**WorkforceGPS**

**Transcript of Webinar**

**2018-28 Employment Projections**

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JONATHAN VEHLOW: Welcome to 2018-28 Employment Projections from the U.S. Bureau of Labor Statistics. So without further ado, I'd like to turn things over to our moderator today, John Hahn (sp), supervisor, workforce analyst, Employment and Training Administration, U.S. Department of Labor. John?

JOHN HAHN: Thank you, Jonathan. I'm sorry the radio career didn't work out for you, but that's quite some introduction and quite some voice.

Thank you all for joining us this morning. September 4th of this year, U.S. Bureau of Labor Statistics published their 10-year annual – or their 10-year employment projections, and then talking with Michael and his boss Becky Russ (sp), I thought it would be a good idea to have a webinar for the larger workforce system to bring you up to speed on what the national employment projections are between 2018 and 2028, answer any questions from the workforce system at large, and on the last slide you'll see there will be links to state and local projections.

In looking through today's PowerPoint, one thing that I noticed is there are – there's a large number of high-paying occupations with high employment projections and a number of low-paying occupations with large projected employment. And that's something Michael will be talking about later in his slides.

So what I'd like to do now is introduce Michael Wolf, economist and division chief with the U.S. Bureau of Labor Statistics. Michael, John?

MICHAEL WOLF: All right. Thank you, John. Thank you for having me on this webinar here. Again, I'm Michael Wolf with the Bureau of Labor Statistics, and I'm going to be talking about our latest set of employment projections.

One of the things we're excited about is that we're talking about these projections in the month of September. For those of you who have been looking at the national projections for a long time, we've traditionally released the numbers in December, but we've been trying to get the numbers out there sooner and to align it with the start of the academic calendar for those in the education field. So we've bumped things up to early September right now.

And I got to give you a little bit of background about the projections first. The other thing that we're excited about, in addition to the earlier release of the projections, that this is actually the – either the last time that we're doing it on a biennial basis or the first time that we're doing it on an annual basis. So traditionally, we've released new numbers every two years. Starting this year we will be releasing new projections every year.

So right now, we have the 2018 to '28, which goes 10 years out into the future, and next year we'll release the 2019 to '29. So we'll keep the 10-year interval, but we'll just be updating them on an annual basis. And the idea is to make sure that all the users of the data get the most current information possible.

The data that we're talking about here today, we cover more than 800 occupations and 290 industries. So there's a very large amount of detail available from the data. I'm only going to be able to talk about a couple of key highlights from the data. There's a lot more in there, and I encourage you to look into the data, ask questions about any aspects of the data that I'm not talking about. We'll either address them in the later question-answer section of this presentation, or we can reach out – (inaudible) – after the webinar is over.

Another thing I wanted to mention in terms of background is that the projections we're talking about here are at the national level only, but we do provide our projections to all the states who use them as an input for creating the state and local employment projection. I'll talk a little bit about that at the end of the presentation as well.

Next, I want to talk a little bit about some of the users and uses of the projection data, just a little bit of background about who they are. Some of our core users are career counselors and students, people who are themselves making career choice decisions. The origins of the projections program date all the way back to World War II and the entry of returning servicepeople into the civilian workforce, and the Veterans Administration wanted to give them an idea about what opportunities there would be in the future. And we've been doing this ever since.

So the individuals making decisions about where they themselves need a job or, if they're already in the workforce, if they need to switch occupations. Either they're in an occupation they lost a job or they're just not happy with their current profession. They can look at the data to get a sense about where opportunities may be.

But then also it is used by education training officials – I'm sure a lot of you fall in this category – making decisions on program offerings, what types of occupations training programs should be funded, where they should be expanded, where they should be collapsed based on what the demand for future workers in those occupations will be.

And then the last sort of group of people who use the data are academic type researchers just interested in how the economy is changing. Since we do look at structural change in the U.S. economy over a 10-year period of time, it provides them some interesting information on just the dynamics of how that's changing.

Going to talk very briefly about how we produce the numbers, not to give you an idea about how to do it yourself but just to give you an understanding that there is a detailed methodology that goes into producing these numbers. We don't just pull them out of a hat.

We have a six-stage process. We start by essentially looking at the big picture of the country as a whole. What is the labor force going to be? Who are the people who are going to be potentially filling these jobs? So we're looking 10 years in the future. What is the age breakdown, sex, race, and ethnicity of the labor force? And then we also look at the big picture of the economy as a whole. What's GDP going to look like? What's total employment and major demand categories?

So once we assess – sort of assess the big picture about what things look like for the workforce and for the economy, we start to progressively break it down into greater and greater detail. So we look at industry final demand, which is sort of the final goods and services which are sold to consumers and business and exported, and then we look at what industries need to produce those goods.

