



THE UNITED STATES INTERNATIONAL TRADE COMMISSION

In the Matter of: )  
 )  
ACADEMIC SYMPOSIUM: )  
THE IMPACT OF TRADE ON U.S. )  
WORKERS: DISTRIBUTIONAL AND )  
OTHER EFFECTS )

Tuesday,  
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Remote Meeting  
U.S. International  
Trade Commission  
500 E Street, S.W.  
Washington, D.C.

The symposium commenced, pursuant to notice, at 9:07 a.m., before the Commissioners of the United States International Trade Commission, the Honorable JASON E. KEARNS, Chairman, presiding.

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I N D E X

	<u>PAGE</u>
Opening: Dr. Sandra Rivera	6
Welcome: Chair Jason Kearns	7
Keynote: Dr. David Autor	11
<b>Session A: Distributional effects of trade and trade policy on U.S. workers by education and skill levels</b>	
Dr. Katheryn Russ, University of California, Davis	26
Ms. Shubhi Agarwal, University of Florida, "U.S. Exports, Local Labor Markets, and Wage Inequality" (2021)	34
Dr. Ann Harrison, University of California, Berkley, "Estimating Impact of Trade and Offshoring" (2014)	44
Dr. Eunhee Lee, University of Maryland, "Global Value Chains and Inequality with Endogenous Labor Supply" (2018)	52
Dr. Kyle Handley, University of California, San Diego, "The Impact of Chinese Trade on U.S. Employment: The Good, The Bad, and The Debatable" (2019)	60
<b>Session B: Distributional effects of trade and trade policy on Race and Ethnicity</b>	
Moderator: Dr. Edinaldo Tebaldi, Bryant University	83
Dr. Timothy Bond, Purdue University, "Stalled Racial Progress and Japanese Trade in the 1970s and 1980s" (2019)	84
Dr. Felipe Benguria, University of Kentucky, "The Impact of NAFTA on U.S. Local Labor Market Employment" (2020)	98
Dr. William Spriggs, AFL-CIO/Howard University, "China Import Penetration and U.S. Labor-Market Adjustments" (2021)	108

I N D E X

	<u>PAGE</u>
Dr. Edinaldo Tebaldi, Bryant University, "International Trade and Wage Differentials: What Do the Data Tell Us?" (2022)	116
<b>Session C: Distributional effects of trade and trade policy on Gender</b>	
Moderator: Dr. Felipe Benguria, University of Kentucky	140
Dr. Ross Hallren, Amazon, and Dr. Stephanie Fortune-Taylor, USITC, "Worker-level Responses to the High-Value Labor Content Rules Requirement" (2022)	140
Dr. Masha Brussevich, IMF, "Does Trade Liberalization Narrow the Gender Wage gap? The Role of Sectoral Mobility" (2018)	150
Dr. Philip Saure, Johannes Gutenberg Universität, "International Trade, the Gender Wage Gap and Female Labor Force Participation" (2014)	157
Dr. John McLaren, University of Virginia, "NAFTA and the Gender Wage Gap" (2017)	164
Dr. Tibor Besedeš, Georgia Institute of Technology, "Trade Liberalization and Gender Gaps in Local Labor Market Outcomes: Dimensions of Adjustment in the United States" (2021)	171
Dr. David Fortunato, University of California, San Diego, "Representation and the Trade Roots of the Gender Pay Gap" (2022)	180
<b>Session D: Short presentations and panel discussion on existing methodologies and their limitations, and new cutting-edge labor modeling work</b>	
Moderator: Dr. William M. Powers, Chief Economist/Director, Office of Economics; USITC	200
Dr. Maryla Maliszewska, The World Bank, "Ex-Ante Evaluation of Sub-National Labor Market Impacts of Trade Reforms" (2020)	202

I N D E X

	<u>PAGE</u>
Dr. Hans Lofgren, The World Bank, "A Proximity-based Approach to Labor Mobility in CGE Models" (2017)	207
Dr. Rafael Dix-Carneiro, Duke University, "The Globalization, Trade Imbalances and Labor Market Adjustment" (2021)	214
Dr. Kirill Borusyak, University College London, "The Distributional Effects of Trade: Theory and Evidence from the United States" (2021)	221
Dr. Michael E. Waugh, Federal Reserve Bank of Minneapolis, "The Consumption and Welfare Effects of a Tariff Shock: Evidence from U.S.-China Trade War" (2022)	230

P R O C E E D I N G S

(9:07 a.m.)

1  
2  
3 DR. RIVERA: Good morning. We are so excited to be  
4 here. I wanted to welcome each and every one of you and  
5 thank you for making time out of your very busy schedules to  
6 be on these panels, to participate in this conversation we're  
7 having today.

8 As many of you know, it is part of a larger project  
9 delivered to one of our clients, the U.S. Trade  
10 Representative, and the process of getting us here was  
11 complex and intense and went through hundreds of papers,  
12 created dozens of concordances to ensure we had the best  
13 configuration of papers and the best that represented the  
14 question that we're trying to get at: what is indeed the  
15 impact of distribution effects of trade and trade policy on  
16 U.S. workers, particularly in underserved communities.

17 I wanted to ask my team to show themselves on  
18 screen and wave. Caroline Peters, Christopher Montgomery,  
19 Huyen Nguyen, Jean Yuan, Elli Nesbitt, and Sam Goodman.  
20 They've been working very hard, and without their help, we  
21 couldn't have gotten this done.

22 I wanted to remind each of the panelists that this  
23 is a public forum, and so although it's not being recorded,  
24 everything you say will be recorded in a transcript, and that  
25 will be available to the public. So, in the interest of

1 time, I just wanted to thank you again for coming today, and  
2 I'm turning to Chair Jason Kearns who will have a few words  
3 to say.

4 CHAIR KEARNS: Great, thank you very much, Sandra.  
5 Good morning, everyone. I'm Jason Kearns, Chair of the U.S.  
6 International Trade Commission. I'd like to welcome you to  
7 the Commission's academic symposium concerning the  
8 distributional effects of trade and trade policy on U.S.  
9 workers.

10 This symposium is an opportunity to learn more  
11 about ongoing academic research and to discuss future  
12 research directions. I would like to thank the team at the  
13 Commission who organized this symposium. As Sandra  
14 described, a lot of work went into getting us where we are  
15 today. I would also like to thank all of the moderators,  
16 panelists, and observers for your participation.

17 I want to spend a few minutes to describe the  
18 Commission and to put this historic distributional effects  
19 investigation in perspective. I'll outline the objectives of  
20 the symposium and convey a few of the things that arose in  
21 the public roundtables that the ITC recently convened. Then,  
22 I'll welcome out keynote speaker, MIT Professor David Autor.

23 The Commission is an independent agency. It is not  
24 part of the President's administration, and it is not part of  
25 Congress. We are also non-partisan; no more than three of

1 the six commissioners can come from the same political party.

2 We provide the President, the U.S. Trade  
3 Representative, and Congress with independent analysis and  
4 information on matters relating to international trade, and  
5 that brings us to why we're here today.

6 The U.S. Trade Representative, Katherine Tai, asked  
7 us to gather input on how international trade affects U.S.  
8 workers differently by skill, wage and salary level, gender,  
9 race, ethnicity, age, and income level, especially as it  
10 affects underrepresented and underserved communities.

11 This symposium is designed to discuss the results  
12 of existing analysis, identify the best ways to deploy  
13 promising methodologies, identify gaps in the data, and map  
14 out future research directions. The ultimate goal is to  
15 inform policymakers at USTR.

16 The proceedings will be summarized in a written  
17 report, as Sandra mentioned, to be delivered in October of  
18 this year. Ambassador Tai recently stated that our  
19 investigation will be a pillar of U.S. trade policy going  
20 forward. Longer-term, this work will shape the ITC's  
21 analysis in future investigations.

22 This includes assessments of the economic effect of  
23 prospective free trade agreements, those for which  
24 negotiations have not begun. Academic research generally is  
25 foundational to the ITC's economic analysis. We need to look

1 no further than the China shock research led by our keynote  
2 speaker, which helped unlock a pathway toward a more durable  
3 consensus on U.S. trade policy by providing a more complete  
4 picture of worker outcomes.

5           If we don't know what the effects of trade are,  
6 decisionmakers simply cannot craft good trade policy. The  
7 study on distributional effects recognizes that the effects  
8 of trade and trade policy on U.S. workers may differ by  
9 demographic group, which could be a result both of how the  
10 policy itself is designed, as well as how these groups are  
11 situated, or their starting points in the labor market.

12           This study is about trade impacts, and it does not  
13 call for us to generate potential policy solutions. In our  
14 seven roundtables, we heard about the difficulties that  
15 manufacturing workers, particularly racial minorities, women,  
16 and older workers face in transitioning to new jobs after  
17 losing jobs due to trade, and the inability of service sector  
18 work jobs they do find to support families.

19           For example, a steelworker in Detroit last week  
20 told us how workers in Black communities where the jobs were  
21 lost couldn't afford to buy a car and pay for car insurance  
22 to get a job in a more affluent suburb where some factory  
23 jobs were created.

24           That one common-sense insight may help economic  
25 modelers think through the transition costs and frictions and

1 the time horizons in our economic models of trade. We heard  
2 about how factory closures can affect the entire community,  
3 not just those who are directly affected, giving rise to a  
4 host of social ills.

5 We're reminded of the need to examine every channel  
6 by which trade has positive effects on workers, such as  
7 allowing small business to export, and every channel by which  
8 it has negative effects, such as how the threat of offshoring  
9 can limit the bargaining power of workers. We already need  
10 researchers to step in and tell us how widespread these  
11 phenomenon are.

12 And now it is my privilege and great pleasure to  
13 introduce our keynote speaker, David Autor. Dr. Autor is the  
14 Ford Professor of the MIT Department of Economics,  
15 co-director of the NBER Labor Studies Program, and co-leader  
16 of both the MIT Future Task Force and the J-PAL Worker  
17 Prosperity Initiative.

18 His research explores the labor market impacts of  
19 technological change and globalizations. Many of you are  
20 likely to know him well, so I won't list all of his numerous  
21 publications and awards. What I find noteworthy are Dr.  
22 Autor's early-career explorations. After jobs in a hospital  
23 and a computer software consultancy, he graduated from Tufts  
24 University with a degree in Psychology and decided to teach  
25 computer skills to underprivileged children.

1           He enrolled in Harvard's Kennedy School of  
2 Government, my Alma Mater, where he took his first economics  
3 class while earning a Ph.D. in public policy before  
4 ultimately joining the economics faculty at MIT. Dr. Autor  
5 went on to lead and collaborate on some of the most important  
6 research studies on the effects of trade on workers, which  
7 likely benefitted from his real-world experience.

8           A 2017 profile by the International Monetary Fund's  
9 bi-monthly magazine stated that Dr. Autor's research on labor  
10 markets was "imbued with respect for the dignity of work,  
11 sympathy for the disadvantaged, and concern for the damage  
12 that unemployment inflicts on families and communities.

13           I couldn't have said it better myself. Welcome,  
14 Dr. Autor. We are very grateful to have you here, and the  
15 floor is yours.

16           DR. AUTOR: Thank you very much for that far too  
17 generous introduction. I'm already blushing. Let me see if  
18 I can share my slides. I'm hoping it's going to work. Oh,  
19 great. I'm going to assume you're all seeing that.

20           MALE VOICE: We sure can. Thank you.

21           DR. AUTOR: Excellent. Well, I'm honored to be  
22 here. I think it's terrific that the ITC is undertaking this  
23 mission to sort of consider the distributional consequences  
24 of trade. Let me say, I'm not a trade economist, I'm a labor  
25 economist, and I view my work as just sort of helping to set

1 some of the agenda for understanding the labor market  
2 impacts.

3           There are many people who are doing incredibly  
4 important work in this area that's actually far more  
5 sophisticated than the work I'm doing, but I hope that the  
6 work that I've done, and especially in collaboration with my  
7 co-authors Gordon Hanson and David Dorn and a slew of others  
8 helps to give a big picture of the phenomena that we need to  
9 understand better.

10           So, I'm going to speak about the enduring  
11 consequences of the China trade shock. So, many things I'll  
12 be reviewing are highly familiar to you. So, China's  
13 historic rise to the world manufacturing power is a  
14 remarkable human achievement and really one of the best  
15 things that's happened to human welfare in at least a  
16 millennium, creating the world middle class.

17           And so, it has been a remarkably positive element,  
18 but it has had distributional consequences which are quite  
19 substantial, particularly for the United States, as well as  
20 some other high-income countries.

21           There was a historic fall in U.S. manufacturing  
22 employment between 1999 and 2007 after China joined the World  
23 Trade Organization, and it's important to understand that  
24 although U.S. manufacturing has been in decline as a share of  
25 employment since the end of the second World War, it

1 actually, numerically, was relatively stable, losing only 2  
2 million jobs between 1979 and 1999.

3 And then, the collapse was remarkably fast and  
4 highly concentrated in time and in space, and that's part of  
5 what made it so consequential. China's rise, of course, was  
6 catalyzed primarily by internal reforms in China having to do  
7 with reposition under Deng Xiaoping, and those internal  
8 reforms, it's important to recognize, are now in retreat.

9 The Chinese state has been taking back control,  
10 recentralizing, reallocating resources from the private  
11 sector to state-owned enterprises. This has been going on  
12 for quite a while until you can actually see the China trade  
13 shock in kind of three different acts. From 1991 to 2000,  
14 you can think of the period of initiation, really taking  
15 places corresponding developments in China.

16 From 2001 to 2010 is just the intensification  
17 corresponding to China's gaining (technical interference)  
18 most-favored-nation trading status.

19 (Technical interruption.)

20 FEMALE VOICE: We can't hear you.

21 MALE VOICE: Are you there, doctor?

22 DR. AUTOR: Yes, I'm here.

23 MALE VOICE: We lost you for one second.

24 DR. AUTOR: Okay. I think it's because I moved a  
25 little window off the screen.

1                   MALE VOICE: Oh, okay.

2                   DR. AUTOR: It's important to recognize the China  
3 shock is not over in the sense that China is where it is, but  
4 the period of intensification has ended. Things have  
5 stabilized. So, we really have been in a different era for  
6 more than a decade now.

7                   So let's see if I can keep this going. Okay, great.  
8 So, I want to speak on three points: what do we learn from  
9 labor market adjustments; why were the impacts so persistent;  
10 and then a little bit on the welfare gains, as was emphasized  
11 in traction as we should not lose sight of the gains from  
12 trade, even when thinking about the distributional  
13 consequences.

14                   So, the case for free trade is well-known to all of  
15 us. Trade allows countries to specialize in the goods in  
16 which they're most productive, and so free trade among  
17 consenting nations should raise GDP in all of them, and that  
18 remains true.

19                   The rub is that there are winners and losers.  
20 What's true for the welfare of a country in the aggregate  
21 does not necessarily apply for all citizens in a country, and  
22 trade normally creates winners and losers, something that's  
23 also been well understood for a long time, although I think  
24 trade policy sort of lost sight of that fact.

25                   It yields diffuse benefits and concentrated costs,

1 and why is not pareto improving? This is a review for all of  
2 you. Trade necessitates reallocation in workers and jobs.  
3 Workers will be displaced from career jobs. It may require  
4 new location, new occupation, and it's particularly true, and  
5 this is something that recently occurs to be emphasized, when  
6 there's a large trade deficit.

7           Because trade deficits, although we're taught in  
8 traditional trade classes not to pay any attention to them,  
9 they do affect the amount of reallocation. If you have a  
10 large trade deficit in manufacturing suddenly and you want to  
11 maintain full employment, it means you're going to have to  
12 reallocate labor from manufacturing to non-manufacturing, and  
13 that's a slow, costly process, as the data now tell us.

14           In addition, of course, trade permanently alters  
15 skill demands, in addition to their frictional adjustments.  
16 It will typically, when we're talking about integration with  
17 less developed countries, it'll raise demand for high-skill  
18 workers, industrialize economies, reduce demand for low-skill  
19 workers.

20           And so, even as trade grows the pie modestly, it  
21 can shrink some slices substantially. So, we understand all  
22 that in theory. What about in practice? Well, the big  
23 picture is that manufacturing-intensive locations, the United  
24 States -- and this is a picture of the 722 commuting zones in  
25 the U.S. -- saw substantial falls in employment population

1 between 2000 and 2019.

2 And unfortunately -- so, these were manufacturing  
3 areas where manufacturing employment declined, and we did not  
4 see a swift reallocation of labor into non-manufacturing. In  
5 fact, the decline in manufacturing, at least in the initial  
6 years, was matched almost one-for-one by increasing  
7 unemployment and non-participation.

8 In many papers, Gordon Hanson, David Dorn and I  
9 have tried to explore how that relates to the China shock by  
10 estimating a simple regression model of changes in sum  
11 outcome, typically employment depopulation or manufacturing  
12 employment, as a function of time, a number of covariates,  
13 and then the China trade shock, which we look at as import  
14 penetration.

15 And rather than using the observed change in import  
16 penetration, which is an endogenous variable that may be  
17 affected both by domestic supply and demand factors, as well  
18 as international factors, we try to isolate exogenous  
19 variation in China's growing comparative advantage by looking  
20 at the change simultaneously of Chinese exports in 391  
21 product categories to seven other high-income economies,  
22 including Switzerland, Italy, Germany, and so on.

23 The idea being, if we see simultaneously all these  
24 other high-income countries switching from, let's say,  
25 Japanese to Chinese tennis shoes or, you know, materials, or

1 dolls, or toys, or electronics, we think of that not as  
2 reflecting China's rising productivity, falling trade costs,  
3 reduced trade barriers, and more competitive pricing that  
4 allows it to gain market share in all these activities.

5 We project those changes into the U.S. data and  
6 others -- we use the covariates between the changes in these  
7 other high-income countries and the simultaneous changes in  
8 the United States -- we view that as the "shock" component,  
9 and then we project that down to the labor market level as a  
10 function of the initial industry specialization of U.S.  
11 commuting zones in those activities.

12 So, a commuting zone is more exposed to the China  
13 trade shock not only if it has more manufacturing, per se,  
14 but even conditional on that level of manufacturing  
15 initially, if it's the mix of manufacturing activities within  
16 that commuting zone are the ones where China is gaining  
17 comparative advantage, where its exports are growing to the  
18 rest of the world.

19 Typically, those are going to be labor-intensive  
20 manufacturing areas, in shoes, textiles, commodity furniture,  
21 assembly, dolls, toys, typically along the south Atlantic and  
22 deep South.

23 So, I think I said everything's on a slide, so in  
24 terms of time, let me keep moving. Importantly, what does  
25 this look like? This shows a simple relationship between

1 1991 to 2016 of manufacturing employment per population as a  
2 function of exposure to the China trade shock.

3 Now, at some level, this figure should be highly  
4 unsurprising. We know that, you know, a large trade  
5 imbalance in manufactured goods means a decline in U.S.  
6 manufacturing employment.

7 The question of interest is not whether  
8 manufacturing declines but what happens to the workers and  
9 the places where those declines occur. Do they quickly  
10 reallocate into other equally good activities, or does that  
11 impact remain locally concentrated and not resolve itself  
12 quickly?

13 What we find is that employment-to-population rates  
14 fall at about the same rate as does manufacturing employment,  
15 even over a long period of time. So, this shows you for  
16 nearly three decades. Here's the same, excuse me, figures  
17 just concentrating on the period from 2000 forward.

18 In all cases, we see a decline in manufacturing  
19 without a concomitant movement into non-manufacturing,  
20 meaning the net effect on employment appears highly  
21 persistent.

22 Just to give a few additional details, the  
23 employment losses are concentrated in the initial years of  
24 the shock. So, this shows you the effect on employment  
25 population for 2002 to 2007, now add to 2012, and then to

1 2018. And as far as we see, all of the initial "damage"  
2 occurs early, but there's no obvious rebound.

3 It seems to stick in place. When we first wrote  
4 the series of papers about the China trade shock, our data  
5 only extended through 2007. In fact, our first paper was  
6 published in 2013, and so it was very hard to tell whether we  
7 were learning about the short-term consequences of the trade  
8 shock or the steady-state because the trade shock was still  
9 unfolding.

10 But really things have stabilized since 2010. And  
11 so, you might've thought, well once the kind of momentum of  
12 the shock ends, we would see a quick rebound, and that has  
13 not occurred. As far as we can tell, most of that initial  
14 shock has kind of led to just persistent declines in  
15 employment rather than quick reallocation in those places.

16 Just to give you a little bit more texture, this  
17 just shows you a figure of where the trade shock was most  
18 concentrated. The darker colors correspond to greater levels  
19 of exposure, and you get a sense of what were the places that  
20 were most exposed. They were in furniture and fixtures, they  
21 were in yarn-spinning, poultry slaughtering, et cetera.

22 And just to give you a couple of examples, so  
23 here's Martinsville, Virginia. In 1990, 45 percent of adults  
24 were working in manufacturing. By 2016, that was 13.4  
25 percent. In the same time, the employment-to-population

1 ratio fell from 73 percent to 53 percent. Government  
2 transfers per capita rose by a couple hundred percent.

3 Or, take West hickory, famous furniture  
4 manufacturing city, the share of adults working in  
5 manufacturing fell from 34 percent to 15 percent over the  
6 course of 25 years, and the fraction of adults in the labor  
7 force who were employed fell by 20 percent, from 55 percent  
8 to 43 percent.

9 So, why do I give these examples? Because they  
10 underscore that these trade shocks that we think of as a  
11 national phenomenon have an extremely localized texture, the  
12 reason being, one, as we all know, manufacturing's far more  
13 geographically concentrated than most service activities  
14 like, you know, healthcare and restaurants and grocery  
15 stores.

16 But also, even beyond the overall concentration of  
17 manufacturing, places that manufacture are specialized. So,  
18 an impact on commodity furniture production in the United  
19 States is really going to be most felt in a few places, West  
20 Hickory being one of them. So, these shocks that affect  
21 consumers nationally reverberate to employment quite locally.

22 Let me talk just a tiny bit more about the  
23 distributional consequences. So, if we look at the effect on  
24 employment, we break out these effects into three groups:  
25 non-college men, college men, non-college women, and college

1 women. You can see that the manufacturing losses are largest  
2 among non-college-educated workers.

3 In fact, they're slightly larger among women than  
4 men, but the impacts on employment-to-population are  
5 persistent among non-college men. And so, the brunt or the  
6 failure to accommodate or, you know, successfully adjust to  
7 this change is felt most strongly among men without college  
8 degrees which, of course, are the majority of men.

9 We also see a larger drop in the relative wages of  
10 men below the median of the earnings distribution at the 25th  
11 percentile, at the median. And we see these same effects  
12 kind of reverberate out into other demographic and household  
13 outcomes beyond earnings.

14 So, for example, in areas that are most exposed to  
15 the China trade shock, we see a fall in the fraction of women  
16 who are married, mostly, by the way, as a function of  
17 reduction in entrance into marriage, and also a fall in the  
18 fraction of women living with spouses -- much more likely to  
19 be living in some other non-traditional arrangement, and a  
20 concomitant rise in the fraction of children living in  
21 poverty.

22 I mention these outcomes not for the sake of drama  
23 but simply to underscore that the consequences of these  
24 shocks to the kind of economic foundations of places go  
25 beyond employment and even earnings to changes in the social

1 organization of the lives of adults and children, and that's  
2 part of the reason that they are so salient.

3 Oh, I realize I'm running low on time, so let me  
4 quickly cover these two other points. Why are these impacts  
5 so persistent? There are really five explanations that we  
6 consider in the Brookings paper. One is the shock never  
7 really ended. So, let me just review these quickly.

8 It just reallocated. There's no evidence of that.  
9 It's not the case that other countries have filled-in where  
10 the China trade shock has slowed. Another would be labor  
11 market regulations. This doesn't seem to be likely.

12 A third, which I think Kadee Russ and, you know,  
13 Kyle Handley will speak about, is places with lower human  
14 capital we're less adaptive; I think that's certainly  
15 correct. There's some element of specialization, but let me  
16 address a final point that I think is really important.

17 I think there's a view that maybe there's something  
18 uniquely dysfunctional about the U.S. labor market that just  
19 made it unlikely to adjust successfully whether other  
20 countries would've done better.

21 I don't think that's true. There's a nice piece of  
22 paper by Dorn and Levell that looks at, across the OECD, the  
23 changes in net Chinese imports, using our same  
24 instrumentation strategy and the changes in manufacturing  
25 employment.

1           And basically we see that countries that were more  
2 exposed to the shock did see larger declines in  
3 manufacturing. So, the U.S. is not an outlier in this. And  
4 I will further underscore that one cannot disentangle, or  
5 should not think separately, about the gains and losses from  
6 trade. This is again from the Dorn and Levell paper.

7           This shows you changes in Chinese import exposure  
8 at the product level, and this shows you changes in prices.  
9 This is using data from the U.K. where they have really good  
10 data. So, you can see that, indeed, where exposure was  
11 greatest, prices fell the most. Simultaneously, where  
12 exposure was greatest, employment fell the most.

13           So, the gains to consumers from lower prices really  
14 are inseparable from the losses to workers in the sectors  
15 that produced those import-competing goods. So, let me just  
16 end by just saying a word about welfare.

17           So, the important thing that a lot of our work has  
18 focused on and the work that I've done in Dorn and Hanson and  
19 Acemoglu and Brendan M. Price is that the trade shock had  
20 highly uneven effects on incomes per capita across commuting  
21 zones.

22           Now, it is well understood, our analysis measures  
23 relative effects -- the relative gains or losses in commuting  
24 zones relative to the average. So, that makes you ask, well  
25 what's the average? If we see, you know, these negative

1 numbers and positive numbers, how do we normalize that;  
2 what's the intercept?

3           According to most conventional estimates, the  
4 welfare gains per capita from these trade shocks are  
5 meaningful but small, on the order of a fifth of a percentage  
6 point, and that's because we don't do that much trading,  
7 actually, as a country.

8           And so what this suggests, looking at this figure  
9 and comparing the distribution of outcomes relative to the  
10 average gain, is that a substantial fraction -- not the  
11 majority, but a substantial fraction of U.S. citizens were  
12 living in commuting zones where welfare fell in absolute  
13 terms, that the loss in income per capita was not compensated  
14 by the increase in purchasing power.

15           So, the nation as a whole was made wealthier, but a  
16 substantial number of people were made poorer in absolute  
17 terms. So, let me just conclude.

18           So, the scarring effects of the China shock were  
19 startlingly pronounced. I think all of us were startled by  
20 how enduring those effects were. Why was that so? The scale  
21 of the shock, it was concentrated in space and in time, it  
22 was concentrated on regions without highly-skilled labor,  
23 which may lead to, slow the adjustment process or be  
24 correlated with slower adjustment, and there were some  
25 underappreciated barriers to labor mobility.

1           One of the shocking findings literature is there's  
2           been very little population reallocation in response to the  
3           shock. The social consequences extended beyond the labor  
4           market, in terms of numerous signs of social distress,  
5           marriage, household structure and health, and also  
6           magnification of political politzerization along cultural  
7           fault-lines. The China trade shock was one catalyst among  
8           many that contributed to some of the political polarization  
9           that we see.

10           Looking forward, it's worth asking whether economic  
11           remedies can relieve these social and cultural pressures.  
12           I'm of the view that the effects are not reversible very  
13           readily and certainly cannot be addressed simply by  
14           compensation, with the traditional economic remedy.

15           But I do think, looking forward, better economic  
16           and social protections could help to mitigate future  
17           potential harms of very rapid integration, that integration  
18           has aggregate benefits, but the costs are highly concentrated  
19           and uneven, and being aware of that, I think will help  
20           contribute to better policy. Let me stop.

21           MR. SECRETARY: Thank you so much, Dr. Autor. We  
22           appreciate you being here today. A lot of information to  
23           absorb. Before we jump directly into our panels, I want to  
24           remind all our panelists that you will be timed. You will  
25           see the time clock that will count down from your time. When

1 you have one minute remaining, you'll hear a bell. When your  
2 time has expired, you'll have a bell. And everybody will get  
3 their time as it has been allocated to them. Again, we  
4 appreciate all of you being here.

5 And with that, we will now turn to our first panel  
6 concerning Distributional Effects of Trade and Trade Policy  
7 on U.S. Workers by Education and Skill Levels. This panel  
8 will be moderated by Dr. Kadee Russ of the University of  
9 California, Davis.

10 Welcome, Dr. Russ. Please begin when you're ready.

11 DR. RUSS: Good morning, Secretary Bishop. Good  
12 morning, everyone. Thanks so much for having me here as a  
13 part of this very important discussion today. So, I'm here  
14 to look at the China shock through a product-cycle approach.  
15 So, the paper is the product cycle and the shifting landscape  
16 of U.S. manufacturing. It's joint work with [Katherine](#)  
17 [Eriksson, Jay C. Shambaugh, and Minfei Xu.](#)

18 So, we ask the question what makes a place and its  
19 workers vulnerable to a trade shock, as David Autor was just  
20 describing for us just a minute ago, and Autor, Dorn, and  
21 Hanson showed that trade shocks can cause very large  
22 displacements in labor markets.

23 We wanted to ask if there's anything special about  
24 the places that are hit hardest in these cases, and our  
25 answer is that where local industries are in the product

1 cycle seems to matter for the resilience of the labor market.

2 So, the basic intuition is that trade shocks can  
3 accelerate long-term secular trends characterized by Vernon's  
4 product cycle, and this was formalized by R. Vernon in 1979,  
5 later by Grossman and Helpman.

