Economic Analysis

Small Business Openings in the Covid-19 Recession

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Introduction

The induced recession in response to the Covid-19 pandemic in the United States devastated domestic economies which is reflected across macroeconomic indicators. Within the first few months of the pandemic alone: consumer spending is estimated to have fallen by 33% and did not recover until early December 2020;[1] non-farm payroll fell by 14.7% and is still down 5.4% from its peak in February 2020;[2] and real quarterly GDP fell by 10.1% and is still 0.9% below its peak in Q4 2019.[3] Contemporary indicators of economic health pointed to a crisis whose devastation rivaled the global financial crisis and left those tracking the recession wondering how the structural changes propelled or accelerated by the pandemic will shape its recovery. Yet, observers have been given an obscure peek at the post-Covid economy through the lens of the U.S. Census Bureau's Business Formation Statistics (BFS).

While labor statistics, consumption and productivity dragged through the continuation of lockdown orders across the country, business formations statistics across all categories recoiled at the very start of the crisis and then shot up to levels far exceeding prior trends and, in many cases, to record heights in the series' fifteen-year history. As headline business formations continue to increase well past latent business formations from early in the crisis and while signs from other measures of the recovery have begun to weaken, BFS continue increasing across most regions and industries.

Many observers have taken note of these extraordinary trends including the Census Bureau itself.[4] Most notable is its unprecedented rise. Business formations since the start of the Covid-19 pandemic in no way tracks itself through the duration and aftermath of the Great Recession, which is the only other crisis during which business formations were recorded. For this reason, observers are left to question which recession, if not both, resulted in exceptional business formations. Moreover, how well did the BFS describe the post-financial crisis economy? How accurately can they be expected to describe the post-Covid economy and what is it that they are describing?

This paper revisits research released since the start of the Covid-19 pandemic which analyze trends in BFS and the hypotheses put forth to describe its underlying change. Namely, that these changes were motivated by some combination of temporary or permanent structural shifts across the economy or temporal changes inherent to the series and the crisis. The former demands we compare BFS to variables like staffed business closures and changes to payroll by region and industry and consider how these relationships compare to what we know about the post-financial crisis economy; while, the latter demands we describe the Census Bureau's methodology in estimating business

1: https://www.tracktherecovery.org/
2: https://fred.stlouisfed.org/series/PAYEMS
3: https://fred.stlouisfed.org/series/GDPC1
4: Buffington, Catherine, Daniel Chapman, Emin Dinlersoz, Lucia Foster, and John Haltiwanger. 2021. "High Frequency Business Dynamics in the United States During the COVID-19 Pandemic," CES Working Paper Number CES-21-06, March.

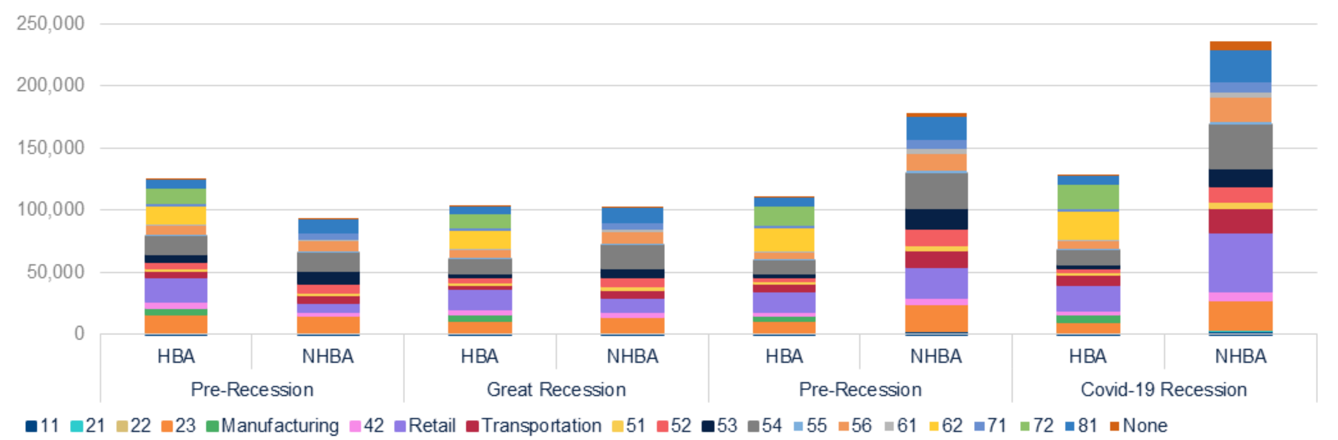
formations and ask if it could have been undermined by the crisis or the response to the crisis such as the Coronavirus Aid, Relief, and Economic Security (CARES) Act. Lastly, we comment on the likelihood of these hypotheses and what this might imply about the shape of the post-Covid economy.

