

UNITED STATES INTERNATIONAL TRADE COMMISSION

In the Matter of:)
)
A SORTED TALE OF GLOBALIZATION:) Inv. No. 332-599
WHITE COLLAR JOBS AND THE RISE)
OF SERVICE OFFSHORING)

Pages: 1 through 52
Place: Washington, D.C.
Date: October 17, 2023

HERITAGE REPORTING CORPORATION

Official Reporters
1220 L Street, N.W., Suite 206
Washington, D.C. 20005
(202) 628-4888
contracts@hrccourtreporters.com

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Tuesday,
 October 17, 2023

Teleconference
 U.S. International
 Trade Commission
 500 E Street, S.W.
 Washington, D.C.

The seminar commenced, pursuant to notice, at
 1:30 p.m., before the United States International Trade
 Commission.

PARTICIPANTS:

USITC:

JEN POWELL, Moderator
 MARTHA LAWLESS, Division Chief, Office of
 Industries
 SARAH OLIVER, International Economist

 SHARON BELLAMY, Supervisory Hearings and
 Information Officer
 TYRELL BURCH, Management Analyst

Seminar #3

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Moderator: Jen Powell	

P R O C E E D I N G S

(1:30 p.m.)

1
2
3 MS. POWELL: Welcome to Day 2 of the U.S. ITC's
4 2023 DE, Distributional Effects, Seminar Series. I'd like to
5 start by thanking Dr. Runjuan Lui from the University of
6 Alberta, who will be presenting her paper co-authored by
7 Daniel Trefler, who is also with us today from the University
8 of Toronto. Their paper, "A Sorted Tale of Globalization:
9 White Collar Jobs and the Rise of Services Offshoring."

10 I'm going to return after the presentation to
11 introduce our discussant and facilitate Q&A, but at this
12 point, I'm pleased to turn the floor over to Martha Lawless,
13 who is Chief of the U.S. ITC Services Division, and she's
14 going to provide some opening remarks and more formally
15 introduce today's presenter.

16 So, Martha?

17 MS. LAWLESS: Thanks, Jen.

18 Yeah, I'm really pleased to be here. The Services
19 Division is very excited to have this seminar in particular.
20 So we welcome people in North America and people in Europe as
21 well. So good afternoon, good evening. And we want to
22 welcome you to what is now the second session of the
23 Commission's 2023 Seminar Week Series on Distributional
24 Effects. It's one of the series of events that we're holding
25 in the lead-up to our next report on the distributional

1 effects of trade and trade policy on U.S. workers.

2 The morning session, you might have observed, when
3 Professor Greg Hanson was going to be presenting his paper on
4 mobility responses, that has been rescheduled to November 13.
5 So please make a note of that.

6 Some of you may have joined us in similar events
7 last year. It's great that we can all reconvene. For those
8 of you who are not familiar with this series of reports that
9 we're doing, at the end of last year in October, the
10 Commission put out the first report in a series on
11 Distributional Effects of Trade on U.S. Workers and
12 Underserved Communities.

13 USTR has asked us for a series of five more
14 reports, and they will come every three years starting in
15 January 2026, and in the lead-up, we are running a series of
16 outreach events.

17 And so this is our first group of events called
18 Seminar Week 2023, and there will be another seminar week
19 next July in the summer, and we'll also be doing other types
20 of events in the runup to producing the report. Maybe some
21 of the hosts can put the URL to the Distributional Effects
22 website that we have in the chat so you can have a look for
23 more information.

24 So, before I introduce Professor Runjuan Liu, our
25 speaker today, I wanted to maybe go over how we expect this

1 session to run. Runjuan will be presenting for 60 minutes,
2 and then Sarah Oliver, who's a member of the Services
3 Division here at the ITC, will be the discussant, and that
4 will follow for 10 minutes. And that will leave us about 20
5 minutes after that for Q&A in a more general way.

6 Please put any questions that you have into the
7 chat or use the Raise Hand function, different people have
8 different abilities to do things on Webex, and we will hold
9 all the questions to the Q&A session, but be assured we'll
10 try to get to people.

11 So I would like to introduce more formally our
12 speaker today, Professor Runjuan Liu. She's a professor of
13 Business Economics in the Alberta School of Business and
14 adjunct professor of economics at the Department of Economics
15 at the University of Alberta in Canada.

16 And Professor Daniel Trefler, her co-author and
17 professor at the Rotman School of Management at the
18 University of Toronto, is also with us and will join in in
19 the Q&A session at the end, I hope.

20 Their paper entitled, "A Sorted Tale of
21 Globalization," you can see on the screen. It was published
22 in May 2019 in the Journal of International Economics. And
23 for those of you who were very close readers of the ITC's
24 report last year, you will have seen that this paper was
25 included in our literature review.

1 This paper is a welcome addition to the relatively
2 sparse research on distributional effects of trade in
3 services. The authors use a partial equilibrium model of
4 trade and tasks and embed that in a general equilibrium model
5 of occupational choice to examine how the rise in
6 unaffiliated trade in services with China and India has
7 impacted U.S. labor markets. So we're very pleased to have
8 both authors here today, and I pass the podium to Professor
9 Liu.

10 MS. LIU: Okay. Thank you so much, Martha, for a
11 wonderful introduction. And it's really my great pleasure to
12 be here and see many faces on the screen, including Dan.
13 We're co-authors on this paper, but we didn't see each other
14 for many years.

15 Yeah, as Jen mentioned, it's our great pleasure as
16 scholars to be able to contribute to the policy discussion.
17 Yeah, okay, so let's get started.

18 So this is a paper, yeah, looking at "A Sorted Tale of
19 Globalization: White Collar Jobs and the Rise of Service
20 Offshoring." We're looking at very, very, I would say very,
21 very straightforward research questions. We tried to
22 understand what are the implications of rising service
23 offshoring for white-collar jobs in the U.S.

24 I mean, by now, you might be kind of taking it kind
25 of very lightly. You know, it's a very important question,

1 but I remember back then, when we started this project around
2 2005 if I remember correctly, time has been going very fast,
3 so service offshoring just get started, okay? The volume by
4 that time, it start very small, but as I will show you, it
5 grows exponentially year by year, right? Almost every year
6 it goes grows faster than the growth rate of trading goods.

7 So back then, yeah, that's just kind of the service
8 offshoring just get started. I think even nowadays it gets
9 bigger with all those generated AI help with more and more
10 services get to be offshored.

11 So we're looking specifically on this research
12 question. We believe it's very important for several
13 reasons. The number one reason is, as Martha introduced,
14 many, many research has been kind of focused on the impact of
15 trading goods, particularly the implication for manufacturing
16 employment, you know, particularly the China Shock paper
17 published by Autor, et al, in AER. So it has been quiet
18 significant. So most of the paper, I would say, like, 90
19 percent of the work, has been concentrated on understanding
20 the impact on manufacturing trade, employment in
21 manufacturing.

22 However, you know, we believe that to complete the
23 full picture of understanding the impact of trade, we need to
24 look at how service offshoring might have an impact on U.S.
25 employment, on employment in developed countries in general

1 because service offshoring, as I mentioned, has been kind of
2 growing exponentially, has been getting big.