6 So, if we want to think well what does the product  
7 look like in the U.S. context, Vernon says that it involves a  
8 process of innovation, standardization, and movement of  
9 industries to low-wage areas. Klepper in the IO literature  
10 thinks of it as innovation -- so, innovation being when  
11 products spawn, then entry of new producers, and then a  
12 shake-out, and then maturity of an industry.

13 Ed Leamer, another trade economist, describes it as  
14 innovation, standardization, and then globalization of an  
15 industry or product. So, you can see that all of these are  
16 overlapping, whether we're thinking about it from a trade  
17 point of view, an IO point of view. Klepper's work has also  
18 been introduced into regional studies in economic history.

19 So, I'm going to look for a moment just at the  
20 story of the product cycle within one place, and I'm going to  
21 take the example of Leamer's own home town, which was also my  
22 father's home town, and that's Binghamton Endicott, Broom  
23 County, New York.

24 And so, originally we would see cigars being  
25 produced in this area. So, locally the cigar industry took

1 root in the 1880s, and it has spread out from New York City,  
2 and then the cigar industry died out due to a shift to  
3 preferences for cigarettes and the automation of cigarette  
4 production in the 1920s.

5 Shoes moved in from the cities where they were  
6 concentrated in artisanal production. They moved upstate New  
7 York in Endicott as production standardized in the 20th  
8 Century. And so, by the 1940s, you saw Endicott Johnson  
9 Shoes producing 52 million pairs per year until the industry  
10 moved out in the 1950s and '60s.

11 So, when the shoe titan George Johnson convinced  
12 local entrepreneur Thomas Watson to build an R&D facility for  
13 international business machines in Endicott during the Great  
14 Depression, then we saw the introduction of computer  
15 production in the area.

16 So, when I would go visit my grandfather, I would  
17 see old tobacco barns and I would see abandoned shoe  
18 factories. I would also see my grandfather, who worked for  
19 IBM for 40 years, after George Johnson convinced Thomas  
20 Watson to set up shop there.

21 Now, in 1981, IBM introduced the personal computer,  
22 which was more easily standardized than mainframe computers,  
23 and by 1991, U.S. imports of computers and parts began to  
24 exceed exports nationally. Manufacturing jobs were then  
25 outpaced by services as a share of local employment.

1           That's what the product cycle looks like inside one  
2 place. What does the product cycle look like across places?  
3 Manufacturing employment, as David Autor said, has been  
4 declining as a share of U.S. employment for decades, but  
5 these declines have been very uneven across the country.  
6 Vernon shows these manufacturing shifts, and here it is from  
7 1910 to 1940, 1960, 1990, as a share of commuting zone  
8 employment, reflects movement away from high-innovation,  
9 high-wage areas to areas with lower innovative capacity and  
10 lower wages.

11           In our findings, what we see is that the effects of  
12 import competition on local labor markets are worse where  
13 simultaneously we see industries already are aging out of  
14 place and education levels are lowest. So, these two things  
15 together create these large negative shocks to local  
16 employment rates.

17           If we think about the China shock, it's really a  
18 natural laboratory to investigate the product cycle in U.S.  
19 labor markets. So, Autor, Dorn, and Hanson argue it was an  
20 exogenous shock, and we agree. It comprised goods whose  
21 production already was concentrated in large plants, moving  
22 away from areas in the U.S. with high historical patent  
23 activity, and facing competition from low-wage countries.

24           We can examine other kinds of shocks too, but we  
25 know that this shock identifies industries at a late stage of

1 the product cycle by all of the definitions that I showed you  
2 earlier.

3 So, we can see the product cycle movement for China  
4 shock industries as well. This is a heat map of exposure to  
5 the industries that were involved in the surge of imports  
6 from China in 1991 to 2007 but weighted by local labor market  
7 shares in 1910, 1940, 1960, and 1990.

8 And you can see that if the China shock had hit  
9 related industries in 1910, it would've hit the Northeast.  
10 In 1940, it would've hit the whole manufacturing belt. 1960,  
11 the effects would be a bit more spread out. By the 1990s,  
12 these industries had moved out of the places where they  
13 originally spawned and into primarily the southeastern part  
14 of the United States.

15 There's something special about these labor  
16 markets. These labor markets have lower levels of patents  
17 per capita, so if we take the correlation of this historical  
18 exposure to the China shock to patents per capita, we see  
19 originally it was quite tightly correlated to local  
20 innovative capacity, but by 1990, right, when the shock was  
21 beginning, the places were no longer correlated with  
22 innovative capacity.

23 And in fact, the places that were hit, whereas in  
24 1910 they might've been on average higher-wage places than  
25 the rest of the country, by 1990, these places had lower

1 wages. So, these were labor markets with less innovative  
2 capacity and generally lower wages, somewhat higher  
3 unemployment rates, as well.

4 What we do is construct product cycle indicators.  
5 We construct a moving-in variable by marking the quintile of  
6 counties where the employment-share-weighted industry  
7 exposure to the China shock increased the most between 1960  
8 and 1980 -- so, this is before the shock hit -- and we mark  
9 the quintile of counties where these China shock industries  
10 were moving out the most between 1960 and 1980.

11 So, moving out really indicates that aging out that  
12 was occurring before the China shock hit in China shock  
13 industries. And what we find is that a shock hitting late in  
14 the product cycle -- so, in the moving out counties -- is  
15 associated with worse employment effects.

16 So, here we have the Autor, Dorn, and Hanson China  
17 shock, and this is just replicating their result from the  
18 2013 paper using their replication package, regressed on the  
19 share of unemployed. And then what we do is add-in these  
20 moving-in and moving-out variables interactive with the  
21 shock.

22 When we started this research, we thought the  
23 places that were throwing themselves in the way of the shock  
24 prior to it hitting would be hardest hit. So, we expected  
25 some amplification of the shock in these places. In fact, we

1 see that did not happen.

2           Instead, where we see the amplification of the  
3 shock and an absorption of some of it is in these places  
4 where industries already had been moving out. Now, we can  
5 combine this also with some characteristics of workers in  
6 their area -- what was their level of education, were they  
7 high-wage or low-wage, and we do see that having a college  
8 degree seems to have cushioned the shock somewhat. Having  
9 high wages seems to have made the effects a little bit worse.

10           But if we go to the moving-out variable, what's  
11 really remarkable is this is the only specification. We  
12 threw so many different things at this replication package.  
13 I mean, we threw tractor adoption in 1940. I mean,  
14 everything we could think of to try to understand what was  
15 special about these places.

16           This is the only set of variables that absorbed the  
17 significance of this Autor, Dorn, and Hanson China shock  
18 results. So, not knocking it down but unpacking it, what we  
19 see is that the significance seems to be concentrated in  
20 those places where industries already were moving out, and we  
21 have the low fraction of high school degrees -- so, a high  
22 rate of high school dropout.

23           So, that seems to be associated with more severe  
24 impacts on unemployment shares and on separation from the  
25 labor force. In contrast, the Japan shock hit industries

1 earlier in the product cycle, and Charles Kapershin  
2 (phonetic) Schwartz and Ateechi Shuron (phonetic), they find  
3 that the Japan shock did not have a large aggregate impact on  
4 employment, lower educated workers and African Americans were  
5 hit hardest, but in aggregate, they didn't find a big impact,  
6 and we think this is because it was hitting industries  
7 earlier in the product cycle.

8 So, in conclusion, a shock can hit early or  
9 late-stage industries in the product cycle. When it hits  
10 late-stage industries, late adopters like in the southeast  
11 are more exposed to the shock overall, and therefore they're  
12 going to have the largest overall impact.

13 However, early adopters have more severe increases  
14 in joblessness conditional on the size of the shock. This  
15 may indicate a disorderly unwinding, as trade shocks  
16 accelerate industry movement that already was taking place,  
17 especially in areas with less-educated workers, perhaps less  
18 innovative capacity.

19 We see less of an employment effect in existing  
20 literature when a shock hits early-stage industries, and in  
21 the paper we show you some evidence that the Japan shock  
22 industries seemed to be early-stage industries compared to  
23 China shock industries.

24 I think, so, Secretary Bishop, has my time run out,  
25 or do you have a minute?

1 MR. SECRETARY: You have about 19 seconds left.

2 DR. RUSS: Okay. We might ask why it matters now.  
3 We have some work in progress thinking about how the China  
4 shock basically short-circuited the U.S. domestic product  
5 cycle, such that places that produce late-stage products are  
6 getting less of a chance to engage in production as it shifts  
7 overseas. Some areas are able to innovate out, but combined  
8 with technology shocks like automation, this has contributed  
9 to a more entrenched regional income unemployment gap pattern  
10 across the country. Thank you.

11 MR. MONTGOMERY: So, I'll go ahead and hop-in, and  
12 I'll pass the baton over to Shubi Agarwal from University of  
13 Florida. So, Shubhi, you now have 12 minutes.

14 MR. SECRETARY: Shubi, you're on mute.

15 M. AGARWAL: Thank you. I'm sorry. As already  
16 introduced by Secretary Bishop, I'm Shubhi Agarwal from  
17 University of Florida, and I'm really happy to be presenting  
18 here in this academic symposium on my paper on U.S. exports,  
19 local labor markets, and wage inequality.

20 So, for the sake of time, so three research  
21 questions here, which is do U.S. exports reduce unemployment  
22 and increase labor force participation by creating jobs in  
23 the manufacturing sector and the local labor markets, and how  
24 do U.S. exports affect these different labor market outcomes  
25 for different skill levels at local labor market level, if

1 U.S. exports contributes to wage inequality by paying more  
2 wages to high-skilled workers.

3 So, what I find is that export expansion leads to  
4 more job for high-skilled workers, either in terms of quality  
5 education or private and recent experience, they were  
6 significantly reducing the unemployment rate and  
7 non-participation rate among these high-skilled workers as it  
8 contributes inequality by paying higher wages to these  
9 high-skilled workers.

10 So, before describing the empirical strategy which  
11 has been used in this analysis, I say that I am using  
12 commuting zones, Autor, et al., a unit to represent a local  
13 labor market, because it's a cluster of counties which  
14 represents ties between employer and employee.

15 So, following this through spirit of Feenstra et  
16 al. of 2017, I actually have presented here a commuting zone  
17 global export exposure measure, which is estimated here as a  
18 weighted average of the annual change in the U.S.  
19 manufacturing exports to the world over the time period "t"  
20 normalized by initial industrial shipments for the starting  
21 year, like I said, 1991 in my analysis, weighted by the share  
22 of initial industry employment in a commuting zone, which  
23 implies that this variation in this global export exposure  
24 measure here actually stems from the radiation in this  
25 initial industrial employment structure.

1           And as already been said by Dr. Autor in the  
2 beginning, these predictive measures are subject to  
3 endogeneity and will create edification issues. So, to  
4 address this endogeneity problems related to them, the  
5 edification here is achieved using a two-stage instrument of  
6 variable strategy.

7           And the instrument for this commuting zone export  
8 exposure here excludes the fixed effects of predicted U.S.  
9 export expansion. It's constructed in a very similar way by  
10 taking a weighted average of the predicted U.S. export  
11 exposure over the time period "t", again weighted by the  
12 share of initial industrial employment in the commuting zone.

13           And this predicted U.S. exports here is actually  
14 computed by regressing the actual U.S. exports over the  
15 predicted U.S. exports, controlling for the sector and  
16 time-fixed effects to account for any mismeasurement error  
17 that may arise while aggregating it to the commuting zone  
18 level.

19           And here, for the sake of time, I will just briefly  
20 describe that this predicted use exports, the SIC, or the  
21 industrial level is estimated by using the structural  
22 equation derived by Feenstra et al. where U.S. exports  
23 actually is based on the tariff that the U.S. exporters face,  
24 the demand for imports by all other exporters except from  
25 United States, the tariff that all other exports except from

1 United States they face, as well as the distance between the  
2 United States and the importing country here.

3 And this term here, this fixed effect which  
4 represents the product variety and the time-fixed effects  
5 actually includes some U.S. marginal cost of production,  
6 reflecting the U.S. supply shock, and hence why estimating  
7 this predicted value is excluded to prevent the instrument  
8 from being contaminated by the U.S. supply shocks.

9 So, the validity of this instrument here, the  
10 predicted U.S. export expansion that I just described,  
11 actually relies on the assumption that both U.S. exporters as  
12 well as the competitor selling the same foreign market,  
13 assimilates both to the overall export that is driven by the  
14 reductions in tariff over this time horizon which I am using,  
15 which is 1991 to 2011.

16 And also that any correlated foreign demand shocks  
17 between U.S. domestic demand shocks and foreign demand  
18 shocks, any correlation between them are controlled for by  
19 the use of fixed effects. And accordingly, any correlation  
20 with the U.S. supply shock actually has been taken care of in  
21 the export equation here itself, which is actually estimating  
22 this predicted value, we are excluding these fixed effects so  
23 that you know the instrument is prevented from contaminated  
24 by the U.S. supply shocks here.

25 I followed the spirit of Autor, Dorn, and Hanson,

1 2013 as a way to look to 2016 as using the import exposure  
2 from China to control for the imports, while estimating the  
3 effects of exports for my purpose of analysis, and I use  
4 import exposure from China which is, again, a weighted  
5 average using the Bartik formula of the annual change in the  
6 U.S. imports from China normalized by the initial domestic  
7 absorption, weighted by the initial industry share in a  
8 commuting zone.

9           And the instrumentation for the import exposure  
10 from China is actually the import exposure for eight other  
11 high-income countries, and again, the validity of this  
12 instrument relies on the assumption that these high-income  
13 countries, these other high-income countries, annual United  
14 States (phonetic) are similar to China shock, which is again  
15 driven by the supply shock in China related to factors that  
16 are specific to China itself, providing exogeneity.

17           The industry import demand shocks here are  
18 uncorrelated between these eight countries and the United  
19 States. So again, for the empirical, the sample that I'm  
20 using here is actually the 722 commuting zones covering the  
21 U.S. mainland, stacked over the two time periods, 1991 to  
22 1999, and 1999 to 2011.

23           And I'm using a reduced form regression where I'm  
24 regressing the annual change in the local labor market  
25 outcomes here on the import exposure from China, as well as

1 the global export exposure measure here, controlling for the  
2 time-fixed effects, as well as the region-fixed effects, and  
3 also controlling for the labor-specific and the demographic  
4 composition for the commuting zones.

5 So, like for example, the initial share of  
6 manufacturing employment, or like the percentage of  
7 poorly-educated population or share of employment in routine  
8 occupations and so on. And the data that I am using here is  
9 data for creating the dependent variables representing the  
10 different labor market outcomes that I'll be describing soon,  
11 whereas the independent variables are all taken from 2017.

12 So, coming to sharing (phonetic) -- so sorry about  
13 it. So, this table here represents here the impact of import  
14 and export exposure on the annual log changes in the  
15 different labor market outcomes, such as the number of  
16 employed workers, employed workers in manufacturing, employed  
17 workers in non-manufacturing, unemployed workers, unemployed  
18 workers who were previously employed in the manufacturing  
19 sector, unemployed workers in the other sector, which might  
20 be workers who were previously employed in a  
21 non-manufacturing sector or first-time jobseekers, or five  
22 (phonetic) years or earlier and the workers who are not in  
23 the labor force.

24 And what we find is that, related to imports, I  
25 find that it's consistent with the literature, creating a

1 sharp decline in the manufacturing employment, increasing  
2 unemployment and labor force non-participation.

3 But exports, which is my variable of interest here,  
4 is actually able to reduce unemployment significantly by  
5 creating jobs in the manufacturing sector, and this  
6 significant reduction in unemployment is actually accounted  
7 for by the reduction in unemployment for workers who were  
8 previously employed in the manufacturing sector.

9 So, we can say that exports is actually creating  
10 employment for workers with prior and relevant recent  
11 experience in the manufacturing sector. I have also here the  
12 first-stage results for the instrument. Actually, we can  
13 see that if I consider the structural critical value of 10  
14 percent level, the predicted use export exposure measure I'm  
15 using is kind of a weak instrument, but in hands to be  
16 interpreted with caution.

17 But the thing is that, like, basically following  
18 the economic intuition, this is the best instrument that I  
19 have. Going to this table here which I have, it's like a  
20 similar table, but it actually shows how the impact of import  
21 and export exposure on the annual changes of the share of  
22 these different labor market outcomes that I just described  
23 before in the previous table are the share of the working-age  
24 population.

25 And what I find is that actually the export

1 exposure significantly reduces unemployment for the period  
2 1991 to 2011 by either creating job -- as well as reduces the  
3 labor force non-participation rate for high school workers,  
4 in terms of quality education or in terms of experience in  
5 the form of prior, recent, and relevant experience in the  
6 manufacturing sector.

7 So, this shows that, you know, that actually  
8 exports is able to create jobs for high-skilled workers in  
9 terms of quality education or in terms of experience. I also  
10 see that exports is actually promoting overall wages. It has  
11 a significant positive impact on overall wages, and that  
12 significant positive effect is seen both in the manufacturing  
13 as well as in the non-manufacturing sector.

14 If I go to the manufacturing sector, I can see that  
15 this significant increase in the manufacturing wages due to  
16 the export is accounted for people without a quality  
17 education, and this can be accounted for by both experienced  
18 workers that we just described before who have relevant and  
19 prior experience in the manufacturing sector.

20 So, this demand for those workers is the one that's  
21 putting upward pressure on the wages of the manufacturing  
22 wages. And here in the non-manufacturing wages is due to the  
23 indirect effect of the demand for high-skilled workers in the  
24 manufacturing sector.

25 So, overall I can summarize the results as that the

1 export expansion actually generated more jobs for  
2 college-educated workers and non-college-educated workers  
3 with prior, relevant, and recent experience in the  
4 manufacturing sector, thereby significantly reducing the  
5 unemployment rate, as well as the labor force  
6 non-participation rate, as well as contributing to wage  
7 inequality by paying higher wages to these high-skilled  
8 workers and which could lead to some effective trade policies  
9 concerning export expansion.

10 So, this is all I have, and I would like to say  
11 thank you. And I think I'm at my time limit.

12 MR. MONTGOMERY: Thank you very much, Shubhi, right  
13 on time. So, I'll go ahead and I'll pass it along to Ann  
14 Harrison from University of California Berkeley, and you now  
15 have 12 minutes.

16 DR. HARRISON: Thank you. Can you hear me?

17 MR. MONTGOMERY: Yep.

18 DR. HARRISON: I just have to figure out how to  
19 share my screen.

20 MR. SECRETARY: There's a share button at the  
21 bottom of your screen.

22 DR. HARRISON: Can you see my screen?

23 MR. SECRETARY: Not yet. When you click "share",  
24 it should ask you which program you want to share. Do you  
25 see that?

1 DR. HARRISON: Yeah.

2 MR. SECRETARY: Then you select that, then you  
3 click "share" at the bottom right-hand corner.

4 DR. HARRISON: Okay, I did that. "Choose what to  
5 share." It's not working. Let me just give it one more --  
6 how do you do this? Okay. I click on screen, and then it  
7 says choose what to share, entire screen window or Chrome  
8 tab. How do I do this?

9 MR. SECRETARY: Say those to me one more time.

10 DR. HARRISON: Entire screen window or Chrome tab,  
11 which one do I share?

12 MR. SECRETARY: I think it would be a Chrome tab.

13 DR. HARRISON: Oh, would it? Okay.

14 MR. SECRETARY: Well --

15 MR. MONTGOMERY: I would recommend the entire  
16 screen if you have your --

17 MR. SECRETARY: Yes. Is your program up already?

18 DR. HARRISON: Yeah, but it's not working.

19 MR. SECRETARY: Chris, how about if you just go  
20 ahead and share for her.

21 DR. HARRISON: Yeah.

22 MR. SECRETARY: And if you would just, you know,  
23 let him know when he should advance to the next one, that  
24 would be awesome.

25 DR. HARRISON: Sure. Okay. Sounds good. Thank

1 you.

2 MR. SECRETARY: Great. Thank you.

3 DR. HARRISON: I don't see the slides. Oh, now I  
4 see them maybe. Okay. Can you make that a little bit  
5 bigger, the main slide, the main --

6 MR. SECRETARY: Yeah. Chris, what we're seeing  
7 right now is the first slide, but then we see the next slide.

8 DR. HARRISON: Yeah. Just keep this to the main  
9 slide. That would be great.

10 MR. MONTGOMERY: I've got you. Let me try and --  
11 sorry about that.

12 MR. SECRETARY: That's okay. It may be under  
13 display settings.

14 MR. MONTGOMERY: Yeah. How's that?

15 MR. SECRETARY: No. It's still doing it. There we  
16 go.

17 DR. HARRISON: Oh, great. You did it. Thank you.

18 Okay. So thanks so much, everybody. I really  
19 appreciate this opportunity to speak today. We can go to the  
20 next slide.

21 So the research questions that I'm asking are  
22 essentially what's the impact of both trade and offshoring on  
23 wages. So the focus here will be primarily on earnings and  
24 not so much on labor demand.

25 And then the question that we also try to

1 understand is why, when you look at the effects of trade on  
2 wages, a lot of the previous literature show minimal effects.

3 We also very briefly will discuss the effects on  
4 labor demand, but the focus today will be primarily on the  
5 effects on wages, and I'll be summarizing the results of two  
6 papers. If you'd like to look at those, one is a paper that  
7 appeared in 2014 in The Review of Economics and Statistics.  
8 And then another one is a paper that appeared in a book that  
9 I wrote with Lionel Fontagné called The Factory-Free Economy,  
10 where we generally look at mass general trends and the  
11 effects of offshoring on different outcomes and a lot of kind  
12 of French authors and American authors who work in this  
13 space. And in that book, we extended the earlier restat  
14 paper to include more recent data, and we also looked at the  
15 effects specifically of offshoring for places like China and  
16 India.

17 So, just to motivate this work, the top panel shows  
18 you what's happened to employment in manufacturing, which is  
19 the darker line, and services, and if we just go to -- if you  
20 see all workers, you see not surprisingly the dark line in  
21 the top left-hand panel shows a decline, massive decline, in  
22 employment in manufacturing at the same time what we're  
23 seeing is a big increase in services employment.

24 Until 10 years ago, until 20 years ago, what you  
25 saw was that most of this decline in occupations occurred in

1 routine occupations, so you see that second top panel  
2 decline. But then non-routine occupations over many years,  
3 over 10 years, were going up, but then, between 2000 and  
4 2010, post China trade shock, you see that even non-routine  
5 occupations lost significantly a number of workers in  
6 non-routine occupations while services employment continued  
7 to increase across all occupations.

8           The important part of this paper has to do with the  
9 bottom part of this panel where you see wages. Now what you  
10 see is there's a big gap between manufacturing wages, which  
11 is the darker line, and service wages, which are below that,  
12 and that gap persists. In fact, it persists over the entire  
13 period. So what we're going to really focus on is what  
14 happens to workers when they move from manufacturing and  
15 non-manufacturing, and as you can see from these broad  
16 numbers, non-manufacturing wages are on average lower, and  
17 that's where a lot of the wage decline will happen.

18           So what that means is, if you just look at  
19 cross-industry regressions, you're missing a really -- in  
20 fact, the critical aspect of what happened to wages in  
21 manufacturing workers is because they actually left  
22 manufacturing. And so that's the big a-ha of these papers is  
23 that you need to see workers. You can't use cross-industry  
24 regressions to capture the effects on wages.

25           Okay. So a preview of the results across these two

1 papers, if you try to understand the impact on wages of  
2 import competition and offshoring, we're going to compare the  
3 effects of those two forms of globalization on wages. If you  
4 do a cross-industry analysis, what we find is very little  
5 impact, and, of course, we have to use individual level data  
6 to measure the effects on wages since wages vary across  
7 individuals.

8           However, if we change that and create an  
9 occupational level measure of exposure, which is the primary  
10 contribution of these papers, how do you get an occupation  
11 level measure of exposure, you see significant effects on  
12 wages of different measures of globalization.

13           There's a lot of heterogeneity, however. So, for  
14 example, lower wage country employment in offshoring  
15 negatively effects U.S. wages, but if American firms are  
16 moving to Paris or to France, my country of birth, in fact,  
17 that's associated with higher U.S. wages.

18           The mechanism is something that we talk a lot about  
19 in these papers. We look -- we see large wage declines for  
20 workers who leave manufacturing, and we're going to show you  
21 that in the individual level data. We have that rotating CPS  
22 data. When workers leave manufacturing, they lose earnings,  
23 but when they then have to switch occupations, they lose even  
24 more earnings.

25           Okay. So now let's start with the empirical

1 strategy Let's go to the next one. So what most people do  
2 is they do a cross-industry analysis, and we're going to  
3 argue that that is not very helpful if you're trying to look  
4 at the effects on wages. In fact, if you just saw the  
5 previous paper, you saw that -- it was a great paper, but  
6 when it looked at the effects on wages, the wages were the  
7 effect of import penetration, or competition was  
8 insignificant at the industry level.

9 So how do we do -- this is what most people are  
10 doing. You're looking at the effects of wages at an  
11 individual level. You have this measure G where we lag at  
12 one period, and that could be an industry level measure of  
13 either import penetration or offshoring, and we're going to  
14 look at the effects of that, controlling for other factors,  
15 such as technological change, other kinds of effects.

16 So that would be a more standard approach. We are  
17 not going to use an IV approach. We're going to simply lag  
18 the measure of globalization to address endogeneity concerns.

19 So let's go to the next slide. So the contribution  
20 of these papers is to use a different approach to measuring  
21 exposure to globalization, what we call an occupational  
22 exposure to globalization.

23 How do you measure that? It's essentially weighted  
24 by -- so what you're going to do is you're going to have an  
25 occupational measure where the weight is the total number of

1 workers in occupation K and industry J, and the numerator,  
2 and the total number of workers across all industries and  
3 occupation K, and then you're going to get an  
4 occupation-specific import penetration measure where you look  
5 at imports in sector J measured by how many workers in that  
6 occupation actually work in sector J.

7           So, intuitively, you can have a situation where you  
8 have a lot of import penetration, but no workers actually in  
9 a particular occupation are exposed to import penetration,  
10 like teachers, for example. Or you could have an occupation  
11 like shoe leather workers where all of those workers are in  
12 import-impacted sectors.

13           So both of those factors are going to matter. The  
14 weight is going to be set at the beginning of the sample  
15 period to avoid endogeneity concerns. So that's our  
16 occupational level approach.

17           I'm not going to talk about the data, I don't have  
18 any time, but we basically use the CPS, and we have the --  
19 we're going to use measures that follow the same worker over  
20 time. We're going to combine that with industry level  
21 measures of offshoring and import penetration.

22           So here's the big a-ha moment. If you do a  
23 standard approach to looking at the impact, which is the  
24 first four columns, if you're trying to look at the impact  
25 across industries on wage outcomes, that's the first four

1 columns. What you can see is the impact of either offshoring  
2 or exporting or importing, generally insignificant when you  
3 use a cross-industry measure to capture the effects of  
4 globalization on wages.

5 The last four columns are kind of the major  
6 contribution of the paper. What you see is, if you use an  
7 occupation-specific exposure of either offshoring or import  
8 penetration or exporting, you start to see significant  
9 effects, and the biggest effects are for the most routine  
10 workers.

11 So, just if we stick with the second column, which  
12 is the most routine workers, we have that minus point of 682.  
13 What we see is that if a firm has a lot of employees in a  
14 low-income country, that negatively affects routine workers  
15 in the United States; however, if those workers are actually  
16 in a high-income country, it positively affects the wages of  
17 workers in the United States' coefficient of .04.

18 Interestingly, the effects of import penetration  
19 and export activity are 10 times bigger. So what we're  
20 seeing is exporting, as we saw in the last paper, positively  
21 affects wage outcomes across occupations, it's .7, and import  
22 penetration negatively affects wage outcome. So, again, you  
23 have this heterogeneity, but you see significant effects if  
24 you use occupation measures.

25 So why is it, what's going on that's so important

1 about using the occupation as the measure of trade exposure  
2 and not the industry? Well, we're going to argue that most  
3 of the activities occurring because the big impact is workers  
4 leaving an occupation or leaving an industry and moving to  
5 services. So you can see that in this where we follow the  
6 same worker over time using the CPS. The panel A, if you see  
7 workers that switch industry, there's no significant impact  
8 on their wages.

9           Okay, I have one minute left. If you see workers  
10 that leave manufacturing, panel B, their wages go down when  
11 they leave manufacturing by 2 percent. If they leave  
12 manufacturing and are forced to switch occupation because  
13 that occupation is heavily exposed to import competition, you  
14 get an impact which is even larger.

15           Okay. In the restat paper, we have an IV strategy,  
16 which I don't have time to go into, but you can look at that.

17           Okay. So now let me just conclude. So we're  
18 really focusing on wages, but we also looked at labor demand.  
19 On wages, there's little impact at the industry level but  
20 large wage effects among occupations.

21           I didn't have time to talk about heterogeneity;  
22 however, we do see bigger effects in the later period. We  
23 see bigger effects on less educated workers, and the new  
24 concept here is occupational exposure, international  
25 competition, and quantitatively the effects of trade swamp

1 offshoring, and the mechanism is workers are moving out of  
2 manufacturing into lower-paid service jobs.

3 I didn't have time to talk about labor demand or  
4 labor force participation. I'll leave that for another day.  
5 Thank you so much.

6 MR. MONTGOMERY: Great. Thank you so much. So,  
7 hopefully, at this point in time, I've stopped sharing my  
8 screen, so I'm going to pass it over to Eunhee Lee from  
9 University of Maryland. You now have 12 minutes.