So if the economy's producing a set number of cars, that employment is coming from a bunch of different industries. It's not just the auto industry but the rubber industry is producing the tires. These days there's a lot of software that goes into the cars as well. So there are a lot of different industries feeding into all the products that we all buy, and those products are – therefore need to be produced by workers in a lot of different industries.

Once we have a sense of the industry distribution of employment, we convert that into occupational employment by looking up what types of workers are needed in each of those industries and how that mix is changing over time. We know what the current distribution is, but we know that not all occupations move evenly within industries. So looking at those changes give us an idea about what total occupational employment is going to look like.

So that's the six-stage process in a nutshell. I'm going to first talk about some of the big-picture numbers for the economy and then get – focus most of the time on the occupational employment, since that's what most of the users of our data are interested in. But first, going to look at the labor force because that sort of sets the big picture, the population of labor force.

And here we're looking back in time going about 40 years back. The sort of – the key trend takeaway that I want to point out on this slide is the – (inaudible) – the population and the labor force are growing slower in our projections than they have been in the past. Population growth has slowed. Labor force growth has slowed, and therefore, employment growth is slowing as well.

In our projections we're looking at 2018 to 2028. We're looking at about half a percent growth per year in both the labor force and in employment, which is significantly slower than we saw in prior decades.

The other interesting feature that I like to point out in this chart here is that, if you look on the bars on the left-hand side of the screen, you'd see labor force and employment are growing faster than the population in the '78 to '88, '88 to '98 periods. But as we move towards the more current days and into the projection, the population is actually growing faster than the labor force. The blue bar is higher than the yellow and the green bars on this slide.

Essentially, what that's reflecting is the aging of the population. The population includes people who are both working and not working, and as the population ages, as there are more people in retirement and as people live longer, you have greater growth in population than in labor force. And if you look at the age distribution of the workforce, you can actually see that, and it's quite dramatic the changes that we've seen over the past 10, 20, 30 years or so.

The green section of the top bars here is the labor force aged 55 and over, and if you go back to 1998, that was just about 12.4 percent of the labor force. It was the smallest component. But if you look at next 2008, 2018, you can see that green section progressively increasing, and by 2028 in our projection the 55 and older population is the largest component of the labor force. And that's obviously a dramatic change, but that influences both the types of workers but then also the demand for services.

Through the – the aging of the population is reflected in the aging of the labor force and the types of goods and services that older people consume are different than younger people. And the most dramatic of that that we usually talk about is healthcare, and you'll see that in both our industry and our occupation numbers as workers get older but – (inaudible) – and certain other areas as well. So that's just a little bit about what the labor force is going to look like over the next 10 years. Now, I'll switch gears and talk about employment.

So if we're looking at just top-line employment over the projection period, the growth – we're going from about almost 150 million jobs in 2018, our big year, to about 157 million jobs in 2028. You can see from this chart that this growth rate is a little bit slower than we've been seeing since the end of the last recession. And essentially, what's happening here is that from the end of the recession you had very high unemployment rates, but as we've come up to the current date, employment's been steadily increasing and right now is some of the – unemployment is quite low.

So essentially, you had a boost in employment from about 2010 to 2018 caused by unemployed workers returning to employment. Because the unemployment rate is very low at the moment, you don't have any of that boost anymore, and that's going to be reflected in slower overall growth in employment over the next 10 years.

The other aspect is population growth, and population growth, as we just talked about, is starting to slow down as well. So they expect the overall trend line in employment to start to slow to reflect that change in the slowing of the overall population. So this is a big picture of what employment is going to look like. So we're seeing continued growth over the next 10 years just a little bit slower than what we've seen since the end of the last recession.

If we look at where those jobs are expected to be, here we're looking at the major occupational groups that we produce our projections for. And here you can see, as I talked about earlier – to a little bit earlier, the importance of healthcare in the projection. The healthcare support occupations are the fastest growing occupations, and the healthcare practitioner and technical occupations also healthcare related number four on the list. So you can clearly see the importance of healthcare as a source of occupational growth over the next 10 years.

But there are other groups which are also quite fast-growing. Personal care and service occupations, the second fastest growing group, seeing a lot of growth. These are workers like hairdressers, personal care aides, the people who are providing services to individuals, personal care – (inaudible). We'll touch on that a little bit later, actually one of our fastest growing occupations.

And then after the personal care occupations, we have computer and mathematical occupations, this one being a little bit more high-skill type workers in the computer and math fields. Certainly, the prevalence of software in all the devices that we use these days, probably – (inaudible) – people that computer occupations end up near the top of the list.

But mathematical occupations also quite fast growing, primarily due to the availability of data and other – (inaudible) – occupations that are working with data or analyzing data are seeing very fast growth in our projections just because update – the new availability and the new computer processing power to deal with all of that data.

Going a little bit further down the list, community and social service occupations. Those are workers like counselors and social workers. We also have fast growth in food preparation and serving workers and construction and extraction occupations. So these – the occupational groups on this slide here are the ones that – (inaudible) – tend to be growing faster than average.

