People consume less when the price goes up. But it’s also clear that we can’t really see what the actual substitution effects are until policies are in place. And people will try to find ways to get around these price increases.”

Pick Your Poison

When it comes to alcohol, economists have unearthed similar demand effects, even though some studies suggest that drinkers may substitute more among their drinks of choice. A 2009 meta-analysis of 112 alcohol-tax studies found that almost all showed an inverse relationship between price and consumption, but this varied across different groups of drinkers. Beer drinkers were least sensitive to price changes, followed by wine drinkers, then by

liquor drinkers. Heavy drinkers, not surprisingly, were far less sensitive than any one of those groups. And some consumers are apt to switch beverages if their preferred libation becomes pricier. A 2011 paper on alcohol and injuries suggested that if spirits become more expensive relative to alternatives, liquor drinkers might be more inclined to switch to wine. But if wine — which ranges more widely in price — becomes pricier, wine drinkers tend to turn to cheaper wine.

In the context of externalities — namely, drunk driving — beer has gotten special attention. Beer drinkers are least sensitive to prices, but beer has been most closely correlated to drunk-driving accidents, in part because its packaging and shelf life can lead to quicker consumption. That same 2011 paper noted that most studies have found beer taxes might produce a consumption effect that, in turn, may help reduce drunk driving, while taxes on wine and spirits do not. The authors calculated that a 10 percent beer tax hike is correlated with a 2.2 percent drop in drunk-driving deaths. A 2015 study, focusing on large container beer purchases — which are tied to binge drinking because they may be quickly consumed — had a similar result. In short, the relationship between prices and alcohol intake appears to be more complicated than that for tobacco — due in part to the substitution effects across beverages and in part to variables such as demographics (alcohol preferences vary widely with age, gender, income, and education).

The latest question for researchers is whether taxes can cut soda consumption to the extent they did with tobacco. In Mexico, the soda tax has attracted interest partly because it’s constructed to minimize substitution: A wide array of SSBs was taxed, while diet soda, milk, pure fruit juice, and bottled water were untaxed. The tax amounts to about 9 percent of the purchase price, and it raised SSB prices by an average of 7 percent to 11 percent. A recent study by researchers at the University of North Carolina and Mexico’s National Institute of Public Health concluded that SSB consumption dropped 5.5 percent in 2014 and 9.7 percent in 2015 (both compared to the 2013 baseline), with even bigger drops among lower-income consumers. Sales of untaxed drinks such as bottled water, meanwhile, rose modestly. In short, the researchers discovered a consumption response similar to other sin tax findings. (The sample excluded small towns and rural areas, as well as sales in Mexico’s large informal retail sector.)

Will this policy make a dent in Mexico’s high obesity rates? It’s too early to tell, as the government only began collecting health data in 2016 as part of its assessment. This effort will likely take time, according to one of the study’s co-authors, economist Shu Wen Ng at the University of North Carolina at Chapel Hill. “Behavioral changes don’t shift overnight,” she says. “It took decades for this public-health crisis to evolve, and it will take a long time to address. One policy on its own — like the

soda tax — is an important start but is not enough. It will require a whole set of changes.”

Meanwhile, soda consumption can fall even in the absence of higher taxes — a good case being the United States. After rising for decades, full-calorie soda consumption began dropping in the 1990s and is now about 25 percent lower than in 1998, while bottled water sales have jumped. (See chart.) This trend started well before soda taxes were part of the public debate.

What’s a Fair Tax?

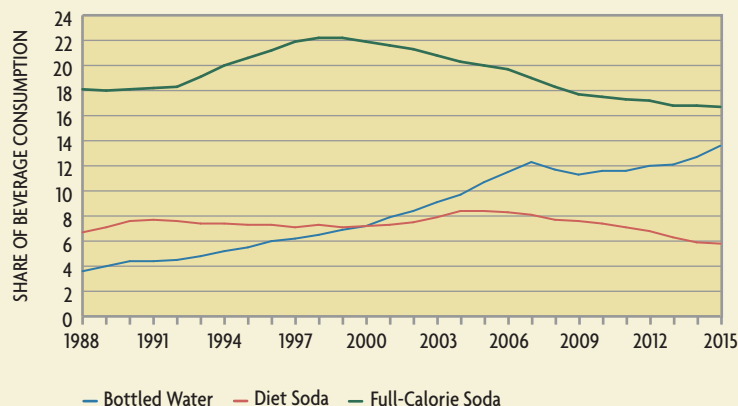
Critics of sin taxes often note that low-income consumers bear the brunt of these policies because they spend a larger share of their income on these goods. (The poorest quartile of consumers spends almost 10 times as much on cigarettes as a share of their income as do consumers in the top quartile.) In the case of soda taxes, policymakers are now looking for ways to offset that effect. One response is to channel soda tax revenue to programs that improve the welfare of disadvantaged groups. In Philadelphia, this is done through prekindergarten funding, while Seattle will use some of the money to reduce class disparities in education. In Mexico, the government is planning to expand water fountains in schools so lower-income children don’t have to spend money on drinks.

This tactic takes a page from the anti-tobacco campaigns: Some states, such as California, channel part of the money from tobacco taxes to efforts like smoking cessation programs, including those for lower-income consumers. And the 2009 federal tobacco hike was a revenue raiser for Medicaid’s program for low-income children.

Meanwhile, if people are consuming fewer “sinful” products anyway, these products may become more popular as tax targets regardless of whether they cause externalities. Political science literature suggests that individuals (not surprisingly) tend to support taxes that don’t affect them much — perhaps partly explaining the rising popularity of tobacco taxes as the population of smokers shrinks. As soda consumption drops, this, too, may make soda taxes more acceptable. And with sin taxes more broadly, some

Losing Fizz

The shares of bottled water, diet soda, and full calorie soda as a percentage of total U.S. beverage consumption



NOTE: Milk, juice, alcoholic beverages, sports drinks, coffee, and tea make up most of the remaining beverage consumption.

SOURCE: Beverage Digest Fact Book, 22nd Edition, May 2017

scholars argue that they can have an impact beyond what an industry-led price increase could achieve, because the tax can serve as a more visible public signal to consumers to seek healthier behavior.

As soda-tax experiments in the United States and around the world unfold, researchers will keep analyzing fresh data to see how these efforts might curb obesity. But for now, policymakers are still grappling with how to target these policies so they tackle the complicated mix of inputs that go into our diets. A good case in point is the Seattle City Council. After voting overwhelmingly for the SSB tax, it still has to decide whether coffee beverages that are heavy on milk, like lattes, are exempt, even if they include sugary syrups.

“Seattle is Sugartown,” opined *Seattle Magazine* editor-at-large Knute Berger, citing the city’s love of Starbucks’ array of sweetened drinks. “They may take our ‘soda tax’ money, but they will never take our Cinnamon Dolce Lattes!” **EF**

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Bankrolling Big Bird

Is there still an economic case for government-supported broadcasting?

By Jessie Romero

There are no casual Fridays for Joe O'Connor: He wears a suit and tie to work every day. O'Connor is the president and general manager of WFAE, a public radio station serving Charlotte, N.C., and the surrounding region, and he never knows when a potential supporter might be dropping by. Like most public radio stations, WFAE depends heavily on listener contributions and corporate underwriting; together they make up about 90 percent of its revenue.

WFAE also receives funding from the federal government through the Corporation for Public Broadcasting (CPB), which was created by the Public Broadcasting Act of 1967. The act declared that public telecommunications were “appropriate and important” concerns of the federal government because they furthered the “general welfare” by responding to the interests of people in every region of the country, providing diverse programming, and serving as a “source of alternative telecommunications.”

In economic terms, the act treated noncommercial broadcasting as a “public good.” Public goods have two key characteristics: They are nonexcludable, so that it’s impossible, or prohibitively expensive, to prevent a person from using them; and they are nonrivalrous, meaning that one person’s consumption doesn’t diminish the amount of the good available for someone else. That creates the potential for “free riding,” or consumers using the good

without paying for it. In that case, it’s possible the private sector won’t produce an efficient amount of the good, and the government might need to step in to provide it.

Radio and television met the criteria of a public good when they were first introduced: Once someone owned a radio or television, there was no way to prevent them from listening or watching, and one person’s consumption of a broadcast didn’t detract from the ability of others to consume it. The private sector nonetheless produced a large amount of programming because broadcasters could generate revenue by charging companies for commercials. Still, it wasn’t long into the history of either medium before critics charged that the reliance on advertising had led the private sector to produce too much of the wrong thing. By the 1960s, there were increasing calls for federal support of noncommercial broadcasting.

At the time, it was relatively easy to argue that tax dollars were necessary to meet the goals of diversity and public service. But today, with hundreds of cable channels, a YouTube video for every obscure interest, and community organization via social media, the argument is more difficult to make. In addition, some observers believe that public broadcasters could produce the same content without government support, given the large share of revenue currently provided by the private sector. Even “Sesame Street,” for nearly five decades public television’s flagship show, now airs first on the subscription network HBO. If Big Bird can survive without government funding, can the rest of public media?

Daytime Dramas

Although the number of radio stations in the United States grew quickly in the years after World War I, initially few people viewed radio broadcasting as a way to make money. Many stations were operated by nonprofit entities such as churches and schools; others, run by businesses such as department stores or newspapers, were primarily a means to generate publicity for their owners. Even when radio manufacturer RCA formed the National Broadcasting Company (NBC) in 1926, its goal was not to make money from broadcasting; rather, it hoped its programming would encourage more people to buy radios.



President Lyndon Johnson signed the Public Broadcasting Act on Nov. 7, 1967.

PHOTOGRAPHY: LBJ LIBRARY PHOTO BY YOICHI OKAMOTO

As more and more people did buy them — by the mid-1930s, more than 60 percent of U.S. households owned a radio — more broadcasters took to the airwaves, leading Congress to pass legislation in 1927 and 1934 intended to help distribute the available frequencies. These laws effectively favored large networks by reserving high-powered stations for their affiliates.

The “golden age” of radio in the 1930s and 1940s was dominated by NBC and the Columbia Broadcasting System (CBS), which got its start in 1927. (The American Broadcasting Company, or ABC, was created in 1943 when antitrust laws forced NBC to divest one of its two networks.) By this time, the commercial potential of radio had become clear and networks made money by selling sponsorships to advertisers, who then had significant control over the programming. Many soap manufacturers, for example, wrote and produced their own daytime serials with little involvement from the networks. Critics complained that advertisers were degrading the content; soap operas, according to a 1946 article in *Fortune* magazine, were “mere bait to persuade the housewife to listen to the commercial announcement.” Those housewives wrote to the Federal Communications Commission (FCC) about the “abysmally low” quality of the programs: “[T]he great bulk of women [are] capable of absorbing better stuff than they’re getting,” wrote one daytime listener. “[T]hey would welcome programs that would enable them to grasp world affairs better.”

After World War II, radio’s content did change, but not necessarily to world affairs. Instead, television’s growing popularity led many radio stations to turn to music, in particular the new “Top 40” format, which featured tightly scripted playlists, frequent station promotion, and lots of commercials. (By most accounts, Top 40 was the brainchild of Omaha, Neb., station owner Todd Storz, who noticed restaurant patrons playing the same jukebox songs over and over.) By the early 1960s, the leading station in almost every major market was devoted to Top 40. In retrospect, Top 40 radio is widely credited with popularizing black recording artists and bringing rock and roll to the mainstream, but at the time, critics believed it was creating a “mass culture” with degraded cultural standards.

A Vast Wasteland

As television became more popular, NBC and CBS were able to translate their radio broadcasting expertise to the new medium; along with relative newcomer ABC, the networks dominated television until the 1980s. Initially, the networks enlisted advertisers to sponsor entire programs, as they had in radio. But in part to gain more control over their programming, and in part because sponsorship costs were much higher than in radio, the networks moved to a “magazine” advertising format in which multiple advertisers could buy short slots of time. And buy they did; during the 1950s, spending on TV advertising increased from about \$10 million to \$1 billion.

The competition to attract advertisers helped determine the content. “In an ad-based system, advertisers are buying audiences,” says Amanda Lotz, a media studies professor at the University of Michigan. “The network has an incentive to create audiences of exactly the kind of people that advertisers want to reach, not necessarily to be informative or high-minded.”

Newton Minow, who was named chair of the FCC in 1961, put it more bluntly. Just a few months after his appointment, he gave a speech to the National Association of Broadcasters castigating the group’s members. He famously described the current slate of television offerings as a “vast wasteland”:

...a procession of game shows, formula comedies about totally unbelievable families, blood and thunder, mayhem, violence, sadism, murder, western bad men, western good men, private eyes, gangsters, more violence, and cartoons. And endlessly, commercials — many screaming, cajoling, and offending. And most of all, boredom.

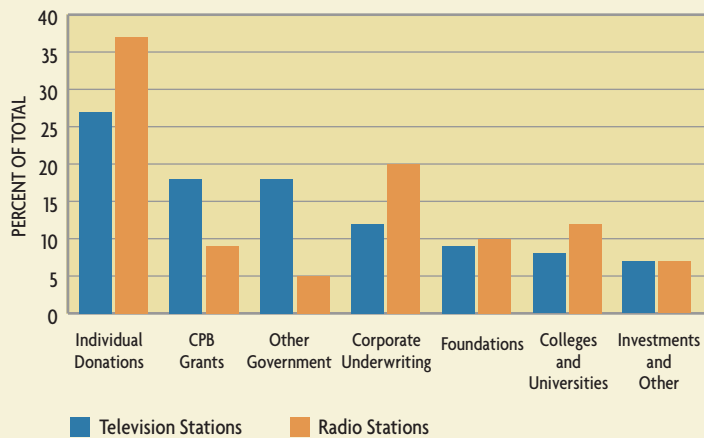
Economist Jora Minasian, then at the State University of New York at Buffalo, wrote about advertiser-supported television in a 1964 article in the *Journal of Law and Economics*. In Minasian’s view, the reliance on advertising had created a less-than-optimal output of programs with little choice or diversity. Although the marginal cost of an additional viewer was zero, networks still had to decide how to allocate their scarce resources; because they had to appeal to advertisers, they allocated them to programs that would attract the largest audience possible. Viewers with less popular tastes lost out. “The fundamental character of commercial broadcasting ... is that the nature and thus the value of the programs (the cost of the scarce resources in alternative uses) are determined by the productivity of advertisements,” he wrote.

Minasian argued that subscription television, which had been the subject of considerable public debate since the 1950s, would lead to programming that many viewers would find more valuable. The advertising system made it impossible for viewers to express a preference for shows other than what was already being broadcast. But pay TV would allow “individuals, by concentrating their dollar votes, to overcome the ‘unpopularity’ of their tastes.” (Broadcasters opposed subscription television for fear it would siphon off the best programming and talent and urged their viewers to contact Congress in support of “free” television. “There are lots of us old folks living on pensions that would have to part with our television sets if we were compelled to pay to use them,” wrote one elderly couple.)

Lotz notes that it’s a matter of debate whether or not television in the 1960s was actually a vast wasteland. And viewers did have a few noncommercial options in the 1960s. In 1952, the FCC had set aside 242 channels on the UHF band for educational television, and by the mid-1960s, there were about 180 such stations operating

Call Now For a Free Tote Bag

Public broadcasting revenue sources



SOURCES: Corporation for Public Broadcasting, "Public Broadcasting Revenue Fiscal Year 2015"

or under construction nationwide. There were also some educational radio stations, since the FCC had reserved a portion of the new FM spectrum for educational radio in 1945. But these television and radio stations had limited reach and struggled to find consistent sources of funding.

Support for NPR Comes from...

In 1965, President Lyndon Johnson endorsed the formation of a Carnegie Corporation-sponsored commission that would consider how to strengthen noncommercial television. The commission's final report, released in early 1967, advocated a government-funded nonprofit corporation that could help create new educational stations and expand existing ones. Later that year, Johnson signed the legislation creating the CPB, which, at the last minute, also included provisions for radio.

