

Tim Phillips [00:00:00]:

Today on VoxTalks Economics, is economics research becoming more gender diverse. Does it matter if it does?

Welcome to VoxTalks Economics from the Centre for Economic Policy Research. My name is Tim Phillips. Each week we bring you the best new research in economics. So remember, subscribe and follow us on Instagram at VoxTalksEconomics.

Diversity in teams is often assumed to be good, well, by definition. In which case, that means more gender diversity in economics research teams. Well, that's bound to be a good thing. So is that happening? And actually, is it better?

Anja Peruma of Johannes Kepler University is one of the authors of a new study of gender homophily in research and she joins me now. Anja, welcome to VoxTalks Economics.

Anja Prummer [00:00:57]:

Thanks for having me. Hi Tim.

Tim Phillips [00:00:59]:

Start me off with the definitions then. What is gender homophily when we collaborate at work?

Anja Prummer [00:01:06]:

So, gender homophily basically measures how many collaborators you have of the same gender, taking into account the gender composition at work. So, for instance, if you only have 10% of potential collaborators that are women, in my case, and if I were to work with 20% women across all teams, then I would display gender homophily, as this 20% is higher than the 10% within the population. Now, if I were only to work with 5% women, then I would display heterophilia, meaning a love for the other, whereas homophilia means a love for the same.

Tim Phillips [00:01:43]:

I get it. Why does it happen? Is this just a preference that people prefer to work with other people of the same sex or is it more complicated than that?

Anja Prummer [00:02:00]:

We think it's a bit more complicated than that. We think of it as an equilibrium phenomenon. So it can be the case that women really have a preference to work with women, but it also may simply be the case that you as a woman are more likely to meet other women, meaning there

may be differential interaction rates within and across genders. So for instance, if as a woman you're interested in different topics, different research topics, different questions compared to men, then you might be more likely to talk to other women and then form collaborations with other women. Another explanation could be that women are simply excluded from male networks, right? The old boys' networks that we often hear about. And then they also might end up working with each other. And crucially, it is sufficient for one gender to have a gender bias in terms of who they work with in order to generate the homophily also for the other gender. And this is also why we emphasise this equilibrium feature that homophily really is.

Tim Phillips [00:02:54]:

I see. So if men prefer to work with men, then women who seek co-authors, they basically end up working more often with women.

Anja Prummer [00:03:06]:

Exactly. That's a great summary, yes.

Tim Phillips [00:03:09]:

Now, in theory, why do we like gender diverse teams in any aspect of research, not just economics research, is it necessarily a good thing? Is it sometimes a bad thing?

Anja Prummer [00:03:19]:

Right, so before answering this question, let me just note that we distinguish between gender homophily and gender diversity. So gender homophily is a person-specific measure, while the diversity refers to the gender composition of the team. And of course, the two are related. As a man, if you have more female collaborators, then you will also work in more diverse teams. And now going back to your question about diversity, there is this general idea that diversity helps in generating better forecasts to assess whether projects are promising. But on the other hand, a similarity may be helpful if the input of team members is complementary. There may be fewer frictions if team members are more similar. And so from a theoretical point of view, it is actually not clear what the optimal team composition looks like and whether we should aim for more diverse or more homogeneous teams.

Tim Phillips [00:04:13]:

Now on VoxTalks, we've done several episodes talking about some of the great work that is being done around the world to encourage more women to take up economics, to stick with it. It occurred to me when you were talking about how men end up working with men because they don't, maybe don't meet many female economists. If more women pursue the study of economics and we have a more gender equal profession, does this whole thing just naturally

sort out?

Anja Prummer [00:04:47]:

Yes, so sadly, our paper indicates that this will not be the case. So we see, yes, robust differences between female and male authors in economics according to various measures. So we, for example, see that women publish fewer papers, women publish an average worst journal, which is then also tied to fewer citations. Women have fewer different collaborators, which is actually an important predictor of research output. And these patterns have not changed since the 1980s. If anything, according to some measures, the gender discrepancies have gotten worse. Now this being said, there is this idea that once we cross a certain threshold, for instance, we get to 50% women in economics, then we also see more gender diversity. And that might be true. However, our theories predict that the changes in diversity should be gradual as the share of women increases. And the share of women has dramatically increased. And that is not what we're seeing. We do not see any gradual changes. And so overall, it does not look like we are headed towards gender diversity.

