

Coordinator: Welcome and thank you for standing by. At this time, all participants are in a listen-only mode. During the Q&A session, if you'd like to ask a question, you may press Star 1 on your phone. Today's call is being recorded. If you have any objections, please disconnect at this time. I'd now like turn the call over to Ms. (Earlene Dowell). You may begin.

(Earlene Dowell): Thank you (Ted) and thank you to Lisa Glover from the US Census Bureau for hosting our webinar today. On behalf of the US Census Bureau and a partnership with the Council for Community and Economic Research and the Labor Market Information Institute, welcome to our April LED webinar.

Before we begin just a few housecleaning items. Participants will receive an evaluation survey when they log off from the webinar. For those of you who are unable to complete the survey today, you will receive a follow-up email in a few days with a survey link.

With that, it is my pleasure to introduce (Reza Sardari) as he presents Transit Accessibility and the Spatial Mismatch between Jobs and Low-Income Residents. This presentation seeks to address transit equity challenges in Dallas. His research includes a comprehensive quantitative study of the transportation metrics that impact equity and efficiency of the transportation system for transit-dependent populations.

(Reza Sardari) has more than nine years of experience in urban planning, transportation modeling and GIS analysis. He specializes in spatial analyses and GIS land use and transportation models and all things providing smarter growth for cities. (Reza) received his Ph.D. in philosophy of urban studies affair at the University of Texas at Arlington and his professional education at Massachusetts Institute of Technology. With that, I hand it over to (Reza).

(Reza Sardari): Thank you very much (Earlene) for introduction. Thank you all of you at the US Census Bureau for this opportunity. Good afternoon everyone. Thank you for attending today as we're going to explore job growth in the use of - in the context of spatial mismatch to understand the gap between jobs and low-income residence within DFW area.

Let's start with DFW area in 1990. The DFW area in 1990, we had population about 3 point million with employment about 2 million in 1990. Where we check out in 2017, DFW population was about 7.4 million and employment was 3.6 million. As you see, it's almost double. DFW economy is growing over the last decade. The number of large companies and headquarters either relocated or expanded to operations here. That caused fast-growing suburbs in this region.

When we compare this area in images over time, we can track these land changes and land development in this region. And the question is, what about the jobs? How to track job changes in this region?

This is the motivation for today's presentation. We are looking to know where new jobs are added in this region. Where low wage jobs are located. Are these jobs accessible for low wage workers or not? Where do they live if you are analyzing the location or home location? Do they have access to public transit? If public transit is not available, is it affordable for them to move closer to new job center?

To answer these questions, we are referring to the concept of spatial mismatch. That is one of the motivations and the concept that where we are going to over the basic and the input that we need. Then based on this concept, we are going to obtain multiple data sources. Integrate and overlap these factors to answer the above questions.

The spatial mismatch and the this concept first introduced by John Kain in 1965. Using workplace and residence data for Detroit and Chicago, he suggested that higher employment rate was related to the movement of jobs away from the inner cities. Also because of racial discrimination housing market, those residents couldn't move to the suburbs.

Then this concept was extended by noneconomists such as William Wilson and (John Kasarda). You can find more information about this topic but the key inputs that they mention in the literature revealed, they are related to four main factors summarized here. All these studies, most of them consider job locations, home locations, location affordability and job accessibility.

And based on this LEHD provides the main input for downloading and getting data about job location, home location and the last one job accessibility. So LEHD Data gets these opportunity to get work area characteristics, resident area characteristics and also where we calculate job accessibility, we can get the number of jobs at the block level.

More kind of data and tools we need to explore spatial inequality within DFW area or other regions, for analyzing this concept, there are multiple data and tools available. The key one, the key datasets that we can use is LEHD data, US Census, HUD subsidized housing properties, and transit data. We are going to the details how to get this data and how we can integrate them to get us for the further analysis.

Also, we need other applications such as LEHD On The Map data and American Fact Finder to download the raw data that we need and also we need other applications such as (ArcGIS) or other mapping tools such as

(QGIS) or (Map5) to overlap and visualize the trends by using these datasets from LEHD Census or other data sources.