The CPB is funded through congressional appropriations. In recent years, it has received around \$450 million annually; the current request, for fiscal year 2020, is for \$445 million, about 0.01 percent of the federal budget. (The corporation also receives funding from the Department of Education, about \$18 million in 2016, for specific education projects.) Nearly all of the CPB's appropriation, 89 percent, is redistributed to public broadcasters and producers. Most of that money goes to television and radio stations via "community service grants." Stations can use these grants toward any activities that help them "expand the quality and scope of services" or to purchase content from the Public Broadcasting System (PBS), National Public Radio (NPR), or other content producers. The corporation also gives grants to help stations and other nonprofits develop and produce content. Another 6 percent goes toward system support, such as technological upgrades, and 5 percent toward CPB overhead.

Within two years of opening its doors in 1968, the CPB helped establish PBS and NPR. Although the acronyms PBS and NPR often are synonymous with the name of the local public TV or radio station, the organizations do not actually own or operate any stations themselves. Instead,

they distribute content to their member stations, who must meet certain criteria to apply for membership and then pay annual dues and syndication fees. Currently, there are more than 365 public television stations and 1,000 public radio stations in the United States, the vast majority of which belong to PBS or NPR.

By statute, the CPB distributes a larger share of its grant money to television stations, which have higher production costs than radio. On average, television stations get 18 percent of their revenue from the CPB and 18 percent from other federal, state, and local grants. CPB grants make up 9 percent of radio stations' budgets, with another 5 percent from other government sources.

Listener contributions and corporate underwriting account for nearly 60 percent from radio stations' revenue, versus 39 percent of television stations' revenue. The remainder comes from colleges, foundations, and other organizations. (See chart.) For both radio and television stations, there is significant regional variation in their funding; stations in rural areas, or that serve primarily minority audiences, may rely on the CPB for up to half of their budgets.

NPR itself receives less than 1 percent of its operating budget from the federal government, although it does receive taxpayer dollars indirectly through its member stations' dues and program fees, which account for 40 percent of its revenue. Member fees also are the largest source of cash revenue — 32 percent — for PBS. The next largest source for PBS is royalties on online video. (PBS' annual financial statements also include the "imputed value of donated broadcast rights" as a major source of revenue.) Unlike NPR, PBS does receive some funding directly from the CPB in the form of an annual \$26 million grant for content development.

Who Needs PBS When There's YouTube?

The CPB has been a target for budget cuts almost since it was established; President Richard Nixon proposed cutting its funding in 1969, just two years after the Public Broadcasting Act was signed, and it has been a topic of discussion in many Congresses since then. One argument is political; those who believe public television and radio have a liberal bias don't believe taxpayers' dollars should go to support it. In a 2017 *Washington Post* editorial, Howard Husock, a vice president at the Manhattan Institute and a member of the CPB's board, wrote, "If public broadcasters continue to receive federal support, they must start appealing to more than just blue-state America." Public broadcasters also have faced criticism that their programming is targeted toward whites, particularly those with advanced degrees and high incomes. In their appeals to potential corporate underwriters, for example, PBS and NPR note that, among other characteristics, their audience members are more likely than the average American to have more than \$250,000 in investments, to be in a top management position, or to take more than three vacations per year.

Another argument against public broadcasters is that

they may no longer be necessary to achieve the diversity specified in the Public Broadcasting Act. The subscription model that Minasian argued would produce more variety is now widespread in both television and music, and the Internet has made it relatively easy and inexpensive to produce content targeted to even the most niche demographic. Instead of just three channels, the average U.S. home with cable has access to nearly 200; music streaming services give listeners access to millions of songs. Even community outreach and information, another of the goals of the CPB, have an outlet through social media such as Facebook and Twitter. And it's likely that private-sector broadcasters would produce at least some of the current public content; HBO struck a deal with Sesame Workshop in 2015 to fund and air new episodes of "Sesame Street," which suggests the network sees profit potential in educational programming. (PBS stations continue to air "Sesame Street" nine months after new episodes are shown on HBO.)

But not everyone has access to the plethora of new media options. About 17 percent of U.S. households rely on over-the-air television; for some it's by choice, but many don't have geographical or financial access to other options. Rural Americans are less likely than others to have cable or satellite television, and roughly one-fifth of them don't have access to Internet at the minimum speeds necessary to download and stream video. In some places, such as the Allegheny Mountain region of West Virginia and Virginia, the public radio station is one of the only sources for news and emergency alerts.

Even when cable and broadband Internet are available, they aren't always affordable. The average cable bill is \$103 per month, and broadband Internet can cost another \$50. Overall, more than one-quarter of Americans, and 66 percent of those who haven't graduated from high school, don't have broadband Internet at home. Smartphones can help bridge the gap, but, like cable, they're expensive: About 93 percent of adults whose household income is greater than \$75,000 per year own a smartphone, versus 64 percent of adults with a household income less than \$30,000. Nearly half of those lower-income smartphone owners have let their service lapse at some point for financial reasons.

Access might be especially important when it comes to programming for children. For families with limited television or Internet options — a group that often overlaps with families who lack access to high-quality child care — public television is one of the only sources for educational programming, which research suggests can improve children's school readiness. (Other networks with explicitly educational content include Disney Jr., Nick Jr., and now HBO.) According to the consumer research company

Nielsen, PBS stations reach more young children, and especially more young Hispanic and low-income children, than any other children's network.

Do Public Broadcasters Need Public Money?

Assuming the content public broadcasters provide is valuable, could they provide it without public money? Given the corporate underwriting many stations already receive, some observers believe radio and television stations could generate sufficient revenue if they switched to a commercial format. That would require changing FCC rules, which strictly regulate the content of underwriting messages. "Our underwriters can't use any comparative language; they can't say 'I'm the best in town,'" says O'Connor. "They can't say, 'I have the best price.' They can't even mention the price."

Relaxing the rules could attract more advertisers. "We have the ratings that would enable us to sell any kind of message, and maybe we'd generate more revenue." But on the flip side, O'Connor says, "People come to us because we're not commercial. They like not being shouted at. So if we moved to a commercial format, we might not have the ratings anymore."

A 2012 report by the CPB, prepared with the management consulting firm Booz and Co., came to a similar conclusion. According to the report, which examined alternative funding structures, switching to a commercial format could actually produce a net financial loss for public broadcasters by eroding voluntary listener and foundation support.

Could listeners fill the gap if federal funding went away? For stations in large markets, the answer might be "yes." Donations tend to increase when federal funding is threatened, which suggests listeners find the content valuable enough to pay for. But that may not be true for stations in less-populated areas or that serve audiences with lower socioeconomic status. The CPB's 2012 report concluded that, as of 2011, 54 public television stations serving 2.7 million viewers and 76 radio stations with 200,000 listeners would be at high risk of ceasing operations without federal funding; the majority of those stations were in rural areas and in some cases provided the only source of over-the-air broadcasting.

That said, media and technology are constantly evolving, and Americans in every region and every demographic are likely to have more and more options in the coming years. As public broadcasters and other media adapt to the new landscape, policymakers will have to continue to evaluate the necessity of federal spending on broadcasting and whether that spending is achieving the goals for which it was intended. **EF**

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CREDIT UNIONS: A TAXING QUESTION

A tax exemption has helped credit unions since the 1930s,
but some argue they should be treated more like banks

By Liz Marshall and Sabrina Pellerin



The first U.S. credit union — St. Mary's Cooperative Credit Association in Manchester, N.H. — opened its doors in 1908 with the mission of meeting the personal financial needs of a targeted community: French-American mill workers. Those who helped organize St. Mary's believed that access to credit for poor working families would improve their well-being. Today, this same credit union is a full-service financial institution, renamed St. Mary's Bank, and is open to anyone willing to purchase one share of "capital stock" for \$5. The evolution of St. Mary's resembles that of the entire credit union industry with the expansion in both its membership base and its services.

Unlike banks, which operate to maximize stockholder wealth, credit unions are owned by their members, or depositors, and are therefore considered to be cooperatives. Membership in a credit union is limited to individuals who are part of a well-defined community or share a "common bond," such as the mill workers at St. Mary's. Common bonds can be based on employer, membership in an organization, or residence within a well-defined geographic area. For example, HopeSouth Federal Credit Union restricts membership to persons who "live, work, worship or attend school" in Abbeville County, S.C. Each credit union is required to define the specific common bond that establishes the "field of membership" from which it can draw its members.

As is typical of cooperatives, credit unions are structured as nonprofits and are democratically owned and operated with each member having one vote regardless of the amount of deposits held. Moreover, members elect unpaid officers and directors from within the credit union's field of membership. As of December 2016, there were approximately 5,919 credit unions operating in the United States (compared to 5,198 commercial banks) serving 109.2 million members. While large in number, their combined assets of \$1.3 trillion are less than the asset holdings of any *one* of the top four commercial banks.

Some observers find that credit unions today are largely indistinguishable from banks, while others believe

that their structure and member-driven community focus makes them unique. Unlike banks, federal and state credit unions have been exempt from paying federal corporate income taxes since 1937 and 1951, respectively. Critics of the tax exemption say that a series of relaxed rules over the decades have allowed for direct competition between banks and credit unions, and they argue it has created an unfair and artificial competitive advantage for credit unions.

While the debate has been raging for decades, in the last year, the agency responsible for overseeing credit unions, the National Credit Union Administration (NCUA), proposed and implemented further relaxations of some of its restrictions on credit unions' member business lending and fields of membership. These restrictions are unique to the credit union industry, and the rule relaxations were met with opposition by bank advocacy groups and other observers who claim the changes expand the field in which credit unions can apply their cost advantage. According to the NCUA, these rules enhance credit unions' ability to meet the demands of an evolving financial services industry and remove unnecessary impediments to credit union growth. It's the latest chapter in a long-standing and sometimes acrimonious debate.

Credit Unions Then and Now

Credit unions arose as a solution to meeting consumers' demands for credit at an affordable cost — particularly for individuals who did not have established credit. To substitute for collateral, credit unions leveraged social connections among a community of members. Specifically, their distinct niche was extending small-value, unsecured consumer loans to members who shared a common bond.

With a cooperative structure, members of early credit unions had something to lose (reduced earnings or loss of deposits) if a fellow member failed to repay on a loan and thus had an incentive to monitor the character and economic prospects of one another to determine a borrower's creditworthiness. Moreover, the community ties led to social pressure for repayment,

lowering the probability of defaults on loans.

While many cooperative features of credit unions remain intact, credit unions have changed dramatically since the early 20th century. For instance, in 1970, the Federal Credit Union Act was amended to create a regulator to oversee federal credit unions — the NCUA — and extended deposit insurance protection to credit union members through the creation of a new insurance fund (similar to the Federal Deposit Insurance Corporation, created for commercial banks nearly 40 years prior). With the advent of deposit insurance, credit union savers no longer had a strong incentive to monitor or apply social pressure to credit union borrowers because their investments were protected by the insurance fund, increasing the similarities between banks and credit unions.

The business of consumer lending has changed drastically as well. Starting with the introduction of FICO scores in 1989, financial institutions could consider credit scores when deciding whether to extend a loan. This financial sector innovation diminished, to some extent, the importance of relying on social bonds to assess creditworthiness.

Furthermore, technological changes and increased competition have made it much easier for consumers to gain access to financial services. For instance, credit cards have increasingly become a substitute for the small-value consumer loans that credit unions have historically specialized in. According to John Tatom of Johns Hopkins University, an economist and tax expert, people who use credit unions are not as unique as they once were because they now have access to a wider range of financial services and providers. Tatom says that times were very different in the early 20th century when credit unions were first gaining popularity, noting that people who were going to credit unions then “were people who really did not have as much access to the financial system. Banks didn’t want their business — they couldn’t as readily use bank deposit facilities or get bank loans.”

Why the Tax Exemption?

Despite criticism that regulatory relaxations have made credit unions more bank-like, the historical rationale for the exemption does not appear to have been tethered to credit unions’ lending or field of membership restrictions. The two legislative justifications for the tax exemption — which have remained substantially the same over the last 100 years — are the mutual structure of credit unions and their purpose of assisting those of modest means.

The first credit union tax exemption occurred in 1917, when U.S. Attorney General Thomas Watt Gregory concluded that the 1916 Revenue Act, which exempted mutual savings banks and cooperative banks from federal income tax, applied to state credit unions chartered in Massachusetts. This interpretation was based on his view that credit unions were “substantially identical” to cooperative banks and other mutually owned banking organizations, which were already tax-exempt at the

The public policy rationale for the tax subsidy has relied on credit unions’ not-for-profit cooperative structure and their focus on providing financial services to individuals of modest means.

time. Based on the attorney general’s statement, equal tax treatment of credit unions and other mutually owned banking organizations was warranted because both were mutually organized and had the purpose of assisting “those in need of financial help whose credit may not be established at larger banks.”

In the 1998 Credit Union Membership Access Act, Congress reiterated that credit unions are exempt from federal income tax “because they are member-owned, democratically operated, not-for-profit organizations generally managed by volunteer boards of directors and because they have the specified mission of meeting the credit and savings needs of consumers, especially persons of modest means.” Today, the Federal Credit Union Act still states that its purpose is to “make more available to people of small means credit for provident purposes through a national system of cooperative credit.”

Flown the Co-op?

The Internal Revenue Code provides some basis for credit unions’ special tax treatment by virtue of their cooperative nature. According to the code, any corporation (with some exceptions) operating on a cooperative basis is eligible for favorable income tax treatment that is similar to that afforded to credit unions. While other cooperative financial institutions, such as mutual savings banks, still receive some favorable tax treatment, their full exemption from federal income tax was repealed with the Revenue Act of 1951.

Critics of the credit union tax exemption have long used the repeal of the mutual savings bank tax exemption as evidence that credit unions should lose theirs. Because the credit union tax exemption seemed to rely directly on a principle of establishing parity between credit unions and other mutually owned financial institutions, it might seem logical for the repeal of the tax exemption for mutual savings banks to have been followed by a repeal of the tax exemption for credit unions. But credit unions were specifically exempted from the repeal.

One factor that could explain the retention of the credit union exemption is that mutual savings banks were accused of no longer being “self-contained cooperative organizations.” In fact, there did not appear to be a requirement for mutual savings banks to restrict loans only to depositors or members, which is still required of most credit unions today. Therefore, while there may be many similarities between mutual savings banks and credit unions, credit unions arguably retained more of the cooperative qualities. Furthermore, the repeal of the tax exemption for other mutual financial institutions

may have been more practical than ideological. In her 2001 book *Politics and Banking: Ideas, Public Policy, and the Creation of Financial Institutions*, Susan Hoffman posited that mutual savings bank taxation may have been the result of a strong bank lobby and a need to raise funds for the Korean War.

Where Does the Credit Union Subsidy Go?

Estimates of the lost government revenues resulting from the credit union tax exemption vary based on the source and underlying assumptions but range from approximately \$500 million per year to more than \$2 billion per year. The credit union tax exemption is an example of a government subsidy. Such subsidies are generally provided to encourage greater production of something viewed as societally valuable. For example, in the case of credit unions, it was — and still is — perceived by many observers that too few low-to-moderate income individuals were able to access financial services at affordable rates.

The public policy rationale for the tax subsidy has relied on credit unions' not-for-profit cooperative structure and their focus on providing financial services to individuals of modest means. If the subsidy is flowing to the targeted beneficiaries, then the public policy goal is achieved. The intended public benefit could take the form of lower borrowing costs for low-income individuals that would then free funds for other essentials or provide credit to those who otherwise would be unable to borrow. On the other hand, a subsidy can also be wasted if it's not flowing to those for whom it is intended and distortionary if it's diverting capital away from its best, most highly valued use.