10 DR. LEE: Okay. Can you see my screen?

11 MR. MONTGOMERY: Yes.

12 DR. LEE: Okay. Great. So thanks very much for  
13 organizing this symposium on such an important topic and for  
14 inviting me to participate.

15 All right. So what is the effect of globalization  
16 on inequality? Well, yeah, this question is something that  
17 many of us have studied so far, and we now have a lot of  
18 empirical evidence regarding this question.

19 And in terms of the conceptual framework to study  
20 the effect of trade on inequality, existing models typically  
21 consider trade shops as a pure labor demand shop while  
22 holding labor supply exogenously effects.

23 But, in this paper, I'm proposing a new structural  
24 general retractable model with endogenous labor supply. So,  
25 to be more specific, I model worker level comparative

1 advantage based on workers' heterogeneous productivities for  
2 industries and occupations.

3 So, following the intuition of the Row model from  
4 labor, workers endogenously soared into the industry and the  
5 occupation based on their comparative advantage. And,  
6 moreover, I'm going to take occupational level labor  
7 reallocation very seriously, and I'm very glad that I'm  
8 presenting right after Dr. Harrison because she made a  
9 partial case why we should look at the occupation dimension.

10 So, to reiterate that point one more time, this is  
11 from the U.S. data, and if you look at the employment pattern  
12 of workers with different levels of education across  
13 industries, there's some difference between skill groups that  
14 actually appear to look quite similar because this is  
15 determined mostly by the relative size of industries rather  
16 than worker characteristics.

17 But, if you look at the type of occupations,  
18 workers from different education groups show very different  
19 patterns. In other words, what workers actually do within an  
20 industry should matter when we quantify the effects of trade  
21 on inequality between skill groups.

22 And the framework I introduce can give a  
23 comprehensive picture of interaction between trade, labor  
24 reallocation, and inequality, and this quantitative  
25 retractable model can serve as a convenient toolkit for

1 various policy-related counterfactual exercises.

2 Then I used this framework to quantify the effects  
3 of trade between educational group inequality for 33  
4 countries, including the U.S., for the time period between  
5 2000 and 2007, where I find that the actual change in trade  
6 costs between 2000 and 2007, that alone increased the skill  
7 premium by .3 percent in the U.S. Then I show that it is  
8 important to incorporate the role of worker level comparator  
9 advantage when we study the effect of trade on inequality.

10 And, lastly, I find that trade can account for  
11 about one-third of the actual decline in the U.S.  
12 manufacturing employment share and about 20 percent of the  
13 actual decline in the employment share of routine occupations  
14 in the U.S.

15 So now let me talk about the basic structure of my  
16 framework really quickly. So the key feature of this model  
17 is to link two types of comparator advantages through a  
18 generical Row framework.

19 So the first type of comparator advantage is  
20 defined across countries, and it is characterized in a  
21 standard way following Eaton and Kortum 2002, and, obviously,  
22 this will determine import and export patterns across  
23 countries.

24 And the other type of comparator advantage I  
25 introduced to the model is defined across workers within a

1 country, but to be more specific, I assume that workers are  
2 heterogeneous in terms of their industry- and  
3 occupation-specific productivities, though each worker draws  
4 their productivities from a Freshet distribution, and this  
5 distribution depends on worker's skill level.

6 In other words, it is possible that better educated  
7 workers on average have a comparative advantage in many  
8 general occupations in the service sector while less educated  
9 workers on average have a comparator advantage in routine  
10 occupations in the manufacturing sector.

11 So let me explain how these two types of comparator  
12 advantages are actually linked in the model with this diagram  
13 for a simpler version of the model with two skill groups, two  
14 industries, and two occupations.

15 First, each worker is assigned to a particular type  
16 based on her education attainment, for example, college  
17 graduate or non-college graduate. Then each worker draws her  
18 productivity for each pair of industry and occupation and  
19 observes the wage for each occupation in each industry.

20 So, with the information on their productivity and  
21 market level wage in hand, workers endogenously sort into the  
22 industry occupation here, and the sorting pattern will be  
23 different between different skill groups because they have  
24 different comparator advantages.

25 Then producers use labor for production, and

1 consumers consume those products, and, obviously, some of the  
2 products, some of the production, is exported, and consumers  
3 consume imported goods as well, and depending on what happens  
4 in this red part of the diagram, which is about trade, the  
5 equilibrium wage will be determined at the general premium  
6 wage of the model, and that would, again, affect workers'  
7 soaring patterns across industries and occupations.

8           So this is basically what's happening in my model.  
9 And I can derive clues for solutions for the equilibrium  
10 labor allocation and the average wage per worker type, which  
11 make quantification of the model very convenient.

12           So the intuition here is quite simple. So the  
13 model tells you that workers are more likely to choose the  
14 industry and occupation they have a comparator advantage for,  
15 so that's the intuition behind this equation.

16           And from the second equation, what this question  
17 tells you is that the average wage of the worker group  
18 depends on the group's comparator advantage pattern. So, for  
19 example, if a certain educational group has a comparator  
20 advantage for relatively high-paying industry and occupation,  
21 their average wage should be relatively higher.

22           And, as the next step, I take this model two data,  
23 so using this model, I quantify the effect of actual changes  
24 in trade costs between 2000 and 2007 on inequality between  
25 educational group. So I calibrate the model for 33

1 countries, including the U.S., five worker types based on  
2 educational attainment for other than industries, and five  
3 occupation groups for 2000 as the base year.

4 So then, basically, I shopped the model with the  
5 actual changes in trade costs between 2000 and 2007 and sold  
6 the model numerically for a counterfactual exercise.

7 So now let me briefly summarize the counterfactual  
8 results. First, the average welfare of each education group  
9 can be measured by the average real income of that group  
10 according to this model. Then the counterfactual exercise  
11 shows that changes in trade costs between 2000 and 2007  
12 increased the average welfare of better educated workers  
13 disproportionately more in most advanced economies.

14 So, in the U.S., for example, trade increased the  
15 average welfare of workers with advanced degrees about .5  
16 percent, but it actually even decreased the welfare of high  
17 school dropouts.

18 And, similarly, if I measure inequality between  
19 education groups with the skill premium, which is defined as  
20 the wage premium of college graduates over non-college  
21 graduates, trade increased inequality in most OECD countries,  
22 which are marked in green on this figure, including the U.S.

23 And if I compare these numbers to the actual  
24 changes in the skill premium from data during the same time  
25 period, then the changes in trade costs alone explain about

1 13 percent of the actual change in the skill premium, which  
2 is quite substantial.

3 This framework can be also used to show the labor  
4 reallocation patterns in response to changes in trade  
5 environment. For example, here, I picked two worker types  
6 for a comparison, high school graduates and workers with  
7 advanced degrees in the U.S., and these are four industries,  
8 and these are five occupation groups starting from low skill  
9 manual service occupations, some routine occupations in the  
10 middle, and managers and professionals.

11 So, in response to changes in trade costs between  
12 2000 and 2007, actually, both types of workers moved from  
13 non-service industries, from manufacturing in particular, to  
14 service industries.

15 So, if you just look at industry level labor  
16 reallocation, there's actually not much difference between  
17 skill groups. But, if you look at occupations, high school  
18 graduates moved to the service industry to take low skill  
19 manual jobs, while workers with advanced degrees become  
20 managers and professionals in the service industry.

21 So this occupation level labor reallocation should  
22 be a very important factor behind the differential effect of  
23 trade on workers with different skill levels. Then I can  
24 aggregate that table across skill groups to the industry  
25 level or to the occupation level. This model shows that

1 trade contributed to labor reallocation from manufacturing,  
2 manufacturing to services, and it also contributed to  
3 so-called job polarization, which is represented by this  
4 contraction of the employment share for middle skilled and  
5 routine occupations in the U.S.

6 So now, to summarize what I have in this paper, I  
7 propose a new quantifiable generical gram trade level which  
8 focuses on worker level comparator advantage and labor  
9 reallocation as the main channel through which trade affects  
10 inequality between educational groups, and this framework can  
11 be used as a conventional toolkit, a convenient toolkit, to  
12 experiment with various types of trade shops, including  
13 changes in trade costs, as I discussed today, or changes in a  
14 particular country's productivity which affects that  
15 country's export capability.

16 So, for example, the reason why we care about the  
17 China shock is not just because they joined the WTO in 2001  
18 but also because their productivity has increased due to  
19 various reforms, which affected their export capability. So  
20 my framework can be also used to assess the effects of such  
21 productivity shocks on inequality in many other countries.

22 And an obviously but a very important policy  
23 implication we can draw from this paper is that it is  
24 important to facilitate labor reallocation to mitigate the  
25 effect of trade on inequality. So, for example, a labor

1 market policy which makes it easier for workers to upgrade  
2 their skills can reduce the welfare gap between high skill  
3 and low skill workers caused by international trade.

4 So that's pretty much what I have today, and thank  
5 you very much for listening.

6 MR. MONTGOMERY: Great. Thank you very much for  
7 your presentation. So then I'll go ahead and I'll pass it  
8 off to Kyle Handley from University of California, and you  
9 now have 12 minutes.

10 DR. HANDLEY: Okay. Thanks a lot for having me at  
11 the symposium today. I'm going to present some joint work  
12 with Nick Blum at Stanford and Andre Kurmann at Drexel and  
13 Phil Luck at University of Colorado looking at the impact of  
14 Chinese trade on U.S. employment.

15 There are kind of two facts and a question here,  
16 much of which we've already discussed today. One is that  
17 there was this spectacular rise in imports from China, which  
18 we refer to as the China shock, that has this large negative  
19 effect on U.S. manufacturing employment, but there's also  
20 been a substantial reorganization in production and  
21 employment towards non-manufacturing, and that is related to  
22 something else that I think we're all aware of, which is that  
23 a lot of U.S. companies are now designing things, marketing  
24 things and doing, you know, warehousing and things like that  
25 in the United States but then outsourcing the production to

1 China and other countries in Asia.

2 And so these things are obviously related, and part  
3 of what I'm going to talk about today is basically which  
4 firms and which parts of the country were able to adapt to  
5 that shock better or worse.

6 So we're going to reassess the impact of the China  
7 shock. We're going to use a similar estimation strategy to  
8 the existing literature, but we're going to use Census Bureau  
9 microdata to improve data accuracy and measure the  
10 restructuring of employment within and across plants,  
11 sectors, and geography.

12 So there's three key results I want to highlight,  
13 and I'll go through them in my limited amount of time here,  
14 but one is that there's a negative effect on manufacturing  
15 jobs, which we've already seen, but that's offset by positive  
16 growth in non-manufacturing jobs or jobs in services.

17 There's a big reorganization within large importing  
18 firms towards services, and in particular, something that we  
19 can see in the data, which we refer to as industry switching,  
20 and that accounts for a large part of these negative  
21 manufacturing effects.

22 The last thing I'm going to talk about is this tale  
23 of high versus low human capital areas. In areas with high  
24 human capital, so this is going to be mostly the U.S. coasts,  
25 so we're talking about California on the West Coast and then

1 on the East Coast primarily, you know, not necessarily the  
2 south, but New England, New York, and some of the  
3 Mid-Atlantic, those areas have smaller manufacturing job  
4 losses, much of which are offset by non-manufacturing gains  
5 and no losses in earnings. If we look at lower human capital  
6 areas, which also got hit by this China shock, that's where  
7 the big effects are and that's where the adaptation is not as  
8 good.

9           So I'm not going to dwell on this slide here, but  
10 I'm just going to mention that the data that we're using is  
11 Census Bureau microdata. It's administrative data, and the  
12 primary source of data is the longitudinal business database,  
13 and what we see there is at the establishment level job.  
14 We're basically counting jobs. It's not necessarily  
15 employment. It's the number of jobs at an establishment, and  
16 we know precisely what the North American Industrial  
17 Classification System, or NAICS, code is for these  
18 establishments.

19           If we look at import exposure from China, and this  
20 is just the same graph or same plot that you would see in the  
21 Autor, Dorn, & Hanson papers, it's obviously heavy in the  
22 West, in the U.S. South, and on the coasts, but what's  
23 interesting here is if you -- sorry, if you back up and say,  
24 well, where do people actually live, 75 percent of the U.S.  
25 population lives in the largest 124 commuting zones, and,

1 again, you see, like, what pops out. You've got the Bay Area  
2 in California, you've got areas in the Pacific Northwest,  
3 you've got the upper Midwest, New England, and then parts of  
4 the Mid-Atlantic.

5 So these areas are basically -- and this is not a  
6 population -- this is not telling me where people live.  
7 These are the areas where 75 percent of the population lives,  
8 and you can see they got hit pretty hard in many cases by the  
9 China shock, which is the darker red or darker orange areas.

10 And so, when we run regressions on this, this is my  
11 point I want to make here, is that we're basically picking up  
12 with this estimation strategy sort of what's going on in  
13 these places where most people are. There's lots of stories  
14 that you can tell about what's going on in the rest of the  
15 country, but those are not places where there are a lot of  
16 people actually living.

17 So what we do is we decompose employment growth  
18 into its manufacturing and services component. We're going  
19 to use this growth rate from Davis, Haltiwanger, Schuh that  
20 allows us to, you know, have this additive decomposition of  
21 total commuting zone employment growth into its manufacturing  
22 component and its non-manufacturing component. Notice these  
23 have the same denominator. This is roughly equivalent to  
24 long changes but not exactly, but it's close enough.

25 If we run a regression where we look at the China

1 shock in terms of import penetration on that growth rate and  
2 we decompose it into manufacturing employment growth and  
3 non-manufacturing employment growth, you can see that,  
4 indeed, there is a negative effect on manufacturing, but it's  
5 offset by non-manufacturing employment growth and  
6 substantially so, to the point that total commuting zone  
7 employment from the period 1992 to 2012 actually goes up.

8 And so what I'm going to do for the rest of the  
9 talk here is kind of drill into, like, what's going on here  
10 and where these non-manufacturing versus manufacturing losses  
11 or gains are coming from.

12 So, if we want to compare to the Autor, Dorn &  
13 Hanson results, we have to use slightly different growth  
14 rates. We're going to look at the manufacturing only growth  
15 rate and then the non-manufacturing growth rate, and these  
16 things are no longer an additive decomposition, so I can't  
17 add them up the way I did on the previous slide, but we can  
18 run the same regressions using the Census microdata, and what  
19 we're doing here in this first block is basically I'm showing  
20 you Autor, Dorn & Hanson's result from their 2013 paper.

21 We replicate that pretty closely using the Census  
22 microdata but not exactly, and the reason for that is just  
23 that there's imputation in the county business patterns  
24 that's the public use data that's going to be a little bit  
25 different than what we see. In addition, Autor, Dorn &

1 Hanson are using the American Community Survey for some of  
2 the latter years, and we're actually counting the number of  
3 jobs. And so it's not exactly the same, but it's pretty  
4 close.

5           Where you start to see big differences is when you  
6 switch to trying to estimate these regressions on a NAICS  
7 basis instead of a SIC basis, and when we do that, we still  
8 get this negative effect on manufacturing, but the  
9 non-manufacturing effect turns around, and we see if we go to  
10 different differences where we use the Census years when we  
11 think the data is higher quality, we also start to see these  
12 non-manufacturing effects pop out if we go to 2012 or if we  
13 use all the five-year differences.

14           And the point that I want to make here, I think, is  
15 critical for people that are studying this particular shock  
16 or any sort of thing with imports and exports and what's  
17 going on with firms, and that's that this NAICS versus SIC is  
18 important, and the reason for that is that the SIC basically  
19 stops in 1987, that's the last time it was updated, so this  
20 is like fax machines, the internet doesn't exist, there is no  
21 specific code for semiconductors, a bunch of emerging  
22 high-tech industries and service industries are not in there  
23 in SIC, and NAICS is designed to correct that, and it starts  
24 coming into force in the U.S. data in 1997.

25           And so everything I'm going to show you going

1 forward here is going to use NAICS, and when you do that, you  
2 will get different answers on any of these China shock papers  
3 or other things where you're looking at, you know, big  
4 shocks. And so I want to encourage researchers that are  
5 doing work in this area to kind of make sure that we're not  
6 living in the past and projecting SIC too far forward in time  
7 because the NAICS basis really matters, and you can see that  
8 here in this chart.

9           So what's going on here? So there's this within  
10 firm reorganization that's happening, and so we're going to  
11 decompose job growth even further and look at job creation,  
12 destruction, and continuing firms from the entry and exited  
13 firms and then this other component here which we call  
14 switching in and out, and what that is is that there are some  
15 establishments in the data that between, you know, five-year  
16 increments in the economic census they change their industry  
17 code, and it turns out that matters quite a bit.

18           So, if we look at where the job losses are coming  
19 from in manufacturing, some of them are coming from job  
20 destruction in continuing establishments. Most of it is  
21 coming from the exit of establishments. So we have  
22 manufacturing plants that basically just die when we see them  
23 one year in the data and then we look five years later and  
24 they're gone.

25           But a non-trivial component actually comes from

1 manufacturing establishments that did not die, but they  
2 switched their industry code between the economic census.  
3 And so these are firms that said, you know, say, in 1992 that  
4 we're a manufacturer, and then, by 2002, they're doing  
5 something else. And so, when they fill out their Census  
6 form, they say, actually, we're not a manufacturer, we're a  
7 warehouse firm, or -- sorry, a warehousing establishment or  
8 in research and development, and we're managing things.

9           And we can see that when we look at the data, like,  
10 where does this switch out come from. A lot of it is going  
11 into professional and technical services, that's R&D, and  
12 some of it is going into NAICS 55, which is management. The  
13 rest of it is made up by wholesale.

14           And this is exactly what you would expect to see as  
15 an industry sort of reorganizes itself around the China  
16 shock. But what's important to note here is that these  
17 establishments, they did not go out of business, they did not  
18 die. The jobs are still there. They were just recoded into  
19 a different code, and most of it is coming from NAICS 33 and  
20 going into these other sectors.

21           If we look at what these firms are actually doing,  
22 a lot of it is from firms that are expanding in the  
23 non-manufacturing sector, in large part, what we just saw in  
24 the previous slide. These are coming from importers, and  
25 this is coming from large firms.

1           So the last thing I'm going to cover here in my  
2           limited time that I have left is, like, what's actually going  
3           on regionally here because that's a large part of what this  
4           symposium is about, and if we look at commuting zones with  
5           above versus below median share of population with a college  
6           degree, this is what the map looks like.

7           And if you think about what I showed you before,  
8           which is that, you know, where is this shock really big, a  
9           lot of it is on the coasts, some of it is in the upper  
10          Midwest, and when we break up the data and we say, well, what  
11          happened in these high human capital commuting zones versus  
12          low human capital commuting zones, we can see that  
13          manufacturing employment in the high human capital commuting  
14          zones declined but not by merely as much as it did in the low  
15          human capital commuting zones. And if we look at  
16          non-manufacturing employment in high human capital commuting  
17          zones, it actually goes up, whereas it goes down in the low  
18          human capital commuting zones.

19          And what you can see, I think, in this low human  
20          capital, you know, sort of result here is, in large part,  
21          these are maybe the commuting zones, as David Autor was  
22          talking about earlier, like West Hickory, North Carolina,  
23          where, you know, the plant goes out of business and the town  
24          dies, so there are no service jobs because the town has died.

25          But, if you go and you look at, you know, the East

1 Coast and the West Coast, all these other changes are  
2 happening, this reorganization, and there are service sector  
3 non-manufacturing jobs to be had, and I think that's part of  
4 what we see coming out of this chart.

5 If we then look at earnings, again, a similar story  
6 here. In high human capital areas, manufacturing earnings  
7 actually go up, non-manufacturing earnings go up. That's not  
8 the case in these low human capital areas.

9 So, if we look at the switching in and out of  
10 non-manufacturing, a lot of it is coming from these high  
11 human capital zones instead of low human capital.

12 And I'm out of time here, so let me just jump ahead  
13 a little bit and just conclude with this. To some extent, I  
14 think the point of our paper is a somewhat revisionist story  
15 of the China shock. The good is that there's this offsetting  
16 positive effect on services jobs in high human capital areas.

17 The bad is the negative effect on manufacturing  
18 jobs in low human capital areas, but the debatable part is  
19 that on average there's no negative effect on local jobs but  
20 a negative effect on resident employment, and these large  
21 manufacturing firms do not seem to suffer, but they may be a  
22 factor behind the rise of these super star firms and regional  
23 inequality, and, you know, that's obviously a problem that's  
24 difficult to deal with from a policy standpoint.

25 Thanks a lot. I'm sorry for going over time a

1 minute or so here.

2 MR. MONTGOMERY: Thank you, Kyle, and thank  
3 everyone that participated and presented so far. I think I  
4 speak for most of the audience in saying we're off to a great  
5 start, and your presentations have been very informative and  
6 exciting.

7 So, at this point, I'll pass the baton over to  
8 Kadee Russ to lead a moderated discussion. In order to get  
9 back on schedule, we're going to try and stick to about 18  
10 minutes. For those in the audience, if you have any  
11 questions for this panel, feel free to send an email to  
12 de@usitc.gov. Staff will be monitoring those emails, those  
13 questions, and try and send them over to Kadee.

14 Thank you, and, Kadee, you can go ahead.

15 DR. RUSS: Thank you.

16 So, as Chris said, I'll currently be monitoring the  
17 chat in case we get questions from the audience. But I'd  
18 love to start out just asking our amazing panel, and it's  
19 really an honor to be here with you guys, so it looks like we  
20 have this set of papers that thinks very seriously about wage  
21 inequality stemming from import competition and offshoring,  
22 about regional inequality stemming from these phenomena.

23 How does your research speak to the distributional  
24 effects of trade on workers in underserved communities or  
25 groups or geographic areas? Would anyone like to comment on

1 this? I know people are shy to go first.

2           Okay. I'm going to go first then. So I think what  
3 our paper does is kind of expand the group of areas that we  
4 might think of as underserved or vulnerable, that these  
5 places where industries already have been aging out are  
6 vulnerable, whereas previously I had thought of the areas  
7 that sustain the biggest gross shock from the surge of  
8 imports from China as the most vulnerable. I hadn't  
9 understood these areas that originally had been places where  
10 products or industries spawned but no longer were as  
11 especially vulnerable.

12           So I'm wondering if there are insights about -- so,  
13 Eunhee, you had really interesting thoughts about how policy  
14 might be able to confront the wage inequality in your paper.  
15 Does that policy need to target different groups of workers  
16 differently, for instance?

17           DR. LEE: Yes. So one of the policy implications I  
18 can draw from my framework is that it is very important to be  
19 able to move workers across industries and especially across  
20 occupations. So, if they are displaced, they should be able  
21 to find a better job, so at least a job that gives a similar  
22 characteristic or even -- it'll be even greater if they can  
23 find a better job.

24           So I think the labor market policy is very  
25 important to be able to mitigate the potentially negative

1 impact of import competition, and if I have to use the  
2 framework that I shared today to speak about the effect of  
3 trade on regional inequality, it is a little bit difficult to  
4 use the framework I shared today because the relationship  
5 between workers' education and their industry- and  
6 occupation-specific skill is straightforward but is  
7 relatively difficult to argue that everyone from particular  
8 geographic areas has that particular industry- and  
9 occupation-specific skill.

10 So, in that sense, the framework I share today is a  
11 little bit difficult to the regional inequality, but I have  
12 other papers that studied the distributional effects of trade  
13 on workers across geographic regions focusing specifically on  
14 mobility frustrations that workers face. So, going back to  
15 my earlier point about the role of labor market policy to  
16 facilitate labor reallocation, that paper also argues that it  
17 is important to have well-designed labor market policy to be  
18 able to reallocate workers across a space and sectors.

19 DR. RUSS: That's really interesting. It seems to  
20 touch also on what David Autor said in the beginning that we  
21 just don't see this fluid labor market mobility that a lot of  
22 us older people when we were trained in PhDs were expected to  
23 have. Ann?

24 DR. HARRISON: Yeah, thanks, thanks so much for  
25 doing this. I just want to emphasize this difference, right.

1 So let's say you're a machine operator, right, so that's your  
2 occupation. I think the point is that it's very easy to move  
3 across industries as a machine operator, but if suddenly your  
4 occupation is eliminated because suddenly this can be done  
5 through artificial intelligence or robots and you actually  
6 have to switch occupations, then you have a real problem.

7 So there's this enormous stickiness in moving  
8 across occupations, and so I think that's what this whole  
9 literature really highlights. And so one implication is  
10 that, you know, as jobs are moving out of manufacturing and  
11 into services and some occupations are being eliminated, that  
12 that's really where the hit is.

13 And so our book was called The Factory-Free Economy  
14 because what we're visualizing is all these firms, as we just  
15 heard in Kyle's paper, all these firms are basically moving  
16 from manufacturing into services, so they no longer have any  
17 factories, and those are lower-paying jobs, and that's where  
18 a lot of the hit is coming from.

19 So one implication is you really want to target  
20 lower skilled service jobs. So, even if the net impact on  
21 employment is zero, the hit is huge in terms of lost  
22 earnings. And so you really want to target those parts of  
23 the economy where workers are unskilled in the service  
24 sector. That's where the big hit has happened.

25 DR. RUSS: And that really gets back to Eunhee's

1 work too because, Eunhee, you showed this really interesting  
2 divergence in wages for people switching into the service  
3 sector because some go into the lower wage service production  
4 jobs basically and others go in as managers if they're higher  
5 educated.

6 DR. HARRISON: Yeah, so education is so critical,  
7 right, and, basically, our problem is that about a third of  
8 our labor force gets a college degree, and that's just way  
9 too low to be able to compete, right. I mean, young  
10 people -- I mean, our numbers are much lower than many other  
11 countries. So we really need to target service sector, low  
12 skill, routine jobs.

13 DR. RUSS: Shubhi, let me just ask you for a quick  
14 minute, and we'll go to Kyle. So, Eunhee, you said that  
15 export expansion also seems to favor high skilled workers  
16 over low skilled workers. So is there a double whammy here  
17 in import competition and export expansion in terms of wage  
18 inequality?

19 DR. LEE: Yeah, so I think import competition and  
20 export expansion -- so, if there is -- so I think overall  
21 they should have reverse sides, so, basically, the direction  
22 could be different, but I think the mechanism should be  
23 similar because, at the end of the day, what happens is the  
24 occupation specificity of skill.

25 So I think, in terms of the relationship between

1 skill and occupation, the task that is required at its  
2 occupation, that link is much stronger compared to the link  
3 between industry-specific task and worker skill. So that's  
4 the reason why it is so important to look at occupations I  
5 mentioned and in terms of policy that it's important to  
6 target certain type of workers in certain type of  
7 occupations.

8 DR. RUSS: A really helpful insight. Thank you.  
9 Kyle?

10 DR. HANDLEY: Thanks. Yeah, I wanted to comment a  
11 little bit on, you know, Ann's point about education and just  
12 this difficulty in switching into these service sector  
13 industries, and I think, I mean, you can see some of this in  
14 our paper, but I think, in large part, like, the only tool,  
15 policy tool, that we have to deal with that -- I shouldn't  
16 say the only tool. One of the only tools we have is Trade  
17 Adjustment Assistance, which is a program that's, like,  
18 chronically underfunded and, you know, most of the firms that  
19 apply for it are not necessarily going to get it, and it's  
20 meant to try and retrain the workers, but a lot of them,  
21 like, never got the training because their firm didn't get  
22 trade adjustment assistance, and if we had more programs like  
23 that that were targeted locally or to specific regions or  
24 parts of regions rather than, you know, a completely  
25 federalized program, we might have a better shot at trying

1 to, like, take these workers who are displaced and maybe even  
2 keep them where they are and help them, you know, find new  
3 jobs and get the new skills that they would need.

4 DR. RUSS: Okay. Thank you. And then I have a  
5 question for you, Kyle, from John McLaren, putting the screws  
6 on you a little bit here. So can you clarify how it's  
7 possible that there's no negative effect on jobs measured  
8 from the firm side, he's assuming, but a negative effect on  
9 employment measured on the worker side? Should I assume that  
10 one of those two is mis-measured?

11 DR. HANDLEY: Sorry, so can you repeat the question  
12 again so I can make sure I give you the right answer?

13 DR. RUSS: So he says can you clarify how it's  
14 possible that there's no negative effect on jobs, he's  
15 assuming that's measured from the firm side, but a negative  
16 effect on employment, he's assuming that's measured from the  
17 worker or perhaps CZ side? So should I assume that one of  
18 those two is mis-measured or that these are measuring  
19 different things?

20 DR. HANDLEY: Okay. I think I understand the  
21 question. So, yeah, so in the aggregate, we find no negative  
22 effect on jobs, and so we're counting, to put it bluntly,  
23 we're just counting bodies and the number of workers at  
24 establishments from administrative data.

25 A lot of people can have two jobs, so they might

1 get counted twice. If I go to the American Community Survey  
2 and you ask people if they're working or not, you know,  
3 they'll say yes or no, but they may not -- you know, we're  
4 not counting jobs, and we're actually just asking what's your  
5 status.

6 And so you could get different answers if you look  
7 at administrative data, especially the microdata that we're  
8 using, or when you look at county business patterns, which is  
9 put out by the Census Bureau and uses that same  
10 administrative data, then you'll get if you go to the current  
11 employment survey or the American Community Survey or other  
12 tools -- I shouldn't say tools, other data sources, in large  
13 part, because some of those other surveys, especially when  
14 you dig into the regional data, there's a ton of imputation  
15 going on, you know, there are surveys, it is not a census.  
16 And so you're definitely going to get different answers.

17 And I would say the administrative data that we're  
18 using is not mis-measured. It's exactly what was reported on  
19 Form 941 in March 11 of the year that the data was collected.  
20 And so that data is accurate to the extent that, you know,  
21 they filled out their forms for the IRS properly.