Let's briefly review what we can get and what kind of data or tools available from LEHD program. As you know, LEHD provides different data tools. Some of them, for example J2J Explorer, QW Explorer that we can get job-to-job flow for example from J2J Explorer. But today, we're going to focus On the Map application and how we can get the location of home and work from this application that is online and is free for the public.

To start obtaining the work location that is the first key factor for analyzing spatial mismatch. In these steps, On the Map application is used to download data for DFW area. The work area profile analysis function from the On the Map application provides a detailed data at the block level that includes the number of jobs, workers by age group, earnings and industry groups such as construction, retail trade, finance, healthcare, and other sectors of industry.

On the Map application also, provides this function to explore data by three formats: (GIS ShapeFile), (KML), and (CSV file). For this presentation and for this study, we use (GIS ShapeFile) to download them, merge them and aggregate it by census tract.

On the Map on the right side for example, we can see the total number of jobs aggregated by census tract. LEHD historical data provides this opportunity for mapping job growth. These two maps are directly screenshots from On the Map application. As shown in 2015, the map on the right side, it showed that more jobs moved to the northern sector of Dallas.

So we compare it with 2002. During this time in the past 13 years, many headquarters are move, relocated to this area. As we - as you can see, this area

is far from Dallas CBD, about 25 miles and the main access is (DNT) tollway or Dallas North Tollway.

To analyze the spatial inequality, we need earnings data too. This is another advantage of LEHD data that provides wages and earnings by three groups. For example, the first group we present earnings less than \$1250 per month. In many projects, such as EPA and smart location database, these groups are called, for example low wage group, low wage worker. And other groups are name as medium wage workers, and high wage workers.

I'm using the same technology for referring to low wage workers or high wage workers in this presentation.

Back to the concept of spatial mismatch, we need to understand where low wage workers are located. This is the key point that we are analyzing with spatial inequality and when we need to identify low wage workers, minorities, and low-income families. These maps are the screenshots from the On the Map application. As shown in 2015, more low wage jobs are moved to the northern section of Dallas. This pattern follows the same pattern we observed from the total job growth in this region. Again, we have more jobs. Low wage jobs are located within the lower sector and other in the suburb area.

For better visualization, we can use heat map or density map to show hotspot of job growth. For example, this heat map shows where low rate jobs are added from 2002 to 2015. It's clear that the north part of Dallas attracted more low wage jobs in the past 13 years. It's interesting to consider that the distance as measured before, the distance between Dallas (CBD) and this area is about 24 miles and average 45 minutes during the peak hour if you are using tollway and without any incidents or accidents.

The second factor is analyzing where home locations are located. This is another advantage the benefit we can get from the LEHD data. Home area profile analysis function provides the same information we got from the work area analysis function with the details about the workers' home location and about demographic data and variables such as race and ethnicity.

To show some examples of home area profile analysis we are going to some maps that show their work locations, their home locations, based on their income and their race. For example, based on home area profile analysis here, this map shows where black workers live. We can see higher concentration of black workers are living within the southern part of Dallas. The dark blue area that shows where - they're located.

Let's go to the next map. Again, it's from LEHD On the Map program from the home area profile analysis. This map shows where low wage workers live. As shown again in this map, higher percentage of low wage workers are living within the southern section of Dallas. That follows the same pattern we had in the previous map.

LEHD data also provides information about race, gender and other socioeconomic factors. This map shows the share of jobs are occupied by white to black workers. In 2015, based on 2015 LEHD data. The green circles represented that black workers are more than white workers. As you see the southern section of Dallas we have higher ratio. In contrast, the dark brown circles represent that jobs are mostly occupied by white workers. And the ratio is more than one and even in some areas more than ten.

The great tool that we can use to visualize spatial mismatch is creating relationship maps. For example, in this relationship map, the blue color shows a higher percentage of low rate job growth. So as you see within the

north part, we have higher concentration of low wage jobs that are added in the past 13 years. The orange color shows a higher percentage of low wage worker home locations. So we can see more orange color in the south - southern section of Dallas are located.