You see a lot of these occupational groups tend to be higher skilled ones, particularly towards the bottom of the list on this page, legal occupations, business financial occupations, life, physical, and social science occupations. Those tend to be professional occupations that generally require a college degree, but there are certain occupational groups which tend to be built by workers below the college degree level, and as John was alluding to earlier, we have growth at both ends of the spectrum there.

The construction and extraction occupations tend to not be filled by college workers. The personal care and service occupations and then many of the healthcare support workers are sort of the middle-skilled workers in the healthcare field. They're workers who have usually less than a bachelor's degree but may have some form of postsecondary education.

If we go to the next slide, we'll look at the occupational groups which tend to grow at or slower than average projected over the next 10 years. In this coming year, we actually have three occupational groups which are projected to decline. The first of those is sales and related occupations.

This actually is the first time in our projections that we've had sales and related occupations declining. The primary driver of this is the rise of e-commerce. E-commerce allows retail sales growth without the large retail sales workforce that we've traditionally had. The decline is not significant. Just looking at about half a percent decline, but it's notable that it's one of the earlier – one of the first times we've seen this group declining.

The other two groups which are declining also is in administrative support workers and production workers. A lot of these occupations that are declining are due to the impact of automation, either office automation in the case of the office and administrative support work, or manufacturing automation in the case of the production work. And in those cases we're talking about workers who are either being replaced by machines or simply having their productivity be increased by new technology. And we see that a lot in manufacturing.

There's no workers involved in a lot of manufacturing occupations. They're just working with machines which make them that much more productive. So you still have workers involved, but because of the new technology, the new machinery, and the new equipment that's available for them to work with, there are fewer workers needed for the amount of output that is being produced from these types of occupations.

So these are the sales, office administrative support, and the production, the three groups that are declining. The other ones on this list are growing a little bit slower than average. I'm not going to touch on all of them in particular, but it gives you a sense of the big picture about where opportunities are expected to be looking at the – at an aggregate level.

We're next going to switch gears and talk about detailed occupations and those which are expected to grow fastest. This slide here is our 10 fastest growing occupations. What's notable among these occupations, six of the 10 of them are related to healthcare. Shouldn't be surprising, given we talked about the healthcare groups being among the fastest growing, but you see not just at the aggregate level but a lot of detailed health occupations are fast growing.

And that sort of gives you a sense of the – even within an occupational group, you've got a lot of dispersion in growth rate, and when we're looking at healthcare occupations that tend to be growing fast, what we're seeing is some of the changes in the way healthcare is provided by healthcare providers.

And a lot of the healthcare practitioners are moving towards more of a team-based healthcare approach, and you're having some of the more – some of the services which were formerly provided by physicians provided by other members of their team who may be physician assistant or nurse practitioners. That's why those two occupations are among the fastest growing in the economy.

In addition to the healthcare occupations, our two fastest growing occupations are actually green energy related or they're solar photovoltaic installers and wind turbine service technicians. But although these occupations are very fast-growing, they're not going to contribute all that many new jobs because they tend to be very small occupations. And that's why in the chart here I'm showing you both the growth rate, which is the blue bar on the left side, and the number of new jobs, which is the green bar on the right side, because growth rates are important.

They give you a sense about where the most relative increase in jobs will be, but if you're talking about absolute increase in jobs, you need to look at the employment change, which is on the right side.

And you can see that although solar photovoltaic installers is the fastest growing, it's producing many fewer new jobs than say the third fastest growing occupation, home health aide, which is producing over 300,000 new jobs, mainly because it's just a very large occupation. So large occupations that may be growing slower may have more new jobs related to them than small occupations that are growing fast.

And the last point that I want to bring up about this set of occupations is the wage data, which is on the far right side of this chart. Again, as John was alluding to earlier, there are a number of very high-wage occupations on this chart, the physician's assistant, nurse practitioners we talked about earlier both pay – both have median pay above $100,000 per year. But there are also a number of occupations that are on the lower end of the pay section, the home health aide, the personal care aide are just around $24,000 a year.

So you got a wide discrepancy. It ranges from very high-paying occupations or fast growing, and some very low-paying occupations are also fast growing. But on average, the fast-growing occupations tend to be higher paying. There tend to be more higher paying occupations among the fast growing when we're looking at it by percentage change.

On the next chart I'm actually going to flip it and talk about employment change, the occupations that are adding the most new jobs. Here you're going to see a couple of the same ones, the personal care and the home health aide. But these are occupations which are adding the most new jobs. I mean, the green bar on the left side this time, those are the occupations with the most new jobs, and many of them are fast growing. But you can also see a number of occupations that are growing close to average that are just producing a lot of new jobs because they're very large.

