

**2021 LED Workshop - April 30, 2021**  
**LED Uses: Impact and Assessment Session**

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Keith Bailey: It is now my pleasure to invite Rachel Moskowitz, Labor Market Information Director for the State of New Mexico and Member of the LED Steering Committee to introduce our next session presenters. Please welcome Rachel Moskowitz. Rachel if you're speaking you are on mute. Operator can we verify that Rachel is on the phone line as a speaker.

Coordinator: Yes she is and her line is open. Bear with me one moment I'm going to call her out of the line and see if I can reach her so one moment.

Keith: Okay thank you. And thank all attendees for their patience and understanding as we coordinate this entirely virtual workshop, thank you very much.

Rachel Moskowitz: Can you all hear me now?

Keith: We can Rachel thank you.

Rachel: Apparently I don't know the difference between mute and speaker I just want to let you know that I totally forgot how learn how to read. So thank you everyone for joining us today and that was a wonderful lunch speech and we'll have some more fantastic information coming up.

My name is Rachel your moderator for LED Uses Impact and Assessment. The question and answer period will be conducted at the end of the presentation and your - but you're also invited to post questions in the chat feature and we'll also take phone questions if time allows.

With us today we have Mr. Curtis Askew who's going to be talking about minding our Ps and Qs using LODES data to explore the impact of the CARES Act pandemic relief. Next we'll hear from Chris Herbst who will talk

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about childcare over the business cycle. And finally we'll hear from Taylor Marr from Redfin who will show us his job opportunity tool.

Please join me in welcoming our first presenter Chris Herbst, thank you.

Keith: My apologies real briefly Chris, Greg can you change the presenter ball to Chris, my apologies.

Chris Herbst: Thank you.

Keith: Chris you're good to go.

Chris: Okay can everyone see and hear me?

Keith: Yes we can see your slides and hear you thank you.

Chris: Okay great. First I want to thank the folks at LED for this invitation. I'm really excited to present to you today some work entitled, Childcare over the Business Cycle.

My name is Chris Herbst, I'm an Associate Professor in the School of Public Affairs at Arizona State University and I also want to acknowledge my Co-Author on the paper Jessica Brown who is at the University of South Carolina.

What we do in this paper is really study kind of a fairly straightforward but kind of heretofore unexplored question of what is the impact of the business cycle of local economic conditions on the health of the childcare industry in the United States.

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So to provide sort of some quick background on this work we're focused in this paper on center-based childcare providers and these programs are either for profit or nonprofit providers that look after mostly preschool aged kids which I will define for the purposes of this work is children ages 0 to 4. And these center-based providers rely almost exclusively on parent fees to - in order to function, in order to stay in business.

And so because of that during recessions when economic conditions turn south and the labor market starts to contract and in particular parents with young kids start to lose jobs and pull their kids out of childcare this reduced revenue for childcare providers can negatively affect them in a variety of ways that may lead to sort of reductions in supply as measured by program closures or among those that stay open staff layoffs.

But among the childcare employees that remain employed during economic downturns these downturns can also alter the composition of the remaining employed teacher workforce in ways that we argue in the paper potentially affect teacher quality. So the extent of teacher turnover can vary with macroeconomic conditions so too can the skill level of teachers as measured by their experience and education levels vary with the business cycle as well as of course compensation as measured primarily by earnings.

And so when you put all of this together potential changes in supply, stability and childcare quality that may have sort of a macroeconomic component to it we argue in the paper that these changes may have in turn implications obviously for parental labor force but also for child development.

And of course studying the effect of macroeconomic conditions on the childcare market is especially important in the current economic context in which the United States is sort of in the middle of a pandemic-driven

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recession. We have a lot of data already on the extent of the impact of this recession on the childcare market.

So for example the demand for childcare has declined substantially such that, you know, even currently attendance in center-based childcare providers is at about half of their pre-pandemic levels. Quite independent of the change in demand for childcare supply has also been significantly reduced. And in fact a measure of childcare employment as of December of 2020 was 166,000 individuals lower than it was in December of 2019. And among those providers that remain open we know that those providers are increasingly taking on personal debt to finance their day to day operations.

And so this is just a quick graph showing you kind of the state of childcare supply for each month just to kind of make this point about the current pandemic recession on the childcare industry. What we do here is plot the monthly number of childcare industry employees between January and September of 2020 against that of 2019 and you can see obviously that large dip in employment last spring. And even as of September and in fact even as of December of 2020 employment levels in the childcare industry have not fully rebounded to their sort of corresponding previous year levels.

And so again in this paper given that sort of context about the potential impact of macroeconomics on the childcare industry we really sort of take up as I said this straightforward question about to what extent do macroeconomic conditions influence childcare availability as measured by employment in the childcare industry as well as the number of childcare establishments that are open.