22 When you go to survey data, you can obviously get  
23 different answers, especially if you try to take these  
24 nationally representative surveys and then say what's  
25 happening in all these different, you know, commuting zones

1 or counties or different regions. So that's the best answer  
2 I have for that.

3 DR. RUSS: Thank you. So all three of you just  
4 now, and I suspect Shubhi would concur, are emphasizing the  
5 importance of measuring services employment and services  
6 activity in order to fully understand impacts of trade and  
7 trade policy on U.S. labor markets.

8 Do you have any thoughts on, you know, data related  
9 to employment and production and services or services trade  
10 and how this may present challenges or opportunities in the  
11 future to continue drilling deeper into this?

12 DR. HARRISON: Well, I can just reiterate what we  
13 already heard, which is that one of the chapters in the book  
14 on The Factory-Free Economy, one of those chapters shows how  
15 so many companies have been reclassified.

16 So, for example, let's just take a great example of  
17 IBM. IBM used to be a manufacturing company; it's now  
18 classified as a services companies. So that just reiterates  
19 that if you just look within industry, you're going to  
20 actually miss a lot of what's going on.

21 But I also want to say that -- and this is  
22 something that I think we really need to think about in terms  
23 of distributional consequences. So Kyle pointed out and the  
24 graphs I showed you reinforced that point that on net,  
25 employment hasn't declined. What's happened is manufacturing

1 employment has declined and services employment has gone up;  
2 however, and this is a big however, those are not such good  
3 jobs. The wages that these workers are getting when they  
4 switch from manufacturing to services goes down, right.

5           And so, you know, it's really important to think  
6 about as America's manufacturing base shrinks, just because  
7 it's being replaced by other jobs, those jobs are not as  
8 good. And so the classification -- you know, if you don't  
9 take into account this change in classification as IBM and  
10 other companies shift from being manufacturing companies to  
11 services companies, the average wage that they're paying the  
12 same worker who switches jobs goes down, and that's something  
13 that really needs to be thought about from an income and  
14 distributional perspective.

15           DR. RUSS: In terms of trends in trade that may  
16 continue to affect the U.S. labor force, we're seeing  
17 increasing trade in services. And I know for the Bureau of  
18 Economic Analysis, especially under Ray Mataloni, and I know  
19 we all miss him, that was a big priority to improve data on  
20 trade and services.

21           Do you foresee issues with import competition in  
22 services affecting these workers who have already had the big  
23 shift from manufacturing to services? Hard to tell, isn't  
24 it? Yeah, I think it's a big unanswered question. So, let  
25 me just take the last two minutes then to the broader picture

1 of other unanswered questions.

2 So, this one, you know, possible trade in services  
3 and import competition from services I think is going to be a  
4 big unanswered question. But are there other questions  
5 related to the distributional effects of trade and trade  
6 policy across U.S. workers of different skill and education  
7 levels that remain unanswered and should be considered in  
8 future research, including any data or methodological issues?

9 So, let me start with Ann, and then I'll go to each  
10 person individually. We've got about 30 seconds each.

11 DR. HARRISON: Oh, great question. Well, I really  
12 do think that we should be spending more time thinking about  
13 the incomes of workers. And so, we use the CPS data, and it  
14 had a very limited window to look at the same worker over  
15 time.

16 So, if we had a richer subset of the CPS data which  
17 allowed us to look at the same worker over time more than  
18 just two periods, we could do a much deeper analysis.

19 DR. RUSS: Okay, so longer time periods for  
20 individual workers tracking -- thank you. And Lee?

21 MS. LEE: Yeah, we talked a lot about the role of  
22 labor mobility and occupation, and for this type of question,  
23 we need, yeah, basically detailed matching employer-employee  
24 data. So, having access to that data will be good. In that  
25 sense, the LH database from the census is good, but the key

1 drawback of that database is that it does not have  
2 information about workers' occupations.

3 So, that really limits our ability to tackle this  
4 question in the context of the U.S. labor market. So, I  
5 think having occupation information and matching  
6 employer-employee data will help us better understand this  
7 issue.

8 DR. RUSS: Okay, thank you -- so, detail on worker  
9 occupation that can be matched with employers and other --  
10 wow, okay, thanks, that's helpful. Kyle?

11 DR. HANDLEY: Hi, thanks. Yeah, I mean, I think  
12 there's a lot more we could do on data. I agree with Yun He  
13 that the LH database that the census has put together is  
14 important for trying to track workers over time.

15 There are a lot of efforts afoot, one of which I've  
16 been involved in, to try and make some of these datasets  
17 public use. Fariha Kamal is going to talk about that more  
18 tomorrow, along with a number of people from different  
19 agencies.

20 And I think there's a lot of data out there that's  
21 being created that I think is going to help answer these  
22 questions, and also, you know, we should always be trying to  
23 find new ways to put, you know, these data sets together.

24 DR. RUSS: Thank you. And Ann, you had a comment  
25 and we don't want to lose it. I've been given special

1 permission to invite your comment. And then Shubhi? Did we  
2 lose Shubhi?

3 M. AGARWAL: No, I'm here.

4 DR. RUSS: Do you have any last words?

5 M. AGARWAL: Just I'll actually say that I input  
6 all the work economists here present, and I would say that I  
7 actually agree on that point, that there's a symmetry between  
8 data sets, because that is what I'm using.

9 I'm using the CPS data, but if we go to the CBP  
10 data, the BLS data, if you want to tally similar results, it  
11 might be because of the data issues, like the BLS. Like, it  
12 actually has a limitation that, at the state level, it is  
13 really working well.

14 Like, based on my results, it is completely my  
15 personal opinion here, but when you go down to the country  
16 level, the BLS data doesn't work that well, from my research.

17 So, you know, actually it's like data limitations  
18 at times, and also, you know, the way the symmetry in the  
19 data. The more data available, the more research questions  
20 are something that we all can answer.

21 So, I completely agree, and that is what, like, my  
22 current research is based on. Like, the paper, like, the  
23 last two papers, that is actually what I'm working on for my  
24 current research as well, so, yeah. Occupational exposure is  
25 really a good point that I actually picked up, like,

1 occupational measure of trade exposure.

2 And those occupations actually is the one where we  
3 can look at, like the one you said, the service industries  
4 and the change (phonetic) shocks and how they are working,  
5 something that can be explored further.

6 DR. RUSS: Okay, well we have the right audience  
7 for this message, so thank you all so much for sharing these  
8 insights. I'm going to turn it back over to Chris.

9 MR. MONTGOMERY: Thank you so much for all the  
10 participants in this first panel. It's, again, been a great  
11 start, and as a member of the audience, I found it extremely  
12 insightful and am super grateful for you all joining us this  
13 morning, particularly the folks that got up very early from  
14 the West Coast, and it's great for you guys to be here.

15 At this point in time, I'll advocate that we take a  
16 six-minute break in order to try and get back on schedule for  
17 the next session.

18 (Whereupon, a brief break was taken.)

19 MR. SECRETARY: Thank you so much for joining us  
20 today and I will turn the floor over to you. Thank you.

21 DR. TEBALDI: Thank you very much. Good morning to  
22 everybody, and thanks for joining us for this second panel.  
23 We have four great presentations, and I think I have seen the  
24 slide decks, and really useful insights to this discussion,  
25 and hopefully we can end the discussion on really important

1 conclusions and recommendations for all the people that will  
2 be joining this panel discussion today.

3 We are running behind the curve, so we're going to  
4 use the few minutes we've got here on my end to actually  
5 start the work. As I said, we have four presentations. I  
6 will announce it as we go.

7 The first speaker is Dr. Timothy Bond from Purdue  
8 University. Dr. Bond, are you ready to proceed?

9 DR. BOND: Yeah, I can go ahead.

10 DR. TEBALDI: Great. So, we're going to start.  
11 Each presentation will last about 15 minutes, and questions  
12 will take place at the end. So, please send our questions to  
13 the email that was provided. I'll do the best I can to pick  
14 the best questions for this panel to discuss. And so,  
15 without further ado, so Dr. Bond, you have the floor for your  
16 presentation. Thank you.

17 DR. BOND: All right. Well thank you for having me  
18 here today. This is a paper that is co-authored with my  
19 former (technical interference) down at the University of  
20 Notre Dame, Mary Kate Batistich, *Racial Progress and Japanese*  
21 *Trade in the '70s and '80s.*

22 I think it's probably easiest just to motivate this  
23 with a couple of figures to start off with here. So, coming  
24 out of the civil rights movement, this is a figure of the  
25 ratio of black men to white mens' earnings.

1           So, coming out of the civil rights movement, what  
2 we saw was that black men were making tremendous progress at  
3 closing a lot of racial disparities, but there was a sharp  
4 change in the mid-1970s in that we actually saw black men  
5 fall further behind whites, and this pattern continued  
6 through the 1980s.

7           We look at that in wages, we look at this as  
8 employment rates; you can see that black mens' employment  
9 declined throughout the 1970s and the 1980s. Where in  
10 particular do we see these changes?

11           Well, one particularly interesting and important  
12 industry here, if we're looking at black mens' progress in  
13 the 1960s with the manufacturing industry, so the dashed line  
14 here was the share of black men employed in manufacturing,  
15 you can see that black men dramatically rose their role in  
16 manufacturing in the late-1960s before falling off in the  
17 1970s and 1980s.

18           And so, our question is whether or not these  
19 changes could be explained by the large influx in trade and  
20 manufactured goods going from Japan in the late-1970s and the  
21 early-1980s.

22           And so again, I'll just show you the figure here,  
23 which you can see this is the trade coming in from Japan, and  
24 we really see a takeoff in trade during the 1970s and  
25 especially during the 1980s before leveling off in the

1 late-1980s, coming from Japan.

2           And so, the patterns are especially suspicious  
3 here. They really do match-up with what we saw going on in  
4 terms of racial disparities in 1970s and 1980s. So what  
5 we're going to do here is basically adopt the Autor Dorn and  
6 Hanson framework to look at variation and exposure to import  
7 competition across local labor markets to see whether or not  
8 increased competition from Japan can explain the drop in  
9 black manufacturing employment and other labor force outcomes  
10 that we see.

11           And so we do find is that increased competition  
12 from Japan leads to a large drop in black manufacturing, and  
13 almost all the workers who are displaced in manufacturing  
14 leave the labor force altogether, which is a very bad  
15 outcome.

16           But you don't actually find evidence that there was  
17 any negative effects on white workers, and what appears to be  
18 the driving force here was that there was an increase in  
19 demand for skill in manufacturing in sectors that were most  
20 hit by the Japanese trade shock.

21           And so, what do we see to support this? I'm going  
22 to show you if I have time, but the losses that we saw are  
23 concentrated mostly on low-education workers and also for  
24 blacks who are born in the South.

25           For the manufacturing industry, we saw a shift to

1 employment of more engineers and more educated production  
2 workers, and I won't have time to show you this today, but  
3 the most exposed industries, the ones that faced the most  
4 competition from Japan, responded by increasing their capital  
5 labor ratio and saw higher value added per worker.

6 So, why is it that black manufacturing workers were  
7 especially vulnerable to these changes? Well, in 1960, 60  
8 percent of black manufacturing workers had less than a high  
9 school degree compared to 38 percent of whites.

10 Among production workers, black workers had a  
11 half-year less education than whites, and when you look at  
12 the dynamics leading into this was the great migration, so  
13 more than half of our northern manufacturing workers who were  
14 black were actually recent migrants who were educated in the  
15 Jim Crow era South, and so there was a big schooling  
16 disparity in terms of quality.

17 We're going to look at whether or not there's  
18 evidence that there was an impact driven by differences in  
19 unionization, any disparate effects related to prejudice, or  
20 difference in spatial mismatch did manufacturing jobs leave  
21 inner cities where black workers disproportionately lived,  
22 and we don't find evidence to support any of these  
23 hypotheses.

24 So, let me just dive into it because we only have a  
25 short amount of time, we used a lot of data here to try to

1 get to this question, a lot of older data -- so, 1960s and  
2 1970s accounting business patterns data, trade data coming  
3 from U.N. COMTRADE in the '70s and 1980s. The census is  
4 going to be where we get our labor market outcomes from.

5 Both manufacturing and non-manufacturing males  
6 (phonetic), particularly because we're concerned in  
7 differences in labor force participation across race and how  
8 those may change over time. And when we look at our sample  
9 here, we're looking at commuting zones as our measure of  
10 local labor markets, and we're going to restrict to 358  
11 observations (phonetic), so about half of the local labor  
12 markets in the United States are going to be in our sample.

13 And these are just the local labor markets at 500  
14 working-age black males in 1970 and 1990. So, I'll show you  
15 some figures in a little bit that'll make you perhaps not be  
16 so concerned about what's going on with our sample selection.

17 Our measured import competition is going to be the  
18 standard measure from the Autor Dorn and Hanson framework,  
19 which is imports per workers. And so the way that we measure  
20 this is basically we're going to take -- the fundamental  
21 thing is that imports are measured at the industry level, and  
22 our industries are divided across commuting zones. So,  
23 different local labor markets have different shares of  
24 industries.

25 We're going to take the imports that are coming in

1 at the national level and divide them across the industries  
2 based on the proportion of industries that are located in  
3 each commuting zone. So, if Detroit has 20 percent of the  
4 automobile industry, then 20 percent of the automobile  
5 industry's imports are going to be assigned to Detroit, and  
6 so on and so forth.

7 Our measure's going to be 1970 to 1990. This is  
8 more or less a time period of convenience because the census  
9 is measured in 1970 and 1990. Ideally, we'd like to probably  
10 do something between 1975 and 1985, but we don't have great  
11 data for looking at those particular time points.

12 In terms of what the average black worker was  
13 exposed to, actually less than the average white worker on  
14 this measure. The average black worker was exposed to \$1395  
15 in import competition, whereas the average white worker was  
16 exposed to \$1583. And comparing this to China in more recent  
17 times, it's about 50 percent of what we saw for China, if my  
18 memory's correct.

19 All right. We're going to adopt the Autor Dorn and  
20 Hanson variable framework (phonetic), and essentially what  
21 this means is that we're going to use, for identification  
22 purposes, we're doing to use the predicted exposure that you  
23 would have received based on Japan's exports of their  
24 country.

25 So, our main concern is that Japan's exporting to

1 the United States not because they're very good at producing  
2 automobiles but because something happened to the American  
3 automobile industry that would've led to a downturn  
4 regardless.

5 And so the idea's that we're seeing exports that  
6 are going from Japan to Australia that doesn't have anything  
7 to do with what's going on in the American automobile  
8 industry. That's all on new technology from Japan as they  
9 get more competitive in the global market.

10 And so, we're using those exports to Australia,  
11 Denmark, Finland, New Zealand, Spain, and Switzerland. We're  
12 landing our labor shares for the measure in 1962, so that's  
13 going to predate Japan's big export expansion.

14 The edification for this, or the theory that we're  
15 relying on is a recent paper by Borusyak Hull and Jaravel for  
16 2022 just published a couple months ago, and the idea is that  
17 these shocks, Japan's shocks, are randomly assigned across  
18 industries.

19 I won't have time to show you this today, but we  
20 see very little evidence that there's a correlation between  
21 your exposure to Japan and pre trends in your local labor  
22 market, the characteristics of the industries that received  
23 these shocks, trends going on in these industries once we  
24 control for a small number of local labor market variables.

25 All right, so here's my maps. This is the exposure

1 of intensity of competition between Japan and the United  
2 States after adjusting for the size of manufacturing share.  
3 And so what you can see -- I don't think this will be  
4 surprising to the people who are aware of what's going on in  
5 Europe, and the big concentrations in the upper Midwest in  
6 Indiana, Ohio, and Michigan and Illinois, and up into Buffalo  
7 and New York.

8 But there's also some exposure across the country.  
9 If you look at Southern California was highly exposed; parts  
10 of Southern Florida were highly exposed. In our main  
11 analysis, we're going to include region-fixed effects. What  
12 we're going to be doing is identifying differences within the  
13 Midwest in the exposure, whether or not black workers were  
14 more harmed in the Midwest in areas that had more exposure.

15 Now, I told you we were going to drop about half of  
16 our commuting zones. These really are commuting zones that  
17 have very low populations in general. They have  
18 critically-low black populations, but we're not losing a lot  
19 of the population of the United States when we drop down to  
20 these 358 commuting zones.

21 What we're left with is almost the entire upper  
22 Midwest, almost all the South, Southern California, and up  
23 through the mid-Atlantic and New England, except for Maine,  
24 New Hampshire, and Vermont. So, it's a fairly large sample  
25 of the United States in the end.

1 All right, so just a regression analysis. Left  
2 hand side variable, changes in outcomes by race. Right  
3 hand-side variable is going to be the change in imports  
4 exposure with a bunch of screenings on level controls to  
5 account for any sort of differences in commuting certain  
6 level characteristics.

7 All right. This is our first stand-on-me  
8 (phonetic) result. This is sort of mimicking what we  
9 would've seen if we had done just what Autor Dorn and Hanson  
10 did. In the baseline column one, an increase in imports from  
11 exposure from Japan - left hand-side merely is the change  
12 from 1970 to 1990 in the number of manufacturing workers.

13 So, the manufacturing plant per working age  
14 population in the commuting zone, and so we just ran a  
15 regression of imports from Japan on manufacturing employment.  
16 You would see a large increase in manufacturing employment in  
17 the most exposed commuting zones.

18 In column three, we throw in our full set of  
19 community zone controls, and what you can see is most of  
20 what's going on is actually that the areas that were most  
21 exposed to Japan had a higher percentage of their employment  
22 and routine occupations, and there's like a skilled like  
23 change going on.

24 But what's really interesting for our analysis is  
25 columns four and columns five. So, there's no aggregate

1 effect on manufacturing. Columns four and columns five are  
2 breaking it down by race, and what we see is that there's a  
3 large decrease in black manufacturing workers and almost no  
4 effect on white manufacturing workers in the aggregate.

5 And that sort of, you know, poses to figure out  
6 what exactly is going on here, why is it that black workers  
7 are being more negatively affected than white workers by this  
8 trade shock when there's no real big effects in the  
9 aggregate?

10 And so here we're going to break things down by  
11 different employment outcomes, and so basically everybody has  
12 to be in one of these categories. Either you're working in  
13 manufacturing, you're working in non-manufacturing, you're  
14 unemployed, or you're out of the labor force. Column four is  
15 not in the labor force.

16 White workers, nothing happens to white workers in  
17 response to the trade shock. For black workers, we see a  
18 sharp decrease in manufacturing employment that I showed you  
19 on the previous slide, and the question is what happens to  
20 these workers?

21 We don't see much evidence for reemployment in  
22 non-manufacturing that would've been, like, a softening of  
23 the blow if they found employment in other sectors.  
24 Nothing's really going on in unemployment, either. The big  
25 movement is movement of manufacturing workers out of the

1 labor force.

2 So, this is consistent with the trends we see, that  
3 we saw one of the biggest negative trends we see in this era  
4 is a decrease in black men's labor force participation.

5 That's probably the most damaging effect because  
6 unemployment in the United States is a short-term phenomenon  
7 whereas displacement is an indication of a disconnect from  
8 the labor force. And so, the effects here are about as bad  
9 as we would expect. Everybody who's displaced is leaving the  
10 labor force altogether in the long-run, more or less.

11 All right. So, summary here, one thing was  
12 comparing this to is what are the comparisons of our effects  
13 relative to Autor Dorn and Hanson. So, basically the effects  
14 on black workers that we see are about the same size are to  
15 what Autor, Dorn and Hanson find on China for all workers.

16 So, for China, Autor Dorn and Hanson finds the  
17 effect of that manufacturing share is -0.5, and labor force  
18 participation is 0.43. We find black workers -0.67 for  
19 manufacturing and 0.5 on non-labor force participation. The  
20 magnitudes are very comparable, and they're robust to a whole  
21 bunch of things that I list here that I don't really have  
22 time to go through.

23 So, why is it that black manufacturing workers were  
24 harmed so much by the trade shock? Our four hypotheses here  
25 is that the first is that there was skill upgrade in

1 manufacturing. What I mean here is a change in the demand  
2 for skill, that low-skill black workers are going to be  
3 replaced by higher-skill white workers, on the aggregate.

4 Second hypothesis is going to be migratory response  
5 of jobs. So, you have inner-city factories may close with  
6 older technology and reopen in the suburbs, which would have  
7 better access to white workers.

8 Third hypothesis would be a labor unions that  
9 shielded white workers from job loss more than black workers,  
10 and then our last hypothesis is that prejudiced employers  
11 were facing competition from Japan and decided to lay off  
12 their black workers rather than their white workers.

13 So, my focus here in my limited amount of time is  
14 going to be showing you the effects I see. And so, I have  
15 three panels here, the effects on high school dropouts, high  
16 school graduated, and the college educated. College educated  
17 is anybody who has more than 12 years of education in the  
18 census.

19 And so, what you can see here is that, first of  
20 all, among high school dropouts, you see statistically  
21 significant negative effects on both black workers and white  
22 workers. The effects on black workers are much more severe,  
23 but we do find evidence that white workers who were laid-off  
24 who are high school dropouts lost their jobs in manufacturing  
25 as well.

1           The difference between black workers and white  
2 workers among our high school dropouts is the high school  
3 dropouts seem to have done a better job of finding  
4 reemployment. Our black workers who are displaced end up in  
5 non-labor-force participation.

6           Among our high school graduates, we actually see  
7 smaller but still negative effects on manufacturing  
8 employment. We don't find statistically significant effects  
9 for black workers in manufacturing employment, but we do see  
10 statistically significant effects on their non-labor-force  
11 participation. That's surely suggestive that black high  
12 school graduates were harmed as well by the changes of the  
13 trade shock.

14           And among our white workers, we do see a  
15 statistically significant and negative effect on  
16 manufacturing employment. Among our college educated  
17 workers, I can only measure this for white workers just  
18 because we don't have enough black college educated workers  
19 in the 1970s to really build a sample here, but we don't see  
20 any negative effects, anything slightly positive for white  
21 workers who are college educated.

22           So, the big picture here is that our lowest skilled  
23 workers are the ones who are harmed the most here. This  
24 Southern-born blacks versus Northern-born blacks was kind of  
25 striking. So, Northern-born black workers we would expect to

1 have lower education quality than South where we would've had  
2 segregated schools for most of their education.

3 And what we see here is that our Southern-born  
4 black workers are the ones who are really being harmed here,  
5 with negative effects in manufacturing employment and  
6 positive effects on non-labor-force participation, and our  
7 Northern-born workers are not seeing the same negative  
8 effects among black workers.

9 Let me quickly show you this here. What I wanted  
10 to point about what was going on in manufacturing employment  
11 in general, we're seeing an increase in the number of college  
12 educated workers in manufacturing, an increase in engineers,  
13 an increase in college educated production workers. I'm just  
14 going to skip through this.

15 The other hypothesis we don't find evidence for, to  
16 the extent we can measure unionization prejudice or spatial  
17 mismatch, we do see some evidence that there's more negative  
18 effects on black reemployment in more segregated cities,  
19 suggesting there might be something going on with segregation  
20 having a role to play in our negative effects.

21 When it comes to employment incomes and earnings  
22 and family outcomes, we see negative effects as well. So,  
23 just to summarize here, we find causal evidence that stalled  
24 progress in 1970s and 1980s could be attributed to import  
25 competition from Japan.

1                   This is a particularly vulnerable time for black  
2 workers because they just made all this progress in the 1960s  
3 in manufacturing, and you wonder, if they had been able to  
4 sustain that progress, would we have seen better  
5 inter-generational effects in the longer term. So, thank you  
6 guys for your time.

7                   DR. TEBALDI: Thank you very much, Dr. Bond, for  
8 staying on time. We really appreciate it. Let's move to our  
9 second presentation by Dr. Frederick Felipe Benguria from the  
10 University of Kentucky. Freddy?

11                   DR. BENGURIA: Thanks very much. I was unmuting,  
12 and now I'm going to share my slides. Okay. Do you see the  
13 slides, or should I press CTRL+L so you can see full-screen?

14                   DR. TEBALDI: Yeah, we can see it, but perhaps  
15 bigger would be better.

16                   DR. BENGURIA: Okay, hold on.

17                   (Pause.)

18                   Now we're good?

19                   DR. TEBALDI: Excellent.

20                   DR. BENGURIA: Okay. Well, thanks very much to the  
21 organizers and to everyone who has presented so far. It's  
22 been really interesting to me.

23                   So, I'm happy to talk about this paper in which the  
24 goal is to look at the local labor market employment effect  
25 of NAFTA, which is a big part of recent and not-so-recent

1 U.S. trade policy, and with an emphasis on the distributional  
2 effects that NAFTA has had on different types of workers.

3 So, this paper really builds on previous work that  
4 has been described earlier today and that we're going to see  
5 later today. And so, the two key questions are the  
6 following.

7 First, what say on NAFTA on local employment  
8 outcomes? There's been recent and very good work mostly  
9 focusing on the wage effects of NAFTA, but I think there's  
10 space to know more about the employment effects.

11 So, I'm going to be asking how the effect on total  
12 employment, manufacturing and non-manufacturing employment,  
13 unemployment, labor force participation, and employment in  
14 abstract versus routine tests -- so, all these margins of  
15 adjustments, once workers are hit by the initial shock to the  
16 manufacturing sector.

17 Second, how does this impact different groups,  
18 right, both in terms of the direct shock to the manufacturing  
19 sector and to the later adjustment that these workers find  
20 towards non-manufacturing, unemployment, and so on.

21 So, in particular I'm going to look at gender and  
22 race, which is what I'm going to emphasize the most. As well  
23 in the paper I also look at age in high- versus  
24 low-human-capital regions, and so on.

25 So, as a motivation -- and I'm going to show you

1 some data later - since that NAFTA, in the sectors that faced  
2 a lot of tariff liberalization were, for example, sectors in  
3 North and South Carolina that had a lot of apparel and  
4 textile mills, and those were industries in which there's a  
5 huge fraction of women employed, and also regions in which  
6 the non-white population is fairly large.

7 So, at the start of this project, it was  
8 interesting to read a lot of examples of the effect that  
9 NAFTA had on these communities, for example, North Carolina,  
10 not the big cities, but semi-rural places, and that was very  
11 interesting.

12 So, the empirical approach building on the previous  
13 literature is going to take advantage of region operation and  
14 exposure to both U.S. and Mexican tariffs. Half the effect  
15 of NAFTA is due to the U.S. tariff liberalization, but the  
16 other half of the story has to do with Mexican tariff  
17 liberalization that implied more opportunities for U.S.  
18 exports and different commuting zones.

19 In line with what has been said earlier today, a  
20 different exposure to both the shocks, and then the variation  
21 in exposure is going to be driven by different initial  
22 industrial composition in 1990 within the manufacturing  
23 sectors, some regions that we see manufacturing specialized  
24 in apparel and other regions that could be specialized in  
25 vehicles and many other things.

1           So, this is not comprehensive, but as I said, my  
2 work really builds, and I've learned a lot from important  
3 work that has looked at NAFTA and on the China shock. So, in  
4 terms of the regional effects of NAFTA, we knew very little  
5 before the work of John McLaren, who mostly look at the wage  
6 effects, right, and there's also ongoing contemporaneous -- a  
7 recent paper by Consencio looking at total employment but  
8 mostly focusing on political effects, which is very  
9 interesting as well.

10           And of course the literature on the China shock,  
11 methodologically, we're going to follow that very closely,  
12 and all my regressions are going to be controlling for the  
13 effect of the China shock. So, every single regression in  
14 the paper controls for that. That's a very big shock during  
15 the time period I look at, which is 1990 to 2000.

16           But what I'm going to try to argue is that, on top  
17 of that, you know, we use very disaggregate tariff-level data  
18 and, sort of, the same controls that the literature has used.  
19 NAFTA had an impact in addition to that large shock, right?

20           There's also work on NAFTA based on general  
21 equilibrium models to look at the sort of general  
22 equilibrium, the average effect. I'm going to be talking  
23 about relative effects. And there's other important work in  
24 the U.S. and other countries looking across local labor  
25 markets.

1           So, I build on all of that, right? So, I'm going  
2 to be very brief in terms of methodology and data, and I'm  
3 just going to focus a lot on my results. But basically, I  
4 used the 1990 and 2000 population census. I'm thinking of  
5 looking further in time, but in the current version of the  
6 paper, it's 1990 to 2000.

7           In fact, most of the tariff liberalization in NAFTA  
8 was done by 2000. So there was a gradual tariff  
9 liberalization starting in 1994, but really it was just the  
10 initial years where most of it happened.

11           So I'm going to look across 722 commuting zones in  
12 the U.S., and I'm going to use broad level tariffs that come  
13 from the work of Ramales (phonetic) in the case of the U.S.,  
14 and I have digitized the Mexican tariff scale across 5,000  
15 different products that are then, you know, aggregated to  
16 industries to measure the impact of the second half of the  
17 theory, which is the fact that Mexico lowered its tariffs  
18 towards the U.S.

19           So, for the segment motivation, here is a graph  
20 with exposure to U.S. tariff cuts, right, and maybe as you  
21 have expected, most of the heavy impact is on the east of the  
22 country and especially I would say the south Atlantic, you  
23 know, also parts of the U.S. throughout the Midwest are  
24 darker, but a lot in what we would call the south Atlantic  
25 region, which manufactures a lot of apparel, furniture, and

1 so on. And then this is exposure to Mexican tariff  
2 liberalization. So these regions would have opportunities  
3 as, you know, Mexican tariffs fall, there are now  
4 opportunities to export more to Mexico.

