

Supervisory Research Forum (SURF) Spotlight 2021:Q1

An Initial Attempt to Evaluate the Impact of the COVID-19 Crisis on Consumers¹

Abstract

Extant research suggests very significant effects on consumers from the COVID-19 crisis. The associated health shocks and economic shutdowns led to unprecedented changes in consumer behavior. We also saw some of the sharpest declines ever seen in consumer spending and credit card balances during the heart of the crisis, with spending still remaining depressed relative to precrisis levels.

In the first part of the crisis, credit inquiries and originations declined, while credit supply and terms tightened across various consumer products, with the exception that *consumers with relationships* fared better. Financial fragility and high unemployment rates, particularly for low-income consumers and minorities, together with housing market precariousness and higher risks of eviction among these consumer groups, highlight that the pandemic may have exacerbated inequality.

At this time, there is little direct research evidence on the effects of government and Federal Reserve actions on consumer finances. Extant research to date suggests that the Coronavirus Aid, Relief, and Economic Security (CARES) Act forbearance and moratoria provisions may have mitigated some of the consumer inequality and financial distress effects. These government reactions may have prevented a rise in consumer delinquencies, supported house prices, and averted a negative feedback loop. However, we know less about income-support measures and Federal Reserve policies, except that one study suggests that the expansionary monetary policy may have favored high-income relative to low-income consumers in mortgage refinancings. We look forward to more direct research evidence on all these issues.

¹ This commentary was written by Raluca A. Roman, senior economist at the Federal Reserve Bank of Philadelphia. The views expressed here are solely of the author and do not necessarily reflect the views of the Federal Reserve Bank of Philadelphia or the Federal Reserve System.

Introduction

There are rapidly growing research literatures on the many economic and financial impacts of the COVID-19 crisis. This is an attempt to review the research relating to consumers. We focus first on the COVID-19 research related to consumer-spending behavior and consumption, and credit supply for credit cards. We then discuss COVID-19 research on consumer employment conditions and the effects on mortgages and auto loans. We pay special attention in this latter part to the effects of the Coronavirus Aid, Relief, and Economic Security (CARES) Act forbearances, eviction moratoria, and other government income-support measures during the crisis. We include a significant number of papers, while acknowledging that it is impossible to keep up with all of this research because of the rapidity with which it is emerging.

Consumer Credit Cards: Spending, Credit Demand, and Credit Supply

Consumer spending plays a critical role in the U.S. economy, accounting for over 70 percent of U.S. GDP.² Thus, depressed consumer spending can drive negative economic consequences. Most of the research is about credit card spending, which is an important component.

A growing literature documents unprecedented changes in the typical consumer spending behavior in response to the COVID-19 pandemic and resulting government economic shutdowns (e.g., Adams and Bord, 2020; Baker, Farrokhnia, Meyer, Pagel, and Yannelis, 2020a; Coibion, Gorodnichenko, and Weber, 2020; Chetty, Friedman, Hendren, Stepner, and the Opportunity Insights Team, 2020; Horvath, Kay, and Wix, 2020; Dong, Gozgor, Lu, and Yan, 2021). There is an increase in spending in early March, particularly in retail and food items, followed by a dramatic fall in consumer spending from March to April (e.g., Baker, Farrokhnia, Meyer, Pagel, and Yannelis, 2020a). Stronger declines occurred in areas with a higher number of infections, shelter-in-place orders, and greater social distancing (e.g., Baker, Farrokhnia, Meyer, Pagel, and Yannelis, 2020a; Chetty, Friedman, Hendren, Stepner, and the Opportunity Insights Team, 2020). Shapiro (2020) divides underlying price data according to spending category and finds that the decline in core consumption expenditures inflation comes from a large decline in consumer demand, which outweighs price pressure from COVID-19-related supply constraints.

² See <https://fred.stlouisfed.org/graph/?g=hh3>.

Adams and Bord (2020) document that outstanding revolving credit on credit cards in the G.19 Consumer Credit statistical release fell by an annualized rate of 32 percent by 2020:Q2. The 65 percent plummet in April is the largest since the Federal Reserve began collecting data on revolving credit in 1968. They further find that the most important factor in the decline is the consumer purchase volume falling by almost 25 percent from March to April, primarily in revolver credit card accounts. Spending fell most in restaurants, hotels, travel, entertainment, and oil and gas. Chetty, Friedman, Hendren, Stepner, and the Opportunity Insights Team (2020) further suggest that the depressed spending was particularly acute in affluent areas with high rates of COVID-19 infection. This decline was also concentrated in sectors that require in-person interaction, and was driven mainly by high-income/lower-risk consumers.