Secondly childcare stability is measured by staff turnover within the childcare industry. Thirdly measures of teacher composition and quality measured

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mostly by the extent of childcare workers' experience and education levels. And then finally the extent to which parents are satisfied with their childcare provider as measured by some neat data on Yelp consumer reviews.

Our analysis relies on a large number of datasets each one providing about two to three decades' worth of data on the childcare industry and obviously of importance to the purposes of this talk is our reliance on the quarterly workforce indicators database or QWI but we also rely on data from the quarterly Census Employment and Wages, the American Community Survey as well as I mentioned before Yelp consumer reviews of childcare programs.

The data or the results that I'm going to show you today rely, you know, just on the QI database and for that we have coverage, really good coverage for the years 2000 to 2019.

Okay so for the uninitiated I will kind of take you through a kind of a high level introduction of what the QWI is and then in the next slide describe the ways in which we use the data for our purposes in this paper. So the QWI is a dataset that I love, I've used it in a number of papers, and it provides a set of economic indicators derived from microdata called the Longitudinal Employer Household Dynamics. And these indicators include everything from employment levels to measures of employment flows like the number of new hires and the number of separations as well as a variety of measures of compensation and earnings.

And what's really nice about these data is that they link information with employers with their employees and as a result these data provide lots of interesting opportunities to disaggregate these measures of employment and earnings across characteristics of firms and workers. And so for the purposes of our paper we will disaggregate various - these various sort of economic

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indicators by industry but also by the education level of the workers themselves.

These QWI data are available on a quarterly basis. I think the first states came on in the early 1990s but by 2005 all but one state was participating in this data sharing agreement. And then another nice sort of feature of the QWI is it provides really powerful geographic flexibility. That is that data available not just at the national level but at the state level as well as a variety of substate levels including at the level of metropolitan areas as well as counties.

Okay so what do we do with these data? We utilize the really neat and helpful online QWI extraction tool and we pull our economic indicators at the state level and by quarter over the period 2000 to 2019. And we extract the indicator's total employment, the number of employment separations, new hires, the turnover rate and average monthly earnings for each state and each quarter again between 2000 and 2019.

And we extract these economic indicators for obviously our industry of import is the child daycare services industry but we also do some comparisons with the childcare industry to some industries which we sort of refer to in the paper as sort of similar low wage industries. So for example the private household services industry, elementary and secondary schools which is sort of a close cousin of the childcare daycare services industry as well as clothing stores and food services and drinking places. And we disaggregate all of these economic indicators by the education level of employees.

So for example we observe for each state and quarter total monthly employment for the child daycare services industry at each level of education for these employees. We also observe the turnover rate in the child daycare services industry at each level of education for employees. And then we

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merge to these QWI data state by quarter measures of unemployment rates and this of course is our primary measure of kind of local labor market conditions in the paper.

Okay in the paper our analysis really relies on regressions of each indicator on the unemployment rate in a given state and quarter controlling for state and quarter year fixed effects. I'm not going to show you any of those regression results in this paper. I'm going to keep it sort of more - a bit more I think interesting and digestible by presenting only some graphical evidence showing how recessions and recoveries in the macroeconomy influenced the childcare industry and I'm going to focus on total employment, the composition of employment that is number of new hires and separations and turnover over the business cycle as well as skill levels again as measured by the level of education within the childcare industry.

Okay so just sort of set the stage, the first set of results that I want to show is just a measure of the supply of childcare that is the number of employees in each quarter between Q1 of 2000 and Q4 of 2019. And those sort of two greyed out vertical bars show the sort of two recessions that were experienced over this observation period with that sort of fatter bar in the middle being representative of when the Great Recession occur. And most of my sort of discussion is going to focus on that given that that is both sort of the larger of the two recessions as well as the one that's sort of most proximal to the recession that we're in now.

And so I think a couple of observations sort of jump out here, Number 1 as soon as the Great Recession started employment in the child daycare services industry started to shrink. Secondly it required - the industry required about three years after the end of the recession for employment to start rising again.

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So there was a three year lag in between the end of the recession and when employment started to increase again in the childcare industry.

And then I think the third sort of key observation here is that the industry required seven years for employment levels to reach once again their pre-Great Recession employment levels. And if you think that that was sort of a long time we agree and indeed our regressions in the paper point out and I think sort of two interesting things here.

Number 1, when the economy enters a recession employment in the childcare industry sort of declines at about the same rate as is the case in the larger economy but when the economy starts to recover employment in the childcare industry requires substantially more time than the rest of the economy to recover. So this is a very slow to recover industry but we think this is an important finding given how important the childcare market is to the functioning of the rest of the economy.

Okay so the next thing we're going to show you is sort of the - some pictures on how the composition of employment changes over the business cycle. So there's a really a couple of ways in which, you know, total employment levels which I just showed you can change and one those of ways is how the extent of new hires changes over the business cycle.

And so we constructed a measure of new hires as a share of total employment and again this is just for the child daycare services industry. And you could see that new hires is really, really sensitive to labor market conditions.