To assess the extent to which tax policies achieve their intended outcomes, economists study tax incidence — the analysis of who bears the burden of a tax, or in this case, who benefits from a tax-based subsidy. Determining who wins and who loses from a tax subsidy is not entirely straightforward, however. It depends on the degree of competitive pressure (the availability of substitutes in the financial market) and consumers' sensitivity to fluctuations in prices and interest rates.

Since credit union members are also the owners, unlike banks that have stockholders, credit union net income can be retained to build capital or it can be distributed to members in the form of higher interest rates on deposits, lower loan rates, or enhanced customer service. Academic studies examining the tax incidence have largely focused on whether credit unions pay higher interest rates and charge lower loan rates than banks operating nearby, but some studies have also examined whether the subsidy is inefficiently flowing to credit union managers and workers (in the form of higher wages) — or being used to absorb losses from risk-taking or mismanagement — rather than flowing to members.

A 2016 working paper by Robert DeYoung of the University of Kansas and several co-authors compared a sample of credit unions to comparable banks and found

that three-quarters of the subsidy is passed on to credit union members in the form of higher deposit rates. Although the entire subsidy is not flowing to members, this finding that credit unions offer above-market deposit rates provides support for one justification for the tax exemption, namely, that the cooperative structure results in benefits to members.

Mission Accomplished?

While the credit union subsidy appears to be flowing to members, the other justification for the tax exemption is that credit unions especially target those of modest means. A problem in determining the extent to which credit unions serve individuals of "modest means" is that no credit union legislation explicitly defines that term. Interpretations have ranged from individuals in poverty to those in the middle class. Regardless of how researchers interpret the concept of modest means, however, the majority of studies that have been conducted suggest that credit unions are in fact *less* likely than banks to serve this subset of members. For instance, results of a 2002 national member survey conducted by the Credit Union National Association (CUNA), a trade association of credit unions, revealed that the average household income of credit union members exceeds that of nonmembers by 20 percent. Furthermore, results from the Federal Reserve's 2004 Survey of Consumer Finances indicate that 31 percent of credit union members were low-to-moderate income individuals compared to 41 percent at commercial banks. Moreover, according to a 2009 study by William Kelly Jr., then of Grinnell College, 89 percent of the benefits that flow to members in the form of lower loan rates and higher deposit rates are going to middle- and upper-class consumers. He argued that this unintended consequence of the subsidy is based on the fact that the benefits are proportional to the size of the loans and deposits, leading to greater benefits to affluent households.

On the other hand, researchers Jim DiSalvo and Ryan Johnston of the Philadelphia Fed found in a 2017 study that credit unions lend to a slightly larger portion of low- and moderate-income tracts than do small banks, but they also found that credit unions reject more home loan applications from low-to-moderate income members than small banks.

Although research findings are mixed, credit union proponents contend that they have stayed true to meeting their mission of serving people of modest means. They argue that while they provide services to consumers at all levels of income, they serve low- and middle-income consumers by offering more affordable rates and lower fees than banks along with providing financial literacy education. For example, findings from a 2016 report by CUNA indicated that the fees credit unions collect on low-balance accounts are less than a third of what banks charge on low-balance accounts.

Staying on Target

The structure of the credit union industry itself could be at odds with its mission to help those of modest means due to selection bias. For example, many credit unions have common bonds that restrict membership to only their occupational group, which means that their members may be more likely to be employed full time. In responding to why banks might serve relatively more people of modest means, John Radebaugh, president of the Carolinas Credit Union League, acknowledged that occupational credit unions with restricted memberships “can skew the results, but over half of our credit unions in the Carolinas have a low-income designation.” Low-income designated credit unions focus on serving populations with limited access to “safe financial services,” the majority of whom meet specific income-level criteria. Nationwide, 42 percent of all credit unions are designated low-income credit unions.

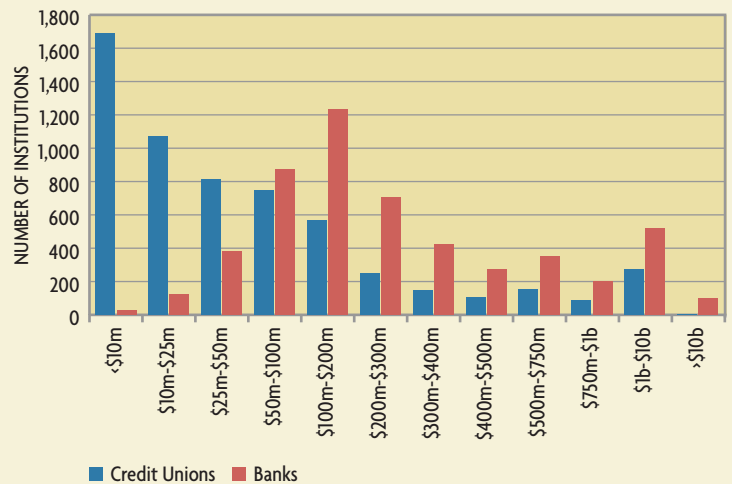
Although bank groups have criticized credit unions for trying to expand their field of membership, credit unions assert that doing so could actually help them advance their mission of serving those of modest means. But this has been disputed: A study by economist and consultant Kay Plantes, commissioned by the Wisconsin Bankers Association, suggests that removal of the common bond or field of membership restrictions would not necessarily lead credit unions to serve more low-to-moderate income members. Plantes examined large credit unions with broad fields of membership in Wisconsin to identify whether credit unions with fewer member-base restrictions were more likely to serve those of modest means. Plantes found that large credit unions were targeting *wealthier* customers, as evidenced by the markets in which they locate branches and the income level of mortgage borrowers.

One way to ensure that credit unions with large fields of membership are in fact serving low-to-moderate income people, to at least the same extent as banks, would be to subject them to the Community Reinvestment Act (CRA), a law that encourages banks to lend to low- and moderate-income communities. In a study by the National Community Reinvestment Coalition (NCRC) of credit unions in Massachusetts and Connecticut — where large state-chartered credit unions are required to adhere to CRA requirements — the NCRC found that CRA-covered state-chartered credit unions outperform CRA-exempt federally chartered credit unions on fair lending indicators.

Moreover, Kelly concluded in his 2009 study that the tax code could be modified to better serve people of modest means by withdrawing the tax exemption in combination with providing credit unions with “tax credits that could offset the tax and leave the full subsidy, depending on how well a credit union carries out its mission.” The effect of this, he wrote, would be equivalent to keeping the full subsidy in place for “the many credit unions whose work in serving especially people of modest income is exemplary.”

Credit Unions: Mostly Much Smaller than Banks

Distribution of banks and credit unions by asset size



SOURCE: S&P Global Market Intelligence

Does Size Matter?

In a 2006 report, the U.S. Government Accountability Office noted that while large credit unions are few in number, they are “responsible for a disproportionate amount of the potential tax revenue as compared with small credit unions.” According to a 2004 study performed by Chmura Economics & Analytics, 84 percent of the government’s loss of tax revenues could be eliminated if only credit unions with assets below \$500 million were exempt.

Although observers opposed to the tax advantage argue that credit unions have become more bank-like in their product and service offerings, most of the credit union industry still looks very different from the banking industry. One unique feature of the credit union industry that remains starkly different from the commercial banking industry is the sheer number of very small institutions. The vast majority — 73 percent — of credit unions has assets less than \$100 million and more than a quarter have assets less than \$10 million. (See chart.) In contrast, only 28 percent of commercial banks have assets of less than \$100 million and only a handful have assets less than \$10 million. Most associational credit unions — such as those run out of churches, schools, or fraternal associations — fall into the less than \$10 million category. Credit unions are also much less concentrated than banks with the top 10 credit unions controlling 16 percent of total credit union industry assets compared to the top 10 banks that control 55 percent of total banking assets. The size of an average credit union at the end of 2015 was \$199 million compared to \$444 million for an average small bank (not in the top 100 by assets). Credit unions do appear to be growing at a faster rate than banks, both large and small — but they still only hold 7 percent of all depository institution assets (including credit unions, commercial banks, and thrifts).

continued on page 34

Jesse Shapiro

Editor's Note: *This is an abbreviated version of EF's conversation with Jesse Shapiro. For additional content, go to our website: www.richmondfed.org/publications*

The objectivity of news and the crucial role of media in democracy have rarely been hotter topics than they are today. News reporting inherently involves selection, notes Brown University's Jesse Shapiro: There is no one correct way to present the same set of events. And with that process of selection may come charges of bias.

But what determines the extent of media bias and how it leans? Shapiro emphasizes the role of market forces in work with frequent co-author Matthew Gentzkow of Stanford University and others. By training machines to classify newspaper text, he has found that newspaper ownership and political incumbents do not influence media bias as much as conventional wisdom would suggest — the demand of consumers for “like-minded” news plays a much bigger role. Using historical data from the days when many cities had multiple local newspapers, he also found that competitive news markets promote ideological diversity. As for the ultimate competitive marketplace for news — the Internet — he found using browsing histories that online news consumption is far less politically polarized than many people have feared.

Shapiro's work doesn't stop at media markets but often similarly relies on novel sources and enormous datasets to address other topics. It is no secret that Republicans and Democrats often speak different languages; Shapiro and co-authors looked at nearly 150 years of congressional speech to identify just when — and potentially why — politically polarized language came to be. And looking at more than 6 billion retail purchases, his work found that the way households use food stamps may pose a challenge to basic economic theory.

Shapiro notes the potential power of social media as a tool for studying how we think and interpret news events in real time — his next focus of study.

Before becoming the George S. and Nancy B. Parker Professor of Economics at Brown University in 2015, Shapiro was a professor at the University of Chicago Booth School of Business. He also is a research associate at the National Bureau of Economic Research, where he is a member of the labor studies, political economy, and industrial organization programs. Renee Haltom interviewed him at his office at Brown in May 2017.



EF: You and Matt Gentzkow found that consumer tastes can be a stronger source of media bias than other factors people often suspect, such as who owns the news source. How did you tackle that question?

Shapiro: We did text analysis of newspapers using methods borrowed from machine learning. These methods go back at least to the 1960s to authorship detection, like figuring out whether Shakespeare really wrote a given play or who wrote the *Federalist Papers*. That works extremely well, but it tends to rely on having what's called a training set: You have some documents where you know who wrote them and use them to find the tell for any given author — what are the things they say that other people don't tend to say, how they construct sentences, or even how they use commas. Then you look for the features in other documents where you don't know the author to get a sense of who's most likely to have written them.

What we were trying to figure out is which newspapers are right-leaning and which newspapers are left-leaning and by how much. In the context of the news media in the United States, there isn't really a training set. So we took an idea that was developed by Tim Groseclose and Jeffrey Milyo to use the *Congressional Record* as the training set. We have a lot of text by speakers who have a known political affiliation — what party they belong to and how they vote on issues. Then we find the phrases that are diagnostic of the speaker's party. We came up with things like

“death tax” for Republicans and “estate tax” for Democrats, or “personal retirement accounts” for Republicans and “private retirement accounts” for Democrats, or “the war in Iraq” for Democrats and “the war on terror” for Republicans. We could then look for those key-

words or key phrases in newspapers and answer the question: If this newspaper were a speaker in Congress, would it be more likely to be affiliated with the Republican Party or the Democratic Party? That’s our quantitative answer to how right-leaning or left-leaning a newspaper is.

There are a few advantages to taking that kind of approach, as opposed to having a research assistant read newspaper articles and classify them. One advantage is that there’s a portability to the method: If you have some parliamentary text and newspapers, then you can apply the same method to other contexts, and people have. It’s also very scalable. You can have research assistants read a few thousand newspaper articles but not all of them. Whereas previous work had used samples of maybe a couple dozen news outlets, we were able to get up to more than 400. You lose some of the fidelity of having a human reading everything, but the gain in scale means that you can ask questions that are otherwise very difficult to ask, such as: How is the political position of the newspaper related to the position of its readership? How is the position of the newspaper related to the position of its owners? And how do those two things trade off in determining how newspapers cover the news?

What we found is that newspapers with a more Republican customer base are much more Republican than newspapers in more Democratic markets. And once you control for geography, there’s very little evidence of an influence of owner ideology — whether you measure that by the positions of the other newspapers owned by that owner or by the owner’s donations to different political parties. There really isn’t much evidence that the owner plays a big role in how a newspaper slants the news.

EF: What conditions are likely to make the drive to cater to owners stronger?

Shapiro: I think the drive to cater to *consumers* is probably stronger when you have a robust commercial marketplace for news media, like we generally have in the United States. Obviously, some countries don’t have a very robust commercial market, and newspaper owners have strong ties to government, or are in government, and there the balance of incentives is different.

Even in the United States, if you look at episodes where there’s evidence that newspapers have been tilted in a way that’s biased toward the owner, it seems to line up with

There is something to be said for removing the façade of objectivity [in media] and recognizing that journalists are people and that the journalistic process is a human process.

what I think economics would predict. There’s a nice paper that looks at coverage of the 1996 Telecommunications Act, which was a bill that went before Congress that really impacted the bottom line of media companies. It was about a bunch of things, including ownership

rules for television. There’s evidence that the slant of a newspaper’s coverage at that time was very correlated with the incentives of the entities that owned them. To me that makes a lot of sense, because this is an issue where consumers don’t have very strong opinions: They’re not likely to be turned off by an editorial saying that the Telecommunications Act should or should not be passed. So even in the United States, when that happens, you can see a tilt in the reporting.

EF: Nowadays, objectivity is an explicit professional standard in much news reporting. This wasn’t always the case — it used to be common for newspapers to declare party affiliation, for example. Are there conditions under which media bias can be productive?

Shapiro: That’s a tough question. After a lot of time working on this, unfortunately, I still don’t feel like I totally understand why readers have a demand for like-minded news. There are theories in the literature that it’s because people have a psychological bias and want to see their beliefs confirmed, and there are theories that say it’s a kind of rational inference about credibility — Matt and I have a paper that takes that view — and the evidence doesn’t adjudicate very well among these different explanations. So I think there are some things to learn about that.

I don’t know that I would advocate for going back to newspapers declaring party preferences, but I think it has the advantage that when you’ve declared an affiliation, your cards are on the table and you have more license to say what you really think. Take reporting on scientific issues like climate change, the subject of one of my recent papers. Believing in anthropogenic climate change is seen as a position aligned with the left side of the political spectrum, even though it’s really a scientific question. If you had papers that were explicitly right wing and they said, “Actually, the evidence is that there is anthropogenic climate change,” that would carry a lot of weight.

There is something to be said for removing the façade of objectivity and recognizing that journalists are people and that the journalistic process is a human process. It involves perspective and embracing that a little more as opposed to shying away from that and trying to conceal it and in so doing throwing away information that might be really valuable to consumers of news.

EF: Historical newspaper markets also were highly competitive, with hundreds of U.S. cities having multiple independent daily newspapers. Do competitive media markets offer more, or less, ideological diversity?

Shapiro: We did a series of studies that look at the late 19th century and early 20th century, when it was common for newspapers to have explicit party affiliations. That allows us to get a really sharp lens on what forces seem to be determining those affiliations. The focus for Matt, Mike Sinkinson, and me in one paper was on what generates diversity: When does a city get a Republican-affiliated paper *and* a Democrat-affiliated paper?

That might be a desirable thing to have because it means some views are more likely to come out in discourse. Another reason it might be important is that newspapers are supposed to serve as a watchdog on the state. If there's a Republican in office, the Democratic papers will be vigorously pursuing all of the bad stuff that the politicians do, and vice versa. You want to have both to make sure that, whoever is in charge, somebody would like to break a story about some bad stuff they did and that would give them an incentive to do less bad stuff.

Market forces play a big role in generating this kind of diversity. The likelihood that a newspaper that's entering a market will affiliate with the Republican Party is far greater if the preceding newspaper that entered was a Democrat paper than if the preceding paper was a Republican paper. Why? To an economist, that just looks like product differentiation: That's where the remaining market is going to be. And indeed, what we find is that if you look at data on circulation, when a new Republican paper enters, it tends to crowd out the circulation of other Republican papers more than Democratic papers. It turns out that there are similar things going on in the advertising side of the market: In order to capture the most advertising dollars, it's attractive for newspapers to be different from other newspapers in the market.