5 And so you can notice that there is a large sort of  
6 correlation because that comes from the large industry-level  
7 correlation as well, but the correlation's not perfect, so  
8 we're not able to see the impact of both things.

9 Also, as a final piece of motivation, here is a  
10 table with the sectors that are most exposed to U.S. tariff  
11 cuts, so they see protection, you know, go away with NAFTA.  
12 And so, if you look at the first two, for example, apparel  
13 and textile mill products and then leather products, first,  
14 in the second column, you see that these are sectors with a  
15 large fraction of women employed, very large fraction of  
16 women employed in these sectors and, second, fractions of  
17 non-white workers that are also larger than average, right?  
18 So the results that I'm going to show later are no surprise,  
19 you know, given the initial sorting of workers across  
20 industries in the initial period.

21 Going on to my results, as I said, I'm going to be  
22 very brief in terms of the methodology, but you can look at  
23 the paper. But, basically, regional tariffs, Region I, our  
24 weighted averages of the tariffs of each industry, J, across  
25 almost 400 manufacturing industries, and I actually used

1 several different measures of these tariffs that treat  
2 non-treaty groups differently or that take a different  
3 approach towards thinking about revealed comparative  
4 advantage based on the literature. So, basically, I'm  
5 showing one here, but the approach in the paper is just use  
6 every possible measure, and the results don't change that  
7 much. So they're pretty robust to that.

8           And I estimate the following regression here in the  
9 second equation in which the changing employment in  
10 manufacturing or later, the change in our outcomes,  
11 employment outcomes, at the aggregated to a commuting zone  
12 level are a function of the tariff change, of the U.S. tariff  
13 change that's a weighted average applied to each commuting  
14 zone and the Mexican tariff change, controlling for the same  
15 controls in the kind of foundational paper by Autor et al. in  
16 2014, 2013, and controlling for the China shock, and the  
17 results are robust to where they weren't instruments in the  
18 China shock as well, which is what I do in my baseline  
19 results.

20           So I'm going to go through the main findings,  
21 first, sort of, like, the overall findings, looking at the  
22 population overall without distinguishing by race and gender  
23 and other features.

24           So, first, there's a decline in manufacturing  
25 employment such that going from the 75th percentile of

1 exposure to the 25th percentile of exposure on U.S. tariffs,  
2 associated to a .15 percentage point decline in manufacturing  
3 employment to population ratios.

4           There's not a significant employment of  
5 non-manufacturing overall, so these people are not escaping  
6 to non-manufacturing on average, but if you break down  
7 non-manufacturing, non-manufacturing is very diverse.

8           And so, if you look at low-skill non-manufacturing  
9 industries, such as construction and retail and wholesale  
10 trade, there you're going to see a significant increase. So  
11 workers that move out of manufacturing can go to low-skill  
12 non-manufacturing if you break it down.

13           So there is a decline in total employment such so  
14 that 75th to 25th percentile point difference is associated  
15 to .1 percentage point fall in employment to population.  
16 There's a small increase in unemployment, so it's  
17 statistically significant, but the magnitude is very small,  
18 and I don't see a statistically significant change in labor  
19 force non-participation, nor in population, which is pretty  
20 consistent with the literature.

21           I also see that the second half of the story for  
22 which I brought in sort of newly digitized data for one  
23 doesn't produce statistically significant results in many  
24 outcomes. I mean, the sign, you know, is there it might  
25 bring opportunities in the sense that Mexican tariff caps

1 could imply more manufacturing jobs in the U.S., but these  
2 results are not statistically significant from theory, right?

3 So what I want to emphasize, you know, given the  
4 topic of recession, is the results by race, and there's not  
5 much of this in the literature aside from the sort of really  
6 interesting papers in this session, right? And so, I mean,  
7 there's some results regarding the breakdowns by race in  
8 terms of non-labor-market outcomes in the literature, but  
9 there's still, I think, more to be said about race, right?

10 So I see that the direct shock on manufacturing is  
11 similar for white and non-white workers. However, this  
12 falling total employment is much larger, about three times  
13 larger, for non-white workers, and the reason is that then it  
14 has to be with the adjustment process, right?

15 So both types of workers reduced their employment  
16 in manufacturing to the same amount, but it seems that white  
17 workers can find more opportunities in, like,  
18 non-manufacturing, and non-white workers don't find that,  
19 right?

20 So I also find super large differences by gender,  
21 which is in contrast to the China shock, especially when you  
22 consider the China shock in both 1990 to 2000 and 2000 to  
23 2007, but during the '90s and due to U.S. tariff  
24 liberalization, the impact is very large for women and not  
25 statistically significant for men. So there's a big

1 difference there.

2 I was also going to mention that the impacts by  
3 race and gender are even there when you consider only, like,  
4 non-college workers. So it's not entirely driven by the fact  
5 that, you know, different groups can have different  
6 educational attainment.

7 Finally -- I mean not finally, but I'm going to be  
8 brief here. I see that most of the impact is driven by  
9 non-college workers. Differently than in the overall sample,  
10 there's more labor force non-participation for non-college  
11 workers, and I also see that the impact is heavily  
12 concentrated in low human capital regions of the U.S.,  
13 splitting the sample in the way that Bloom and Hanby and  
14 Crewman split it, like high and low human capital regions.

15 Finally, I find a result for costs, and I see a  
16 reallocation, an increase in employment in abstract tasks and  
17 a decline in employment in routine production tasks, which is  
18 in line with what has been shown for the China shock.  
19 However, I see a lot of heterogeneity here in the sense that  
20 abstract employment increases for male and college workers.  
21 However, the fall in routine employment is concentrated in  
22 female and non-college workers. So there's also the  
23 opportunities and the threats, I would say, are not received  
24 equally by the same groups of people, right?

25 So, to sum up, U.S. tariff liberalization brings a

1 decline in manufacturing employment, in total employment, an  
2 increase in unemployment beyond the China shock, controlling  
3 for that, and it's concentrated among non-college female and  
4 non-white individuals in low human capital regions. And as  
5 has been said before, these are relative. We're not throwing  
6 out the average effect here that has been mentioned before in  
7 today's conference. So thanks very much, and I appreciate  
8 the chance to talk about this work here.

9 DR. TEBALDI: Thank you very much, Dr. Benguiria.  
10 As announced, we're going to hold off on questions until the  
11 end.

12 Now we're going to move to our third presenter, Dr.  
13 William Spriggs from AFL-CIO/Howard University.

14 Dr. Benguria, can you please take down your  
15 presentation? Thank you.

16 So, Dr. Spriggs, please, you have the floor. You  
17 can load your presentation so you can start.

18 DR. SPRIGGS: Thank you. So I want to thank the  
19 ITC for organizing this conference and pulling all these  
20 papers together in one spot so we can all make some  
21 comparisons. This is work that was done by Nyanya Browne,  
22 Bethel Cole-Smith, these are two graduate students at Howard  
23 University, Patrick Mason, who is at Florida State  
24 University, and myself.

25 We're going to follow strictly the model of Autor

1 Dorn, et cetera, et al. We're going to actually duplicate  
2 the Acemoglu version of that paper. We're looking at the  
3 share of workers in the U.S. exposed sector that is exposed  
4 to the effects of China trade and the --

5 MR. SECRETARY: Doctor, could I interrupt you for  
6 one moment? We're not seeing your slides. Are you sharing  
7 slides?

8 DR. SPRIGGS: Yes, I am. My share screen is on.

9 MR. SECRETARY: Okay. Did you select the program  
10 that you wanted to share and then click Share? Yep, here it  
11 comes. Super.

12 DR. SPRIGGS: All right. Sorry. I apologize.

13 MR. SECRETARY: No problem. Thank you so much.

14 DR. SPRIGGS: Let me go back to the first slide.

15 MR. SECRETARY: That's great. Thank you so much.

16 DR. SPRIGGS: Yeah. Well, thank you for correcting  
17 me. I didn't see the extra Share button. Different  
18 platforms. So, again, this is work with Nyanya Browne and  
19 Bethel-Cole Smith. These are two graduate students at  
20 Howard. Patrick Mason's a professor at Florida State  
21 University.

22 We're going to pretty much follow the Autor Dorn  
23 and Acemoglu procedure in looking at China trade penetration.  
24 We're looking at the share of workers who are in the exposed  
25 sector, that is, exposed to the China trade shock. This is

1 from the Autor Dorn work, again, retracing for you that the  
2 share of workers in that exposed sector declined.

3 And the work that had been done before, Acemoglu  
4 and Autor Dorn, had used the business patterns. We're going  
5 to use the QWI so that we can look at workplace dynamics  
6 within the commute zone, and that gives us a picture of black  
7 workers in particular that we're going to look at compared to  
8 what's true for all workers, the darker kind of mauve here  
9 are the share of black workers in the exposed sector. You  
10 see it declines slightly from the initial shock from 1999 to  
11 2007. The real decline takes place after, when we go all the  
12 way out to 2011. The share of black workers in the  
13 non-exposed tradable goods sector, that middle bar, you see  
14 goes up.

15 And so some of those is an initial shift of black  
16 workers into the non-exposed tradeable sector, and this is  
17 what we would predict, that if we rearrange workers, if we're  
18 losing jobs, we're going to rearrange workers, the black  
19 workers and all workers are going to go to the next best  
20 alternative, this non-exposed tradeable sector.

21 And then we have the final sector, which is the  
22 share of black workers in the non-exposed, non-tradeable  
23 sector, which increases dramatically from '99 to 2007 but  
24 then dips down.

25 That orange dot and the orange line is representing

1 the share of black workers not on payroll. So we're not  
2 going to be looking at unemployment, but we're using the QWI  
3 to get payroll data. This is the share of black workers not  
4 on payroll, and you see that that number explodes.

5 This we interpret as the effects of job market  
6 competition and racial competition, where black workers have  
7 to have a certain level of concentration in order to protect  
8 their jobs, but once they lose that equilibrium, then we are  
9 engaged now in a zero-sum game, one in which black workers  
10 tend to lose.

11 We're looking at those commute zones that have a  
12 large enough number of black workers for us to give reliable  
13 numbers, and this is in 1999 the share of black workers in  
14 the exposed sector to China trade, and as you can see, oddly  
15 dominate it, as was the case with the NAFTA data, to those  
16 who are in the Southcentral part of the U.S.; again, North  
17 Carolina, South Carolina, Virginia are the dominant areas.

18 And these are areas with not only a high percentage  
19 of black workers, but also a high percentage of black workers  
20 live in this region. So it has vast importance for black  
21 numbers at the national levels when you look at this.

22 This is just a reminder of what the answers look  
23 like from the Acemoglu paper, showing that there was an  
24 impact on overall employment from the import shock even when  
25 you control within the geographic census division. So that's

1 sort of within sort of a human capital zone, if you wish, or  
2 within kind of a manufacturing area regionally, and that it  
3 was most intense for those who were in the exposed sector  
4 when you do it in the columns four, five, and six, where  
5 we're looking at sectoral employment.

6 This is giving you what happens if you switch. So  
7 this is their findings using business data patterns. We're  
8 just switching databases. We're going to use the QWI instead  
9 of their labor market measure, and the coefficients really  
10 don't change all that much. So just the reaffirmation that  
11 their results are not dependent on their specific measure of  
12 the labor market. You could switch the data sets, as we did,  
13 and you will get answers that look virtually the same.  
14 There's very little difference in terms of the results.

15 Now we're narrowing down because now we're looking  
16 at their results for all workers but only in those commute  
17 zones where there are large numbers of black workers present  
18 so that we can then make comparisons to what happens to black  
19 workers. And the overall employment effects that we saw that  
20 have been significant in the work don't show up as  
21 significant when we narrow it down only to these commute  
22 zones, but their basic findings in columns four, five, and  
23 six, when you look at this from the sectoral employment  
24 perspective, do look similar, and you see a sort of similar  
25 impact, the big effect being on -- negative effect,

1 significant effect, on workers' employment in the commute  
2 zone in the affected industries and not as big as those in  
3 the non-exposed tradeable sector, though there's the positive  
4 switch that we talked about before, workers switching from  
5 the exposed zone to the non-exposed zone.

6 Now our results going forward are going to be using  
7 this same data set but using the QWI to look at what happens  
8 with black workers. Now, here, you see that the coefficients  
9 get bigger. There is a bigger decline for black workers from  
10 exposure. There's a slightly -- and I'll go back so you can  
11 see -- there's a bigger decline within the exposed sector,  
12 about the same coefficient of a gain and a switch to the next  
13 sector.

14 And while it was significant for everybody even  
15 within a census division, it's not quite as true for  
16 black -- it's not true for black workers, who still remain  
17 significant. The difference for blacks is across census  
18 divisions, not within census divisions.

19 But, if you look at column two, about the same  
20 effect for blacks in employment in the import exposure, that  
21 coefficient -1.24 versus 1.25 for blacks, so about the same.  
22 But that's looking across the census divisions.

23 The coefficients are significantly different,  
24 though, for blacks if you do a wall test. So the difference  
25 that you're looking at here for overall black employment,

1 particularly if you're looking at the final result, which is  
2 column eight, column seven and eight, what happens to overall  
3 black employment over that initial shock period, 2000 to  
4 2007? That, and, again, taking you back, it wasn't  
5 significant overall in these for blacks and larger.

6           What about black earnings? Well, here, we see that  
7 black earnings are negatively affected within the immediate,  
8 and we use the QWI information on workers' earnings to then  
9 make this a monthly nominal earnings report that we analyzed.

10           We see a significant decline in the commute zone  
11 for those who are most exposed, but then the transfer over to  
12 the next best, even in the next best industry, we see in the  
13 non-exposed tradeable goods sector that black earnings fall  
14 significantly. And so the impact for black workers is not  
15 just the job loss but that those who are able to hold on who  
16 are still in the exposed industries, that their wages are  
17 being suppressed.

18           The QWI lets us look at another issue, which is  
19 hiring view. The QWI lets us look at all sorts of labor  
20 market dynamics, but one of the dynamics we were really  
21 concerned about is the ability of blacks to switch out of  
22 industries and to look at their ability to get hired. We  
23 know that from the initial shock we then had a very big  
24 expansion from the Great Recession. So what we're looking at  
25 in this regression is, is there lasting impact from the

1 exposure on the course of the expansion? Do black workers  
2 find it harder in those places where the exposure was  
3 greatest?

4 And we do find that the black hiring rate, even  
5 controlling for manufacturing share at the baseline, that the  
6 black hiring rate going forward in the recovery in which we  
7 know that black workers eventually by 2019 were doing quite  
8 well, those areas where the exposure was greatest were the  
9 recovery of black jobs.

10 And then just so that, you know, the point about  
11 this really being no different across sectors, these are the  
12 coefficients on the different census sectors. Again, some of  
13 the sectors did far worse, the South Atlantic doing worse,  
14 the west northcentral doing worse compared to New England,  
15 which is sort of our default group.

16 And then looking within sector, again, a lot of  
17 this is that each of the individual census divisions had very  
18 negative effects so that a lot of the story is across census  
19 sectors, not so much within census sectors for black workers,  
20 but a significant decline in wages, the tumbling effect of  
21 turning the job market into a zero-sum game because there's a  
22 loss in employment overall, is to the detriment of black  
23 workers. It ignites a zero-sum game in which we are  
24 returning from. We're moving from an equilibrium that black  
25 workers had reached to one in which they are now forced to

1 compete and, in that competition, get pushed out of the  
2 market.

3 DR. TEBALDI: Thank you very much for your  
4 presentation. We are right on time, and that's greatly  
5 appreciated. Well, the next speaker is myself. I have a  
6 brief presentation. I think it would actually be better, now  
7 seeing the other papers, that it had been presented at the  
8 beginning, but I'll do my best here to be brief and get us  
9 all moving to the end so we can have a discussion. So give  
10 me a moment.

11 (Pause.)

12 DR. TEBALDI: Just to confirm, you can see my  
13 presentation, so we can proceed?

14 MR. SECRETARY: Yes, we sure can, Doctor. Thank  
15 you.

16 DR. TEBALDI: Thank you very much.

17 So my work is, I would say, very descriptive in  
18 nature. A lot of the research we see that we talked about  
19 today, we take the data and we aggregate that by sector or  
20 industry or some measure of geography and then look to what  
21 happens, and I wanted to stay with the microdata and extract  
22 some very basic descriptive stats to help with the discussion  
23 about how trade exposure, both imports and exports, changes  
24 compensation and the wage gap for minorities and by gender.

25 So that's kind of the goal of this exercise, and

1 the motivation is very much aligned to what we have seen  
2 today. We see a very large wage gap for minorities across  
3 sectors of the economy. We know that international trade  
4 does impact the labor market, and depending where workers are  
5 employed, if a sector is more export-oriented or  
6 import-oriented, we should see changes in that wage gap.

7           And that's where I want to position this work.  
8 This is research in progress, and a lot of this will likely  
9 be revised, but some of the results are really robust to some  
10 controls, actually quite a few changes in controls, you see  
11 how the outcomes of these change by the end of the analysis.

12           So, again, the goal is to use microdata, and you  
13 basically take the opposite approach to what we have seen  
14 here in terms of using data. I present some very basic  
15 descriptive stats and then use regression to control for the  
16 factors that should affect productivity and see how the wage  
17 gap by race and ethnicity changes as we deploy additional  
18 controls to a base commensurate-type regression.

19           The data here is to some degree similar to what  
20 others have used in their presentations. I'm using CPS, the  
21 Current Population Survey. There is a way to have the NAICS  
22 industry codes match to the CPS industry classification. I  
23 take that, combine it with data from the Department of  
24 Commerce for both imports and exports. Also, employment from  
25 the BLS, and the process allows actually to do a matching

1 here where I take data from 87 tradeable sectors, get a  
2 measure of trade intensity, both imports and exports, and  
3 take those measures to the microdata rather than doing it the  
4 other way around.

5           Also, for presentation purposes, I created another  
6 classification of industry for 19 sectors just to allow to  
7 present it more visually than just regression. And the data  
8 here is the most recent data available out there, but to  
9 allow for the kind of work I'm doing here, only one year of  
10 data would imply that we have just a few observations, the  
11 microdata for some sectors, some issues with robustness.

12           So I did run regressions using data from 2016 to  
13 2021. It's a pooled data set from the CPS with controls for  
14 inflation to adjust wages through this period of time, and  
15 also keep in mind that the CPS asks about compensation  
16 earnings from the previous year, so we had to do the proper  
17 match to link compensation and how trade is changing through  
18 that period of time.

19           So the key measures are very similar to what others  
20 have used today. I have both exports intensity. That's the  
21 share of exports in a particular sector at a point in time  
22 over the employment, full-time employment in that sector,  
23 also at the same industry and point in time, and the same  
24 match for imports, so, again, both exports intensity and  
25 imports intensity is part of the work.

1           And also, to allow for some visuals, I created an  
2 index of trade intensity that goes basically from zero to  
3 one. If the sector is non-tradeable, the index will generate  
4 a number of zero, and given the normalization used, the  
5 sector with the highest trade exposure, either through  
6 exports or imports, would have a number of 1 in this data  
7 set, again, part of the multiple metrics I use in this  
8 exercise.

9           So I'm going to start with a few very basic stats  
10 to help us see what's going on here. In the Y-axis, I have  
11 the hourly wage here but in relative terms for a selected  
12 minority compared to white workers. I also broke down the  
13 sample by gender, so, here, we see the relative wages of  
14 black females by sectors of the economy. And you see here  
15 that in all sectors, black males, they earn less than white  
16 males. But, on the X-axis on the graph on the left, I have  
17 imports intensity. That's this index of imports per worker,  
18 and the chart on the right side has exports intensity.

19           So the takeaway from these basic descriptive stats  
20 is, well, there is a very large wage gap for black workers,  
21 males, compared to white males, but as we relate that to  
22 imports and exports intensity, it seems that there is no  
23 strong relationship there or correlation.

24           The same is done for black females compared to  
25 wages of males, again, a very large wage gap across all of

1 these industries in this data set, including some  
2 non-tradeable sectors. So all of the blue are tradeable  
3 sectors, manufacturing subsectors, but also having  
4 non-tradeable sectors here in this chart, and we see a  
5 slightly downward-sloping correlation here for import  
6 intensity and the relative wage that we see for workers, but  
7 a weak, very weak correlation here.

8 And, again, as part of this exercise, if you take  
9 all the people of color compared to white, here, we see  
10 things changing but likely because of one particular sector  
11 or a couple of sectors driving this correlation line here,  
12 and, actually, regression helps to address that.

13 But, when you look for export intensity, we also  
14 don't see a strong correlation between the wage gap or the  
15 relative wages of people of color, excluding blacks from that  
16 category here, and trade intensity.

17 Finally, as part of these just descriptive stats,  
18 the same for ethnicity with Hispanics. Now we see in this  
19 case some negative correlation between the intensity, the  
20 imports intensity and the wage gap. So it seems that in some  
21 sectors, as imports intensity increases, the wage gap between  
22 Hispanic males and non-Hispanic males would be actually --  
23 would be increasing. We don't see that happening for  
24 industries where we see export intensity increasing.

25 So, basically, the exercise is the same for

1 Hispanic females, but the point here is there is a large wage  
2 gap, but the relationship between the wage gap by sectors and  
3 trade intensity, either imports or exports, is quite weak on  
4 these diagrams for the data we have.

5           So what happens when you control for education and  
6 other variables of interest that could be related to  
7 productivity? Does that change? And to answer that  
8 question, I use very basic regression measures, a regression  
9 model. Again, the idea here is not to test for causality but  
10 just document what we see out there in the data.

11           This basic regression is a very large table. I  
12 will not go over that, but here's some results for  
13 consideration. So the regressions are run for females and  
14 males, so I don't pool them together. What we find is, given  
15 all of these controls for productivity-related factors, if we  
16 see exports intensity increasing, what we also see is that  
17 the wages often tends to respond in a positive manner, very  
18 consistent with the literature.

19           When we look for that relation for male, we see the  
20 same thing, but the coefficient is smaller. So it seems that  
21 females were employed in industries where export intensity is  
22 increasing. Holding imports intensity constant as a control,  
23 they see a larger benefit from export orientation.

24           On the other hand, holding exports intensity  
25 constant as a control in the model and allowing imports

1 intensity to change, both males and females experience a  
2 negative effect, and the coefficients are about the same  
3 size.

4 I think the message here is an increase in imports  
5 penetration seems to have a negative effect on wages, and  
6 that would, of course, impact the wage gap for these groups.  
7 And export orientation is important. So this is part of the  
8 full picture. So trade can be good and bad and goes back  
9 to -- model of how the labor market adjusts to trade.

10 So the final piece of this exercise is to bring  
11 interaction terms. I won't go over this table, but here is  
12 what matters. So the interaction terms bring together both  
13 the intensity of trade, either imports or exports, and done  
14 with that we identify either the ethnicity or the race of the  
15 individuals in the data set.

16 As such, with ethnicity, Hispanic versus  
17 non-Hispanic, I know this is big, big masses, so X is the  
18 coefficient on exports intensity, M is the coefficient on  
19 imports intensity, and H is done for Hispanics.

20 What the data shows is that because interaction  
21 term is negative for, for instance, exports intensity in the  
22 Hispanic dummy, Hispanic workers, actually, they seem to have  
23 a negative premium associated with the increased intensity of  
24 trade here through export intensity. So they benefit less  
25 from export orientation than non-Hispanic workers.

1           We don't find that effect to be significant for  
2 import penetration or exports. The interaction term is not  
3 significant in this case for females. We see the same  
4 relationship for males too.

5           So the bottom line here is there is no differential  
6 effect from import penetration in Hispanics in this  
7 regression here than the premium that would happen otherwise,  
8 but we see a change in the premium that would take place for  
9 those employed in industries that are more export-oriented  
10 and a negative premium for that, and this is controlling for  
11 human capital and other variables.

12           The paper, to some degree, is not interesting  
13 because some of the values are not statistically significant,  
14 and after many, many runs, the interaction terms between race  
15 -- I used black, Asians, and other people of color as a  
16 category, so we have three types of controls for people of  
17 color there -- none of the coefficients are statistically  
18 significant in these interaction terms for females.

19           There is, for export orientation, the same for  
20 males. In only one case that we see a change in the  
21 coefficient in import intensity for black men, and that  
22 actually demands some additional work because the coefficient  
23 is actually quite -- I mean the significance of the  
24 coefficient is unstable depending on some controls. But, in  
25 general, there is weak evidence that trade intensity seems to

1 not affect this or cause the wage gap to increase or decrease  
2 when you control for other factors in this model.

3 In terms of robustness, a few charts with some  
4 selection bias that's present in the model because we don't  
5 observe the wages for workers who are in the labor force but  
6 are not employed. I used a true Heckman three-stage  
7 regression to check for that. Regressions are here. Results  
8 are very similar, no changes, quite a few other regressions  
9 with controls for region for state and other controls without  
10 major changes in outcomes.

11 So the bottom line here is it's clear that trade  
12 intensity does impact wages. That's consistent with the huge  
13 literature. Export intensity is positively related to wages.  
14 It seems the benefit is largely rooted to women, but imports  
15 intensity is negatively related to wages in general,  
16 controlling for other factors, and the effect's about the  
17 same for men and women, I mean the size of the coefficient.

18 The evidence that there are wage differentials by  
19 race is really weak in these data and exercise, very hard to  
20 argue that trade itself is a fundamental cause of those wage  
21 gaps. It seems that other factors, including human capital,  
22 should be driving it, and that's to some degree consistent  
23 with the discussion we have seen today.

24 The final piece is the wage of Hispanic workers  
25 compared to non-Hispanic workers seems to be affected by

1 trade either through a decreased premium for those employed  
2 in export-oriented sectors, but we see that the effect is  
3 about the same for those employed in import-oriented  
4 industries, controlling for export orientation.

5 So there is a lot to unpack here. I think the work  
6 is just starting on this front with these data. The analysis  
7 is static. We need to bring a time dimension here, extend  
8 the panel, perhaps build a second panel that allows to  
9 control for time-varying effects.

10 Part-time regression may be another step to handle  
11 some issues on non-linearity in the model, and I think the  
12 big issue here is about labor force participation given that  
13 we have the microdata. We can leverage that to actually  
14 assess if what's happening here is that the wage gap itself  
15 is not being affected that much, but it may be changing how  
16 workers decide to either enter or leave the labor force  
17 because of what's happening with international trade.

18 That's what I have for our discussion here, so let  
19 me go back to the presentation, just confirming that I no  
20 longer have my slide deck there?

21 MR. SECRETARY: Yes, I turned that off for you,  
22 Doctor, and you now have a 20-minute period for questions.

23 DR. TEBALDI: Thank you very much. So we have time  
24 for a discussion. I think questions will be sent to our  
25 colleagues through the email that was provided to you. We

1 have, again, about 20 minutes. Any questions coming our way?

2 I'm going to point to a few things for the panel to  
3 talk about. The first one is, I think, more of a provocation  
4 than anything else. So, as we heard throughout this morning,  
5 it seems that international trade to some degree affects the  
6 minorities in general, either wages or labor force  
7 participation or, in general, labor market outcomes.

8 And many people jump to the conclusion that  
9 international trade is bad for minorities. So my question  
10 is, is that kind of thought process wrong or right, and why  
11 so? So I put that to every member of the panel to comment on  
12 that. I could call names, but I would prefer -- yes, Dr.  
13 Spriggs, please jump in.

14 DR. SPRIGGS: The issue isn't whether trade is good  
15 or bad. It's the nature of the trade or that the nature of  
16 the trade is good or bad and whether our policy responses are  
17 adequate. That's what the issue is. And the issue is that  
18 it needs to recognize that there are structures in place that  
19 do disadvantage particularly black workers, and black workers  
20 do face a harder time anytime there's a shock to the labor  
21 market.

22 In this case, you know, I presented research where  
23 we looked at China. We know from COVID a similar thing, that  
24 while the initial shock to black workers was about on par  
25 with everyone else, likely worse only because black

1 unemployment was already higher, the ripple effect after that  
2 becomes the issue.

3           This century, the China trade shock does look  
4 different than the Japanese trade shock only because, as your  
5 work showed and you shared, Dr. Tebaldi, is that, you know,  
6 human capital differences in this century aren't enough to  
7 explain things the way that they did in the case of the  
8 Japanese trade shock, which came right on the heels of the  
9 civil rights movement and a much less educated black  
10 workforce.

11           So there are implications, as we saw from COVID,  
12 where black workers have a harder time recovering, and so you  
13 have to anticipate that local labor markets have real  
14 frictions to them, they are real frictions -- I think that's  
15 the point of this research in general looking at the  
16 distributional effects, is that frictions in the labor market  
17 are real, and general equilibrium models don't properly model  
18 those frictions or the complexity of those frictions.

19           And in the case of black workers, those frictions  
20 include that they will be the last hired as the process  
21 smooths out, they will face a much different kind of  
22 competition in the face of a zero-sum game, and I think that  
23 that is what's key here, not that trade is bad, but the way  
24 we did the policies, not anticipating the effects of the  
25 policies, assuming a rosy day that there were going to be an

1 equal number of jobs at the end of the day within our commute  
2 zone, assuming that there would be an equal number of  
3 high-wage jobs remaining in the commute zone, and this is  
4 just a reallocation of workers from one high-wage job to  
5 others in high-wage jobs, that's not how it works. And so it  
6 will have differential impacts once you understand the  
7 frictions in our labor markets.

