

# Conversations on Economic Inclusion with Shaun Daugherty

## **Dionissi Aliprantis**

This is Conversations on Economic Inclusion. I'm Dionissi Aliprantis, the director of the Program on Economic Inclusion here at the Federal Reserve Bank of Cleveland. In our program, we aim to bring together researchers and practitioners to learn about what it takes for more people to participate more fully in the economy.

Career and technical education helps students build skills that are useful in specific sectors of the labor market, like the skilled trades, advanced manufacturing, health services, and information technology. To learn more about how career and technical education has changed over time, I spoke with Professor Shaun Daugherty, a professor of education and policy at Boston College who is a leading expert on the topic. He told me about the ways that career and technical education has changed in response to changes in the economy, and how it is particularly helpful to boys from poorer households.

Before we get started, I should mention that the views expressed here are those of the participants, and not necessarily those of the Federal Reserve Bank of Cleveland or the Federal Reserve System.

And now, here's my conversation with Professor Shawn Daugherty.

## **Dionissi Aliprantis**

So, could you tell us just a little bit about your background? So, what shaped you personally and professionally to get to where you are today and studying the issues that you're studying?

Shaun

Absolutely. So, after studying math and economics as an undergraduate, I worked for a year as a research economist. I was really interested in pathways into the workforce. And I started a PhD in economics, though I found I really liked the teaching I was doing as a teaching assistant. And I was less clear on exactly what I wanted to do with the PhD. And so, I left after substitute teaching in middle schools and high schools during my breaks and took a job as a high school math teacher.

Shaun

Unwittingly, I was hired in the year that No Child Left Behind was signed into law. And so, in the suburban Philadelphia school district where I worked, all of a sudden, the state tests that we gave had a different mandate. And we were a large comprehensive high school. And we almost immediately started to have groups of students who were not making adequate yearly progress based on the policy requirements. And because of my background in math and statistics, I was drafted to help with school improvement and data analysis for both my school and district, which I very gladly did.

Shaun

after two more years of helping to design interventions and assignment policies for students to coursework and interventions that were meant to help improve their performance, both presumably for their benefit and the school's, I was really at a loss for being able to convincingly tell myself whether or not what we were doing was actually beneficial for students.

Shaun

So, I had concurrently been participating in some programming at the University of Pennsylvania and learning about techniques that I could pursue learning myself that would help me answer some of the questions I had. And so, at that point, I made the change to graduate school, to acquire some of the tools to allow me to understand what the causal impact was of educational interventions and policies on students, on teachers, and on short-term and long-term educational outcomes.

Shaun

And I'll just add here, relevant to my interest in career and technical education, that I was a liaison to our local technical center. And I taught students who attended both the technical center and our comprehensive high school. And I was really struck by the level of engagement that I saw for our students who attended both schools. And it was clear to me, at least anecdotally, that my students were coming to school so they could go to the technical center, not because they found our comprehensive high school programming so engaging.

Shaun

And so, as part of the work that I did in graduate school, both to study the impacts of school accountability policies, I also started to pursue this interest in the relationship between career and technical education experiences in high school, and youth completion of high school, their performance while in high school, and then their transition to post-secondary education in the workforce.

### **Dionissi Aliprantis**

Okay. That's a great introduction. Thank you. That's very interesting.

So, when we start a conversation about career and technical education, I was wondering if you could just maybe give us an overview of what is meant by that phrase? What types of schools might we classify as being a career and technical education school? And what do the schools do with their students?

Shaun

Sure. So, career and technical education is the current language for what has been called for more than half a century, vocational and technical education previously, at least here in the United States. Most of the rest of the world calls it vocational education and training. But career and technical education is really the updated language that was adopted with a previous authorization of the federal Perkins Act. And the idea, I think, was one, to change away from the vocational language that had some negative, still, I think carries some negative stigma, at least in the US public school system. And two, to recognize the diversification of the career pathways open to students as a function of pursuing vocational education.

Shaun

So, I mean, to be real specific about it, current technical education still very much encompasses skilled trades, mechanics, manufacturing, training, cosmetology, culinary arts, programs that we might think classically are a part of, or were a part of, vocational education, but it has also expanded to include advanced manufacturing, that is more and differently technical than in the middle of the 20th century the rapidly expanding fields within health services and information technology as a few specific examples.