EF: You've found limited evidence that elected officials try to influence media markets — except, it seems, when the stakes are especially high, as in the

Jesse Shapiro

► Present Positions

George S. and Nancy B. Parker Professor of Economics, Brown University; Research Associate, National Bureau of Economic Research

► Selected Past Positions

University of Chicago Booth School of Business (2007-2014); Becker Fellow, Becker Center on Chicago Price Theory, University of Chicago (2005-2007)

► Education

Ph.D. (2005), Harvard University; A.B. and A.M. (2001), Harvard University

► Selected Publications

"Measuring the Sensitivity of Parameter Estimates to Estimation Moments," *Quarterly Journal of Economics*, 2017 (with Isaiah Andrews and Matthew Gentzkow); "Special Interests and the Media: Theory and an Application to Climate Change," *Journal of Public Economics*, 2016; "Do Pharmacists Buy Bayer? Informed Shoppers and the Brand Premium," *Quarterly Journal of Economics*, 2015 (with Bart J. Bronnenberg, Jean-Pierre Dubé, and Matthew Gentzkow); "Competition and Ideological Diversity: Historical Evidence from U.S. Newspapers," *American Economic Review*, 2014 (with Matthew Gentzkow and Michael Sinkinson); "Fungibility and Consumer Choice: Evidence from Commodity Price Shocks," *Quarterly Journal of Economics*, 2013 (with Justine Hastings)

Reconstruction-era South. Can you talk about those findings?

Shapiro: Matt, Nathan Petek, Mike, and I studied the effect of party control of the government on the political affiliations of local newspapers. A lot of the research in this area tries to look at the effect of newspapers on voters or voting, and we've done some of that too. But in that study, we flip it around and ask, "What's the effect of who's in office on the news media?"

The context was the late 19th and early 20th century United States, where there are a lot of anecdotes that suggest state governments were doing things like giving patronage jobs to sympathetic newspaper owners or giving contracts to print government notices. We looked at cases where control of government shifts across parties and then what happens after to the share of newspaper circulation that's Republican and the prices newspapers charge. We found surprisingly little impact, but as you said, the overall picture masks some interesting variation.

We thought, where were the incentives to manipulate the news especially high, and where were the market forces especially weak? Those are the two opposing forces determining how media bias leans. We took a look at the Reconstruction South. A lot has been written by historians about media in that period. When the Republicans took control

of Southern governorships and legislatures immediately after the war ended, it's pretty clear that they thought it was very important to support Republican newspapers, perhaps to establish a more long-term position in the South than they actually did. At the same time, the market conditions for Democratic-leaning newspapers were not very good. A lot of owners had been wiped out in the war, or had lost property, or had property confiscated. The economy of the South was in terrible shape and in upheaval. So there wasn't a very robust market for newspapers, and at the same time there was a strong incentive to influence the press.

What we find is that during the period of Republican control, the Republican share of the press is surprisingly high given the prevailing opinions of white Southerners of the time. But when the Democrats reassert control of the government in the late 1870s, they at the same time reassert control of the media. So the story that comes out of

the data is the Republican governments were propping up Republican-affiliated newspapers, and that once that prop was removed a lot of them collapsed. They exit the market or they shrink very rapidly in their circulation.

I like that episode because it shows that it really is about incentives. While commercial incentives are sometimes the most important ones, in some times and places they're not. You can look around the world and see all kinds of examples where things look more like the commercial forces are taking a backseat to political ones. What this paper shows in part is that this has happened from time to time in U.S. history too, even though it hasn't been the main story.

EF: Some people have suggested there's a dark side to media competition — in particular, that the wide proliferation of choice made possible by the Internet might allow people to filter out views that challenge them. To what extent do you think the Internet is causing political polarization?

Shapiro: If you look in particular at news and political media on the Internet, the proliferation of choice can be overwhelming. As we've discussed, we know that people gravitate toward news outlets similar to their own positions and possibly end up in echo chambers with everybody only hearing from other people who agree with them. A good contrast would be the nightly news broadcast of the 1950s — everybody sits down at the same time every day and watches one of three broadcasts. Everybody is really hearing the same things, and everybody has a shared sense of what's important as a result of that.

In a 2011 article, Matt and I approached the question of how fragmented the audience is the same way that we would think about how a residentially segregated city is. In the literature on residential segregation, the approach is to ask: For people of a given race in that city, what fraction of the other people living around them — say in the same zip code or the same census tract — shares the same race? If that number's very high, that's a very segregated place. People are living around other people like them, and they're likely not having very much social contact with people not like them.

We thought the same idea can be applied to the news media. Think of an online news outlet, like a blog, as a neighborhood, and let's measure who's in that neighborhood: What fraction of those people would self-identify as conservative? What fraction would self-identify as liberal? And let's calculate how segregated is this universe, how segregated is the Internet. To what extent are people visiting news sites that are only populated by other people like them ideologically?

We found that the extent of segregation on the Internet is surprisingly low. It's certainly true that people gravitate to like-minded sources. So for example, foxnews.com has a more conservative audience than nytimes.com.

But the Internet is not radically different from traditional media. Take the fraction of the audience on a given news site that is conservative and call that the conservativeness of the site. Then take the website visited by the average conservative on the average day — that website is about as conservative as usatoday.com. Now do that same thing for the average liberal, that's about as liberal as cnn.com. If you were to read those two outlets, you wouldn't find that they're radically different.

In fact, we find that isolation is very rare in the data. We have individual-level data on users on the Internet. People who get all of their news from outlets to the left of, say, the *New York Times* are very unusual. Likewise, people who get all of their news from sites to the right of Fox News are extremely rare. Folks that go to a fringe conservative site like rushlimbaugh.com are more likely to go to nytimes.com than readers of Yahoo News. The people who are consuming niche media are probably pretty politically engaged people, and therefore they want to read a lot of things. So in the end, the picture is a lot more muted than what people have feared.

Let me give you a metaphor that's sometimes helpful: If you imagine shaking hands with a random other person who's looking at the same news site as you on any given day and ask what fraction of those handshakes are going to be between people who hold different ideological views, that fraction is actually higher on the Internet than, say, in your zip code. So you're actually going to have more contact with people different from you online than you would in the physical world of residential geography. Which I think says that some of these concerns have not been realized, at least not yet.

EF: You found a result that seems similarly comforting, if you will, when looking at social media.

Shapiro: Right. In a recent paper with Matt and Levi Boxell, we said, let's look at measures of political polarization that have increased from 1996 on — that's the period in which it's relevant to talk about the Internet — and see if the data seem consistent with the narrative that the increase in political polarization is driven by the Internet and social media.

Our approach to testing that hypothesis is very simple: We just compare trends in polarization for groups of people that have high or low propensities to use the Internet and social media. Our favorite and most important comparison is with respect to age. People who are 75 years and over rarely use social media and don't report getting a lot of political information online. People who are 18 to 25 frequently use social media and report getting a lot of political information online. So if you thought that social media was contributing to the rise in polarization, what you would expect to see in the data is that polarization is rising especially fast for younger Americans — and if anything, the story is the opposite. The rise in polarization is similar between the relatively

old and the relatively young, and if anything, maybe polarization is rising faster among the relatively old. So in that sense the data don't line up with the hypothesis that social media is driving the rise in polarization.

I think the effect of the Internet on polarization remains an open question. We're arguing that it doesn't appear that social media is accounting for the increase in polarization, but we haven't offered a constructive account of what *is* driving it. Until we have a better understanding of that, it's hard to rule anything out.

Still, it's easy to confuse changes in the mode of delivery with changes in the information itself. The fundamental processes of generating, communicating, and packaging news are still very much the same as the ones at work 100 years ago.

The notion that you could have a customized news site that is tuned into my exact ideological predisposition misses something very important about the economics, which is that somebody has to write those articles. If you look at news sites that cater to really fringe views, they're not very good. Even if you were to have those views, the spelling is off, they'll miss important events, they'll go off for a couple of days, because the economics just don't support having a staff of people producing, say, the neo-Nazi perspective on all the news of the day. There are not enough people and not enough ad dollars or subscriber dollars to support that kind of activity. And so if you actually want to know what happened yesterday, no matter what your views are, you kind of have to go to a mainstream general news site.

EF: What do you think are the most interesting questions the 2016 election raised about the role of media in democracy, both the events leading up to the election and since?

Shapiro: To me, the most interesting questions surround the increasing sense that people in America are divided in the world that they perceive. There's a group of people that see a world of progress, a lot of exciting technology, and things getting better all the time, and a group of people who see a world of stagnation, frustration, and things getting worse.

I think there are probably a lot of factors at work there, and I'm not so quick to attribute it to the media. The prior work I mentioned on polarization is one way to try to understand that. Maybe the media play a role in that, or it may be driven by more fundamental social forces like the actual changes in the economy rather than how they're portrayed in the media. Or it may be people's understanding of how the economy works. I'm probably not alone in thinking that the election and the events leading up to it laid those differences bare in a way that they had not been laid bare before. I think that's a very complicated but very important set of issues for, not just economists, but all social scientists.

EF: You've also found that congressional speech has become more polarized over time. How severe is the shift, and what are the implications for elections?

Shapiro: The basic idea of that study, which was with Matt Gentzkow and Matt Taddy, is based on the fact that we know that Republicans and Democrats speak very different languages. I mentioned before "death tax" and "estate tax," but there are tons of examples. We also know, from a lot of narrative evidence and some quantitative evidence, that those differences in language are often not an accident. They are the result of a conscious process to use language strategically to influence how people see policy issues.

What we didn't know is: How new is that phenomenon? Political parties have been divisive forever in U.S. history, and there have always been differences in how the parties talked about things, what issues they emphasized, and what audiences they were talking to. But the extent of the difference feels, to many people, like it's new and greater than before, and we haven't before had a good way to measure that.

So what we did is try to figure out, for every session of Congress and every point in time, how easily a neutral observer could tell whether someone is a Republican or Democrat based on how they talk. We took the entire *Congressional Record* and used computer scripts to turn it into quantitative data about the use of phrases. Then we took the counts of phrases by every speaker and every session of Congress back to the 1870s and fed that through a model of speech. The model can tell us, at every point in time, how informative your speech is about your party.

What we find is that in the 1870s, if I give you a minute of random speech from somebody in Congress, you're going to guess his party correctly about 54 percent of the time, only modestly higher than chance. In the late 1980s, you'd be doing a little bit better, but barely. By the 2000s, the number is closer to 75 percent. Something enormous changes between the late 1980s and the 2000s to cause the parties to diverge tremendously in how they're talking — many more phrases like "death tax" and "estate tax."

The timing of the change coincides with the "Contract with America" and the Republican takeover in the 104th Congress in 1994. That was a watershed moment in political marketing. It showed the power of language to frame a set of issues and craft a narrative that could be very powerful in winning elections and changing policy views. In the wake of that, strategies on both sides crystallized around trying to have a very consistent message and use very consistent language to try and influence how voters saw the issues. I think that's what's reflected in the data.

In terms of implications, one speculative possibility is that the fact that Republicans and Democrats are speaking differently to each other might contribute to hostility. It might make it harder for them to find common ground or recognize positions on which they do agree.

That's not something that we show in the study, but that's one not-so-optimistic possibility suggested by it.

It may also be that political marketing makes it harder for voters to get to the fundamentals of an issue. We certainly know that in survey experiments, how you phrase a policy proposal can really influence how voters react to it. And so if politicians are increasingly using language in that way, is the net effect that it's harder for voters to tell what their real policy views or interests are? I don't know, but this evidence suggests that this would be an important thing to try and understand.

EF: Finally, let's talk about your work on food stamps with Justine Hastings. This is one of the oldest and most venerated public programs among economists. What prompted you to study it?

Shapiro: SNAP, the Supplemental Nutrition Assistance Program — the successor to the food stamps program — gives people an electronic benefit transfer card, which is like a debit card. It's topped up by the government every month, and unlike a regular debit card it can only be spent on groceries, food that you're going to consume at home.

This program has been especially interesting to economists because it is an area where economic theory is somewhat in tension with the stated goals of the program. It's clear from the design of the program that the intention is for people to eat, to purchase food. You can see lots of quotes from policy circles that confirm that.

But economic theory says this program might not be about food, and the reason is the following: Think about a household that is spending, say, \$300 on food every month. They join SNAP and start receiving a \$200 per month benefit that can only be spent on food. The household could increase total food spending to \$500 per month and leave everything else the same. Another option would be to take the \$200 in cash that has been freed up and spend it on something else it needs. These are low-income households that have lots of needs, not just for food.

Economic theory basically predicts that this program is really a cash benefit program, equivalent to if I gave you a regular debit card that could be spent on anything. The food stamps program shows up in introductory economics textbooks as an example of the fungibility of money, used to teach the idea of budget constraints and indifference curves in an interesting policy context.

Lots of people have studied this program and tried to adjudicate between these two views of the program — is somebody on SNAP going to mainly increase their food spending or are they going to mainly increase spending on other things?

EF: What did you find?

Shapiro: We study the question using data from a retail panel where we can track the spending behavior of almost

half a million households for six or seven years. That affords us, a little bit like the newspaper case, lots of little experiments that we can aggregate up to get a very sharp lens on the effects of the program.

What we find is that, whereas the textbook view of the program is that out of every SNAP dollar, maybe 10 cents is going to food and the rest going to other things, we find it's more like 50 cents, which is a big difference in terms of the overall impact on households' budgets and spending behavior. We've known for a long time that people categorize money. We think that part of what's going on is that when SNAP comes in, the household sort of puts it in the food part of the budget, rather than say, "Well, let me just take some other money out of that part of the budget and spread it around evenly," the way that the economics textbook says that they should.

It's unusual for economics to make a quantitative prediction — economics is usually about qualitative predictions, like "when prices go up, demand falls." This is an interesting case where we have a very important public policy — the second-biggest means-tested program in the United States, recently enrolling almost one out of every five U.S. households, touching millions of lives — where economic theory says something very different from the rhetoric surrounding the program. And our data say it's not just wrong, it's not that it's 12 percent instead of 10 percent; it's 50 percent instead of 10 percent. It's wrong by a lot.

It's important for economists to try to figure out what we're missing in the way we model consumer behavior. Because if economists want to advise in designing these programs, which we do, then we want to have models that accurately reflect how households are going to react to these benefits. The textbook model doesn't seem to be serving us very well in this case.

EF: What are you working on next?

Shapiro: I'm working on a bunch of things. Matt and I remain very interested in applying text analysis to understand social phenomena. A question that we have talked about relates to the 2016 Orlando nightclub shooting. Right after, there was a massive difference in how Republicans and Democrats talked about the incident. Some people talked about "a mass shooting," and some people talked about "Islamic terrorism." How did those differences happen? How fast did they happen? Where did they originate? Did the political actors start it and then more grassroots folks followed? Or was it the reverse? And with data sources like Twitter feeds, it may be possible to see it unfold in real time.

I think there are lots of aspects of the way we think that are going to be revealed by what we say or what we write, and Matt and I are interested in using text analysis methods to try to open up some of those topics, both in modern and historical contexts.

EF

All the City Was Dying

The Spanish flu pandemic of 1918-1919 was a major social and economic shock

BY JESSIE ROMERO

In mid-October 1918, Washington, D.C., ran out of coffins. The city was in the throes of the “Spanish influenza” pandemic, and between 70 and 100 people were dying each day. Gravediggers also were in short supply; William Fowler, the city’s health officer, said that anyone who volunteered for the job would be well paid, but fear of contracting the virus kept potential workers home. With bodies piling up in morgues and cemetery vaults, Fowler commandeered a trainload of caskets bound for Pittsburgh (which was facing its own shortage) and ordered inmates from Occoquan Prison to start digging graves.

