

Economic Insights

FIRST QUARTER 2023 | VOLUME 8, ISSUE 1

Labor, Race, and
COVID-19

Banking Trends

Q&A

Research Update

Data in Focus



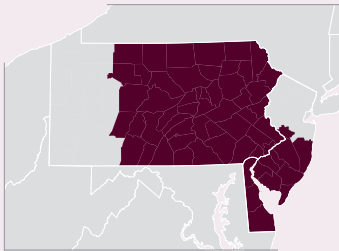
Economic Insights

A publication of the Research Department of the Federal Reserve Bank of Philadelphia

Economic Insights features nontechnical articles on monetary policy, banking, and national, regional, and international economics, all written for a wide audience.

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About the Cover

The Liberty Bell and Independence Hall

This issue's cover photo depicts the Liberty Bell, long associated with both Philadelphia and the United States of America. The bell was cast for the Pennsylvania State House in 1751 and bears the Biblical inscription, "Proclaim Liberty Throughout All the Land Unto All the Inhabitants thereof." After the American War of Independence, antislavery abolitionists embraced the inscription as their motto. In 1915, the bell was used to rally support in Pennsylvania for women's suffrage. To this day, people around the world celebrate the bell as a symbol of humanity's quest for liberty. The Pennsylvania state capital long ago moved to Harrisburg, and the Pennsylvania State house, visible in reflection in the glass walls around the bell, is now known as Independence Hall.

Photograph by Rich Wood.

Q&A...

with Andrew Hertzberg,
an economic advisor
and economist here at
the Philadelphia Fed.



Andrew Hertzberg

Economic advisor and economist Andrew Hertzberg joined the Philadelphia Fed in 2017, after researching and teaching economics and finance at Columbia University and Northwestern University. He holds a bachelor's degree in economics from the University of Sydney, a master's degree in economics from Queen's University, and a doctorate in economics from the Massachusetts Institute of Technology (MIT). He's particularly interested in oft-ignored topics in consumer finance, such as household decision-making.

Where did you grow up?

I grew up in a working-class neighborhood an hour west of Sydney, Australia. Out of economic necessity my parents left school early to work for a bank. My mom was a secretary and my dad managed basic admin services. They met at one of the branches. They were normal, hard-working, working-class people.

Do you now work for a Federal Reserve Bank because your parents were in the banking industry?

Not exactly. When we got the chance to study economics in high school, I thought, "This must be what Dad does," and that excited me. Later I realized that I didn't understand what he did. All I knew was that he worked at a bank, and banks had something to do with money. But then there was a major recession in Australia and my dad was laid off. I saw him struggle for work. Those few years were tough. This impressed upon me that economics is about more than just money. It can deeply affect people's lives and have far-reaching social consequences.

How did you become interested in consumer finance?

At MIT I was initially a macro economist studying financial frictions. Over time, I realized that what I was really studying was corporate finance. So, I wrote papers about corporate finance, and a few of them even won awards. But consumer finance had an intuitive appeal to me. I had seen in my own family how financial decisions were complicated by intra-household negotiations and different opinions. There's the economics that newspapers talk about—unemployment, GDP, and so on—but when you describe how a financial decision is made in your house, you're talking about decisions made between people.¹ Family members care about each other but often keep secrets or want to preserve their independence on some matters. The household has a complicated mix of economic forces and incentives that doesn't bear much resemblance to standard economics. These issues drew me to consumer finance. Corporate finance economists have tools for thinking about incentives and information

problems within firms, and I use those tools to think about how people in a family make economic decisions.

Your article in this issue isn't about consumer finance. What led you to write about labor markets?

We were having discussions about economists' role in addressing racial inequality. Often, economists and policymakers act as though policies have the same effect on everyone, but that's an assumption. This article simply discusses the facts. I show basic patterns in how different groups experience the labor market, and tentatively suggest that policies used to affect the economy can have heterogenous effects across groups. It's a first step in addressing those issues, even though it's not what I'm expert in.

You end your article with, "[Black] workers, as compared to most other workers, may benefit from an economic expansion only later in an economic recovery when total unemployment is low." Shortly after you wrote your article, inflation—and the argument in favor of interest rate hikes—increased. Where do Black and Latino workers stand now in relation to the recovery?

The unemployment rate for all groups returned to its prepandemic average within two years of COVID's onset. There is no evidence up to the end of 2022 that the unemployment rate has increased in total or for any racial group. However, although Black and Latino workers have, since March 2022, returned to work at roughly their prepandemic level of participation, this is not true for the labor market as a whole, where labor force participation has settled below its prepandemic level in what might be a long-term change. The same pattern exists in the employment-to-population ratio. The open question is, what will happen to different groups if the labor market shows signs of a pronounced slowdown? [\[E\]](#)

Notes

¹ See his previous article, "[Kitchen Conversations: How Households Make Economic Choices.](#)"



Photo: Drazen_/iStock

Labor, Race, and COVID-19

The pandemic altered long-standing racial differences in how workers experience the labor market.

Andrew Hertzberg

Economic Advisor and Economist
FEDERAL RESERVE BANK OF PHILADELPHIA

The views expressed in this article are not necessarily those of the Federal Reserve.

The COVID-19 pandemic triggered the most pronounced upheaval in the U.S. economy since the Great Recession (2007-2009). The U.S. labor market's sustained recovery from the previous recession was abruptly ended by the virus and the associated lockdowns. From February to April 2020, the unemployment rate increased by 11.2 percentage points and the fraction of working-age people who were employed fell by 9.9 percentage points.

Coincidentally, many policymakers and institutions, including the Federal Reserve System, have been analyzing the continuing impact of racial inequality. In this article, I describe how the labor market was and continues to be affected by the pandemic. I compare outcomes for Black and Latino workers with those for the entire labor market, and I place these differing outcomes

within their broader historical context by contrasting them with outcomes after previous economic downturns.

This comparison is revealing. The onset of the pandemic increased unemployment for Black workers slightly less and lowered their labor force participation far more than for the total labor market—in sharp contrast to previous recessions, which typically saw unemployment increase far more and participation fall less for Black workers. The recovery from the initial COVID shock has been markedly slower for Black workers than for the labor market as a whole.

For Latino workers, both the unemployment and participation rates were adversely affected more than for the labor market as a whole. Latinos' unemployment response was roughly in line with how it reacted during prior recessions, while their participation responded significantly more than expected given the shift in the overall labor force. As a result, total employment for Latino workers fluctuated far more than in previous economic downturns. The pace of the recovery for Latino workers has roughly matched the recovery of the labor market as a whole.

Measures of Labor Market Outcomes

Every month, the Bureau of Labor Statistics (BLS) uses the Current Population Survey to survey roughly 60,000 U.S. households about their involvement in the labor market. The BLS has collected and published this data for the total labor market since 1948, for Black workers since 1972,¹ for Latino workers since 1973, and for Asian workers since 2003. In this article, I focus on three key measures included in this data.

First, I examine the unemployment rate, which the BLS defines as the number of people who are unemployed relative to the labor force. A person is considered unemployed if they do not have a job and have actively looked for work in the prior four weeks. The labor force is defined as all people 16 years and older who are classified as either employed or unemployed. A change in the unemployment rate is typically driven by a change in the demand for workers or a change in how many people are actively looking for work. The pandemic significantly affected both of these channels.

Next, I examine the labor force participation rate, which measures the fraction of people in the labor force. Specifically, it's the labor force (as defined above) relative to the civilian noninstitutional population. The civilian noninstitutional population comprises people 16 years and older who are not active-duty members of the U.S. Armed Forces or confined to living in institutions or facilities such as prisons, jails, residential care facilities, or skilled nursing homes.

A short-term change in the labor force participation rate can reflect a change in people's desire or ability to work. The pandemic had a sizable effect on the labor force participation rate by increasing the risks associated with working and by changing at-home child care needs. A short-term change in the labor force participation rate can also result from a reaction to changes in the demand for labor. For example, during the onset of the pandemic, many kinds of employment became unavailable, and some workers in those fields, knowing that jobs were unavailable, may have become too discouraged to actively search for work.

(Demographic shifts, such as a change in the age distribution of the population, can change the labor force participation rate for the long term.)

Finally, I examine the employment-to-population ratio, which measures the fraction of people who are employed. Specifically, it's all people who are employed relative to the civilian noninstitutional population (as both are defined above).

Since both the employment-to-population ratio and the labor force participation rate are based on the civilian noninstitutional population, their differences within racial groups are unlikely to be explained by a difference in a racial group's rate of incarceration or propensity to serve in the military. The unemployment rate may misrepresent the true change in the availability of employment if changes in the economy deter people from actively looking for work. A key advantage of looking at short-term changes in the employment-to-population ratio is that it is unaffected by the decision to look for employment.

Historical Experiences

Before examining the effect of the pandemic on the labor market, let's look at how different races experienced the labor market in the 40 years prior to the pandemic, from January 1980 to February 2020. Two facts stand out (Figure 1).

First, there are long-standing differences in the average level of these labor market outcomes across racial groups. For example, over the 40 years prior to the pandemic, the unemployment rate among Black workers was 1.89 times higher than the national average for all workers. Over the same period, Latino workers averaged an unemployment rate 1.38 times higher than the national average.

Second, important trends characterize most of these outcomes. For example, for all workers, the average unemployment rate, the labor force participation rate, and the employment-to-population ratio all trended slightly downward over the 40 years prior to the pandemic.

There are also significant differences between racial groups in the trends they have experienced over the previous 40 years. For example, the unemployment rate for both Black and Latino workers fell more than for the labor market as a whole. This contributed to an increase in the employment-to-population ratio for those groups, in contrast to the fall for the entire labor market over the same period.

To estimate the effect of the pandemic on these groups, I account for the different levels across racial groups of each labor market outcome prior to the pandemic. I also highlight where this may understate the effect of the pandemic if the differential prior trends were to have continued for the next two years.

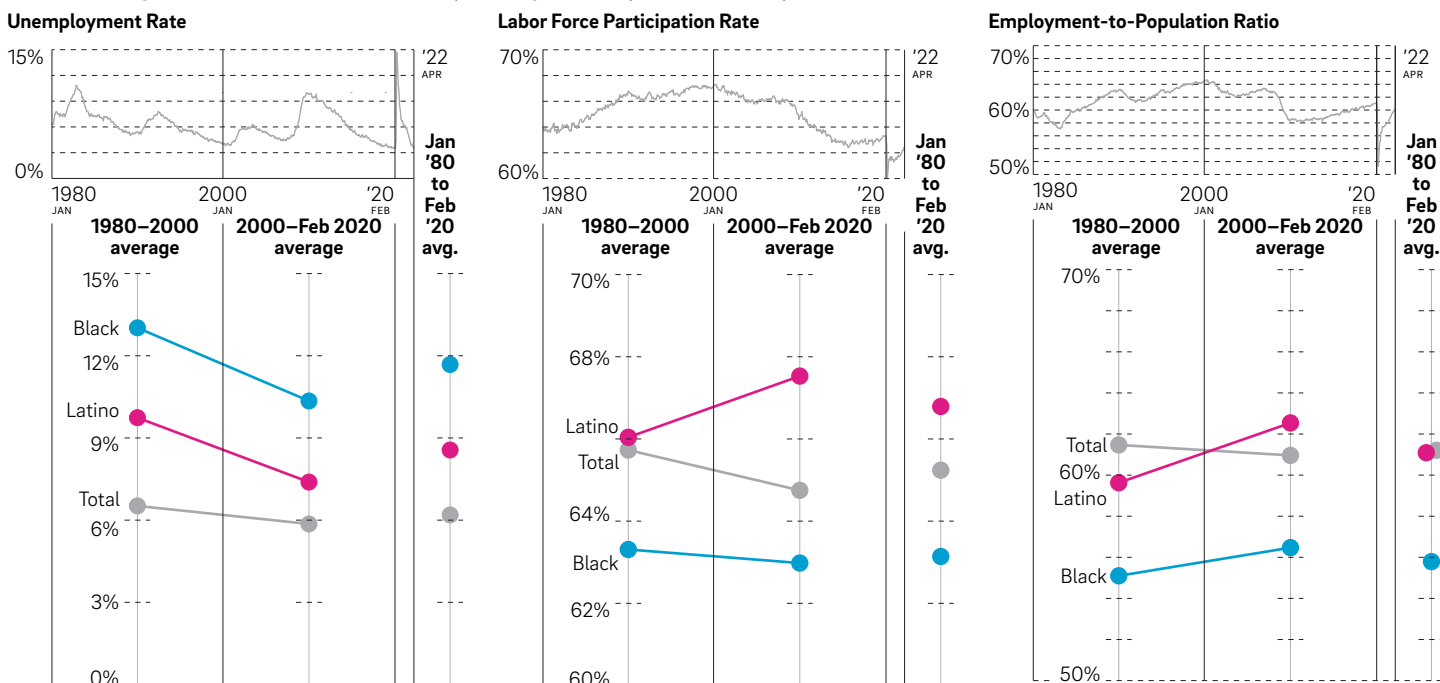
On average, the labor market outcomes of white and Asian workers are similar to the national averages. Where differences exist, they usually reveal better outcomes. (For example, Asian workers experienced an unemployment rate 1.23 percentage points lower than the national average in the first 20 years of the century.) For this reason, I summarize the experience of these workers through their inclusion in the combined total labor market.²

I compare outcomes for Black and Latino workers to outcomes for the total labor market, even though this combined category

FIGURE 1

Long-Standing Differences Characterize Labor Market Outcomes for Different Racial Groups

Historical averages of three labor market outcomes, percentages, January 1980 to February 2020



Source: Bureau of Labor Statistics (BLS).