In May and June, when some of the economic restrictions were eased, the situation improved slightly as the credit card purchase volume picked up by about 10 percent, most of it driven by lower-income and riskier consumers. However, higher-income consumers or those expecting employment losses or benefit cuts did not see any significant changes in spending in this period (e.g., Adams and Bord, 2020; Baker, Farrokhnia, Meyer, Pagel, and Yannelis, 2020b; Cox, Ganong, Noel, Vavra, Wong, Farrell, and Greig, 2020; Horvath, Kay, and Wix, 2020).

Spending upticks were most prevalent in durables and food items. At the same time, revolving balances declined in part because of smaller previous months' spending, as well as an unusually high number of consumers paying down their balances (credit cards, mortgages, rents, etc.) partially or completely. This suggests that the set of government measures to help consumers during the COVID-19 crisis, including extended unemployment insurance benefits, stimulus checks, as well as other CARES Act policies, mitigated some of the effects of the economic disruptions on consumer spending. However, it also led some more wary consumers to pay down some of their debts, reducing the stimulative effect on consumer spending.

Despite these ups and downs, U.S. consumer spending overall remained depressed relative to precrisis levels. This experience is generally mirrored by other international studies using transactions-level data for the UK (Surico, Känzig, and Hacıoglu, 2020); Spain (Carvalho, García, Hansen, Ortiz, Rodrigo, Rodríguez Mora, and Ruiz, 2020); Denmark (Andersen, Hansen, Johannesen, and Sheridan, 2020); and China (Chen, Qian, and Wen, 2020). However, there are differences related to the different times that the pandemic hit a particular country or different

intensities within the crisis in different countries. The largest decline was recorded in Wuhan province in China, where the pandemic originated, which registered a 70 percent decline in total consumer spending in late January.

Three studies also cover aspects of the COVID-19 pandemic on credit card demand and supply. A report by the Consumer Financial Protection Bureau (2020) investigates the volume of credit card inquiries in the last week of March 2020 with that in the first week, while adjusting for within-month trends in earlier years from 2013 to 2019. They find a 40 percent decline in credit card inquiries, with effects being significantly more pronounced for high-quality than for low-quality consumers. The decline could be a reflection of decreased consumer demand, discouraged borrowing, or decreased credit card supply.³ Examining Y-14M credit card data from the Federal Reserve for credit cards up to August 2020, Horvath, Kay, and Wix (2020) show increases in the interest rates of new credit cards to less creditworthy consumers, consistent with a tightening of credit supply and a flight-to-safety response of banks to the COVID-19 shock. In contrast, an Experian report by Lembo Stolba (2021) mentions that the average consumer credit scores increased significantly in 2020 likely due to both 2020 CARES Act and other government interventions. The author contends the credit score increases are mostly driven by a significant reduction in the number of consumers with subprime designation, who typically have most constraints to accessing credit. Improvements in credit scores for subprime consumers are regarded as opening more credit opportunities for them.

Another paper by Berger, Bouwman, Norden, Roman, Udell, and Wang (2021) also uses Y-14M credit card data to investigate the effects of the COVID-19 pandemic on credit card terms in the U.S. for relationship consumers relative to non-relationship consumers. They find that relationships matter for credit card consumers, despite the transactions-based nature of this lending. During the COVID-19 crisis, they find that consumers with relationships benefited from better credit card terms relative to normal times (lower annual percentage rate (APR) spreads), consistent with intertemporal smoothing.⁴ The relationship benefits primarily derive from conventional banking relationships (deposits and other noncredit card loans), rather than from

³ The Senior Loan Officer Opinion Survey on Bank Lending Practices also reported lower percentage of banks with strong credit demand and higher percentage of banks tightening lending standards across credit cards and other consumer products up until 2020Q3.

⁴ The authors also find improvements in credit card terms during the COVID-19 crisis for small business credit card customers with relationships relative to other customers, again consistent with intertemporal smoothing.

prior credit cards. Importantly, their findings also suggest that banks shifted their orientation somewhat from primarily seeking profitability toward more risk management during the crisis, consistent with classic procyclical bank lending behavior (e.g., Berger and Udell, 2004; Thakor, 2015, 2016). Finally, this paper also finds that the 2020 CARES Act §4021 provision regarding impediments to reporting consumer delinquencies to credit bureaus during the crisis may have reduced the informational value of consumer credit scores. This may have also penalized apparently safer borrowers with better credit scores with less favorable credit terms – resulting in higher APR spreads and lower credit limits.