Background and Data

The Census Bureau's Business Formation Statistics, produced by its Center for Economic Studies (CES), began in 2018 as a quarterly release tracing back to Q3 2004, which pulls Employer Identification Numbers (EINs) to create business formation series by region and industry. Early into the pandemic, the CES converted and began updating the series on a weekly basis. For this reason, we can consistently track these series through both the Great Recession and the Covid-19 Recession.

In coordinating EIN applications with past trends and research on business formations, the CES maps business formations to several classes and projects new formations and durations to formation. For our research interests, we will only pay attention to current estimates and not projections, as their accuracy during the crisis will not be realized until after these series revert to their trend or stabilize and more data comes out about formations during the crisis; although, the accuracy of these projections through the recession is a necessary topic to cover in anticipation of the next economic downturn. The CES reports BFS as a headline series (business applications (BA)), those who are likely employers (high-propensity business applications (HBA)) and business applications with planned wages (WBA). We estimate non-likely employers (NHBA) as the difference between BA and HBA.

Figure 1. **AVERAGE MONTHLY HBA AND NHBA FILED BY NAICS-2 CODE**



Source: BBVA Research and U.S. Census Bureau

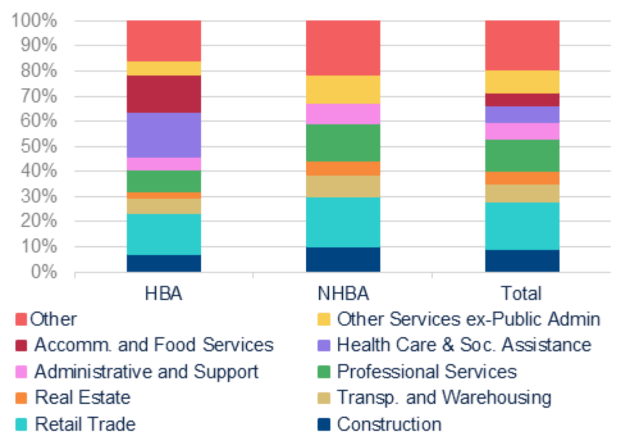
Research by Bayard et. al. (2018)[5] demonstrates these classes carry significant differences. Using the quarterly series through 2018, they show that 23.7% of HBAs result in a staffed business within four quarters which increases to 27%

5: Bayard, Kimberly, Emin Dinlersoz, Timothy Dunne, John Haltiwanger, Javier Miranda, and John Stevens. 2018. "Early Stage Business Formation: An Analysis of Applications for Employer Identification Numbers," NBER Working Paper, 24364.

within eight quarters. Compare this with NHBAs which only result in staffed businesses in 2.8% and 3.8% of cases within four and eight quarters respectively. Twenty-four percent of their sample provides a first wage date (WBA) of which 40.2% went on to employ staff within eight quarters of their application.

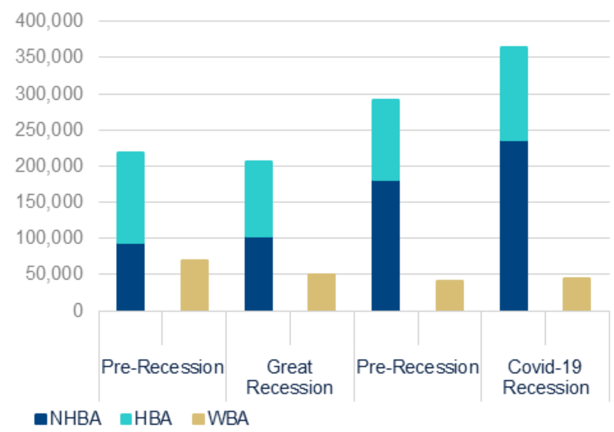
These estimates describe headline business applications and their propensity to result in an employing business by their CES classification. Bayard et. al. (2018) also describes propensity by industry and region. Within eight quarters, business applications for leisure and hospitality, education and health services, and manufacturing firms result in employing businesses over one-fifth of the time. States in the West North Central division have the highest rate of employer formations of between thirty and forty percent of HBAs; whereas, the South Atlantic division has the lowest, often below 20%. These features are important to keep in mind when considering trends during the Covid-19 crisis, as they are the most recent estimates of employer business formations. These results seem to be the best parameters for extrapolating business formations after the crisis, as current probabilities cannot be estimated until at least eight quarters after BFS stabilize, and there is no research to suggest that another timeframe, say the span of the Great Recession, would better reflect current business formation conditions.

