Transcript
Fed Talk: College Degrees and the Labor Market: Long-Run Trends and Recent Challenges for Young Graduates
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Presentation

Speaker:

Barış Kaymak, Economic and Policy Advisor, Federal Reserve Bank of Cleveland

Moderator:

Amy Morona, Higher Education Reporter, Signal Ohio

Chuck Soder:

Good afternoon and thank you for joining us today and welcome to today's *Fed Talk*. My name is **Chuck Soder**. I'm a senior media relations specialist here at the Federal Reserve Bank of Cleveland.

And if this is your first time joining us, you may wonder what is *Fed Talk*? It's our speaker series where we dive into research and other topics that matter to our community. We've talked about everything from inflation to getting into the job market to financial literacy. And if you've missed any past sessions, no worries. You can catch them all on our website at clevelandfed.org.

Now, I'm really excited to kick off today's conversation titled College Degrees and the Labor Market: Long-Run Trends and Recent Challenges for Young Graduates.

Before we jump in, just a few quick housekeeping things. Your microphone and camera are disabled during the event. And we want your questions. You can submit them using the Q&A feature in Zoom. We will get to as many as we can. Now, if Zoom decides to act up on you and you get kicked out of the meeting, just use the dial-in information from your invitation to rejoin by phone. And one last thing, the views shared today by myself and our panelists are our own, and not necessarily those of the Federal Reserve Bank of Cleveland or the Federal Reserve System.

Okay, let's get started. Today, you will hear a presentation from my colleague, **Barış Kaymak**. Barış, I'll let you introduce yourself.

Barış Kaymak:

Thanks, Chuck. Hello, everyone. I'm a research economist at Cleveland Bank, Federal Reserve of Cleveland. My research is specialized in macroeconomics, applied specifically to topics in labor markets. I study dynamics of employment and wage-setting behavior in the labor market as it relates to different factors such as educational attainment, technological progress, institutions, and fiscal policy.

Chuck Soder:

Thank you, Barış. And our moderator today is **Amy Morona**. Amy, please introduce yourself.

Amy Morona:

Thanks so much, Chuck. Happy Friday, everyone. My name's **Amy Morona**. I'm the higher education reporter for Signal statewide, a nonprofit statewide newsroom. I've been a journalist for more than a decade. I'm based here in Cleveland, and I have covered higher education specifically in Ohio for more than six years. So really excited for today's presentation. A reminder to folks, we will be taking your questions, so please feel free to leave them in the Q&A along today's session. And I will turn it over back to you, Barış, to kick it off and get started.

Barış Kaymak:

Thanks, Amy. Let me share my slides. Just one second here, please. Are we seeing the slides?

Chuck Soder:

Yes.

Barış Kaymak:

Can somebody confirm?

Chuck Soder:

We are. We're good.

Barış Kaymak:

Excellent. Thank you. All right. So going to minimize myself. All right. So what I'd like to do today is to talk about a couple of research articles I co-authored with Alexander Cline, one of our brilliant research analysts here at the bank on the labor market outcomes of college graduates and how they compare with other educational groups in particular high school graduates. And Alex and I have been interested in this topic for a while, and we wanted to distinguish between temporary and cyclical fluctuations in the economy from more fundamental and structural changes in how education relates to employment opportunities.

So what we did was to look at the data on the longer run. So what I'm going to talk about today has to do a lot with these long-run trends and secular changes in the labor market for college graduates. And before I continue, I should also say that all views are our own and they do not reflect the views of the Federal Reserve Bank of Cleveland or the Federal Reserve System.

So let me give you a bit more detail about these articles. So one of the things we noticed in the post-pandemic recovery was that the college graduates experienced unemployment rates that were higher than the broader population, which struck us as unusual because historically the college graduates have had lower unemployment rates than the national average. So we wanted to understand why this was happening by looking at the underlying labor market dynamics.

So what we did was to look at the census data and track young workers over the years and look at their experiences in the labor market in terms of especially their unemployment rates, how they're moving in and out of unemployment, whether there's been any changes in the patterns with which they find jobs or they engage with the labor market. And we split the young workers

into two groups in particular. We wanted to focus on the college graduates. That was our target group and we wanted a comparison group and we selected high school graduates as a comparison.

So our motivation for the second article was a bit more academic, I must admit. I had written a paper on how firms might combine workers from different schooling groups in production, and Alex and I wanted to see what that might imply for broader trends and demand and supply in the college labor market.

So what we did was to look at the wage premium for college educated workers in the labor market, along with the relative supply of college educated workers since the 1960s and asked what kind of patterns in labor demand for college educated workers could explain the patterns that we're seeing in the relative wage premium and the relative supply of college educated.