Note: The top panel of each figure depicts the outcome for the total population on a monthly basis; the bottom panel depicts the change between 1980 and 2020 for Black, Latino, and all workers; the right panel depicts the prepandemic average for the entire period from 1980 to 2020 for Black, Latino, and all workers.

includes workers from both groups. This allows us to directly compare outcomes with the most commonly discussed headline labor force statistics. As such, this article highlights how Black and Latino workers have experienced outcomes that vary from the figures most salient to people who read about macroeconomic outcomes.

The Labor Market During the Pandemic

Shortly after the pandemic began, the unemployment rate for the total labor market peaked at 14.7 percent (Figure 2a). At the same time, the rate reached 16.6 percent for Black workers and 18.8 percent for Latino workers. All three groups of workers experienced a steady recovery in the unemployment rate over the following 22 months. By April 2022, the total unemployment rate had fallen to 3.6 percent, nearly the same as its prepandemic average level.

The labor force participation rate fell significantly at the onset of the pandemic as concerns about the virus and the associated lockdown discouraged people from looking for work (Figure 2b). Many people were slow to return to the labor force, so participation only gradually and partially recovered in the 24 months after the pandemic's onset.

The combined increase in unemployment and reduction in labor force participation produced a pronounced drop in the employment-to-population ratio for all groups in April 2020

(Figure 2c). The employment-to-population ratio recovered steadily after the onset of the pandemic but remained below its prepandemic average level for the total labor market as well as for Black and Latino workers.³

As I argue above, in order to contrast the pandemic experiences of Black and Latino workers to that of the total labor market, we must account for prepandemic differences in the level of outcomes for these groups. To do this, I measure outcomes relative to the average level of labor market outcomes over the 14 months prior to the pandemic. I break the comparison of the effects of the pandemic into two parts. First, I compare the different experiences of the initial, adverse effect of the onset of the pandemic. Second, I calculate differences in the speed of the recovery for each group. I also compare outcomes for Black and Latino workers during the pandemic with their experience during economic fluctuations over the previous 40 years to see whether COVID-19 had a larger or smaller effect on these racial groups than did those previous fluctuations.

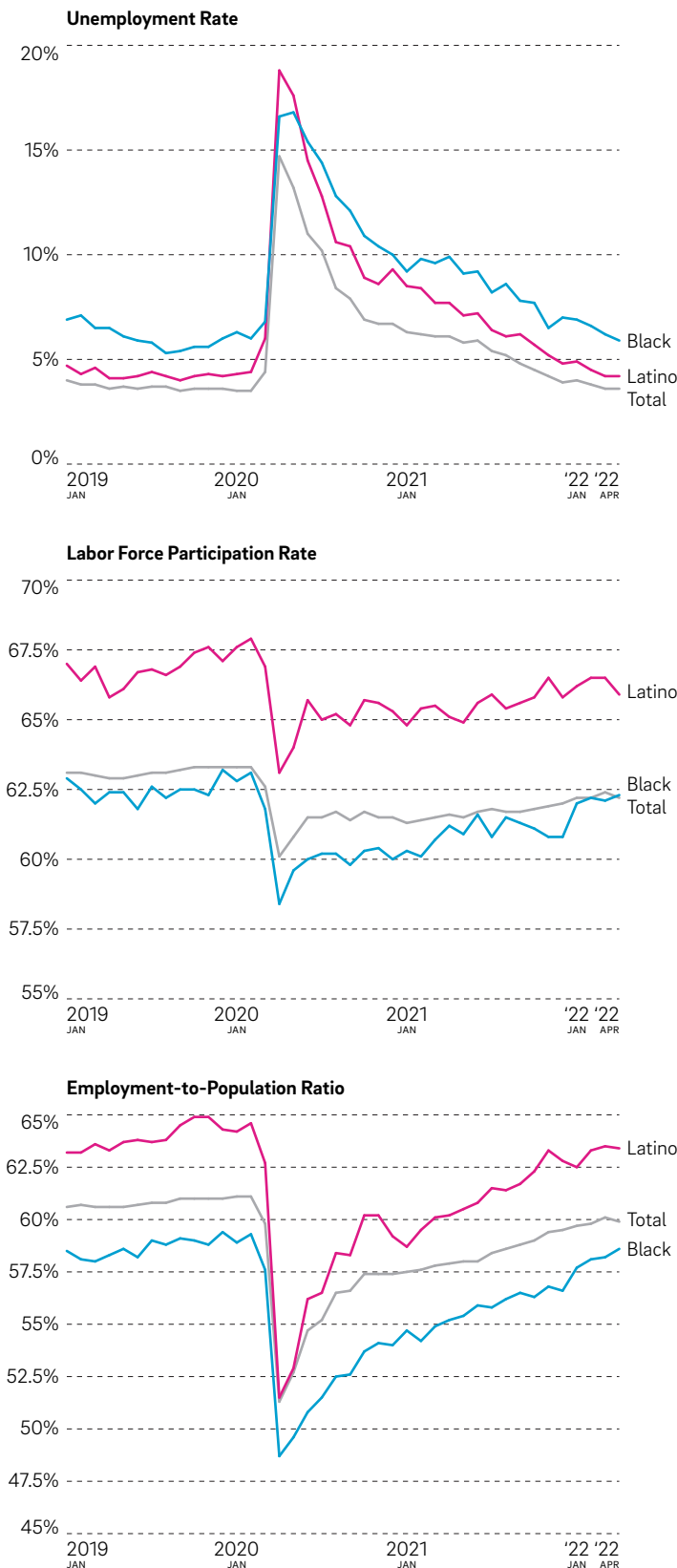
The Immediate Effect of the Pandemic

The COVID-19 pandemic and the associated lockdowns had a large and immediate effect on the U.S. labor market. To estimate the magnitude of this effect, I compare these outcomes in April 2020 to their average level in the 14 months prior to the onset of the pandemic (Figure 3).

FIGURE 2

Race-Based Labor Market Differences Continued Through the Pandemic

Three labor market outcomes, percentages, 2019–2022

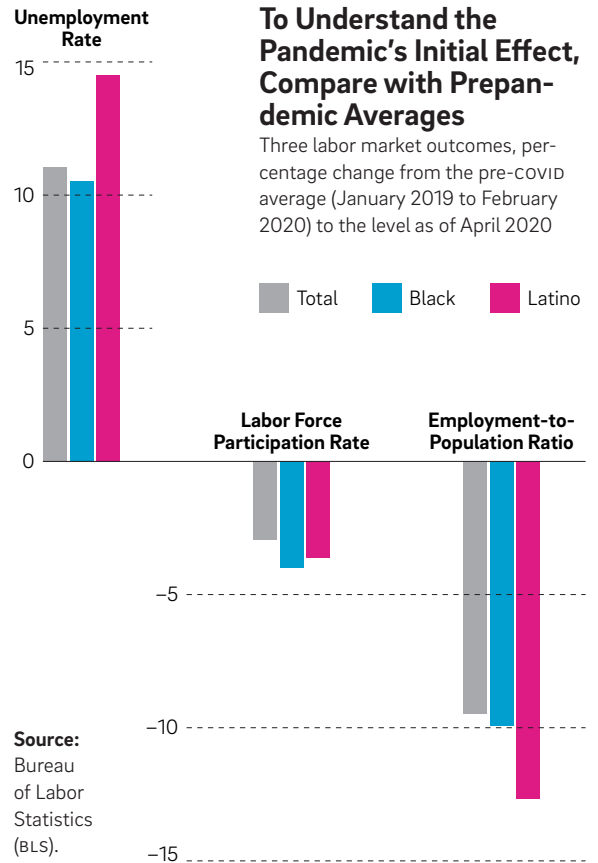


Source: Bureau of Labor Statistics (BLS).

FIGURE 3

To Understand the Pandemic's Initial Effect, Compare with Prepandemic Averages

Three labor market outcomes, percentage change from the pre-COVID average (January 2019 to February 2020) to the level as of April 2020



Source: Bureau of Labor Statistics (BLS).

For the total labor market, the unemployment rate averaged 3.65 percent over the period prior to the pandemic and reached a peak of 14.7 percent in April 2020, an increase of 11.05 percentage points.

The initial increase in unemployment for Black workers was slightly smaller than this, at 10.52 percentage points.⁴

Latino workers experienced an increase in unemployment of 14.5 percentage points, greater than the increase experienced by the labor market as a whole—possibly because Latino workers may be skewed to service industries more affected by the pandemic.⁵

After the onset of the pandemic, the total labor market's labor force participation rate fell by 2.94 percentage points.

Black workers experienced a larger decline, of 4.01 percentage points. This may partly account for the lower response of the Black unemployment rate: The pandemic may have initially and disproportionately discouraged more unemployed Black workers from participating in the labor market.

The labor force participation rate of Latino workers showed a similar pattern, falling 3.62 percentage points, which indicates that the unemployment numbers may understate the true effect on employment for these workers.

The combined effect of the changes in the unemployment and participation rates caused by the onset of the pandemic produced a 9.47-percentage-point reduction in the overall employment-to-population ratio.

For Black workers, the slightly lower-than-average response of the unemployment rate mostly offset the larger-than-average exit from the labor force to produce a reduction in the employment-to-population ratio of 9.93 percentage points, an increase only slightly larger than the increase for the total labor market.

Conversely for Latino workers, the employment-to-population ratio fell by 12.66 percentage points at the onset of the pandemic, more than the average response in the total labor market. This was a product of a higher-than-average adverse effect on both unemployment and participation for these workers.

The Labor Market's Recovery From the Pandemic

After April 2020, the critical labor market outcomes gradually improved. For example, as of April 2022, the unemployment rate for the total labor market was 3.6 percent, nearly the same as its prepandemic average of 3.65 percent.

However, the recovery has proceeded at different speeds for different racial groups. To measure the speed of the recovery while accounting for differences in how the initial pandemic affected different racial groups, I calculate the fraction of the initial shock that persisted in each month after April 2020. This requires comparing the outcome in each month with some counterfactual for what might have occurred absent the pandemic. Again, I use the average outcome in the 14 months prior to the pandemic.

Here's an example of how I measure the recovery relative to the prepandemic average. In April 2021, 12 months after the

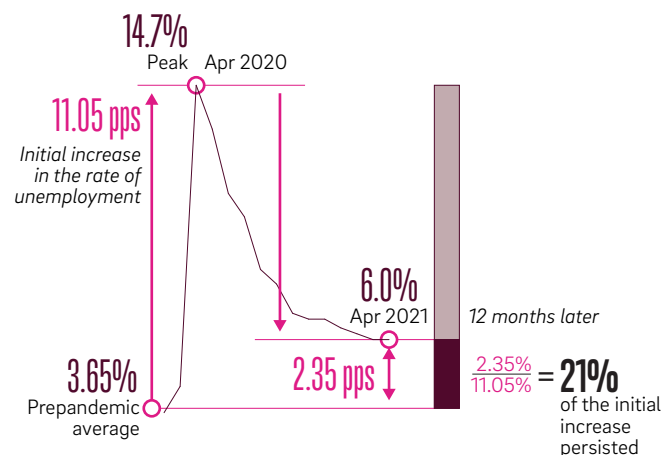
FIGURE 4

One Year into the Outbreak, More than One-Fifth of Unemployment Persisted

Total unemployment rate during the first year of the pandemic, percent (%), in burgundy; change in the unemployment rate, percentage points (pps), in pink; proportion of initial increase that remains as of April 2021, percent, in burgundy

Calculating Unemployment's Recovery

at 12 months, relative to its prepandemic average



Source: Bureau of Labor Statistics (BLS).

onset of the pandemic, the unemployment rate for the total labor market had fallen to 6.0 percent, which is 2.35 percentage points higher than the prepandemic average of 3.65 percent. Dividing 2.35 percent by the initial increase in total unemployment of 11.05 percentage points shows that 21 percent of the initial increase persisted one year after the onset of the pandemic (Figure 4). Put differently, by April 2021 the unemployment rate for the total labor market had reversed 79 percent of the initial adverse effect. I repeat this exercise for the total labor market and each racial group for each of the 22 months subsequent to the start of the pandemic (Figure 5a).

