

Conversations on Economic Inclusion with Basit Zafar

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. When it comes to building a productive career, college can make a big difference. Workers with a college degree tend to earn more than workers with a high school diploma. What may be underappreciated though is that among college majors, graduates in a field related to Science, Technology, Engineering, and Math have higher earnings than those in other areas of study. Women and minorities also tend to be underrepresented in these majors, which contributes to an earnings gap for these groups. How can we create pathways for underrepresented groups in STEM fields? To gain some insight on this question, I recently spoke with Basit Zafar. Zafar is a Professor of Economics at the University of Michigan, who studies how college students form beliefs about and ultimately choose their majors.

Zafar notes that college majors have significant implications for the labor market and that women and minorities are less likely to choose STEM majors. Zafar points out that most students enter college misinformed about earnings occupations and college majors. Students from disadvantaged backgrounds appear to be even less informed. One way this appears is that once enrolled, they tend to take longer to drop out or switch majors. These patterns suggest doing interventions that helps students map their interests onto a successful college major could better lead them to a career in a field where they will thrive. Professor Zafar also highlighted to me that investments in human capital are sequential.

This means that tastes for college majors are often formed well before students arrive at college. These tastes could be influenced by the differences between boys and girls and investments made in early childhood, or by differences in the courses available in one's high school. This feature of human capital investment indicates to Zafar that starting in the K-12 years is an important way to increase representation in STEM majors. 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 Basit Zafar.

Basit Zafar

I am Basit Zafar. I am a Professor of Economics at the University of Michigan. A lot of my work has focused on higher education choices of high ability individuals. A lot of my work looks at trying to understand gender gaps and college major choice. A lot of my work focuses on how students form expectations, the role of information frictions and how these expectations, beliefs and other factors then drive the choice of college major. I am actually a first generation college kid, so I didn't have much pressure from my parents at all about what to pursue in college, but I came in... Our behaviors, our expectations are all affected by our surroundings, so I liked Math in high school. I didn't know much about Economics, so I came into undergraduate thinking, "Okay, this is what I'm going to do." And luckily the school I went to for undergraduate, there were a lot of opportunities for exposure to research, and that's when I took some Econ courses and I really liked it.

It was pretty Math focused, but you could see Math being applied to more tangible questions, I think. And that's what I found appealing, and that's why I got into Economics and then went to Econ Grad School. So I was always interested in a lot of different questions, but one of the questions I was interested in is, when you think about college major, it's such a consequential life decision because as we'll hopefully talk about later, college majors have implications, or there is some mapping of college

majors to occupations and these are going to be called consequential, so I was interested in, how do people make these decisions? And when I first started looking at it, there was some work on this, but not much. Economists are always talking about equity and efficiency, and I think at the end of the day, the way I think about this problem, but most of the other problems that we as economists study is, we want to make individuals, help them make informed decisions.

So if people are making decisions under some kind of inefficiencies, whether those are information based or something else that's going to be suboptimal from an individual perspective. And now then when you scale this back to the social levels, the societal level, if people are stuck in bad matches in this particular context, if someone is majoring in something which expos is not a good fit for them, that's clearly inefficient from the individual perspective, but also at the aggregate level, these are talents that are being wasted in bad matches. So college on average seems to be worth it for most people, that's pretty well known. Something that maybe arguably is less well known is even conditional having a college degree, there are very large differences in earnings across college majors.

So for example, in fact, the earnings difference between an Engineering graduate or an Economics graduate and someone who majors in Education, it tends to be as large or even larger than the earnings difference between an average college graduate and a non-college graduate, so that's one reason why we should care about this. I think there is another reason, when I started looking at this question, I was just interested in trying to understand why people make these decisions. But over time, as college has become much more expensive, I think these decisions are much more, they were always consequential. But I think in some ways in relative films, the stakes are higher because college costs have gone up a lot. And earlier on, maybe people didn't think about this very carefully.

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I'm wondering if you could now tell us a little bit about just general empirical facts about overall attainment, maybe regardless of major over recent decades, and thinking about that by demographic characteristics.