Other Consumer Conditions and Markets: Employment, Mortgages, Auto Loans

The literature on consumer finance other than credit cards emphasizes consumer unemployment and some of the critical COVID-19 forbearance and eviction policies in the \$2 trillion CARES Act, and their coverage and distributional effects across different types of consumers, such as low income versus high income, minorities versus other races, or those of different gender and age groups. This literature shows that the COVID-19 pandemic may have exacerbated long-standing race and gender inequalities in some cases. But stimulus payments, unemployment assistance, forbearances, and moratoria on eviction may have helped mitigate some of these inequalities. For example, Bhutta, Blair, Dettling, and Moore (2020) use household data on savings, income, and expenses from the Federal Reserve’s Survey of Consumer Finances and show that cash assistance included in the CARES Act has been instrumental in allowing almost all families to cover their recurring, nondiscretionary expenses in the event of long-term unemployment.

In terms of declines in employment and economic activity, the COVID-19 crisis proved to rival or exceed the Great Depression in the first two quarters, but overall, declines were short-lived (e.g., Wheelock, 2020). During the COVID-19 crisis, the unemployment rate increased sharply in the initial months of the 2020 recession, from 3.5 percent in February 2020 to nearly 15 percent in April 2020, before falling back to 11.1 percent in June 2020. We compare this with the Great Depression that initially only increased about 2 percent in late 1929 to about 4 percent in June 1930, albeit it did increase more later on. Regarding declines in economic activity during the COVID-19 pandemic, U.S. GDP shrank 9.5 percent by the end of 2020Q2, a drop equaling an

annualized pace of 32.9 percent,⁵ with the cumulative decline in the first two quarters of the 2020 recession being larger than the decline during the first two quarters of the Great Depression (e.g., Wheelock, 2020). Chetty, Friedman, Hendren, Stepner, and the Opportunity Insights Team (2020) suggest that the significant decline in consumer spending at the heart of the pandemic previously discussed had chain reactions to other parts of the economy by significantly reducing the revenues of small businesses in affluent areas, which further laid off many of their employees, leading to widespread job losses, especially among low-wage/low-income workers. They also contend that, while high-wage workers likely experienced a V-shaped recession that lasted a few weeks, low-wage/low-income workers experienced much larger job losses that persisted for several months.

This is also supported by evidence from the COVID-19 Survey of Consumers from the Federal Reserve Bank of Philadelphia's Consumer Finance Institute. Akana (2020a,b,c,d) uses the surveys to assess how did the COVID-9 crisis affected consumer employment, income, and financial security. Waves 2, 3, 4, and 6 report that lower-income, younger, and minority consumers (African American and Hispanics) experienced disparately higher rates of disruptions in employment and income and more financial insecurity. Fairlie, Couch, and Xu (2020) use the U.S. Census Current Population Survey (CPS microdata) and also show the labor market disruptions have disproportionately affected more some of the minorities, raising concerns about long-term economic effects for them. The April 2020 upper-bound simple unemployment rates are an alarming 31.8 percent for African Americans and 31.4 percent for Hispanics. However, a more rigorous difference-in-difference analysis suggests that Hispanics have been more disproportionately impacted by the COVID-19 pandemic because of unfavorable occupational distribution and lower skills, leading to much higher unemployment rates than for Whites.

Alon, Doepke, Olmstead-Rumsey, and Tertilt (2020) further show that the COVID-19 pandemic also has implications for gender inequality. The employment drop was larger in sectors with high female employment shares. The social distancing measures and closures of schools and daycare centers had a particularly large impact on working mothers, which is likely to be persistent, because of high returns to experience in the labor market. Furthermore, Clark,

⁵ See <https://www.bloomberg.com/news/articles/2020-07-30/u-s-economy-shrinks-at-record-32-9-pace-in-second-quarter>.

Lusardi, and Mitchell (2020) look at financial fragility of consumers with different characteristics during the COVID-19 pandemic. They show that one out of five older (45–75) consumers during April–May 2020 was financially fragile with difficulty facing a midsize emergency expense. Similar to other studies mentioned above, other subgroups at particular risk of facing financial difficulties were younger consumers, those with larger families, Hispanics, and those with low incomes. However, the more financially literate were better able to manage the shocks, indicating that knowledge may have added some protection.