The speed of the recovery for the total labor market was pronounced: After six months, only 29 percent of the initial increase in the unemployment rate remained. After 18 months (that is, as of October 2020), only 9 percent of the initial increase remained.

Latino workers experienced a recovery that was approximately equal to the recovery of the labor market as a whole. One year after the onset, 23 percent of the initial increase in the unemployment rate for Latino workers remained—only 2 percentage points more than for the total labor market.

The speed of the recovery for Black workers was markedly slower. After six months, 46 percent of the initial unemployment rate increase remained for Black workers, compared with 29 percent for the total labor market. A year into the pandemic, 34 percent of the initial increase in the unemployment rate for Black workers persisted (compared with 21 percent for the total labor market). This differing speed of the recovery was still evident 18 months after the onset of the pandemic: Sixteen percent of the initial increase remained for Black workers, compared with 9 percent for the total labor market.

There's an important caveat. When we measure the speed of each group's return to prepandemic average levels, we risk ignoring the differential trends between groups I discussed earlier. If we measure the speed of the recovery relative to the level that would be predicted by extrapolating forward from the prepandemic trend, we find that Black unemployment recovered even more slowly relative to the total labor market.⁶ By this calculation, 44 percent of the initial shock to Black unemployment remained after 12 months, compared with 34 percent as calculated by measuring the prepandemic average level. Further, relative to this trend, the Black unemployment rate had still not caught up with the rest of the labor market almost two years after the onset of the pandemic. Comparing the recovery of the total labor market with the trend only slightly alters the estimated speed of the recovery. This suggests that, among other effects, the pandemic may have delayed the long-term recovery of the labor market for Black workers.

Recovery of the Labor Force Participation Rate

When I measure the speed of the recovery for the labor force participation rate relative to its prepandemic average level, I find that initially the labor force participation rate recovered quickly (Figure 5b). After two months, only 59 percent of the initial drop in participation remained for the total labor market. However, the labor force participation rate then recovered at a much slower rate, so that, 18 months after the onset, 49 percent

of the initial drop in the labor force participation rate remained. As of April 2022—24 months after the onset of the pandemic—32 percent of the initial decrease in the total labor force participation rate remained, relative to the prepandemic average level. One possible explanation for this slow recovery is the increased household wealth and savings from pandemic transfer programs.⁷ In addition, the pandemic appears to have accelerated retirements and could have induced a persistent change in households' need for child care.

The labor force participation rate of Black and Latino workers has recovered more than it has for the labor market as a whole—although the month-to-month rates for these groups have also fluctuated considerably. After 18 months, 38 and 29 percent of the initial decrease in participation remained for Black and Latino workers, respectively—both well below the 49 percent for the labor market in total. The faster recovery of Black and Latino workers may be related to the particularly large initial effect on participation for both groups. This further suggests that Black and Latino workers were disproportionately represented in the types of work initially most affected by the pandemic and therefore would recover more quickly as the initial restrictions were lifted.

Recovery of the Employment-to-Population Ratio

Next, I estimate the speed of the recovery for the employment-to-population ratio relative to its prepandemic average (Figure 5c). As with labor force participation, there was a rapid partial recovery from the initial effects of the pandemic. After six months, only 36 percent of the initial decrease in the employment-to-population ratio for the total labor market remained. The recovery was slower thereafter. After 18 months, 20 percent of the initial shock remained. The speed of the recovery in the employment-to-population ratio for Latino workers has closely mirrored that of the total labor market. However, Black workers experienced a noticeably slower recovery in their employment-to-population ratio. After four months, 64 percent of the initial drop in their ratio remained, compared with 45 percent for the total labor market. Only after a year did the recovery in their employment-to-population ratio catch up with the recovery of the total labor market's ratio.

Comparison with Previous Fluctuations

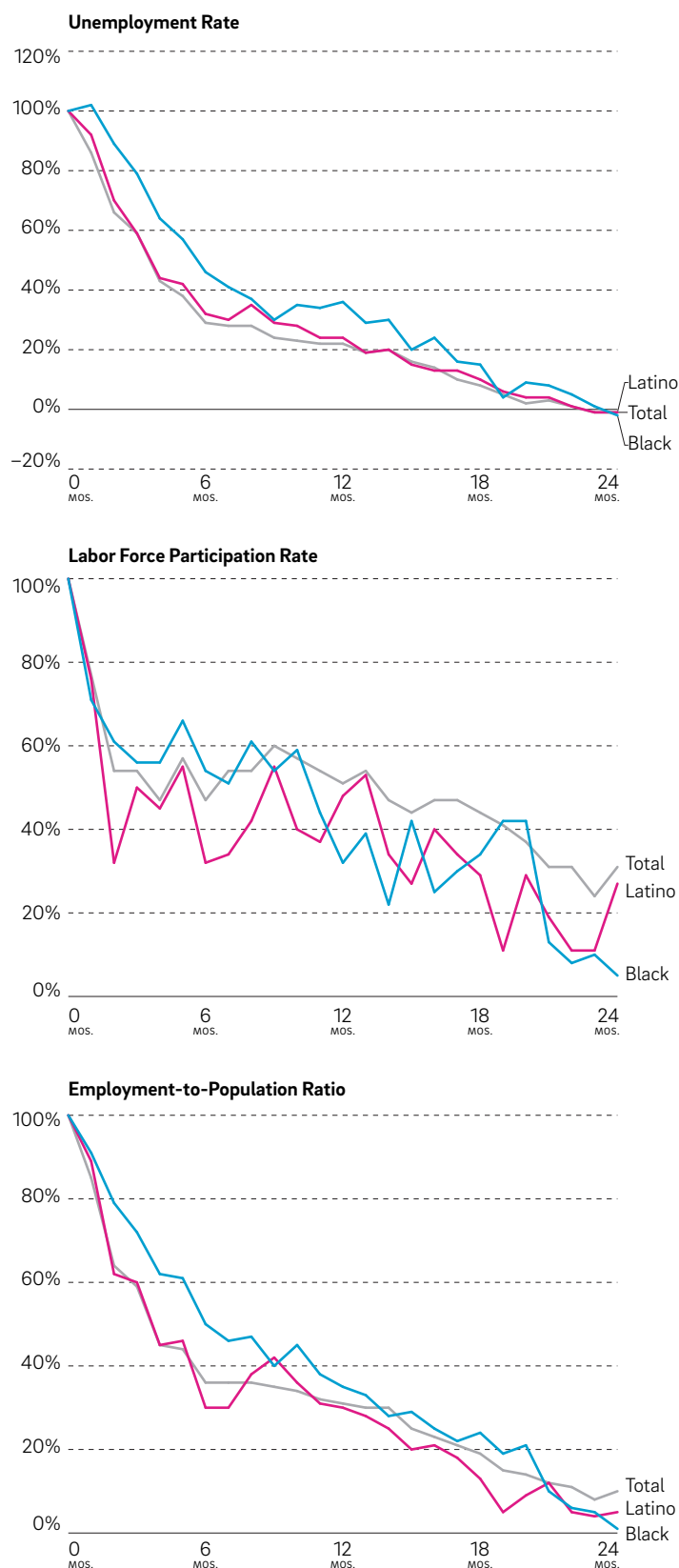
So far, I have compared the labor market experiences of Black and Latino workers with the experience of the total labor market during the pandemic. Now I examine how the experience during the pandemic compares with previous economic fluctuations. Was there something unusual about how the pandemic affected the labor market that skewed its effect toward (or away from) workers in these groups? Or were their experiences consistent with the patterns observed during prior recessions?

First, I plot the monthly unemployment rate for Black workers relative to the total unemployment rate for all workers from January 1980 to the present. The line of best fit captures the average relationship between month-to-month movements of these two unemployment rates over the 40 years prior to the pandemic. Over this period, the slope of this line was 1.83, which means

FIGURE 5

Comparing Outcomes with Prepandemic Levels

Three labor market outcomes in the 24 months after the onset of the pandemic, percent of initial increase relative to the level during the 14 months prior



Source: Bureau of Labor Statistics (BLS).

that when the economy experienced a fluctuation that raised the total unemployment rate 1 percentage point, then, on average, the unemployment rate for Black workers increased by 1.83 percentage points (Figure 6a). This relationship had been relatively stable over the previous 40 years, although the relationship weakened slightly after the turn of the century.

I make the same comparison for the labor force participation rate and the employment-to-population ratio for Black workers and for Latino workers.

Comparing Unemployment Rates with Previous Fluctuations

The pandemic had a smaller effect on the unemployment rate for Black workers than had previous episodes with high levels of total unemployment. This is consistent with what we saw earlier: The unemployment rate for Black workers increased less than for the total labor force at the onset of the pandemic, far below the 1.83-times-larger effect that characterizes the previous 40 years (Figure 6a). In contrast, as the economy recovered from the pandemic, Black unemployment declined less than it had during previous fluctuations. As a result, two years after the pandemic, Black unemployment had converged with its previous historical relationship to total unemployment. As such, Black workers experienced a fluctuation in unemployment with a magnitude roughly in line with the total labor market and far below the amplified cyclical outcomes Black workers experienced in comparable previous fluctuations.

Over the same 40 years, there was a relatively stable relationship between the unemployment rate for Latino workers and the unemployment rate for the total labor market (Figure 6b). When total unemployment increased 1 percentage point, Latino unemployment increased on average 1.4 percentage points. The magnitude of the fluctuations during the pandemic, both at the onset and during the recovery, was in line with this historical experience, which suggests that the pandemic's effect on the Latino unemployment rate was in fact not any more pronounced than the effect of previous recessions.

Comparing Labor Force Participation Rates with Previous Fluctuations

Next, I examine how labor force participation during the pandemic compares to previous economic fluctuations for Black and Latino workers. In the 40 years prior to the pandemic, the labor force participation rate for Black workers moved on average 0.84 percentage point for every 1-percentage-point movement in the total labor market (Figure 6c). The pandemic onset's effect on labor force participation stands in stark contrast to this historical pattern. Based on the historical relationship, the 2.94-percentage-point reduction in participation for the total labor force would have predicted a 2.47-percentage-point decline for Black workers, far lower than the observed 4.01-percentage-point decline. The recovery of labor force participation has also shown a far higher cyclical sensitivity than observed over the previous 40 years. During the pandemic recovery, every 1-percentage-point increase in participation for the total labor force was accompanied by an average 1.57-percentage-point increase for Black workers. These

facts indicate that the initial stage of the pandemic had an unusually large effect on Black labor force participation compared with prior economic fluctuations, and that the unwinding of these effects has, by the same logic, affected these workers more than in the past.

Over the 40 years prior to the pandemic, a 1-percentage-point movement in the labor force participation rate for the total labor market produced on average a 0.65-percentage-point movement in participation for Latino workers (Figure 6d) (although the slope appears to have been steeper during some episodes, such as the first 10 years of the 21st century). As was true for Black workers, the movement at the onset of the pandemic for Latino workers was far larger than this historical average would have predicted. Based on the historical relationship, the 2.94-percentage-point reduction in participation for the total labor force that occurred at the onset of the pandemic would have predicted a 1.90-percentage-point decline for Latino workers, far lower than the observed 3.62-percentage-point decline.

The recovery of the labor force participation rate for Latino workers has also shown a higher sensitivity to the recovery of the general labor force participation rate than during the previous four decades. During the pandemic, the labor force participation rate for Latino workers increased on average 1.55 percentage points for every 1-percentage-point increase for the total labor force—more than double the historical sensitivity. As a result, the labor force participation rate for Latino workers has returned to a level roughly in line with what would be expected when considering data from the past 20 years for a comparable level of aggregate labor force participation.

Comparing Employment-to-Population Ratios with Previous Fluctuations

Historically, the employment-to-population ratio has been more volatile for Black workers than for the labor force in general. Over the 40 years prior to the pandemic, a 1-percentage-point change in the employment-to-population ratio for the total working-age population was associated with a 1.27-percentage-point change in the ratio for Black workers (Figure 6e). The onset of the pandemic produced a 9.47-percentage-point reduction in the employment-to-population ratio for the labor force as a whole. Black workers experienced a slightly larger reduction, of 9.93 percentage points, although this is significantly lower than the 12.02-percentage-point reduction that would have been expected based on the relationship from the prior 40 years.