Now, that paper came a little before the findings on the unemployment rate, but we found it helpful in putting our findings in context and retrospect. So that's why I'm going to talk a little bit about that to explain why we might be seeing what we're seeing in terms of the labor market experiences of young college graduates.

Okay, so let me start by showing you the unemployment, how this all started essentially. So this graph is showing you the two groups, high school graduates and college graduates. We're looking at young workers, so they're aged between 22 and 27. In the background, you're going to see these dashed wiggles, that's the raw data, and the solid series are smoothing those wiggles for seasonal noise.

And there are a few patterns that emerge from this picture immediately. One thing that we notice is that the high school unemployment rate is consistently higher than the college unemployment rate shown in green. Another pattern that we see is that both series are highly cyclical. So the grayed shaded areas show you the economic recessions. And during those recessions, the unemployment rates go up for both groups. And these are young workers. So they're particularly affected by economic fluctuations, especially high school graduates, because typically the college graduates have more stable jobs. So relatively speaking, they're more immune to unemployment risk during recessions.

Now, when you look at the more recent period, right at the end of this chart, this is kind of summer of 2025 at the end there, what we're seeing is that the high school unemployment rate, relative to their historical norm, is sitting at the lower end of that range. But when we look at the college graduates, the green line, it's sitting at somewhere higher in that historical volatility range.

So the two series are apart. And they move in tandem, so they seem to move in parallel, but there is a difference in the sense that the gap between the two groups has actually been changing. So when you look at the difference between the two groups shown in purple here, historically that gap has been about 5% in the pre-great recession era. So the high school graduates would have about 5 percentage point higher unemployment rates than college graduates.

And that gap widened significantly right after the Great Financial Crisis and took a long time to really recover. But then when you look at the post-pandemic period, we do see that gap has significantly narrowed and by summer of 2025, it was actually sitting at its lowest point in the entire history that we looked at. So from about 5 percentage point on average, we're now looking at 2.5 percentage points, which is roughly half of the historical norm.

So we wanted to understand what were the reasons behind that narrowing of the gap, and one way to look at that is to examine the underlying labor market dynamics. So we have to understand the unemployment rate is a transient state. We all enter unemployment and exit unemployment. And the unemployment rate is essentially determined by how fast people enter and how fast they exit unemployment.

And there are a few different ways this can happen. So here I'm showing you a flow chart where we divide the population with the three. We have unemployed people, we have employed people, and we have people out of labor force, who are not actually looking for a job. You can enter unemployment in two ways. If you have a job, and if you lose that job, you would become unemployed. That will be an entry rate. We call that a separation rate in the chart.

Another way to enter unemployment is if you were out of the labor force and if you decided to work, you would have to first look for a job. And during that process, you would be categorized as an unemployed person because you're looking for a job. And this is relevant in our context because we're looking at young workers and they tend to be engaged in schools and as they leave their schools and enter the labor market, they would typically have to go through an unemployment period. So that is going to be relevant for us as well.

So these are the entry rates. You can also exit unemployment, and there are really two ways. You can find a job and become employed. That's a good way to exit unemployment. Another way to exit unemployment is if you disengage from the labor force altogether. That can happen for a variety of reasons. You could be looking for a job and you have something else come up that you have to disengage or you have a hard time finding a job and then you get discouraged and then you decide to stop looking for a job for a while or maybe get training again or go back to school, et cetera.

So there's a disengagement/discouragement reason for exiting the unemployment, and there's also a job finding reason to exit unemployment. And it's going to matter which one is behind these trends because they have different implications for what we make of the situation. So what we're going to do is in the data, we're going to split these transitions of young workers into entry rates and exit rates. So we're going to combine engagement and separation. We're going to look at entry rates and we're going to combine job finding and discouragement into exit rates.

So let me start with the entry rates. So this is engagement rates. So people entering the labor market or labor force, and also people losing their jobs. So they become unemployed. When we look at the trends in the data, so the dash lines are now showing you what I was showing you before, and the solid lines are smoothed over longer horizons to give us a sense of what the longer-run trends are. The dash lines will help us understand some of the cyclical fluctuations in the data.

So when we compare the entry rates, one thing we notice, and something we were expecting is that the entry rates into unemployment are higher around high school graduates, and that's because their job loss rates are typically higher on average, so about twice as high as the college graduates. But when we look at the trends in the data, we notice that the two series move in tandem. And when we compare the early years with the most recent years, we noticed that the gap isn't all that different. So the gap between the two groups has been stable over the long run. And because that gap has been stable, we don't think the entry rate could potentially explain the narrowing of the gap.