Basically from the beginning of the Great Recession to the end the share of new hires as a percent of total employment fell from about 18% to about 12%.

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And I think what's striking here is that even many, many, many years later as of 2019 this sort of extent of new hires within the childcare industry never sort of fully rebounded from the levels experienced prior to the Great Recession. So again childcare providers are slow to recover in terms of their employment one of the reasons why that's the case is it seems like new hires are slow to come on in the childcare industry.

Another way to sort of think about the composition of employment is the extent to which separations, that is folks leaving the childcare industry every quarter, and we construct a variable here measured as separations again as a share of total employment. And again you can see that separations are - that is the extent of people leaving employment in the childcare industry is also sensitive to macroeconomic conditions but less sensitive than new hires is. So it seems like perhaps that those who are sort of wanting to leave childcare employment sort of slowed down during recessions.

And I think sort of more to the point on that which sort of I think makes the point more strongly is the measure of the overall turnover rate. And here I show you the turnover rate in the childcare industry versus all of those other sort of similar low wage some of which are low wage industries. And again, you know, you can see that anytime the economy sort of turns down turnover rates in the childcare industry sort of declined.

Childcare is sort of infamous for its very high turnover rates. It's not quite as high as it is in the accommodations and food services industry but it's greater than every other industry that we look at including some low wage and sort of lower education industries that we look at in this paper. And what seems to happen is that turnover sort of declines dramatically during recessions. We think that's because the kinds of jobs that childcare employees may look to find if they were not employed in the childcare industry may sort of shrink,

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may go away during recessions. And so this sort of absence of outside options during recessions sort of, you know, sort of locks in childcare employees into their existing childcare employment.

What's also interesting is that even after the Great Recession turnover sort of remained kind of historically at lower levels, that is, you know, as the recovery sort of unfolded, you know, turnover rate - the turnover rate sort of increased a bit but never sort of fully sort of recovered to its pre-recession levels. We actually think this is a good thing I mean given that turnover rates are quite high in the childcare industry keeping them low may actually be better for the purposes of childcare quality.

Okay the final two things that I want to show you have to do with - not with the size of the workforce or the composition of the workforce but the skill level of the workforce, how the skill level of the workforce as measured by education changes over the business cycle.

And so what we do here is construct a measure of the share of workers ages 25 and over with some college education or more. And again we show this for the childcare daycare services industries but also for the other industries of interest. And to make this I think a bit more interpretable we normalize all of the percentages to be equal to zero just as the Great Recession was starting so that's why you see all those sort of lines converge at zero just before the start of the Great Recession so that you can interpret sort of the position of the line at any given point in time as being as sort of the percentage point difference at that time versus just before the Great Recession started in the share of workers with some college education or more.

What you basically see over time in the childcare daycare services industry is a small reduction in the share of the workforce with some college education or

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more. I think that's kind of Insight Number 1 here. Number 2 is that most of the reductions over the two decades that we look at occur when economic times are good, that is the childcare workforce actually becomes less highly educated during good economic times.

And if you look at sort of the trend inside those greyed out bars and this is kind of Insight Number 3, during recessions those reductions in college educated workers are basically arrested. You see sort of a flat line that occurs during recessions which suggests that our regression results sort of confirm this that actually that those are the childcare industry become relatively highly educated during recessions and then the industry becomes sort of relatively low less educated during economic expansions. Again we think this is because of the lack of availability of higher paid outside options for those in the childcare services industry during relative to when the economy is expanding.

Okay last picture that I want to show you which I think makes the point that I made in the previous slide even more poignant is the share of new hires in a given quarter with some college education or more. And you could see again in the child daycare services industry that share of new hires with some college education or more has sort of declined - has declined over time but most of those declines occurred during periods when the economy is growing. And you see basically flat lines through those greyed out boxes again indicating when the economy is in a recession.

Again I think suggesting that this sort of evidence that I showed you just before about education levels on the whole declining during good economic times really is driven in large part by the education levels of new hires coming on board when the economy is expanding.

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Okay just to sort of wrap this up then we think the advantages of the QWI database are many. It provides a long time series of lots of economic indicators disaggregated by industry, by worker characteristics. And these data are available also by firm characteristics.

And the results of our paper suggests that, you know, employment falls in the childcare industry immediately during recessions but that three years are required at least post-Great Recession for employment to start growing again and seven years are required for employment to fully recover to their pre-Great Recession levels. This may give us some insight into sort of what may happen in the wake of the - of our current recession.

A recession cannot just change employment levels but the composition of employment. New hires in the childcare industry fell from 18 to 12% of the workforce throughout the Great Recession and that 18% has not been fully recovered even as of the end of 2019. Turnover also seems to fall during recessions and we argue that this may be sort of a good thing for child development.