3 And now, in terms of face value, it's still kind of
4 one-third of the trade goods comparably, but in terms of
5 value-added, it has been kind of as big as half of the
6 value-added of manufacturing goods, trade in manufacturing
7 goods. So, to complete, to get a full understanding of the
8 impact of trade, we need to look at the impact of service
9 offshoring.

10 The second reason why this research question is
11 important is so hard to believe, you know, we kind of take it
12 for granted, the economy has become a service economy, right?
13 So, if you're looking at either GDP or employment structure,
14 almost over 70 percent of the GDP is generated in services
15 sector, and almost over 70 percent of the employment is in
16 service sector. So not to kind of downplay the employment in
17 manufacturing, but it is very important. We have a large
18 chunk in this sector. We need to understand how those
19 workers in those sectors might be affected by service
20 offshoring.

21 So, particularly, we're looking at the implication
22 of rising service offshoring to China and India for a reason,
23 because, as you can see in this chart, so mostly we talk
24 about we know that China has been kind of dominating the
25 world as the largest exporter of goods.

1 However, if you look at today's statistics, exports
2 from developing countries, you know, particularly China and
3 India, which is the two countries we're focusing on, has been
4 ranked number one and two on the list.

5 Obviously, if you compare the export of services
6 from those two countries to the export of services for United
7 States, it's still comparably small. But, as you can see,
8 that it has been kind of growing. It has been kind of, you
9 know, catching up. That's why, in this particular paper, we
10 are looking at the service offshoring to China and India and
11 how it affects the white-collar jobs in the United States.

12 So the third reason, also we believe the most kind
13 of important reason, is that most of the workers affected by
14 service offshoring are white-collar workers, okay, so they
15 are intrinsically different from workers in the
16 manufacturing.

17 Okay. Oh, sorry about that. I have some
18 technical. Can you still see my screen?

19 MR. AHMAD: Yeah, we're getting a little black
20 screen at least on my end.

21 MS. LIU: Yeah.

22 MR. AHMAD: Maybe you want to, like, reload the
23 slides. Maybe that will help.

24 MS. LIU: Okay. Because I kind of -- except let me
25 try this again.

1 MR. AHMAD: Yeah, this looks better.

2 MS. LIU: Okay. So it's back to normal now?

3 MR. AHMAD: Yeah.

4 MS. LIU: Okay. Great. Okay. Yeah. So where are
5 we? We're talking about the third reason why we believe it's
6 very important to understand the implication of service
7 offshoring on U.S. white-collar workers, for the reasons that
8 those white-collar workers are intrinsically different from
9 workers in manufacturing. So they are on average more
10 educated, have a higher earning, and this is pretty much the
11 first time they are facing low-wage competition from China
12 and India.

13 By low-wage, I mean workers there providing the
14 service offshoring, it's comparably, you know, low-wage. So,
15 you know, that kind of put those educated U.S. white-collar
16 workers for the first time to face competition from China and
17 India.

18 So, for those reasons, we kind of, you know,
19 hopefully can convey for you that this is a very important
20 research question. So what is the main contribution of this
21 paper is we kind of -- we tried to have a detailed analysis
22 on what are the adjustment costs borne by those white-collar
23 workers. Particularly, you know, we are looking at
24 adjustment costs in terms of, you know, occupational
25 switching, so to what degree they're forced to switch into

1 other occupations that has a different earning trajectory.

2 Obviously, this is very important, you know,
3 because there's a lot of previous literature has been
4 highlighting that if a worker experience occupation switching
5 or industry switching, their earnings could be heavily
6 affected.

7 For example, you know, in the earlier years,
8 Jacobson and Neal's work, they kind of highlight industry
9 switching will take a toll on workers' earning. The later on
10 work by Kambourov et al, also highlight that occupation, if a
11 worker switch occupation, their earnings could be affected as
12 much as 12 to 17 percent. So it's very important.

13 Our work, later on, I will show you we kind of have
14 an estimation on how much the worker's probability of
15 switching occupation has been affected by service offshoring.
16 So that's kind of one side of adjustment cost.

17 The other one is transition to unemployment.
18 Obviously, you know, unemployment can be a heavy, heavy
19 burden for displaced workers. So, for white-collar
20 employment reach, based on our statistics, it's not that
21 high; it's 3 percent. But we aer going to show you, you
22 know, when those workers face competition, face import
23 competition from China and India, how that -- how this
24 probability of transitioning to unemployment will be
25 affected.

1 So to further kind of highlight, you know, those
2 adjustment costs can be big, can be heavy for a subset of
3 workers, so I'm going to show you a bit of statistics just
4 taken from our data. So the statistics we're looking at, we
5 won't dive into too many details about the data. So I'm
6 going to just kind of give you a few statistics extracted
7 from the data.

8 So, basically, what we are looking at is we are
9 using the March-to-March Current Population Survey data from
10 1996 to 2007. So, basically, by looking at those data, we
11 know by linking those March-to-March CPS data, we know year
12 to year just within two-year time, we know year to year where
13 the worker works and what industry, what occupation, how much
14 they earn and do they have an unemployment spell, how many
15 weeks their unemployment, et cetera, obviously, including
16 there a lot of important individual characteristics like
17 schooling, education, marriage status, et cetera. So we know
18 all those labor market information for a two-year time
19 between 1996 and 2007.

20 So then we're looking at for those two-year time
21 the stayers, means, you know, the worker that stays in the
22 same occupation year to year. Then we're looking at whether
23 this worker, some of those workers, switch downward, switch
24 down to another occupation. By switching down, I mean they
25 switch to occupation with a lower average earning, average

1 wage, okay? So, in labor economics terms, we call in
2 interoccupational wage differential, but in plain language,
3 it's literally the differential between the average
4 occupational wage between two occupations.

5 So, if they switch to an occupation with lower
6 average earnings, we call it downward switcher. If some of
7 those workers switch to a higher, to an occupation with
8 higher average wage, we call it upward switcher. So,
9 basically, we have those three groups.

10 Then we're looking at, for those switchers, whether
11 either that downward switcher or upward switcher, how their
12 labor status changes, okay? So those are some statistics
13 that shows up in the table.

14 So, to start off, as you can see, that particularly
15 for those downward switchers that's highlighted in green
16 here, their probability of experiencing an unemployment spell
17 could be increased by 7.8 percent, okay? For an individual,
18 that's quite a large probability increase. Then, in average,
19 they will experience about four months of weeks unemployed
20 before they find another job, okay? So those kind of
21 adjustment costs is quite heavy for those switchers.

22 Also, if you kind of looking for those downward
23 switchers, which is kind of highlighted in the yellow part,
24 you will see that on average, those downward switchers will
25 switch into an occupation that has a average, has a lower

1 average wage of 25 percent, okay? So they are kind of
2 switching to kind of what we call kind of a worse occupation
3 because they have a lower average wage in that occupation.
4 And for each individual, their average, their change of
5 annual earnings will be decreased by 13 percent, okay, 13
6 percent, which we consider is also a quite large cut for each
7 individual.

8 Another characteristic is that they will, in
9 general, switch occupation with lower average years of
10 schooling. So that's kind of, you know, another perspective,
11 that they will switch to kind of a worse occupation in
12 general.