So these are the averages for the two periods that we focus on. We look at the pre 2000 era, so that's from '76 to 2000. On average, a typical high school graduate would enter unemployment at a rate of 3.9% and a college graduate would enter at 1.8%. So that's a gap of about 2 percentage points. When we look at the last two years, '24 and '25, we actually see that these numbers haven't changed at all, so the education gap has remained the same.

And that helped us eliminate entry rates as potentially explaining the convergence in the unemployment rate. So what that means is that it's not that college graduates are losing their jobs faster now, they're actually losing at the same rate. So then the answer has to come from the exit rate. So this is now showing you the exit rate. This is the sum of the job finding rate and the discouragement rate. And it essentially reflects how long workers remain unemployed.

So when you look at the pre 2000 period, what you will notice is that the green series lies above the orange series. So the exit rates are historically higher. They have been higher for college graduates in the past. And if you look at the post 2000 period, we start seeing a change in that pattern. After 2000, the college exit rates shown as the solid green line, started declining over the years. It went from about 55% around 2000, and now it's coming down to like 45%. Excuse me.

And when you look at the high school exit rates, there are still fluctuations, but they seem to be on an upward trajectory in the long run. So even before the pre-pandemic, when you look at the dash series, if you want to focus on the higher frequency, you will notice that the two series have converged about 2019, 2018 or so. So before the pandemic, we actually see these two exit rates kind of flip sides.

So when you look at the numbers and compare the entry and exit rates pre 2000 and recent episode, we already said the entry rates are similar on the right column. But when we look at the exit rates, we see that the high school graduates, they had exit rates of about 41%, that corresponds to roughly 11 weeks of unemployment duration. And college graduates had 47% exit rates, so that means about eight weeks of unemployment duration. Now these are young workers, so those durations are longer than an average unemployed person.

But the point is that the college graduates had higher exit rates by about 6 percentage points. When you look at the recent years, the high school graduates had the same exit rates as before, right around 41%, but college graduate exit rates went down from 47 to 37%. So now they're looking at roughly about 12 weeks of unemployment, and that education gap is now in favor of high school graduates.

So clearly the exit rate is behind this kind of shift in the unemployment rate that we see in recent years, but we have to be careful here. Exit rate could mean one of two things, that these workers are either more discouraged and they're leaving the labor force altogether. So we could see a narrowing of the gap if high school graduates are leaving the labor force because they're discouraged. So that would actually imply a lower unemployment rate for them. But another possibility is that the college graduates are having a harder time finding jobs. And of course, we want to understand which one is driving these trends because the interpretations of the two are quite different.

So when we look at the disengagement rate, which is one of the exit rates, we see that the trends in the disengagement rate has been parallel for high school graduates and college graduates. And that movement in tandem actually tells us that this couldn't really explain the change and the relative trends of unemployment. It does not fit with the reversal of the exit rates. They do trend

upwards, and I think that deserves analysis in its own right and why we see these discouragement rates going up over the years, but it couldn't explain what we were after.

So then we looked at the job finding rates, and this is where it gets really interesting. When you look at the job finding rates, in the pre-2000 period, you see a clear gap between job finding rates of high school graduates and college graduates. College graduates are finding jobs at a much faster rate. So we're looking at 40% right around 2000, so that's about two and a half months of unemployment until you find a job. So we're excluding those that exit the labor force and we're only looking at those that are finding jobs. So that's like two and a half months. And when we look at the high school graduates, we're looking at a little over three months of unemployment until you find a job.

In the post 2000 period, we do see that gap starts narrowing. And for high frequency, we always look at the dashed ones. And we do see right around the pandemic, we see that those two lines converge. And right now, we do not see any difference between the job finding rates of college graduates and the high school graduates. And that is the dominant driver of the reversal of exit rates. And that is the reason in our view why the unemployment rate between the two groups has narrowed over the years.

So of course, then the question to ask is why is this happening? What are the potential explanations for what we're seeing? So Alex and I thought about a few different things. One at the time, the emergence of generative AI was recent and there was a lot of talk about how generative AI might affect certain people with certain skills, especially cognitive skills and people with STEM degrees more so than others. So we wanted to look at that and to see if really there was something there for us to interpret.

Another thing we considered is the cyclical movement perhaps was leading us to think that there was a longer-run trend when maybe there wasn't one. And the reason for that was the post-pandemic labor market was exceptionally tight. And when you look at job openings per unemployed person over the recovery period, say from '22 to '24, we see some of the highest rates we have seen in history of the United States. The only time where we had an equally tight labor market was in late '60s during the Vietnam War where we had a supply shortage in the labor market.

