

Transcript of Conversation with Sophia Johnson (Program for Economic Research, Columbia University), Neal Ghosh (Amazon), and Todd Maurer (The Versatile Ph.D.)

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Sophia Johnson:

Good afternoon and welcome to the first Program for Economic Research Live webinar series.

I'm Sophia Johnson with the Program for Economic Research, one of the world's leading programs for identifying opportunities and strategies for enhancing economic research. Thank you for being with us today. Now, this event will be live streamed via the Economics Department's YouTube channel the conversation will also be recorded and closed captions will be provided in the days following. By attending, all participants agree to abide by the event's Code of Conduct which is posted on our website at econ.columbia.edu/per. As always, the Program for Economic Research in the Department of Economics at Columbia University takes no institutional position on matters of policy. Now, a little housekeeping before we begin: each presenter will speak for 10 to 12 minutes.

Presenters have agreed to take your live questions at the end of both presentations. You can ask your question or you can also type your question in the chat. We invite you to follow us on Facebook on Twitter or LinkedIn and for this event we are using the hashtag #PerLiveSeries.

Finally, but certainly not least, Lauren Close, the Program Manager here at PER is joining us

She handles logistics and communications for PER events like this one. She'll be adding updates on social media and also posting comments on the chat page during our conversation today so please be aware of that. So, to begin there's been a slight modification in our agenda. Miikka Rokkanen will be joining us in November instead of today. Today, our first speaker is Neal Ghosh, Senior Manager of Economics at Amazon. Since 2015 he's taken on roles in hardware and devices, real estate, and now corporate development. Prior to Amazon he was the lead economist for an online marketing startup in Austin, Texas that provides patient recruiting and engagement services for clinical trials he began his career in economic forecasting and policy analysis for macroeconomic advisors, a consulting firm in Saint Louis. Neal completed a Ph.D. in Economics from the University of Texas at Austin and an MS in Finance and a Bachelor's in Economics from Washington University, also in St. Louis.

Neal, thank you so much for being with us. Now, to begin, Amazon is really far from alone in its aggressive hiring of Ph.D. Economists . Companies ranging from Google, Facebook and Microsoft to Airbnb and Uber now all have large teams of Ph.D. economists and dozens of other tech companies have hired smaller groups of economists. Can we begin by talking about the skills that Ph.D. economists apply in tech companies? The companies that hire them, the types of problems that economists are currently working on and the areas of academic research that have emerged in relation to these problems.

Neal Ghosh:

Certainly, thank you, Sophia for allowing me to speak. I should start by saying that everything that I say here will be my opinion and my own experiences, they do not in any way represent any official

position on behalf of Amazon.com, which is my current employer. I just like to make that disclaimer right up front and just use this as a forum to sort of share my own first-person experiences and perspective. You know, when I joined Amazon in 2015, I don't think I could have predicted or projected just how much the role of an economist in a tech

company would technically [...] different sort of industrial applications. I think it was an emerging idea at the time, and since then, I just think it's blossomed in many wonderful ways that have opened, not only opened up, job opportunities for Ph.D. economists, but also, I think, shaped the way that technical tech corporations and organizations think about [...]

I would put them in the following buckets: I think the first one is that economists are trained in their Ph.D. programs with these wonderful investigative tools. These tools range from empirical work so human activity. Our tool set is becoming more and more valuable more and more in need. The second reason, I think is that we have these frameworks of understanding consumer behavior and individual utility and how individuals make trade-offs and consider different choices against the budget constraints that they have or any other sort of constraints that they might be facing. And this this framework and ability to sort of put all the pieces together in a way that can influence and help these business leaders and executives understand what it is that their customers are thinking through in relation to products and services they might engage with is really powerful. There's lots of business schools out there, MBA programs and other executive leadership, but they don't always get to that principled framework of understanding why customers make choices and how that reflects the products and the business decisions that are being developed on the organizational side. So I think for those two reasons that's really where the demand is coming from and that's where economists have been successful in filling that void.