And those towards the bottom of the chart, the waiters, waitresses, general and operations managers, and the janitors and cleaners, those are occupations that are growing at pretty close to average rates but are contributing many new jobs because they're very large occupations.

And when we're looking at the – these occupations, the top 10 occupations in terms of most new jobs, you see similarly here a range of wages for occupations. There are some very high-paying ones, the software developers, the general operations managers making over $100,000 per year, but there are more occupations that are on the lower end of the pay spectrum on this chart here.

And a lot of those – I point that out because it's notable, but I want to note that a lot of that's just because of the quirks in the way that the occupations are classified. Very large occupations tend to have lower wages because of only the way that we classify them in the data. They tend to be – basically, the lower skilled occupations are a little less differentiated in the education training needed to enter them.

So they're a little less – they're a little more aggregated in our data. So if we're looking at something like waiters and waitresses, janitors and cleaners, they're very large, but the reason – one of the reasons for that is, if you're looking at some of the sort of more highly paid occupations, we can break them down very finely.

So if we're looking at say scientists, we break them down into very, very discreet categories like, say, biochemists or zoologists who you could aggregate up and call them just scientists and they would be on a more comparable scale to some of these lower skilled occupations.

But because there's a lot of difference in the way that people get into those occupations, we break them down very finely in our data, and that just means that when we're looking at the large occupations, which is what this chart usually ends up being, they tend to be over-weighted on the lower – the lower paying side of things.

I'll talk a little bit more about the – (inaudible) – between growth, pay, and education in some later slides. I just want to note that now because that's a notable thing that people often comment about this – about this chart here.

So right now, we've been talking about growth and new job opportunities, but I want to switch gears a little bit and talk about occupational openings as well because, when we're looking at what the actual demand for workers to enter an occupation is, it's important to look at these growth areas.

But growth is not the only source of opportunities. In fact, in most occupations it's not the largest source of opportunities. In most occupations the largest source of opportunities is to replace current workers who leave the occupation. Either they're retiring or they're leaving the occupation for a better opportunity in another field.

In this chart here I'm just sort of demonstrating that visually. If you look at an occupation at two points in time, you're going to have some workers who in the base year remain employed in that occupation, and we sort of look at the blue section of the bar on the right side. Those are workers who remain in the occupation.

If we're looking at 10 years into the future, there's a significant number of workers who will leave every occupation over a 10-year period of time, but in every occupation there are going to be some workers who will stay over that 10-year period of time.

But the yellow portion, the workers who leave the occupation, they need to be backfilled. They're not essentially contributing to growth because they're filling in existing positions, but when we're looking at what the demand for workers is or when we're looking at opportunities for workers to enter an occupation, we really need to pay attention to that yellow section, the workers who have filled positions vacated by incumbent workers, because it's the combination of the yellow and the green, the green being the new – newly created positions, the growth that we've been talking about, that gives you the full picture about what the total occupational openings are going to be.

So if we look at an example occupation, here looking at registered nurses, we can essentially classify openings due to three sources. The bottom one, the green bar, is the growth that we've already been talking about here. But then when we're talking about workers who leave an occupation, essentially there are two reasons why they might leave. One, they leave the labor force entirely. That's often due to retirement.

But another reason they might leave an occupation is they transfer to a different occupation. They may have completed a degree and they found a better job in a different field or they moved to a different part of the country and there were no opportunities for what their prior occupation was. They need to move to a different occupation or they're just not happy with the occupation they're in.

So those three sources of openings, you got to look at all of them to get a full picture about what – again, what the opportunities are for new workers. So if we have occupational transfers, labor force exits, and growth, we can add the three of them together. This is the data for registered nurses. And if we add the three of them together, we get the total picture of occupational openings in this particular occupation.

And in this case here, you can see the growth is actually the smallest component of new occupation openings for this particular occupation. The mix is going to vary by occupation, and a lot of it is also just based upon the age distribution of the occupation. So there are probably a lot of occupations out there that have a lot of older workers who are approaching retirement, and how that's going to show up in the data is there's going to be a lot of opportunities due to the labor force exit portion.

Now, there are going to be other occupations that tend to be a bit younger in their demographic profile. They tend to have more opportunities due to occupational transfers because younger workers who are still sort of figuring out what they want to do or they're still finishing their education, they're more likely to transfer between occupations. So the mix is going to vary by occupation, and it's going to vary often by – based on what the demographics of that occupation is.

But I note that because oftentimes people will ask us about whether there are going to be enough workers to fill the workers who retire. And I note that in our data we are measuring the potential retirement in all the occupations, and we are creating the – these predictions are what the expected openings are going to be in those occupations. And then the – we don't project supply for each individual occupation.

So we're only really giving the demand side of that occupation, but if you want to know are there going to be enough workers to fill the workers who are going to be retiring this occupation, we're going to tell you what those potential openings are going to be. And then it's going to be a question for the supply side about whether there are enough workers available to fill all of those openings.