So that ratio of about having two jobs per unemployed workers, that was historically tight. And we do know that high school graduates have more cyclical unemployment rates. So good markets help them more and bad markets hurt them more. So perhaps what we were seeing, this narrowing of the gap, could be explained by these exceptionally high demand for labor generally speaking. So we wanted to look at that as well.

And then the other possibility, of course, is there are these longer-run structural and fundamental changes in the way the labor market operates for college graduates. And we wanted to look at demand and supply over the long run, whether that could explain what we're seeing in the data. All right.

So for the AI, I mean, this is a legitimate concern generally speaking. Major outlets have linked college unemployment rate to AI. There are also academic research that links generative AI to lower unemployment rates. And the concern is genuine, as I said, because when you think about what AI does, it handles coding, it handles assistant, drafting, it handles preliminary data work and preliminary data analysis. And these are the tasks that are typically done by qualified young college graduates. And there's a study that came out of Stanford Digital Economy Lab that

looked at employment outcomes of young workers in occupations that are exposed potentially to AI capabilities, and they find that employment rates decline the most for such occupations.

But for the question that we have at hand, there's one problem and it's a timing problem. So the AI is very recent. ChatGPT launched 2022 and the implementation of generative AI in production is still taking place and it's still in its early stages. And when we look at the patterns in the data, the college job finding rate starts to decline around 2000. So AI cannot really explain that 20-year trend, although it might perhaps contribute to acceleration of it.

Another thing that we have to look at, we're looking at unemployment rates in particular, so generative AI may not necessarily affect unemployment rates. In research, we do see that sometimes people will find employment effects, but they won't necessarily find wage effects, and it's not clear why you would find and not the other.

So there's a Federal Reserve Board Note that took those occupational exposure measures and mapped them into college majors and looked at which college majors were more exposed potentially to AI. That's by Timmerman. So Timmerman's studies showed us that these STEM majors seem to be more exposed to capabilities by generative AI. In the chart, I'm showing you two different measures. Generative AI does many different things. So depending on those capabilities, we have different exposure metrics. So the chart is showing you the average exposure and the maximum exposure along those different dimensions. The ranking doesn't really change.

So we're seeing math and computer sciences at the top of the list. Generally, engineering, technology sciences, they seem to be exposed to AI. Economics is high on the list, unfortunately for me. The social sciences are there. And when we look down the list, we're seeing biological health sciences and others exposed, and arts and humanities not as affected.

When you look at the unemployment rates by these majors however ... So this is coming from the New York Fed's college labor market dashboard. What they do is they report unemployment rates by college major. This data's coming from 2024, so it's not as recent as we would like it to be. But when we look at these majors, split them into two, half of them are exposed to AI and half not exposed, and the unemployment rates seem to be very similar. So less exposed majors have an unemployment rate of 4% and more exposed about 4.2%.

And that small gap seems to be concentrated in computer sciences. Unemployment rate of 7.8% is what we see when we look at young workers with computer science degrees. And that could reflect AI, but it could also reflect sectoral trends that are maybe specific to the tech sector and they may not necessarily generalize to the rest of the economy. So AI in our view is more of a potential accelerant. It's a little too early to tell what the true effects are.

Now, the cyclical effects, they could be true, but if the historically tight labor markets were helping high school graduates, what we would expect to see is that the job finding rates of high school graduates would increase to catch up with the job finding rates of college graduates. That's not what we're seeing. Instead, we're seeing that the job finding rates of college graduates are declining to converge towards the high school graduates. And that's why we think that the increasingly tighter labor markets aren't really the reason behind our trends.

So what is driving the trends? So let me talk a little bit about this other study that I mentioned where we look at broader trends on demand and supply, and let me tie it all together, hopefully. So what we did there was to look at two things, the college wage premium relative to high school

graduates or non-college workers more generally to be specific, and the relative supply of college labor.

So this chart is showing on the left axis, the relative supply of college educated labor. This is on effective units. What that means is we have college workers of different specialties and different experience levels. Of course, pay varies a lot even among college graduates. So what we do is we map that into an effective supply so that an experienced worker provides more units of labor than a young graduate.

When we add them all up, what we see is shown in the orange series. Mid 1960s, you had about one unit of college labor per five units of high school labor in the economy, and of course, increased as college attainment rose over the years. And fast-forward to post-pandemic period, we're actually seeing that ratio to be about one. So in terms of effective units, we have this kind of labor more market that's split 50/50 between two groups. So a clear increase in the supply of college labor.