13 So, by showing you those statistics that
14 highlighted that those subset of workers that are forced or
15 respond to switch downwardly, they will experience quite
16 negative labor market outcomes.

17 So we further on will try to give you some
18 explanation of the earning changes, but as we put it on the
19 slide, it's very hard to understand because there's a lot of
20 sorting involved, and the sorting can be sorting of
21 observable and unobservable. So we will try to kind of tease
22 out the sorting part and give you some explanation there.

23 Okay. So, basically, for the paper, so we kind of
24 embedded a partial equilibrium model of trade in tasks and a
25 general equilibrium Roy model of occupation choices. But,

1 for today's presentation, I will kind of largely skip that
2 part and jump directly to the empirical analysis.

3 So our empirical analysis, kind of motivated by an
4 understanding of those switching costs, we're going to look
5 at how service offshoring affect occupation switching,
6 distinguished by upward switching and downward switching. We
7 were looking at how service offshoring affect a worker's
8 probability of transit into unemployment. We were also kind
9 of looking at earning changes, but I will give you more
10 details later.

11 So just kind of gives you a very brief overlook on
12 the readout. So what we find is for imports -- by imports,
13 we mean that service offshoring to China and India. So, by
14 looking at the import side, we find that service offshoring
15 to China and India will increase the probability of downward
16 occupation switch by 7 percent, which pretty much is kind of
17 quite significant because, in general, during 1996 to 2007,
18 it means that the downward occupation switching for those
19 white-collar workers will increase from 21 percent to 28
20 percent. So that's quite a big jump there.

21 As kind of predicted, it will also kind of increase
22 upward occupation switch from 17 percent to 23 percent. In
23 terms of unemployment, the impact is relatively small. So it
24 will be just like 0.5 percent increase of probability of
25 translating into unemployment.

1 In terms of average earning, what we find is kind
2 of quite interesting. So the general finding is for overall
3 wage changes, we find very sometimes insignificant, but to
4 the most, it's very small. It's only kind of an average 1
5 percent decrease of annual earn -- or changes of annual
6 earnings. But we do find that for those kind of workers that
7 switch downwardly or for those workers that switch into
8 unemployment, their earnings could take a very heavy toll of
9 15 percent for those downward switchers and 47 percent for
10 those workers transit into unemployment.

11 So that's pretty much the key finding of this
12 paper. Obviously, you know, service offshoring is always
13 kind of a two-way street. We import services like computer
14 services from China and India, but United States, you know,
15 developed nations also export quite a lot of services to
16 those countries as well. Potentially, those exports could
17 help, right, help the labor market outcomes. For example,
18 they reduce downward and upward switching, but the evidence
19 there, yeah, I will show you in terms of estimation without
20 because the estimation there is not as significant as the
21 import results.

22 Okay. So, in summary, as I said, this paper
23 basically kind of pretty much one of the first papers
24 estimate the impact of labor market, the impact of labor
25 market outcomes by the result of those service offshoring.

1 So we find overall, you know, in terms of overall wage
2 changes is very small, but we want to highlight that a subset
3 of workers has been impacted quite negatively in terms of
4 their earnings have been dropped quite a lot and their
5 probability of transit into unemployment has been increased
6 quite a lot by service offshoring to China and India.

7 Okay. I guess I will take the question after the
8 presentation. So, basically, just this slide is a little
9 kind of pause here, just try to reflect why, you know, if the
10 white-collar workers has been facing no wage competition, why
11 we didn't see huge wage impact for those workers. So we want
12 to kind of reflect on those results. We want to kind of
13 bring some comparison to the existing findings, particularly
14 existing findings that focus on the manufacturing workers.

15 So what we want to highlight is that so, in
16 general, most of those -- most of the previous findings find
17 huge impact of employment, right, because, as you can see,
18 that the manufacturing employment has been hollowed out by
19 those low-wage import competitions.

20 However, in terms of the wage impact, so we kind of
21 presented two mostly related work here, one by Autor, et al.
22 That's the AER China Syndrome paper. So, in general, they
23 find zero effect on all the manufacturing workers and just a
24 -0.8 percent of wage decrease for non-manufacturing workers.
25 That's kind of comparable to what we find. So, on average

1 for overall, the wage impact is small.

2 Another related work is by Ebenstein, et al. So
3 what they're looking at is how employment in those affiliates
4 overseas affect domestic employment. So, as we presented
5 here, overall, they also find kind of just -1 percent for all
6 workers, -2 percent for routine workers, right. So there's a
7 way to kind of distinguish workers by routine and routine
8 tasks.

9 So what we find, pretty much, you know, our finding
10 for overall wage effect is quite similar with what we find.
11 But all those papers have been kind of pointing out that
12 there's big impact for a subset of population. For them, it
13 could be workers that are displaced by low-wage import
14 competition on manufacturing workers. For us, the subset of
15 workers that bear the burden could be the workers that are
16 forced to switch downwardly to kind of comparably worse
17 occupations.

18 Okay. So kind of before I dive into the details,
19 here is just kind of -- try to give you an idea to situate
20 the paper into the literature. So the literature is huge.
21 You know, this is a very important question. Most of the
22 work has been looking at how merchandise import affect
23 manufacturing employment. So there's a lot of seminal work
24 there.

25 Also, for labor economists, they have been long

1 looking at how trade affect displacements, affect wages, et
2 cetera. So, for our paper, you know, as I mentioned at the
3 beginning, the most important contribution is we kind of
4 looking at this service angle because we want to point out
5 that, you know, service trade is growing and it could be as
6 important as manufacturing trade. So that kind of brings our
7 paper into this kind of small set of literature where we try
8 to understand kind of this new phenomenon, how does it affect
9 the workers in the U.S.

10 Okay. So that kind of kind of wrap up the intro
11 session, so now I will kind of move on into a bit of details,
12 particularly the empirical part of the paper, just to try to
13 highlight kind of what we find, okay? So that's probably the
14 most important part for the policy discussion.

15 Okay. So, basically, I have to say one of the hard
16 part of doing -- of trying to understand the impact of
17 service trade is like the measurement of service trade has
18 been scarce, you know, compared to the data on manufacturing
19 trade, so, like, what they have been using, right, what they
20 have in here.

21 So back then -- so the only -- this is pretty much
22 the only source we can rely on, which is Bureau of Economic
23 Analysis balance of payments data where they have a survey.
24 To be honest, there's so many years, I don't know if they
25 have been improving on those surveys. I'll provide more

1 data, but back then, this is our main data source. So,
2 basically, they have a survey of private sector firms across
3 all sectors in the U.S. It's survey data, so they just ask
4 them, okay, how much services you buy from other countries in
5 detail, like, what type of service you buy, from where
6 basically. In the other side, they also ask how much
7 services you have been selling to other countries and what
8 type of service are those.

9 So it's supposed to be data collected at the firm
10 level, but, obviously, for disclosure reasons, they only kind
11 of aggregate the data by type of services and by country. So
12 what we know is how -- what type of -- like, for example, how
13 much computer services has been imported from China and
14 India. So that's what we know. That's the information kind
15 of we rely on too.