No mourners were present at the burials: Public funerals had been banned in an attempt to stop the spread of the virus. Similar scenes were playing out across the country, as doctors and local officials struggled to halt the pandemic’s advance across the United States. In less than a year, the flu would kill an estimated 675,000 Americans, a share of the population equivalent to nearly 2 million people today. Worldwide, the death toll may have been as high as 100 million — an economic and social shock from which scientists and economists are still trying to learn.

The Virus Emerges

The first reported cases of the Spanish flu in the United States occurred at Camp Funston, an Army training camp in Kansas. On March 4, 1918, soldiers preparing for deployment to World War I began arriving at the infirmary

complaining of fevers and backaches. Most of the 1,100 men who eventually would be hospitalized had what appeared to be a typical flu virus. But in some cases, the soldiers began having nosebleeds and coughing up blood; as it became more difficult for them to breathe, they slowly turned blue. The virus had attacked the men’s lungs, filling them with a thin, bloody fluid that led to suffocation. Within a few weeks, between 40 and 50 soldiers had died.

Outbreaks occurred at other camps that spring but did not attract much attention; it wasn’t uncommon for a contagious disease to sweep through a military installation, and many of the deaths were attributed to pneumonia rather than the flu. The so-called “first wave” of the virus also went relatively unnoticed in the civilian world, in large part because the country’s attention was focused on the news from Europe. In addition, flu, unlike tuberculosis or cholera, was not an illness that had to be reported to state or federal health departments, so no one connected an outbreak of unusual flu cases in Detroit with similar cases in South Carolina.

Some scientists and historians believe the virus originated on farms in Haskell County, Kan., and was brought to Camp Funston when county residents reported for duty. From there, traveling soldiers might have carried the flu to other army camps and eventually across the ocean to Europe. Other researchers trace the virus to a British training camp in Étaples, France, or to Chinese laborers conscripted by French and British forces. (The virus was dubbed the “Spanish flu” because Spain was the source of the first major news about the pandemic; the country was neutral during World War I, and its press was not obliged to censor news that might damage morale.)

However the flu got to Europe, World War I was a perfect breeding ground. Soldiers, sailors, and laborers from all over the world mingled in hospitals and in trenches and on ships; as they sneezed and coughed, the virus quickly mutated and spread. When hundreds of thousands of U.S. military personnel arrived in Europe during the summer of 1918, they met with a flu strain that had become significantly more dangerous than the one encountered at training camps in the spring.

By most accounts, the second wave of the Spanish flu in the United States started in Boston, where a few sailors who had recently



During the Spanish flu pandemic, makeshift hospital beds were set up on a porch at Walter Reed Hospital in Washington, D.C.

PHOTOGRAPHY: BRIDGEMAN IMAGES

returned home became sick in late August. Within days, dozens of sailors at Commonwealth Pier were diagnosed with the flu; within weeks, the number of military patients had climbed into the thousands and civilian cases were being reported as well. By the end of September, recalled one nurse, it seemed as if “all the city was dying.”

Before officials in Boston fully realized the seriousness of the flu outbreak, servicemen were already returning to other coastal cities and traveling across the United States, coming into contact with other soldiers, sailors, and civilians at ports and on trains and in their hometowns. Soon, the entire country had been visited by the “Spanish Lady.”

The Virus Kills

The Spanish flu was not the first flu pandemic the world had encountered — researchers have identified 12 that occurred since the 1700s — but it was the most lethal. (An epidemic reaches pandemic status when it spreads to multiple countries or continents.) During the “Russian pandemic” of 1889 and 1890, for example, about 1 million people died worldwide; the case mortality rate, or the share of people infected who die, was roughly 0.15 percent, a rate comparable to more recent pandemics. The Spanish flu killed more than 2.5 percent of people who contracted the virus, on average; in some parts of the world, the case mortality rate was two or even three times higher.

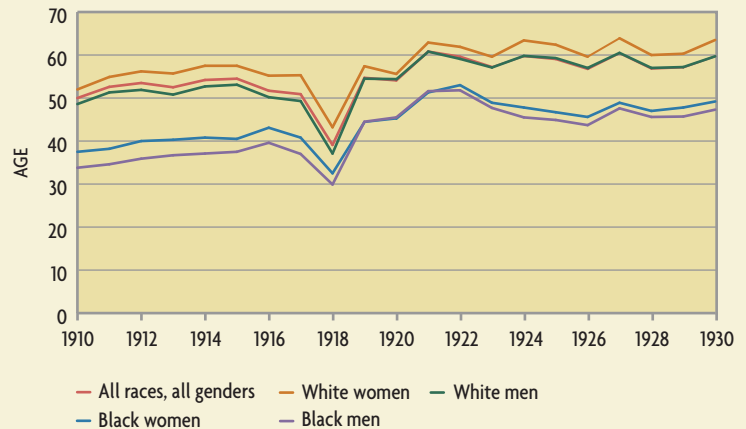
In 1927, the American bacteriologist Edwin Oakes Jordan calculated that the Spanish flu had killed roughly 21.5 million people worldwide. His estimate was based on the best available data at the time, but today, that number is considered much too low. The most recent reputable estimate is nearly 50 million dead, from a 2002 paper by Niall Johnson of the Australian Commission on Safety and Quality in Health Care and Juergen Mueller, a historian and geographer based in Hannover, Germany. But given large inconsistencies in how flu deaths were recorded and reported, Johnson and Mueller concluded the toll could actually have been as high as 100 million.

It’s also uncertain exactly how many people died in the United States. At the time, only about 80 percent of the population lived in the “registration area,” or the cities or states for which the Census Bureau had accurate and complete mortality statistics. And even within the registration area, many flu deaths probably went unreported or were attributed to another illness. Thus, the estimate of 675,000 American deaths is likely to be conservative. Roughly 550,000 of those deaths were “excess deaths” beyond what would likely have occurred during a typical flu season. Overall, U.S. life expectancy fell almost 12 years from 1917 to 1918. (See chart.)

Of the nearly 117,000 American military personnel who died in World War I, about 43,000 were killed by the Spanish flu, compared with 53,402 combat deaths. (The remainder died of other causes.) More Americans, civilian

The Spanish Flu Chasm

U.S. life expectancy dropped dramatically as a result of the Spanish flu pandemic



SOURCE: National Center for Health Statistics, Centers for Disease Control

and military, died during the pandemic than died in combat in World War I, World War II, Korea, and Vietnam combined.

In absolute terms, the Spanish flu pandemic ranks among the deadliest pandemics in world history. As many as 100 million people died during the Plague of Justinian, which began around 540 A.D.; the Black Death killed an estimated 25 million Europeans — one-quarter of the continent’s population — in the mid-14th century.

The flu that struck the world in 1918 differed in several ways from other flu strains. First, the Spanish flu virus afflicted the lungs and respiratory systems, leading many of its victims to develop bacterial pneumonia, which is what eventually killed them (and why many cases were initially misdiagnosed). In other cases, victims died within just a few days of showing symptoms, as their lungs filled rapidly with fluid. And most notably, the Spanish flu was unusually deadly for otherwise-healthy younger adults. Typically, flu deaths follow a U-shaped curve, with deaths peaking for the very young and the very old. But the Spanish flu followed a W-shape, with a sharp peak among adults between 20 and 40 years old. The flu death rate for younger adults was more than 20 times the rate in previous years, and almost half of all flu deaths in the United States were in that age group.

Scientists still aren’t certain exactly why the Spanish flu killed so many younger people. One reason might be that unlike older generations of the time, they hadn’t been exposed to the Russian flu a few decades earlier and thus lacked immunity. Another explanation, based on research with a virus reconstructed from the DNA of a victim found in the Alaskan permafrost, is that the virus turned the body’s immune system against itself. Younger adults tend to have more robust immune systems — and in 1918, that was a liability rather than an asset.

The States (Try to) Respond

Flu mortality varied widely across the United States: Among the 25 states in the death registration area as

of 1915, the excess mortality rate ranged from 360 per 100,000 people in Wisconsin to 757 per 100,000 people in Pennsylvania, according to historian Alfred Crosby's comprehensive 1976 account of the flu, *Epidemic and Peace, 1918*. The disparities do not seem to be entirely explained by either geography or demography. In Colorado, for example, the excess death rate was 681 per 100,000 people; in neighboring Kansas, the rate was a relatively low 423. In New York, an extra 479 people per 100,000 died, versus 649 in New Jersey. (The states with the highest excess mortality rates were Pennsylvania, Montana, Maryland, and Colorado.)

Population density played some role; within states, excess mortality was higher in cities than in rural areas. But there was also significant variation across cities. In Missouri, for example, the rate in St. Louis was 386, versus 624 in Kansas City. Cities also differed in the timing of the pandemic. Some experienced just the second wave of the flu during the fall of 1918, while others were hit by a third wave later that winter or in early 1919.

One factor that might have contributed to different outcomes among cities was the promptness and duration of the public health response. In some cities, officials implemented preventive measures, such as banning public gatherings, requiring people to wear masks, and closing movie theaters and schools, within days of the first flu cases being reported. In other cities, such measures were not put in place until weeks after the flu appeared. Cities also varied in how long they kept the rules in place and in how strictly they were enforced. In a 2007 article in the *Proceedings of the National Academy of Sciences*, researchers concluded that cities that implemented multiple measures early in the outbreak had lower peak mortality rates. There was not much effect on cumulative mortality, however, since few cities kept the measures in place longer than a few weeks. And cities that did enforce preventive measures for longer faced an unfortunate side effect: They were more likely to experience an additional wave of the pandemic later that winter since fewer people had gained immunity during the fall, further limiting the effect on overall mortality.

The gaps in prevention were many and wide. Churches and dance halls might have been closed, but people still went shopping and crowded onto streetcars, despite warnings to the contrary. The gauze masks distributed by volunteers were actually highly porous and did little to prevent the spread of germs. And exceptions were made for patriotism: On Sept. 28, the Treasury Department kicked off its fourth "Liberty Loan" drive to sell \$6 billion in Liberty Bonds. The event was marked with huge parades all across the country, and in many places, rallies and door-to-door solicitations continued throughout October, even when other public gatherings were banned. While it's possible the Spanish flu would have reached similar proportions in the absence of the bond drive, it certainly didn't help. Two days after more than 200,000

Philadelphians gathered to demonstrate their support for the war effort, 635 new cases of flu were reported.

The Virus Reverberates

The United States' medical system was overwhelmed. The country already had a shortage of doctors and nurses since many were serving overseas, and many of those who remained home became sick with the flu themselves. The U.S. Public Health Service (PHS) issued urgent calls for physicians to volunteer to treat flu patients; the Red Cross recruited women without any medical training to work as nurses. Medical school exams were expedited and dentists were authorized to practice as doctors. Thousands of people volunteered, but still there were not enough personnel to treat all the sick. And there was nowhere to put them; university campuses and state armories were turned into makeshift hospitals, and existing hospitals filled their hallways and porches with patients. Many people endured the flu at home, aided by volunteers — nearly all women — who brought cool washcloths and clean linens and helped feed the children of stricken parents.

Some essential services were limited or suspended. Telephone calls could be made only in emergencies because there weren't enough operators; garbage collectors and police officers were too sick to report to work. Retailers reported huge declines in business and revenue, found Thomas Garrett, then with the St. Louis Fed, in a 2007 report. The flu also may have contributed to substantial business failures, according to a 2002 paper by Elizabeth Brainerd of Brandeis University and Mark Siegler of Sacramento State University.

While it's difficult to separate the macroeconomic effects of the pandemic from the effects of World War I, some economists have tried. Brainerd and Siegler concluded that the pandemic may have been a factor in the recession that began in August 1918 and ended in March 1919, as well as in a more severe recession in 1920 and 1921. Research by Robert Barro of Harvard University and Jose Ursua of Dodge and Cox Funds also attributes the 1920-1921 recession at least in part to the flu. Barro and Ursua linked the flu pandemic to declines in GDP and consumer spending in 24 other countries as well, including some that were not involved in the war.

Perhaps counterintuitively, Brainerd and Siegler also found that states with higher flu mortality during the pandemic experienced faster per capita income growth than states with lower mortality during the decade following the pandemic. In part, this could reflect the fact that productivity increases when there are fewer people performing the same amount of work. (Some research suggests that workers' wages in Europe increased significantly following the Black Death.) But it could also be that states with higher flu mortality were further below trend than other states, and their subsequent growth simply represents catching up.

Not all the effects were felt during or immediately

after the pandemic. Pregnant women were more likely to become infected than nonpregnant women, and modern research has linked in utero flu exposure to a host of long-term physical effects, including a greater risk of heart attacks, schizophrenia, and other mental and physical ailments. There were also economic effects from fetal exposure: In a 2006 article in the *Journal of Political Economy*, Douglas Almond of Columbia University found that children who were in utero during the pandemic were less likely to graduate from high school and more likely to be poor, on welfare, or disabled as adults.

Destroyer and Teacher

In a December 1918 article, physician George Price reflected that the Spanish flu had arrived as both “destroyer and teacher.” For example, the pandemic exposed major weaknesses in the United States’ public health system. At the beginning of the outbreak, the lack of coordination and communication between federal and local health officials meant that the scale of the problem went unrecognized until it was too late. Once the U.S. surgeon general, Rupert Blue, did realize that something more serious than the typical seasonal flu was underway, he had to scramble to create an infrastructure that would enable local authorities to share information with the PHS. Blue believed the pandemic had demonstrated the “imperative need of a permanent organization, within the Public Health Service, available with each emergency.” He developed a plan for such a system, but the proposal went nowhere. It wasn’t until the 1940s, when the precursor to the Centers for Disease Control and Prevention was established, that anything like Blue’s dream became reality.

On a local level, the Spanish flu did prompt some changes. Prior to the pandemic, most states had a state public health board. But efforts to expand to the county level had met with resistance, particularly in the South, where citizens were concerned about the intrusion of a centralized authority. As a result, when the flu struck, local efforts were conducted largely by volunteers who were not prepared for the pandemic. The flu changed people’s attitudes and helped spur the development of county health boards, according to historian David Cockrell. After the past few years, one North Carolina doctor wrote in 1920, “the people would no better know how to get along without their health officer than they would know how to dispense with their Sheriff.”

In a 1996 article in the *North Carolina Historical Review*, Cockrell also detailed how the pandemic led to the “hospital age” in North Carolina. The state was severely lacking in hospital capacity, and what hospitals there were didn’t have modern equipment. After the pandemic, “the press of patients, the physical demands, almost beyond endurance, on physicians [and] nurses ... plus the strain on accommodation” motivated many towns to upgrade their medical facilities. James B. Duke, the tobacco magnate turned philanthropist, established a multimillion-dollar endowment to construct rural hospitals. By the end of the 1920s, the number of hospital beds in the state had doubled.

The pandemic also helped solidify in the public’s mind the validity of “germ theory,” which had been gaining currency since the turn of the century. Thirty years earlier, people had believed that the Russian flu was caused by a microorganism that floated through the air but died once it entered its host, rendering the illness itself noncontagious. As a result, people took few preventive measures. During the Spanish flu, in addition to trying to limit contact between people, health authorities also emphasized hygiene. They enforced bans on public spitting and ran extensive ad campaigns urging citizens to cover their coughs and sneezes with handkerchiefs. (The Detroit health commissioner suggested that people use a disposable paper napkin, presaging the invention of paper tissues in the 1920s.) The makers of toothpaste, cough drops, and other products used the focus on hygiene to great effect during the 1920s, warning potential buyers that “a cold may be something far more dangerous.” The mouthwash Listerine advertised itself as protection against “street car colds,” with pictures of men sneezing on public transportation.