When we look at the college wage premium, we actually see an interesting trend. So typically what you would expect as the supply grows, you would expect the price of a product to go down. So in the context of the labor market, what we should expect to see is with growing supply of college graduates, the college wage premium should decline, but that's not what we see.

Actually, when you look at especially throughout the '80s and '90s, you see a pickup of the college wage premium dramatically and that's shown on the right axis. So in, let's say, 1980, it's a little less than 1.6. So that's a 60% advantage for college graduates in 1980 and that went up to about 200% by 2000. And what that indicates is that the demand for college labor must have grown faster than the supply of college labor.

And there are reasons for that. We can talk about how technology might have complemented college educated labor more so than high school educated labor. There are a lot of research on this. And the academic community broadly agrees that the technological progress throughout '80s and '90s have complemented college educated workers and substituted for workers with lower educational levels, especially through automation of certain tasks that are typically performed by high school graduates.

But when we look at the post 2000 era, we actually see that this rapid rise in college wage premium first stagnates and then slowly declines. So that's an interesting pattern and the supply keeps growing. So there's clearly a shift in this pattern. We asked, okay, how would the college labor demand relative to high school labor demand have to move over the years so that we can explain these two series? And this is what we found.

Up until 2000, we found that the labor demand for college workers relative to high school workers grew significantly. So what that means, of course, labor demand is generally growing because the economy's growing, the population's growing, et cetera. But throughout this period, the demand for college labor grew faster than demand for high school labor. And right around 2000, we actually see that this kind of growth just stopped and we have a plateau in the series. And what that means is that labor demand keeps growing, of course, but that growth is now more balanced between college educated and high school educated labor.

There are many reasons why this might have happened. We don't quite know what's going on. But we definitely see a shift from college-biased demand growth to more education-neutral demand growth. And we can think about technological progress potentially no longer

complementing college educated labor. We can talk about maybe shift in the demand for cognitive skills after 2000. But I'm running out of time, so I'm going to try to wrap it up.

So what do we find? What has changed? What we do see is that the unemployment gap between young college and high school workers has narrowed, and we can say that it is attributable to declining job finding rate among college graduates. It has nothing to do with more job loss. It's not related to disengagement rates. And the timing of this change in the labor market in terms of unemployment gap coincides with what appears to be a shift to an education neutral growth in labor demand since around 2000.

And to remind you, there are things that haven't changed. So what has not changed, we still see that college graduates have lower job separation or layoff rates once they're employed. So they retain their advantages in terms of job stability. We do see that the wage premium is substantial. Even when the growth in the wage premium seems to have stopped, there's still a significant wage premium for our college educated workers.

And another thing that I'd like to maybe highlight is that the results on the unemployment rates and the job finding rates are focused on young workers. And the reason we did that is because we wanted to look at a group where education is really an important part of their resume. But for workers that are later in their careers, education is not as important as a credential because they have job experience and they have their longer resume and a lot of accomplishments to look at. And there, we actually do not see as much of a difference between the longer-run trends.

So let me stop here so we have some time for Q&A as well. Thank you.

Amy Morona:

Thank you so much, Barış. That was a very robust presentation. I'm looking forward to discussing it a little bit more. Another plug for folks, please leave your questions in the Q&A part of the chat and we will try to get to them as we can before our discussion winds down. And then a reminder about the reminder. Just know as a Fed economist, Barış cannot give specific policy recommendations or he cannot make forecasts about or related to the economy. So do not include any of those related questions, please. And then sadly, he cannot advise you on what your child should or shouldn't major in. So also don't include those ones. A free unsolicited tip from me, maybe not journalism. Just kidding. I think my boss is on this call, so just kidding.

But anyways, we are not leaving you totally high and dry. Before today's discussion, the Cleveland Fed did survey some of the college employees who registered and are attending today's event. And a little later, we'll share some of their tips that they are offering for students and parents that are looking for some guidance on what their students should do to help prepare in college for the job market.

But first, here's what those college officials said about the changes they're actually implementing, those boots on the ground changes they're making at universities to help here. So I won't read all of them, but you'll note on this slide that the first response here, an official said that the university is trying to make career development unavoidable. Another said they're really leaning into more alumni talks or panels to help with networking and preparation. And then a third here, they're leaning into AI, but also emphasizing that AI cannot replace the core of human skills. So really interesting context there.

So okay, Barış, we covered a lot of ground in that presentation, right? And so folks' heads are spinning a little bit from everything they just learned. What's one of the big takeaways that you

want people to leave with from today's presentation? Just stepping back, what's really changing here in this job market and also what isn't?