Now, what do economists actually do? Well, I think again it kind of boils into buckets. The first one is a very kind of empirical research focused role to be played. I think a very common application is that an economist might be faced with a question about: well, we implemented a certain product innovation or a campaign to reach different customers. Did it work or not? This ends up looking like a very classical program evaluation, treatment effects, causal identification type of problem. There's number of numerous applications at Amazon. And, I'm sure, in many other organizations where those types of studies are becoming very very widespread and it's not only studies in the sense that people are churning out paper after paper about you know this event or that event, there's becoming a whole method- a sub-discipline of methodologies about how do you answer these questions in a more - I hate to say the word scalable, it's kind of an overloaded term - but how do you answer these questions in a very generalized, almost semi-automated way, where you're constantly running these analyses almost in an automated software environment as opposed to a researcher downloading some data and studying it themselves and then returning with an answer. That's a very, I think, a very ubiquitous obligation. Similarly, I think time series has become a really popular of econometrics inside technical organizations. And again, I think the reason is somewhat simple in its construction: it's just like a big part of operational planning. Whenever you're at a scale of a large company is just being able to forecast the short to medium term horizon and having that be right accurate you know and stable in some way that helps people plan and prepare what it is that they have to do. It kind of seems like a like a relatively ordinary thing, at least that was my impression. It's like: oh that's that's not like some sort of far-fetched sort of research agenda, just

that's just like kind of daily planning, but it's dramatic. It's dramatic how powerful that building in some of these time series econometric approaches into those planning processes, just how powerful an effect that can have on improving the accuracy of these forecasts and projections and helping these business operators and leaders actually get some clarity and understanding about the future that awaits them and be able to control some of that. I think that's a very powerful tool to give someone if you can say well within a certain um sort of confidence banner interval I can help see into the future a little bit and explain to you what you're about to observe in your customer base or in your processes or your sales or something like that. And so those are, I think, two really kind of ubiquitous applications. I think the third one that kind of pops out to me is the development of more longitudinal panel analysis where people are very interested in customer life cycles. They're interested in understanding how early treatments or it could just be indicators or other sort of attributes about a customer's interactions are shaping what are their long-term outcomes with the company? Whether it's customer retention or attrition or the development of their willingness to try new products or any number of outcomes that a company might feel is really important to their long-term success. Again, I think the econometric toolkit is so powerful there because we spend a lot of time trying to understand the difference between correlative effects versus causal effects and time trends and how you have to control for all these things to make sure you're getting a very clear understanding of what's actually impacting customer's decisions. For those reasons, these analyses and these studies end up being pretty influential in how businesses shape what it is they're going to prioritize and focus on in their relationship with their particular base of customers. So I think I'll stop there because I think I answered all of your questions and I don't want to be too wordy right off the bat. So I think I'll just stop.

Sophia:

That's great, thank you so much that was very insightful. I can't wait to see and read the student responses. Our second speaker is Todd Maurer, President at Versatile Ph.D. and founder at Edunomics, I think if I made a mistake with the pronunciation, he'll clarify in a moment. Todd is a seasoned entrepreneur, a corporate advisor analyst, and a banker with more than 20 years of experience across the U.S. and global emerging markets. He is president, as I mentioned, of Versatile Ph.D., a leading career technology platform for many of the world's top research universities and graduate students. He joins us and we are so delighted.

Todd, thank you so much for being with us. Can you talk about the ways in which the Ph.D. toolkit, as Neal has been talking through, but the way the Ph.D. toolkit is a natural fit for the private sector and the strategies for engagement?

Todd Maurer:

Yes, and thank you, Sophia for the invitation. I'm gonna put up my slides, if that's okay. I have some slides for those of you who do not have any visual you can always pick these up later or certainly take a look. I wanted to talk a little bit about unbundling your Ph.D. and I think Neal gave a perfect example of what is happening on the ground. So before I actually came here, I was looking at - many of you are or have been in a Ph.D. program, maybe for a few years maybe for seven or eight years, and you have a box of being a Ph.D. economist. When you go out in the job market, your particular profile is much wider than that. So if I were to go on - recently I went on Indeed.com - and looked at economist job. There were 1,313 jobs. If I search for economics it goes up to about