**Dionissi Aliprantis**

So, some of that has to do with, as you were saying, maybe some of the negative connotations. But some of it also maybe has to do with changes in labor demand and the skills that are actually in demand is what you're saying?

Shaun

That's exactly right. The expansion of applied STEM pathways. I think both goals were being met with this change and naming. And then in terms of where career and technical education takes place, most students in high school take at least one elective CTE course, whether they realize it or not. It doesn't always come with that label, but applied business courses, family and consumer science courses. And in addition to the specific, more technical fields are offered at most public high schools in the US, and that's the most common place for students to take CTE coursework.

Shaun

Now, many states also have regional technical centers where students attend part of their day at their residentially assigned comprehensive high school, and then another part of their day at a regional technical center. And the advantage of those centers is, it allows for expensive equipment to be shared across school districts, sometimes countywide in the countywide systems throughout a lot of the Southern U.S, and then across districts in the Northeast and Midwest where a similar model is housed. And then allows more time. It's not a 45 minute or 90 minute period. Students can go and spend half a day in a lab and really get into the training and experience.

Shaun

And then the least common format for CTE are in full-time CTE dedicated high schools where students apply to these schools as schools of choice. This model doesn't exist in most states. But when students get in to this model in states like Massachusetts, Connecticut, New Jersey, and New York, they spend their whole day with the integrated technical and core graduation requirements being offered in that setting, and in ways that are more integrated than is possible in the other settings.

**Dionissi Aliprantis**

when thinking about career and technical education, I'm curious to know, who tends to benefit the most from career and technical education? Do people benefit from it? Do we think that people benefit from it? Who are those people, if so? And what are the fields that maybe are particularly good fits for current technical education?

Shaun

Sure. So, part of your question gets at precisely what intrigued me about trying to understand the benefits of CTE. Which is, generally the folks who choose to pursue technical education in high school or college are different in some way that we can't observe from the people who don't choose those pathways. And so, there hasn't been a lot of great evidence of whether there's a positive impact of participating, in part, because we haven't been able to solve this selection problem.

Shaun

The best available evidence, I think, comes from the least common format, the full-time technical high schools. In part, because they're so popular in many places that they're oversubscribed. And then we get some natural experiments that we can learn from. But the evidence there, I think, is pretty clear that students who express an interest and get into these schools have better outcomes on average. And

we've been able to demonstrate this on high school completion, and on early workforce outcomes. To get into real differences in who benefits most, I'll just say that in work that I did in Massachusetts, we were able to show that students who came from less financially privileged backgrounds, at least as measured by eligibility for free or reduced price lunch had an even larger benefit in terms of high school completion than their otherwise higher income peers.

Shaun

And then I think importantly for how we think about this in the policy context, in other work that we've been doing in Connecticut, we found that the only real benefits accrue to males who enroll in these technical high schools, and there's no evidence of harm to female students. And quite honestly, the female students who apply and didn't get in have much better outcomes than the males who applied and didn't get in. And so, some of it is a story of avoiding really bad social outcomes for males who are interested in technical education, rather than seeing an equal boon for females. And at least some of this is explained by sorting into really predominantly male fields, like manufacturing, construction trades that have really large payoffs early in the career.

**Dionissi Aliprantis**

Okay. Well, I mean, that's important. It sounds like this is a tool. It sounds like maybe it doesn't apply to everyone or its benefits aren't necessarily for everyone, but if it can help those students that you just described, that's actually a big deal.

Shaun

Definitely. These are really large and profound benefits for the folks to whom they accrue.

**Dionissi Aliprantis**

what do you think based on all the research that you've done and your experience, what do you think are the critical features that determine the success of the CTE program or school? And how do you think about the differences across the different modes of CTE that you described earlier?

Shaun

So, one feature that's present in the technical centers, which to be honest, I haven't been able to systematically study in the ways that we have for these full-time schools, but they give students larger chunks of time to spend in their labs and really engage both with their peers, to learn some of the skills about how to work in teams and how to work out differences to help solve applied problems. More time with teachers in terms of relationship building. So actually, I think the relationship building with adults who have knowledge and expertise, who can really help train them and the additional time or the larger chunks of time to get that training and build those relationships are likely a big part of what creates positive outcomes.