So this is another advantage when we overlap these variables from LEHD data in applications such as ARCGIS online platform that we can create these kind of relationship maps.

Another dataset that we can use to show the patterns and observe what's happening inside DFW area, is EJScreen map. Here, for example, EPA EJScreen tool shows that a higher percentage of low-income families and minorities are located within the southern part of Dallas. These present the same pattern we observed from the LEHD data and home profile analysis by wage and earnings.

Another key factor is location affordability. Based on the housing plus transportation cost index, if housing and transportation cost is less than 45% of household income that location is considered as affordable place. There are different data rates and tools to investigate location affordability that we are - we see here three main resources; HUD (LIHTC) or Low Income Housing Tax Credit Card Properties database, location affordability index by HUD and H plus T index from (CNT).

How to integrate these data ways with jobs and home locations. For example, here this map presents location affordability based on (H plus T) index criteria. In this map, white area shows affordable places with (H plus T cost) less than 45% of household income. It's clear that the north part of Dallas is not affordable for typical households. The main reason is that in this area, not only rent and housing price is high, but also public transit is not available.

Let's consider the subsidized housing properties from HUD. The map on the left side shows the location of HUD subsidized housing properties. Each map is overlapped with the heat map of low rate jobs added from 2002 to 2015. As shown in this map, new job opportunities are far from low-income families who live in subsidized housing particularly within the southern section of Dallas.

Availability of public transit is another key factor when we are analyzing spatial inequality. As new job opportunities - as new job opportunities are moving to the suburbs, it's important and critical that workplaces are accessible for employees especially low-income workers who don't own a car. The main source for public transit data that we can refer is (GTFS) or General Transit Feed Specification. This GTFS data provides real time transit data and we can get the location of transit and the station based on the agencies information that they provided in this platform. We can find more information about transit data here from either GTFS or EPA Smart Location Database that they have summarized these variables and GTFS data on bus stations in their smart location database.

The map on the left side, here we are, and rising job accessibility with transit. The map on the left side for example shows transit stations and distance to public transit and transit stops. The map on the right side, we are overlap with the heat map of job growth based on the LEHD data. Again as shown, it takes about two hours for a trip by transit from Dallas (CBD) to the north part and also many workplaces within the north part, they don't have public transit. And even they are not accessible for people who don't have a car.

The last service, data integration. Now it's time to integrate all these factors and these variables together. Here now we have investigated multiple

databases and data tools. The last step that we are showing how to integrate and to get the benefits of mapping tool to overlap these variables together. There are different options such as (QGIS), (ARCGIS) and (Map Vice). Here we are using, for example (ARCGIS) online platform to create a web-based map that is integrated with LEHD data and other data factors from location affordability, US Census data, and transit data.

This link provides access to these web applications that we can go through this web app and see what's happening inside DFW area. Just a quick note, till now I have DFW plus five other metropolitan areas such as Houston, Boston and Chicago added in this platform. So I'm adding more metro areas to investigate what's happening based on overlapping different factors and variables.

On the left side, we can find information about the layer and the legend for the descriptions of each layer. When we click on the layer button here, we can find different variables that are added in this platform. And one of them for example is transit accessibility. It is based on GTFS and (ESRI) summary layer. Then we turn off some of these layers and we are going to add this factor and investigate what's happening in this area.

Let us start with subsidized housing properties. When we turn on this layer, we can find the location of these properties that is a national level. This is based on 46,000 properties that are geocoded by HUD and you can access these files based from the Web site.

Another factor that we can compare and overlap with the location of subsidized properties is LEHD data and where low rate jobs are added within this region. We can create this heat map and add the heat pattern present the hot spots of these low rate jobs in this region.

Also we can turn on other factors or variables. For example, we can turn on the percentage of black population in this region and turn off other layers that we don't need. So we can find the gap between how low rate jobs added in this region and where other minorities are located. Also, Census provides other information about the unemployment rate and poverty rate, and information about the schools.