Figure 2. **PROPORTION OF BA FILED DURING COVID-19 RECESSION BY NAICS-2**



Source: BBVA Research and U.S. Census Bureau

Figure 3. **AVERAGE MONTHLY BA BY APPLICATION CLASS**



Source: BBVA Research and U.S. Census Bureau

The stark differences in business formation conditions between the span leading up to the subprime mortgage crisis and the subsequent Great Recession and the Covid-19 Recession have been chronicled by Dinlersoz et. al. (2021).[6] The weak recovery following the Great Recession meant that by 2018, the reference period for the Covid-19 Recession, the transition rate of an application to an employer business was 24% lower than it had been in 2006, just before the start of the subprime mortgage crisis. Moreover, figure 3, which compares the composition of applications made in both pre-recession periods, shows an increase in total applications entirely attributable to NHBA which far exceeds decreases in HBA and WBA, and this trend is carried over into the Covid-19 Recession. As for realized trends

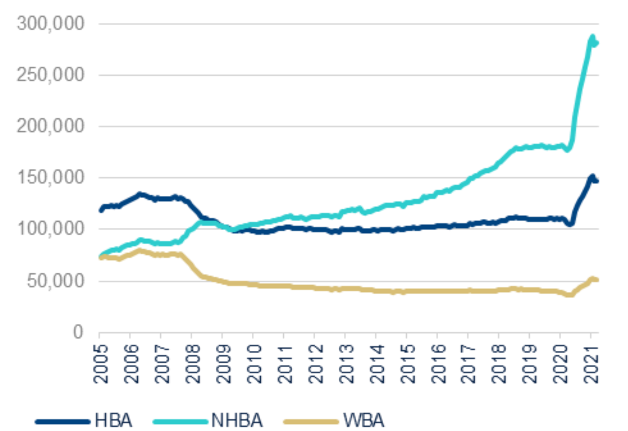
6: Dinlersoz, Emin, Timothy Dunne, John Haltiwanger, and Veronika Penciakova, 2021. “Business Formation: A Tale of Two Recessions,” AEA Papers and Proceedings (forthcoming).

in business applications during the recessions, we will cover their differences and proposed hypotheses in the next section.

Business Formations in the Recession

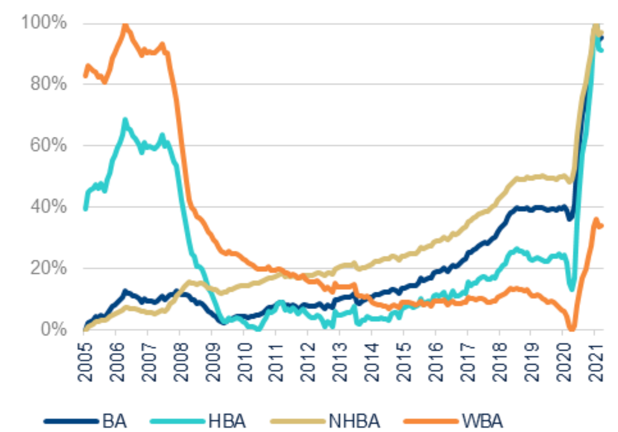
Figures 3 and 4 plot out trends in business application levels since the series' origination. What is made clear, which was only referenced in the previous section, is the sheer drop in HBAs and WBAs, applications with a ten to fifteen times higher chance of resulting in an employing business, following the start of the subprime mortgage crisis. NHBAs, conversely, increased through the crisis and held fairly steady through the Great Recession. Haltiwanger (2021)[7] also makes note of this trend and suggests it is consistent with a counter-cyclical relationship to self-employment. However, what is inconsistent is the universal, albeit disproportional, increase in applications during the Covid-19 Recession. Research like Acemoglu et al. (2018)[8] finds that government programs thrown out to buoy incumbent firms, like Paycheck Protection Program (PPP) loans, should deter new entries, especially from unestablished likely employers. This inconsistency should be kept in mind, as the viability of firms resulting from this high HBA and WBA volume may be undermined by their bolstered incumbent competition.