Inequality is a key policy issue during the COVID-19 crisis in the mortgage markets as well. Benfer, Vlahov, Long, Pottenger, Gonsalves, and Keene (2020) find that during the COVID-19 crisis, housing precariousness and the risk of eviction increased and worsened during the pandemic, especially among people of color and low-income populations, with implications on health and inequity. They explain that eviction risks may have increased COVID-19 infection rates and deaths because it is associated with overcrowded living environments, doubling up, transiency, limited access to health care, and a decreased ability to comply with pandemic mitigation strategies, such as social distancing, self-quarantine, and hygiene practices. Eviction was also a driver of inequality as people of color were more likely to face eviction and associated comorbidities. During the COVID-19 pandemic, African Americans have had less confidence in their ability to pay rent and have been dying at 2.1 times the rate of non-Hispanic Whites, while Indigenous Americans and Hispanics faced an infection rate almost three times the rate of non-Hispanic Whites. A report by the Consumer Financial Protection Bureau (2021) finds that 11 million renter and homeowner households were significantly overdue on their regular housing payments as of December 2020, being at heightened risk of losing their homes to foreclosure or eviction. Out of these, African American and Hispanic households were more than twice as likely to be behind on their payments as White households.

Inequality consequences are also studied and highlighted by An, Cordell, Geng, and Lee (2021), who use mortgage forbearance and payment data from McDash Flash together with McDash mortgage servicing records, credit bureau data, and confidential Home Mortgage Disclosure Act (HMDA) loan application information. They show that lower-income and minority borrowers had twice as high the nonpayment rates relative to higher-income and Whites during the COVID-19 pandemic, even after controlling for conventional risk factors. They also find that government- and private-sector forbearance programs may have mitigated these inequalities in

the near term, as lower-income and minority borrowers have taken up the short-term debt relief at higher rates. An, Gabriel, and Tzur-Ilan (2021) use the Y-14M credit card data and *U.S. Census COVID-19 Household Pulse Survey* among others, and find that eviction moratoria reduced evictions and resulted in redirection of limited household financial resources to immediate consumption needs, such as food and grocery spending. They also find that eviction moratoria reduced household food insecurity and mental stress, with larger beneficial effects among African American households.

The in-depth study on consumer forbearances by Cherry, Jiang, Matvos, Piskorski, and Seru (2021) follows a representative panel of U.S. consumers during the COVID-19 pandemic. They report that between March and October 2020, \$2 trillion worth of loans entered forbearance, with the largest individual missed payments being for mortgages and auto loans. The debt relief program significantly mitigated consumer financial distress, leading to loan delinquencies below prepandemic levels, different from prior crises when delinquencies increased along with unemployment. The surprising low-delinquency puzzle during the COVID-19 pandemic is also discussed in Dettling and Lambie-Hansen (2021). This latter study similarly suggests that the availability of forbearance programs and fiscal support from the government thus far have kept many consumers from entering into delinquency.⁶ Looking at the composition of consumers receiving the relief, Cherry, Jiang, Matvos, Piskorski, and Seru (2021) find that more of the aggregate forbearances were provided to higher-income consumers rather than lower-income ones, partially because of their higher debt balances. But the likelihood of getting forbearance was higher among consumers with lower credit scores and lower income, and who were minorities as well as those in regions more affected by the COVID-19 pandemic. Interestingly, they also report that about one-third of consumers in forbearance continued to make full payments, despite being in forbearance, suggesting that forbearance may have functioned as a credit line, allowing consumers to draw on payment deferral if they needed it.

Another study on forbearances, Lambie-Hansen, Vickery, and Akana (2021), focuses on mortgage forbearances using responses to the January 2021 *COVID-19 Survey of Consumers*. This survey was conducted by the Federal Reserve Bank of Philadelphia's Consumer Finance Institute,

⁶ Han, Meyer, and Sullivan (2020) indicate that government policies during the pandemic led poverty rates to fall and low percentiles of income to rise across a range of demographic groups and geographies.

following a national sample of 1,172 homeowners with mortgages, who reported the current and past forbearance status of their mortgage and other household credit accounts. They find that more than 10 percent of the respondents entered into a mortgage forbearance plan at some point during the COVID-19 pandemic, with consumers living in urban areas and those working in hardly affected industries having greater rates of forbearance use. Out of those using forbearances, about three-quarters experienced a job disruption or income loss during the pandemic. As for consumers not using forbearances, most did not need it or lacked a good understanding about available accommodations, as two out of three were unsure or pessimistic about whether they would qualify. Finally, homeowners using mortgage forbearances were also more likely to have payments deferred on credit cards or auto loans.

Also, focusing on mortgage forbearances, Agarwal, Ambrose, and Bandyopadhyay (2020) exploit servicer comments that are proprietary and hardly accessible to shed light on borrower responses to the mortgage forbearance program contained in the CARES Act. As expected, they find a higher incidence of forbearances for government-backed mortgages in response to communications initiated by the servicer, consistent with CARES Act requiring servicers to proactively reach out to borrowers with details about the forbearance program. In contrast, they do not find a higher incidence of forbearances in the private-label mortgages, consistent with different conditions for these. The CARES Act did not ask that servicers proactively contact private-label loan consumers, and the servicer could demand proof of financial hardship before granting forbearance, making it harder to get forbearances on these.