And then finally recessions do seem to influence the skill level of the childcare workforce at least as measured by teachers' education levels. Economic recovery, good economic times see childcare employees sort of lose ground relative to that industry during bad economic times and also lose ground relative to those in other low wage industries. And we find sort of really robust evidence that recessions sort of arrests this absolute and relative fall in education levels.

And with that I will thank you and look forward to the rest of the talks in this session.

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Keith: Thank you Chris. A little administrative issue we need to step in here. Curtis Askew if you could please dial Star 0 on your phone, we need to get you into the correct audio line. Again Curtis Askew please dial Star 0.

With this administrative difficulty we are going to move to Taylor Marr stepping in and bringing his presentation so Taylor the presenter ball is yours and I hand over the platform to you thank you.

Taylor Marr: All right, can everyone hear me?

Keith: You are good to go Taylor thank you.

Taylor: Excellent. Here okay. So yes so I'm Taylor Marr, I work at Redfin, I'm the Lead Economist there. Been there over five years leading a team of researchers dig into our wealth of housing data and oftentimes combining it with a lot of other sources from the Census or from Bureau of Labor Statistics or other data providers that relate to housing or the urban environment.

We've participated in a couple of opportunity projects in partnership with the Census as a tech team generating new products using our data and other data sources. I'm going to show you the first one that we built about five years ago now in collaboration with the White House with something that we've developed called the Opportunity Score. The most recent project I'll tell about at the very end which is related, that's called the Job Opportunity Tool. So there might be a little bit of confusion there but.

But our Opportunity Score is a tool that - here it is. So this is what the page looks like when you go onto the tool. And so you can type in any address and up will pop a score, an opportunity score. So an opportunity score is basically in general it's a tool that helps Americans find homes within a 30 minute car-

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free commute to nearby jobs. So it looks at all the jobs accessible, looks at how public transit or biking or walking patterns could get you access to those jobs and then figures that out for every address or property across more than several hundred cities that we have data on.

And then also present some additional information about the housing market such as how expensive different housing prices are or different rental units are. And we even make it where you can click and see real time information about what's available in those areas. That's a high level and so now I'm going to walk you through how we built this tool, what we envision it being used for and how someone else might want to be able to use this project themselves as well.

So Opportunity Score it takes the address and it'll assign a score from 0 to 100 that just simply represents how easy it is to get to those jobs without a car. And in particular the jobs that we are interested in here are ones that when we pulled this data paid more than \$40,000 and we can break it out by category and location there.

So at high level when we're looking at how accessible different cities are in terms of how accessible are those jobs relative to people without a car and to housing, you know, why we built this is really cities vary quite a bit in terms of how accessible their built environment is and their transit is to the jobs especially in very car-dependent cities. It might be very hard for two people who are working and if they only have one car to access the entire labor market. That's partly what we're interested in doing is wondering how connected are houses to jobs which is really where the labor market and the housing market intersects the most.

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And so the city with the most opportunity that we found was San Jose in California which is a little odd but I think it's just basically how clustered those jobs are impacted in relation to the housing. And that had the highest average opportunity score of 70. Now you can see here DC is 51, it ranks 5th on our list of I think the 50 most populous cities we were looking at where 76% of the jobs are paying more than \$40,000 or more. Again this is a few years old now.

And then we even have - here is what the most common job type was in that area, professional, scientific, technical services. Contrast that with Atlanta which ranks more towards the bottom of the list, opportunity score of 10. It'll be very difficult in a place like Atlanta to access high paying jobs if you don't have a car.

So this can also inform things around policy of how do you expand access to the jobs, where you going to get the most bag for your buck. Or if you're a household that's relocating to an area you might want to know where to move.

When I first took my first job in Seattle at the time I didn't have a vehicle and Seattle without knowing the layout of the city I don't know which neighborhoods might be more affordable but also still have access to provide deep access to jobs. When I first moved out there I didn't have a job so that's kind of a use case for people as well. Or if you're looking to maybe save money on rent and not have to buy a second car you can identify certain hot spots.

And so we had this prime example in the San Francisco metro area where as you get south of the city along the transit line can identify a few pockets where you still get strong access to a lot of the jobs in the city, much cheaper prices by not having to still buy a second car and incur that extra expense.

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So how did we do this? Well we combined a variety of tools and data to put all this together. So the very first thing Redfin, so for those who don't know Redfin's a national real estate brokerage, we have a Web site where people can search for homes, reach out to agents to help buy and sell homes. But Redfin also owns Walk Score and a couple other businesses. And Walk Score is a company that tries to really look at how walkable is every point in the US and a number of other countries. Walk Score has a travel time API similar to like the Google travel time API as well.

You can query the API and figure out - generate what's called a transit shed. So you punch in an address and you can see what are all the places you could get to in 30 minutes or punch in any length of time. For the Opportunity Score analysis we wanted to specifically look at about 30 minute carless commute to maximize that opportunity there. And you could punch in different modes of transit and even filter for, you know, is it rush hour versus not.