16 Okay. So, here, we just kind of present you the
17 annual growth rate of the different type of service imports.
18 Basically, we focused on what we call other private services
19 because they could import transportation service, tourism,
20 education, we can exclude those services. We focused on what
21 we listed here, 10 type of other private services because we
22 believe that those services kind of could be direct -- could
23 have a direct impact on white-collar workers in the U.S.
24 because kind of just by nature, those are the services
25 white-collar workers provides for the economy.

1 So, if you're looking at this chart, it's --
2 probably I will just highlight two numbers here, two numbers
3 kind of involved, which is 0.18. That is the annual growth
4 rate of business, professional, and technical services
5 imported. So that kind of highlight that even back then,
6 that's kind of the period between 1995 and 2005, even back
7 then, the growth rate has been kind of double digits. Quite
8 impressive, quite high.

9 Comparably, as I mentioned, we're kind of also
10 looking at the U.S. export of services, it also kind of grows
11 quite fast, especially like export of service to the two
12 countries. It is 15 percent. So we'll go into kind of later
13 on when I kind of introduce the empirical -- the economic
14 impact -- economic explanation of our estimation, we will use
15 those two numbers. But the bottom line is it starts small,
16 but it grows very fast. That's why we need to kind of really
17 understand this phenomenon.

18 Okay. So what we do for the empirical part is we
19 have those value of imported services for those 10 type of
20 white-collar services. That's what we call them. And then
21 we kind of -- it's kind of an industry concordance. Then we
22 kind of link each type of services to the corresponding
23 industry. For example, we have advertising services. Then
24 we link that to advertising and related services. That's an
25 industry vice versa. So we have -- we kind of -- yeah, this

1 is a part. So we have kind of to make some judgment call to
2 create a concordance between those type of services and the
3 industry in the -- into the U.S. industry classification.

4 So then what we do is we use the share of each
5 occupation in each industry to convert those industry-level
6 import of services into occupational exposure to those
7 services, okay? So that's basically the main independent
8 variable we are using, the MKT that kind of indicate to what
9 degree this Occupation K at Year T is exposed to service
10 offshoring to China and India. So that's a key variable.

11 Then, basically, we have occupational exposure to
12 service offshoring. For our empirical analysis, we're mainly
13 focused upon the white-collar service occupations, so, you
14 know, it will be professional services management or
15 management occupations, professional occupations, sales,
16 administrative occupations, et cetera, and technicians.
17 Okay? So, basically, all our analysis is for the
18 white-collar service occupations in those occupation
19 classifications.

20 Okay. So we'll move on. This is pretty much the
21 main table I want to show you today. There's many, many
22 tables. So the main table, what we're looking at is we're
23 looking at how service offshoring affect the probability of
24 switching down for each workers, okay? So the main variable
25 we are looking at is imports. That's a value of service

1 offshoring to China and India. So, as you can see that the
2 estimation across different specifications is highlighted in
3 yellow, it indicate that to a degree, service offshoring does
4 increase workers' probability of switching downward to
5 another occupation, okay? So that's kind of the main
6 findings on this table.

7 In terms of exports, we find that, you know, the
8 sign is negative, indicating that service exports kind of
9 decrease the probability of switching down. However, you
10 know, statistically, it's not as robust as the imports shows.

11 Okay, yeah, probably two other things I want to
12 kind of highlight on this table. One is, obviously,
13 manufacturers could affect the probability of switching for
14 each individual. For example, we control for domestic
15 demand, which kind of, you know, quite significantly decrease
16 the probability of switching down. We also control for kind
17 of ITC, the intensity of investment on ITC across different
18 occupations, it also kind of has a significant impact on
19 switching.

20 Okay. So, basically, if you're looking for the
21 first account, we kind of run a OLS regression. We find
22 pretty much service offshoring increase the probability of
23 switching by about 7 percent. That's kind of the economic
24 magnitude highlighted in red, which is quite significant.
25 However, you know, for all those kind of empirical analysis

1 on the impact of trade, labor, there's always kind of facing
2 this endogeneity question where, you know, the unobserved
3 characteristics might affect imports and affect workers'
4 outcome at the same time.

5 So that is why too we also kind of create
6 instruments. We use basically two set of instruments. One
7 instrument is the foreign wage on China and India; the other
8 set of instrument is we kind of create -- another set of
9 instrument we created using kind of a two-step procedure.
10 The first step is we estimate a gravity model for each type
11 of services. So, basically, here's the table, there's many
12 numbers there. But the main point is we just -- we run those
13 gravity model, we extract a prediction, predicted imports
14 from China and India, which is supposed to be exogenous, you
15 know, because they're only depending on GDP per capita and
16 the population of those countries. So kind of another set of
17 instrument is the predicted imports from China and India
18 based on those gravity model estimation.

19 Okay. So this is kind of a first stage regression,
20 which kind of to a degree indicate that the instrument is
21 correlated, it's significantly correlated with the possible
22 endogenous variable, such as imports and exports.

23 Okay, so go back to this switching-down table. As
24 I mentioned, this is pretty much the most important table in
25 the paper. If you're looking at Column 7, you will see that

1 that's a column where we kind of used the IV regression. So
2 that's to consider taking care of the endogeneity problem.
3 We pretty much get kind of significant consistent estimation
4 for the imports and also for the export as well. So it
5 indicates that, again, you know, service offshoring to China
6 and India, you know, is positively related to increasing
7 probability of switching down for the workers. That's what
8 we find on this table.

9 Okay. So, you know, based on our theoretical
10 predictions, we're looking at many perspectives of the labor
11 market outcome. Switching down, it's kind of one important
12 one because there's a lot of adjustment costs associated with
13 switching down to another occupation. But we're also looking
14 at the probability of switching up. The evidence is not as
15 significant, but we kind of find that service offshoring to
16 China and India could increase the probability of switching
17 up as well.

18 For the transition to unemployment, we tend to
19 find, if we're looking at the change regression, you know, we
20 find quite significant impact that service offshoring leads
21 to a higher probability of transition into unemployment.

22 Okay. So now it's kind of for the wage part. So,
23 to understand the impact on the earning changes, we did, you
24 know, we kind of zoomed in an estimate of several
25 regressions. The first regression we estimated is just

1 looking at all those stayers, you know, the workers who
2 didn't switch, change their occupation, how could service
3 offshoring affect those workers. We didn't find much there,
4 which means it could be, you know, we basically just find
5 negative but statistically insignificant impact of service
6 imports.

7 However, if we're looking at -- if we estimate a
8 wage regression just for those switchers, okay, so for people
9 who switching down, for people who switch up, and for people
10 who switch into unemployment, how could that -- how does this
11 switching affect their change in earnings. So I probably
12 just, you know, look at Column 1 and 2, that's for the
13 workers who switched down to another occupation. So we're
14 looking at, for those workers, their annual earnings could go
15 down by about 14 percent if they switch to kind of an
16 occupation with lower average earnings. So, yeah, it's quite
17 a significant adjustment cost for those workers.

18 And if you're looking at Column 9, 10, that's again
19 just how much the earnings will go down for those workers who
20 transit into unemployment. So it can be huge. Like, half of
21 their earnings could be cut down simply because they transit
22 into unemployment status. But, in comparably, that's kind of
23 the advantage of splitting the switchers into downward
24 switcher and upward switcher because, for the upward
25 switcher, they could have this chance of switching to a

1 better occupation, right? For example, in reality, we see
2 many workers, you know, they're a software programmer, but
3 they could easily become, you know, the CEO, the manager, et
4 cetera, so their earnings could go up as well. So that's
5 what Column 5 and 6 shows in this chart.