Figure 4. **BA LEVELS BY APPLICATION CLASS**



Source: BBVA Research and U.S. Census Bureau

Figure 5. **NORMALIZED BA LEVELS BY APPLICATION CLASS (MAX = 100%)**



Source: BBVA Research and U.S. Census Bureau

We again borrow from Dinlersoz et. al. (2021) in order to better compare business formations in both recessions. With reference to the weeks flanking the Lehman collapse in September 2008 and those flanking the start of lockdowns in New York City in March 2020 as the start of the recessions, Dinlersoz et. al. (2021) finds that the business application growth rate quickly falls following the start of the Great Recession and does not recover to the pre-crisis level for 52 weeks; meanwhile, the application growth rate collapses upon the announcement of lockdown orders but manages to

7: Haltiwanger, John. 2021. "Entrepreneurship During the COVID-19 Pandemic: Evidence from the Business Formation Statistics," Paper for presentation at the NBER Entrepreneurship, Innovation and Economic Policy Conference, April.
8: Acemoglu, Daron, Ufuk Akcigit, Nicholas Bloom, and William. R. Kerr (2018) "Innovation, Reallocation and Growth," American Economic Review, 108, 3450-3491.

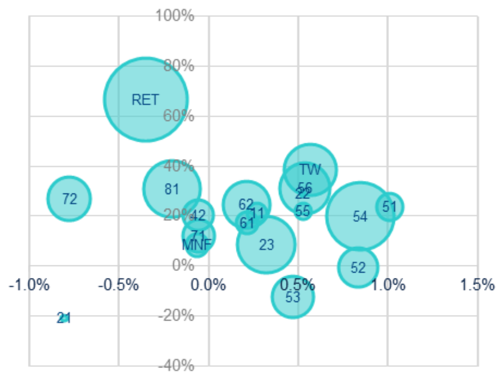
rebound to pre-crisis levels within 18 weeks. While this seems to bode well for a post-Covid economy, Dinlersoz et. al. (2021) notes that these recoveries seem to switch when looking at implied transition rates to employing companies. Given a lower proportion of HBAs and WBAs, those with significantly higher transition probabilities as compared to NHBAs, we should expect a lower overall transition rate for applications filed during the Covid-19 Recession. Moreover, this lower implied transition probability is supported by the composition of applications by NAICS codes which biases non-store retailers; 90% of whom are non-employers. Yet, despite depressed implied transition rates, we should expect a higher rate of employing business formations in absolute terms given the volume of applications filed during the recession. Using implied transition rates, absolute cumulative business formations from applications filed within 30 weeks of lockdowns are estimated to be 8% higher year-over year, and high-propensity applications are estimated to yield 17% more employing firms year-over-year within 40 weeks.

Empirical estimates such as these require we assume similar business formation conditions between the reference period just before the crisis and during the crisis. If all that has changed between these two periods is the composition in applications, then there is no problem in extrapolating transition probabilities from the reference period in order to describe the post-Covid economy. But we have not considered whether structural changes or the crisis itself underlie movements in business formation applications and how that may affect these transition probabilities. More research needs to be done around secular changes in the pandemic, but we will try and comment on a few hypotheses and trends.

Let us begin by considering business closings and changes in nonfarm payrolls since the start of the recession. Figures 6 and 7 lay out the relationship between changes in establishments and business applications filed by NAICS-2 code. There is a significant negative relationship between the openings of new firms into the pandemic and business applications filed by industry. This slope is propped by retail trade applications which saw a 0.35% decrease in establishments (third only to mining and accommodations and food services) and an average monthly increase of 66% in business applications. Meanwhile, information, professional services and finance and insurance all experienced smaller increases in business applications with significant expansions in establishments as did most industries at the NAICS-2 level. In fact, each industry might have expected a 19.2% increase in business applications before factoring the effect from change in establishments.