Now, you know, some of you might be thinking a lot of you aren't taking public transit right now. If anything this is the exact opposite of what some people are wanting right now which is, you know, a single family home, disconnected from transit, they could drive in, park in the suburbs. So, you know, when this is built definitely this is much more of a priority for people. And I do anticipate as I've been studying, you know, what's been going on in the housing markets this year, do anticipate that, you know, there'll be demand for this type of transit use again in the near term so.

But anyway first and foremost we use the Walk Score travel time API to figure out for every address what's essentially the region that you can get to within 30 minutes with any mode other than a car so bike, walk or bus or transit route as well.

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So for example here's San Francisco, we have that transit pattern for the red dot here right down in the south mid part of the screen. And so Opportunity Score it factors in also local employment data that we got from LEHD so looking at where specifically is the Census block that every job is located and being able to filter for those with minimum annual salary of 40,000. And so every grey dot here on the screen is one of those jobs.

And what we did is we exploded the Census block aggregate into points so that way we could have every job be one point within the Census block group so it's not exactly precise to the address but it captures in general the density of jobs located on each block and how you might access those with public transit. So for every address we can figure out how many jobs, so what's the total number of jobs that pay more than \$40,000 via this transit shed that fall into the transit group there.

Let's see, so then once we have this data we also factor in - there we go I think I skipped a slide. Yes we also factor in the population because it's not just about your own access to jobs but you compete with the labor market of other people looking for those jobs. So we factor in the overall relative population within a 30 mile buffer of the address. This circle is a little smaller than 30 miles.

But just as an example basically we look at what's the functional labor market that you're competing with just to make an adjustment for it's not just about your own access to jobs but it's really about how likely are you to get one of these jobs within 30 minute carless commute here.

So then taking all this information we basically just combine it and do some simple math so you gain a binomial distribution, create the actual opportunity

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score from 0 to 100 which is supposed to be basically proportional to the probability of getting transit commutable job. So we count up the number of jobs that are accessible, you know, using the estimates that fall within that transit shed. And then we can also factor in and adjust for the local population.

And as we have these scores that range from 0 to 100 we can talk about different neighborhoods, zip codes, addresses or even cities as a whole to see how accessible to jobs are they for not having a car. And so we have a job seekers' paradise which would be an opportunity score of 75 to 100.

You know, a lot of the urban houses you punch in an address most of those really will fall into that category if they're close to public transit. But then you also have those that are transit deserts and might even be - we found one example in Ohio where you're sort of surrounded by good access to transit but this is secluded, you know, there's no public transit that goes through this neighborhood. The think the opportunity score was about a 20. So you have to really, you know, walk to a handful of jobs or bike or, you know, you're going to have to drive.

And so factoring in the cost of transportation, vehicle ownership, gas, car insurance -- all of those things tends to be an overlooked cost by people when they're buying their home or evaluating different neighborhoods and the tradeoff. I think that's probably been especially true during the pandemic as a lot of people have shifted their search towards farther out suburbs and work remote.

We know that car purchases have increased and probably a number of households have purchased a second car and shifted away from public transit but that ultimately has a cost that we're trying to measure and figure out how to think about that as well.

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So then on top of just the opportunity score for an address we also provide a number of supplemental data. So we want to show the breakdown of what types of jobs are actually accessible to, you know, to that address, if they're all in retail or food services versus a different category like public administration here. You know, that might be information that's also relevant to job seekers that trying to decide where to live and how to evaluate and compare different addresses.

And then additionally we have a number of housing data. Obviously Redfin's a real estate brokerage, Walk Score they also are our Web site portal where they have a bunch of information on rent. So we pull in real time essentially we just run a series of Python strips to generate all of this data every day and check for what are all the active listings that are available for sale or available for rent within each category from this specific region.

And so with that we can pull and break it down by bedroom size, what's the typical asking price and what's the typical rent. And on this live tool you can even click into the hyperlinks that are going to show up on the home price section over here on the left but that'll port you over then to the site to make actually actionable insights into here's what's available, here's how you can compare it to different properties depending on the size that you need for your family.

So and here's what that looks like, you know, if you click over to Redfin you can see here's the Redfin portal, here are all the properties. It'll automatically filter for the number of bedrooms in the same way over here on the Walk Score side. And you can see here the transit blob that's already calculated in depending on what commute address you're typing in as well.

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So this is kind of how we think of it. You could see little pockets of accessibility maybe out in Arlington or out in Bethesda that are just close to the transit, you know, that provide these areas of opportunity.

And then so that's Opportunity Score in a nutshell. Basically how we built it. We've heard from a number of different smaller cities that are, you know, carrying out transit-oriented development projects that have found this tool helpful over or households who, you know, are unfamiliar with an area who have been able to learn more about the transit accessibility of different neighborhoods.