During the pandemic recovery, the Black employment-to-population ratio had on average increased 1.16 percentage points with every 1-percentage-point increase for the total labor market, only slightly below the long-term association of 1.27 percentage points. However, the recovery in Black employment, while consistent with its average historical pace, is in fact weaker than would have been predicted given the experiences in the 2010s. After the Great Recession, Black workers' employment-to-population ratio climbed at a much faster pace relative to the aggregate rate than had been observed in the prior three decades. The recovery from the pandemic has seen Black workers' employment-to-population ratio instead revert to its pre-2010 pattern.

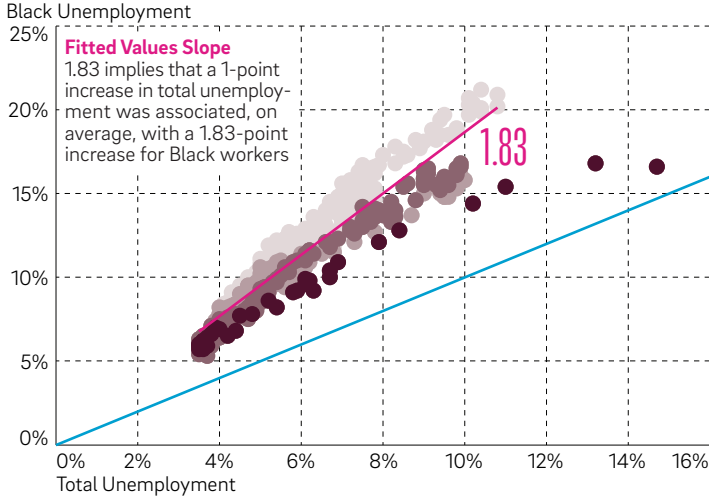
FIGURE 6

The Relative Experience of Minority Workers Changed During COVID

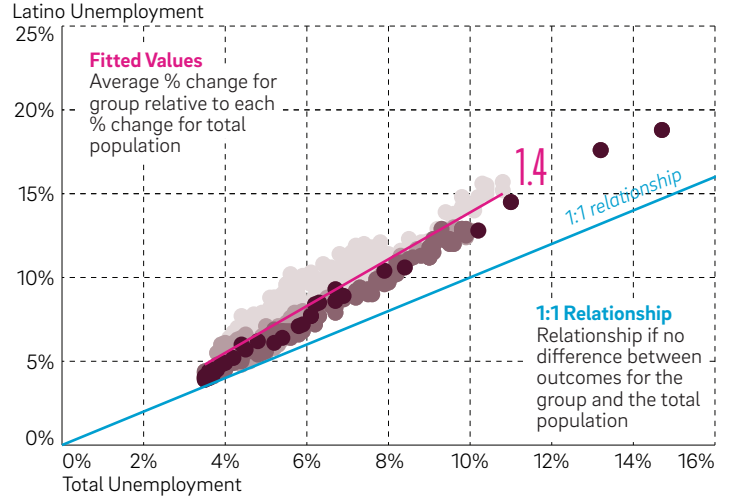
Relationship between Black and Latino labor market patterns and total labor market patterns, January 1980 to April 2022

● 1980–1999 ● 2000–2010 ● 2010–Feb 2020 ● after Feb 2020 — Fitted values

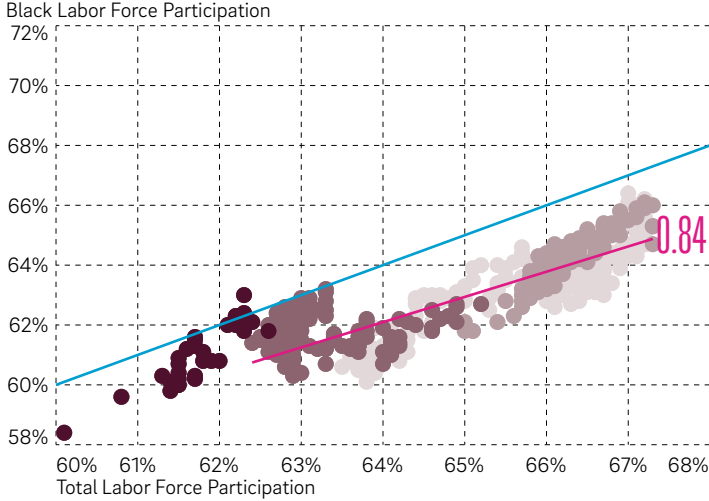
Relationship between Black and Total Unemployment



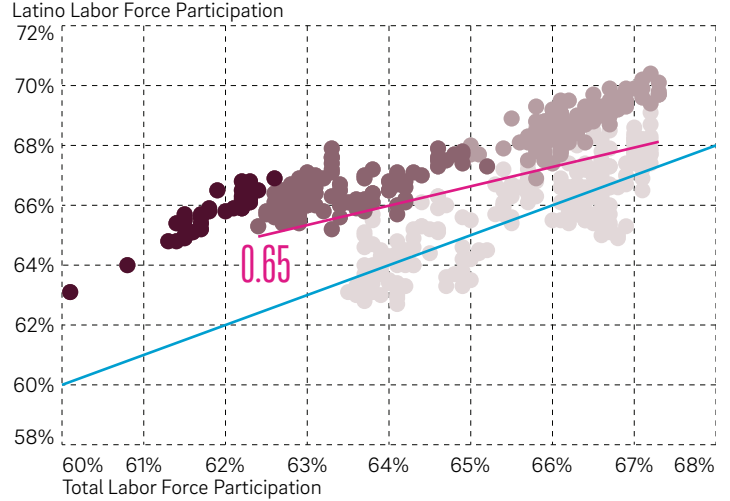
Relationship between Latino and Total Unemployment



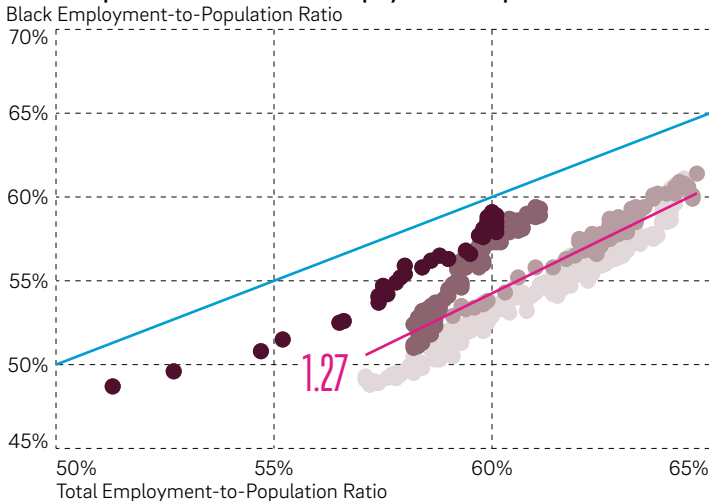
Relationship between Black and Total Labor Force Participation



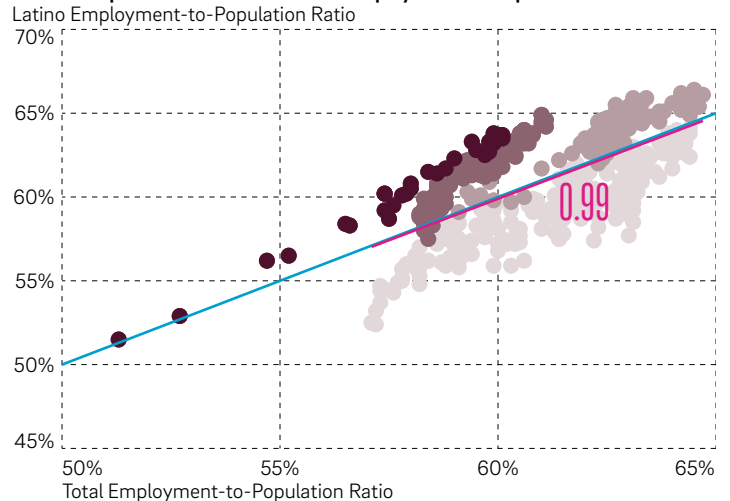
Relationship between Latino and Total Labor Force Participation



Relationship between Black and Total Employment-to-Population Ratio



Relationship between Latino and Total Employment-to-Population Ratio




Source: Bureau of Labor Statistics (BLS) and author's calculations.

Over the 40 years prior to the pandemic, the employment-to-population ratio for Latino workers moved on average almost one-for-one with the total labor market (Figure 6f). Based on this historical association, the 9.47-percentage-point reduction in the employment-to-population ratio for the total labor force at the onset of the pandemic would have been expected to produce a 9.37-percentage-point reduction in the ratio for Latino workers. However, Latino workers experienced a significantly larger decline of 12.66 percentage points in their employment-to-population ratio at the onset of the pandemic (1.34 times larger than the drop for the total labor market). The subsequent recovery also exhibited an elevated sensitivity, with each 1-percentage-point increase in the employment-to-population ratio for the total labor market accompanied by an average increase of 1.41 percentage points in the ratio for Latino workers.⁸

Conclusion

In this article, I have described the different experiences of Black and Latino workers during the COVID-19 pandemic.

Notably, the unemployment rate and the employment-to-population ratio for Black workers recovered more slowly than for the total labor market. It could be that this outcome reflects the fact that the ongoing expansion is young; Black employment gains do not generally pick up until later in the cycle. This idea is consistent with the evidence presented by Tel Aviv University economist Nittai Bergman, Northwestern Kellogg School of Finance professor David Matsa, and Chicago Booth professor Michael Weber in their 2020 working paper: They show that employment for Black workers is more responsive to expansionary monetary policy in tighter labor markets. Put differently, these workers, compared with most other workers, may benefit from an economic expansion only later in an economic recovery when total unemployment is low.

If this is true, it may have important implications for how the duration of expansionary policy can affect Black workers relative to the rest of the labor market. Further research is required to evaluate why the speed of the recovery for their employment differs from the rest of the labor market, and to evaluate what role, if any, a different length of expansionary monetary policy could play in lowering Black unemployment. 

Notes

1 Monthly unemployment data for “nonwhite” workers is available prior to 1972. Freeman et al. (1973) estimate that 90 percent of these workers in the 1940s–1960s were Black.

2 Since data are available over a shorter period for Asian workers and are previously included in the national average, this ensures consistent treatment of these groups. However, many people in these groups face considerable disparities in the labor market due to other factors (for example, educational access, gender, and income differences).

3 For more on gender outcomes by education, see Eyigungor (2022).

4 The unemployment rate for Black workers peaked in May 2020 at 16.8 percent, but for timing consistency I use the April rate of 16.6 percent throughout. This does not meaningfully alter the following analysis.

5 See Krogstad et al. (2020).

6 I estimate the prepandemic trend using ordinary least squares on a constant and a linear time trend with data from January 2017 to February 2020.

7 See Schwartzman (2021).

8 One possible explanation for this heightened effect is that Latino workers may have been more commonly employed in the industries most affected by the pandemic (for example, customer-facing service industries).

References

- Bergman, Nittai, David Matsa, and Michael Weber. “Heterogeneous Labor Market Effects of Monetary Policy,” Chicago Booth Research Paper 21-02 (2020), <https://dx.doi.org/10.2139/ssrn.3757645>.
- Eyigungor, Burcu. “The Labor Market Recovery Following COVID,” Federal Reserve Bank of Philadelphia *Economic Insights* (Third/Fourth Quarter 2022), pp. 7–13, <https://www.philadelphiafed.org/the-economy/macroeconomics/the-labor-market-recovery-following-covid>.
- Freeman, Richard B., R. A. Gordon, Duran Bell, and Robert E. Hall. “Changes in the Labor Market for Black Americans, 1948–72,” *Brookings Papers on Economic Activity*, 1 (1973), pp. 67–131, <https://doi.org/10.2307/2534085>.
- Krogstad, Jens Manuel, Ana Gonzalez-Barrera, and Luis Noe-Bustamante. “U.S. Latinos Among Hardest Hit by Pay Cuts, Job Losses Due to Coronavirus,” Pew Research Center (April 3, 2020).
- Schwartzman, Felipe. “COVID Transfers Dampening Employment Growth, but Not Necessarily a Bad Thing,” Federal Reserve Bank of Richmond Economic Brief 21-39 (2021).



Photo: mce128/iStock

Banking Trends

Has the Banking Industry Become Too Concentrated?