Descendants of the Spanish flu still circulate today, as the H1N1 and H3N2 viruses in humans, in addition to several strains in pigs. They are much less virulent than the 1918 strain — but the original, deadly virus does exist in closely guarded laboratories. Studying the reconstructed virus has helped scientists understand how flu viruses mutate and spread and has helped guide more recent public health efforts. During the swine flu pandemic in 2009, for example, researchers discovered the virus was closely related to the Spanish flu virus and that elderly persons who had been exposed in 1918 already had some immunity. That enabled them to target vaccines toward younger people, a group that is not typically the focus of flu vaccination efforts. In that case, there was more to be learned than destroyed. **EF**

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Furthermore, some studies have found evidence that larger credit unions may be competing more with banks compared to the smaller credit unions. For instance, the 2004 Chmura study found that less than half of credit unions with under \$10 million in assets offer typical banking products and services such as debit cards, Roth IRAs, or first mortgages — services that more than 90 percent of credit unions with more than \$100 million in assets offer their members. Additionally, larger credit unions are more likely to offer larger loans compared to loans extended by small credit unions.

On the other hand, the subsidy and its intended purpose of serving individuals of modest means could explain why there are so many small credit unions in an industry with high fixed costs. For instance, the subsidy might be allowing a credit union to operate in an otherwise unprofitable market. If the subsidy allows for the availability of credit where it would have otherwise been absent, even if the credit union is not offering higher deposit rates or lower loan rates than an average bank, it could provide the financing for, say,

a low-income individual to buy a car to get to work or establish a source of credit in a rural area where a bank might not find it profitable to operate.

The research performed on credit unions and the tax exemption reveals mixed results as to whether, on the whole, credit unions still serve the same purposes today as they did when they were first chartered in the early 20th century. The features that have historically been characteristic of credit unions, such as the common bond, have arguably become outdated with innovations such as deposit insurance and credit-rating agencies. Critics of the tax exemption cite this as evidence that credit unions have become less distinguishable from banks and therefore no longer warrant special tax treatment. Credit union proponents contend that characteristics, such as the common bond, were merely incidental to safe and sound credit union operation at the time and not necessarily the core mission of the industry, which is to operate a cooperatively owned financial institution that serves its members, especially those of modest means. **EF**

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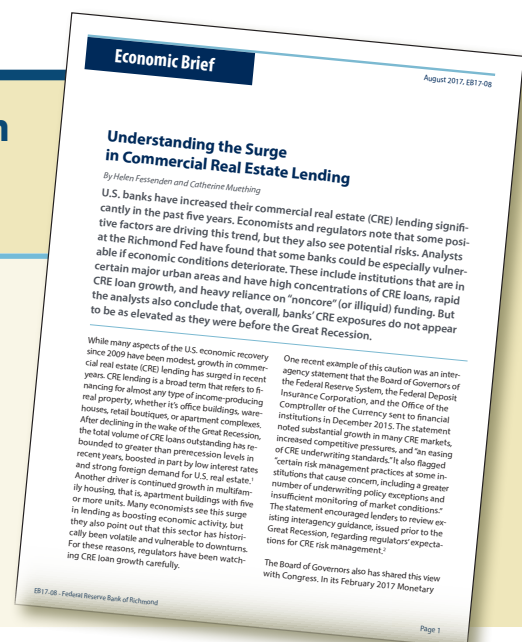
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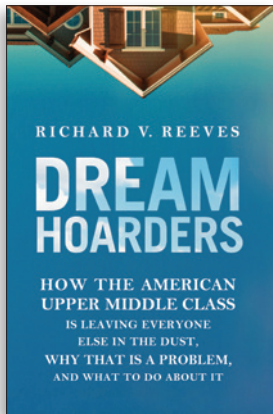
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Pulling Up the Ladder



DREAM HOARDERS: HOW THE AMERICAN UPPER MIDDLE CLASS IS LEAVING EVERYONE ELSE IN THE DUST, WHY THAT IS A PROBLEM, AND WHAT TO DO ABOUT IT

BY RICHARD V. REEVES
WASHINGTON, D.C.: BROOKINGS
INSTITUTION PRESS, 2017, 156 PAGES

REVIEWED BY DAVID A. PRICE

The problem with inequality in America doesn't lie with the top 1 percent of earners, once the target of the Occupy Wall Street movement and still widely considered synonymous with economic stratification. The problem, rather, is with the upper middle class, the top 20 percent, corresponding to a household income of around \$112,000 and above. It is largely an educated professional class — one that is keeping the bottom 80 percent down with a variety of subtle barriers.

That is the claim of Brookings Institution scholar Richard Reeves in *Dream Hoarders*. Reeves, who moved to the United States from Britain in 2012, holds that “the class structure of my new homeland is, if anything, more rigid than the one I left behind and especially so at the top.”

The argument of Reeves' book, since retold in numerous news stories, is that the upper middle class is guilty of “opportunity hoarding”: rigging the system in favor of its children by creating unfair advantages for them in the pursuit of places in superior schools and colleges and, ultimately, in access to jobs. One such practice that he highlights is erecting financial barriers to “good” neighborhoods, both through the mortgage interest deduction (which favors higher-income households) and through exclusionary zoning policies that choke off the supply of new housing. Because access to public primary and secondary schools is tied to the child's place of residence, Reeves contends, with the highest-performing schools located in more costly neighborhoods, these barriers amount to school barriers as well.

At the college level, Reeves inveighs against preferences for legacy applicants. He cites evidence that acceptance rates for children of alumni at some elite schools are between two and three times the overall acceptance rate, though he concedes the real extent of the preference may be smaller (since children of elite-school parents might tend to be better prepared to start with). But whatever the size of the preference, he views it as symbolically offensive at the least.

Reeves is also critical of cronyism in internship hiring and the widespread use of unpaid interns, both of which operate in favor of students from the connected upper middle class and upper class — at a time when internships are increasingly a gateway to employment.

On its face, the idea that opportunity hoarding is a major factor in today's rising inequality sounds plausible. But is it accurate?

With regard to elite college admissions, Reeves has understated his case, if anything. Sociologists Thomas Espenshade of Princeton University and Alexandria Walton Radford of RTI International documented in their 2009 book *No Longer Separate, Not Yet Equal* that elite institutions place substantial weight on a student's involvement in a high number of community service organizations or projects, a criterion that obviously favors students who don't need to work for money. As for work itself, they found that elite schools tend to view part-time jobs negatively and also disfavor “career-oriented” activities such as 4-H clubs or Junior ROTC — again, operating against middle-class and lower-class students.

At the same time, the focus on access to college — one that Reeves shares with many policymakers — may be in need of rethinking. At the root of this emphasis is a simple idea, namely, that sending more students to college will spread the wage gains from college more broadly. That's true up to a point; the wage premium for a four-year degree is high. But that return depends on finishing the degree (and, of course, on the field of study) — and not all potential students have the skills they would need to finish. Those who drop out or fail can end up with the worst of both worlds: low earnings and high debt. Simply expanding access to college — without addressing factors such as high school curriculum, teaching, and classroom discipline issues that may affect the quality of students' preparation — could lead to more indebted lower-class and middle-class students without a long-term benefit to mobility or equality. The most effective policy levers in these areas, moreover, are probably more complex than just spending more money or moving students around.

In addition, *Dream Hoarders* would have benefited from a discussion of the course of American income inequality over time. Wage inequality has followed a U-shape pattern: from its heights in the early 20th century to a period of broader middle-class prosperity from the 1940s to the mid-1970s (a period that economists have called the “Great Compression”) and then its rebound since. But alleged causes like local school assignments and legacy preferences long predate modern inequality trends. While this, by itself, doesn't prove they're immaterial, it does argue in favor of looking more closely at forces that have changed on a broadly similar timeline to wage inequality — for instance, changes in technology and in trade policy.

Still, Reeves' book is carefully researched and provocatively written and has stimulated a valuable discussion of an American dream, seeing one's children do better. **EF**

The Urban Core in the Tale of Three Cities

BY SONYA RAVINDRANATH WADDELL

The Fifth District economy — like the U.S. economy — is increasingly driven by urban areas. In 2016, over 90 percent of U.S. gross domestic product (GDP) was attributable to metropolitan statistical areas, or MSAs, while they occupied just under 50 percent of the nation's land mass. This is not a new phenomenon, but it remains an important one. There is a long history of literature that aims to understand how and why cities develop and the opportunities and constraints faced by firms and households in that development. In addition, the contraction of certain cities in the past few decades (such as Detroit, Cleveland, and Pittsburgh) has puzzled economists and spurred interest in better understanding how and why cities contract.

The economic importance of urban areas in the Fifth District is no different from that in the United States as a whole. In 2015, over 75 percent of the Fifth District population lived in metro areas that generated over 90 percent of economic output. This article will start to disentangle the economic literature on the existence, growth, and decline of cities in the context of three very different cities in the Fifth District: Baltimore, Md., Charlotte, N.C., and Richmond, Va. In addition to being home to the three physical branches of the Richmond Fed, these three metro areas account for over 20 percent of the Fifth District's population and close to a quarter of its GDP. And although these three urban areas cannot compete with the economic power of Washington, D.C., in the Fifth District, they are arguably more typical in the forces that affect their economic trajectories; perhaps the differences and similarities among them can cast some light on the forces that affect cities in general.

What does “Urban” Mean?

When most people think of an urban area, the first thing that comes to mind is a city like New York, Tokyo, or San Francisco — tall buildings, high population density, and crowded public transportation. Others may think of cities such as Richmond or Baltimore: slightly less dense, fewer high-rise buildings, but still with small plots for houses, sidewalks for walking, and cars crowding at traffic lights. Those images are of urban cores, but very often, the available data that we have to describe urban areas are at the level of the MSA, which is often a much larger territory than the urban area. (See “Location, Location, Location: The economic differences between rural and metro areas in the Fifth District,” *Region Focus*, Fall 2009.)

Compared to an MSA as a whole, the urban core of an MSA better fits our vision of a city: Louisa County, for example, which is part of the Richmond metro area, has

a population density of about 67 people and 33 housing units per square mile compared to almost 3,500 people (and over 1,600 housing units) per square mile in the city of Richmond (and compared to almost 70,000 people and over 37,000 housing units per square mile on Manhattan). The distinction between central cities and metro areas is important in social and economic outcomes as well. The Richmond MSA, for example, has a little under 1.3 million residents while the city of Richmond has about 225,000 residents. Meanwhile, the unemployment rate for the MSA as a whole was 4.1 percent in 2016 compared to 4.6 percent for the city of Richmond. The numbers in Baltimore are even starker: The unemployment rate in the city was 6.3 percent in 2016 compared to 4.4 percent in the metro area. In Baltimore City, almost 24 percent of people live below the poverty rate compared to about 11 percent in the broader metro area.

The physical footprints of most metro areas have expanded over time. The growth of the Charlotte MSA from 1960 to today — it is now multiple times its initial size — exemplifies this expansion. (See map.) The concept of a metro area is based on a large population nucleus with surrounding communities that have a high degree of social and economic integration with that nucleus. For a county to be a part of an MSA, at least 25 percent of the workers living in that county have to work in the central county (or counties) of the metro area, or at least 25 percent of the employment in that county must be accounted for by workers who reside in the central county — like a reverse commute. (There are urbanization/population requirements to be considered a central county or counties.) Therefore, the growth of metro areas is not just about population growth or rising density of economic activity in the expanding periphery; it is also about how many people commute to an urban core. Commuting patterns and availability of transportation then become critical to understanding changes in urban areas.

Why Do Cities Exist?

Cities arise because there are advantages to concentrating economic activity in one place, what economists call agglomeration economies. When businesses in the same industry cluster, they can benefit, for example, from sharing inputs, such as intermediate manufactured goods or skilled labor. Agglomeration economies are how we end up with a technology hub in Silicon Valley, a concentration of carmakers in Detroit, or even a textile district in New York City. Firms can also benefit from the knowledge spillover that occurs from more people living and

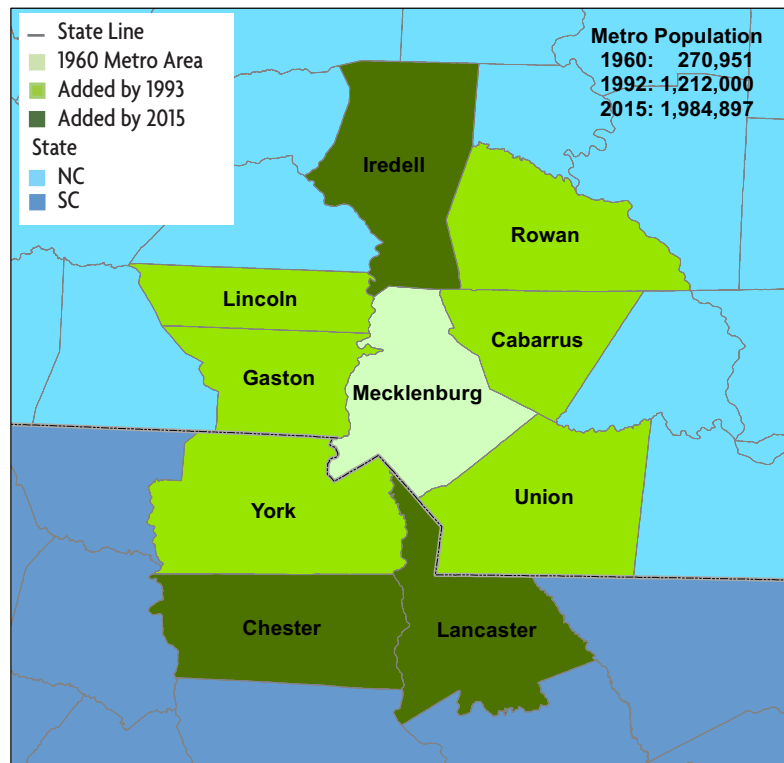
working in close proximity; in other words, new ideas spread more easily with a concentration of people and businesses. In addition, there is an infrastructure that arises around cities that all industries can benefit from, such as transportation networks, banking, and legal services. In this way, economic development can beget economic development. For example, one of the most compelling arguments for locating a Federal Reserve Bank in Richmond in 1914 was to take advantage of its existing transportation and banking infrastructure.

The development of the manufacturing hub of Baltimore is a good example of these agglomeration economies. First, the city benefited from the port and then from the railroad built in the mid-19th century and the telegraph line that soon accompanied the railroad. The advent of steam power enabled new industries to be built closer to the harbor, and by the 1880s Baltimore had become America's leader in canned fruits and vegetables and a major producer of fertilizer. Baltimore also became a leader in manufacturing chrome, copper, and most importantly, steel. At the turn of the 19th century, the Pennsylvania Steel Company had become so prosperous that it was running out of the raw material to make its steel and therefore turned to ore stores in Cuba. To process the ore into steel, a plant was built on a nearly deserted marshland in Baltimore called Sparrows Point. (See "Red Skies and Blue Collars," *Econ Focus*, First Quarter 2013.)

From railroads, bridges, and equipment to automobiles and tin cans, the steel industry grew considerably through the early 20th century, and Baltimore grew along with it. From 1900 to 1939, the number of housing units in northeast Baltimore grew from 279 units to over 14,000 units. But then the subsequent decline of manufacturing in the city of Baltimore has created challenges for residents and city officials alike. According to a 2000 book chapter by Marc Levine of the University Wisconsin-Milwaukee, between 1950 and 1995, the city of Baltimore lost 74.9 percent of its industrial base of manufacturing jobs. The city's population peaked at 950,000 residents in 1950 with over 34 percent of the labor force employed in manufacturing. By 1995 only 8 percent of the city jobs were in manufacturing.