And then another tool that we more recently built for the - oh there we go - for the Census Opportunity Project was this tool called the Job Opportunity Tool. This takes a much more macro view, less within a city that you're searching in and more searching across the country. A number of people have, that we've measured in our own migration data and some other sources have increased relocation during the pandemic and especially as you think about adjusting for cost of living or how far your pay might actually go. This is sort of where that tool comes in.

So it takes a given profession such as web developers here in the example, will show you the landscape of how clustered web developers are in different places which can play a role with maybe productivity or job opportunities that will come from that profession. And then it shows how the pay ranges compare. This is just using Bureau of Labor Statistics data at the metro level to show different pays for each occupation.

And then we have a number of different categories of housing cost including transit cost, utility cost, tax information that people often overlook especially

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if they're moving from one market where that cost is either high or low to another market where it's big and balanced in terms of how expensive that is.

For example if you envision a lot of people leaving the Bay Area who previously didn't own vehicles that now relocated to Phoenix or Denver and now they're more reliant on having their own vehicle, being able to compute some of that cost of what people on average spend on transit use as well in there or just higher utility costs if you're moving from the south to the north.

So all of that is basically another way we used this data, employment data to help people make decisions about relocating. We also have some metro level breakdowns where you can see maps of the region if you're looking to move into a specific metro area but those are on other tabs as well. So just a quick plug for both of those tools.

Rachel: Okay thank you Taylor. Next we'll hear from Curtis Askew, Curtis.

Curtis Askew: Good afternoon can everyone hear me?

Keith: Yes Curtis you're good to go thank you.

Curtis: Thank you. I'm going to share my screen, can you see my screen at this time?

Keith: Not yet, waiting for the application to spool up. When you select which screen you may have to actually click on the little share button in the middle of the screen.

Curtis: Okay my share button is still greyed out.

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Keith: Okay you should have the capability of sharing. Greg can you confirm that Curtis does have the presenter ball.

Greg: Yes he does. It looks like he's in the panelist twice so not sure if that has something to do with it. I could remove one instance of him in the panel.

Keith: Can you just move the ball to his other instance.

Greg: Okay.

Keith: I do see his video icon, thank you. Hey Curtis you now have a non-greyed out share button.

Curtis: Yes I see it now.

Keith: Excellent and your content is arriving, thank you Curtis, thank you Greg. All yours Curtis.

Curtis: Okay good afternoon everyone my name is Curtis Askew as was noted. I am presenting today with Mr. Dean Jones the Director of the Greenville County Workforce Development Board. I will be handling the ball and my colleague Mr. Jones will be available for the Q&A. This is to expedite us getting through what we consider to be some pretty interesting material.

The title of the presentation is Minding our Ps and Qs where we basically took a look at the PPP data, the Paycheck Protection Program data that was available. Let's see, okay, the screen just went down. Here we go.

So what we're going to cover today is sort of provide you with a brief overview of what workforce development boards do because in my experience

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as a consultant that is something that we generally do not have a clear understanding of. Then I'll shift to the discussion of our data and our focus, touch briefly on our approach and give you some examples and we'll get to the takeaway.

So the principle thing that workforce development boards do most people know them as the unemployment office or the one stop delivery system but they are also responsible for implementing career pathways in the alignment between employers and training, basically education and support services. There are two other areas that typically are not known to the public, one is the business services component where workforce development boards are charged with engaging employers and other entities within their region that could focus on or that focus on economic development.

The other piece that is important is workforce development boards are county-based entities so they work with the county executive to determine exactly what type of planning is necessary both within the county but also within what could be a multicounty region and up to what is called a WIOA region. And these different geographies matter a great deal which is how we ended up Mr. Jones and I talking about what we would do with this PPP data.

So before I launch into that discussion consider that within the background of what workforce development boards do the Greenville Workforce Development Board has engaged for quite a period of time in some of these unseen activities or activities that most people really wouldn't think of as being critical to workforce development. There was a Southern Greenville Initiative which Southern Greenville County is - Greenville County itself is a single workforce investment board area unlike the other counties around the state which belong to multiple regions workforce development boards.

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We've done the skilled trades grant. We've done a summit dealing with connecting individuals through education to workforce. Greenville County Workforce Development Board was one of the major partners in changing state legislation around the national change in the GED moving from pencil and paper to digital.

The Workforce Development Board was also instrumental and have been instrumental in pushing for a regional data collaborative where the sort of data that we ended up looking at with the PPP is something that is made available to all partners within the region.

So shifting now to the discussion of the data itself the PPP data that we used, the Paycheck Protection Program data consists of approximately 5.1 million transactions that covered the period between April 29 and August 9, 2020. This data is principally the administrative collateral that was created by the CARES Act. Several individual entities sued the Small Business Administration to make that data publicly available.

The data was released inclusive of business names, business addresses, characteristics of the actual loan applicant, the estimated number of workers impacted, loan amount and six-digit NAICS along with the lender and a congressional district for where the loan was located.