Basit Zafar

Sure. I'm happy to talk about that. So as you're alluding to, there have been pretty radical shifts over time, so a lot of my work focuses on gender. So I'll start talking about a little bit in terms of these trends over time. By gender, so if you see what's happening, if you were to go back to the '50s or '60s, many more men used to graduate from college than women, and over time there've been pretty radical shifts. So I think in the late '70s-

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Things have changed.

Basit Zafar

... things have changed. So this has been the case, I think, since the early '80s that many more women graduate from college than men do. In fact, schools, I think, at the very top end, they're able to maintain a gender balance. But if you look at schools in the middle of the ranking distribution, they tend to be more females who are enrolled there and who graduate from them. So over time, what is happening is more women are enrolling in college. So they're actually pretty large differences in terms of enrollment margins, but also in terms of graduation margins because one thing which, now I've internalized this fact, but one thing which is pretty striking in the US is graduation rates are pretty low, and on time graduation rates are pretty low. But even if you look at six years out, what proportion of students have a

Bachelor's degree? It's shockingly low. At best, two thirds of students would have a Bachelor's degree, so even there you see gender gaps.

So not only are more girls enrolling in college, even conditional and enrolling, females are much more likely to graduate from college than men do. So that's one fact in terms of just in attendance and enrollment in college. The other fact that you see, again, just sticking with gender for now is men and women choose very different college majors. And again, that's something that has changed over time. So earlier on, for example, a lot of female college graduates used to, for example, major in Education. Over time, the share of individuals who is majoring in Education has been going down for both genders, much more so for females. And over time, if you look at the share of individuals who graduate with majors in Businesses, especially if you look at the gender gap, the gender gap has closed quite a bit. It hasn't gone away entirely, but there's been a lot of catching up in a field like Business. In other fields, if you look at Engineering or Economics, there was some closing on earlier on in the '80s, but this is where there has been a lot-

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[inaudible 00:08:20].

Basit Zafar

... exactly, especially Economics is a place where, I think maybe we'll get to this at some point. There is clearly an issue in the pipeline. Very few females decide to major in economics, and then that has implications throughout through the entire pipeline. So those are some facts with regards to gender. By race in general, when we talk about differences, whether it's in race in terms of socioeconomic background, if you look at what are the enrollment rates of children who are first generation kids where neither parent went to college, or if you look at these differences by minority status, you see there are very large gaps by race or by socioeconomic status in terms of college enrollment. And also conditional college enrollment, the dropout rates tend to be much higher, which means that they're completing college at a much lower rate. You also see differences in terms of college majors. So the gender gaps, actually, the general trends are pretty similar, but if you look at the subsample of black students, females actually overtook black men in college enrollment much before females overtook men amongst the white subpopulation.

I think what is concerning a little bit when you look at a group like blacks is, the enrollment of these students in college and completion rates actually have been going down in recent years. If you look at white students, those are pretty much flat. But in some ways, if you look at the data very closely, these gaps are actually getting larger over time. And people have looked at, there are different hypotheses as to why that is happening. So if you look at this question of why are fewer women going into STEM... When I say STEM, it's Science, Technology, Engineering, Math, and then Econ fields, there are many hypotheses. Historically, people have talked about maybe there are differences in ability, and we know that, that's not the case. If anything, on average, those are coming in with higher verbal scores and even Math scores in many of these selective schools.

So ability is not an issue, so then it has to be something else. And we do know, I've done some work and a lot of other people have done some work, is at the end of the day, what economists call preferences or tastes are what are driving these choices. Another easier way of saying that is, the reason why females are not going into some of these fields is because in relative terms, they have a preference to study some other fields like Humanities or Social Sciences and so on. Now, the question is, where is that preference coming from?

And that's a much harder question, and we have as a profession made some progress on that. So part of where that preference is coming from, the fact is, if you look at fields like Economics, they tend to be mapped onto occupations which are less flexible, for example, or they're less likely to offer the kinds of amenities where we know that there are gender differences in how these amenities are valued. I think part of what is happening is, I think, maybe the way we teach Economics. People have talked about this, the introductory for instance-

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The framing.

Basit Zafar

... the framing, and I think if you think about when you talk with people, their notion of what economists do is very specific, right?

Dionissi Aliprantis

Oh, yeah.