Studying macroeconomic implications of mortgages forbearances, Annenberg and Scharlemann (2021) find a strong positive relationship between the availability of mortgage forbearance and house price growth at the county level during the COVID-19 pandemic. They find a 0.6 percentage point increase between April and August 2020, relative to the same four-month period in 2019, controlling for the unemployment rate and other factors. They also show that the prevalence of forbearance was positively correlated with unemployment and negatively correlated with new home listings, suggesting that forbearances supported house prices partly through restricting new listings by borrowers experiencing negative labor market shocks. Their results also suggest that forbearance relief in the mortgage market may have prevented a negative feedback loop, since falling house prices could have further increased mortgage delinquencies.

Four papers touch on credit demand-and-supply effects in the mortgage market during the COVID-19 pandemic. Gascon and Hass (2020) find negative effects on home sales in the U.S. residential real estate market during the 2020 spring months of the pandemic, particularly in metro areas. These findings are likely due to health concerns, stay-at-home orders, and economic uncertainty. The drops in sales are lowest in April and May 2020, the worst levels since the housing and financial crisis started in 2007, but they improved in summer 2020. A report by the Consumer Financial Protection Bureau (2020) mentions declines in the volume of credit hard inquiries for mortgages (27 percent), with effects being stronger for high-quality borrowers than for low-quality borrowers. Fuster, Hizmo, Lambie-Hanson, Vickery, and Willen (2021) assess whether the COVID-19 pandemic has led to a contraction in mortgage credit supply. They find that the mortgage interest rates increased significantly, proven by a 75-100bp rise in the gap between mortgage primary rates and secondary market yields as well as higher gains-on-sale earned by lenders. They state that mortgage demand shocks are historically associated with changes in markups, but this historical relationship accounts for only part of the recent increase in the mortgage interest rates. The authors also find that interest rate spreads increased relatively more for mortgages posing the greatest credit risk for lenders, consistent with a potential flight to safety. Despite the mortgage market undergoing a historic boom, the intermediation frictions may have restricted the passthrough of lower-interest rates to consumers.

Also related to effects of low interest rates from the Federal Reserve's expansionary monetary policy, one study investigates distributional effects of savings from mortgage refinancing across income groups during the COVID-19 crisis. Agarwal, Chomsisengphet, Kiefer, Kiefer, and Medina (2020) find that between February and June 2020, the gap in savings from refinancing between high- and low-income consumers – was 10 times higher than before, consistent with an increase in refinancing inequality. This amounted to a difference of \$5 billion in savings from refinancing between the top income quintile and the rest of the market. Authors also find that results were driven by consumers in the top income quintile increasing their refinancing activity more than comparable ones in the bottom quintile and capturing the largest improvements in interest rates. In addition, the refinancing inequality was higher in the areas most affected by the pandemic. Results have implications for the effectiveness of the monetary policy.

Finally, three articles touch on the auto loan market during the COVID-19 pandemic. The report by the Consumer Financial Protection Bureau (2020) previously mentioned for other products finds declines in the volume of credit inquiries for auto loans by 52 percent. Foohey (2020) shows that throughout 2020, auto lenders granted more payment forbearances to consumers, while slashing interest rates on new loans. Auto manufacturers similarly made promises to buyers, such as the ability to return new cars for up to a year upon job loss. The author warns of the possibility of an auto-loan bubble burst. Canals-Cerdá and Lee (2021) use FRBNY Consumer Credit Panel (CCP)/Equifax data to investigate auto loan origination trends during the pandemic. They find significant declines in auto loan originations from March to April 2020 that rebounded in May and June 2020, which flattened afterward. The initial decline is significant for both banks and nonbanks, but there is a stronger subsequent rebound for nonbanks. In addition, while the decline in originations applies to all consumers, the weakest rebound is found among the subprime borrowers, consistent with lenders' potential flight to safety and potentially shying away from risky auto lending during the pandemic uncertain times.

Concluding Remarks

Overall, the extant research suggests that the COVID-19 crisis dramatically impacted consumer spending behavior and balances, employment, income, and housing and financial security. It also affected both credit demand and supply in various ways. The more vulnerable consumers (low income, minority, younger) were more severely impacted.