So let's check, for example, about the unemployment rate within this region. As you see, for example, that these orange square this shows higher percentage of unemployment within this region. The higher unemployment rate is concentrated in the southern part of Dallas and lower unemployment rate is the north part of Dallas area.

Let me turn on transit access and look at how public transit is available for residents or low wage workers. When you zoom in, we can see the location of bus stops and walking distance to transit station. This is the area that we have most of the jobs are relocated. We have headquarters such as Toyota and we can see right here and other information that we can turn on, other base maps to see other information based on the area photos.

Let me click on the information that is summarized based on LEHD data. For example, in this area, we had about 3,000 jobs in 2002. And in 2015, we have about 12,000 jobs, almost four times compared to 2002. In addition to transit, we can turn on other factors. For example, this layer low poverty rate index from HUD. This is another measure that we can consider and overlap it with LEHD, low wage job and the hotspot of low wage jobs in this region.

Let me go to other area, for example, in Houston. That we can summarize and add other information based on LEHD and add it and overlap it with factors

that are available from HUD, from the GTFS and overlapping ARCGIS online platform that you can use it to compare and analyze each region.

So this is Houston area. And we can see the location of low income, subsidized properties from HUD and their low wage jobs are added in this region. I'm not going into the details for other metropolitan areas. The link is available here and you can use it and investigate if you have any suggestions about other metro areas, we are more than fine to send us an email and I'm going to include that region in this platform.

Then we go back to the slide we had. Till now, we talked about spatial mismatch and we talked about the main key factors that we need to investigate these concepts. In this presentation, we reviewed that how LEHD data and location affordability and transit accessibility can be integrated together to identify the spatial inequality. These tools and overlapping approach and summarizing these variables together can help decision makers and planners to track job changes over time and consider different solutions to fill the gap between jobs and low income residents by either improving transportation systems or the development of communities that are affordable.

With this, I'm ready to take your questions and thank you again for your time.

(Spencer): Thank you (Reza). While we're all preparing your questions, I would like to take this opportunity to thank (Reza) for his presentation and thank you all for joining us today. I invite you back next month on Tuesday, May 14 at 1:30 pm when (Andy Hait) presents Accessing the Quarterly Workforce Indicators in the Census Business Builder. And now we will take your questions.

Coordinator: The phone lines are now open for questions. If you would like to ask a question over the phone, please press Star 1 and record your name. If you'd like to withdraw your question, press Star 2. Thank you.

There is a question in the queue from Dr. (Ragsdale). Your line is now open.

Dr. (Ragsdale): Oh, hi. Thank you. This was a very well-developed and very thoughtful presentation. I was also wondering about other ethnic minority groups, for example, Latinos and also Native Americans if whether you have researched or thought about those populations. Thank you.

(Reza Sardari): Thank you so much for this great point. Yes, fortunately we have this data from LEHD data. For this presentation I just tried to reduce the number of maps. But I'm going to add other factors, for example, there's Latino or Hispanic or Asian or other races available from LEHD on the map.

Dr. (Ragsdale): And a related question or comment is to see the incremental changes from, I think you started in 2002 and then went to 2015. It would be very interesting to see how those groups changed over time in some incremental ways like every maybe every two years or three years if we had a visual way of understanding spatial inequality across time, visually. Does that make sense?

(Reza Sardari): Yes, that's possible as we have, for example LEHD on the map for most of the region. We have some 2002 for each year, we can track changes by race, gender then even age of workers and their home locations. So yes, it is possible but in this presentation for this study, I didn't focus on that part. But that's a good point. I'm going to include it for extending this and include it in the web application that we are working on that.

Dr. (Ragsdale): Yes, and then my final question or comment is in your model I think you were making - you were looking at in terms of low income. You were looking at race. You were looking at gender. You were looking at a series of different points. I don't remember all the model. There was like five different key points you were looking at. What I was interested in knowing is, is there a way to reduce that model? Because I would assume that many of those are highly correlated with each other. Whether you use them and those correlations and that they're high correlated, you know, that I think it would be interesting just to look at less of those domains, if that's making sense.