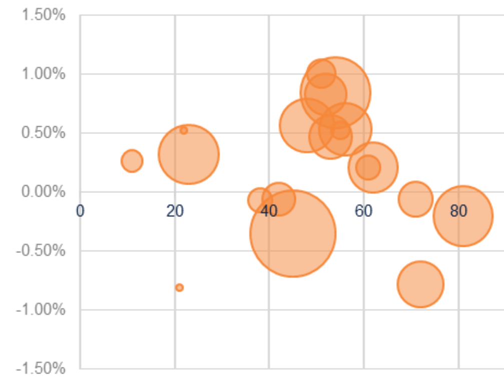
To describe the variance in this trend, we must consider industry specific features such as barriers to entry and start-up sizes. As mentioned in the previous section, retail trade applications mostly qualify as non-store retailers; the majority of whom will not result in an employing business. Similar traits pass over to accommodations and food services and leisure and entertainment which were both the hardest hit by the pandemic in terms of changes to nonfarm payrolls but the most apt for new business applications given their relatively low barriers to entry. This universal increase in both business applications and establishments may have a lot to say about movements propelled or accelerated by the pandemic. Adjustments forced onto the labor force by the response to Covid-19 such as remote work and downsizing overhead may have stimulated business formation by decreasing barriers to entry. This start-up option also stands to rival the contemporary movement to classify workers as independent contractors inside a rentier or share-economy and may present a preferable alternative to those who reject moving into this rentier space in favor of a more traditional and autonomous alternative. What is left to be seen is how the current historic unemployed population will divide itself between these options. Perhaps we can expect an increase in the transition rate towards employing businesses as this population opts to join or form these startups rather than transitioning into the rentier economy or returning to their incumbent businesses.

Figure 6. **NAICS-2; X = Q2 2020/Q1 2020 ESTABLISHMENTS, Y = % CHANGE IN BA (PRE-COVID TO COVID), R = % OF TOTAL BA DURING COVID-19 RECESSION**



Source: BBVA Research, U.S. Census Bureau and BLS

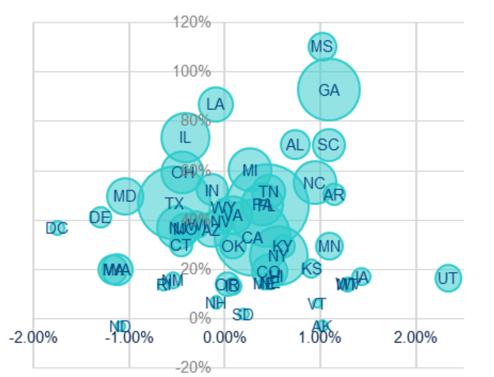
Figure 7. **X = NAICS-2, Y = Q2 2020/Q1 2020 ESTABLISHMENTS, R = % OF TOTAL BA DURING COVID-19 RECESSION**



Source: BBVA Research, U.S. Census Bureau and BLS

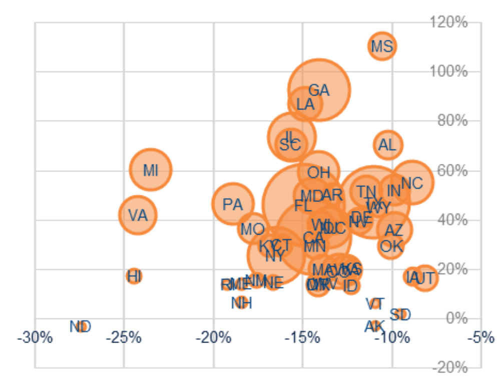
Regional trends in business formations seem less motivated by the underlying business conditions under our consideration. There is a similar, though weaker, negative relationship between decreases in establishments or nonfarm payrolls and increased business applications by state. Unsurprisingly, a state's proportion of total applications tracks very well with population with the notable exceptions of Alabama and Georgia which carry over elevated pre-pandemic trends in applications per-capita. Though, we should keep in mind the disparate effect of the pandemic across the U.S. which was a function of demographics and economic profile. States like Nevada, Hawaii and Louisiana saw excess economic distress due to their reliance on accommodations and food services, leisure and hospitality and entertainment. Assuming their industry compositions have not entirely shifted, their applications may well yield a better-than-projected transition rate.

Figure 8. **STATES; X = Q2 2020/Q1 2020 ESTABLISHMENTS, Y = % CHANGE IN BA (PRE-COVID TO COVID), R = % OF TOTAL BA DURING COVID-19 RECESSION**



Source: BBVA Research, U.S. Census Bureau and BLS

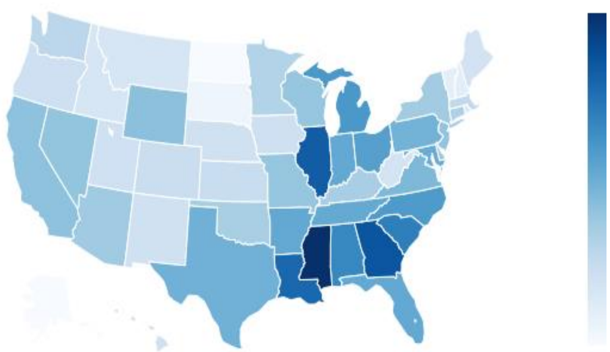
Figure 9. **STATES; X = Q2 2020/Q1 2020 NONFARM PAYROLL, Y = % CHANGE IN BA (PRE-COVID TO COVID),, R = % OF TOTAL BA DURING COVID-19 RECESSION**