6 Okay. So, basically, we have many regressions.
7 They tapped kind of many perspective of the impact of service
8 offshoring. Now we try to put them together. We try to
9 understand how does service offshoring affect their wages
10 overall, right? So, basically, how do we do that? We do
11 that kind of considering a situation you are a worker in a
12 occupation, you have probability -- you have a certain
13 probability -- in response to service offshoring, you have a
14 certain probability of switching downward, switching upward,
15 staying, or switching into unemployment. So that probability
16 is PG. That's the probability of switching into different
17 status next year.

18 Associated with different probability your earnings
19 could change, okay? So associated with each transition, you
20 could experience a change of your earnings. That's this
21 delta, low MWG, that's their change. So, basically, the
22 change -- the expected change of your earnings will be kind
23 of a sum of those probability times with each change of
24 earnings in different situations. So that's the delta low
25 end doubling, okay? So this is where -- this is how we kind

1 of summarize the earning changes.

2 So, if you're looking at this equation, there's two
3 parts that will be affected by service offshoring. That's
4 low N. One is service offshoring could affect your
5 probability of switching into different status, could affect
6 this P, the probability, right? And the service offshoring
7 could affect the change of wage associated with each
8 transition. That's this term here. So, basically, we're
9 going to show you a table that gives you, you know, how those
10 component was affected by service offshoring.

11 Okay. So this, yeah, this is probably the last
12 table I will kind of go into a bit detail here. So,
13 basically, guided by that formula, we kind of now try to kind
14 of summarize the overall effect of service offshoring on
15 wages.

16 In our empirical work, there could be, you know,
17 for next year, there could be four transitions: you could
18 switch downward, downward switching to another occupation,
19 upward switching, switch into unemployment, and staying. So
20 those four are the kind of four situations you could kind of
21 face next year.

22 So associated with different labor market status,
23 you have a transition probability. That's the PG part. So
24 that is we basically could calculate those data from --
25 those statistics from the data, right? We're looking at,

1 okay, the percentage of switching down is 21 percent,
2 switching up is 17 percent, switching to unemployment is 3
3 percent, then the rest will be the probability you'll stay in
4 your current occupation. So that's Column 1.

5 For Column 2, the same thing. We could basically
6 extract those information from -- by estimating switching
7 regression, right? So, if you are downward switching, on
8 average, how much your wage goes down? So those are the
9 numbers we estimated from the data.

10 And for Column 3, basically, we have -- that's
11 basically what we estimated from the previous table, right,
12 how much service offshoring affect the probability of
13 downward switching, upward switching, and unemployment. So
14 Column 3 is kind of an estimation from the previous table.

15 Column 4, you pretty much see zero there because
16 that's also kind of an estimated set from a set of
17 regressions. Just tried to see okay, in direct relationship,
18 how does service offshoring affect the changes for each group
19 of workers, okay? We don't see much. They're pretty much
20 not significant.

21 Okay. So Column 5 is basically the -- it's
22 basically this formula here, where we tried to kind of
23 summarize how service offshoring affect wages for different
24 group of workers. So that's our estimation. So the main
25 takeaway is the total wage change. No matter you kind of

1 only consider the significant estimate or consider every
2 estimate, it's about 1 percent, which kind of, as we
3 highlighted at the beginning, you know, overall, we don't
4 find significant wage impact of service offshoring. However,
5 you know, we find it for a subgroup of workers.

6 Okay. So this table is basically kind of a similar
7 version, but we are looking at how export affect overall
8 wages. Again, we don't find big impacts. You know, it's
9 like below 3 percent-ish.

10 Okay. I guess that, you know, that kind of -- that
11 table brings us to the end of the presentation. So,
12 basically, for this research, we kind of try to answer the
13 question what are the impact of service offshoring on
14 white-collar jobs in the U.S. by assembling -- by linking the
15 labor market, the CPS labor market data with service trade
16 data provided by the BEA. What we offered is we do find that
17 service offshoring leads to higher downward occupation
18 switching, higher upward occupation switching, slight
19 increase of probability of unemployment. Particularly, the
20 overall wage impact is very small, it only kind of leads to a
21 decrease of 1 percent, but we find big impact for those
22 subset of workers that switch downward and switch into
23 unemployment. So their wage cut could be as high as 15
24 percent and 47 percent. So that kind of conclude the
25 presentation. Thank you.

1 MS. POWELL: Thank you so much, Professor Liu.
2 We're now going to turn to Sarah Oliver from the U.S. ITC,
3 who will be providing discussant comments. Sarah?

4 MS. OLIVER: Great. I'm going to need, Professor
5 Liu, if you could stop sharing.

6 MS. LIU: Yeah.

7 MS. OLIVER: Yeah, great. I will share. I also
8 apparently need to be made presenter, so if somebody in the
9 hosts can do that, that would also be great.

10 MS. POWELL: Have your slides?

11 MS. OLIVER: Yeah, I'm good now. I got them.

12 MS. POWELL: Terrific.

13 MS. OLIVER: Great. So yeah. I'm going to
14 present. My name is Sarah Oliver. I work in the Services
15 Division at the U.S. ITC. I'm going to present some comments
16 on this paper, "A Sorted Tale of Globalization." And as
17 always, the normal disclaimers apply. These are my own
18 views, not the views of the U.S. ITC or any individual
19 Commissioners.

20 So, overall, I would say as a service-focused
21 person who does not see a lot of work on services trade, I
22 would say I really liked this paper. I thought it brings to
23 light a lot of things that, you know, we would maybe think
24 could be true about services trade and the role of offshoring
25 but hasn't really been considered that in depth.

1 And I know you didn't talk about the model much,
2 but I think using the Grossman and Rossi Hansford trading
3 cast framework makes a lot of sense when we think about
4 services trade since we really are talking about, you know,
5 individuals in a business coming together, you know, working
6 on individual pieces of a final product rather than, you
7 know, something tangible at the end of the day when we're
8 talking about trade. So I think that that is a -- I think
9 that's a really good way to look at how services trade works,
10 so I'm glad that you have pursued that role.

11 My plan here for the discussion is to first give
12 you some ideas of what I took from the paper, some thoughts
13 about where this research could go moving forward, and then
14 finish up with some questions that maybe can get the
15 discussion started at the end of this session.

16 So the first one is, obviously, it's really
17 important to look at both goods and services trade when we're
18 looking at the overall distributional effects. We do see
19 that the magnitude of the effects are very similar compared
20 to goods-focused analysis of a similar time period and
21 similarly that the negative impacts of services offshoring on
22 U.S. workers are really concentrated on people who lose their
23 jobs as a result.

24 The second takeaway that I thought was real
25 interesting is that the people that -- workers that switch up

1 or down or remain in services jobs in response to trade or
2 import competition are different from one another, that they
3 find that there's workers that are sorting both on things we
4 can observe, like education, and things that we can't really
5 observe. And I think that is an interesting -- has
6 interesting implications for the distributional effects of
7 things because we know not only that the workers are -- you
8 know, some workers are experiencing job losses and negative
9 effects from import competition in services from China and
10 India but that they are not -- they are kind of a distinct
11 group of workers, that there are workers with certain
12 characteristics who are the ones that are missing out.