Basit Zafar

You go to these social gatherings, they ask you about, "How's the economy doing?"

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"And should I invest in some stocks?" Basically.

Basit Zafar

Exactly. Yes, some economists work on those issues, but that's very small stuff. Like you asked earlier how I arrived where I arrived, I think what I find fascinating about economics, and this might seem cliché... Economics, you can frame pretty much every question around you in economic terms. And economics is really pretty broad in terms of the questions we study and we can study, but I don't think students or individuals realize that when they come to college and-

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They have maybe a caricature of the field or-

Basit Zafar

... exactly.

Dionissi Aliprantis

... of the topics or maybe the set of tools and approaches that we actually are able to employ.

Basit Zafar

Exactly. That's right.

Dionissi Aliprantis

And I think maybe those first impressions can really matter.

Basit Zafar

Exactly.

Dionissi Aliprantis

I guess, there's two questions I'd be very interested in hearing. One is, how does that 18 year old that comes to college and maybe doesn't know everything about the world, how do they learn about just earnings and occupations? And then what are some of the major determinants other than just earnings?

Basit Zafar

So I think the first question, how do people learn... I mean, what we do know is some students, some individuals never learn or, I think, the speed of learning differs. So this is going to maybe, I don't know if we'll get a chance to talk about this. So one thing that you see in term... We already talked about college completion rates are pretty low, but if you look at what happens in terms of trajectories once individuals are in college, they look very different for individuals or for example, first generation kids or from lower SES backgrounds, even if they're going to drop out, it takes them longer to drop out. Or if they look at the major switching patterns, not only do they switch at higher rates, it takes them longer to switch majors because they're learning at very different rates.

So how do individuals learn? I think part of it is... So taking a step back, individuals are coming into college with very different information sets. So on average, individuals are quite misinformed, but the level of misinformation is going to be much larger, unfortunately, for students from more disadvantaged backgrounds. And in some ways it makes sense because if you think about it, in the US, neighborhoods are segregated by income. Schools are segregated by socioeconomic background. Individuals are coming from disadvantaged backgrounds, they're coming from neighborhoods or from schools where less information was available, so they arrive in college with much less information.

And then in terms of the support set up, not by construction, it just happens to be very different. If you're a first generation kid, you have fewer people to talk with around you. This is something that I've struggled with. A lot of my work is focused on gender and I look at very selective schools, and I've always wanted to look at what is happening by race, for example. And we just have a very small, even at a place like Michigan, I think less than 5% of the student body is going to be blacks. And that's the case at all selective schools, even though I know schools that are actively trying to increase these proportions, but we are a long way from-

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That's where we are.

Basit Zafar

... that's where we are.

Dionissi Aliprantis

That's the reality [inaudible 00:14:38].

Basit Zafar

And I'm glad that schools are actively now trying to talk about equity and inclusion, but I think that shouldn't stop at the admission stage. You really need to go in and provide some of these other support settings.

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It's not just about access, it's also about success once you get there.

Basit Zafar

Exactly. And I think there has to be awareness that these students for no fault of their own, because this again is the ways K-12 schooling operates in the US, and we tend to have segregation of neighborhoods that kids who are coming from disadvantaged backgrounds, they're coming from way different neighborhoods, way different schools, which had fewer resources, and they're coming in less prepared and so on. So once they come to college, you need to provide more support set up. So I know you earlier asked two questions, and I don't know if you want me to go back. You had a separate question of how are students choosing majors? And we can defer that unless you want...

Dionissi Aliprantis

Yeah. Well, I think there's plenty of ways to get... I mean, there's a lot of questions here about thinking about economic inclusion and setting people up for positive trajectories in the labor market. So I actually would like to hear that question, just thinking even just very broadly, what are the factors that motivate people when they're choosing their majors [inaudible 00:15:55]?

Basit Zafar

You're right. So I think general conclusion in the economics of education literature is the returns to different majors do matter, but not that much. So people do care about earnings, but they're not the dominant factor. So we do know, for example, that there is some ability sorting that students sort into fields based on their comparative strength in terms of... If they're good in a certain field, they're more likely to choose that field. We also know that students also sort into fields based on how these field, so what we'll call taste or preferences, and now I'll be more specific. What do these tastes mean? So when we say this is pretty well documented that females in relative terms have a taste for Humanities or Social Sciences relative to Engineering. Now, what does that mean? It could mean many things. We do know from a large body of work that there are gender differences in workplace preferences.