Richmond's development also relied on agglomeration economies, particularly surrounding the tobacco industry, iron foundries, and flour mills. According to the 1994 book *At the Falls* by historian Marie Tyler-McGraw, all three of these industries reached their peak of profitability just before the Civil War. (A fourth major industry of the city, the slave trade, also reached its peak at this time.) Even after World War II, tobacco, in particular, remained Richmond's primary industry and major employer for

Charlotte, NC-SC Metropolitan Statistical Area



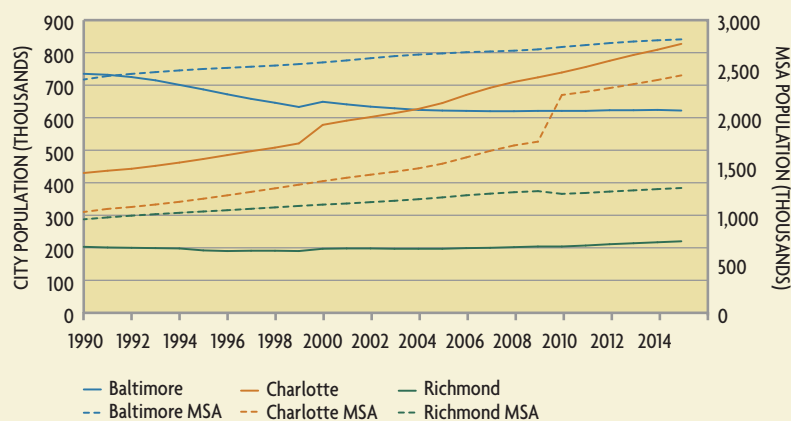
SOURCE: U.S. Census Bureau

almost a generation. But there was other manufacturing, too: paper and paper products, iron, and steel among them.

The population outside of Richmond's central city grew by 24.3 percent in the 1960s. After World War II, the population of Richmond continued to grow, with the local economy continuing to offer a good supply of low-to-moderate income jobs. Much of the outward spread of Richmond in the late 1940s and 1950s was the movement of working-class and moderate-income families from central Richmond to brick homes at the edge of the city or just beyond its borders.

The evolution of Charlotte is a little different in that it was never a stronghold of manufacturing activity and it is not on a major body of water and therefore could not rely on port activity. The growing of cotton in the South did engender cotton and textile mill activity in Charlotte, and by the early 1900s about 300 mills had been built within 100 miles of Charlotte; the cotton, combined with J.P. Morgan's Southern Railway, contributed to Charlotte's growth. Nonetheless, the city's population was still dwarfed by those of Baltimore and Richmond: The population of Charlotte reached 82,000 by 1930. This textile heritage was certainly important in the development of Charlotte, and although the industry itself is a fraction of its former size, its legacy remains in driving the emergence of ancillary industry, such as banking, that later drove the transition to a postindustrial economy.

Population of Cities and Their Metro Areas



NOTE: Left-hand scale is city population; right-hand scale is MSA population.

SOURCE: U.S. Census Bureau. Data through 2015.

So although manufacturing continues to be an important part of the Charlotte economy, the transportation (such as railways in the early days and later the hub airport) and banking sectors that emerged in the 1980s and 1990s drove continued growth in the Charlotte region. Unlike Baltimore, instead of losing residents in the last 60 years, the city of Charlotte has grown along with its surrounding counties. (See chart.)

The Central Business District

As firms cluster, they create an area of concentrated economic activity, often referred to as an urban core or a central business district (CBD). The trade-off that households face, then, results in the ring of residential and economic activity that surrounds that CBD. For households, although commuting costs are lower close to work, housing is more expensive, so people might choose to live farther away to get more land. (Of course, house prices will also reflect features such as the quality of schools, access to parks, and crime rates.) In his basic urban land model laid out in his 1964 book *Location and Land Use* — which has been a basis for much of urban economics — William Alonso modeled a city with a single center where the CBD is home to all of the jobs and the space surrounding the CBD is used for residential purposes. Of course, this is overly simplified: Job density across Richmond, Baltimore, and Charlotte (as in most cities) reflects that these areas have multiple urban cores. In Richmond, for example, there is a concentration of jobs in the downtown area, but also in the western and southern part of the region. (See map.) To build upon the single-center model, economists have used both traditional methods to model multiple employment centers and some new empirical methods that have been enabled by developments in the trade literature as well as the increasing granularity of available data. In work published in the Federal Reserve Bank of Richmond

Economic Quarterly, Richmond Fed economists Sonya Ravindranath Waddell and Pierre-Daniel Sarte elaborate on these new empirical methods.

It also appears that worker productivity (and therefore average wages) are higher in the more densely populated CBD compared even to the surrounding areas. For example, despite the higher poverty rate of those living in the city of Baltimore, over 52 percent of those who work in the city make more than \$3,333 per month and only 17.3 percent make less than \$1,250 per month. Compare this to the entire metro area, where just under 47 percent make more than \$3,333 per month and 22.5 percent make less than \$1,250 per month. The differences are just as stark, if not more so, in the Richmond and Charlotte metro areas.

In most U.S. cities, wealthier households tend to live farther away from the city center (with some notable exceptions), perhaps because wealthier households prefer to occupy more land — although as the household continues to gain wealth, it might move back to avoid spending time commuting. That's why both very poor people and very rich people are often concentrated in city centers.

Of course, there are both other benefits to city living (concentrations of people make amenities such as restaurants and theaters commercially viable) and other costs to city living. It is the costs that prevent cities from unlimited growth. For example, higher density brings congestion and a higher cost of land.

The Rise and Decline of the Urban Core

In the city of Detroit, large declines in population have led to a structure that violates the most basic principle of urban economics: that residents minimize commuting costs. Downtown Detroit, which has a healthy number of employers and employees, is surrounded by a ring of vacant neighborhoods. In a 2017 National Bureau of Economic Research working paper, Raymond Owens and Pierre-Daniel Sarte of the Richmond Fed and Esteban Rossi-Hansberg of Princeton University argued that this is a coordination problem: No resident wants to be the first to move into, and no developer wants to be the first to invest in, a vacant neighborhood. As employment fell in manufacturing and some plants moved elsewhere, residential demand and income dropped, which, according to the authors, contributed to the riots in the late 1960s (riots also experienced in Baltimore) that drove the city into a no-development equilibrium. This story of flight from Detroit's close-in neighborhoods seems consistent with that of Baltimore; the decline in the population of Baltimore's urban core occurred at the same time as an expansion of the metro area.

While the lack of public transportation has kept many poorer families in the city core, transportation issues also

explain households moving away from it — development of the highway system reduced commuting costs considerably. Certainly, part of the reason for the decline in population in the city of Baltimore is the decline in manufacturing jobs, but commuting has also gone up. Only 33.2 percent of those who are employed in the city of Baltimore live in the city; the rest commute from outside the city. In Richmond, 78 percent of those employed in the city live outside of the city. On the other hand, a smaller share of Charlotte’s downtown employment base commutes: Not quite 60 percent (57.6 percent) of workers in the city commute in from the suburbs.

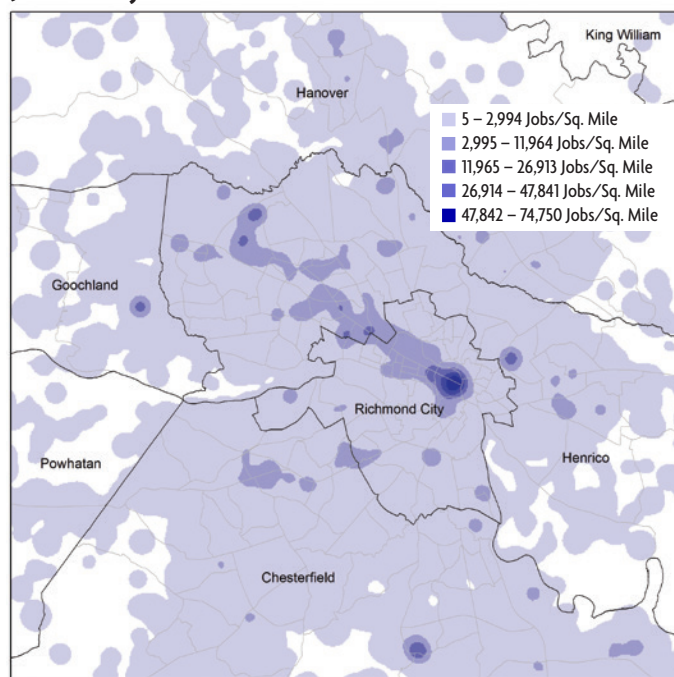
There are other dynamics at play, such as the durability of the housing stock, as discussed by Edward Glaeser and Joseph Gyourko in a 2005 article titled “Urban Decline and Durable Housing” and by Jan Brueckner and Stuart Rosenthal in a 2009 article in the *Review of Economics and Statistics*. When a city is new, buildings near the CBD are the most desirable, but as those building age and deteriorate, households may move to new developments surrounding the city. These buildings become left to lower-income households. After some time, the deteriorated buildings are redeveloped and higher-income people move back in, causing gentrification. When the population in the city starts to decline, the existing housing stock does not disappear; it can take a long time before it is profitable to refurbish or replace a building. The surplus of housing depresses house prices below the cost of construction, and falling rents may draw lower-skilled and lower-income households into the city, intensifying urban sorting by income.

For example, the city of Baltimore identified 16,636 properties as vacant as of December 2014 (defined as those that have vacant building notices or code violations.) This might be an understatement, since the Census — which defines a vacant building as one that has not had mail delivered for 90 days, counting each unit in an apartment building — identified 46,782 vacant dwelling units in Baltimore in 2010. According to a 2015 report of the Abell Foundation, a Baltimore-based philanthropy, “Baltimore is a city built for one million people but is now only occupied by approximately 620,000. In the four decades since Baltimore began its war on vacant houses, the city lost 31 percent of its population due to massive suburban flight and to staggering losses of manufacturing jobs — with 30,000 people alone losing work at the now shuttered General Motors and Bethlehem Steel plants.”

Policy Options and the Role of New Empirical Models

Cities like Baltimore and Detroit are grappling with how to address an aging housing stock and diminished population. Most economists embrace labor mobility; the policy concern is not that workers in the city of Detroit or in the city of Richmond have moved outside of the CBD. Rather, the concern of policy is more for the livelihood of those who are left behind: Cities such as Baltimore and Richmond suffer higher unemployment

Job Density in Richmond



SOURCE: U.S. Census Bureau, LEHD Origin-Destination Employment Statistics

and poverty rates than the surrounding counties. What is more, agglomeration economies are a powerful reinforcing mechanism for large transformations in a city over time. Perhaps targeted and thoughtful investments could provide a catalyst for these forces where the benefits outweigh the costs. Recent work such as the Owens, Rossi-Hansberg, and Sarte paper on Detroit and a 2015 article in *Econometrica* by Gabriel Ahlfeldt and Daniel Sturm of the London School of Economics, Stephen Redding of Princeton University, and Nikolaus Wolf of Humboldt University has brought to light a new opportunity to take advances in the international trade literature and the increasingly available granular data to model a city with data. Once a city can be modeled in a realistic way, it is easier to understand the effects of a shock to a city’s economy or the likely effects of new policies, such as housing assistance or subsidies of transportation costs.

Richmond, Baltimore, and Charlotte are extremely different cities. They each developed because of a combination of their natural endowments, specific policy goals of local officials, and some catalyst that engendered growth in a particular industry at least in part through agglomeration economies. Richmond benefited from its location close to the James River and the tobacco industry; Baltimore relied on its harbor and the steel industry; and in Charlotte, the political and business leadership brought textile mills, hubs of transportation, and, in the 1980s and 1990s, banking. With the data that are now available on commuting patterns, population, employment, wages, and land values, economists can model each city to better understand the dynamics of urban areas and the possible role of policy. **EF**

STATE DATA, Q4:16

	DC	MD	NC	SC	VA	WV
Nonfarm Employment (000s)	786.6	2,724.9	4,373.9	2,066.5	3,936.2	748.9
Q/Q Percent Change	0.7	0.4	0.4	0.2	0.4	0.6
Y/Y Percent Change	1.2	1.2	2.2	1.8	1.0	-0.7
Manufacturing Employment (000s)	1.2	104.4	465.7	240.6	232.5	46.4
Q/Q Percent Change	0.0	1.0	0.3	0.9	0.0	-0.3
Y/Y Percent Change	9.1	-0.3	0.3	1.5	-0.7	-2.0
Professional/Business Services Employment (000s)	166.9	445.8	617.0	271.3	718.7	64.7
Q/Q Percent Change	1.0	0.6	1.5	0.6	0.1	-1.2
Y/Y Percent Change	2.0	2.2	3.2	-0.3	0.6	-2.6
Government Employment (000s)	239.9	505.5	731.5	364.6	715.4	158.7
Q/Q Percent Change	0.6	0.1	0.2	-0.2	0.1	2.3
Y/Y Percent Change	0.6	0.5	1.5	0.7	0.4	2.9
Civilian Labor Force (000s)	393.3	3,180.6	4,911.5	2,298.0	4,263.8	782.9
Q/Q Percent Change	0.3	0.3	0.7	0.0	0.5	0.0
Y/Y Percent Change	1.0	0.7	2.1	0.6	1.2	-0.1
Unemployment Rate (%)	5.8	4.2	5.2	4.3	4.1	5.8
Q3:16	6.0	4.2	5.0	4.6	4.1	6.0
Q4:15	6.5	4.7	5.5	5.5	4.1	6.4
Real Personal Income (\$Bil)	46.8	317.7	388.1	178.3	411.2	61.4
Q/Q Percent Change	0.2	0.5	0.4	0.4	0.3	-0.9
Y/Y Percent Change	2.9	2.3	2.4	2.4	2.0	-0.8
New Housing Units	1,069	2,982	13,019	6,898	6,143	641
Q/Q Percent Change	0.0	-8.9	-20.7	-19.9	-23.5	-8.7
Y/Y Percent Change	0.0	-14.1	3.7	9.7	-15.3	8.5
House Price Index (1980=100)	812.4	452.9	346.7	354.1	439.5	232.0
Q/Q Percent Change	2.1	0.5	0.5	0.7	0.6	0.6
Y/Y Percent Change	5.7	3.8	5.9	6.0	3.3	2.4

NOTES:

- 1) FRB-Richmond survey indexes are diffusion indexes representing the percentage of responding firms reporting increase minus the percentage reporting decrease. The manufacturing composite index is a weighted average of the shipments, new orders, and employment indexes.
- 2) New housing units and house prices are not seasonally adjusted; all other series are seasonally adjusted.
- 3) Manufacturing employment for DC is not seasonally adjusted.