It should be noted 75% of the loan recipient characteristic data is missing in large part because it was not mandated. This presents an interesting phenomenon that most of us have seen on television particularly with the Round 1 of the PPP which was money being extended or exhausted within a very short time but there was an unclear sense of where the data actually, or where the monies actually went. Did they flow to minority vendors, did they flow to veterans which were key targeted populations.

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For our focus we focused on the 18,000 loan transactions within the upstate WIOA region which is a region consisting of four separate workforce investment areas one of which is Greenville and comprises 14 counties. So the question was what is the distribution of PPP loans within this WIOA region. And then the second question that we focused on was how can LODES data transform what we know about the PPP program by adding to what is missing. So we got this interesting dataset but it really doesn't go far enough to allow us to breakdown the data in ways that would matter for assessing the notion of impact across specific labor segments.

So our approach to the data was really very experimental because at the end of the day the sheer volume of the data itself created some interesting problems for us but one of the ways that we approached it was very early on we made the decision that we would point map each transaction to give us the greatest amount of flexibility in normalizing the data across geography.

In particular try to tie it to geographic units such as a Census block which is the basis for LODES would require us to be able to aggregate a series of loans which is we opted to go that direction at the very outset but it become much easier to aggregate the data up to a square mile grid covering the entire region to give us a better visual sense of the data and how many loans were in an area.

For those of you who do point mapping you know that one of the more notorious problems of point mapping is that dots can stack on top of one another so you really don't have a very clear understanding of what the distribution is. And since that was the principle purpose we went with the aggregation process on a one mile square grid.

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Based on that to answer the first question we ran frequencies across three key variables. The loan amount of the jobs reported as impacted and we've segmented the six-digit NAICS sector code to give us the super or the subsector code, the two-digit subsector code to make the data easier to interpret.

To address the idea of loan impact we again utilized the two-digit NAICS sector code. We continued mapping against a one mile grid but we flipped what we were mapping to the grid, in this case we focused on mapping work area characteristic data to the grid and then using the loan data itself as an overlay against at least one of the variables and you'll see how that kind of lays out when we get to the actual images.

Then we used the loan data itself to separate out by particular sectors. We looked at specific sectors that were of interest. In this case we looked at transit and transportation. We looked at healthcare and we looked at manufacturing. What is important to note about our selection was the Greenville workforce investment area is the central hub of a manufacturing region so it was important for us to really understand how that played out as a practical matter for where did the money go and what sectors were impacted.

So what we're going to flip to now is really kind of the first part, what's the distribution of the loans within the upstate WIOA region. And this map here shows how the data was broken down into those one mile square grids across the entire region. And note that there are four separate workforce investment areas, Greenville being at the center.

We can also see that the concentration of loans is in Greenville itself but there's a distribution of course across the rest of the region and that is really ultimately what we wanted to observe was where were loans distributed

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largely within the metropolitan or municipal boundaries which is something that we were able to do because we utilized that one mile square fit area.

You can see that off to the left if you look at the characteristics of the loans themselves you can see that Greenville in essence had the largest share. It is the largest and most populous workforce investment area within the WIOA region which is the upstate WIOA region, having roughly 8000-plus loans associated with it. You also see that Greenville was certainly the beneficiary in terms of the number of jobs impacted by loans given.

What was most interesting was when we looked at the loans broken down by two-digit NAICS sector if you'll note down in the lower corner the professional sector within Greenville happened to be one of the areas that received the largest number of loans. And let me say that having dug into the data more than simply looking at the frequencies the professional sector that is referenced here is largely in the money management, consulting, accounting areas.

So the interpretation that we came away with after looking at the data was that individuals who handle loan transactions, i.e. helping other businesses get loan - PPP loans get their books ready for presentation to a local lender, they ultimately walked away with the lion's share of PPP loans. So that was an interesting observation that came out of this.

We also see of course that Greenville as the most populous area has the sort of broadest array of impacted sectors. So that led us to thinking a little bit more about the idea of what does impact mean. In the literature on PPP most of the articulation about impact is from an econometric standpoint of view that doesn't really address the idea of small geography. And this is where LODES data became particularly important.

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We had up until the point of release of the data we did not have the ability to explore sort of localized impact or specific labor sector impact. So what we were doing with this data was linking the two things together, LODES data with what we knew about the PPP and we ended up doing as I said three primary sectors looking at transactions for example here, the manufacturing sector.

And you can see that in Greenville while there is not a large distribution of loans, there were only 409 loans which is less than 1% of all the loans within Greenville County, but it was nonetheless interesting to think about how those loans intersected with areas of high concentration. And as you can see some of the areas, the one area that the 2300 to 3100 manufacturing jobs per square mile which is here on the chart on the map, that is not necessarily where you find the largest number of jobs impacted.

In part by sort of digging at this data what we understand about Greenville and the upstate WIOA region is that we have a lot of foreign direct investment companies. And it is questionable whether or not those foreign direct investment companies were eligible for PPP loans given how they were structured. So if they were totally foreign direct investment companies they would not have been eligible based on my understanding of the CARES Act legislation.