5,700. If I look for statistics, there are 28,000 active jobs. If I look for consumer behavior 21,000. Economic development 40,000. So the idea is that if you start with a very restricted definition of who you are and what you could contribute there might be fewer opportunities but as I think Neal has shown and I was all talk about there's a much wider world out there for your skills. So let's see if I can - just trying to get this slide to move - so here's FedEx. If you unbundle FedEx it's a nice little chart here you'll see that from a simple delivery company in fact it gets into a lot of different areas in terms of price optimization, logistics, of course FedEx acquired Kinkos so now in the printing and consumer business. All this chart should tell you is that when you look at companies in the private sector that you might be interested in - start to unbundle them start to see what some of their challenges are and I think Neal went through some of this at Amazon but these countries are highly intricate. I mean, FedEx is not technically a tech company, but I can assure you that many elements of FedEx make it a tech company so that your skills in forecasting or price optimization or behavioral theory can be highly applicable here so just keep that in mind as you look at other particular companies - try to think about what are some of the challenges that they're facing and try and deconstruct some of what they are. If I were to look at the, let's say, the S&P500 and list all those companies, you'd find a similar situation where you have huge technology components - you have huge economic problems that they're facing all of them have an interest and a desire to bring on high order economic skills into their companies. So how would you unbundle some of what you have as an economist? I divided into a couple of areas. First, you're a problem solver - you know how to do research design, you probably have good statistical analysis, quant methods, maybe you can program in R, maybe you can do some other things. You're fairly good at dealing with uncertainty. On the right-hand side, you're good at working in teams, or you probably through your academic career have done some teaching and mentoring. You've done research collaboration, communication, these are all very important things to emphasize in the private sector. In the private sector, I know that in academia there's a collaborative culture, but the private sector is even more supercharged in this area in terms of doing your research but also working across a lot of different divisions, perhaps and selling your ideas as they come. You're also bringing your own academic networks, so just because you've been confined, let's say, at Columbia for six or seven years you probably have networks that go way beyond Columbia, which could be useful in the workforce. And finally maybe a differentiator: you have some domain knowledge, so you might be a health economist, you might focus on energy space, climate, maybe a behavioral or experimental economist, you may have done work in different parts of the world, so all of these things can also guide you into what you may be looking for in the private sector. And again, all of these companies in these markets whether it's education - I've done a lot of work for example in education technology - there's an enormous demand for economists in that area working on education outcomes looking across countries around the world helping publishers and so forth. So I've personally seen a lot of interest in in that area as well. Again, this is just an example, but you know start to unbundle your Ph.D. in terms of what it may mean how it might be applied to the private sector. There's also competition for you, so I could go back to that comparative advantage of a Ph.D. and tell you that a lot of anthropologists, cognitive scientists, are also fairly good at statistical methods, research design, and so forth. So just remember that, you know, there's a whole range of Ph.D.s that may be applying for particular jobs in the private sector, your differentiation as economists is something that you should really work on in terms of, you know, what would differentiate you from at least the skills level of an anthropologist or a sociologist or others.

We are seeing some of that now, of course, there are some jobs that are strictly looking for economists, but as I mentioned at the outset, there are a lot of jobs that are looking for Ph.D. economists or those with advanced degrees that bring a certain skill set. So, it's important to think about also the competition in the market and how you can differentiate yourself. This is a very simplified employer preference chart. Really what it says is in the y-axis - you know, it's essentially soft skills access, hard skills you need to be working with both of those elements when you're looking for work. And actually, when you're building your career, you know many employers would be looking for strictly technical specialists. Some may be looking for economists that can bring significant amounts of soft skills, maybe to run an advocacy program for Facebook, working with the government, or whatever. So again, figure out where you might be in this very simplified 2x2 matrix. You know, whether you're a minimum viable candidate, how you might however bring some of your soft schools to bear soft skills to bear. We know that a Columbia Ph.D. would signify a significant level of hard skills. Soft skills are also very important in the private sector so obviously keep that in mind. Finally, or maybe the penultimate slide, be a problem solver not a job seeker. My personal opinion is that, you know, most people who are hiring they know what you're looking for - they may be looking for a Ph.D. economist, they may be looking for another Ph.D., they may not specify, but think about that you're being hired to solve problems, so maybe you can try and figure out if you're working with - if you're working towards a particular career or with some particular companies that you're interviewing with - find out what problems they are looking at and how you're best positioned to solve them. You know what academic experience might you bring to bear. I'm generally not a fan of people saying "well, I'm looking for this kind of work" or "I want a job in ...". You know you need to get beyond this, and really just think about, you know, from an employer's perspective, I mean, why are they hiring you. What are they? What problems do they want to solve? And begin to think about all the different skills that you bring to that and make a persuasive case - a narrative that you're really prepared and that you might want to communicate to them. There are also, obviously, if you're talking about specific jobs in the private sector, but certainly there's also a lot of funding available for Ph.D. economists if you are in a particular area where you actually have done some research that might be transferred to commercial startup. There is a lot of activity among venture capitalists and others that I've seen and continue to see that actually have funding. So it's one thing to keep in mind if you're more entrepreneurial - maybe you're not looking for a job, maybe you're looking for some funding that can get your own startup going.