By one key measure, the banking market has become highly concentrated, but other measures suggest a more nuanced story.

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FEDERAL RESERVE BANK OF PHILADELPHIA

The views expressed in this article are not necessarily those of the Federal Reserve.

Nearly 40 years of bank mergers has created several giant organizations with assets between \$250 billion and \$4 trillion. Meanwhile, the number of separate banking organizations and thrifts has fallen from more than 20,000 to around 5,000.¹ Some policymakers worry that this trend has gone too far, and, if left unchecked, will result in limited choices for consumers and monopoly power for providers. But gauging this market concentration depends on which bank product you look at. Although deposits have become more concentrated since 2000, home mortgages and small-business loans have become less concentrated since 2010. In this article, I examine how—and why—some bank products have become more concentrated while others have become less so. My findings suggest that deposits are no longer an adequate proxy for all of a bank's products and services.

Deposit Markets Have Grown More Concentrated

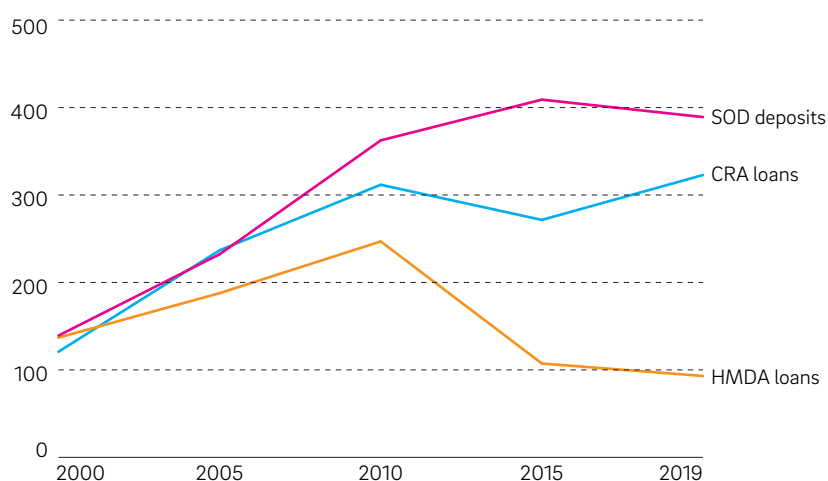
Early in this century, deposits, which regulators use as a proxy for all banking products and services, became substantially more concentrated in fewer banks at both the national and local levels. At the national level, one key measure of market concentration, the Hirschman–Herfindahl Index (HHI) of deposits, increased from 139 in 2000 to 409 in 2015 (Figure 1).² Since 2015, deposits have become only modestly less concentrated, with the HHI decreasing just 20 points, to 389 as of 2019.³

FIGURE 1

Deposits Became More Concentrated Until 2015

Loans, however, show different trends.

Hirschman–Herfindahl Index (HHI) of market concentration, 2000–2019, for Summary of Deposits, Home Mortgage Disclosure Act loans, and Community Reinvestment Act (i.e., small-business) loans



Source: FDIC Summary of Deposits data, FFIEC HMDA data, FFIEC CRA Small Business Loan data.

Hirschman–Herfindahl Index

The Hirschman–Herfindahl Index (HHI) is the sum of squared market shares of all firms in the market ($HHI = \sum MS^2$). A market’s HHI can vary between almost zero for a perfectly competitive market and 10,000 for a monopoly.

However, banking markets are, to a large extent, local, so I also examined the 34 largest metropolitan statistical areas (MSAs) to get a more accurate sense of market concentration.⁴ I find that many of these national trends are also true for the 34 large MSAs. Among the 34 MSAs, the average number of firms decreased from 92 in 2000 to 70 in 2019, while the mean HHI of deposits increased from 1,279 to 1,719 (Figure 2). Thus, according to Department of Justice antitrust guidelines, the average MSA was unconcentrated in 2000 but is now moderately concentrated.⁵ This increase in the HHI is comparable to the increase that would result from one or two large in-town mergers.

Responding to these trends, some politicians argue that banking markets have become less competitive. These policymakers worry that greater concentration is associated with higher loan rates and reduced availability of services, especially for households and small businesses. Last year, one such policymaker, Senate Banking Committee Chair Sherrod Brown (D-OH), argued that banking market consolidation

“has enriched big bank shareholders and executives, buoyed by record bank profits. But their gains have come at the expense of consumers and small businesses with less access to low-cost financial services.”⁶

Things Look Different for Loans

However, under traditional banking antitrust policy, bank deposits are merely a proxy for a cluster of services and products offered by banks, and each of the other services and products may have a different level of concentration. Notably, the markets for small-business loans and home mortgages tell a different story.⁷

Nationally, the HHI for home mortgages increased from 137 in 2000 to 247 in 2010, but it fell sharply to 93 as of 2019 (Figure 1).⁸ The MSA sample follows much the same pattern. Among our sample of MSAs, the mean HHI for home mortgages rose from 294 in 2005 to a peak of 415 in 2010 before falling to 220 in 2019 (Figure 2).

Although the trend in small-business loans looks similar to the trend in deposits nationally (Figure 1), the story is different locally—and most small-business lending is still local.⁹ The mean HHI for small-business lending in the 34 MSAs increased from 994 in 2000 to a peak of 1,207 in 2010 (Figure 2), but it then fell to 711 in 2019. Among the 34 MSAs, the concentration of both small-business lending and home mortgages was lower in 2019 than it was at the start of the century.

Why Is Loan Concentration Falling in These Markets?

Regulatory factors explain some of the decline in the concentration of home mortgages and small-business loans, as do factors peculiar to each market.

Dodd–Frank’s Effect on Market Concentration

The Dodd–Frank Wall Street Reform and Consumer Protection Act, enacted in 2010 in response to the financial crisis and bank bailouts, contributed to reversing concentration in both these markets by imposing higher capital requirements, instituting stress tests, and limiting the growth of large banks. These regulatory changes would most affect those assets, notably small-business loans and home mortgages, for which large banks have the smallest competitive advantage over nonbanks and small banks. The higher lending costs for large banks opened the door for nonbanks and small banks to expand their market share, thus decreasing overall market concentration. A closer look at Dodd–Frank explains why.

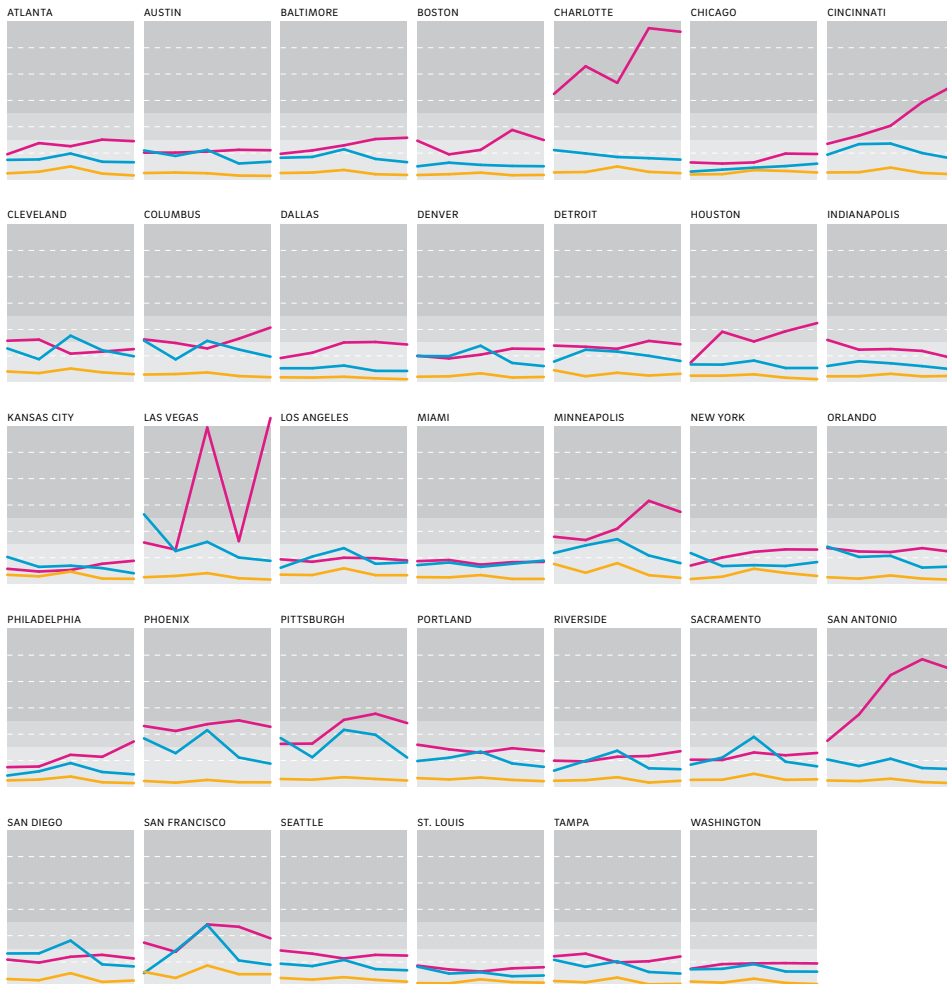
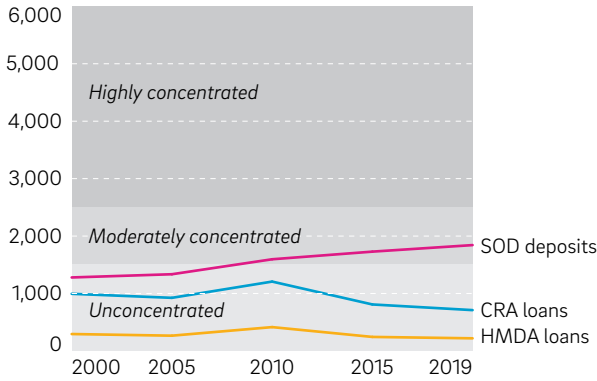
First, under Dodd–Frank, a bank that originates a loan and keeps it on its books (rather than selling it)

FIGURE 2

Deposits Became Even More Concentrated at the Local Level

But again, loans show different trends.

Mean Hirschman-Herfindahl Index (HHI) of market concentration in the 34 largest metropolitan statistical areas (MSAs), 2000–2019, for Summary of Deposits, Home Mortgage Disclosure Act loans, and Community Reinvestment Act (i.e., small-business) loans



Source: FDIC Summary of Deposits data, FFIEC HMDA data, FFIEC CRA Small Business Loan data.

must hold additional capital, which makes it more expensive for the bank to make and keep loans. Second, the largest banks (34 banks as of 2023) were made subject to the Comprehensive Capital Analysis and Review (CCAR)—also known as the stress test. The CCAR requires each tested bank to determine its expected losses under very stressful economic conditions. To pass the test, the bank’s capital must be high enough for the bank to remain well capitalized under these conditions. This often becomes the bank’s binding capital requirement. This higher capital requirement reduces the largest banks’ competitive advantage by increasing their costs relative to their nonbank and small-bank competitors. And third, Dodd-Frank imposed national caps of 10 percent on both assets and liabilities of any banking organization. Any organization above those caps could not make any acquisitions beyond de minimus transactions, thereby limiting the largest banks’ ability to compete in loan markets. The data suggest that these three reforms reversed some of the asset concentration seen before 2010: Prior to Dodd-Frank, national asset concentration had been increasing steadily, but its pace of concentration subsequently slowed (Figure 3).

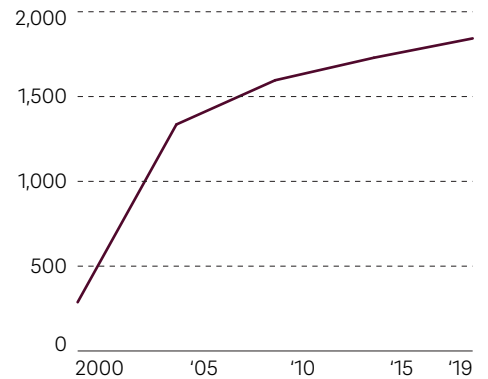
We can attribute much of this leveling off to the behavior of the largest banks. Before 2010, three of the largest banks—

FIGURE 3

National Asset Concentration Was Increasing Strongly Prior to Dodd-Frank

Thereafter, the pace of concentration has decreased.

Hirschman-Herfindahl Index (HHI) of assets, 2000–19



Source: FFIEC Call Reports, Federal Reserve FRY-9C data.