In general, the government policies during the COVID-19 crisis, such as the CARES Act forbearance and moratoria programs, and likely also the various income-support measures and the prompt Federal Reserve actions throughout the COVID-19 crisis appear to have worked to mitigate financial distress of consumers and averted a negative feedback loop. Some exceptions remain. One exception may be the CARES Act provision impeding delinquency reporting to credit bureaus, which appear to have reduced the informational value of credit scores and resulted in less-favorable credit terms for consumers with high scores. Another exception may be from the expansionary monetary policy (low interest rates). One study suggests that the stabilizing role of expansionary policy on inequality was counteracted by the ability of high-income individuals to accumulate significant savings at a much higher rate relative to lower-income individuals.

In addition, while no research evidence is reviewed here on other effects of Federal Reserve policies, it is quite likely that the various Federal Reserve's responses to the crisis may have also significantly helped consumers and the economy. The federal funds rate target range was lowered in March 2020 to 0-0.25bp, there have been massive purchases of Treasury and agency securities, overnight and term repos were expanded, and the cost of discount window lending was lowered. The Federal Reserve also introduced various facilities to support the flow of credit and provide liquidity to the economy, which likely benefited consumers. Finally, government stimulus programs directed toward supporting businesses and industries most affected by the pandemic may also have helped keep some of the consumers remain employed or reduce employment less than would have otherwise been the case in their absence. We look forward to continuing research on all these issues to expand our understanding of their effects.

References

- Adams, R. M., and V. Bord. 2020. "The Effects of the COVID-19 Shutdown on the Consumer Credit Card Market: Revolvers versus Transactors." FEDS Notes (2020-10-21-1). Available at <https://www.federalreserve.gov/econres/notes/feds-notes/the-effects-of-the-covid-19-shutdown-on-the-consumer-credit-card-market-revolvers-versus-transactors-20201021.htm>.
- Agarwal, S., B. W. Ambrose, A. Bandyopadhyay, and Y. Yildirim, Y. 2020. "Communications Between Borrowers and Servicers: Evidence from the Covid-19 Mortgage Forbearance Program." Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3676546.
- Agarwal, S., S. Chomsisengphet, H. Kiefer, L.C. Kiefer, and P.C. Medina, 2020. "Inequality During the COVID-19 Pandemic: The Case of Savings from Mortgage Refinancing." Working Paper. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3750133.
- Akana, T., 2020a. "CFI COVID-19 Survey of Consumers — Wave 2 Updates, Impact by Race/Ethnicity, and Early Use of Economic Impact Payments." Federal Reserve Bank of Philadelphia Consumer Finance Institute Special Report (June 2020). Available at <https://www.philadelphiafed.org/consumerfinance/consumer-credit/cfi-covid-19-survey-of-consumers-wave2-updates>.
- Akana, T., 2020b. "CFI COVID-19 Survey of Consumers — Wave 3 Reveals Improvements, but Not for Everyone." Federal Reserve Bank of Philadelphia Consumer Finance Institute Special Report (August 2020). Available at <https://www.philadelphiafed.org/consumer-finance/consumer-credit/cfi-covid-19-survey-ofconsumers-wave-3-updates>.
- Akana, T., 2020c. "CFI COVID-19 Survey of Consumers — Wave 4 Tracks How the Vulnerable Are Affected More by Job Interruptions and Income Disruptions." Federal Reserve Bank of Philadelphia Consumer Finance Institute Special Report (September 2020). Available at <https://www.philadelphiafed.org/consumer-finance/consumer-credit/cfi-covid-19-survey-ofconsumers-wave-4-updates>.
- Akana, T., 2020d. "CFI COVID-19 Survey of Consumers — Wave 5." Federal Reserve Bank of Philadelphia Consumer Finance Institute Special Report (November 2020). Available at <https://www.philadelphiafed.org/consumer-finance/consumer-credit/cfi-covid-19-survey-of-consumers-wave-5-updates>.
- Alon, T.M., M. Doepke, J. Olmstead-Rumsey, and M. Tertilt. 2020. "The Impact of COVID-19 on Gender Equality" (w26947). National Bureau of Economic Research. Available at <https://www.nber.org/papers/w26947>.
- An, X., L. Cordell, L. Geng, and K. Lee. 2021. "Inequality in the Time of COVID-19: Evidence from Mortgage Delinquency and Forbearance." Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3789349.
- An, X., S.A., Gabriel, and N. Tzur-Ilan, 2021. "COVID-19 Rental Eviction Moratoria and Household Well-Being." Working Paper. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3801217.
- Andersen, A. L., E. T. Hansen, N. Johannesen, and A. Sheridan. 2020. "Consumer Responses to the COVID-19 Crisis: Evidence from Bank Account Transaction Data." Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3609814.
- Annenberg, E., and T. Scharlemann.(2021-03-19-2). "The Effect of Mortgage Forbearance on