Barış Kaymak:

So I think the big takeaway here, there's a lot of focus on recent developments and rightfully so. I mean, we are at the onset of a potentially very significant change in the way we conduct our day-to-day production that might affect different groups differently. And generative AI is going to have a potentially big impact on the labor market.

But what we're saying is that there are other trends that are kind of in the background. There's something real. It's not temporary. It's not because we're in a particularly tight labor market after the pandemic, but something kind of real and more fundamental that has been shifting over the decades in the last 20 years or so that we cannot ignore. So this thing about the job finding rate, it might go up and down slightly, but there's a general trend that's affecting it and we don't expect that to change very rapidly soon.

So that's, I think, the big takeaway. Another one perhaps is to think about broader implications for college attainment in the context of a career and not so much what maybe entry into the labor market entails in terms of taking a little longer to find your first job.

Amy Morona:

That's great to know. I want to go back to even pre-research. I'm just intrinsically curious, what sparked the idea for you and your team to dig into this? I'm curious just, what was the origin story? Why did you want to look at this topic?

Barış Kaymak:

Well, I mean, I've always been interested in the labor market for different education groups. I wrote my thesis on how education might affect your wages, your employment in the labor market, many years ago. And it kind of stayed with me. I've written on wage dynamics, how education affects your wages, how it might affect your productivity. So this, I think, is essentially an extension of that interest and my more recent work on how firms might be thinking about these different schooling groups, how they might be combining these different schooling groups in production.

And that has implications for what we make at the labor market, what we think the right education policies might be, and how valuable those policies are. So that combined with this kind of interest in a really unusual pattern for college graduates to have a higher unemployment rate than the national average. So that particularly was the cause.

Amy Morona:

That's interesting to know. And when you were starting on this research, or I guess more so now that you're at the end of it, looking back, what surprised you while you were doing all of this digging?

Barış Kaymak:

Well, I guess, we do see the unemployment rates, and it's not like I don't trust the numbers or anything, but I thought there must be something wrong that that just doesn't seem to make any

sense. And I thought maybe there would be some kind of completely unrelated thing that is driving this higher unemployment rate among college graduates that would be maybe temporary, that's something specific about the post-pandemic economy that will go away. And to find this longer-run trend, and especially since we had written the other paper and to tie it together and for all of it to kind of make sense was quite surprising for us.

Amy Morona:

I want to segue a little bit and selfishly ask a question for myself in my own work. So as a higher education reporter, I spend more and more time, honestly, in recent years talking about or talking to colleges about a group known as some college, no degrees. So that's a growing group that honestly, Ohio's universities and colleges are really trying to woo back given the state's enrollment and population challenges.

And this research really touches on college graduates and high school graduates, but I'm thinking about those people in the middle. And I know that we had a pre-submitted question from an attendee today who was asking specifically about folks with associate's degrees too and how these trends might affect them. So I think the TLDR here is outside of just college graduates and high school graduates, are these trends impacting other groups that we know of?

Barış Kaymak:

So this is a very interesting demographic and it's growing in population. More and more people are looking into two-year programs and we hadn't originally looked at it, but I have received this question in the past. So what I did was to regenerate some of the charts that we have for these some college and those with associate's degrees. So maybe I can just share those charts with you and see-

Amy Morona:

Bonus, presentation 2.0.

Barış Kaymak:

Well, I like to talk if you can tell already about research. All right. So let me just show you this chart. So this is the ... Oh, there we go. This is the unemployment rate by education. Now I'm showing you these two other groups. So in green, you have the some college but no degree group. And in purple, you have the associate's degree.

And I should mention that the associate degree combines those with academically oriented degrees, with those with more vocational degrees. And the reason we combined, Alex and I, these two groups is, because we didn't really see a big difference in their experiences, and combining them gave us a more robust statistic because we just had more people in that category.

So when you look at this chart here, the unemployment rates for college shown in blue is going up after the post-pandemic. And this is the period I'm going to focus on. You do see a similar increase in high school graduate unemployment rates. Some college also is behaving similarly. But when you look at the purple one, we actually don't see the same kind of increase in the unemployment rate as the other groups.

So if you look at the historical patterns, you will see that the associate degree group lie between high school and college groups, they have an unemployment rate in between the two groups. But when we look at the recent periods, we actually see that they have the lowest unemployment rate of the four education groups we look at. Some college, but no degrees still remains in between high school and college.