Voiceover [00:06:01]:

If you're interested in the origins and effects of the gender gap, in January 2022, we spoke to Klaus Desmet about research using Facebook data that investigates whether the gender gap is nature or nurture. And in June 2022, we spoke to Sarah Smith about evidence that male economists are more comfortable expressing strong opinions in the episode called Male and Female Voices in Economics.

Tim Phillips [00:06:30]:

You have measured gender homophily in economics research. What specifically are you measuring? How do you go about that?

Anja Prummer [00:06:36]:

What we did is we constructed a data set of co-authors based on publications. So we have pretty much any journal that you can think of in economics. And so we provide a fairly comprehensive overview of publications in economics. And so based on these publications, we identify the authors and then we identify the gender of these authors. And that allows us to construct collaboration networks, and in particular, the gender composition among co-authors for every author in our sample. Now, based on this, we then calculate relative homophily, which compares the share of same-gender authors to the share of same-gender authors within this population that we have. And so gender homophily is really about this gender composition of your co-authors relative to the gender composition in the population.

Tim Phillips [00:07:26]:

How far back into the dark ages of economics, basically in all male professions, have you managed to go?

Anja Prummer [00:07:34]:

So our data stretches back to 1970 and so we cover 48 years of publishing in economics and so I think we do paint a fairly comprehensive picture of how economics evolved.

Tim Phillips [00:07:45]:

And so what you're saying here is that there are now a lot more women in economics. Are there also more collaborative papers now than there used to be back in the old days?

Anja Prummer [00:07:54]:

Yeah. So economics has really changed dramatically. So for instance, the overall number of economists has gone up and so did the number of journals, just not to the same extent. So it has actually gotten harder to publish in economics. And in particular, we see that the share of women has increased drastically since the 1970s. So in 1970, we had approximately 5% women in economics, slightly less than that actually. And at the end of our sample in 2017, we are at one third women, which is clearly a substantial improvement. And also collaborations have become a lot more important. So there has been an uptick in the number of collaborations overall.

Tim Phillips [00:08:41]:

And so given that, as you say, you're measuring this relative homophily to make sure that we have a meaningful comparison because the structure of economics research is somewhat different. You're trying to create a measure that shows whether or not homophily has changed within that.

Anja Prummer [00:09:05]:

Right. And so, for example, to meaningfully compare homophily in 1970 and 2017, we calculate a specific measure of homophily, which is called inbreeding homophily. And this is a concept that is pretty widely used in the literature. And the advantage is that it explicitly takes into account the gender composition among economists during a given time period. So we take into account that there were very few women in 1970 and that there were a lot more women at the end of our sample. And we weight the share of same-gender collaborators by the maximal gender bias an author could display at a given time period. And by taking this into account, we actually do manage to provide a meaningful comparison over the years.

Tim Phillips [00:09:49]:

And that meaningful comparison, is that showing that there is less homophily now? It doesn't sound like it.

Anja Prummer [00:09:55]:

No. So interestingly, gender homophily has remained remarkably stable over the 48-year period we consider, meaning it is about the same now compared to 1970. But especially since the 1990s, we see no change whatsoever in homophily. Now, this stability might indicate as if there were no underlying changes in economics, but this would be incorrect. Now, given that the share of women has increased so much, it actually means that collaborations have become more biased, meaning that it must be the case that either there is now a stronger preference to work with a same gender author or an author meets more economists of the same gender. And these significant changes mean that we actually do not go towards more gender balance. To the contrary, these changes are actually indicative of more gender bias, which might be a bit hidden by the stability of the homophily. But in fact, we do see more of a bias than there was in previous years.

Tim Phillips [00:10:57]:

See, I had to read this about 3 or 4 times when I read your paper. It was so surprising to me. Was it surprising to you?

Anja Prummer [00:11:04]:

Yes, we were very much surprised by this, especially because this seems to be different compared to what the literature has found. There's a very nice Econometrica paper by Quirini, Jackson and Pinn, and they show as in a more diverse setting, actually this homophily deteriorates. So you find more collaborators and so on. We find the exact opposite. And so, there seems to be something different about gender, there might also be something different about economics, but yes, we were very surprised about finding this.