- House Prices During COVID-19.” FEDS Notes. Available at <https://www.federalreserve.gov/econres/notes/feds-notes/the-effect-of-mortgage-forbearance-on-house-prices-during-covid-19-20210319.htm>.
- Baker, S. R., R. A. Farrokhnia, S. Meyer, M. Pagel, and C. Yannelis. 2020a. “How Does Household Spending Respond to an Epidemic? Consumption During the 2020 COVID-19 Pandemic.” *The Review of Asset Pricing Studies* 10(4), pp. 834–862. Available at <https://academic.oup.com/raps/article/10/4/834/5874450?login=true>.
- Baker, S. R., R. A. Farrokhnia, S. Meyer, M. Pagel, and C. Yannelis. 2020b. “Income, Liquidity, and the Consumption Response to the 2020 Economic Stimulus Payments” (w27097). National Bureau of Economic Research. Available at <https://www.nber.org/papers/w27097>.
- Benfer, E.A., D. Vlahov, M. Y. Long, E. Walker-Wells, J. L. Pottenger, G. Gonsalves, and D. E. Keene. 2021. “Eviction, Health Inequity, and the Spread of COVID-19: Housing Policy as a Primary Pandemic Mitigation Strategy.” *Journal of Urban Health* 98(1), pp.1–12. Available at <https://link.springer.com/article/10.1007/s11524-020-00502-1>.
- Berger, A.N., C.H. Bouwman, L. Norden, R. A. Roman, G. F. Udell, and T. Wang. 2021. “Piercing Through Opacity: Relationships and Credit Card Lending to Consumers and Small Businesses during Normal Times and the COVID-19 Crisis.” Working Paper. Federal Reserve Bank of Philadelphia. Available at https://privpapers.ssrn.com/sol3/papers.cfm?abstract_id=3829240.
- Berger, A.N., and G. F. Udell. 2004. “The Institutional Memory Hypothesis and the Procyclicality of Bank Lending Behavior.” *Journal of Financial Intermediation* 13, 458–495. Available at <https://www.sciencedirect.com/science/article/abs/pii/S1042957304000373>.
- Bhutta, N., J. Blair, L. J. Dettling, and K. B. Moore. “2020. COVID-19, the CARES Act, and Families’ Financial Security.” Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3631903.
- Canals-Cerdá, J. J., and B. J. Lee. “2021. COVID-19 and Auto Loans Origination Trends.” Working Paper. Federal Reserve Bank of Philadelphia.
- Carvalho, V. M., S. Hansen, A. Ortiz, J. R. Garcia, T. Rodrigo, S. Rodriguez Mora, and P. Ruiz de Aguirre. 2020. “Tracking the COVID-19 Crisis with High-Resolution Transaction Data. Available at <https://www.inet.econ.cam.ac.uk/working-paper-pdfs/wp2016.pdf>.
- Chen, H., W. Qian, and Q. Wen, 2020. The impact of the COVID-19 pandemic on consumption: Learning from High Frequency Transaction Data. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3568574.
- Cherry, S.F., E. X. Jiang, G. Matvos, T. Piskorski, and A. Seru. 2021. “Government and Private Household Debt Relief During Covid-19” (w28357). National Bureau of Economic Research. Available at <https://www.nber.org/papers/w28357>.
- Chetty, R., J. N. Friedman, N. Hendren, M. Stepner, and The Opportunity Insights Team, 2020. “The Economic Impacts of COVID-19: Evidence from a New Public Database Built Using Private Sector Data” (w27431). National Bureau of Economic Research. Available at https://opportunityinsights.org/wp-content/uploads/2020/05/tracker_paper.pdf.
- Clark, R.L., A. Lusardi, and O. S. Mitchell. 2020. “Financial Fragility During the COVID-19 Pandemic” (w28207). National Bureau of Economic Research. Available at

https://www.nber.org/system/files/working_papers/w28207/w28207.pdf.