So this is a little bit about the occupational openings. If we look at the occupations which have the most openings in them, they tend to be large low skilled occupations for two reasons. One, large openings – or large occupations have more openings just because there are more workers who can potentially leave, but the other thing is that low skilled occupations tend to have more turnover within them. Workers tend not to stay in low skilled occupations as long as in high skilled. You can sort of think that as sort of the amount of human capital that they have that's tied to that particular occupation.

If someone's, say, a surgeon and they've gone to school for 10 years, that's 10 years of schooling which is applicable to the occupation of surgeon but not really applicable to a lot of other fields. So they've invested a lot in getting into that particular field.

But if you're in a little – lower skilled occupation and you really don't have much in the way of significant training, there's a lot less of human capital that's devoted specifically to that occupation. So the opportunity cost of moving to a different occupation is smaller. So that's why when we're looking at these occupations that have the most occupational openings, they tend to be those large lower skilled occupations that have the most openings in them.

So that's a little bit about occupational openings, and it's important to take a look at both the growth numbers that I talked about early on in the presentation but then also the total occupational openings, which we have, again, for all of the numbers – all of the occupations that we project.

I'm going to switch gears now and talk finally about education and how that relates to our numbers. We've looked at what the distribution of workers is by typical education levels. You can see that the largest share of workers are in occupations that typically require a high school diploma or equivalent. About 62.5 million workers are currently in jobs that typically require just a high school diploma, no formal postsecondary education.

Now, many of those occupations do require training, just not usually from a postsecondary provider. And I'll talk about that on the next slide, but the other thing I want to note on this slide here is the relationship between education and pay. And it's a pretty big and expected relationship that the higher the education level, the higher the pay. So a master's degree and a bachelor's degree occupations tend to be very close in pay, but the general trend is the more education you get, the higher the wages associated with the occupations that require that level of education.

So I wanted to talk specifically about the high school occupations in detail because they are the single largest group. If you break them out by the level of education needed on the next slide here, we break down the training level from apprenticeship to long-term on-the-job training which is one year or more of training, to moderate-term which is between one month and one year, and then short-term. OK.

And you can see here that there are many more jobs in the moderate term and the short-term groups, but the pay is much higher in the apprenticeship and the long-term on-the-job training groups.

And that's just to show that, although at the high school level the overall wages tend to be lower, there are relatively high paying occupations at the high school level, and they just tend to be associated with a significant amount of training, either on-the-job training or formal apprenticeship programs. This is just the current distribution of employment by training level and looking at the wages there.

If we look at what the growth rates are on the next chart, we can see that the occupations that tend to require higher levels of education tend to be growing faster, especially the master's degree occupations are our fastest growing set of occupations. But basically, every set – every degree level that – that's at the postsecondary level from postsecondary non-degree award all the way up to doctoral or professional degree, those occupational groups are all growing faster than average.

The ones that don't require postsecondary education are growing a little bit slower than average, although you will note that the no formal educational credential is growing very close to average. So you sort of see sort of the hourglass effect that's been talked about. People call it "the missing middle." The fact that there's fast growth at the high end of the education spectrum but then also relatively fast new growth at the low end of the education spectrum and slower growth sort of in the middle area. And that does show up in our numbers here.

I want to note that these numbers here are based upon what the current educational requirements are. We don't actually project educational requirements, but by and large the educational requirements don't change significantly over a 10-year period of time. There are usually one – a couple of occupations, but then they have changing requirements. But they – they tend to be relatively stable over long periods of time.

So that's a little bit about the relationship between education and occupations. I'm going to talk a little bit more about a couple of resources, and then we'll turn it over to all the questions that you've all been sending in.

So a couple of projection sites. Again, the slides are available for you to download, and you can go access any of these sites. The employment projections data and publications on the – the top link here, that's where you can get the data on all of the occupations. Again, I was only able to highlight a couple of the detailed occupations and a couple of broad trends in the numbers, but all of the detail is available on our website.

The second resource is the Occupational Outlook Handbook. I suspect many of you are familiar with that. The handbook is the way that we present the information, the projections data, for career information seekers. So it provides the data but then also narrative descriptions of the growth rate and then narrative description of the occupation and their education and training requirements. So a lot of details in the Occupational Outlook Handbook.

We have frequently asked questions on our website, and then the last resource I want to talk about is state employment projections. I mentioned that at BLS we do the national projections only, and 10 we turn the data over to the states to produce the state projections. The states already have the data and are hard at work working on the state-level projections for 2018 to 2028, and those will start to come out on a flow basis from the states in the future.

This site projectionscentral.com is a site where you can get all of the state projections in one place. So all the states upload their data to this one site, and the other thing that this site has are links to all of the individual state pages. So you're – if you want to find where your individual state page is, you can get its link from this site here. I'm just going to show you an example on the next slide of what a state projections page looks like.