**Dionissi Aliprantis**

So, on that note, how much do you think... I'm thinking about how much we've been learning in recent years about what we used to call non-cognitive skills, but now we maybe call social and emotional skills because, they're actually cognitive. They relate to the mind. And we're finding out how important all of this is for the labor market. I'm wondering how much of some of the things that you just described, how much is it just a matter of acquiring some of those types of skills, working with say a mentor or someone that's already in the field. And along with that, I'm just wondering, I think there's some evidence that

youth employment, like summer jobs can be really effective in some related ways. And I'm curious, how do you think about those two approaches next to each other? Do you think they're complementary? How much do you think they draw on that same principle?

Shaun

So, I absolutely think that they're complementary and part of the reason I will say that so confidently is we're also seeing in more recent analysis of our work in Connecticut that, having formal employment while in high school explains some of the longer term benefit in terms of workforce outcomes. And so absolutely in my mind seems to be the case that getting experience with those customer interactions, figuring out how to work in an employment and applied circumstance is definitely a factor. And I think that two reasons why I think that can happen in technical education maybe to a greater degree than in core graduation requirements or comprehensive high school coursework is that, a lot of the teachers have worked, in some states it's an actual requirement, have worked in these fields and have connections with employers and understand how and why things need to be done a certain way. And that does come through in their teaching and training of students in ways that, one, I think are an explicit part of the curriculum, but two, have an authenticity that it's hard to reproduce elsewhere.

**Dionissi Aliprantis**

And how much do you think, maybe like job referral networks, or, when you think about those instructors coming from those companies, how important would you say is the real world experience of, in this company they expect this. How much do you think it also is a matter of maybe they have connections there that they can still set up students with internships or potential employment?

Shaun

Yes. So, in quite a few technical education programs, there's an expectation that there are employer partners and those partners are meant to both inform the curriculum, equipment use techniques, but also to help smooth these connections, and create these work-based learning opportunities for students who are in the programs. But I would be stunned if we didn't learn through a qualitative follow up that in fact, the teachers' connections with employers, persistent connections with employers help place students, even after they graduate into full-time jobs. And that those networks and connections to the aligned industries really matter.

**Dionissi Aliprantis**

Okay. Interesting. So, I do actually have a question about these partnerships and I'm wondering, so we had a recent conversation with the principal of Davis Aerospace of Maritime High School here in Cleveland, Tim Jones. And he described the importance of developing mutually beneficial relationships with companies, with the private sector. And so, when we think about leveraging the support of the private sector, have you seen any strategies to... Tim was talking a lot about his strategy that they were adopting there was to make sure that companies actually saw this school as part of their talent pipeline.

**Dionissi Aliprantis**

So, it was something more than just maybe sending a check, but they become really invested with the work that Davis A&M is doing. One example being United Airlines. And I'm wondering, do you see any approaches with engaging the private sector or with really forming those partnerships that seem particularly effective to you and how can we think about developing those mutually beneficial relationships?

Shaun

So, I definitely have seen plenty of other examples of something similar. So here in Tennessee, I know that Nissan down in Murfreesboro and Volkswagen down in Chattanooga have similar relationships with their county public schools and have come to rely on those programs as suppliers of high quality and well trained graduates to employ. And then they participate in some of that training. So, some of it is, having proximity to an employer that's going to be desirable to students when they graduate and, United in the example that you used, and these two auto manufacturers here in Tennessee are certainly examples of really, big ticket marque, potential employers. And small business owners and more localized employment also seems beneficial. So having contractors, having local manufacturers, especially now in advanced manufacturing, making those connections. But I haven't seen a good playbook for how people make that happen. It does seem like a lot of shoe leather. So having a principal who is in a-

**Dionissi Aliprantis**

Elbow grease.

Shaun

Exactly. An elbow grease though, I'll throw an example out there that in Massachusetts, there is an additional level of state approval that CTE programs can get called chapter 74 approved programs, where they have to meet all of the standard federal requirements to get the Perkins block grant. But then they have additional requirements above that. And one of them is that there need to be post-secondary partners, employer partners, and partners in organized labor or workforce investment boards. And I think that formal requirement does mean that, to some extent they can select programs that have done a good job of making these connections, but by making it a formal requirement, an expectation and providing some guidelines on what should happen, I think it helps then educators go out and contact employers and say, we need X, Y, and Z. And if you can help us with that, we can guarantee you a pretty reliable pipeline of employees.