Bank of America, JPMorgan Chase, and Citigroup—dramatically increased in size, primarily due to mergers and acquisitions, such that all three were well above Dodd-Frank’s 10 percent cap on assets as of 2010, with asset market shares of 13.8, 11.7, and 11.2 percent, respectively.¹⁰

After Dodd-Frank, these three organizations could grow only organically rather than by acquisitions. As a result, their growth slowed considerably, and their combined asset share shrank 1.45 percentage points, to 35.25 percent. With less room to grow, these banks eased out of those assets, including small-business loans and home mortgages, for which they had a smaller competitive advantage.

Nonbanks, Small Banks, and Home Mortgages

Nonbank mortgage originators, unlike banks, are not subject to Dodd-Frank regulations, and thus do not face capital requirements or stress tests, so they have been able to expand their lending at the expense of large banks. In 2000, banks and thrifts originated over 70 percent of all home mortgage loans (Figure 4).¹¹ By 2019, they originated only about 42 percent.¹² In terms of absolute lending, banking organizations increased their lending by only 30.5 percent between 2000 and 2019, while nonbank lending more than quadrupled. Because concentration is historically lower among nonbanks, an increase in nonbanks’ market share reduces overall market concentration (Figure 5). Meanwhile, smaller banks, which are less affected by Dodd-Frank, have also increased their market share. This growth in the share of lending done by nonbanks and small banks helps explain the overall decline in home asset concentration since 2010.

Apart from the effects of capital regulations, researchers have found another reason for nonbanks’ expansion of market share:

A significant share of nonbank mortgage lending is made by fintech firms, which use new technologies to compete with more traditional financial-services companies. A number of researchers have found that fintechs provide higher-quality products in terms of both speed and convenience.¹³ Indeed, University of Wisconsin professor of finance Dean Corbae and his coauthors argue that higher-quality products have been even more important than lower regulatory requirements in explaining nonbanks’ rising market share.

Competition in the Small-Business Loan Market

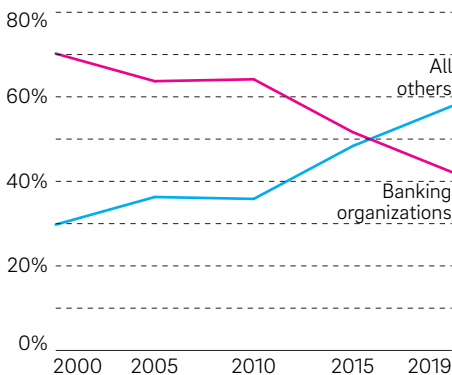
Although nonbanks’ increasing market share contributed heavily to the decrease in the concentration of home mortgage lending, it can’t account for the decline in the concentration of small-business lending, because only depository institutions are required to report small-business loans under the Community Reinvestment Act (CRA). To evaluate small-business loan concentration, we have to take a closer look at changes in the distribution of small-business loans among bank lenders.

There is evidence that small commercial real estate (CRE) loans shifted to smaller banks (that is, banks with less than \$50 billion in assets) between 2015 and 2019. (CRE loans make up a large share of business loans at smaller banks.) Smaller banks already dominate that market, and from 2015 to 2019 their share of small CRE loans increased from 76.7 to 80.8 percent (Figure 6).¹⁴ Researchers have found evidence that the Dodd-Frank stress tests have reduced small-business lending by large banks and that this lending has been taken up by smaller competitors, further strengthening the significance of the trend in CRE lending.¹⁵

But there is another explanation for declining market concentration in small-business lending: Many out-of-market competitors

FIGURE 4
Banks and Thrifts Have Lost Home-Mortgage Market Share

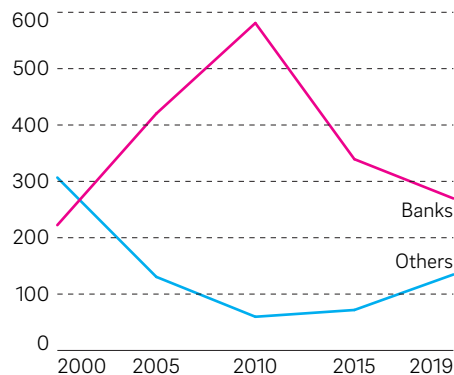
Percent of home mortgages reported under the Home Mortgage Disclosure Act, 2000–2019, banks versus nonbanks



Source: FFIEC HMDA data.

FIGURE 5
The Home Mortgage Market Has Become Less Concentrated

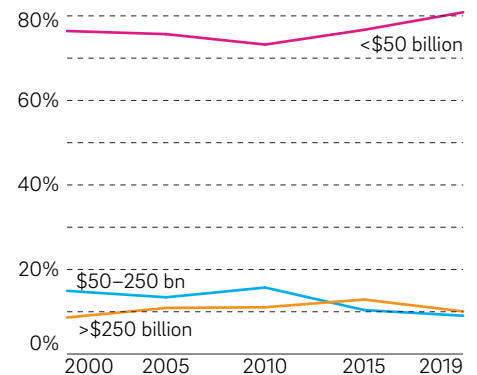
Bank mortgage lending has become less concentrated and nonbank mortgage lending remains unconcentrated. Hirschman–Herfindahl Index (HHI) of market concentration, 2000–2019, Home Mortgage Disclosure Act loans, banks versus nonbanks



Source: FFIEC HMDA data.

FIGURE 6
After 2015, Small Banks Further Increased Their Hefty Share of Small-Business Loans

Percentage of small-business commercial real estate (CRE) loans by bank assets, 2000–2019



Source: FFIEC Call Reports, Federal Reserve FR-Y9C data.

(that is, competitors without a local branch) operate in small-business-lending markets—especially the market for business credit cards—and that number is increasing. In our sample of MSAs, the mean number of lenders reporting loans in areas where they have no deposits increased from 79 in 2010 to 124 in 2019. These lenders’ combined market share increased from 12.8 to 26.4 percent (Figure 7).¹⁶ My previous *Economic Insights* article and other research show that a substantial share of out-of-market lending was due to business credit cards.¹⁷ Because these out-of-market competitors are operating in markets where they have no deposits, their lending activity runs counter to the trend of increasing deposits concentration.

Conclusion

There is no universal trend toward increasing concentration. While deposits concentration increased substantially, none of these markets were concentrated by any traditional measures as of 2019, and they were not trending that way. Market entry, not increasing concentration, explains these trends. In mortgage lending, nonbanks have become major players. Meanwhile, small banks are still important providers of small-business loans, and lenders without a local branch or office have increased their share of small-business loans.¹⁸


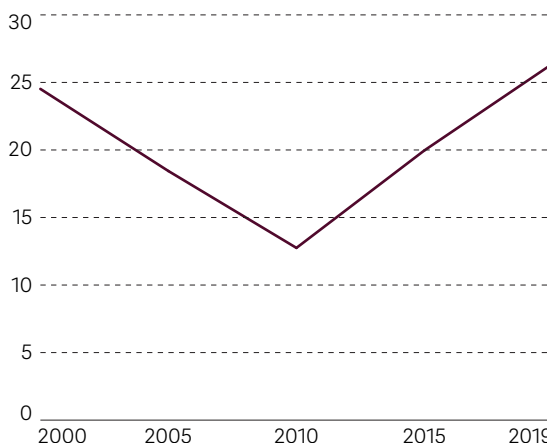
In short, as branch deposits become more concentrated, lending concentration is becoming less so. This indicates that branches are becoming less important for lending. Perhaps deposits are no longer an adequate proxy for the cluster of services provided by a bank. 

FIGURE 7

Out-of-Market Lenders Have Expanded Their Presence in Small-Business Lending Since 2010

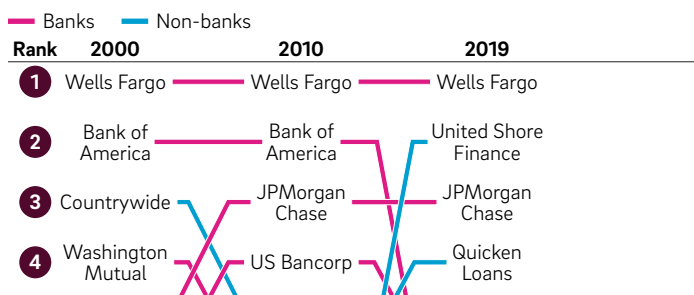
Market share (percentage) of out-of-market small-business lenders, top 34 metropolitan statistical areas, 2000–2019



Source: FFIEC CRA Small Business Loan data, FDIC Summary of Deposits data.

FIGURE 8

Top Four Mortgage Lenders



Source: FFIEC HMDA data.

Data Sources

The data used in this paper come from four sources: the Federal Deposit Insurance Corporation’s (FDIC’s) Summary of Deposits (SOD), the Federal Financial Institutions Examination Council’s (FFIEC’s) Home Mortgage Disclosure Act (HMDA) data, the FFIEC’s Reports of Condition (Call Reports), and the FFIEC’s Community Reinvestment Act (CRA) Small Business Loan data. Whenever possible, subsidiaries of the same bank holding or financial holding company are counted as one institution.

SOD data are data on deposits at all bank branches. These data are collected annually by the FDIC. These data cover banks, thrifts,

and insured branches of foreign banks. For more information, see *Summary of Deposits Reporting Instructions* (2020).

HMDA data are data on mortgage and other home loan applications. These data are collected annually by the FFIEC. In addition to banks, thrifts, and credit unions, these data come from any other company that made at least 25 mortgages in the reporting year. I include only originations on home-purchase loans. For more information, see the FFIEC’s *Home Mortgage Disclosure Act Main Page* (2022).

CRA data are county-level data by institution on loans to small businesses and farms.

These loans are made or purchased by banks and thrifts, and these data are collected annually by the FFIEC. These data cover just about every bank and thrift with assets greater than \$250 million. I use only business loans. For further information, see *A Guide to CRA Data Collection and Reporting* (2001).

The Call Reports provide quarterly balance sheet data for all U.S. banks and thrifts.

A (Very) Brief History of Banking Antitrust

In 1960, Congress enacted the Bank Merger Act, which made banking regulators responsible for assessing the effects on competition of any bank merger or bank holding company acquisition. In other words, the act applied antitrust laws, specifically the Sherman Act (1890) and the Clayton Act (1914), to bank mergers. Under the Bank Merger Act, bank regulators must define a specific line of commerce (the product market) and an area of the country (the geographic market) that will be affected by the merger.

Shortly thereafter, the Supreme Court laid out a framework for applying the Bank Merger Act in its landmark case, *U.S. v. Philadelphia National Bank* (1963). The court's major findings were (1) banking represented a unique industry whose product market was defined by a "cluster" of products and services,¹⁹ and (2) the geographic market was local (in this case, the Philadelphia metropolitan area). Subsequent court cases refined but did not substantially alter the findings of the PNB case.

Since then, bank regulators have defined the product market for banking as the cluster. Rather than examining each individual product, deposits are used as a proxy. The geographic market is the local area, mainly counties for rural areas or some definition of a metropolitan area, such as the metropolitan statistical area for more urban areas.

Notes

1 See Berger, Kashyap, and Scalise (1995), and Berger, Demirgüç-Kunt, Levine, and Haubrich (2004).

2 The Department of Justice and other antitrust enforcers define a market as unconcentrated if its HHI is less than 1,500, moderately concentrated if its HHI is between 1,500 and 2,500, and highly concentrated if its HHI exceeds 2,500. These thresholds are somewhat arbitrary and serve mainly as guidelines. When a merger results in a market moving to a higher concentration category, it may receive more scrutiny depending on the size of the increase in the HHI and other factors unique to that particular market.

3 Nonetheless, the number of institutions has continued to decrease, from 8,682 in 2000 to 5,194 in 2019.

4 Each MSA has a population of at least 2 million people. I selected MSAs based on 2020 Census population numbers. These 34 MSAs represent 48 percent of the population and between 50 and 60 percent of the banking activity as measured by deposits, mortgages, and small-business loans.

5 The increase in concentration is larger at the national level than at the local level. Indeed, even with the decline in the number of banks nationally, some MSAs are being served by more institutions. Increases in concentration have been tempered locally by out-of-market banks opening local branches, and by smaller in-market competitors expanding their branch networks in response to larger banks acquiring other in-market banks and closing their branches. These trends are not new and have been documented by Berger, Kashyap, and Scalise (1995) and Berger, Demirgüç-Kunt, Levine, and Haubrich (2004).

6 Brown (2022).

7 Loan volumes for mortgages and business loans are flow variables, i.e., they measure increases or decreases over time, while deposits are a stock variable, i.e., a snapshot of the level at each point in time.