This one happens to be the state of Oregon, but the states, they all have websites. They all have data at comp – at usually comparable levels of detail to what we produce with the national data. And it's important to look at that because the trends do vary by states. The mix of occupations and industries varies by states. I'm sure those of you – you all know what your major industries are in your region but then looking at what that means for the projections in your individual state or in your region are important. And you should check out the state website to get a better idea about what those individual predictions are going to be in your area.

So that's what I wanted to cover in terms of the resources available, and we're going to answer all of your questions next.

MR. HAHN: Michael, thank you very much. I just want to add one thing to the state and local projections. There are links on the Projections Central website to the state projections. If you have any questions or you want to talk further about employment projections or any labor market information within your state or local area, please reach out to your state labor market information shop. They will be more than happy to talk with you, to give you information, give you insight, and the same goes with BLS.

If you have questions about the national economy, both the national employment projections, e-mail, phone calls to BLS, to these local and state LMI shops. We have economists who love to talk about numbers, and they'll be more than happy to give you the rundown, to help you in any way possible.

So again, Michael, thank you very much. That was very interesting. So we've got a number of questions, and we'll just go through them sequentially.

First question deals with Indian tribe statistics. I believe tribal statistics are included in the national numbers because they are part of the national employment figures and whatnot, but when you get into the states and local employment projections and labor market information, I don't know what is included there or not. Do you know, Michael?

MR. WOLF: So I think just you're correct, that the tribal data will be included in the national data. And then to the extent that the states are basing their data on what's available in their state, it's going to really depend on a state-by-state basis what level of detail, whether they're adding in specifically that. I'd also look at the geographies. Many of the states produce local area projections that may be particularly of interest to a particular set of the state. If there's a particular portion of a reservation or something which is showing up in one set of the numbers that would be a good place to look.

MR. HAHN: OK. And this is an easy yes or no question. "Will the 2019-2029 projections be released in September 2020?"

MR. WOLF: The answer is yes.

MR. HAHN: All right. That's an easy one. All right. The next one, "Where is manufacturing listed on the projected to grow status? Are those within production?"

MR. WOLF: Yes. So when we were looking at the occupational data, the production occupations are the ones which are primarily located in manufacturing. So manufacturing, we do have data on specific manufacturing industries, but in terms of the data that I was referencing, the production workers are primarily in manufacturing. There are non-production workers in manufacturing as well. So it's not a direct relationship, but we do have data on probably about 80 different manufacturing industries as well as manufacturing as a whole. But the broad trend for production occupations has declined, and that is the same for manufacturing.

MR. HAHN: OK. Next question is number five. Can you scroll down so I can read the whole thing? Yes. "With the rise in so many lower skilled jobs, what is expected to happen in areas with high costs of living where the current labor market already has a labor gap due to those jobs paying less than a living wage?"

MR. WOLF: So the – that sort of shows up a little bit more in the state and the local data than at the national data because our data doesn't show where those jobs are located. But yeah. The – I want to note also that the wage data that I was talking about is national wage data. We do have wage data at a state and metropolitan area as well from the occupational employment statistics survey, and so you will find that in some cases the wages are higher or lower for a given occupation in different geographical regions.

In terms of the specifics of this question, whether there are going to be enough workers to fill those jobs, our projections don't sort of provide a direct answer to that question. And as I was talking about occupational openings, what we're projecting is the opportunities for workers to enter an occupation. We don't have supply side projections. So whether there are enough workers to fill those or enough people who choose to fill those, that's something that our numbers can't answer. The numbers can just provide an estimate for the openings that will be expected to be available.

MR. HAHN: OK. The next question, "What you are saying is growth is not related to new jobs but rather filling or replacing vacated positions?"

MR. WOLF: So again, I want to return to this. Yeah. So essentially, there are growth – what growth is telling you is how many more jobs there will be in a particular field than there are either currently or in the past. So if you've got, say – let's just take one company, for example, and say they employ 20 workers. As that company is looking to hire, if that company is expanding and they grow from 20 workers to 25 workers, they've – they're adding five new workers and their growth is five jobs or in this case is going to be 25 percent growth.

But at the same time, that company, of their 20 workers, five of them may leave and go work for a different company. So what that company actually needs to do is not hire five workers to get from 20 workers to 25. They actually need to hire 10 workers to get from 20 to 25 because they need to fill both the five new positions and the five positions which have been vacated by people who left to go to a different company.

So that's sort of – the growth numbers are just the change in the number of jobs. The opportunities are looking at both the change in the number and the turnover. So it's important to know both aspects of it, but when you're replacing vacated positions, that's not contributing to growth because that's just keeping the employment level where it was.

If the company, say, was not growing, if it was going from 20 workers to 20 workers, they still need to backfill those five positions in order to keep their workforce, but their growth would be zero. So you can have opportunities without growth, but growth are just one set of opportunities.