(Reza Sardari): Yes, to do this kind of analysis especially where we are doing statistical modeling, yes. Because these high correlations or we can use either factor analysis, but here I have the approach I use is for using (ARCGIS) and visualization and creating hotspot. And for example, the relationship map for other variables such as income or poverty rate, these factors are highly correlated.

So we can reduce the factors or using other approach such as SEM model that we can incorporate factors even if there are high correlation between these variables.

Dr. (Ragsdale): Yes, excellent, correct. Yes, or either principle components analysis because of the rotations you have to do in factor analysis. It may be interesting to look at the (unintelligible) and the principle components analysis as well. But thank you very much. I think I've exhausted my sets of questions. Thank you.

(Reza Sardari): Great questions, thank you.

Coordinator: Next question is from (Manuela Shuster). Your line is now open.

(Manuela Shuster): Yes, hi. Thank you for the presentation and I also want to commend the Census Bureau for all this excellent data that's being made available and all the tools. My question relates to the timeliness of the data, in On The Map and also the data presented here. I think the last year is 2015. For other information the data goes at least until 2017. How is that data obtained, the data that's used on the map especially with - which relates to where people are commuting from one place to another?

(Reza Sardari): Yes, this is based on LEHD, the latest data that's available at this time is 2015. So when we see, for example, for the poverty rate, we can have - we can use American Fact Finder or ACS for the most recent ones. I - you want to have the same year that - your question is why the gap between the lag between what we have from on the map data and what we can get from other data sources?

(Manuela Shuster): Yes, like for example why couldn't they get on the map data in terms of commuting patterns up to - through 2017, let's say.

(Earlene Dowell): (Reza), I can answer that. This is (Earlene)?

(Reza Sardari): Sure.

(Earlene Dowell): Okay, so we apologize that we don't have data for 2016 and 2017 yet. We are working out details with one of our larger partners, mostly the Office of Personnel Management which provides the federal employment. So because of that, we have been delaying the process. However, it's come to the point where we're actually - we might produce the data without the federal data. So it's in the works. We're just trying to work details out. And then at that time, we'll be able to update it.

But just to let you know also that the data from LEHD comes from the states. So we get their unemployment insurance wage records along with their QCEW.

(Manuela Shuster): Oh, so the commuting patterns are based on the wage - on the wage data that comes from the states?

(Earlene Dowell): Yes, so what happens is there's a category called Origin Destinations.

(Manuela Shuster): Right, yes.

(Earlene Dowell): What we do is we connect where the worker works and where the worker lives, and that's how we get the commuting patterns.

(Manuela Shuster): And have you been getting this data from the state of New Jersey?

(Earlene Dowell): Yes, ma'am.

(Manuela Shuster): Okay, good. So you are waiting to get like the people - the federal workers' information on the federal workers.

(Earlene Dowell): Yes, ma'am.

(Manuela Shuster): To have a complete set. Yes, it would be good. You could put a footnote saying excludes federal workers.

(Earlene Dowell): Right. We're working on that for sure.

(Manuela Shuster): Okay, thank you.

Coordinator: Next question is from (Mike Allan). Your line is now open.

(Mike Allan): Hi, thanks very much. It was a great presentation. Just wanted to know it's the first one I've participated in or viewed. Will the presentation itself be available offline afterwards? Is there

(Earlene Dowell): Yes, sir. It will be.

(Mike Allan): Okay, and is that about a week later or?

(Earlene Dowell): Hopefully, yes.

(Mike Allan): Okay, perfect. Thank you again.

(Reza Sardari): Thank you.

Coordinator: Next question is from (Linda Banks). Your line is now open.

(Linda Banks): Good afternoon, thank you again for the presentation. I thoroughly enjoyed it as well as the comments that have come in. I really enjoy hearing those as well. I am calling or asking the question of some of the data for the layers that were used and selected. So I saw some that had HUD information or at least a reference to HUD. And I was just curious to know where those data points are coming from.