8 For HMDA data, only originations of home purchase loans are included.

9 See Adams, Brevoort, and Driscoll (2020).

10 In fact, there were four megabanks as of 2010: JPMorgan Chase, Bank of America, Wells Fargo, and Citigroup. Together, these four banks increased their market share from 27.5 percent in 2000 to 43.8 percent in 2010. However, Wells Fargo didn't become a megabank until after several post-2000 mergers, most notably its acquisition of Wachovia in 2008.

11 Here, banks are defined as commercial banks, savings banks, and savings associations, as well as their subsidiaries and affiliates.

12 To measure market concentration, regulators and researchers also use the CR-4—that is, the combined market share of the four largest firms. The CR-4 for home mortgages confirms my findings. Before 2010, the four largest mortgage lenders were always banks or their affiliates. By 2019, the shares of the largest banks had dropped substantially, and two nonbanks were among the largest lenders (Figure 8).

13 See Corbae, D'Erasmus, and Liu (forthcoming), and Fuster, Plosser, Schnabl, and Vickery (2019).

14 Asset sizes are in constant (2019) dollars.

15 See Yu (2020) for an account of the evidence of stress tests' effects on small-business lending.

16 Banks with assets under \$250 million don't report CRA data. The vast majority of these banks are likely in-market banks.

17 See DiSalvo (2021) and Adams, Brevoort, and Driscoll (2020).

18 This suggests that, with more out-of-market competitors making loans, small-business lending is becoming more than a strictly regional market.

19 The "cluster" consists of unsecured personal and business loans; mortgage loans; loans secured by securities or accounts receivable; au-

tomobile installment loans; personal installment loans; tuition financing; credit cards; revolving credit funds; demand deposits of individuals, partnerships, corporations, and government agencies; time and savings deposits; estate and trust planning; trusteeship services; lock boxes; safety-deposit boxes; account reconciliation services; acceptances and letters of credit; correspondent services; and investment advice.

References

- Adams, Robert M., Kenneth P. Brevoort, and John C. Driscoll. "Is Lending Distance Really Changing? Distance Dynamics and Loan Composition in Small Business Lending," Finance and Economics Discussion Series Working Paper 2021-011 (2020), <https://doi.org/10.17016/FEDS.2021.011>.
- Berger, Allen N., Anil K. Kashyap, and Joseph M. Scalise. "The Transformation of the U.S. Banking Industry: What a Long, Strange Trip It's Been," *Brookings Papers on Economic Activity*, 2 (1995), pp. 55–218, <https://doi.org/10.2307/2534612>.
- Berger, Allen N., Asli Demirgüç-Kunt, Ross Levine, and Joseph G. Haubrich. "Bank Concentration and Competition: An Evolution in the Making," *Journal of Money, Credit, and Banking*, 36:3 (2004), pp. 433–451, <https://www.jstor.org/stable/3838945>.
- Brown, Sherrod. Letter to Jerome Powell and Michael Hsu, United States Senate, April 6, 2022.
- Corbae, Dean, Pablo D'Erasmus, and Kuan Liu. "Market Concentration in Fintech," Federal Reserve Bank of Philadelphia Working Paper (forthcoming).
- DiSalvo, James. "Banking Trends: Is Small-Business Lending Local?" Federal Reserve Bank of Philadelphia *Economic Insights* (Third Quarter 2021), pp. 18–24, <https://www.philadelphiafed.org/the-economy/banking-and-financial-markets/banking-trends-is-small-business-lending-local>.
- Federal Deposit Insurance Corporation. *Summary of Deposits Reporting Instructions*, 2020.
- Federal Financial Institutions Examination Council. *A Guide to CRA Data Collection and Reporting*, January 2001, https://www.ffiec.gov/cra/pdf/cra_guide.pdf.
- Federal Financial Institutions Examination Council. *Home Mortgage Disclosure Act Main Page*, (2022), <https://www.ffiec.gov/hmda/default.htm>.
- Fuster, Andreas, Matthew Plosser, Philipp Schnabl, and James Vickery. "The Role of Technology in Mortgage Lending," *Review of Financial Studies*, 32:5 (2019), pp. 1,854–1,899, <https://doi.org/10.1093/rfs/hhz018>.
- U.S. Census Bureau. *Metropolitan and Micropolitan Statistical Areas Population Totals and Components of Change: 2010–2019*, (2020), <https://www.census.gov/data/tables/time-series/demo/pepstat/2010s-total-metro-and-micro-statistical-areas.html>.
- U.S. Department of Justice. *Horizontal Merger Guidelines* (2010).
- U.S. Reports. *U.S. v. Philadelphia National Bank*, 374 U.S. 321 (1963).
- Yu, Edison. "Banking Trends: Do Stress Tests Reduce Credit Growth?" Federal Reserve Bank of Philadelphia *Economic Insights* (First Quarter 2020), pp. 1–7, <https://www.philadelphiafed.org/the-economy/banking-and-financial-markets/banking-trends-do-stress-tests-reduce-credit-growth>.

Research Update

These papers by Philadelphia Fed economists, analysts, and visiting scholars represent preliminary research that is being circulated for discussion purposes.

The views expressed in these papers are solely those of the authors and should not be interpreted as reflecting the views of the Federal Reserve Bank of Philadelphia or Federal Reserve System.

Housing Wealth and Consumption: The Role of Heterogeneous Credit Constraints

We quantify the role of heterogeneity in households' financial constraints in explaining the large decline in consumption between 2006 and 2009. Using household-level data, we show that in addition to a direct effect of changes in house prices, there are sizable indirect effects from general equilibrium feedback and bank health. About 60 percent

of the aggregate response of consumption to changes in house prices is explained by ex ante and ex post financial constraints, where only a specific set of households face binding ex post financial constraints as a result of declining house prices. We find a negligible wealth effect once we account for the role of heterogenous financial constraints.

WP 22-34. Natee Amornsiripanitch, Federal Reserve Bank of Philadelphia; Paul A. Gompers, Harvard Business School and National Bureau of Economic Research; George Hu, Harvard University; Kaushik Vasudevan, Yale University.

Debtor Fraud in Consumer Debt Renegotiation

We study how forcing financially distressed consumer debtors to repay a larger fraction of debt can lead them to misreport data fraudulently. Using a plausibly exogenous policy change that required debtors to increase repayment to creditors, we document that debtors manipulated data to avoid higher repayment. Consistent with deliberate fraud, data manipulators traveled farther to find more lenient insolvency professionals who, historically, approved more potentially fraudulent filings. Finally, we find that those debtors who misreported income had a lower probability of default on their debt repayment plans, consistent with having access to hidden income.

WP 22-35. Vyacheslav Mikhed, Federal Reserve Bank of Philadelphia Consumer Finance Institute; Sahil Raina, Alberta School of Business; Barry Scholnick, Alberta School of Business and Federal Reserve Bank of Philadelphia Consumer Finance Institute Visiting Scholar; Man Zhang, University of Sydney Business School.

Prior Fraud Exposure and Precautionary Credit Market Behavior

This paper studies how past experiences with privacy shocks affect individuals' take-up of precautionary behavior when faced with a new privacy shock in the context of credit markets. We focus on experiences with identity theft and data breaches, two kinds of privacy shocks that either directly lead to fraud or put an individual at an elevated risk of experiencing fraud. Using the announcement of the 2017 Equifax data breach, we show that individuals with either kind of prior fraud exposure were more likely to freeze their credit report and close credit card accounts than individuals with no prior exposure immediately after the announcement. We also find that prior victims of identity theft, a more serious type of exposure, were more likely to take precautionary actions than individuals who were victims of a previous data breach.

WP 22-36. Nathan Blascak, Federal Reserve Bank of Philadelphia Consumer Finance Institute; Ying Lei Toh, Federal Reserve Bank of Kansas City.

Is GDP Becoming Obsolete? The “Beyond GDP” Debate

GDP is a closely watched indicator of the current health of the economy and an important tool of economic policy. It has been called one of the great inventions of the 20th century. It is not, however, a persuasive indicator of individual well-being or economic progress. There have been calls to refocus or replace GDP with a metric that better reflects the welfare dimension. In response, the U.S. agency responsible for the GDP accounts recently launched the GDP and Beyond program. This is by no means an easy undertaking, given the subjective and idiosyncratic nature of much of individual well-being. This paper joins the Beyond GDP effort by extending the standard utility maximization model of economic theory, using an expenditure function approach to include those non-GDP sources of well-being for which a monetary value can be established. We term our new measure expanded GDP (EGDP). A welfare-adjusted stock of wealth is also derived using the same general approach used to obtain EGD. This stock is useful for issues involving the sustainability of well-being over time. One of the implications of this dichotomy is that conventional cost-based wealth may increase over a period of time, while welfare-corrected wealth may show a decrease (due, for example, to strongly negative environmental externalities).

WP 22-37. Charles R. Hulten, University of Maryland, NBER, and Visiting Scholar, Federal Reserve Bank of Philadelphia Research Department; Leonard I. Nakamura, Federal Reserve Bank of Philadelphia Research Department.

A Statistical Learning Approach to Land Valuation: Optimizing the Use of External Information

We develop a statistical learning model to estimate the value of vacant land for any parcel, regardless of improvements. Rooted in economic theory, the model optimizes how to combine common improved property sales with rare, but more informative, vacant land sales. It estimates how land values change with geography and other features and determines how much information either vacant or improved sales provide to nearby areas through spatial correlation. For most census tracts, incorporating improved sales often doubles the certainty of land value estimates.

WP 22-38. David Albouy, University of Illinois, and Visiting Scholar, Federal Reserve Bank of Philadelphia Research Department; Minchul Shin, Federal Reserve Bank of Philadelphia Research Department.

One Threshold Doesn't Fit All: Tailoring Machine Learning Predictions of Consumer Default for Lower-Income Areas

Modeling advances create credit scores that predict default better overall but raise concerns about their effect on protected groups. Focusing on low- and moderate-income (LMI) areas, we use an approach from the Fairness in Machine Learning literature—fairness constraints via group-specific prediction thresholds—and show that gaps in true positive rates (percent of nondefaulters identified by the model as such) can be significantly reduced if separate thresholds can be chosen for non-LMI and LMI tracts. However, the reduction isn't free, as more defaulters are classified as good risks, potentially affecting both consumers' welfare and lenders' profits. The trade-offs become more favorable if the introduction of fairness constraints is paired with the introduction of more sophisticated models, suggesting a way forward. Overall, our results highlight the potential benefits of explicitly considering sensitive attributes in the design of loan approval policies and the potential benefits of output-based approaches to fairness in lending.

WP 22-39. Vitaly Meursault, Federal Reserve Bank of Philadelphia Research Department; Daniel Moulton, Federal Reserve Bank of Philadelphia Consumer Finance Institute; Larry Santucci, Federal Reserve Bank of Philadelphia Consumer Finance Institute; Nathan Schor, Federal Reserve Bank of Philadelphia Research Department.

Eviction and Poverty in American Cities

More than 2 million U.S. households have an eviction case filed against them each year. Policymakers at the federal, state, and local levels are increasingly pursuing policies to reduce the number of evictions, citing harm to tenants and high public expenditures related to homelessness. We study the consequences of eviction for tenants, using newly linked administrative data from Cook County (which includes Chicago) and New York City. We document that prior to housing court, tenants experience declines in earnings and employment and increases in financial distress and hospital visits. These pretrends are more pronounced for tenants who are evicted, which poses a challenge for disentangling correlation and causation. To address this problem, we use an instrumental variables approach based on cases randomly assigned to judges of varying leniency. We find that an eviction order increases homelessness and reduces earnings, durable consumption, and access to credit. Effects on housing and labor market outcomes are driven by impacts for female and Black tenants.

WP 22-40. Robert Collinson, University of Notre Dame; John Eric Humphries, Yale University; Nicholas Mader, Chapin Hall at the University of Chicago; Davin Reed, Federal Reserve Bank of Philadelphia Community Development and Regional Outreach Department; Daniel Tannenbaum, University of Nebraska; Winnie van Dijk, Harvard University.

The Push of Big City Prices and the Pull of Small Town Amenities

As house prices continue to rise in large, supply-constrained cities, what are the implications for other places that have room to grow? Recent literature suggests that amenities that improve quality of life are becoming increasingly important in location decisions. In this paper, we explore how location amenities have differentially driven population and price dynamics in small towns versus big cities, with a focus on the role of housing supply. We provide theory and evidence that demand for high-amenity locations has increased in recent decades. High-amenity counties in large metropolitan areas have experienced relatively higher price increases, while high-amenity counties in small metros and rural areas have absorbed increased demand through population growth. This divergence in population dynamics between big cities and small towns was driven by domestic migration, with high-amenity small towns and rural areas experiencing significant domestic in-migration.