When you look at the job finding rates in the data by tracking those workers, you will see that the purple one, the four-year college degree stands out in the way that it declines after 2000. The other categories don't seem to have that pattern. So whatever it is, it seems to be hitting specifically the college graduates.

And maybe I'll just stop there. And we can talk about numbers, but you see the point in the charts. And interestingly, you have this group, people who get these associate degrees essentially as a pathway to a four-year degree, they focus more on the academic programs. They seem to be doing well, just as well as those who focus on vocational degrees.

Amy Morona:

That's interesting. And I guess, a related follow-up and jumping ahead a little bit, but a question that we've already gotten in the chat is when we're looking at that data, did you find or do you know anything about folks who might be "underemployed," i.e. college grads who have a degree but might be working in a field or a job that doesn't actually require a degree? Does that come up in any of your findings as well?

Barış Kaymak:

So our findings didn't specifically look at underemployment, but other folks have. So underemployment, we have to be careful there. Underemployment is something that happens all the time. Even 20, 30 years ago, there were people who were underemployed, people with college degrees who did jobs that didn't necessarily require a college degree. So the question is really, do we see a change in the proportion of people who are underemployed? And I think the question is out. People have looked at it. I know at least one study that finds that college graduates ... This is a study by Paul Beaudry out of UBC.

He noticed this stop in the rise in the college wage premium. And at the time it was actually coming down. It looked like it was going to come down. It later plateaued a little bit, but it looked like it was coming down. And what he did was to look at exactly that, are college graduates doing the jobs that they were trained to do? And at the time what he was finding, especially in some occupations that are related to computer science in particular, you would see these college graduates doing jobs that would typically be done by high school graduates. So there's some of that.

Amy Morona:

Interesting. Maybe that's your-

Barış Kaymak:

But as a broader trend, I haven't seen the recent numbers on that. I'd have to look at the trend to see if that downward trend continued, if it was broad-based, or was it specifically concentrated in some occupations? I'm not sure, but there's definitely some evidence pointing to that possibility.

Amy Morona:
Maybe that's the idea for your next paper.

Barış Kaymak:
And you might see more of that going forward as well.

Amy Morona:
Maybe that's the idea for your next paper. Who's to say? And thank you to all the folks. It looks like the Q&A is very active. So please keep dropping your questions. We will get to them in our remaining 15 minutes. But before that, we did just want to circle back on that promise that we made at the jump for another slide with a few more tips from the college employees that responded to our initial survey.

So the question was, do you have any advice for students and parents that are interested in college, but want to ensure it helps them land a job? The first point here emphasized the importance of co-curricular opportunities and the alumni network that come with a degree. Research your interests and compare them to the current labor market, but also to projected future demand. And again, another emphasis on finding outside learning opportunities like internships, externships that can help you or your student stand out. So hopefully, again, that is not as great as I assume what Barış's major predictions that you all were hoping for, but at least there's some tangible takeaway tips there that we hope that helps.

So great. Segueing back to our Q&A, we had another question in the chat today looking about baby boomers. And the question was, could the loss of baby boomers to the workforce be affecting the types of job openings available if fewer baby boomers had college education? Which that's also a great question just in the context of Ohio, given our aging population here as well.

Barış Kaymak:
So that I think maybe is best broken apart into different components. So aging has always been part of the turnover in the labor market and the way the educational attainment rises just by its nature mechanically is through entering cohorts. The entering cohorts have higher educational attainments. Now, whether that affects the labor market or not will depend a bit on, just like we talked about, education and how they're combined in production, how different age groups are combined in production.

So the older workers typically have a lot more experience and they provide effectively more units of labor per hour just because they're more efficient in their jobs. And what we're seeing is of course, especially in today's climate, that this kind of change is hitting the younger workers more so than older workers. And that's kind of interesting because as they are retiring, you would think that there's some vacancies being created that would be then filled by younger workers. But on the contrary, we're seeing that this whole generative AI is hitting younger workers more so than older workers.

But whether that's going to be a long-term outcome or not is unclear at this point because firms will have to realize that at some point, if you need really experience and talent combined with the education credentials, you have to keep the pipeline going. You can't just stop hiring younger

workers because then 10 years, 20 years down the line, you're not going to have those experienced workers that you will need.

So potentially what might be happening right now is that maybe firms are just trying to figure out their needs and where their production technology will take them, what kind of skills they will need. And once maybe they figure that out, they're going to realize they're going to have to incorporate the younger generations into the labor force again.

Amy Morona:

It's also just like that shared economy of knowledge, right? And so merging and kind of helping shape that institutional knowledge at whatever the job or industry is from that generation to the younger generation too, which is, I think, a really important part of any job.