I was encouraged recently Michael Cremer who won the Nobel prize last year for his work in experimental economics. Had a podcast with Tyler Cowan, which I thought was very interesting, and I think he's founded maybe 22 companies in his career. So again, giving some encouragement to economists that maybe want to reach out and, you know, do something at a more micro scale rather than finding more. Finally, you know your career is a test lab. You should be in your interview process or in your preparation process. You know, test out some of your ideas. You know, don't get hung up on necessarily being an economist in your job title. As I mentioned it before, there are a tremendous amount of leadership positions that do not have economists in the job title. They may be hiring economists, however, so again think about how you can get things done in a professional environment. Look at all the different skills you have along the line. I would say test them as early as possible. I'm not sure where all of you are on your Ph.D. program, but you know, whether you're an early Ph.D. or just about to turn in your dissertation, start testing out some of your ideas, your skills, your approach in the private sector beforehand, if possible. Become more of a thought leader before

you're out there so people will actually pursue you rather than the need for you to go out and pursue jobs.

So that's maybe, I'll stop there. This is just maybe an advertisement on the back, I mean we work with about a hundred and fifteen thousand Ph.D.s across every domain area. We do have a lot of different courses, we use job analytics, we have career planners and things like that but the basic message here is there are a lot of tools out there whether it's with us or anyone else. Avail yourself of those particular tools and mentors and so forth and really be prepared. Maybe with that I'll stop share this and pass it back to you, Sophia.

Sophia:

Thank you very much, Todd. That was great, and I think you've tapped into one of the most critical issues in the job search process and that is, really, to own it. And what we're doing and what you're suggesting is that students need to begin owning their narrative, to create a narrative around what they're doing, so they can start feeling empowered. Rather than being seekers, you know they can create a narrative around what it is they want to do - what problems they'd like to solve across their career. So with that, we're going to open this up to questions. You can unmute yourselves and you could share your video hopefully and you can start asking questions of Neal or Todd. You can also type these questions into the chat.

Do we have any questions at this point? Well, I can begin with a question: can economics improve your management practice and decision making? Can we talk a little bit about what that looks like from a consultative [perspective]? How would you consult your clients, Todd, perhaps on that and maybe similarly, Neal, you can talk a little bit about that in in your spaces, in the spaces you've had?

Todd:

Neal, do you want to go first?

Neal:

Certainly, thanks, Todd.

Can economic training improve your management ability? I think the answer is a little bit of yes a little bit of no. I think economists - managers that I have observed, and I include myself, since I have managed in a post-economic Ph.D. version of myself, I think they're more in tune to, kind of, the idea of like, marginal benefit versus marginal cost, so they can help shape people's time management and prioritizing what they should be working on and so I think there's a there's a more, almost technical foundation of allocating your time and trying to put your skills to use, where you have a comparative advantage. For example, I think these themes pop out in not only the supervisory aspects of management, but more of the team leadership than finding a role that seems to add the most value for individuals based on their skill set. I think of all that as the good part. I guess I would also add that by virtue of having gone through the work like being stuck at your grad school desk, you know, trying to solve an awful coding problem, that's hanging up that one last result- like we've been there done that, so having some of that shared reality, I think can be really helpful and when you're when you're mentoring or supervising junior folks who are going through those tribulations maybe for the first time, I would say that no part, the negative part is that management is a really rich collection of more technical skills and a lot of soft skills and emotional, like the EQ, emotional intelligence and trying to really understand what's going on in people's brains

and how they feel and how they respond to certain situations, adapting your approaches based on that - I suppose there's an element of like, game theory and like best responses that you could apply to it, but sometimes I think you know economists, we were trained so technically right? Turn everything into a math problem and just solve. Then everything's good to go. That doesn't always work with people, you know, people have different experiences - they may not always understand the facts or have different information or perspectives or considerations than you do, and there has to be a lot of open kind of free-flowing dialogue where it may not always be driving towards some efficient outcome and that I mean that has to be a part of any inner any conversation or collaboration effort, whether you're managing or working side by side with someone or even reporting up to someone or you know trying to have a conversation with a client or a senior leader that that you might be, you know, that might be part of your leadership or organizational chain of command, so to speak. So I think that I would say yes and no. But on net, I think it can be a very valuable tool in understanding a management responsibility.

Sophia:
Todd?