So for example, females prefer having job flexibility. They also prefer having job stability. Males in relative terms, we like workplaces which are competitive in nature. So we do know that these differences in workplace characteristics seem to be valued differently by males and females. We also know that females and males, they also value different things in terms of what the job would entail. So it's pretty well documented again, that females, for example, like jobs where there is more in-person interaction and so on, and these are going to have implications for the choice of major. In fact, work by sociologists, that payments tend to make very different investments earlier on in boys and girls, and then whether those differences are what are making females to think that they're going to enjoy Social Science or Humanities more, I think there has to be some role of those things.

So I think this is where we run into somewhat of an issue where I think a lot of these things, the nature of human capital investments is they're very sequential. A lot of these tastes are forming much before students arrive in college. I think this goes back to a broader point that I think if we really want to make a dent in these gaps, sure, we have to start somewhere, but I think we are only going to make limited progress. I think, again, because STEM is always a big policy concern that there're not enough STEM graduates, if you didn't take certain courses in high school, I can do whatever interventions I want to do and I can double the returns to a STEM degree, there's no way that you could, if you didn't come in with certain kinds of courses or certain kind of prep, there's no way you could move into those majors.

Dionissi Aliprantis

So I'm curious if you have thoughts on that beyond simply, I guess, maybe it just highlights the importance of K-12 education. When I think about that issue about preparation, it feels to me very similar to the question you were saying about information where you were saying, "Look, we want a labor market where everyone is informed and then they make their choices. We don't want to be telling people what to do. We want everyone to be making these choices under full information." But then I think there's also this question of preparation, and how do you think about that, and especially with respect to STEM fields?

Basit Zafar

Yeah. No, I think that's a good question. I think I'm going to answer that, but I think we see the same issues sometimes in Economics Grad School. So I talk with undergraduates who say, "Oh, I didn't realize that this is what Econ Grad Schools look for." And you see differences here, you look at kids from lower SES backgrounds, or again, in economics we talked about-

Dionissi Aliprantis

From different countries-

Basit Zafar

... from different countries-

Dionissi Aliprantis

... including the United States.

Basit Zafar

... exactly. And then also different colleges. So if you're already at Harvard or MIT, you already know what the courses are. But I've had these conversations with students in these large public universities where they're really talented, but they never were given guidance on what courses you have to take in order to go to Econ Grad School, so I think it's some of the same things that you're mentioning there. So I'm good to have some thoughts, I have not worked in the K-12 space. I think you're absolutely right that I think there clearly are students who would be very good fits in STEM, they just didn't have those opportunities earlier on in [inaudible 00:20:09]. So I think, I don't know how easy it is to change our K-12 policy, so I think having some of these bootcamps on the margin, yes, it does mean that the schools have to invest in this, or the universities on the margin, they do help, I think.

You're right that, in some ways, the colleges have to invest mostly in it, but it also means that kids from these disadvantaged backgrounds, the barriers for them are a little higher because then they have to go through these bootcamps and so on, I think that's one way. But I think the other way is... My eldest kid is going to be starting high school and you have to choose electives pretty earlier on in high school. And more informed parents want to keep their options open, but I think this is where I think if we could, I don't know how easy it is to have a national policy, but have some counseling here where we can tell students, "These are the courses available. If you do this, this is what the path would look like," I know we don't have tracking in the US but we do in some ways, we don't have formal tracking, but the kinds of courses... So I think there is some role of mentoring or counseling at the high school stage.

And another thing I know, in recent years, there've been these papers where they've looked at high performing kids from low SES backgrounds where they target them, just giving them information like,

"Okay, this is what the trajectory would look like." And I know some universities, they put information together that, "Okay, if you want to major in this field, these are the kinds of courses you have to have taken earlier on and so on." Again, the information is there, but I think getting this information at earlier stages and in a way, you cannot go to 15, 16 year olds and give them numbers.

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