Barış Kaymak:

No, that's absolutely true. That's absolutely true. And at the time, when the baby boomers were entering the labor market, they actually had a lot of college education relative to the older generations. So when you look at the mid '70s or so, you had this large cohort, larger numbers, and also a highly educated cohort entering the labor market. You're not going to recall the chart, but when you look at the chart in college wage premium, you actually see a dip in the mid '70s. And that has to do with this large, highly educated cohort entering in the labor market. And that's the supply effect that we would maybe expect to see more generally that they're going to draw down the college wage premium temporarily.

Amy Morona:

As we wind down here, I'm going to transition to another topic just to get a few more questions in. Someone asked, might the more recent decline in the wage premium be attributable to the rise in wages for jobs typically staffed by high school graduates?

Barış Kaymak:

Very recently, perhaps. If you focus on the post-pandemic recovery, we do see a compression of the wage distribution, and that is coming partly from the tightness of the labor market. The labor demand was exceptionally high. I mean, you had employers doing the search rather than the workers doing the search. When you had over two jobs per unemployed worker, you had employers trying to reach out for their worker needs that you don't see that very often.

And that helped particularly because of these high school groups being more exposed to these cyclical fluctuations. If there's a sudden growth in demand, it actually helps high school workers a bit more. And part of that came with higher wages for that end of the spectrum, and it might've played a role. But when you look at the chart that I was showing you, that starts around 2000. So that wouldn't really explain the stagnation or the plateauing, if you wish, before the pandemic.

Amy Morona:

And we'll sneak in one more question before we close out today. You talked about so much context and information and numbers, and I joked earlier about something that could be your second paper. But I am broadly curious, what questions or threads remain from your work here that you're interested in potentially pursuing next? Not anchoring you to any additional work, I

am sure, but just what are you most interested in following up with from what you unearthed in this round?

Barış Kaymak:

Research has always been interesting for me. So we constantly think about different questions that we might tackle. There are a lot of questions to tackle. There's never a shortage of questions. So Alex and I have been thinking about the rise in the discouragement or disengagement rate that we see over the years. That's one of the things that we want to look deeper in because you do see that increase in that disengagement rate, the fraction of unemployed people who just stop looking for a job and leave. What do they do? Why do they leave?

There are many reasons typically to do that. You might have some family obligations that come up or you just can't work, or do you want to work, but you can't find a job? So those will have different welfare implications. It's one of the things that we're looking at. Of course, with this rapid technological change that we're seeing, there's going to be a lot of questions about how AI might affect the labor market, where it might complement, where it might actually substitute for labor.

Those are the questions that we're going to be interested in. There are a lot of angles that we have to think about. There's a lot of focus on labor substitution effects or labor complementarity effects, but it's more than that. I think you have to think a bit more broadly about AI because the AI technology will help us also train workers more rapidly. You can outsource some of those training responsibilities to AI as well.

So I think we have to see. The data will be incoming and we're going to be monitoring this situation closely because currently the available data is not really telling us a definitive broad-based conclusion. We're limited with the data that we have for a few years. So we have to start making those comparisons of exposed occupations or unexposed occupations. But when you want to think about the broader macroeconomic consequences, we're going to need more data.

Amy Morona:

Well, we look forward to getting that data, reading your work and keeping up. Maybe those are future *Fed Talk*s. But thank you so much for sharing all of these fascinating findings with us today. We really appreciate it.

Barış Kaymak:

Thank you.

Chuck Soder:

Yes. And before we wrap up, I want to make sure everyone knows about a few things. First, we'd love to hear your thoughts. There is a survey link in the chat, and it'll also pop up in your browser when we close out of Zoom. So please take a quick moment, share us your feedback. It really helps us make these sessions better so that you want to attend more.

We'll also be sending you a follow-up email with information about today's program, so keep an eye out for that. And if you want to watch or listen again, or say you tuned in late, the video and audio recording will be posted on our website at clevelandfed.org/*Fed Talk*. So you might want to look for that next week. And if you're a podcast person, you can subscribe to the *Fed Talk*

podcast and catch this session, plus all of our previous sessions. It's available wherever you get your podcasts.

Oh, and one more thing, mark your calendars. Our next *Fed Talk* is coming up on Wednesday, April 15th at 3:00 PM. We'll be talking about our Small Business Credit Survey result. That is a national survey that the Cleveland Fed plays a big role in putting together. So the registration link will be included in the follow-up email from this program.

And thanks again for spending part of your afternoon with us. Hope to see you next time and have a great rest of your day.