WP 22-41. Heidi Artigue, University of Pennsylvania; Jeffrey Brinkman, Federal Reserve Bank of Philadelphia Research Department; Svyatoslav Karnasevych, Federal Reserve Bank of Philadelphia Research Department.

Owner-Occupancy Fraud and Mortgage Performance

We identify occupancy fraud—borrowers who misrepresent their occupancy status as owner-occupants rather than investors—in residential mortgage originations. Unlike previous work, we show that fraud not just was prevalent in originations during the housing bubble, but also persists through more recent times. We also demonstrate that fraud is broad-based and appears in government-sponsored enterprise and bank portfolio loans, not just in private securitization; these fraudulent borrowers make up one-third of the effective investor population. Occupancy fraud allows riskier borrowers to obtain credit at lower interest rates. These fraudulent borrowers perform substantially worse than similar declared investors, defaulting at a 75 percent higher rate. Their defaults are also likelier to be “strategic,” suggesting that they pose a risk in the face of declining house prices.

WP 23-01. Ronel Elul, Federal Reserve Bank of Philadelphia Research Department; Aaron Payne, University of Pennsylvania; Sebastian Tilson.

Missouri’s Medicaid Contraction and Consumer Financial Outcomes

In July 2005, the state of Missouri implemented a series of cuts to its Medicaid program. These cuts resulted in the elimination of the Medical Assistance for Workers with Disabilities program, more stringent eligibility requirements, and less generous Medicaid coverage for eligible individuals. Overall, the reforms removed about 100,000 Missourians from the program and reduced the value of the insurance for the remaining enrollees. Using data from the Medical Expenditure Panel Survey, we show how these cuts increased out-of-pocket medical spending for individuals living in Missouri. Using individual-level credit bureau data and employing a border discontinuity differences-in-differences empirical strategy, we show that the Medicaid reform led to increases in both credit card borrowing and debt in third-party collections. The magnitude of our estimates suggests there may be important asymmetries in the financial effects of shrinking a public health insurance program when compared with a public health insurance expansion.

WP 20-42 Revised. James Bailey, Providence College and Federal Reserve Bank of Philadelphia Consumer Finance Institute Visiting Scholar; Nathan Blaschak, Federal Reserve Bank of Philadelphia Consumer Finance Institute; Vyacheslav Mikhed, Federal Reserve Bank of Philadelphia Consumer Finance Institute

Funding Liquidity Creation by Banks

Relying on theories in which bank loans create deposits—a process we call “funding liquidity creation”—we measure how much funding liquidity the U.S. banking system creates. Private money creation by banks enables lending to not be constrained by the supply of cash deposits. During the 2001–2020 period, 92 percent of bank deposits were due to funding liquidity creation, and during 2011–2020 funding liquidity creation averaged \$10.7 trillion per year, or 57 percent of GDP. Using natural disasters data, we provide causal evidence that better-capitalized banks create more funding liquidity and lend more even during times when cash deposit balances are falling.

WP 23-02. Anjan Thakor, Washington University in St. Louis; Edison Yu, Federal Reserve Bank of Philadelphia.

Rational Inattention via Ignorance Equivalence

We introduce the concept of the ignorance equivalent to effectively summarize the payoff possibilities of an agent who is facing a finite Rational Inattention (RI) problem. The ignorance equivalent is a unique fictitious action that does not distort learning incentives when added to the agent’s menu but also makes ignorance optimal. In doing so, it allows us to restate the RI problem as a choice over a richer menu without learning. The approach provides new insights for menu expansion, the formation of consideration sets, the trading of information, and belief elicitation. We fully characterize the relationship between the ignorance equivalent and the optimal choice in the original RI problem. When multiple RI agents with different learning costs interact, the ignorance equivalent emerges in equilibrium, facilitating trade that allows agents to emulate the first-best learning strategy.

WP 21-29 Revised. Michèle Müller-Ippen, University of Notre Dame; Roc Armenter, Federal Reserve Bank of Philadelphia Research Department; Zachary R. Stangebye, University of Notre Dame.

The Age Gap in Mortgage Access

This paper uses data on millions of single-borrower mortgage applications to study the relationship between applicant age and mortgage application outcomes. Conditional on a rich set of applicant, property, and loan characteristics, mortgage refinance applications submitted by older borrowers are associated with higher rejection probabilities. This pattern holds within lender and across loan types. Rejection probability increases smoothly with age and accelerates in old age. The acceleration is slower for female applicants. Inability to maintain properties may contribute as older applicants are more likely to be rejected for insufficient collateral. Lastly, using the loan-level pricing adjustment identification strategy, I find similar empirical relationships between borrower age and coupon rate on home purchase and refinance mortgages that were sold to Fannie Mae and Freddie Mac. Taken at face value, age appears to be an equally important correlate of mortgage application outcomes as race and ethnicity. Overall, the results suggest that older individuals systematically face higher barriers to mortgage access. Potential explanations are discussed.

WP 23-03. Natee Amornsiripanitch, Federal Reserve Bank of Philadelphia Supervision, Regulation, and Credit Department.

Not Cashing In on Cashing Out: An Analysis of Low Cash-Out Refinance Rates

Lowering a borrower's interest rate is one of the most effective ways to reduce a borrower's debt burden. Mortgage refinancing offers a chance to shift debt balances from high-interest loans into a low-interest mortgage through "cashing out" some of the home's equity. Borrowers could reduce their monthly payments by up to 13 percent by folding a student loan with a 6 percent interest rate into a mortgage with a 3 percent interest rate. Using anonymized data on mortgage refinancing behavior, we find that over half of borrowers with high-interest loans and available home equity do not take advantage of their cash-out opportunities. Strikingly, this pattern is seen among borrowers who have already chosen to refinance their mortgage, thereby overcoming inertia, information frictions, and large fixed costs associated with the decision to refinance. Furthermore, even when the last remaining fixed cost (cash-out surcharge) is eliminated for student-loan borrowers by a policy change at Fannie Mae, we find that the presence of a student loan does not significantly affect borrowers' propensity to cash out after these surcharges are eliminated.

WP 23-04. Mallick Hossain, Federal Reserve Bank of Philadelphia Supervision, Regulation, and Credit Department; Igor Livshits, Federal Reserve Bank of Philadelphia Research Department; Collin Wardius, University of California San Diego.

California Wildfires, Property Damage, and Mortgage Repayment

This paper examines wildfires' impact on mortgage repayment using novel data that combines property-level damages and mortgage performance data. We find that 90-day delinquencies were 4 percentage points higher and prepayments were 16 percentage points higher for properties that were damaged by wildfires compared to properties 1 to 2 miles outside of the wildfire, which suggests higher risks to mortgage markets than found in previous studies. We find no significant changes in delinquency or prepayment for undamaged properties inside a wildfire boundary. Prepayments are not driven by increased sales or refinances, suggesting insurance claims drive prepayment. We provide evidence that underinsurance may force borrowers to prepay instead of rebuild.

WP 23-05. Siddhartha Biswas, Federal Reserve Bank of Philadelphia Supervision, Regulation, and Credit Department; Mallick Hossain, Federal Reserve Bank of Philadelphia Supervision, Regulation, and Credit Department; David Zink, Federal Reserve Bank of San Francisco.

Research in Focus

Summaries of Working Papers

Barriers, Blockages, and Blacktop: When Freeways Traverse Metropolitan Areas, Urban Neighborhoods Often Face Negative Consequences

The U.S. freeway network was conceived as a contributor to regional growth. However, as **Jeffrey Lin** and **Jeffrey Brinkman** show, freeways also brought detractions, especially for urban neighborhoods.

Explaining Economic Growth and Savings Rates in China Following Its Demographic and Industrial Transformation

Michael Dotsey, **Wenli Li**, and their coauthor study how the interaction of industrial and demographic policies along with human capital investments influenced China's savings and growth rates.

The Propagation of Vacancy Chains and Their Impact on Labor Market Dynamics

Ryan Michaels and his coauthors study firms' replacement hiring and the emergence of vacancy chains, which have key implications for U.S. labor market volatility and productivity.

How Restrictions on Teenage Driving Affect Dropout Rates

For teenagers, few choices weigh as heavily as whether to finish high school. Does being able to drive affect their decision? **Christopher Severen** explores several possible outcomes.


Big-City Housing Costs and the Increasing Attractiveness of High-Amenity Small Towns

Jeff Brinkman and his coauthors examine house prices and population dynamics by U.S. county in response to increasing preferences for location amenities.

Data in Focus

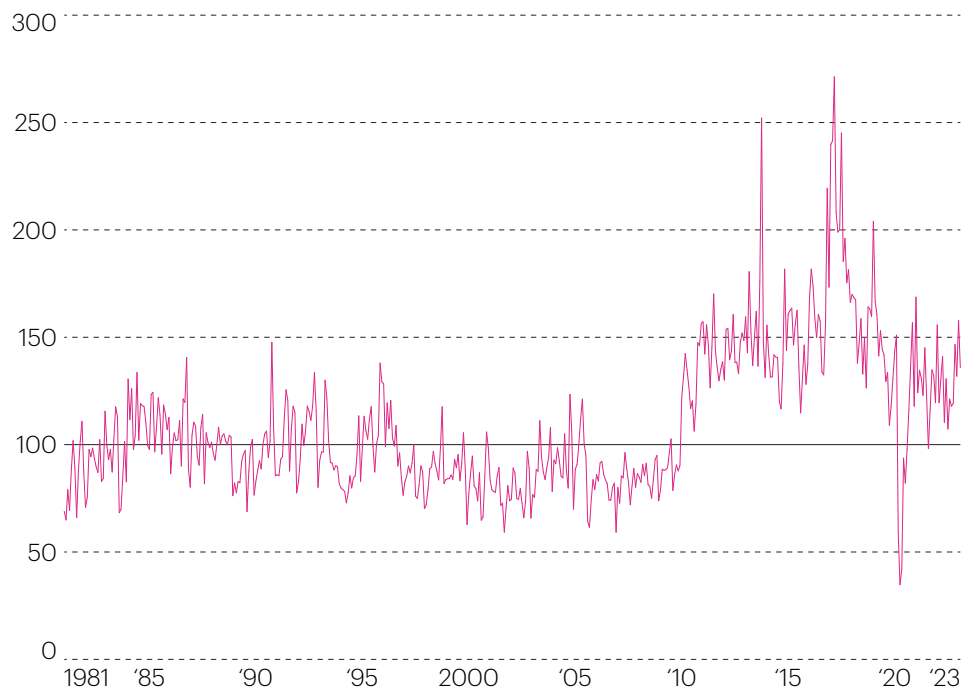
Partisan Conflict Index

The Philadelphia Fed collects, analyzes, and shares useful data about the Third District and beyond. Here's one example.

By 2014, partisanship in Washington had reached a fever pitch. Just a year earlier, political gridlock had led to yet another government shutdown. That got one Federal Reserve economist, Marina Azzimonti, wondering: Can we quantify this partisanship? And, if so, how does partisanship correlate with economic trends? After all, increasing partisanship likely makes government policy less predictable, and “according to existing theories, an increase in the degree of economic policy uncertainty... results in a decline in economic activity,”¹ most likely because households and businesses, uncertain about future government action, delay making decisions that are expensive to reverse (such as buying a home or building a factory). To answer her questions, Marina created a Partisan Conflict Index. Her index, which reflects changes in the number of newspaper articles reporting lawmakers’ disagreement about policy, confirms that “partisan conflict increases government deficits and significantly discourages investment, output, and employment.” More specifically, “about 27 percent of the decline in corporate investment between 2007-2009 can be attributed to a rise in partisan conflict.”² Perhaps surprisingly, short-run fluctuations in her index correlate with military conflicts, suggesting that a “rally around the flag” effect lessens partisanship after big shocks such as the 9/11 attacks. This issue’s Data in Focus features her index, which the Philadelphia Fed updates monthly. 

Partisan Conflict Index

Average of 1990=100



Source: Federal Reserve Bank of Philadelphia.

Notes

1 Marina Azzimonti, “Partisan Conflict,” Federal Reserve Bank of Philadelphia Working Paper 14-19 (2014), <https://www.philadelphiafed.org/the-economy/partisan-conflict>.

2 Marina Azzimonti, “Partisan Conflict and Private Investment,” *Journal of Monetary Economics*, 93 (2018), pp. 114–131, <https://doi.org/10.1016/j.jmoneco.2017.10.007>.

Learn More

Online: <https://www.philadelphiafed.org/surveys-and-data/real-time-data-research/partisan-conflict-index>

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2022 Q3&4