8 DR. TEBALDI: Thank you. Other members of the  
9 panel?

10 DR. BOND: So I agree with almost everything that  
11 Dr. Spriggs said, that it's not surprising that you would see  
12 black workers being more harmed by trade shocks because you  
13 see it throughout every shock, recessions and things like  
14 that, that black workers seem to be harmed for many of the  
15 reasons that Dr. Spriggs said.

16 I think, you know, echoing what he had said, one  
17 thing, though, that our analysis can pick up is the benefits  
18 of trade we can't see because we're only looking at the  
19 competition effects; we're not seeing the benefits of lower  
20 prices of goods and things like that at the consumer end.

21 And to the extent that that would ameliorate the  
22 labor market effects, I would be surprised if on net that  
23 there was not a distributional effect that would've had a  
24 negative effect on black workers and redistribute it towards  
25 other workers, but it is something that we can't pick up in

1 our analysis.

2 I think one of the key things is being cognizant of  
3 these distributional effects and taking bigger policy steps  
4 that are going to try to make -- because I think there's  
5 broad agreement that the net benefits of trade are positive,  
6 but they can be unequal, and we don't want general policies  
7 that are going to take away from a disadvantaged group and  
8 give more to an advantaged group. It's understanding that,  
9 understanding that our trade policies may have been doing  
10 that and think about the right way that we can try to  
11 redistribute back to that disadvantaged group so that  
12 everybody does gain from these policies.

13 DR. TEBALDI: Thank you, Dr. Bond.

14 Dr. Benguria, yes, please, jump in. You're on  
15 mute. You're muted.

16 DR. BENGURIA: Okay. Yeah. So I think that  
17 there's lots of different trade shocks. Some are bigger than  
18 other and more important than others, and as we have all  
19 shown in our research, you know, they create winners and  
20 losers, and oftentimes, you know, black workers or non-white  
21 workers, you know, have been, at least in relative terms, you  
22 know, lost from these shocks, and that's what several papers  
23 are showing.

24 So I don't feel I can answer the big question here,  
25 but just as food for thought, I would add that, you know,

1 when there's lots of shocks that hit the labor market, trade  
2 shocks but also monetary policy shocks, financial crises, and  
3 many other things, one approach would be to try to look  
4 carefully for the losers due to each policy and try to  
5 compensate.

6 Another approach would be to say, look, we need,  
7 like, a safety net here. We need a safety net so that, you  
8 know, we have these policies that can potentially benefit the  
9 country as a whole, they can potentially, you know, create  
10 disadvantages or relative disadvantages or absolute  
11 disadvantages, I don't know. We need some sort of safety net  
12 so that no one falls behind.

13 So I just think these are two different approaches.  
14 So one is try to look very carefully for each policy, and I  
15 think that's really important, but they are, you know, going  
16 to the policy part of this, you know, what kind of safety  
17 net, you know, is needed? Because there's so many shocks,  
18 you know, and so on.

19 DR. TEBALDI: Thank you very much.

20 Well, I have a question here addressed to Dr.  
21 Spriggs. "Professor Spriggs, when I see that a particular  
22 group has a bigger loss from import competition, my question  
23 is, does that group have larger switching costs that prevent  
24 those workers from adapting quickly to avoid the blunt of the  
25 shock? Is there any way to test whether this is the case for

1 black workers, or should I interpret the cause as something  
2 else, for instance, different composition of skills, et  
3 cetera? Thank you. Dr. John McLaren from University of  
4 Virginia."

5 DR. SPRIGGS: No, we should take the totality of  
6 information we have on the experience of black workers to  
7 understand that discrimination is a real thing and black  
8 workers in particular will face that as a friction. It is a  
9 real friction. The COVID crisis, I think, should have driven  
10 that home for everyone. All of a sudden out of nowhere,  
11 totally out of the blue, we shocked the labor market. Black  
12 workers did not lose jobs in a different proportion than  
13 anyone else, but black workers found it the hardest to  
14 re-enter the labor market.

15 And that was across the board. I mean, you know,  
16 for most of this COVID recovery, the unemployment rate for  
17 white high school dropouts has been well below the  
18 unemployment rate for black workers. And, normally, the  
19 white high school dropout unemployment rate is the black  
20 unemployment rate. It's not that white high school dropouts  
21 have an advantage. They normally are the same when it comes  
22 to the overall unemployment rate for black workers.

23 And so shocks to the labor market are going to have  
24 this issue that will come up, that if the shock creates a  
25 zero-sum game, as happens within commute zones, the loss of

1 jobs within the commute zone creates a zero-sum game now  
2 because there are fewer job opportunities and there are fewer  
3 good job opportunities, which intensifies the competition for  
4 what's left.

5 So it means that, going forward, we have to be  
6 cognizant of that and think, well, how can we keep it from  
7 being a zero-sum game? How can we anticipate that not only  
8 do you need trade adjustment assistance for the workers who  
9 can document direct impact, but how do we compensate the  
10 community? How do we think about that commute zone so that  
11 we can increase job opportunities in that commute zone so  
12 that we won't have a zero-sum game and we won't have as  
13 intense a race that makes it harder for black workers?

14 That's the kind of thinking that we need to have in  
15 place, I believe.

16 DR. TEBALDI: Thank you. Do the other members of  
17 the panel want to comment on that too?

18 (No response.)

19 DR. TEBALDI: All right. Well, we have another  
20 question from Dr. Kadee Russ from U.C. Davis. She cites  
21 research that trade exposure helped narrow the racial gap in  
22 the U.S. by about 1.4 percent points between 1983 and 1993.

23 "Also, another research claim in 2010 document a  
24 similar decrease in wage discount suffered by immigrants in  
25 Germany. Do the members of the panel feel the result

1       overturn, align with, or underscore the need for further  
2       empirical exploration of these results? Should we also be  
3       controlling for occupation, in addition to industry, as  
4       suggested by participants in the earlier panel?"

5                   Who wants to jump in first? Dr. Bond, Dr.  
6       Benguria?

7                   DR. BOND: So I guess the question being do we need  
8       more exploration of these topics, I completely agree. You  
9       know, whether you should be accounting for occupation or not,  
10      I think it depends on the research question. I mean, I'd  
11      have to think about this harder, but if we're thinking about  
12      that there is movement within a commuting zone across  
13      industries and across occupations to suggest that the  
14      commuting zone is the right level that you should be looking  
15      at.

16                  But, you know, I can think of a different -- I  
17      mean, this is part of the problem with looking just within  
18      industries or just within commuting zones. If you're just  
19      looking within industries -- in fact, I saw this in our  
20      paper; it's in an appendix somewhere -- that a lot of the  
21      problems that we saw for black workers was not -- suggested  
22      evidence was not direct exposure to competition that  
23      industries are facing, it's that white workers who were  
24      facing competition in their industries moved industries,  
25      displacing black workers there.

1           And so that's why, you know, I think it's important  
2 to look at it from different dimensions. I'm not 100 percent  
3 sure that we should focus just on occupations or just on  
4 industries, but I'm certainly open to thinking about that.

5           DR. TEBALDI: Thank you. Anybody else? Yes, Dr.  
6 Benguria?

7           DR. BENGURIA: Yeah, so I think that my reading of  
8 the literature and based on my own work in our context,  
9 occupations are a very important source of trade exposure.  
10 Sometimes they can be more important than the industry in  
11 which you work at.

12           But, I mean, if you want to look at all these  
13 sources of trade exposure and you're concerned with the  
14 impact that trade has on different, you know, racial groups  
15 or ethnicities in the population, which I think we're all  
16 concerned with, one limitation is that, you know, minorities  
17 are disadvantaged because of the nature of the data.

18           So, for example, if, you know, by the definition of  
19 "minority", you have a smaller fraction of a population, and  
20 then you want to look at geographic exposure, you know, and  
21 you look at the census of population, where you have small  
22 samples of the population, and then you also want to look at  
23 occupational exposure, it's difficult just because of the  
24 data, it's difficult to look at the impact that trade or  
25 other shocks have on minorities.

1           So I think that that's one of the reasons why we  
2 don't have as much research on this as we would like. So, if  
3 you had, you know, a 100-person sample that's obviously not  
4 publicly available because of confidentiality and so on,  
5 maybe there would have been much more research on the impact  
6 of trade on different minorities.

7           But, with the existing data that's publicly  
8 available and widely used, you can only do so many sort of,  
9 like, split samples, you know, to look at different groups.

10          DR. TEBALDI: Thank you. Dr. Spriggs has got a  
11 comment.

12          DR. SPRIGGS: Well, we switched the analysis to the  
13 QWI because it is a richer data source. Unfortunately, we  
14 don't get to see occupation, and that does create an issue.  
15 It would let you aggregate beyond looking only at commute  
16 zones if that's what you chose to do, but it gives you a very  
17 nice picture if you want to look at the racial groups that  
18 are identified within the QWI. So it remains a rich way of  
19 doing things that we can't do with a lot of databases we have  
20 looked at before.

21          I'm not convinced there's some data that would show  
22 that the net effect of trade was a narrowing of wage gaps  
23 because the black wage gap has remained fairly constant. I  
24 don't know it's as useful a way of looking at it when you  
25 look at it from the individual model because it really

1 becomes more an issue of job competition and concentrations  
2 of workers in different areas. I think that is a preferred  
3 model of understanding how race operates within the economy.

4           So I'm all for, as Dr. Bond said, you know, let's  
5 have as much research as possible. I'm skeptical that the  
6 net effect of trade was a positive thing, both because Dr.  
7 Bond's work is very convincing for me about what I know  
8 happened in the auto industry and the steel industry in the  
9 '70s, and the work that we've done is very convincing for me,  
10 what has happened in this century and the work that Dr.  
11 Benguria has done on NAFTA, the three major trade effects.

12           I think what was very telling from Dr. Benguria's  
13 work is that export promotion doesn't have anywhere near the  
14 same kind of significant impacts as import competition has  
15 had.

16           DR. TEBALDI: Well, just to expand on this  
17 discussion, could you think of any other major data gaps that  
18 we should close to help advance research on international  
19 trade and the impacts on minorities in general? Dr. Bond, do  
20 you want to comment on that?

21           DR. BOND: I was thinking mostly from a historical  
22 perspective because the data I'm most familiar with is in the  
23 '60s, '70s, and '80s, and it's really hard to get -- what  
24 can't I see? I can't see detailed industry by race. I can't  
25 see detailed industry by occupation. And that's the big gap

1 that we've been constantly trying to overcome.

2 In more recent years, I think we've started to get  
3 better data that's been matching industries' occupations and  
4 races, but, certainly, if I had a time machine, there's a lot  
5 of data I'd like to go back and collect in the '60s, '70s,  
6 and '80s. That's such a critical time period. We look at  
7 the trends in racial disparities. We don't have much going  
8 on both in time and in depth.

9 DR. TEBALDI: Great. Thank you.

10 DR. SPRIGGS: I would concur with that. I mean,  
11 the bad thing is we don't get to see a period that people, I  
12 guess some people would say was a bad period because the  
13 United States had higher tariffs and didn't compete with  
14 other countries during that period of the '50s and '60s when  
15 U.S. manufacturing expanded and expanded in a way that  
16 absorbed a whole lot of black workers. Is it the case that  
17 export orientation in that period with higher tariffs and  
18 protection into flow rates competition, in fact, helped black  
19 workers? It might be the case. That might be possible.  
20 But, unfortunately, as Dr. Bond said, we don't have the kind  
21 of time picture for that period unfortunately.

22 DR. TEBALDI: Well, thank you very much. We're  
23 running out of time. I think this is a good time to call it  
24 the end of this panel. Thanks to all of the speakers. It  
25 was a great discussion. Thanks to all of those who stayed

1 with us throughout this long morning. I greatly appreciated  
2 your participation and I throw it back to the organizers.  
3 Thank you.

4 MR. MONTGOMERY: Any comments from the organizers?

5 MR. GOODMAN: I just wanted to thank all of our  
6 engaged panel here. This has been a very productive session.  
7 We greatly enjoyed the discussion and presentations we've  
8 heard. So, on behalf of the USITC staff, thank you again to  
9 all of you. I'll turn it over to Bill Bishop as we go into  
10 lunch.

11 DR. TEBALDI: Excellent. Thanks, everybody.

12 MR. SECRETARY: Thank you. Thank you so much,  
13 Doctor, and all of the other members of this panel. We  
14 appreciate it so much.

15 We will go ahead and take a lunch break now. We're  
16 going to break until 1:30. So, if everybody could please be  
17 sure to be back at 1:30, we'll continue with our symposium.  
18 Probably three or four minutes before 1:30 I'm going to go  
19 ahead and give my Webex tips again for everybody just to  
20 remind those who have not joined us until later in the day  
21 how to navigate Webex a little bit better for you.

22 So, with that, we'll go ahead and start the time  
23 clock for 53 minutes and we will see you all back here  
24 shortly. Thank you so much.

25 //

1                   (Whereupon, at 12:40 p.m., the symposium in the  
2 above-entitled matter recessed, to reconvene at 1:30 p.m.  
3 this same day, Tuesday, April 5, 2022.)  
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1 name is Ross Hallren. I'm a senior economist at Amazon,  
2 formerly of the U.S. International Trade Commission, and  
3 today I'll be presenting my co-work, my joint work with  
4 Stephanie Fortune-Taylor, who is of the Office of Economics.  
5 Our presentation is titled "Worker-level Response to the  
6 USMCA High Wage Labor Value Content Rule."

7 This presentation comes with the standard caveat  
8 that it doesn't represent the views of the International  
9 Trade Commission, its Commissioners, or Amazon.com. And with  
10 that, let's get started.

11 So, before we start really talking about the High  
12 Wage Labor Value content rule and about its effect on labor,  
13 we need to understand the background of NAFTA and its  
14 successor agreement, USMCA.

15 So, as we all know here, the USITC is seen as one  
16 of the leading sources of information about the effect, the  
17 high-level impacts of NAFTA on the U.S. economy, and what  
18 they've consistently concluded is that NAFTA has had at most  
19 a small aggregate effect on wages, employment, and GDP growth  
20 in the United States.

21 In a 2003 study, the USITC found that NAFTA caused  
22 GDP for the United States to be between 0.1 and 0.5 percent  
23 higher than it would have been in the counterfactual case  
24 without NAFTA. It also concluded in 2016 that there was no  
25 increase in aggregate employment and essentially no effect on

1 real wages.

2           And if the aggregate results were the same as the  
3 disaggregated results, then really trade, you know, new trade  
4 agreements, TPP, USMCA, wouldn't really have figured as  
5 salient political issues. However, we know that that isn't  
6 the case and that's not what happened.

7           In fact, what the literature has really reflected,  
8 and this has been an important update in our understanding  
9 about the effect of free trade agreements, is that aggregate  
10 results mask significant negative effects on employment and  
11 wages for some industries, regions, and demographic groups.  
12 The literature found that in 1990 to 2000 that wage growth  
13 for blue collar workers, in particular, those without high  
14 school degrees, was statistically significantly lower than  
15 for the counterfactual group. But, if we were to look at  
16 college graduates, the literature determined that there's  
17 been on statistically significant impact of NAFTA on those  
18 individuals. So we see that there's this heterogeneity  
19 between, across educational attainment.

20           Again, if we look at wage growth, but now we look  
21 at differences between men versus women, we find that NAFTA  
22 had a statistically significant and negative impact on the  
23 growth rate of wage growth for women versus men and,  
24 interestingly, for married women versus single women. And if  
25 we go beyond just wage growth and we look at manufacturing

1 employment for men versus women, we find that there have been  
2 larger declines in manufacturing employment for women than  
3 for men.

4 So what we've concluded, what we've really learned,  
5 the update in our understanding of the effect of free trade  
6 agreements on the economy is that labor adjustment is  
7 heterogeneous across industries, regions, and demographic  
8 groups.

9 And to some extent, this is not surprising. We  
10 know that there is geographic concentration of industries.  
11 We know that industries are impacted asymmetrically with the  
12 result of new free trade agreements, and because their  
13 distribution isn't uniform across the country, we would  
14 expect that certain regions would be impacted more than  
15 others.

16 Additionally, because we know that there's  
17 variation in the demographic makeup of the people who work in  
18 different industries, then because some industries are  
19 affected more than others, we expect that certain demographic  
20 groups are going to be affected more than others. By  
21 demographics, we can think of it broadly by ethnicity, think  
22 of it in terms of gender, and, of course, we can think about  
23 it in terms of educational attainment.

24 And it's with those heterogeneous effects in mind  
25 that the negotiators for the USMCA agreement went to the

1 table, and one of the fruits of their negotiations was, of  
2 course, the High Wage Labor Value Content Rule. And what the  
3 High Wage Labor Value Content Rule does is it conditions  
4 preferential tariff treatment for autos on an average wage  
5 benchmark. Specifically, it says that 40 to 45 percent of a  
6 vehicle's value must be produced at a facility where the  
7 hourly base rate is \$16 per hour or its national equivalent.

8 In broad terms, what this does is it forces firms  
9 in different countries to compete primarily on productivity  
10 and less so on an advantage they might gain by locating  
11 themselves in a country where the general cost level is lower  
12 than say in the United States.

13 Moreover, this rule creates three options by which  
14 a firm can adjust based on the rule. So, one, you can raise  
15 the wages to satisfy the High Wage Labor Value Content rule.  
16 Two, you can do nothing to wages but instead pay the higher  
17 tariff, and in the ideal case, the tariff will be set up such  
18 that Option 1 and Option 2 are equivalent in terms of the  
19 cost basis, in terms of the effect of the agreement on the  
20 cost of production. And the third option is to onshore  
21 production to the country where an automobile is to be sold.  
22 So we can think of this as localizing production or onshore  
23 or reonshoring of production.

24 The text of the rule was finalized and announced to  
25 the public in a joint statement by the three parties on

1 September 30, 2018. And I want you to keep this date in mind  
2 because what my co-author and I argue is this becomes the  
3 time when all sort of uncertainty about this rule and its  
4 inclusion in the free trade agreement go away and that the  
5 U.S. Government and the governments of Mexico and Canada are  
6 credibly bound to this kind of a regime going forward.

7 Like most provisions in free trade agreements, the  
8 Labor Value Content rule comes in in stages. For private  
9 vehicles, the rule starts at 30 percent on July 1, 2020, goes  
10 up to 33 percent, 36 percent, and finally at 40 percent on  
11 July 1, 2023.

12 For light and heavy trucks, the Labor Value Content  
13 rule, there was no requirement and it fully phased in at  
14 once, it will fully phase in in one step on July 1, 2023, and  
15 the rule will be 45 percent.

16 So the High Wage Labor Value rule is designed to  
17 ameliorate the shocks of trade liberalization to the specific  
18 segments of the labor force that have historically, at least  
19 in terms of NAFTA, were most impacted by foreign competition.  
20 And what my co-author and I attempt to ask is, does the rule  
21 have the desired effect after promulgation but before  
22 enforcement?

23 And this is a common I wouldn't say economist  
24 trick, but this is a common identification strategy whenever  
25 you are in sort of the early phase-in part of an agreement

1 before you have enough data to really figure out what the  
2 long-term impact is of a new trade regime.

3 At the time that USMCA was announced, USTR was  
4 saying that, you know, over the course of five years, the  
5 first five years of the agreement, that the number of auto  
6 workers in the United States would increase by 76,000. And  
7 so, you know, we don't have -- we're not five years out of  
8 the agreement, so we need to just say okay, at the time when  
9 all the uncertainty around the new rules went away and the  
10 governments were credibly bound, was there an effect of just  
11 the rule's existence or its announcement on the labor force?  
12 So this is very much an intention to treat design.

13 So using current population survey data for 2016 to  
14 2020 in a difference and difference model, we're going to  
15 estimate the effect of the rule's announcement, that is to  
16 say, the intention to treat effect of USMCA, specifically,  
17 the High Wage Labor Value Content rule.

18 So looking at the timeline below, just to give you  
19 a better sense of what we're talking about, the rule is  
20 announced in a joint statement in September of 2018. USMCA  
21 signed into law on January 29, 2020, and the phase-in starts  
22 on January 1, 2020. So, in that period of September 30,  
23 2018, to July 1, 2020, that's our intention to treat period.  
24 So that's the period we're going to be estimating.

25 So we're estimating the intention to treat effect

1 of the High Wage Labor Value Content rule on auto production  
2 workers by type of worker, gender, and ethnicity. And I'm  
3 not going to show you all the results today. I'm just going  
4 to show you the results that are statistically significant,  
5 and we find that we get a statistically significant result  
6 only when the key treatment group are female workers.

7 So, if we just look at the effect of female versus  
8 male workers, we find that there's no statistically  
9 significant effect in terms of intention to treat from the  
10 promulgation of the rule.

11 Now, when we compare female production workers, so  
12 this is auto production workers, when we compare female  
13 production workers versus male production workers -- so male  
14 production workers are the counterfactual for female -- we  
15 find that the effect of just the announcement of the rule is  
16 that wage growth for women declines by 21.6 percent relative  
17 to men.

18 Now what we need to keep in mind is that over this  
19 period auto production wages are going up. So they went up  
20 by 6.6 percent. So this negative number really means that on  
21 average, the growth for women was 21.6 percent lower than  
22 their counterfactual male counterparts. So we're really  
23 saying that female wages grew slower over this period.

24 And when we drill down even deeper and we explore  
25 our triple difference specification and we're comparing

1 female auto production workers versus all other workers, we  
2 find that the intention to treat effect is statistically  
3 significant and minus 35.5 percent.

4           What we find sort of interesting is that we don't  
5 see a statistically significant effect of the announcement of  
6 the High Wage Labor Value Content rule by ethnicity. So  
7 black versus non-black, we don't see an effect there for any  
8 of our specifications.

9           And, additionally, we don't see a statistically  
10 significant effect of the announcement of the rule on the  
11 number of hours worked. So we're just seeing a change in  
12 wage growth, but we're not seeing a change in the numbers of  
13 hours worked.

14           And we go into the paper in some detail and we  
15 opine about what are the causes that are going on, and we  
16 think it's some kind of a realignment of the underlying sort  
17 of composition, the wage level composition of the female  
18 workers in our sample. We see a bunching up of female  
19 workers going from below \$16 an hour to \$16 an hour but some  
20 trimming at the top of the sample, and we want to do  
21 additional work to find out what's going on there.

22           So, in the last 90 seconds of my presentation, I'll  
23 just mention what are the future lines of research. So we  
24 intend to exploit the newly added one-year CPS panel to study  
25 labor force transition over the High Wage Labor Value Content

1 announcement period for female production workers. Again, we  
2 want to deep dive into the data, do some additional analysis  
3 and really figure out what's going on in the female sample  
4 that's driving this result.

5 Second, we want to investigate why we are observing  
6 an effect by gender but not an effect by ethnicity.

7 Third, we want to extend our work to consider the  
8 wage effects once the High Wage Labor Value Content rule  
9 enters into force, so we want to investigate the treatment  
10 effect of the agreement, not just the intention to treat  
11 effect.

12 And, finally, we want to investigate potential  
13 causal mechanisms. We want to figure out why it appears both  
14 in our study and in previous literature why female workers  
15 are more impacted by free trade agreements, or another way to  
16 think about it might be why female workers, it appears that  
17 they're less able to avoid the negative consequences of labor  
18 market adjustment that result from free trade agreements.

19 And with that, I will close out my presentation and  
20 Stephanie Fortune-Taylor will be representing our paper in  
21 Q&A. Thank you very much

22 DR. BENGURIA: Well, that was great. Thank you  
23 very much, Ross and Stephanie.

24 The next paper is by Masha Brussevich of the IMF  
25 and it's titled "Does Trade Liberalization Narrow the Gender

1 Wage Gap? The Role of Sectoral Mobility." So thanks very  
2 much, Masha, for being with us. I already see your slides,  
3 so the floor is yours.

4 DR. BRUSSEVICH: Hi, everybody. Thank you so much  
5 for the opportunity to present in the symposium.

6 Before I start, a quick disclaimer that all the  
7 views expressed here are mine, and they do not represent the  
8 views of the IMF, the executive board, or management.

9 Okay. So this paper examines the link between  
10 import competition from developing countries, declining  
11 manufacturing employment, and gender wage inequality in the  
12 United States. It investigates whether import competition  
13 impacts male and female workers differently, and specifically  
14 it asks does import competition narrow the gender wage gap,  
15 and if so, what is the role of intersectoral reallocation in  
16 response to this trade shock.

17 So I begin by laying out a few salient facts. They  
18 motivate the question and the modeling choices.

19 First, I show that males are predominantly employed  
20 in the goods-producing sector, including manufacturing.  
21 Men's labor share in the import containing goods sector is  
22 about 76 percent, whereas it's only 46 percent in services  
23 and is not in services like education and healthcare, for  
24 example. The numbers can be as low as 28 to 21 percent.

25 Secondly, I show that women on average are more

1 likely to exit the manufacturing sector into the service  
2 industry, and the probability of women switching from  
3 manufacturing sector to high wage services like finance and  
4 professional and business services has been consistently  
5 higher than male probability over time. And the transition  
6 probability of men exiting from manufacturing to low-wage  
7 services like wholesale and retail services has been  
8 increasing at a higher rate than for women.

9           So this suggests that male and female workers face  
10 different barriers to entry into the service sector, and,  
11 additionally, probability of exiting the labor force or  
12 becoming unemployed has been decreasing faster for women than  
13 for men originating in the manufacturing industries. And  
14 that's consistent with just overall rising female hours and  
15 labor force participation in this timeframe.

16           And then thirdly, I show that local labor markets  
17 experience a larger import composition shock via a sharper  
18 decline in the gender wage gap. And I follow the Autor Dorn  
19 Hanson methodology that we all heard a lot about this morning  
20 to construct a measure of import/exporter based on the  
21 geographic area size of the manufacturing sector. And my  
22 reduced foreign estimates imply that an increase in imports  
23 from China per worker from about \$370 to about \$3,000 from  
24 1990 to 2007 corresponds to about 1.2 percentage point  
25 increase in female to male wage ratio or about 11 percent of

1 the overall decline in the gender wage gap during this  
2 period.

3 So I also showed that as opposed to an increase in  
4 the relative female wages within sectors, import competition  
5 affects relative wages between sectors. So this means that  
6 manufacturing sector wages declined and service sector wages  
7 would rise in this timeframe.

8 And paired with the other two salient facts, it was  
9 very important to analyze how men and women adjust to import  
10 competition shock and whether there are gender differences in  
11 the intersectoral mobility costs and resulting labor  
12 allocation patterns in response to trade shock.

13 So, to uncover these mechanisms, I consider a trade  
14 model with phenomic labor adjustments for trade shocks that  
15 extends the work of Artuis Chegory and John McClaren, who  
16 will be presenting later in the session. And this model,  
17 labor allocation between sectors, is costly and the costs  
18 vary by gender and across sectors.

19 And the model leads to a structural estimation  
20 framework that allows me to estimate these mobility costs,  
21 and then I use these mobility cost estimates and other  
22 calculated parameters in a small economy study to simulate a  
23 trade shock and then study these transitional dynamics of  
24 trade liberalization and its effect on the gender inequality  
25 in both wages and welfare gain.

1           So, in the model, workers make their switching  
2 decision based on wages and other non-pecuniary payoffs that  
3 are associated with each sector. And within this theoretical  
4 framework, I propose a methodology to estimate transitional  
5 costs based on the intersectoral class distance measure. And  
6 the structural estimation framework allows me to derive a  
7 whole matrix of bilateral switching costs and also costs of  
8 exiting non-employment. And this has not been previously  
9 done, at least in the context of similar models.

10           All right. So just a quick layout of the model.  
11 Here, workers can move across multiple market sectors and  
12 residual sectors which consist of all unemployed and  
13 moderately employed individuals. The value of working in a  
14 given sector depends on the geographic -- it depends on that  
15 sector's wages plus worker-specific non-pecuniary preference  
16 shocks, and that could be, for example, a preference for a  
17 good geographic area that the sector is concentrated in.

18           And based on the distribution, obviously, there's  
19 quite a shock. Each worker decides to switch to a different  
20 sector or remain in the current sector for the next period,  
21 and if a worker decides to switch, he must pay a cost fee  
22 which is common to all workers, and then given the  
23 distribution assumptions on the dissipated syncratic shock,  
24 which is the double distribution, we can derive the number of  
25 workers moving from Sector I to Sector J relative to the

1 number of stayers in Sector I, and it is a function of the  
2 sectoral value differential as well as the common ability  
3 class C and the shock on dispersion parameter I knew.

4 So, next, this class specified as a function of the  
5 distance between sectors in the past eight, which is a  
6 measure of how different the task that each sector uses.  
7 This parameter delta is analysis of city labor quotes with  
8 respect to the task difference. The switching cost also  
9 depends on the degree of geographic concentration of a  
10 sector, how and other barriers like licensing requirements  
11 that are not explained by these task differences. And the  
12 costs again vary by gender and across each sector pair.

13 And so I derive an equivalent of a gravity equation  
14 of intersectoral worker flows and used it to back out the  
15 mobility costs, and I estimate the gravity equation using for  
16 some student maximum likelihood estimator, and to measure  
17 worker flows across sectors, I used March Current Population  
18 Survey data, and to measure the task differences, I used the  
19 ONET data.

20 Okay. So, as I mentioned, I derived the entire  
21 matrix of mobility costs, but here I want to share the  
22 average minimum and maximum entry costs for a given sector  
23 and gender. And so my estimate suggests that women face  
24 higher switching costs to many manufacturing industries while  
25 men face considerably higher costs when switching to higher

1 wage services, and that includes, as I mentioned, finance,  
2 but also education and healthcare, where women are  
3 overrepresented.