- Coibion, O., Y. Gorodnichenko, and M. Weber. 2020. “The Cost of the Covid-19 Crisis: Lockdowns, Macroeconomic Expectations, and Consumer Spending.” (w27141). National Bureau of Economic Research. Available at <https://www.nber.org/papers/w27141>.
- Consumer Financial Protection Bureau. 2020. “The Early Effects of the COVID-19 Pandemic on Consumer Credit.” Special Issue Brief. Available at https://files.consumerfinance.gov/f/documents/cfpb_issue-brief_early-effects-covid-19-credit-applications_2020-04.pdf.
- Consumer Financial Protection Bureau. 2021. “Housing Insecurity and the COVID-19 Pandemic.” Staff Report. Available at <https://www.consumerfinance.gov/data-research/research-reports/housing-insecurity-and-the-covid-19-pandemic/>.
- Cox, N., P. Ganong, P. Noel, P., J. Vavra, A. Wong, D. Farrell, and F. Greig. 2020. “Initial Impacts of the Pandemic on Consumer Behavior: Evidence from Linked Income, Spending, and Savings Data.” University of Chicago, Becker Friedman Institute for Economics Working Paper (2020-82). Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3633008.
- Detting, L.J., and L. Lambie-Hanson. 2021. “Why Is the Default Rate So Low? How Economic Conditions and Public Policies Have Shaped Mortgage and Auto Delinquencies During the COVID-19 Pandemic.” FEDS Notes (2021–03-04-2). Available at <https://www.federalreserve.gov/econres/notes/feds-notes/why-is-the-default-rate-so-low-20210304.htm>.
- Dong, D., G. Gozgor, Z. Lu, and C. Yan. 2021. “Personal Consumption in the United States During the COVID-19 Crisis.” *Applied Economics* 53(11), pp. 1311–1316. Available at <https://www.tandfonline.com/doi/full/10.1080/00036846.2020.1828808>.
- Fairlie, R.W., Couch, K. and Xu, H., 2020. The impacts of COVID-19 on minority unemployment: First evidence from April 2020 CPS microdata (No. w27246). National Bureau of Economic Research. Available at: <https://www.nber.org/papers/w27246>.
- Foohy, P., 2020. Bursting the Auto Loan Bubble in the Wake of COVID-19. Working Paper. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3737513.
- Fuster, A., Hizmo, A., Lambie-Hansen, L., Vickery, J., Willen, P., 2021. Mortgage Credit Supply during the COVID-19 Pandemic. Working Paper. Federal Reserve Bank of Philadelphia.
- Gascon, C. S., and J. Hass. 2020. “The Impact of COVID-19 on the Residential Real Estate Market.” *The Regional Economist* 28(4). Available at <https://www.stlouisfed.org/publications/regional-economist/fourth-quarter-2020/impact-covid-residential-real-estate-market>.
- Han, J., B.D. Meyer, and J.X. Sullivan, 2020. Income and Poverty in the COVID-19 Pandemic. NBER Working Paper 27729. Available at <https://www.nber.org/papers/w27729>.
- Horvath, A., B. Kay, and C. Wix. 2020. “The COVID-19 Shock and Consumer Credit: Evidence from Credit Card Data.” Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3613408.
- Lambie-Hansen, L., J. Vickery, and T. Akana. 2021. “Recent Data on Mortgage Forbearance: Borrower Uptake and Understanding of Lender Accommodations.” Available at

<https://www.philadelphiafed.org/consumer-finance/mortgage-markets/recent-data-on-mortgage-forbearance-borrower-uptake-and-understanding-of-lender-accommodations>.

Lembo Stolba, S. 2021. “Experian 2020 Consumer Credit Review.” Available at <https://www.experian.com/blogs/ask-experian/consumer-credit-review/>.

Shapiro, A.H. 2020. “Monitoring the Inflationary Effects of COVID-19.” FRBSF Economic Letter 2020(24), pp. 01-06. Available at <https://www.frbsf.org/economic-research/files/el2020-24.pdf>.

Surico, P., D. Känzig, and S. Hacioglu. 2020. “Consumption in the Time of COVID-19: Evidence from UK Transaction Data.” Working Paper. Available at <https://repec.cepr.org/repec/cpr/ceprdp/DP14733.pdf>.

Thakor, A.V. 2015. “Lending Booms, Smart Bankers, and Financial Crises.” *American Economic Review* 105, 305–309. Available at <https://www.aeaweb.org/articles?id=10.1257/aer.p20151090>.

Thakor, A. V. 2016. “The Highs and the Lows: A Theory of Credit Risk Assessment and Pricing Through the Business Cycle.” *Journal of Financial Intermediation* 25, pp. 1–29. Available at <https://www.sciencedirect.com/science/article/abs/pii/S1042957315000303>.

Wheelock, D. C. 2020. “Comparing the COVID-19 Recession with the Great Depression.” Federal Reserve Bank of St. Louis, Economic Synopses 39. Available at <https://files.stlouisfed.org/files/htdocs/publications/economic-synopses/2020/08/12/comparing-the-covid-19-recession-with-the-great-depression.pdf>.