Todd:

Yeah, I would agree. I think that this combination of - I've seen terrible managers with an economics degree, and I've seen very good ones, so obviously it's a it's a mixed bag. I mean, full disclosure, so I left Columbia, well, many years ago, left a Ph.D. track, and went to Asia when I was a specialist on China. This was years ago, when China was kind of opening its markets and so I'm not speaking as a Ph.D. economist, although I was an economist when I started. And what I just, what I've found, and I've worked with clients around the world for a couple of decades, you know, economics is really good at helping to set an agenda and set a framework of discussion because some of our economic theories are so powerful and obviously they've developed over the last couple of decades as well, they tend to drive a lot of interesting discussion. Certainly in the private sector. And part of management is getting people on board, you know, persuading, making sure that people are integrated into the process. I think that there's again a reason to focus on some soft skills or at least soft skills that you may not even know you had while you're at Columbia and try and hone them because they're going to be very helpful for you in the private sector. But, you know, again intellectual exchange, discourse, collaboration, mentoring, persuasion, getting your ideas out there, are all part of the management toolkit whether you want to be in a management site or not and they can be very effective.

Sophia: So the floor is open for all students to submit their questions. If you can unmute yourselves and show your video, and tell us where you are in the degree, in the process. If you are on the market this year or if you're a year out, or you know just where you are. You have access to two amazing individuals in very important spaces, so I would certainly take advantage of this opportunity to engage in this open conversation.

So let's see should I start calling on people? So I guess another question I have in this..

Alberto Torres:

I have one question if that is okay?

Sophia:

Absolutely.

Alberto:

Thank you. Hello everyone. I'm a master's student, actually, in economics and I have the question: how are the opportunities in these tech companies, especially for master's students, in comparison with Ph.D. students? And if you think there is a glass roof or if we have opportunities to grow in those companies?

Sophia:

Neal?

Todd:

So I could just say more generally, and then I think Neal can comment on Amazon - so I mean, there are certain jobs - we scan, you know, hundreds of thousands of jobs like on a bi-monthly basis and you know, what we find is that there are certain jobs that are Ph.D. required. So there are going to be certain jobs in tech companies where they will require a Ph.D. economist, but then there's a whole range of other jobs that do not require a Ph.D. economist. They may have Ph.D. economists on those teams but they don't necessarily require them, and so you know, it really just depends on where one is looking, but if you are, I mean, there are for example a lot of all but dissertation, ABD, people who have left Ph.D. programs who are also working across the tech sector. There just generally are a lot of different positions that use economics as an entry point but not necessarily require a Ph.D. So I think you'll find, you know, depending on what you're looking for, there may be more opportunities for non-at a non-Ph.D. required level.

Neal:

I would 100% agree with that. I think particularly in tech companies, I don't see a lot of like rigidity and hard constraints around -you have to have this certification you have to have this number of years experience, they're always framed as preferred and that seems to be the trend or pattern, but ultimately not required. And I think that just speaks to what Todd said earlier is that everyone's just looking to solve problems and so if you can position yourself as somebody who can solve problems, you're immediately going to get the attention of those people who have jobs you know and are looking to fill them with qualified people who are going to make their team better. So I don't I don't ever see the kind of hard constraint around a degree or some status or certification as a as a hard barrier. I will say that you know at some point you'll you might be in a in a role and be asked to solve certain problems and you just and you you'll be like "Oh, well I don't think I quite have the foundation on this particular aspect to really go further. I'm going to have to go consult with somebody or maybe get a network - you know somebody who might be able to take it further along" and that's totally natural too. And that's not that's not localized to just the Master's or Ph.D., I mean that's just everything that's just the general nature of like what can I do versus what can others do better and how do I collectively get to the best answer or the best outcome. So I think that's where this notion of this vertical stacking of individuals based on one dimension or two dimensions of quality or human capital is not all that applicable, at least in the in the jobs I've had, it's a much more multi-dimensional rich space of people's attributes, intellectual attributes, functional attributes, characteristics, and everyone's just trying to find the right combination across different people and what they can provide to get to the best outcome. I think that's the nature of

how not only opportu- not only like projects and work situations involved but then that that flows back down to the recruiting process and what recruiters and hiring managers are looking for in candidates that might be applying.

Alberto:

Very good, thank you both.

Sophia:

Do we have any additional questions? One question came in. Lauren - I don't I think- she may have found it on social media and that question is: how the current economic situation or the remote work situation is affecting hiring trends for Econ Ph.D.s or Ph.D.s generally? Neal?