MR. HAHN: OK. Again, on occupational transfer, the question is, "Do occupational transfers include individuals who moved up in a company?"

MR. WOLF: So what the occupational transfers would be counting would be individuals who moved to a different occupation, basically a different profession. So if they're just advancing within their same field in a company, say they move to a more senior level position than what they had before, that would not be counted. If they actually moved to a different field within the company, they could be counted.

So say you're an LPN working in a hospital who is working on a bachelor's degree and then moved to become a registered nurse. That type of movement into a different occupation would be what we're trying to capture, but if they're just sort of getting a promotion within the same field, that wouldn't be captured.

MR. HAHN: OK. Next question. "Understanding that these are nationwide projections, what geographical levels are annual projections available for? Do you have national regions, state, counties, economic regions, et cetera?"

MR. WOLF: So the projections are produced for every state, and then every state produces local area projections, although the level of detail that they get does vary by state. Some states do county. Some states do workforce areas. You would have to check with the specific state.

MR. HAHN: But I know, for example, the Jolts (sp) data has the northeast region, the southeast region. You don't produce employment projections for the northeast region?

MR. WOLF: Correct. Yeah. So there's no data between the nation and the states. You could aggregate the states together, but we don't do that.

MR. HAHN: OK. OK. The next question is rather long, but I will read it. Hopefully, it will make sense. "Question about the wages for food prep occupation. You said that part of the reason the wages look so low for food prep occupations is that the occupation is not as disaggregated compared to the occupations that have more educational requirements. However, when we look at the wages of experienced people within these occupations, the wages for food prep workers are still very low, which suggests to me that the salary range within this occupation is narrow and overall low wage. Could you explain further how disaggregation within food prep occupations would show more range in wages?"

MR. WOLF: So the question is correct. The wages for most food occupations are low. In terms of what we could show from – so the data that I was showing was just the overall national median wage. We do have data on, say – on percentile wages for occupations so we know what the 75th and the 90th percentile wages are. And then we also have wage data at the state and at the metropolitan area, which is going to show some variation.

But in terms of the general point, are wages still low for those occupations? Yes. There's variation within it by geography or by experience, but that doesn't change the fact that, yes. The overall wages are low.

MR. HAHN: OK. The next question, I'm not familiar with the term M- – LMC, but we'll ask it anyway. "For Texas, how does this relate to LMCI data?" I guess that's a comparison between the national data and the state of Texas data, but it is my assumption.

MR. WOLF: So then the – the states do produce their projections. I believe most states have not produced 2018 to '28 projections yet just based on this data because we just made it available to them right now. So there's no direct comparison available now, but there will be soon when the states produce the projections. And then you would be able to compare them. But the specifics of how they relate, you'd have to look at the specific data for Texas.

MR. HAHN: OK. Oh, we've got 10 minutes left, and unfortunately, I think we have a hard stop at noon. So we'll just keep rolling with the questions until our controller here pulls the plug on me.

Next question. "It appears that the occupations that will not be replaced by AI will be those requiring some higher level thinking skills and emotional intelligence. Do you have any suggestions for those of us who work with young adults how to prepare them for these changes?"

MR. WOLF: So this is a little bit more on the career guidance side than on the data side, but I'm not an expert on that. So I will note that a good source of data to look at in terms of skills is O\*NET, which is also produced by the Department of Labor and provides a good – a very rich set of detail on the knowledge, skills, abilities for the various occupations and getting a sense about what those knowledge, skills, and abilities are for the high growing occupations would be a good approach. But again, I'm not a career counselor. So I'm not going to try and specifically provide guidance.

MR. HAHN: And I will say just from the workforce system perspective, our community college, career technical training, four-year universities, they do an outstanding job of preparing workforce people and looking ahead and working with the employers in the local area to help plan for changes in the economy and to get young students ready to enter the workforce. So we rely heavily on those professionals to actually do what this question is alluding to.

OK. Next question. "If we work for a county workforce department, can we get county-level data?"

MR. WOLF: There are some states I believe that do county-level projections, but I would talk to your state labor market information office to get details on that.

MR. HAHN: OK. "Are there any big changes from the 2016 to 2026 projections?"

MR. WOLF: Good question. So the overall trend when we release new projections, they don't change – tend to change all that significantly or all that fast. Again, we're looking at 10 years into the future, and when you go two years further on down the road, there's not that much – these things tend to be relatively slow changing.

So some of the broad trends that we talked about, healthcare being fast growing, computer being fast growing, personal care being fast growing, that's been the case for many, many – (inaudible) – projections in a row. What is new and sort of significant this time is – and I alluded to it when I was talking about the declining groups – this is actually the first time you've had the declines in the sales and related occupations. It's also I believe the first time we've had declines in the office and administrative support occupations.