13 And also, the third thing that struck me as
14 interesting is that the trade impacts are here. At least I
15 interpret them as a technology story. It's not really a
16 trade policy story here. Like, unlike a lot of the work on
17 manufacturing, especially the Autor, Dorn & Hanson work that
18 looks at China's accession to the WTO, what we're seeing here
19 is changes in U.S. employment driven by decreases in the
20 costs of offshoring. A lot of those are -- kind of has been
21 enabled by new technology and the internet that makes it
22 easier to communicate remotely and do work remotely.

23 So next, one thing about this paper that is perhaps
24 an opportunity for future research either by the authors or
25 others is that their data only goes through 2005, and if

1 you're looking at the services trade landscape since then,
2 there's a lot of things that have changed for U.S. service --
3 services imports.

4 So the first thing I want to point you to is this
5 figure. I looked. I did my best to reconstruct the other
6 private services measure that they used, that the authors
7 used in the paper. I looked at, okay, well, what does China
8 and India's share of other private service imports look like
9 now?

10 What you see is there is a -- after the data set,
11 you know, Professor Liu had mentioned that, you know,
12 services are growing fast. I would say that trend, if
13 anything, it's gotten even more so. You see that India
14 especially has really increased the share of services that
15 they export to the -- or the total share of services imports
16 from abroad are more and more going to India. China has
17 similarly grown. So it would be interesting to see, you
18 know, how much -- if these effects are much bigger in a later
19 period.

20 There have been new technologies that could
21 potentially make outsourcing of services even easier, things
22 like video conferencing, like what we're doing now, that will
23 maybe make it easier to communicate with workers in other
24 markets directly, and also the rise of kind of platform-based
25 freelancing in the gig economy. One that would be

1 potentially applicable to this question is a platform like
2 Upwork, where contractors can directly bid on freelance
3 projects and, as far as I know, don't have, really, a
4 geographic limitation, so you could see kind of very direct,
5 like, worker-by-worker outsourcing in that sense.

6 There are also in the U.S. market new players. I
7 looked into trade trends in the Philippines, and the
8 Philippines doesn't, you know, compete with China or India in
9 terms of taking U.S. import share right now, but they look a
10 lot like India did in the early 2000s, so this could be
11 another potential source of U.S. job loss to look at.

12 And then, also, if we're thinking about the
13 internet technology enabling outsourcing of services and
14 leading to job loss, there are a lot of new regulations
15 related to cross-border transfers of data, things related to
16 data privacy kind of generally or specifically requiring that
17 data be stored in a specific location. That could
18 potentially have interesting impacts on import shares or
19 changes to occupations.

20 So, to end, I had a few questions, and these are --
21 my thought is to just kind of have these be discussion
22 questions or have the authors weigh in. One thing that has
23 struck me is about the disentangling the impact, direct
24 impact of technology on services jobs compared to the trade
25 impact.

1 So I see that technology has, you know, two
2 potential roles in services job loss. One would be just kind
3 of the direct thing, better ICT technology can directly lead
4 to job loss if your job gets replaced with a kind of
5 automated system, or indirectly by making outsourcing easier.
6 So, if you have -- you know, better technology means you can
7 move that job somewhere else and just communicate remotely
8 with that client. So just consider. Curious on your
9 thoughts about disentangling those two things.

10 I think I found the findings on sorting very
11 interesting, and I was curious if you had some ideas on what
12 we should take away from that from a trade policy perspective
13 for perhaps trying to figure out who is likely to suffer from
14 changes to U.S. trade policy about services or anyone's trade
15 policy and for -- how does the sorting help us figure out how
16 to accurately understand how employment changes, how trade
17 affects employment changes.

18 And then the last one is kind of a technical one,
19 was at the end of your paper, you mention that we can't --
20 you don't have an instrument for the -- you know that workers
21 seem to sort on unobservable characteristics, but you say you
22 don't have a instrument, so I was just curious if that is
23 kind of a you don't have an instrument because no such
24 instrument exists or you don't have an instrument because you
25 could have one, but the data for it doesn't exist.

1 So that, I will leave it there and turn it back to
2 the office to respond and Jen to moderate the discussion.
3 Thank you. Thank you all.

4 MS. POWELL: Thank you, Sarah.

5 Professor Liu, Professor Trefler, I'm going to give
6 you the first opportunity to respond to Sarah's questions and
7 then open up the Q&A to the audience. As a heads up,
8 audience members can either post their questions in the chat
9 or raise their hands and I will recognize them.

10 So, Professor Liu, Professor Trefler?

11 MS. LIU: Okay. Hi, Dan. Do you want to jump in
12 or you want me to?

13 MR. TREFLER: Why don't you start and then I can
14 jump in after that.

15 MS. LIU: Sure.

16 Thank you so much, Sarah, for very insightful
17 comments. You know, those questions are very, very
18 important. As you showed, it's actually, you know -- I think
19 it's very exciting in a way to say that service trade keeps
20 growing. That kind of makes, hopefully, our research more
21 applicable because, you know, it doesn't just stop there.

22 I guess I will take the first question in terms of
23 dis-tangle the direct impact of technology and the indirect
24 impact of technology on labor market outcomes. It's
25 definitely very, very important because we all know that

1 technology that leads -- technology has a direct impact, like
2 automation, like the decreasing costs of ICT has a direct
3 impact on the labor market, but it also lowers the cost of
4 offshoring. That leads to more offshoring. Then those
5 offshoring has a impact, a indirect impact, on the labor
6 market as well.

7 In the paper, we kind of tried to control the
8 direct impact of technology. Kind of, if you recall, we kind
9 of have a control called ICT. That's a very, I would say --
10 like, we tried as far as we can. We kind of construct a
11 matter that is a share of investment into those ICT
12 technology over the overall investment. So we tried to use
13 that kind of rudimentary matter to control the direct impact
14 of technology on labor market. That's what we did in the
15 paper, kind of just tried to control the direct impact of
16 technology.

17 I guess that's my take for the first question.
18 Dan, do you want to talk more about the policy?

19 MR. TREFLER: Certainly. Just quickly, Sarah, just
20 on sorting, I think we have new technologies now for thinking
21 about sorting that we didn't have back then. In particular,
22 there's a lot of interest now because of, you know, efforts
23 to study the impacts of AI. There's more papers now thinking
24 about task-to-task transitioning, which is related to our
25 occupational transitioning. And I just think that we have

1 way better techniques than we used to have for thinking about
2 that, so maybe I could forward you a paper or two on that on
3 what's been happening the last couple years and maybe that
4 might be helpful.

5 In terms of instruments or unobservables, better
6 data. Like, maybe the German labor force data, where they
7 have so much more information about individuals, including
8 psychometrics to information, et cetera, or the Swedish data.

9 Did you want to take more questions, or did you
10 want me to just say something about policy implications?
11 Happy to take more questions. Either way.