4 So, for example, sectoral entry costs range from  
5 about 60 percent of an annual average wage for women  
6 switching into wholesale and retail services in the  
7 transportation sector to about four years for non-wages; for  
8 men, switching into information services from food and  
9 entertainment industry, for example.

10 And, overall, it's costlier for males to enter the  
11 education and health industries, which are both female  
12 labor-intensive sectors, as I mentioned. And more  
13 interestingly, it is also costlier for men to enter finance  
14 and professional services, which have been experiencing  
15 higher wage growth in the past couple of decades. And I also  
16 find that whereas the cost to enter that employment is not  
17 shown here, but on average, it is costlier to exit back into  
18 the productive sectors.

19 Okay. So how does this all tie in with gender wage  
20 inequality? I used these cost estimates in a general  
21 equilibrium setting to simulate the trade shocks and study  
22 the transitional dynamics that follow it.

23 And import competition shock, here, it's going to  
24 be a model of a drop in manufacturing costs, prices, and I  
25 compare my results for states with different sizes of

1 manufacturing sector and run counterfactuals to determine how  
2 much these heterogeneous switching costs and uneven gender --  
3 contribute to the decline in the gender wage gap.

4           And so what I find is that welfare gains and real  
5 wage changes on average are positive, mainly due to changes  
6 in the price index as the manufacturing plants close. In  
7 levels, wage gains are higher than welfare gains for both  
8 male and female workers, implying that a portion of the wage  
9 gains is directed to mobility costs that workers face when  
10 switching sectors. And real wage gains are about a percent  
11 and a half higher for women in the short run and about two  
12 percent higher in the long run, and that translates to that  
13 one percent decline in the overall gender wage gap. That is  
14 consistent with my other findings. And differences in  
15 welfare gains are also larger for women by about 1.3 percent.

16           So I show that heterogeneous mobility costs do not  
17 allow for wage equalization in the short run. So higher  
18 barriers to entry into your services would not let men dilute  
19 wages in the service sector. But, in the long run, these  
20 costs have just an overall smaller impact on wages.

21           Also, heterogeneous mobility costs account for  
22 about 7 percent of the long run gender differences in welfare  
23 gain from trade. And so the -- effect is morphing in the  
24 short and long run, and not only men experience a drop in  
25 manufacturing wages, but as more of them enter services,

1 their wage crisis is less than for women.

2 And then finally, I compare the effect of the size  
3 of the trade shock across different geographies, and so,  
4 yeah, when comparing the two states with different shares of  
5 manufacturing and value added, I show that gender differences  
6 in wages and welfare gains are smaller in locations that are  
7 less exposed to the import competition.

8 Thank you, and I'm looking forward to your  
9 questions.

10 DR. BENGURIA: Okay. Well, thank you very much,  
11 Masha. That was fantastic.

12 The next paper is by Philip Saure from Johannes  
13 Gutenberg University, and he's going to talk of  
14 "International Trade, the Gender Wage Gap and Female Labor  
15 Force Participation." So thanks very much, Philip, it's all  
16 yours.

17 DR. SAURE: Can you hear me? Can you see the  
18 slides?

19 DR. BENGURIA: We can see your slides, but you  
20 could also go to view full mode.

21 DR. SAURE: Sure, I just wanted to make sure.

22 DR. BENGURIA: Excellent.

23 DR. SAURE: Thanks to all of you for being here.  
24 Thanks for the organizers for giving me the chance to talk  
25 about this paper. It's a relatively old paper from 2014, so

1 one of the first ones looking into the connection between  
2 international trade and the gender wage gap and  
3 gender-specific labor market outcomes.

4 I'm not going to moderate this further. I'm just  
5 assuming that we are all interested in this topic. The  
6 insight I will give you is from this earlier paper with this  
7 fantastic co-author of mine, Hosny Zoabi from The New  
8 Economic School University in Moscow, but also I'm going to  
9 take a peek, time permitting, into some of the results of an  
10 ongoing project which is much more detailed in terms of data.

11 Okay. So what do I want to tell you? I want to  
12 outline a theory and mechanism and then present you the  
13 vertical analysis and very quickly the design and the key  
14 results and takeaways. Then there is this additional  
15 material from another paper.

16 Okay. What did we do here when we started thinking  
17 about this, about gender labor market outcomes and trade from  
18 the start? We thought about men and women having different  
19 types of labor. So we go into the literature and take the  
20 view that women have more brains to offer in the labor market  
21 and men relatively more brawn. And then we also assumed that  
22 firms or sectors differ in their demand for brains and brawn.  
23 And then you're in the middle of the Heckscher-Ohlin theory.  
24 And what you would expect is that those countries which have  
25 a high female labor force participation export those goods,

1 the production of which are intensive in brains or in female  
2 labor. And so that's the Heckscher-Ohlin theorem.

3 And then there's the Stolper-Samuelson theorem that  
4 goes for the prices, and if you apply this to the setting,  
5 you would expect the trade integration narrows, the gender  
6 wage group in countries with a relatively high female labor  
7 force participation, and reversing in countries with low  
8 female labor force participation.

9 But what we are actually doing here in the theory  
10 part, we give it a little twist that flips at least this  
11 price prediction. And the additional elements we throw in in  
12 this theory is coming straight out of earlier papers. There  
13 are complementarities between brains of female labor and  
14 physical capital. And, also, there's some cultural  
15 production going on in the background. So one man and one  
16 woman forms a household and they are not only optimizing  
17 income or consumption but also from some whole production  
18 goods or the literature -- call this child rearing. But this  
19 is insubstantial for our paper here.

20 So what we observe now if we are throwing in these  
21 additional elements, we observe that men are more attached to  
22 the labor force, so they earn higher wages and, therefore,  
23 they are less inclined to do the household work. Why?  
24 Because they are supplying brains and brawn to the labor  
25 market. In other words, they have lower labor supply

1 elasticity and women have a relatively high one.

2           If we add this to the standard Heckscher-Ohlin  
3 framework, what we get out of this is that in periods of  
4 trade integration or on the trade integration, in  
5 capital-rich countries, right, those with high female labor  
6 force participation, what you may do, the male workers  
7 sitting there in the contracting sectors will not leave the  
8 labor market but rather switch to the other sectors, to the  
9 expanding sectors, where they dilute the capital/labor ratio  
10 and this depresses the relative wage of women, so the gender  
11 wage gap rises and women leave the labor force. So that's  
12 the very brush and the rough brush picture of the theory.

13           And with that, we're going to the later. So what  
14 are we looking at? We're looking at something that we saw  
15 here today, tonight, a couple of times already, the NAFTA  
16 episode, and we're looking here at a country, the United  
17 States, with a relatively high capital/labor ratio and a high  
18 female labor force participation relative to this other  
19 country, Mexico. We don't look at Canada here.

20           So what are we looking at? We don't look at  
21 commuting zones, which we would look at now probably. But,  
22 by the time we're looking at U.S. states, so we have 50 U.S.  
23 states plus D.C.

24           The variables of interest are, well, the trade  
25 share, so import value for local output. That's our shock

1 variable. Then there is the labor market outcomes. That's  
2 female employment either in head counts or in the employment  
3 number, the number complete and the working hours of those  
4 involved. And then we're looking at the gender wage gap.  
5 All this is from CPS.

6 So we are interested in these labor market outcomes  
7 -- I believe you do see the cursor there -- these labor  
8 market outcomes and how they react with trade. Of course,  
9 there's the typical endogeneity issues, and we don't use it  
10 with a shift chair instrument but with the old school  
11 distance instrument. So we look at the change in the trade  
12 share and how it relates to distance. If we go to the data  
13 not by sector but by state, then we see that there is this  
14 clear and strong negative relation between trade, the change  
15 in trade and the distance to the Mexican border.

16 Okay. So, with that, this is our instrument and  
17 what will we instrument? We instrument the trade, it  
18 increases trade share in order to establish labor, causality  
19 on the labor market outcomes, of the effect of trade on labor  
20 market outcomes.

21 Okay. What is the first thing we are looking at  
22 here, it's the employment rate. I have to manage my windows.  
23 I hope you can still see me and hear me.

24 So, with this two-stage square estimation, we're  
25 looking at the employment rate, that's the number of female

1 employed over the total working, the head count of the  
2 working age population, female again.

3 So, if we look at female only, that's the idea in  
4 the second column here, we see that there is a significant  
5 negative relation. If we turn to the male, we do see a  
6 positive relation but which is insignificant.

7 So, if we sum that up, we can also look at the  
8 trade share and -- okay, if we sum that up, we see -- or if  
9 we go to the units of those variables that we defined, we see  
10 that an increase in U.S. trade with Mexico by one percentage  
11 point of local GDP, this is a significant decrease in female  
12 employment rate.

13 When we look, the employment rate is the extensive  
14 margin of the individual employment. If we look at the  
15 intensive margin, we also see an effect, positive for men and  
16 negative for women, in line with our theory. And if we then  
17 look at those, at the higher educated women and the lower  
18 educated women, so if we take a first look into this  
19 disaggregation pattern, into this further segmentation of the  
20 labor market, we see higher effects, higher negative effects  
21 on weekly hours worked for less educated women than for  
22 highly educated women.

23 Last, the quantity effect. We also want to look at  
24 the price effect, the gender wage gap. So we look at the  
25 relative wage, female over male, and we don't see anything

1 significant if we look at the overall picture. But, as Ann  
2 Harrison has said, we shouldn't look at the gender wage gap  
3 on average, so we shouldn't look at aggregates, but we should  
4 rather look at individuals. And the way we do here is we  
5 look at percentiles, percentiles including the non-employed,  
6 for which we give a zero wage, right? And if we line them up  
7 according to the distribution, we see that the high  
8 percentiles here see a strong negative effect on the wage.  
9 The effect is weaker and insignificant for the lower wage  
10 groups; 18, 17 sounds like still very high, but remember that  
11 we do include that as we've done before.

12 So, to conclude, women seem to enrich countries.  
13 That's Heckscher-Ohlin, right? There's a counterpart in the  
14 poorer countries. Women do seem to lose relative to men due  
15 to trade integration. Women less educated or low-income  
16 groups tend to lose in terms of employment, so that's a  
17 quantity effect whereas the other high educated or  
18 high-income groups tend to see price effects. It will be  
19 super interesting to discuss that in terms of the other work.

20 What I do want to point out towards the end now is  
21 that this is a theory based on effect of proportions. So  
22 it's north/south trade. It's not north/north and  
23 inter-industry trade so much.

24 And findings, that's a big caveat, findings are  
25 based on state level aggregates. However, and here is where

1 I want to push this other work, this ongoing work with my  
2 co-authors. If we look at work, matched work history, firm  
3 trade data, and we do that, we do find some of the results,  
4 and I'm not going to expand on which ones, but we do see some  
5 of the results of our early papers.

6 So thank you very much. Sorry for going over time.

7 DR. BENGURIA: Thanks very much, Philip. That was  
8 very interesting.

9 And our next paper is "NAFTA and the Gender Wage  
10 Gap," which is going to be presented by John McLaren. Thanks  
11 very much, John. It's all yours.

12 DR. McLAREN: Thank you. I appreciate the  
13 organizers putting all this together. It's terrific.

14 This is joint work with Shushan Hakobyan, who is at  
15 the IMF and who is also present. There are likely questions  
16 she can answer that I can't answer, so we'll figure it out.

17 Right. Although very closely related to a number  
18 of the other things that we've just seen, we researched an  
19 earlier paper just on the gender wage effects of NAFTA which  
20 a couple of people have mentioned and found surprisingly  
21 strong negative effects of NAFTA tariff eliminations on the  
22 wages of blue collar workers, especially high school  
23 dropouts. Came out just in October 2016, just when everybody  
24 was arguing about NAFTA, including the political spheres. It  
25 was good timing.

1           There's not a lot more on NAFTA. At the time, the  
2 NAFTA literature was kind of small, just getting started.  
3 And Philip, you didn't send us your paper, so I didn't even  
4 know about it until today, so I've added it in red to our  
5 NAFTA literature to make sure that you would notice it. So I  
6 hope to get the working paper in my inbox soon.

7           So we're don't need to rehearse the different  
8 related papers. We're actually seeing today most of our  
9 literature in this panel, so this is fantastic.

10           What really hasn't been mentioned is this paper by  
11 Keller and Utar which is forthcoming in the areas, though.  
12 It's about Danish data where they look at the differential  
13 effects of trade shocks on men and women workers in Denmark.  
14 And so I'll refer to that later.

15           So our method here is to use the decennial census,  
16 1990 and 2000, which gives us kind of a clean  
17 before-and-after pair of snapshots. Of course, it's a  
18 repeated cross-section and that has limitations which are  
19 shared with most of the papers we've seen today. Not all of  
20 them. That's the nature of most of this literature.

21           There are some complications with trying to measure  
22 the effect of NAFTA in this way. So one of them is that, as  
23 several people have already mentioned, NAFTA tariffs do not  
24 go to zero right away. A lot of them were eliminated based  
25 on a gradual schedule. So here's a diagram that shows you

1 the average tariff on imports from Mexico by industry. Each  
2 dot is an industry. The horizontal axis is the initial  
3 tariff in 1990, and the vertical component is the change  
4 between 1990 and 2000. And so everything that's on this  
5 45-degree line is a tariff that was at zero by the time of  
6 2000, our second data point. But a lot of things are above  
7 the 45-degree line. Those were tariffs that had not yet gone  
8 all the way to zero. And so there are some dynamics in the  
9 data that we tried to deal with in the appearance.

10 So we look at the effect by industry as well as by  
11 locality. So we start here in industry, but we also have  
12 local average tariffs which are computed analogously to the  
13 way a number of the previous papers compute local average  
14 tariffs. We don't use commuting zones in this paper. We use  
15 the constant pool that we defined, public use microdata area,  
16 which I think is actually better than commuting zones for  
17 this work. Anyway, these are local area tariffs by locality,  
18 and it's all analogous. So we try to take into account both  
19 local average tariffs or local labor market effects and  
20 industry tariffs through industry effects, and they're both  
21 better.

22 Okay. So, when we compute local average tariffs,  
23 we use not only employment rates, but we also weigh it by  
24 Mexico's revealed comparative advantage because Mexico is not  
25 good at exporting everything. It makes a difference, and we

1 weigh it by that, right.

2           So we have a very horrible -- we have the world's  
3 most horrible estimating equation because we try to take all  
4 the different effects into account. So we have an estimating  
5 equation where we've got workers law wage on the left-hand  
6 side. On the right-hand side, we've got the initial tariff  
7 for that worker is local labor market. And the initial  
8 tariff -- and also we have the impact effect of the change in  
9 tariff between 2000 and -- 1990 and 2000 for that worker.

10           And now you'll see for the -- don't worry about the  
11 notation. I don't have time to go through it. But we have  
12 both the initial tariff on the local labor market and how much  
13 of the tariff has come down by 2000, which varies by  
14 industry, which vary by locality and also analogously by  
15 industry, the initial industry tariff and how much the tariff  
16 has gone down by 2000. And we do all this by education group  
17 as well. We have the four education groups: dropouts, high  
18 school graduates, some college, and college graduates, right.

19           So just to cut to the chase, we did a wage  
20 regression and we split the sample by male and female  
21 workers. We find, as in our previous work, a big effect for  
22 high school dropouts, but it's three times the size for women  
23 as for men. That was really kind of stunning for us. And  
24 this is what it is by the location effect, by the local area  
25 tariff. A similar effect by industry tariffs.

1                   And this doesn't exactly contradict the results  
2                   that Philip was showing us because this is within state and  
3                   also Philip was talking about industry effects, and the  
4                   industry effects are very strong here. Right.

5                   So you also find strong effects by privately being  
6                   employed. Again, much stronger for women workers, more than  
7                   twice as strong, compared to men workers in the same  
8                   educational category.

9                   So we were trying to figure out why we should have  
10                  such enormous differences between the two genders.

11                  Say, Felipe, what time am I -- has my time cut out?

12                  DR. BENGURIA: You have more than five minutes  
13                  left, Doctor.

14                  MR. SECRETARY: You have four minutes left, Doctor.

15                  DR. BENGURIA: Oh, okay.

16                  DR. McLAREN: Okay, thank you.

17                  Here, we split the sample by married workers and  
18                  single workers. So, here, the first two columns of this  
19                  table look only at married workers and there you see the  
20                  effect is even much stronger. Sorry, but when you do look at  
21                  civil worker, this usually goes away. So it looks as though  
22                  this is specifically a larger wage effect for married  
23                  workers, married women workers compared to all the other  
24                  categories.

25                  So we looked through three different possible

1 theories that might explain this, men and women as far as  
2 different occupations, there may be some occupation effect;  
3 maybe it's intra-household bargaining where men have more  
4 bargaining power than women and that affects labor  
5 reallocation. But what we settled on is the selective  
6 non-labor marker -- labor market non-participation story, and  
7 here there's a beautiful model in the paper which I don't  
8 have time to show you, and it's actually most closely related  
9 to this paper by Keller and Utar.

10           Suppose non-participation in the labor market is an  
11 option for married women workers but not for married men and  
12 not for other categories. Then, if the tariff falls for  
13 Industry I, it's possible that some fraction of the workers  
14 in Industry I, the women workers, drop out of the labor  
15 market because of their diminished labor market return. But,  
16 if the women workers who have dropped out are the most  
17 productive, then average women's wages in that industry will  
18 fall because of the composition effect.

19           Okay. Why would the most productive women workers  
20 drop out? Well, that might be the case if child-bearing  
21 women tend to marry high ability men. In that case, you  
22 know, because of positive sort of matching, the higher  
23 ability women are in more affluent households and they're the  
24 ones who can afford to drop out. And so this is a simple  
25 story that does not capture every feature in the data, but

1 that's the closest to explain what we're seeing in the data.

2           So when -- and this is actually quite similar to  
3 some of the things we saw in Philip's paper as well as in  
4 Felipe's paper, you actually do see a differential labor  
5 force participation effect. So, in column two here, you see  
6 a much stronger tendency for women workers to drop out of the  
7 labor market compared to male workers if you do a trade  
8 shock.

9           And here's another little cute clue. This is what  
10 happens to married couples where both the men and women are  
11 in the same industry. If that tariff falls, you don't get  
12 this differential wage effect, which makes sense because it's  
13 only when the women's wage differentially falls that we get  
14 this incentive to drop out of the labor market, whereas, if  
15 the two are in different industries, then we get this  
16 differential, that labor market wage effect.

17           And there are other hints that suggest that that  
18 might be what's going on. In particular, I think this one is  
19 really cute. What happens if you have a married couple and  
20 the husband's industry is hit by a loss of its tariff? Well,  
21 it turns out that the wife's wage goes up on average. So we  
22 argue that there seems to be a composition effect due to  
23 differential labor market participation.

24           And that's the end of the story. Thank you.

25           DR. BENGURIA: Okay. Thanks a lot, that was really

1 great. Thanks, John.

2 So the next paper moving on is by Tibor Besedes of  
3 Georgia Tech, and it's called "Trade Liberalization and  
4 Gender Wage Gaps in Local Labor Market Outcomes: Dimensions  
5 of Adjustment in the U.S." Thanks, Tibor, it's all yours.

6 DR. BESEDES: Thanks for having me, and thanks for  
7 including this paper in this great event. This is joint work  
8 with Seung Hoon Lee and a former graduate student, Tongyang  
9 Yang.

10 So what we were curious in looking at is what has  
11 happened to gender wage gaps or sort of local labor market  
12 outcome gaps in the wake of the China shock, and so we're  
13 going to take a look at what happens. We're going to start  
14 with the wage gap and then try to look at, try to identify  
15 mechanisms and changes that have occurred since.

16 So we know there's less China interest in WTO and  
17 we gain some normal trade relation status with the United  
18 States, but there's this rapid increase in U.S. imports from  
19 China. And so there have been two basic ways of going after  
20 this, either using the ADH approach or the Pierce and Schott.  
21 We're going to take the Pierce and Schott approach and sort  
22 of the cutoff day for us is going to be the date when China  
23 gains permanent normal trade relations with the United  
24 States.

25 And the one sort of aspect of this that's important

1 is that gaining PNTR with the United States didn't change the  
2 tariff rates that China was facing on its exports to the  
3 United States. It simply changed the -- it eliminated the  
4 uncertainty that those tariffs might rise because they've  
5 been having those, they've been facing those tariffs, NTR  
6 tariffs since the '80s but with uncertainty because there was  
7 no annual renewed status.

8 So, in terms of our data, we're going to use  
9 similar trade policy variables as Pierce and Schott. We need  
10 the NTR gap, and that's going to be the NTR tariff rates, the  
11 MFN tariff rates versus we'll call it tariff rates, sort of  
12 the basic tariff rates you're going to face if you export to  
13 the United States without the NTR status.

14 On labor market outcomes, that will come from CPS  
15 and they will be elongated at the metropolitan statistical  
16 area, so we're going to do everything at the MSA level.

17 We're going to also need employment data, and that  
18 comes from the county business patterns. And so, since the  
19 CPS is at the individual level, we are going to aggregate it  
20 for everything but one regression that we're going to take a  
21 look at. This aggregation allows us to include a sample of  
22 270 MSAs where we can have both the female and male as sort  
23 of average information, whether it's wages, labor force  
24 participation, or other variables that we take a look at.

25 The PNTR exposure or the exposure to trade

1 liberalization to us is the difference between the non-NTR  
2 tariff rate, the -- tariff rate, and the NTR tariff rate.  
3 It's going to depend on industry that's present in an MSA,  
4 and it's a weighted average where the weights depend on the  
5 level of employment in each MSA in each industry. So it's  
6 simply just a weighted average where the weights are based in  
7 1990, so at the start of our sample.

8           So the left-hand panel here is the county-level  
9 data, the county-level entry gap that you have in Pierce and  
10 Schott. The right-hand panel is what we get for the MSAs.  
11 So it has sort of similar grassroots. In Florida, there's a  
12 lot of exposure, in the eastern seaboard, the south, the  
13 Midwest, and the west coast.

14           Our specification standard difference and  
15 differences where we care about this data which is going to  
16 identify the post-PNTR effect in areas that face the largest  
17 exposure which is reflected by the size of the NTR gap.  
18 We're also going to include certain measures that are in U.S.  
19 trade policy information, such as tariff rates, MSA  
20 information, fiber agreement information that goes away  
21 during this period. And then we're going to also have some  
22 variables that characterize the MSAs. We're going to focus  
23 on then the fade down in this de-ID effect, and so that's  
24 what I'm going to show you in most of these regressions.

25           So the first thing we take a look at is what

1 happened to the gender wage gap and the wages, and so we can  
2 identify in the first column here, we're looking at  
3 regressing the ratio of the female to male wage rates, and a  
4 positive coefficient indicates that the relative female wage  
5 has increased, and so we do get, we do find that the wage,  
6 the relative wage of women in the areas in MSAs that are more  
7 exposed goes up. So the gender wage gap reduces in the wake  
8 of the China shock.

9 We try to then look at what happens to wages of  
10 women and men, and here we sort of find rather weak results.  
11 So, for women, we get statistically marginally significant  
12 increase in the wage, and for men we don't find any  
13 statistical significance. So really any significance we get  
14 in the wages is really from sort of the difference between  
15 the two, the ratio of the two.

16 We then sort of try to identify whether there's any  
17 sort of change in cross-sectors and it sort of gets at a  
18 story that we heard earlier today. So, when you sort of look  
19 at this, we can identify manufacturing services and other  
20 industries showing manufacturing. You actually get a  
21 reduction -- sorry, an increase in the gender wage gap. So  
22 this is still looking at the female-to-male wage rate in  
23 manufacturing, that rate decreases in services and increases.  
24 And then given this reallocation of the labor force from  
25 manufacturing to services, you get it, so when you pull

1 everything together, the services sort of win out and we do  
2 get this picture of the gender wage gap decreasing.

3 This is looking at using, looking at the simple  
4 wage gap that might mask certain compositional and selection  
5 effects. So we then look at the residual wage gap. And this  
6 is done at individual level, so we use the individual level  
7 data from CPS. We'll calculate the residual wage as the  
8 residual from regression of the wages on the observed  
9 characteristics of workers and then calculate the residual  
10 wage gap and look at that and regress it on PNTR.

11 This is an individual level regression, so now our  
12 essentially specifications are triple different, so we then  
13 try the post-PNTR/NTR gap in male coefficient. So we  
14 actually end up getting that the residual wage gap has  
15 actually increased in the sense that the residual wage for  
16 men increases while that for women decreases.

17 So there's a couple ways that we can sort of think  
18 about that happening. It could be that the relative female  
19 wage increased because more educated women entered the labor  
20 force, or alternatively or together, less educated men left  
21 the workforce. So we need to take a look at labor force  
22 participation rate.

23 So what happens with labor force participation? So  
24 the first thing we take a look, we just look at labor force  
25 participation across women and men and we look at the

1 relative labor force participation of women, we actually get  
2 a large increase in the labor force participation rates of  
3 women in the more exposed areas. When we look at women by  
4 gender, as the labor force participation rate of women in the  
5 more exposed industries increases, that of men decreases.

6 So, it goes back to sort of -- going back to the  
7 residual wage regression results, we do get a greater entry  
8 into the labor force on the part of women, and departures  
9 from the labor force on the part of the men. And to account  
10 for that increase in the residual wage for men, we need to  
11 take a look at what happens by the level of education.

12 So when we take a look at the labor force  
13 participation rates with the relative and absolute by  
14 education levels where we define less educated as individuals  
15 with no college education; more educated as individuals with  
16 at least some college education, and here we have that the  
17 labor force participation gap for the less educated isn't  
18 effective, or for the more educated individuals it does  
19 reduce by quite a lot.

20 And what's really happening is that we do get are  
21 more educated women are entering the labor force, and the  
22 less educated men are leaving the labor force, which is sort  
23 of -- will account for the results we have for the -- in the  
24 residual wage regression.

25 The other thing that I would then take a look at is

1 what's happening to intra household work dynamics a little  
2 bit along the lines what John just talked about.

3 So, the first question we ask is who in the  
4 household is working so the CPS can identify individuals who  
5 are cohabiting together. So, if we look at what's happening  
6 to the fraction of households where both spouses are working,  
7 there's a positive efficiency (phonetic) doesn't seem that  
8 this trade liberalization episode is the China shock affects  
9 that the fraction of households with both spouses working,  
10 but we do have a reduction in households where only the  
11 husband works, and an increase in households where only the  
12 wife works. And if you look at the share of female income in  
13 household income, that increases.

14 So, part of what might be going on is there's a  
15 reallocation, or gender reallocation of the labor force in  
16 that men are leaving the labor force, women are entering the  
17 labor force, and women are doing so essentially to some  
18 extent in an attempt to substitute for the lost income, or to  
19 make up for the lost income of the husbands that have  
20 departed the labor force.

21 And, so, if you look at then the labor force  
22 participation by numerical status, we did that in single  
23 households, so there's no change in sort of the single women  
24 working. There's a reduction in participating in the labor  
25 force, there's a reduction in men from single households

1 participating in the labor force, and in married and  
2 cohabiting households there's an increase in the labor force  
3 participation of women, or partners, or wives in the more  
4 exposed areas, which sort of lends some credence to this  
5 hypothesis that what might be happening is that as the men  
6 are leaving the labor force, women are entering the labor  
7 force to make up for that lost income.

8           We also then end up looking at the changes in how  
9 much individuals work. So, if you look at total hours  
10 worked, there's a significant reduction in the total hours  
11 men end up working, and if you look at the hours, in this  
12 case we can only identify weeks spanning part-time workers,  
13 there's a large increase in weeks that women spend in  
14 part-time work in the more exposed areas.

15           Of course, once we have this, we were sort of  
16 curious as to why this happens. Is this by choice, or is  
17 this by necessity increasing the hours, and the time spent in  
18 part-time work, and when we look at that there's two  
19 questions in the CPS that are useful to looking at that.

20           Is it lack of motivation, or is it either  
21 individuals working part-time jobs because they cannot find a  
22 full-time job, or because they wanted a part-time job, and  
23 were identifying to both for men and women in the more  
24 exposed areas, they end up spending -- they end up working in  
25 part-time jobs because they cannot find full-time work rather

1 than because they initially wanted to have a full or  
2 part-time job.

3 And we also have some results that looked at  
4 unemployment. In employment we do find that unemployment of  
5 both men and women increased in the more exposed MSAs, and  
6 the employment rate of men in the more exposed MSAs.

7 So, what we're identifying is sort of a nice, I  
8 think, story of what's happening to gender wage gaps, and  
9 labor market outcomes in the wake of the China shock. The  
10 gender wage gap decreases. It seems to somewhat due to  
11 higher female wages. The labor force participation rate for  
12 gender -- the labor force participation rate gender gap  
13 decreases, it decreases because women are entering the labor  
14 force, men are exiting the labor force, and it's the more  
15 educated women who enter, and the less educated men.

16 But before, we identify some interesting changes,  
17 intra household changes in behavior in terms of who is  
18 working, and how they adjust their hours worked. And that  
19 would be it.

20 DR. BENGURIA: Tibor, thanks very much. That was  
21 great, and the last paper in the presentation is by David  
22 Fortunato of the University of California, San Diego, and  
23 it's called "Representation and the Trade Roots of the Gender  
24 Pay Gap".

25 And after that we have some time for panel

1 discussion. So, David, thanks very much. Go ahead.

2 DR. SECRETARY: You're on mute, David. You're  
3 still on mute. There you go.

4 DR. FORTUNATO: There we go. Okay. Sorry about  
5 that. As I was saying, I did some collaborative work with  
6 Tim Betz and Diana O'Brien, and my presentation is a little  
7 different than the last two, so -- but we're going to have  
8 fun.