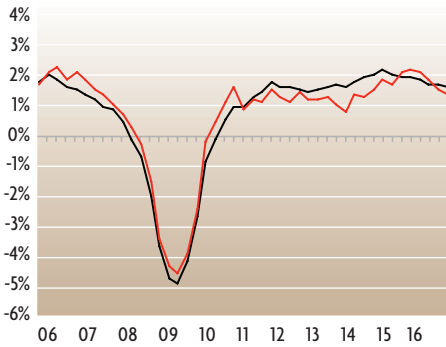
SOURCES:

Real Personal Income: Bureau of Economic Analysis/Haver Analytics.
 Unemployment Rate: LAUS Program, Bureau of Labor Statistics, U.S. Department of Labor/Haver Analytics
 Employment: CES Survey, Bureau of Labor Statistics, U.S. Department of Labor/Haver Analytics
 New housing units: U.S. Census Bureau/Haver Analytics
 House Prices: Federal Housing Finance Agency/Haver Analytics

For more information, contact Michael Stanley at (804) 697-8437 or e-mail michael.stanley@rich.frb.org

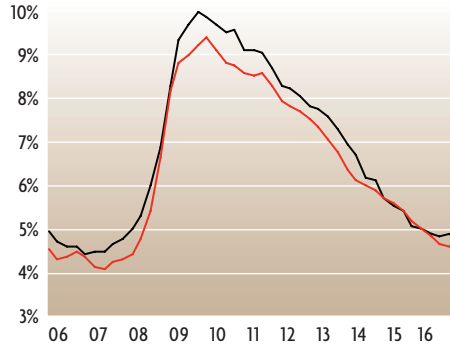
Nonfarm Employment

Change From Prior Year
Fourth Quarter 2005 - Fourth Quarter 2016



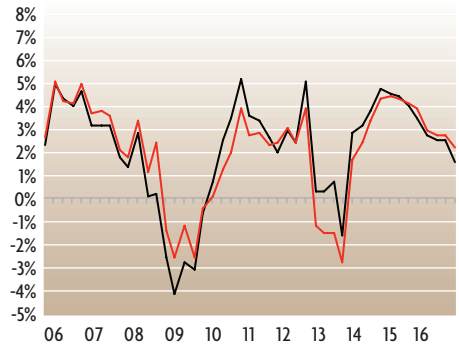
Unemployment Rate

Fourth Quarter 2005 - Fourth Quarter 2016



Real Personal Income

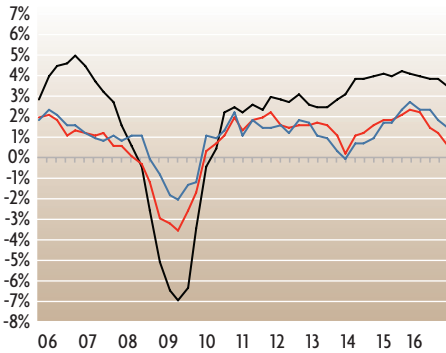
Change From Prior Year
Fourth Quarter 2005 - Fourth Quarter 2016



— Fifth District — United States

Nonfarm Employment Major Metro Areas

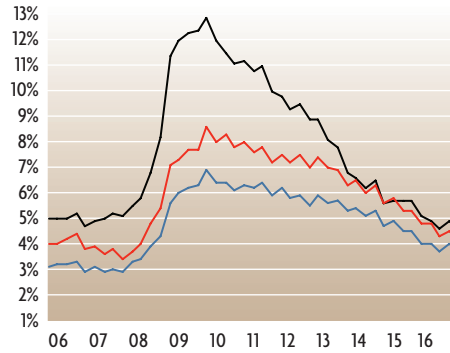
Change From Prior Year
Fourth Quarter 2005 - Fourth Quarter 2016



— Charlotte — Baltimore — Washington

Unemployment Rate Major Metro Areas

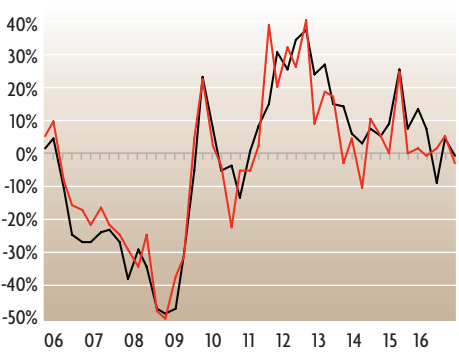
Fourth Quarter 2005 - Fourth Quarter 2016



— Charlotte — Baltimore — Washington

New Housing Units

Change From Prior Year
Fourth Quarter 2005 - Fourth Quarter 2016



— Fifth District — United States

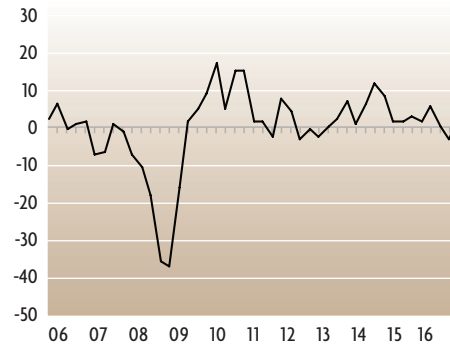
FRB—Richmond Services Revenues Index

Fourth Quarter 2005 - Fourth Quarter 2016



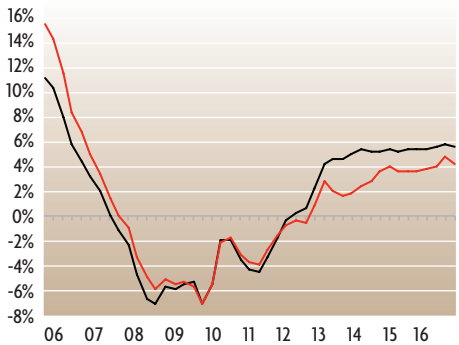
FRB—Richmond Manufacturing Composite Index

Fourth Quarter 2005 - Fourth Quarter 2016



House Prices

Change From Prior Year
Fourth Quarter 2005 - Fourth Quarter 2016



— Fifth District — United States

METROPOLITAN AREA DATA, Q4:16

	Washington, DC	Baltimore, MD	Hagerstown-Martinsburg, MD-WV
Nonfarm Employment (000s)	2,665.6	1,410.4	109.8
Q/Q Percent Change	0.9	0.9	2.9
Y/Y Percent Change	1.4	0.5	0.1
Unemployment Rate (%)	3.8	4.3	4.3
Q3:16	3.8	4.3	4.5
Q4:15	4.1	4.9	4.8
New Housing Units	4,634	1,150	235
Q/Q Percent Change	-26.7	-10.9	-1.3
Y/Y Percent Change	-23.3	-9.2	19.9

	Asheville, NC	Charlotte, NC	Durham, NC
Nonfarm Employment (000s)	190.4	1,174.8	307.9
Q/Q Percent Change	1.6	2.4	2.0
Y/Y Percent Change	2.9	3.4	1.9
Unemployment Rate (%)	4.2	4.7	4.5
Q3:16	4.1	4.7	4.4
Q4:15	4.5	5.2	4.9
New Housing Units	438	4,166	956
Q/Q Percent Change	-11.3	-35.9	-12.0
Y/Y Percent Change	0.0	-16.7	-13.6

	Greensboro-High Point, NC	Raleigh, NC	Wilmington, NC
Nonfarm Employment (000s)	363.4	612.7	124.3
Q/Q Percent Change	2.2	1.4	-0.2
Y/Y Percent Change	1.0	3.3	2.5
Unemployment Rate (%)	5.2	4.4	4.8
Q3:16	5.2	4.3	4.8
Q4:15	5.7	4.7	5.4
New Housing Units	620	3,017	586
Q/Q Percent Change	-18.2	-23.9	83.1
Y/Y Percent Change	2.6	23.3	82.6

NOTE:
Nonfarm employment and new housing units are not seasonally adjusted. Unemployment rates are seasonally adjusted.

	Winston-Salem, NC	Charleston, SC	Columbia, SC
Nonfarm Employment (000s)	263.3	351.0	397.1
Q/Q Percent Change	1.4	0.8	0.9
Y/Y Percent Change	0.9	3.0	0.4
Unemployment Rate (%)	4.9	3.7	4.1
Q3:16	4.8	4.0	4.4
Q4:15	5.2	4.8	5.2
New Housing Units	233	1,353	1,036
Q/Q Percent Change	-37.4	-27.4	-12.5
Y/Y Percent Change	-21.8	-2.2	10.9
	Greenville, SC	Richmond, VA	Roanoke, VA
Nonfarm Employment (000s)	415.5	671.2	164.0
Q/Q Percent Change	1.7	0.9	1.4
Y/Y Percent Change	1.3	0.6	1.0
Unemployment Rate (%)	3.9	4.2	4.1
Q3:16	4.3	4.2	4.1
Q4:15	4.9	4.3	4.1
New Housing Units	1,276	953	N/A
Q/Q Percent Change	-22.2	-24.7	N/A
Y/Y Percent Change	27.9	-31.8	N/A
	Virginia Beach-Norfolk, VA	Charleston, WV	Huntington, WV
Nonfarm Employment (000s)	774.5	119.5	140.3
Q/Q Percent Change	-0.5	1.0	2.5
Y/Y Percent Change	-0.1	-2.3	-0.7
Unemployment Rate (%)	4.5	5.5	5.9
Q3:16	4.7	5.8	6.2
Q4:15	4.7	6.1	6.1
New Housing Units	1,300	56	46
Q/Q Percent Change	-41.2	-15.2	53.3
Y/Y Percent Change	6.9	-3.4	27.8

For more information, contact Michael Stanley at (804) 697-8437 or e-mail michael.stanley@rich.frb.org

Unwinding the Fed's Asset Purchases

BY JOHN A. WEINBERG

The Federal Open Market Committee (FOMC) announced in June that it “expects to begin implementing a balance sheet normalization program this year.” In other words, it plans to start unwinding the large-scale asset purchases, known as quantitative easing, that it began in November 2008. How might we expect markets to react as the Committee begins to provide more specific information about the timing of normalization?

Of course, we can't know for certain how markets will react, as the unwinding of the asset purchases will be a large and largely unprecedented endeavor. The Fed's balance sheet, now standing at more than \$4.4 trillion, increased from 6 percent of GDP before the financial crisis to 23 percent today.

The rationale behind the asset purchase program was that the Fed felt the need to add accommodation even after interest rates had been set at their effective floor. In particular, the purchase of longer-term assets was intended to put downward pressure on longer-term interest rates. Additionally, the Fed sought to support the housing market with purchases of housing agency debt and agency mortgage-backed securities; these housing-related securities now make up 40 percent of the Fed's assets.

Following its June meeting, the FOMC released a statement of the general principles it intended to follow in shrinking its portfolio. It stated that the process will be gradual and predictable, allowing progressively more of its bonds to run off as they mature rather than reinvesting the proceeds as the Fed has been doing. For Treasuries, the FOMC indicated that it will initially allow \$6 billion to run off per month, an amount that is to increase in regular, predetermined steps at three-month intervals. For housing-related securities, \$4 billion per month is to be run off, again with regular increases every three months. The Committee has not said when it expects to begin this process but has indicated that it will likely be later this year.

To get an idea of the market's likely reaction to this process, some may look to the “taper tantrum” episode of 2013. There, markets reacted abruptly to signals from the Fed's leadership that the FOMC would soon taper off its asset purchases, with long-term bond rates rising sharply. Some might look to this episode as a natural model for market reactions to major Fed balance sheet announcements.

The taper tantrum episode seems fundamentally to represent a volatile reaction to uncertainty about the Fed's intents. To be sure, while the FOMC has pursued a policy of transparency with regard to the unwinding, there are nontrivial open questions — to which markets will react to some degree once the FOMC answers. These include not only the timing of when the unwinding program will start,

but also how much larger, if at all, the Fed's post-unwinding balance sheet will be compared to its pre-crisis balance sheet. In other words, just what does normalization mean?

Nonetheless, there's a significant difference in today's environment with regard to unwinding compared to the uncertainty that prompted the taper tantrum. The market's reaction in 2013 to the FOMC's announcement of tapering its asset purchase program reflected that market participants perceived it as a departure point in the future path of interest rates. In the minds of observers, a change in balance sheet policy presaged a change in interest rate policy. And as I noted in an earlier column, the market's sensitivity to the announcement was heightened by the fact that the historical relationship between the Fed's policy rate and economic indicators no longer held in an era of near-zero rates. Markets were limited in their ability to rely on past FOMC practice to gauge the likely course of its interest-rate targets because the period of near-zero rates represented a new policy regime. (See “Fed Communications in Unusual Times,” *Econ Focus*, First Quarter 2014.)

As we move away from that era, balance sheet policy can be more divorced from interest rate policy. Where markets in 2013 were watching for signs of when target interest rates would take an upward course, the situation today is that the process of normalizing rates is well under way. In addition, because interest rates are no longer in a region where the FOMC is constrained by a zero lower bound, market participants may feel that they can again place greater reliance on economic indicators for the clues to the future course of policy rates.

This is not to say that balance sheet reduction will be a nonevent. The sheer size of the Fed's holdings could certainly mean that a change in its securities purchasing practices could have direct effects on market prices. But the additional uncertainty about the path of interest rate policy should be considerably reduced now, compared to 2013.

With the growing separation of interest rate policy and balance sheet policy, market participants will have less cause to perceive that the time frame for unwinding presages a major shift in the path of interest rates. The gradual and predictable nature of the Fed's announced policy for unwinding should also contribute to moderating the market's perceptions. Market participants thus will be less likely, all other things equal, to respond with the outsized reaction of 2013. In this, as in most things, market reactions are ultimately a matter of perceptions. **EF**

John A. Weinberg is senior vice president and special advisor to the president at the Federal Reserve Bank of Richmond.

NEXT ISSUE

Cyberattacks

Recent months have been marked by a surge of high-profile and widespread cyberattacks. As society becomes more reliant on Web-connected devices for day-to-day tasks, the ability of attackers to disrupt economic activity will increase. Can economics shed light on why it's so difficult to defend against cyber threats?

Subprime Auto Loans

Subprime auto lending and securitization are on the rise — as are subprime auto loan defaults. Some observers see alarming parallels to the housing boom and bust of a decade ago. But how much risk do these loans actually pose to consumers or to the financial system overall?

Universal Basic Income

The idea that every citizen should receive a regular cash payment has received a lot of attention in recent years. Some supporters see "universal basic income" as a replacement for the welfare state, others as a necessity in the face of coming automation. The economic consequences of such a program are hotly debated.

Federal Reserve

Inflation has been subdued since the Great Recession despite a steady recovery and ever-tightening labor market. Some say this is grounds for the Fed to hold off on further lifting interest rates. But isn't low inflation good? What do economists mean when they say inflation is "too" low, and how much should we be worrying about it?

Economic History

In the 1970s, Soul City was built on a former plantation in North Carolina. Its developer wanted to turn the rural site into a multi-use community that would draw blacks and others back to the South. It ended up a victim of a declining national economy, beset by accusations of mismanagement and racial politics.

Interview

Douglas Irwin of Dartmouth College on his forthcoming book, *Clashing Over Commerce: A History of U.S. Trade Policy*.

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2017

Richmond Fed Research Digest

Summaries of work by economists in the Bank's Research Department published externally from June 1, 2016, through May 31, 2017

Welcome to the sixth annual issue of the *Richmond Fed Research Digest*. The Federal Reserve Bank of Richmond produces several publications that feature the work of economists in its Research Department, but those economists also publish extensively in other venues. The *Richmond Fed Research Digest*, a mid-year annual, brings this externally published research together in one place with brief summaries, full citations, and links to the original work. (Please note that access to articles may require registration or payment.) So bookmark this spot on the Richmond Fed website and mark your calendar for June 29, 2018, when the Bank will publish the next issue of the *Richmond Fed Research Digest*.

Indeterminacy and Learning: An Analysis of Monetary Policy in the Great Inflation

By Thomas A. Lubik and Christian Matthes
Journal of Monetary Economics, September 2016, vol. 82, pp. 85–106

There are three basic narratives about the Great Inflation and the Great Moderation in the academic literature. One narrative offers a good luck/bad luck explanation. According to this view, the 1970s was a decade with frequent and strong economic shocks. It was simply bad luck to be a central banker at that time because it proved difficult to stabilize the economy. In the 1980s, however, fewer and less persistent shocks led to the Great Moderation. An almost opposite viewpoint is based on the quality of policy. According to this view, the Federal Reserve conducted bad policy in the 1970s under Chairman Arthur Burns, who was not aggressive enough in fighting inflation. Chairman Paul Volcker adopted good policy in the 1980s by raising interest rates enough to vanquish the Great Inflation and usher in the Great Moderation. A third narrative takes an intermediate view that the Federal Reserve did not perceive the economic situation of the 1970s correctly. Substantial data errors and misperceptions about the state of the economy led the Fed to implement policies that delivered bad outcomes. This problem abated in the 1980s as an improved understanding of the state of the economy led to better monetary policy.

In an article in the *Journal of Monetary Economics*, Richmond Fed economists Thomas Lubik and Christian Matthes integrate the bad/good policy narrative with the misperception narrative. The authors argue that the Great Inflation can be understood as the result of an equilibrium in which loose monetary policy engendered excess volatility in macroeconomic aggregates and prices. The Fed inadvertently pursued policies that were not sufficiently anti-inflationary because the Fed did not fully understand the economic environment in which it was operating. Specifically, it had imperfect knowledge about the structure of the U.S. economy.