Source: BBVA Research, U.S. Census Bureau and BLS

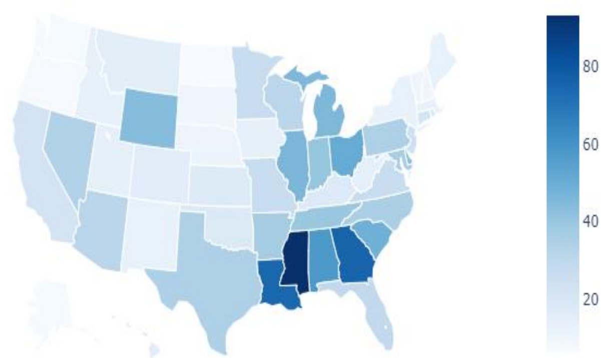
Regionally, there has never been a permanent mill for business formations and transitions. Bayard et. al. (2018)[9] describes large regional variation in business formations and transitions just before the subprime mortgage crisis which slipped and remained muted and monotone until well after the recovery. Just before the start of the Covid-19 Recession, the South Atlantic and Pacific divisions had the highest rates of HBAs per-capita; while, both divisions in the Midwest had the lowest. Yet, trends in per-capita applications seem to dilute transition rates. The South Atlantic division had the lowest transition rate for HBAs (under 20% for most states); whereas, the Midwest's divisions and the Pacific division mostly exceeded 30%. With this dilution in mind and assuming regional transition rates from before the pandemic, new business formations should mostly be a function of population size.

Figure 10. **% CHANGE IN NHBA**



Source: BBVA Research and U.S. Census Bureau

Figure 11. **% CHANGE IN HBA**



Source: BBVA Research and U.S. Census Bureau

The extraordinary and unexpected increase in business applications left many observers asking whether loans from the Paycheck Protection Program put forth by the CARES Act in March 2020 may have motivated this sudden increase. Given that PPP loans were issued in order to cover payrolls during the span of lockdown orders and the volume of sole proprietors and potential non-employing firms applying for these loans, it seemed to many that the increase in business applications may have been from attempts to fraudulently claim a loan. Haltiwanger (2021) makes note of this given the increase in high-propensity applications in the presence of government assistance to incumbent firms being inconsistent with the literature.

Yet Haltiwanger (2021) lists a few reasons to write them off as coincidence. Most importantly, as stipulated by the Small Business Administration, an applicant must have had an EIN registered by or before February 2020. Applications submitted after the start of lockdowns would have been ineligible for PPP loans, and we may assume EIN applicants knew this before going through business formation with the IRS. Moreover, most PPP loans went to demonstrable employer businesses. Many sole proprietorships were eligible and received loans, but this sum makes up a trivial total of issuances. With this in mind, it seems more reasonable to assume that the majority of EIN applications filed following

9: Bayard, Kimberly, Emin Dinlersoz, Timothy Dunne, John Haltiwanger, Javier Miranda, and John Stevens. (2018). "Early-Stage Business Formation: An Analysis of Applications for Employer Identification Numbers," NBER Working Paper, 24364.

the start of the recession came from newly unemployed persons rather than opportunists and that the circumstances around the crisis itself is creating the contrast to existing literature on high-propensity business formations.

Take Away

Changing business conditions during the pandemic and the coincident increase in business applications points to secular shifts for a post-Covid economy. This seems especially true given the lack of intervention which would lead the BFS to misrepresent business formations. Though whether this surge in BFS originated in the historic unemployed population following the start of the recession or from the opportunity presented by business closings is yet to be seen.

Barring unforeseen structural shifts created by the pandemic or a subsequent crisis, the increase in business applications first seen just two months after the start of the recession and continuing through today should result in a significant increase in employer and nonemployer firms across all industries. Although, a fair estimate of new small businesses cannot be pulled from the headline series alone. With respect to geography, no region in the U.S. is poised for an exceptional increase in small businesses given business conditions alone. Rather, those anticipating these new businesses should turn their eye to industry composition. We can expect to see a historic rise in non-employer retail traders, accommodation and food services and industries with historically low barriers to entry as compared to their more exclusive counterparts in finance and insurance, healthcare and education and construction. A ready observer should research recent EINs registrations near them, compare their industry profile to the existing composition and decide whether historical transition rates will hold and if these signs point to a surge in new small businesses near them.