Neal:

Yeah I'll say that it's not all that much. Ok, you know especially, I mean maybe my experience is just too anchored on the tech sector but in this year of all these crazy shocks to the system, tech companies who largely have a digital interface with their customers are doing fine, you know they're continuing to grow in many cases they're growing robustly. Like look at the platform we're on now, Zoom, I thought their subscriber growth just completely went through the roof because of how much people were in need of their services. So the demand, I think, is exactly as it was before all these shocks occurred, if not growing generally. In the tech areas, in terms of the logistics of it, things of course had to change. We do all our interviews virtually, much like we're doing a conference virtually right now, I have you know, contingent on having a relatively stable internet connection and a laptop that's functioning that seems to be fine. I do lots of interviews with candidates every week and and I see you know it seems to be that we can have a dialogue and get really good questions and answers just the same virtually and starting, but starting work has definitely changed. There's no more going to orientation and getting your badge and having lunch with your team it's all just like, log in one day and now you're working and that's hard I think. That is going to be really difficult and I can only say that from afar because I'm not being put into that position of adversity so I don't know, but I think that's going to be a material difficulty for anyone who's moving into a new job and particularly anyone who's kind of doing that shift from grad student or just student generally into what might be their first kind of quote-unquote you know "serious" work career job opportunities. Getting acclimated and assimilated with your peers and with your organization and the work's patterns and heuristics that seem to define how people get things done- trying to learn and absorb that all in a digital environment I think is going to be a lot harder than it would be if you were face to face. But in terms of the opportunities and the logistics, it's been pretty smooth sailing. Better than expected, I think, when we when we first realized that we were going to be physically disconnected from our colleagues and our work, you know, relationships for an extended period of time.

Todd:

I would just add that from a macro perspective - last April-May-June, we saw a huge drop off in job postings. If you went to any of the Glass Door - whatever - the hiring just kind of fell through the floor for a lot of companies. That's completely changed, I think we're back where there is a ton of opportunity out there, there's also a lot of startups that just have continued through this whole process. There's a lot of new ventures that are being built because of the remote work aspect, because of just the rise of kind of digital in the way we get things done and so I'm seeing a

tremendous amount of opportunity for Ph.D.s, whether economics Ph.D.s or others, and that has really kind of increased over the summer. I think we're, you know, in these sorts of markets where there's a lot of disruption. There's also a lot of new opportunities and I think that's a good mindset to have when you go out and look for work.

Sophia:

Thank you, any questions? Anyone wants to unmute yourself and show your video and ask a question? Well, we have another question - oh Hassan, yes.

Hassan Afrouzi:

I wanted - for some reason I can't start my video - but that's okay. This is Hassan Afrouzi, I'm on the faculty side here. It's great to see you, Neal. Great to meet you, Todd. I want to ask about - I'm going to shift gears a little bit: there seems to be this old perception in academia the private sector only hires people with empirical skills and you only need to know regressions and nothing else and my own understanding is that that trend has shifted quite a while ago and a lot of our Ph.D. students wonder about this in terms of what kind of skills they should invest in when they're trying to look for jobs in the private sector. I wanted to ask you about your experience from the other side about what kind of skills do you think these students should invest in and do you think there's any difference between if I'm a theorist - I have to, like, stay in academia versus I can find opportunities in the private sector as well?

Neal:

Todd, would you like to take the first stab?

Todd:

Yeah, no I think, look, I mean, I think if if you're if you're looking at regression as, you know, one skill, well, that's that's not very differentiating. I mean almost every social scientist is using that whether you're an economist or not so I think that's- I mean it's certainly. you know. having a statistical background is extremely helpful across a whole range of of areas whether you're looking at consumer behavior at Amazon or or other areas but, you know, being a theorist, I mean, having the ability to think through problems, whatever those might be, should not peg you in one way or another as to what your skills are I would I would argue that just expanding some of your skills, you know, whether you might need to work on your soft skills a little bit more there might be some programming languages that might- that might help in the private sector getting familiar with just some of the tools that are being used in the private sector, could be helpful as well. But I'm a little agnostic on, you know, what specific skill one might need. I think there's just a whole range of tools that that one can use in the private sector. It really is job dependent.

Neal:

Yeah, I think what you called out, Hassan - oh and for the record for everyone watching, Hassan and I were grad student office buddies and really close friends when we built out our Ph.D. I invited him to join just because it was so of serendipitous that I could participate here at the same university where he's now a professor. So that's why he said good to see you again, for all those wondering about that. I think what you said is really spot on where we kind of confuse empirical work and this - you know practitioner "I can run the regression" "I can do the analysis" - we kind of confuse those to be the same thing and they're in my opinion, they're not, like as Todd said, it's not differentiated.