We also took a look at the trade and transit sector which as you can see is far less distributed. It is more concentrated but less dense. There are three primary areas where we have in the Greenville workforce investment area where you find large concentrations of individuals.

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The interesting thing about this particular map is that it reflects the role that Greenville played as a workforce investment area as a logistic center for a region. So the individuals occupations that you see reflected here tend to reflect individuals who work in warehousing and transportation of goods that are produced actually in the next county over which is where we find BMW North America, BMW and Michelin North America.

This last sector we looked at was healthcare. Greenville County which is also the workforce investment area happens to be the home of the largest health system in the state, Prisma Health. And it is also within close proximity to another large health system. So we see a lot of these sort of healthcare sector reflected broadly across the county. The interesting thing for us was not only looking at how we could unpack doctors from say home health workers because Greenville County is also a high density area for home health because we have a large population of seniors with that are coming here as a result of hanging out with their children.

We have the children come for the manufacturing jobs, the accessibility of the jobs. The parents and - or the grandparents come to be closer to the grandkids. So we see this sort of display in terms of the concentration and the variety. So there were lots of loans that went to healthcare providers. In fact roughly 10% of the loans that came into the Greenville workforce investment area went to healthcare.

So I know I've been talking rapidly. I'm trying to keep this on track. So let me talk about some takeaways. We engaged in this data analysis primarily to produce information for - that was consumable by a local workforce development board. PPP data is integral to understanding the planning role that local workforce investment board directors engage in statutorily and so this project was really looking at the uniqueness of PPP data.

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I don't think that there has ever been in the public domain the sheer volume of individually identified business data along with loan recipient characteristics, addressing as well as the six-digit NAICS code associated with that business. That is typically proprietary information that largely banks would have access to but not the general public for its purposes.

So PPP represents something very unique yet despite its uniqueness it has a lot of weaknesses one of which is the incomplete loan recipient characteristic data and another piece of it is these are relatively large files to have to manage.

In addition the lack of geographic specificity makes it very difficult for place based work to take place unless you engage in something like geocoding at the address level which itself is a resource intensive process. We utilized Maptitude to geocode the entire state and certainly are looking at sort of how can we refine the geographic boundaries that we are geocoding to beyond simply point mapping the data because as I pointed out simply geocoding at the point level or the address level does not really get to the point of discussing how material can be aggregated to make decisions.

I have found personally working with the data that it is particularly useful for healthy workforce development because it can be linked to LODES data and as some of the other presenters have noted it can be linked to other data such as ACS PUMS data to help unpack what is happening within a labor market. That is something quite unique having used LODES data in the past. This is something that I mean for me it's a dream come true to be able to link what is going on in a market relatively close to the period where the activity itself took place.

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So given all that the question that becomes important I think is so what next. And the big answer to that is while we have not committed only to doing this work in this way some of the recommendations that I've made to Mr. Jones is to extend the analysis to include both the RAC data or the Residents Area Characteristic data and the origin and the destination data to get a better sense of how did money that was provided flow into areas particularly those that were hard hit as indicated by for example the Census Bureau's social vulnerability index data which is based on the Census tract level.

We could also expand the work to include both the EIDL and EIDL Advance program data which is also in the public domain to give a sense of really dosage effect. Because we have a lot of money that has moved into particular geographies but it is treated independent of one another when in fact there is a sort of compounding effect. If you get a PPP loan, you can have EIDL loan, you could also if you were not approved for an EIDL you are automatically awarded an EIDL advance for filling out the application which could give you as much as \$10,000. So that is a lot of money flowing into a particular area.

Another area that is worthy of exploration is how to refine the metrics themselves. We've certainly spent a lot of time thinking about how to normalize Census geography but I think it's really important to think about weighting programmatic variables, loan amount and jobs impacted or comparability across geography. We've toyed with a dollar per worker metric but have not really implemented that as a part of any analytic work that we've done heretofore but it is something certainly worth exploring.

There's also the idea of how did money flow into a given geography over time. Time is a huge variable that should not be ignored here because that is one of the drivers for much of the complaint around how the PPP was implemented. And...

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Rachel: Mr. Askew I'm sorry but we've reached our time on this session. I'm so sorry thank you so much for the presentation, was really interesting and I'm sorry that we don't have any time for questions but if you do have a question please write it in the chat and we'll get it to the speaker.

So I want to thank all of our speakers for this session, that's Chris, Taylor and Curtis, and thank you so much.

Curtis: Thank you.

Keith: Yes I also want to express my appreciation and my apologies Curtis this session did wind up running into some technical challenges. Know that your presentation will be provided to - published on our Web site and also I know Dean had corresponded with us, any questions that anyone wants to ask of Curtis with his presentation please put them in the chat function. We are capturing all chat questions and Dean has indicated that he will address any questions that are put in the chat.