12 MS. POWELL: Sure. While we wait for questions,
13 please continue on the policy.

14 MR. TREFLER: So I think the main message of this
15 paper is in some ways a little bit narrower than the bigger
16 questions that you at the ITC have to face. Our main message
17 is there's a small subset of American workers that are being
18 hammered by international trade. It's not the whole economy,
19 but it is a small subset, and that subset is perhaps growing
20 as white-collar workers become more exposed to international
21 trade through digital services. And we need to take care of
22 even our most advantaged people, and since this often affects
23 many people in a single community, like Flint, Michigan, we
24 need to protect our communities as well.

25 So the question is how best to do that. So that's

1 sort of the level at which we're talking about, but I think
2 there's two other levels that you at the ITC have to worry
3 about, and that is we really have to protect our democracy
4 because international trade has become a real focal point for
5 discontent, for polarization, and, you know, we have to help
6 people understand which part of it is real, that there are
7 people who are being hurt, and which part of it is just a
8 political play as part of a larger, you know, package of, you
9 know, building on identity politics and on polarization. So
10 I have a little bit to say about that.

11 And then I think the third one, and you at the ITC
12 know it better than anybody, is that in some sense, the U.S.
13 still also has to protect the world international trading
14 order, right, because there's big governance issues
15 surrounding, you know, managed trade with China, the
16 relationship with Europe and Japan, the Trilateral
17 Commission, and, of course, the WTO.

18 So I think, on the first point, you know, managing
19 our most disadvantaged, I think, you know, the U.S. has to
20 think about some domestic policies. This is not only an
21 international trade issue. So portability of pensions,
22 portability of healthcare -- U.S. has obviously made a lot of
23 progress on the portability of healthcare at least -- you
24 know, the role of non-compete clauses, which, thankfully, are
25 starting to be rolled back a little bit -- the Labor

1 Relations Review Board certifications and union labor law
2 and, you know, how weak unions are. Maybe those are things.
3 I don't know in the current political climate if that can be
4 considered or not.

5 And for the first time, I think we have a glimpse
6 that there may be ways of retraining because I think 10 years
7 ago we had a healthy skepticism for how unsuccessful training
8 programs had been, but now we're seeing a glimpse in a few
9 papers suggesting that maybe retraining can be useful. I
10 haven't followed that literature carefully. So, on the
11 domestic side, I think there are domestic policies.

12 And to the protecting democracy, I think have you
13 been talking to -- I think she used to be at the U.S. ITC,
14 Katherine Klowsee (phonetic), the lawyer. She talks about --
15 a lot about how the U.S., unfortunately, when it forms trade
16 laws, has sort of two tracks. You know, we have the
17 fast-track authority and Executive Orders being really
18 managed by the President, and then -- so we make all these
19 laws, and then, when it comes to the fallout for our most
20 disadvantaged, it's like the U.S. ITC and Congress has to
21 pick up the pieces. It's not like we have a single
22 comprehensive way of thinking about trade agreements and
23 their fallout, and the U.S. needs to rethink how they conduct
24 trade policy in light, I think, of what Klowsee has
25 suggested.

1 And then the policies that you're following, like
2 tariffs against China and managed trade, just looking at the
3 numbers of how well the U.S. has succeeded in managing trade
4 with China, it looks like a complete disaster to me. It's
5 just not working. And now we're in a world of playing the
6 subsidies game. It's going to be awfully hard to outcompete
7 China on subsidies. And past experience with subsidies
8 suggests that they're really not a great tool and the only
9 reason we should be using them is because we have no choice.
10 So, you know, the U.S. has to take a fresh look at what it
11 can do in case of the onslaught from China.

12 And the final thing is international governance. I
13 think the U.S. has to really rethink how well it's trying to
14 bring its allies into bed with it because, you know, from a
15 Canadian perspective, you'd see huge support for that, and I
16 would like to think from Japan and maybe from Europe. And
17 supporting the WTO. I mean, the U.S., you know, is gutting
18 the WTO, and it could be looking to build the WTO in a way
19 that provides it with a shield from China rather than trying
20 to gut it. I feel like that's a possibility. I just wish
21 that the U.S. was more firm on that.

22 So those are some of the bigger challenges. Just
23 people are being affected, but democracies are being affected
24 and the international, you know, trading organization is
25 being affected as well, and we need to tackle all of these.

1 So that's sort of my big-picture thoughts.

2 MS. POWELL: Thank you so much. We do have a hand
3 from Martha Lawless, and I will recognize her first, and then
4 we have questions in the chat. Martha?

5 MS. LAWLESS: Well, thanks. And thanks for the
6 sort of tour de force of the implications of trade, thinking
7 deeply on trade issues just there. I was wondering, just to
8 follow on on that, and then I have a more specific question
9 to Professor Liu, but, Professor Trefler, what would you see
10 -- there are conversations, obviously, between the U.S. and
11 India going on at the moment, and we at the ITC are not
12 policymakers; rather, we are helping to inform the policy
13 being made by the Administration.

14 But that being said, do you think there are
15 particular synergies or common interests between India and
16 the U.S. on the services side that we should research and be
17 able to speak to? Because it's been so long that it's just
18 been a given that the wage differential in the ITC services
19 sector means that offshoring is a good thing to do, and I
20 think maybe we need to think a little more deeply.

21 MR. TREFLER: Boy, you've asked me, like, almost my
22 favorite topic almost. Are we off the record here or not
23 really? Who else hears this?

24 MS. POWELL: This is being transcribed and the
25 transcription will be posted.

1 MR. TREFLER: Okay.

2 MS. LAWLESS: People can find it on our website.

3 MR. TREFLER: Okay. Thank you. So India is very
4 -- has proven to be a very difficult trading partner to reach
5 agreements with and they're -- as you know, they've been very
6 intransigent on issues of plurilaterals at the WTO. And I
7 think the WTO is at a place where it needs, if it wants to
8 make progress on digital trade agreements, on what's the
9 appropriate rules for cross-border data flows, for data
10 localization, for privacy, et cetera, it's going to need to
11 do that through plurilaterals, meaning coalitions of the
12 willing within the WTO.

13 And India has been very reluctant to be in that --
14 to join that space and, in fact, have blocked on a number of
15 occasions, so I think the U.S. needs to try at least
16 something bold. I don't know if the politics allows for it.
17 If the U.S. could give India a plurilateral that it would
18 love and say, look, if you can -- you know, maybe something
19 -- I know this is going to make you cringe for a second, but
20 something on agriculture, if you could give them something on
21 agriculture that looks like a plurilateral that addresses
22 some of their concerns and you get in return something big on
23 the digital side, services side, to me, that seems like a
24 quid pro quo that I would love to see happen because, if
25 India remains obstructionist, it's just going to be very,

1 very difficult to move forward on any international services,
2 digital services agreement, and I think it's important that
3 we do move forward, especially if any country is going to
4 benefit from it, it's going to be the U.S., you know, the
5 giant of digital technology.

6 MS. LAWLESS: I don't know if we have any of our
7 USTR colleagues listening in today, but we can certainly
8 alert them to your thoughts for sure.

9 I had a slightly more focused question for
10 Professor Liu on the paper, and if I understand it, you
11 talked at the beginning about having to do a concordance to
12 understand the breakout of the services trade flows into
13 occupations.