Everyone can run regressions, any individual really could probably just take a day and you know use stack exchange and online free tools to just figure out how to run a regression, that's not hard in any material way. What's hard is understanding what the regression's trying to do and avoiding garbage in - garbage out and I think everybody who's working - anybody who's really trying to manage this economist function in their business, who's done it for a while will kind of have an a notion about trying to avoid the garbage in - garbage out. And so I think economists need to have something more than just "I do empirical work" to be able to solve that problem - they need to be, I think, need to be sharp in their econometric theory. They need to understand like, the critical foundational assumptions behind different statistical models and econometric models, to understand if it really is the right fit for an empirical problem they're working on and to avoid that garbage in - garbage out. I think I spend probably more time doing that nowadays than I do running the regressions and I think that it's an incredible value add because there's lots of people who can run the regressions there's only a few of me who can actually articulate exactly whether a regression's going to act to achieve the result we're looking for, that's going to answer the question that was specified. I think the second part about theorists is that you know, "I'm gonna abstract this" and you know, since you do theoretical work you might tell me that I'm all wrong, but a theory is you're positing a view of how the world might work and you're using mathematical tools to derive some results that could be interesting for people to know and that has a very sharp analog with what business leaders are doing, which is they're trying to positive theory about how their business and their products and services interact with their customers and what that means for them in terms of how they should optimally respond.

So there's a lot of game theory that goes into that when I think about advertising companies, advertising platforms about they're trying to centralize and develop some surplus. That's taking multiple agents like users and search queries and advertisers and putting it all together - that's like a mechanism design problem, you know, an auction or like an auction design kind of problem, sometimes. So these tools about how to positive view of the world put it into like rigorous axiomatic like foundations and then derive optimal outcomes is incredibly important, particularly if you're particularly in a tech environment where you're going to have to define algorithms that are going to regulate these decisions at hype-like massive scale like no human can sit around and manually inspect like how an ad platform's going to assign ads to users, like that's just not going to happen. So the algorithm is going to have to be like rock solid - it can't it can't have any practitioner-level vulnerability where it's just going to mess up sometimes because that's not going to be enough. That's not going to be an unacceptable risk. One mental model that folks can think about is the work that Al Roth.

Al Roth is like wildly influential in actually these applications of of matching, you know, algorithms that are actually that are regulating these these really like large-scale decisions between, you know, whether it's doctors, hospitals, and you know, incoming residents or school systems, and so whenever you're working in a world where these decentralized decision-making processes have to be managed by algorithm and somewhat automated, these theoretical tools are going to become incredibly important to get that right and figure it out in a way that's going to be truly impactful. Generating the positive outcomes that I think the promise of the theoretical work is intended to achieve, so I think, I guess my coming back the long answer - the short answer is, no, don't just focus on empirical work - focus on the interplay between theoretical foundations, econometric

foundations, and the empirical manifestation of these two things, because I think that's where the comparative advantage of economic training really starts to differentiate in these industrial, tech, private organizational environments.

Sophia:

Thank you. Another question that came in in terms of piggybacking off Hassan's question talking about the soft skills - I'm wondering also about networking. Could you talk a little bit about an appropriate space for students to start building networks in either the tech industry or where some of the industry spaces - traditional academics focus on AEA, but I realized that you know, they probably need to go a little bit beyond that in the in terms of private sector job search. So if you could talk a little bit about industry spaces to build out networks, forge collaborations, but also you know what is specific to what might be helpful from either your spaces.

Neal:

I think the biggest learning I took away from - kind of pivot you know, pivoting out of academic circles into private, you know, sector circles, is that your network gets a wider and shallower versus narrow and deep, if that makes sense. There's no there's no straight line path where it's like "well because my advisor is like, because I'm really close with my advisor, and my advisor knows the other person's department chair, I'm going to go get a job there" or like "my co-author is at this other university and they're going to bring me in for a talk or a visiting position that's going to convert to a permanent position with some high probability", instead it's a lot of - for me - it was a lot of, like, you apply for jobs and you learn by doing about what they're looking for and what you bring to the table. And that kind of sharpens your elevator pitch or your self-awareness of what you're bringing to the table, broadly speaking, and how you can market that. You work with people on whenever you get a job, you work with people and by virtue of you working with them and then they may move to another company you just maintain that connection and that can be as simple as just remembering their email in your autofill so that when something comes up you can just say "hey it's me like had a fun question about this or that" or the other thing. Then I think it's also there's some other, I mean I think more discreetly, there's some other trade organizations that I think are informal networks of learning like who's doing what and what kind of positions are open.