(Reza Sardari): Yes, HUD they have the geocoded service that they share the latest one, I think its 2016. That is available from (ARCGIS) online platform. If you search on HUD Web site, searching for LIHTC GIS, ARCGIS online database, there's, also we have provided the link to the layers and also API, web service, ARCGIS API web services that you can add it in your ARCGIS

online platform. Or even you can download the Shapefile or the (CSV) file from the Web site.

(Linda Banks): Thank you very much.

(Reza Sardari): Also this provides, detailed information about the number of units they have, their address, the property name, all the detailed information is attached or joined to the geodatabase.

(Linda Banks): Very good, thank you.

(Reza Sardari): You're welcome.

Coordinator: Next question is from (Kathy Campbell). Your line is now open.

(Kathy Campbell): Hi, thank you. This is my first time as well. I am listening because we are getting ready to transition like many others into (Perkins 5 grants) where we are required to have a comprehensive local needs assessment aligning college programs to employment. And I was wondering if there is someplace in the LEHD data that has specific occupations.

(Earlene Dowell): I'll answer that one also.

(Reza Sardari): Thank you (Earlene).

(Earlene Dowell): No, we do not. We don't have occupation, but we do go all the way down to the four digit (NAICS) code in industries, but unfortunately we don't have occupation. Usually you can find that in the American Fact Finder or the American Community Survey, if you need that information, and (BLS).

(Kathy Campbell): Thank you.

Coordinator: Next questions is from (Alfreda Jones). Your line is now open.

(Alfreda Jones): Thank you very much. I appreciate the presentation, a lot of data. And my question was already answered about having access to the PowerPoint presentations for further study.

Coordinator: Next question is from (Stefan). Your line is now open.

(Stefan): Thank you. (Reza), great presentation, thank you on that. I was - there's - just say this is too far afield from the topic at hand, but you being a GIS expert, I was kind of hoping that you were going to dig down a little bit and show us how you actually accessed and placed, for example, on the map data, you know, in your GIS tool of choice. Is that something you intended to show or can show or maybe the next presentation? Thank you.

(Reza Sardari): Sure, I don't know if we have enough time. But I think there are many good tutorials on LEHD program Web site that show step-by-step how to get the data or download it and define it and select the area that you're interested if - you - are - looking for a specific metropolitan area or then you can download that data and define it for home area, work area profile. I'm not sure that we have enough time today for going to for online instruction and step-by-step to download data. Do we have time (Earlene)?

(Earlene Dowell): I don't think we do. I mean how long would that take you?

(Reza Sardari): Close to on the map.

(Earlene Dowell): Maybe if he could send an email.

(Reza Sardari): Sure.

(Stefan): I can just look, you know, for the other seminars, no problem.

(Earlene Dowell): Okay, we're happy to help you though.

(Stefan): Thank you.

Coordinator: Next question is from Dr. (Cosa). Your line is now open.

Dr. (Cosa): Hello?

(Reza Sardari): Hello.

Dr. (Cosa): Hi. I'm sorry. It's Dr. (Cosa). The - my questions primarily have been answered by many of the other participants. But I do have one last one that I would like you to address if you can. And that is, you brought up some serious issues in terms of, you know, the separation of job opportunities from families, low-income families that could benefit from those jobs. And I was just wondering have - has this data even been used to match services with needs of these different, you know, pockets of isolation virtually from jobs that you've shown? In other words, you know, I'm sorry?

(Reza Sardari): No, go ahead.

Dr. (Cosa): I was looking for support services primarily for the working poor, the ones that have real asset limitations and constraints on their income, but they are employed. And - better jobs.

(Reza Sardari): No, it's not included. If, as I know, there are some data available from census. For example if they're dependent by food stamp or SNAP program, this kind of variable we can get from ACS or Census, American Fact Finder and overlap it to job growth and opportunity.