**Dionissi Aliprantis**

It helps with coordination and expectations and all those because it can be very nebulous and just like, Hey, let's partner, and this makes it a little bit more concrete, both the ask and the outcome, sounds like.

Shaun

Exactly. And the Central and Northern European countries I mentioned before, is that this coordination is taken on by these local government agencies. Some are probably, Cantons in Switzerland probably roughly analogous to counties, but that coordination, doing it, that's where there's no clear playbook in the U.S. And outside of workforce investment boards, probably not an entity who's prescribed to take that on.

I realize I've been focused on thinking about K12 and high school CTE programs in part, because I mean, that's a large fraction of participation in the U.S., and that's my background is more in high schools, but there's also increasingly state policy focus on thinking about pathways that have associates degrees or associates of science, or short or long certificate programs in community colleges and thinking about dual enrollment and dual credit opportunities to help students span the K12, the higher ed experiences to go and get those certifications. So, I think there's also, thinking about the future of CTE, there's room for both acknowledging and supporting and facilitating more of those pathway transitions that should

also, I mean, have similar upsides, both for individuals and for local economies. But that acknowledge the tension that we know exists between moving from one stage of the educational system into the next.

**Dionissi Aliprantis**

So, as you said, we've talked a lot about K12, but you see this potential with community colleges. I'm curious, is there anything related that you would take in terms of adults already in the labor market? And I think that might also connect with the community colleges. What do you think are strategies or important lessons from CTE, whether it's at the high school level or more generally? How can we think about people already in the workforce that might want to try to retrain or get some certificate? How should we think about that and how it's different than say in K12?

Shaun

Sure. So, I think in K12, to a question you asked a little while ago, part of the goal of CTE I think is to make high school a more enjoyable experience, help students persist to get a high school diploma who might not otherwise, or to find electives to explore potential interests that just help them be a more informed consumer of their future choices. So, it doesn't all have to be from high school to the workforce, it could be about having a better experience while they're and getting to work through right during this very-

**Dionissi Aliprantis**

Exposure.

Shaun

Exactly. I mean, it's a very sensitive period of youth development. Identity exploration, you don't know unless you try some things. And so, I think that there's that value, but from what we can learn from the high school and community college setting, and how do we think about worker retraining, I mean, one, community colleges already have an explicitly as one of their three focal goals doing worker retraining. And I think some of the federal Perkins expectations that the community college CTE programs also align with local workforce needs should help continue to aim to meet those goals, because programs are being updated and customized in ways that reflect the local economy. I worked through Harvard's strategic data project with some fellows at technical and community colleges across the country. And it's clear to me that there are lots of efforts to find ways both on the for credit side and the not for credit side to structure programs optimally, to minimize time out of the workforce for workers who need to get retrained, but to make the skills that they gain there the ones that they need to get the jobs.

**Dionissi Aliprantis**

Okay, great. So, I feel like we've covered a lot of ground, and I think I've asked most of my questions, but I realize I might have a blind spot or two. So, I'm curious, what should we have spoken about a little bit more? What should I have asked you about that I managed to miss?

Shaun

So, one question, I think in framing some of my answers I've also jumped passed some important pieces. So, one that's top of mind, when we think about tracking, we think about the potential of the risk of either having adults push students into doing things that are not in their best interests or at least not responsive to what students are saying they want to do. Another challenge we found, we did a multi-

state report where we saw that, there's differences in who chooses CTE within a school, but there's also big differences in what programs are offered depending on where you go to school.

Shaun

And so, knowing that most students go to comprehensive high schools and/or have access to a regional technical center, not all students are going to have access to the programs that are of interest to them, or that are going to best position them for employment in the field that they want to pursue after high school. So, I do think a key policy challenge more at the local level going forward, and in coordination with states, is making sure that program offerings are not systematically different based on the average income of individuals in your school, and that what we perceive to be the high or know to be the high value added pathways for students who want to pursue them, that there's equitable ways of accessing those programs. Whether it be at the high school or through the community college, but just really thinking about explicitly connecting youth with those opportunities to provide maximal benefit.

### **Dionissi Aliprantis**

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