One of the ones I was exposed to early in my career was NABE, the National Association of Business Economists. It's a different flavor of an economics community. It's not quite the AEA - you're going to have people ranging from business-y consultants to data scientists practitioners to Ph.D. economists working in government or you know some other places but it is it is an orthogonal view of the industry or somewhat orthogonal to the AEAs and I think there's growing forums that are starting to populate - particularly on the west coast where you have the large tech organizations where there's now critical mass economists. So I think my advice is be very opportunistic. No conversation is a bad conversation, like no opportunity to have a name and a connection in your rolodex is a bad opportunity, but there's the probabilistic nature like figuring out which one of those things is going to be important for you at any given time. I've never been able to figure it out like it's just keep it as wide as possible so that you can be very dynamic and nimble to when there's something that you could that you might benefit from having a connection with someone and learning more that you can action on it as frequently as possible

Sophia:

Thank you. Todd, is it just as well that students go to Indeed, or how would you guide job market candidates in terms of job search?

Todd:

I think on the wide and shallow issue that Neal brought up - LinkedIn can be a friend for you, there are a lot there's a lot of private messaging going on LinkedIn. There are industry conferences, there are meetups, there are lots of things going on either virtually or, well virtually now, but physically as well, where you can go and learn and meet lots of people. And people are pretty open about hearing ideas. You may have a particular area of research that you could showcase through a blog or some micro blogging or whatever else to get some attention, to show interest in some particular areas in your field that may impact the private sector. So some of it is just as Neal said - just experimenting, just getting out there trying things. I mean we set up a venture recently at Versatile Ph.D. with [inaudible] they're related to - well they're a fairly large crowdsourcing platform and we're basically setting up a micro project competitions that work directly with NASA and some other big groups. And so there are lots of different ways to you know to get in touch with companies to learn about what they're concerned about what their problems are. And there's the typical digital networking, but then there's also putting yourself out there and being proactive and maybe having more of a directed purpose. Some of you if you have an interest in a particular area, I think you'll find a lot of people are open to meeting with you, hearing what you have to say.

Neal:

I think I'd like to just chime in on that - when I was younger in my career and something I saw in some of my colleagues as well. There's this aversion like "I don't want to put myself out there, maybe they'll think I'm dumb, or maybe they'll think I'm naïve or they're not going to take me seriously, although they'll have some negative view of me and I don't want that". And that's not true at all. If I could, I want to, I'd really like to underscore that you know to the folks in this forum - that that's not true at all, like now that I'm on the other side a little bit, not all the way, but a little bit, like when individuals reach out to me on LinkedIn or at Amazon or somewhere else and they say "hey, I'm just getting started in my career, I saw your profile looked interesting, I have some questions I was wondering if you could chat with me-". Most of the time I'm like "Yeah, sure like I'm like - flattery also goes a long way, like if you just reach out to someone like, "you're smart, do you want to talk with me" - people actually like that you know. They're like "I'd love to tell you everything that I do and kind of talk and showcase myself" and so the difference between the people who just who send those emails and maybe for 10 of those emails you get four responses and have two meetings well that's two more than the people who sent zero emails and so I think getting over that aversion and that apprehension of just putting yourself out there being candid doing some research so when you're talking to people it feels like that it's not just some boilerplate reach out but it's actually you're talking to someone as an individual but doing that early and often, I mean you'd just be surprised how even one conversation might just put your name in their head and then maybe six months down the road they're like "wait, I remember that name" I mean, Sophia, that literally happened to us this morning! Sophia emails me, she said we had a last-minute cancellation Sandy Black remembered your name, right? That's exactly what happened, like I haven't talked to Sandy Black in years, but so I think that's almost that's a really powerful recent example of how just meeting and connecting and putting yourself out there, you never know when it's going to actually

convert to something that matters, so you might as well just be taking lots of shots and then building that into some upside for yourself as opposed to hanging out on the sidelines.

Sophia:

Very good, thank you both so much. This was so inspiring and I'm hoping the students are feeling inspired and fired up to take action and to work hard to be ambassadors for their own career successes. Todd's PowerPoint presentation has been posted online. This conversation will continue on social media and you can certainly reach out to, for those of your students, you could certainly reach out to Lauren Close, who takes lead on our social media campaign, Join us on Wednesday, November the 11th for another discussion on the changing role of economists globally. Our business and finance thought leaders will include Adam Rej, who is the Executive Director at Capital Fund Management, which for those of you don't know, it's a global asset management company based in Paris with offices in New York, Tokyo, Sydney, and London. He will be accompanied by Professor David Thesmer who is at MIT Sloan School of Management. Thank you so much, stay safe, and we will see you soon!

Todd and Neal:

Thank you everyone appreciate you having me thank you Neal thank you Todd, thank you.

Sophia:

Alberto, thank you.