Tim Phillips [00:11:39]:

Now, socially, this seems like a very disappointing result, but let's separate that from the quality of the output, which going back to where we started this conversation was one of the reasons why people think that it's good that teams, whether they're authors or teams at work are gender diverse. Is the output better or worse as a result of this result that you found on homophily?

Anja Prummer [00:12:08]:

So what we want to look at is whether gender diverse teams outperform homogeneous teams,

right? And so to assess this, we look at two measures to assess research quality. And the first measure is the article influence score. This is just a fancy measure of journal quality. It's generally considered the gold standard to assess publication quality. And it's rather involved. So let me leave it at that. Our second measure is citations. And what we find is that male teams, all male teams, outperform mixed and female teams according to this article influence score, meaning that male teams publish in better journals. And because male teams publish in better journals, their work also attracts higher raw citations. Now, if we control for the journal quality, then female teams are associated with higher citations, meaning that conditional on the journal quality, gender diverse and all-male teams also have lower citations. So we see these discrepancies across teams in terms of the research measure that we consider, but overall same-gender teams do better.

Tim Phillips [00:13:17]:

Can we explain this in any other way? For example, the existing social networks or the high status of certain males within economics? Is this perhaps an explanation for this result? Because again, it's surprising.

Anja Prummer [00:13:34]:

Yes. So we control actually for seniority of co-authors. We control for experience. We control for past output. So we are not able to generate causal results. So these are correlations, but we do have a large number of control factors and to some extent our results are in line with what David Card and co-authors have found for four journals. So women seem to attract higher citations conditional on the journal that they end up with.

Tim Phillips [00:14:04]:

Okay, so how should we interpret these very surprising results? It sounds like for anyone that's listening to this and they're seeking out co-authors, that there's actually no particular benefit. In fact, maybe even the opposite to seeking out an author of the opposite gender. Is that correct?

Anja Prummer [00:14:23]:

Yes, that's exactly right. So, if I chose to work with a woman, then the journal quality in which our joint project ends up in is the same as if I work with a man, but at least if I work with another woman, conditional on publication quality, my work attracts a higher number of citations. And for a man, if he chooses to work with a woman, he reduces the publication quality but does not gain in terms of citation compared to working with a man. And so overall we actually do not find any benefit of working in a gender diverse team.

Tim Phillips [00:14:57]:

Oh gosh. In which case, Anja, Did you do the wrong thing in picking your co-author?

Anja Prummer [00:15:03]:

Yes, I've actually made the same comment to my co-author. But I very much like my co-author, Lorenzo Ductor. He's really a fantastic co-author, and we are on our third project on publications in economics. I think overall, what I'm more concerned with is the fact that papers written by a woman, whether it is on a female-only team or a mixed team, are associated with a lower publication quality. And so where your paper is published is still crucial for hiring and promotion decisions. And to find these discrepancies across the top 100 journals in economics for men and women, I think is very much concerning. Because we see quite a bit of work saying, oh, conditional on your publication record, women do as well as men, but our findings would indicate that we should not expect the same publication record, and so if it is the same, probably the women have done better. And so this raises all kinds of questions in terms of how we should evaluate research, how universities should think about promotions and hiring, and that opens really so many questions.

Tim Phillips [00:16:13]:

It does. Will you be carrying on with this work to try and answer some of those questions?

Anja Prummer [00:16:19]:

We do have additional work, but we are actually more curious about how collaborations tie in with innovation and whether certain collaboration strategies might be beneficial for your career but actually do not generate the most innovative research or maybe they do, we don't know yet, but this is a project we're currently working on.

Tim Phillips [00:16:35]:

It's a very interesting piece of work just because it makes us question some of those things that we assume to be true and some of the progress that we assume that we've made in economics. Anja, thank you very much for talking about it.

Anja Prummer [00:16:54]:

Yeah, thank you so much for having me.

Tim Phillips [00:16:56]:

The paper is called Gender Homophily Collaboration and Output, and the authors are Lorenzo Ductor and Anja Prummer. It is paper number 18066 at CEPR if you want to look it up that way.

Voiceover [00:17:30]:

This has been a VoxTalks from the Center of Economic Policy and Research. We bring you the best new research in economics every week, so subscribe, you'll find us wherever you get your podcasts. Next time on VoxTalks, a new way to estimate the impact of trade sanctions on Russia.