And essentially, what that's reflecting is overall growth is slower. Those tended to be relatively slower growing groups, but now they just happen to be declining groups. So these structural changes, they percolate through the economy gradually. So we don't expect that something that's declining one set of projections is going to be the fastest growing the next time, but we do see gradual changes in them and some of what we've been talking about there are some of those changes. I think the impact of automation and the impact of the slowing growth of the labor force are showing up in the declining occupations now.

MR. HAHN: OK. Next question. "For positions with high turnover and low wage rates, is this a historical trend? Has there ever been a case in which an occupation was a low wage but increased to provide a more stable retention rate?" So I guess what they're asking is over time has an occupation transformed from low wage to a higher wage?

MR. WOLF: I don't think we have good historical data to provide that type of a – an answer on that one. It is correct that high turnover and low wage are correlated. So if we don't really have enough data to show sustained increasing wages having an impact on retention rates, although that is something that is talked about in certain fields, I think the two – the home health aide and the personal care aides of the very fast growing groups tend to have very high turnover as well and they tend to be very low wage. And I know those communities do talk about the need to push retention by increasing wages, but it's not showing up in the data yet.

MR. HAHN: OK. I'll just skip down to a question 19. "Is there a plan to try to get data on what we call the gig economy?

MR. WOLF: Sure. So BLS has a survey called current population survey, which tried to capture this. We had data that came out last year on gig workers. It's not something that's part of our regular survey, but we're trying to make it part of the regular survey. Are those – essentially, one question we get, are gig workers captured in our data?

To some extent they are. We have household surveys which are capturing all individuals. They don't have to work for a wage and salary company. They do – they would be captured in our data, but a lot of it depends on how accurately they report their gig activity when they're responding to the survey. A lot of times people don't necessarily consider it a job if, say, they're just driving on the side. They may not consider it a job, particularly if it's not their primary activity. So if they're not considering it a job when they're responding to the data, then it won't show up in our numbers. But theoretically, those workers do show up. It's just a question of how – kind of how well they're captured.

Just to clarify, when we're talking about gig workers, we're talking about the on-demand workers who work for Uber or [inaudible], that type of thing. They don't have a formal work relationship with their employer.

MR. HAHN: Part-time independent contractors who just – OK.

And forgive me for cherry picking. We're running out of time, but there's some interesting questions here.

Twenty-two, "How are things like automation and AI taken into account when calculating the employment projections? Are certain jobs projected to be decimated by AI?"

MR. WOLF: So automation, AI, we – our projections take that into account to the extent that we can, based upon our understanding about what's currently going on in the field. Obviously, we're looking 10 years into the future. The state of technology 10 years down the road is not crystal clear. We don't have any time traveling machine to give us an insight sneak peek that nobody else has. So we can only base it on the information that's available and our expectations about what's expected to happen over 10-year period of time.

Is automation and AI impacting the projection? Yes. Many of the declining occupations are being affected by that. I didn't include that slide on here, but some of our fastest declining occupations are heavily impacted by automation.

MR. HAHN: OK. Let's – can we jump down a little bit, Jonathan? OK. Two more questions.

Number 26, "Do you have 10-year projections on salaries?"

MR. WOLF: No. We do not project salaries.

MR. HAHN: OK. And then 27, "Is any of the labor data aggregated by union or non-union jobs? Where could this data be found?"

MR. WOLF: The projections are not differentiated. We do have some historical data on union versus non-union, but we don't project that going forward.

MR. HAHN: OK. Another question along those lines. "Are self-employed included in national occupational projections?"

MR. WOLF: Yes. We do include the self-employed.

MR. HAHN: OK. Again, forgive me. I'm cherry picking here because we're running out of time.

Number 25, "Do you capture a nurse that moves from a hospital nurse to a school nurse?

MR. WOLF: So if that's a question related to does that show up in occupational transfer, it does not, and the reason would be because it doesn't actually create an opportunity for a new nurse because, essentially, they are filling a vacancy for a nurse at the same time as they're creating one. So there's no net change in vacancies and, therefore, no net change in opportunities.

MR. HAHN: OK. Last question, and I'm asking this one because I work with O\*NET. "Does the O\*NET site use employment statistics and projections from BLS, or are they separate from BLS?"

MR. WOLF: Good question. The O\*NET data is all from BLS. So they should match with our website. Yes. It's a different way to access it.

MR. HAHN: Great. I work on O\*NET side of the house, and yes. We rely on the occupational employment projections. We rely on the occupational employment statistics information, and we also partner with the Occupational Outlook Handbook to provide the best information possible to jobseekers, the workforce system at large, and employers.

OK. That is it. Thank you very much for your participation. Michael, a very good presentation. I think it was very interesting, and I do appreciate you coming here and presenting this very important information. Jonathan.

MR. VEHLOW: Yeah. I want to thank our participants today.

(END)