14 There's a lot of thinking, I think Lucien Cernat
15 calls it Mode 5 Services trade, which is services embedded in
16 manufacturing and goods production, so that is not in your
17 analysis, is it, the occupations, the services occupations'
18 effects for people who are working in a goods industry, is
19 that right? You've restricted it to the services
20 occupations' effects for people working in services
21 industries.

22 MS. LIU: Yeah, that's -- it's definitely -- I
23 think there's a lot of data management issues because simply,
24 as I mention, there's no standard -- there's some standard
25 but not as comparable to narrowing the manufacturing goods.

1 MS. LAWLESS: Mm-hmm.

2 MS. LIU: So I guess my answer is kind of to a
3 degree, we kind of captured some of the services. Like,
4 specifically, you're asking, like, computer programmers work
5 for a steel plant. Yeah.

6 MS. LAWLESS: For example.

7 MS. LIU: Yeah, for example, because, to a degree,
8 we kind of capture some of those because it's just related to
9 the way how BEA constructed those other private services.
10 So, basically, like I mentioned, they sent out a survey to
11 all the private firms in the U.S. and they asked them what
12 type of service have you bought from China and India. So
13 those services could be kind of computer, computing services.

14 Then, when we link those services kind of to a
15 occupation level, we kind of considered everyone that could
16 work in those computing-related occupations. So we kind of
17 hide the industry affiliation. We're just looking at, okay,
18 are you -- is your job kind of computing-related? So, to a
19 degree, our sample will include all the workers that provide
20 computing services, no matter which industry you are
21 affiliated with.

22 MS. LAWLESS: Okay, because that was really my
23 question. We've had to look at it that way in other analyses
24 as well because you have to get a sense of the service
25 intensity or the digital intensity, and that can be for a

1 company that makes whatever good or service.

2 MS. LIU: Yeah. Yeah. Yeah.

3 MS. LAWLESS: So thank you. The cross-border trade
4 statistics are by a service that is purchased and sold, as
5 you say. If you were using affiliated data, it would be a
6 bit different. But thank you for that clarification.

7 MS. LIU: Yeah. Thank you.

8 MS. POWELL: Thank you. Our question in the chat
9 has disappeared, so the floor is open. It looks like we have
10 five additional minutes if anyone wants to raise their hand
11 or ask a question in the chat.

12 MS. OLIVER: I've got a very small technical
13 question. Well, but then I can let Tamar go first.

14 MS. KHACHATURIAN: No, you can go ahead. I'll
15 wait.

16 MS. OLIVER: Okay. In the trade model, if you were
17 to measure -- use a similar model and look at a trade policy
18 change rather than a shock to unemployment or a shock to
19 outsourcing costs, would it just show up as a shock to the
20 beta term? Is that where you would put it?

21 MS. LIU: Dan, do you want to take that question?

22 MS. OLIVER: Sorry. Maybe that's not a --

23 MR. TREFLER: No, it's been a long time since I
24 wrote that model, so I'm struggling here to remember.

25 MS. OLIVER: Yeah.

1 MR. TREFLER: But I believe that what we care about
2 is -- give me one second. Is it the same as the techno? I
3 don't think so for the reasons of your second question --
4 your first question, because a tariff is not -- a tariff
5 doesn't have the direct and indirect effects technology has
6 in your first question.

7 MS. OLIVER: Okay. Okay. Thanks. That is all.
8 Okay, Tamar, go ahead.

9 MS. KHACHATURIAN: Thank you. So I think I have a
10 really broad question for both of you. And thank you for
11 your presentation, Runjuan. I think, just having worked on
12 this research, I wanted to know from your perspective what
13 you would prioritize as the most productive areas of future
14 trade. I remember reading your paper. For example, there
15 were some statistically significant impacts based on
16 individual characteristics, such as schooling.

17 So, if we were to focus on services trade and
18 distributional impacts, I was curious to know what subgroups
19 you would consider focusing on more as, you know, sort of
20 just, you know, one question in that sort of broad area of
21 what would you focus on given the work that you've done so
22 far.

23 MS. LIU: Okay. Thank you for the question.
24 Schooling, as you know, for all those works, that's kind of
25 one individual characteristic that's just so distinctive for

1 those white-collar workers. That just how they allocate it,
2 that's for sure. So just to kind of follow up on that, like,
3 are we talking about a group of worker that -- I'm not sure
4 if I get the question part.

5 MR. TREFLER: I can try, Runjuan.

6 MS. LIU: Yeah, I probably will kind of go to Dan.

7 MR. TREFLER: I think there's certain groups that
8 are differentially affected. You know, services is much, yo
9 know, the modal job. There's gender, big gender gaps between
10 how women are represented in manufacturing versus services
11 and particularly the parts of services that are easily
12 offshored, with some caution. Wall Street is easily
13 offshored, which tends to be male-dominated. So certainly
14 gender.

15 You can see I think -- I'm not savvy to U.S.
16 political language, but, loosely, race. You think about, you
17 know, the concentration of certain groups say along the Texas
18 border versus along, you know, the Michigan/Canada border.
19 Those are different -- those areas have very different
20 exposures to service trade. So you want to think about that.

21 And then I think the last one which has not
22 received any attention because it's so difficult is just
23 think about your office and you look around your office and
24 you say, you know, there's some people in this office that
25 are just capable of dealing with pressure. You know, they

1 have great coping skills. And, you know, when the boss is
2 asking us for a ton of stuff, somehow they can deliver and
3 other people just call in sick. And, you know, where those
4 coping skills come from, probably, you know, we can look back
5 to early childhood development.

6 And just to try to recognize that, you know, even
7 our earnings regressions only explain, you know, a small
8 fraction, you know, 30, 40 percent of how well we do in life,
9 right? So just trying to understand that, you know, these
10 unobservables that affect how we respond to pressure, because
11 international trade does bring pressure. It brings a lot of
12 support, you know, makes us able to do a lot of things we
13 wouldn't be able to do without trade, but it brings a lot of
14 pressure at the same time, and to understand how people --
15 why some people -- understanding that the people who cannot
16 deal with pressure are going to be hit the hardest. Somehow
17 getting purchase, empirical purchase, on that, that would be
18 amazing.

19 MS. KHACHATURIAN: That's an interesting thought.
20 Thank you so much.

21 MS. POWELL: And thank you from me as well. We are
22 at the hour, so, again, I would like to thank our presenter,
23 Professor Liu, her co-author, Professor Trefler, and Sarah
24 Oliver from our office for providing the discussant comments.

25 Just a reminder that the seminar week continues

1 tomorrow. We have two seminars tomorrow, one at 10:00 and
2 the other at 1:30. Information on these is available at the
3 -- on the U.S. ITC's distributional effects webpage, and Saad
4 has put a link to that in our chat. So thank you again, and
5 we will see you tomorrow.

6 (Whereupon, at 3:00 p.m., the seminar in the
7 above-referenced matter was adjourned.)

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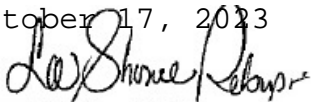
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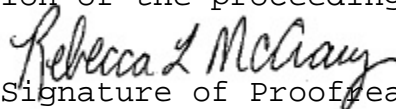
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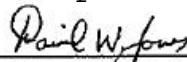
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