Dr. (Cosa): But you don't know of any organizations that have used, you know, your type of data analysis in trying to match services with those that have real needs.

(Reza Sardari): I'm not aware of that, so.

Dr. (Cosa): Okay, all right thank you so much. That was my question.

(Reza Sardari): Thank you.

Dr. (Cosa): Great talk, thank you.

Coordinator: Next question is from (Joshua). Your line is now open.

(Joshua): Hi, thank you very much Dr. (Reza Sardari) for your presentation. The information is extremely helpful. I wanted to know that with the shift that are - that you're trying to capture, I know that there's a lag in the data, but I don't know if based on the analysis or anecdotal observations, is that the information capturing those shifts that you see happening, how timely is that? And how reflective of that is based on like some normatives that you've seen of how populations move or how jobs move and the gaps that you're seeing?

(Reza Sardari): For the gap, the timeline that we tied from 2002 to 2015, it was the timeline because we cannot get other information from, at this time, from LEHD back to 2000 or 1990. So we started from 2002 to 2015 and calculating the job growth and compare it with other socioeconomic variables.

(Joshua): Okay, I just I know there was a question about looking at time - different time ranges. And then what those shifts look like. And I know, my understanding is the detail in 2015 is a significant amount of time to see a big shift. Have you done analysis on smaller timeframes and is the findings from 2002 to 2015 similar to what you would see trending over smaller timeframes?

(Reza Sardari): Yes, it's possible. I had other analysis for year to year for example 2002 to 2003, 4, 5. But it's not included in this presentation. But definitely I think we can add those slides we had from year to year job growth within the region.

(Joshua): Because my understanding is that you would see like a creeping thing happen controlling for shocks of course.

(Reza Sardari): Mm hm.

(Joshua): Okay, thank you.

(Reza Sardari): Thank you so much, appreciate it.

Coordinator: Next question is from (Tom Mills). Your line is now open.

(Tom Mills): Thank you very much. And thank you for the interesting presentation today. My question is that, you know, you've done a great job of showing how jobs have grown and migrated to the northern part of the Dallas metro region and where low-income families are located, it appears south of downtown. I'm curious about change in those - where those families live. While you've shown change in job growth, I'm curious, did - was there also a change in where people live, low-income families live? Maybe there was gentrification which is pushing them further south. So not only could - is it that the problem

isn't just that jobs are growing north of where people live, but maybe people are also moving further south because of economic displacement? I'm curious if that's what's also happening.

(Reza Sardari): That's a very good a great point that definitely I have now I added just job growth and added jobs within the this region. The next step based on your point, I'm going to add the homework and see how low-income families, their locations, where they live is changing over time. To overlap with these factors that we see here today. But now, unfortunately no, I don't have the analysis to show what's happening based on the time and over time changes for where they live and based on their income, their race and their gender. It's possible based on LEHD on the map data for home area four point analysis, but I will include it for the next step.

(Tom Mills): That would be really interesting. Just speaking from our experience here in Portland, Oregon, what we're finding is that most affordable areas to live are kind of in the far eastern part of the region and the job growth is taking place in the far western part of the region. And so, you know, people - the jobs and the people are moving in opposite directions from one another.

(Reza Sardari): Yes. This is a key point we tried to understand and find a gap between these high concentration of low income families and subsidized housing within the southern part and where we check out the number of subsidized housing property within the north part, there are a few numbers. So even if they don't - for the first point, public transit is not available. If they want to go closer, they cannot afford to rent or find apartment to live. Thank you again for your point. Sure, I'll include for the next steps.

Coordinator: I'm showing no further questions at this time.

Spencer: We're very grateful for (Reza Sardari) and his excellent presentation. Please be sure to come back next month for our May LED webinar. Thank you to the audience for joining us today and thank you to C2ER, and the (LMI Institute) and the US Census Bureau for hosting this webinar.

Just a reminder, participants will receive an evaluation survey when the log off from the webinar. For those who are unable to complete the survey today, you will receive a follow-up email in a few days with a survey link. We hope you enjoyed today's webinar and have a great day.