9 Okay. So, this is an early draft, and it is  
10 paperwork thinking about tariffs as like foreign  
11 redistributed instruments where we can deliver kind of large  
12 narrow gains to specific producers, and pay for them with  
13 widely distributed costs to consumers, or we can reduce  
14 tariffs, and deliver small widely distributed gains to  
15 consumers, and pay for them with larger, more narrow costs at  
16 producers.

17 So, for example, the United States famously has  
18 this very large tariff on pick-up trucks, about 25 percent,  
19 and that leads to a domestic advantage for domestic  
20 producers, bigger revenues for owners, hopefully more job  
21 security for workers. The downside is that trucks are more  
22 expensive for American consumers.

23 If we were to relax that, eliminate that domestic  
24 advantage for domestic producers, you'll have smaller  
25 revenues for owners, maybe less security for workers, but

1 trucks would get less expensive.

2 Now, typically we think about these trade policy  
3 choices as balancing the interest between consumers and  
4 producers, but importantly, different types of people produce  
5 and consume different types of goods, and today I'm going to  
6 talk about gender differences in the work force, and how  
7 trade policy shapes outcomes for men and women.

8 Okay. So, men and women work in different sectors.  
9 In the United States only about five percent of machinists  
10 are women, but travel agents, and sewing machine operators  
11 about three-quarters of them are women.

12 Now, this is important because different sectors  
13 face different levels of international competition. Some  
14 jobs are naturally protected like hairdressers, and  
15 bartenders. They have to be where the customers are to  
16 provide the service. And some jobs are protected by trade  
17 policy choices like, for example, the pick-up trucks that I  
18 was just talking about.

19 This is important because different sectors also  
20 rely on different types of workers, so pick-up trucks are  
21 made by machinists who are overwhelmingly men, and those male  
22 workers get a large degree of protection from international  
23 competition from U.S. trade policy.

24 Conversely, (indiscernible) are made overwhelmingly  
25 by women, and they receive little or no competition from U.S.

1 trade policy.

2 So, this gendered clustering in different  
3 occupations leads to gender differences in vulnerability to  
4 wage pressures from international trade. So, as a result,  
5 women's jobs are just going to have fundamentally different  
6 types of wage pressures placed on them from international  
7 competition than their male counterparts in the work force.

8 And, importantly, governments are choosing these  
9 differences whether they know it, or not, whether they like  
10 it, or not. So, we want to analyze how these choices are  
11 actually affecting workers on the ground.

12 Okay. So, the argument that we make in our paper,  
13 which I'm just going to gloss over, is that within a country,  
14 within a sector, it's likely that domestic trade policy is  
15 going to protect men's jobs more than women's jobs, but  
16 increasing women's representation in government should  
17 ameliorate these gender differences in trade protectionism  
18 across sectors. So, the hypothesis that we're going to  
19 assess with our data is that within country, within sector,  
20 increasing women's representation should reduce gender  
21 protectionism.

22 So, the first thing that we want to do is we want  
23 to measure gender protectionism, and to do this we're going  
24 to gather data on applied tariffs from WITS (World Integrated  
25 Trade Solution), and we're going to match that to specific

1 industries to try to calculate each industry's average  
2 applied tariff. That's the dependent variable in our first  
3 analysis, the average applied tariff for a particular  
4 industry, in a particular country, in a particular year. And  
5 we're going to look at several hundred industries spanning  
6 about 60 countries over a period of 17 years.

7 Now, we're here talking about the United States, so  
8 I want to tell you why we're not going to study just the  
9 United States. The first reason is that there's very little  
10 variability, but our keycode (phonetic) variants over this  
11 time period in the U.S. So, if we want to understand how the  
12 U.S. got to be where it is, it's beneficial to look at the  
13 dynamics of more volatile economies over this time period.

14 The second reason is that the United States is  
15 pretty influential over the trade policy choices adopted by  
16 our trading partners, and we want to understand if those  
17 trade policies are going to have differential impacts, for  
18 men and women in their work force, men and women as  
19 consumers.

20 Okay. So, we have these average industry applied  
21 tariffs for a particular country in a particular year, so we  
22 want to measure how many women are working that particular  
23 industry in that country, and in that year, and we do that  
24 with data from the ILO.

25 And then we also have information on how many women

1 are serving in Parliament in that country, and in that year.  
2 So the independent variables in our analysis are going to be  
3 the interaction of two factors, the share of women working in  
4 a particular industry, in a particular country, in a  
5 particular year, and how many women are serving the  
6 legislature in that country, in that year.

7 So, I'm going to take that independent variable,  
8 that average applied industry tariff that varies over  
9 countries and years and industries, and regress that on the  
10 share of women working that industry, and the share of women  
11 in the legislature, and the interactions of those two  
12 factors.

13 We're going to adjust for a bunch potential  
14 confounders that are not terribly interesting, so I'm not  
15 going to talk about them, and we're also going to estimate  
16 fixed effects for countries, industries, and years as well.

17 So, what this means is that the variation that's  
18 going to identify our estimates of the impact of women's  
19 share of the labor force, and women's representation on the  
20 amount of protectionism an industry receives, there are two  
21 types of variation.

22 One is within state variation across industries, so  
23 the fact that more women make linen blazers than pick-up  
24 trucks in the United States, and cross-state variation within  
25 industry. So, the fact that more women make linen blazers in

1 India than in the United States.

2 So, let me show you what we get. First, I'm going  
3 to show you what happens when we analyze only the United  
4 States. So, there's one very important thing here is that we  
5 can't assess the effect of women's representation looking  
6 only in the U.S. because it varies very little, and it's  
7 washed out by the year of fixed effects.

8 The second thing is that this is not a ton of  
9 variation within industry over this period. All of the  
10 variability explained is by the industry fixed effects, so  
11 we've got no results here that are just kind of nonsensical.

12 But when we expand our analysis to all the  
13 countries for which we have data, what we recover is a large  
14 negative correlation between women's share of the work force  
15 in a particular industry, and how protected that industry is  
16 from international competition.

17 So, as women constitute a larger and larger portion  
18 of the work force in a particular industry, that industry  
19 becomes more vulnerable to international competition as a  
20 function of trade barriers being lowered. But that gendered  
21 effect is ameliorated by women's share of parliamentary  
22 seats.

23 So, the takeaway from this part of the analysis is  
24 that when women are under represented in the legislature,  
25 women workers will be overexposed to trade risk relative to

1 their male counterparts. Inequalities in representation  
2 translate into inequalities in trade protection.

3 So, now we want to assess how much these gender  
4 differences and protectionism matter for earnings. We're  
5 going to estimate the effect of, I'm sorry, the relationship  
6 between the tariff gap on the global wage gap.

7 So, the first thing that we want to do is aggregate  
8 the average tariff for the typical woman worker in a  
9 particular country, in a particular year. So, we're going to  
10 take all those industry average applied tariffs, multiply  
11 them by the proportion of women workers in that industry, and  
12 just sum them all up, and then we'll do the same thing for  
13 men.

14 And then the difference between those two is what  
15 we're calling the tariff gap, so when this thing is equal to  
16 zero, men and women are equally protected in their jobs by  
17 third government's trade policy. When it's equal to one,  
18 women have no protection at all relative to their male  
19 counterparts in the labor market.

20 Then we do the same thing with data on wages from  
21 the ILO, and calculate the same measures. So, again, when  
22 this is equal to zero, men and women are making the same  
23 wages. When it's equivalent to one, women are uncompensated  
24 relative to their male counterparts in the work force. So,  
25 we're going to estimate the relationship between one and the

1 other.

2           Okay. So, again, looking just at the United  
3 States, these measures vary almost not at all over this  
4 17-year period, so there's a zero correlation, but, again,  
5 once we expand to other countries for which we've gathered  
6 data, we see that the conditional correlation between the  
7 gender tariff gap on the X axis, and the gender pay gap on  
8 the Y axis, is positive.

9           And when we look at the coefficient estimates from  
10 our regression model trying to account for a bunch of  
11 potential confounders, what we see is about 25 percent of the  
12 gender tariff gap survives into the gender wage gap across  
13 countries, and over time. And in our data this tariff gap  
14 explains about ten percent of the variation in the gender  
15 wage gap.

16           So, the result here to take away is that gender  
17 bias trade policy is positively contributing to the global  
18 gender wage gap. And I'm almost done, but before I close  
19 out, what I want to make clear is that our paper is not  
20 advocating for increasing trade barriers, specifically to  
21 protect women's jobs.

22           What we want to make clear is that trade policy has  
23 differential effects across groups, in this case men and  
24 women, and it is incumbent on trade policymakers to consider  
25 the downstream effects of how various trade negotiations, the

1 outcomes of various trade negotiations might have  
2 differential effects on men and women as consumers and  
3 workers in the United States.

4 Further, it has the largest economy in the world.  
5 The United States has the luxury, and I would argue even the  
6 responsibility, to pursue to gender equity on a global scale.  
7 So, we need to understand how the trade negotiations that  
8 we're entering with our trading partners might differentially  
9 affect men and women in their work forces, and in their  
10 consumer bases.

11 And that's the end of my presentation. Thank you  
12 very much for your attention.

13 DR. BENGURIA: Okay. David, thanks so much. So,  
14 thanks very much to all of the presenters in this panel.  
15 And, so, now we have 15 minutes for questions and answers,  
16 and just as we have done in the previous panels, I have some  
17 questions that have been forwarded that I'm going to put out  
18 there, and you can raise your hand. Any of the panelists, if  
19 there's some problem to raise your hand next to your name in  
20 the participant list, by the way, if you haven't seen it.

21 So, the first question is looking forward into the  
22 future, so, what research questions related to distributional  
23 effects of trade and trade policy on gender remain  
24 unanswered, and should be considered in future research, and  
25 are there any data, or methodological limitations preventing

1 us from addressing them?

2 Okay. Stephanie wants to answer that first, and  
3 then Masha wants to answer it too. So, Stephanie, and then  
4 Masha, please.

5 DR. FORTUNE-TAYLOR: Thank you, Dr. Benguria. I  
6 would like to point out that one of the things that we would  
7 really like to know more about are the intersectionalities  
8 between gender, and race, and ethnicity, if that's something  
9 that hasn't been investigated as much, and that's something  
10 that's really pressing because there's reason to believe that  
11 certain labor constraints that a black woman might face could  
12 be different from those of their white female counterparts.  
13 So, that's something that's very important to address.

14 I'm not sure, especially for our paper when we're  
15 looking at four-digit sectors if the statistical power is  
16 sufficient to examine these things, but, I think, these  
17 things are important to consider because these effects might  
18 not translate across race and ethnicity.

19 DR. BENGURIA: Masha, and then John. Thanks,  
20 Stephanie.

21 DR. BRUSSEVICH: Thank you, Felipe, for the  
22 question. So, I think that there are a couple of things that  
23 can be explored. One is more research on dynamic  
24 clarification of labor, and for that we need very good panel  
25 data that impact workers over time, and, you know, besides

1 the ongoing rotation groups data, there's not much of their  
2 -- at least at face or just in general that is publicly  
3 available. So, that's one thing.

4 The other thing is maybe research on the impact on  
5 trade and services. Everything that we've been really  
6 looking at so far has been looking at, you know, this import  
7 competition and shock in the manufacturing sector, and how  
8 that affects workers in manufacturing, and services, but what  
9 about trade and financial services, for example. We haven't  
10 really seen that.

11 And, you know, given that we have shown that  
12 there's uneven distribution in our workers, male and female  
13 workers across sectors, you know, that could be an important  
14 channel to explore. Thanks.

15 DR. BENGURIA: John?

16 DR. MCLAREN: I would second what Masha said about  
17 the longitudinal work would be desirable there having to do  
18 with the United States.

19 That's one of the great things about the Keller and  
20 Utar paper, I mentioned. That data actually followed  
21 individual workers over their whole career, and it's  
22 fascinating. And by the way, Wolfgang Keller is presenting  
23 that tomorrow morning in this same forum. I just noticed.  
24 So, that's good stuff.

25 If the U.S. and Rudy (phonetic) with the CPS by

1 tracking people for one year, there's not that much you could  
2 do. Ann Harrison has done some work in that line, the paper  
3 that she was describing a couple hours ago with co-authors.

4 I've been exploring that a little bit with Danielle  
5 Parks, who is a grad student at Colorado, a really capable,  
6 smart young person, and we've been finding it looks like --  
7 we do see big differences between black and white workers,  
8 and workers from high income families, and low income  
9 families. And it looks like black workers and low income  
10 workers are less likely to see a one-year decline in their  
11 income in the face of a trade shock.

12 This surprised us, and we were thinking it looks  
13 like maybe those workers are more faced with liquidity  
14 constraints, and if they live from paycheck to paycheck, you  
15 can't afford your income to go down because you need money  
16 for the basic expenses, and, so you'll take an extra job and  
17 work extra hours rather than suffer an income decline,  
18 whereas, the more affluent worker can put up with an income  
19 decline for a couple years.

20 So, the liquidity constraints are another area  
21 there's nothing about in this area, and it's very important  
22 for lower income workers.

23 DR. BENGURIA: David.

24 DR. FORTUNATO: Yeah, thank you very much. So, if  
25 you noticed in my presentation, I use the word average a

1 whole lot, average, average, average, average, average. And  
2 it would be nice if we were able to marry micro level data on  
3 individual worker compensation to firms over a protected  
4 period of time, so we can learn how these differential trade  
5 policies are affecting workers at the micro level in the  
6 United States rather than, you know, only using countries  
7 with more readily available registry data like Sweden and  
8 Denmark like John mentioned before.

9           Unfortunately, the IRS is not going to listen to  
10 me, but they might listen to you, right, they might listen to  
11 Katherine Todd. Thank you.

12           DR. BENGURIA: Okay, great. Phillip, also raised  
13 his hand.

14           DR. SAURE: Yeah, great question. The obvious  
15 question in the end, right, where should we go with the  
16 research, and, I think, we've got some excellent indications.  
17 Also, from the papers.

18           I spin around this keyword of mine, this labor  
19 force attachment, or the elasticity at the worker level --  
20 John mentioned, but also within household bargaining of  
21 various respects.

22           But it can also come from the firm side, right.  
23 There's the old Becca (phonetic) theory that there's  
24 discrimination against women, but it may be also by certain  
25 years, or by race, that firms can afford more or less under

1 various degrees of competition.

2 So, we might look at the firms' side at the same  
3 time, and, again, this requires the according matching of  
4 data, but, yeah, we are here to push for more data quality to  
5 some extent, right. And I would hope to advertise at some  
6 point in time this future work that's -- that we're currently  
7 working on. That's it.

8 DR. BENGURIA: Okay. Thanks a lot. And, so here I  
9 have some of our questions. Maybe we can tackle a couple of  
10 them.

11 So, the next question is in your research do you  
12 find evidence of gender differences in the labor market real  
13 location of U.S. workers across sectors, and let me add a  
14 little bit of context. I think it's really interesting to  
15 think how longitudinal, you know, adjustments, as I think all  
16 of you have mentioned, but also to think that women might not  
17 be able to reallocate, especially geographically in a large  
18 country like the U.S. as much as men. Perhaps that's an  
19 hypothesis.

20 So we wanted to hear your thoughts of the possible  
21 gender differences of relocation, and what do you  
22 hypothesize, you know, might you find. Okay, Masha was  
23 raising your hand.

24 DR. BRUSSEVICH: Yes, so, as I've shown in the  
25 paper that I presented, there are actually non-traditional

1 differences in terms of how male and female workers move  
2 across sectors, and specifically when they exit the  
3 manufacturing sector that is being hit by a trade shock, where  
4 do they go, you know, that depends on the gender.

5           So, for example, women tend to move more into some  
6 of the high wage services, which, you know, may be somewhat  
7 surprising, but at the same time you have to think about  
8 where women have the comparative advantage, and, you know, as a  
9 lot of the literature shows, that's the service sector.

10           Right? So, when the manufacturing sector is hit,  
11 women tend to move into services, and some of the faster  
12 growing sectors in terms of both wages and just overall  
13 employment are the high wage services like finance, for  
14 example.

15           So, those are the important things that you do have  
16 to take into account when considering the effects of the  
17 trade policy, and with that, you know, as I mentioned, you do  
18 need this longitudinal data that I mentioned.

19           As John mentioned, we do have at least, you know,  
20 one year where they asked workers to compare where they were  
21 previously, and where they ended up. You know, that's just  
22 not enough to do some of the more granular work, and to  
23 understand some of the drivers of these different concerns in  
24 ability. Thank you.

25           DR. BENGURIA: Okay. Thanks a lot. I also now am

1 going to bring up a question from the audience by Christina  
2 A. Otrelia (phonetic) from the U.S. Census Bureau who wants  
3 to ask Dr. McLaren specifically why is -- why are the  
4 location effects -- why do the location effects seem more  
5 important than the industry effects?

6 DR. MCLAREN: Well --

7 DR. BENGURIA: John?

8 DR. MCLAREN: I wouldn't completely -- I wouldn't  
9 completely say they are. The industry effects are actually  
10 more robust, so your basic tables, the locational effects  
11 might be -- might show up stronger.

12 I personally put more weight on the industry  
13 effects. And, honestly, I don't have a good story for why  
14 the -- in the basic tables those locational effects look kind  
15 of stronger. It's my intuition would go in the other  
16 direction.

17 It's worth pointing out that I'm sure you've  
18 noticed other people who have looked at these things at the  
19 level of local labor markets like the paper here today, and  
20 the paper by Autor, Dorn, and Hanson that focuses on  
21 marriage. So, that's why I'm kind of shocked, which is a  
22 different episode, and a different period, and different  
23 data, so there's not necessarily a problem that they answer,  
24 but they tend to find that real wages are pushed down  
25 relative to female wages, or female wages are pushed up

1 relative to male wages at the level of local end market in  
2 the presence of the trade shock. And we signify the  
3 opposite. So, I don't actually know why. If you have a  
4 story, I'd be interested in hearing it.

5 But, I also can understand the industry effects  
6 better intuitively, and if Shoshanna has any better ideas,  
7 I'd be eager to hear it as well.

8 I wish I had a better answer.

9 DR. BENGURIA: Okay, thanks a lot.

10 Does anyone else want to comment on that, or should  
11 I move -- maybe I'll move to the next question, which is to  
12 what extent do you think the occupation and industry  
13 composition of workers by gender drives gender differences in  
14 trade-related worker outcomes? So maybe let me give a little  
15 bit of context to clarify the question.

16 So the effect of trade on, like, gender wage gaps,  
17 for example, could be purely compositional. Okay, women work  
18 in apparel and then, you know, trade hits the apparel sector  
19 and hits the two genders differently. But there could be  
20 more stories than that, right, which could have to do with  
21 bargaining power and so on and so forth.

22 So would anyone like to tackle that? Philip?

23 DR. SAURE: Yeah. I won't give a number here  
24 share. Certainly, both is operating. The theory we're  
25 building on in this 2014 paper is essentially based on the

1 effect of proportions and that theory.

2 But what we do see, it's playing out on the  
3 industry, as this recent paper by Swatty Degura (phonetic)  
4 and Ruey, Ruey Costa, Swatty Degura, and co-author is  
5 pointing at. At the same time, we do see gender differences  
6 in reallocation in wages when we look within industries,  
7 across the differently exposed firms, exposed firms to a  
8 trade shock, so the export and import intensity or net export  
9 intensity. That's related to -- that can be related to labor  
10 market response, and that's what we see in this ongoing  
11 project. We do see differences across gender here.

12 So I guess both is operating, both -- yeah, the  
13 simple answer is future research should show how much is on  
14 the one side or the other. But I would bet on both operating  
15 substantially.

16 DR. BENGURIA: Okay. Masha?

17 MR. BRUSSEVICH: Yes. I just wanted to quickly  
18 mention that, to give you an example, the electronics sector  
19 was one of the most shaped sectors by that China shock. And  
20 if you look at, you know, within electronics manufacturing  
21 sector, you can sort of divide workers by their occupation  
22 into more production-oriented occupations and more  
23 service-type occupations.

24 And, you know, when you look at the reallocation  
25 then of workers, let's say the whole sector is impacted and

1 the workers move on, but women tend to be in more let's say  
2 secretarial-type occupations versus men being in production  
3 occupations. But it would be less costly for a woman to  
4 switch from that electronics manufacturing sector to another  
5 service sector that is growing than it would be for a man  
6 switching the types of occupations that they would have to  
7 then find in a different industry.

8 So, yes, it is important and there is a lot of  
9 nuance in terms of, you know, whether you're looking across  
10 industries, within industries, and occupations.

11 DR. BENGURIA: David had a hand raised.

12 DR. FORTUNATO: Yeah, I just want to note that, you  
13 know, trade policies are made by human beings, and human  
14 beings carry a package of implicit biases with them. So,  
15 when a lobbyist from a producer let's say of pickup trucks  
16 with a male-dominated workforce goes to lobby for trade  
17 protections to a male-dominated Congress, they don't even  
18 need to mention the fact that they have an all male workforce  
19 composed of, you know, what we might think of as like  
20 breadwinners because that perception's already baked in.

21 You know, there's a reason that I used auto  
22 industry and garment industry as the examples in the  
23 presentation. It's because when I say a garment factory  
24 we're automatically thinking about women. When I say auto  
25 factory, we're automatically thinking about men. And

1 Congresspeople are probably doing the same thing when they're  
2 dealing with these lobbyists. There are certain realities of  
3 implicit biases that we need to keep in mind.

4 DR. BENGURIA: Okay, that's great.

5 So, given the time, maybe, well, I'll ask if  
6 there's anything else someone would like to ask, I mean to  
7 add?

8 (No response.)

9 DR. BENGURIA: Okay, so maybe we can conclude with  
10 that. And I'd like to thank again the six presenters and all  
11 the authors that might be around and Hooyen at USITC. And I  
12 believe the next panel is at 3:20, right?

13 MR. SECRETARY: Yes. Thank you so much to all of  
14 the members of this panel. We appreciate it so much.

15 We'll go ahead and take a brief break so everyone  
16 can stretch and come back for our next panel, which will be  
17 our final panel of the day. So go ahead and take a break and  
18 we will start at --

19 DR. RIVERA: 3:20.

20 MR. SECRETARY: Say it again, Sandra, please.

21 DR. RIVERA: 3:20.

22 MR. SECRETARY: We will begin at 3:20 with our  
23 final panel of the day. So thanks so much, everyone. I will  
24 get on early and do my Webex tips again for you. See you  
25 then.

1 (Whereupon, a brief recess was taken.)

2 MR. SECRETARY: So good to see you. Please begin  
3 when you're ready.

4 DR. POWERS: Thank you, Bill. Can you hear me?

5 MR. SECRETARY: I can hear you, yes.

6 DR. POWERS: All right. Fantastic. Well, let's  
7 get started.

8 Good afternoon, everyone, or perhaps good evening  
9 or good morning.

10 First, I want to thank Bill and Sandra and all the  
11 people who put this event together and my distinguished  
12 panelists for helping make it a great event. So thanks,  
13 everyone.

14 I do want to take a moment here. There's Sandra  
15 online again. Hello, Sandra. And I did want to take a  
16 moment here to describe this session since it's a bit  
17 different than our earlier sessions. We've got five  
18 presenters, as Bill Bishop just mentioned. They're going to  
19 be a little shorter presentations than we've seen, but they  
20 have measured the impact of trade in three different ways:  
21 through computable general equilibrium models, through  
22 structural general equilibrium models, and through shift  
23 share approaches.

24 Each of these approaches can advance our  
25 understanding of the distributional effects of trade, and one

1 of the things we want to look at today is what are the  
2 differences, what are the strengths, what are perhaps some of  
3 the shortcomings in these methods.

4 I did want to point out that historically many  
5 general equilibrium models didn't incorporate labor  
6 frictions. In fact, we heard Dr. Spriggs earlier today say,  
7 and I wrote down, "frictions in the labor market are real,  
8 and GE models don't incorporate these frictions." I did want  
9 to point out that that may be true in the past. All of our  
10 GE models today incorporate some type of labor friction.

11 Each of these papers also looks at transition costs  
12 either by estimating them directly or by noting that they  
13 have pretty substantial effects. However, they take some  
14 very different approaches to estimating these costs.

15 And another thing I'll be looking for, hopefully  
16 you will as well, the different approaches that contribute to  
17 our understanding.

18 Our panel is set up so that each presenter has 10  
19 minutes. We should have 25 minutes for discussion at the  
20 end. And I'll hold all questions until then. But, before  
21 that, please submit them and we'll try to get to them at the  
22 end.

23 And with those thoughts, let's get started. We're  
24 starting with Dr. Maryla Maliszewska of the World Bank.  
25 Maryla, you've got 10 minutes. Take it away.

1 DR. MALISZEWSKA: Thank you so much. I'll start by  
2 sharing my screen and saying that -- with the discussion so  
3 far. And I'd like to thank the organizers for inviting me to  
4 join. Can you see it in full screen now? See? Yeah? I  
5 hope that works. Please scream if it doesn't work.

6 DR. RIVERA: You are sharing both your first screen  
7 and your second screen at the same time, so it's --

8 DR. MALISZEWSKA: Okay. Let's see, how do I fix  
9 that?

10 (Pause.)

11 DR. MALISZEWSKA: Okay. Thank you, everyone. So  
12 my name is Maryla Maliszewska. I'm a senior economist with  
13 the World Bank, Global Trade Analysis Unit, and this is a  
14 slide presentation of my colleague, Israel Osorio-Rodarte,  
15 who is also connected, and I'm going to just simply direct  
16 all the difficult questions to him, so I'm glad he's here.

17 I'm going to talk about the tools that we use in  
18 our unit but just first start with a very brief introduction,  
19 what is it that we do and what we focus on.

20 So, as you know, the World Bank has twin goals,  
21 twin goals of eradicating poverty and promoting trade  
22 prosperity. I already make a point here that we're already  
23 focusing on lower- and middle-income countries.

24 So we don't do much research on high-income  
25 countries, only to the degree that it affects the developing

1 countries. So what we do at Global Trade Analysis will, of  
2 course, include all important trade partners, but when  
3 looking at the distributional impacts, we mostly focus on  
4 low-income countries, and we do it using a lot of approaches  
5 at the bank, but I'm going here to discuss only the tools  
6 we'd be using for the forward-looking analysis, as Bill  
7 mentioned, and from there, the computer will generate a real  
8 model envisioned a microsimulation tool that is called Global  
9 Income Distribution Dynamics.

10 And we use these two tools to look at the  
11 variability of outcomes. So we look at the trade policy  
12 changes, trade policy shocks or trade shocks, and we look at  
13 the impacts on poverty, income distribution, wages,  
14 construction, formal/informal employment, and wherever we can  
15 we split them by gender, occupation, educational attainment,  
16 and by geographical location. And I'm going to briefly  
17 discuss the totals and then give you some examples of the  
18 findings that we reached using those, the stated approach.

19 Variability, how does the tool work? I think what  
20 I want to highlight here is that there is really this  
21 coordination between the macro and micro. So usually with  
22 the top-down approach, what you do, you use -- the computer  
23 will generate a model or other tool to project changes in  
24 employment and wages and then try to superimpose those  
25 changes on a microsimulation tool based on household

1 surveys.

2           What's different in this approach is that there is  
3 already before we use a -- before we do any simulations, we  
4 already use the household survey data, to include the data on  
5 employment and wages from the microdata into the CGE model.

6           So, in a sense, a typical CGE model will use the  
7 Global Trade Analysis Project database on variability, and it  
8 includes wages and employment just, you know, to then modify  
9 each other and you get the value added. So we take it and we  
10 split it by type of worker, so skilled/unskilled,  
11 rural/urban, female/male. And then, in the most recent  
12 application, we also split them by location, so basically  
13 where they are based in the country.

14           And based on what goes into the microsimulations,  
15 we use the World Bank population projections, we use the  
16 education projections to figure out the share of  
17 skilled/unskilled workers. All of those are bundled together  
18 to generate a new household survey let's say in 2030 or  
19 whatever is the time duration of the analysis. And these are  
20 the inputs into the CGE model.

21           Then, once we do the typical CGE analysis and look  
22 at the implications of, for example, a free trade agreement  
23 on a particular country, then we come up with a new  
24 allocation of workers across sectors, their new wages. There  
25 are going to see dramatic prices of full/non-full items, and

1 all of those changes get translated into a new household  
2 distribution, income distribution.

3 So, as an example, we can have the baseline  
4 distribution let's say in 2030 based on the data, and then we  
5 have the CGE shocks, and we say, okay, after the shock, after  
6 the feature that we meant, these are the households that are  
7 going to benefit, these are the households that might be  
8 worse off and workers and so on.

9 Okay. It took a lot of time, but the rest will be  
10 relatively quick. So I just want to give you some examples  
11 of the applications that we have done with this approach.

12 So, as I mentioned, we look at free trade  
13 agreements and within free trade agreements, we look at the  
14 organizational failures and Ems and trade lateralization  
15 measures. So, recently, we've been focusing quite a lot on  
16 the African continent and free trade area, but we've also  
17 been studying CPTPP. The new approach that we've been using  
18 is also building on the gravity approach study the  
19 implications of free trade agreements on the FDI flows and  
20 then bringing that back into the CGE model and then looking  
21 at the distributional impacts, so looking at trade and  
22 investment in the context of AFCTA, building on the free  
23 trade agreement database of the bank.

24 We also looked at the impact of U.S./China trade  
25 war, and, of course, we're looking at the impact of another

1 trade war that's hitting the actual war, crisis in Ukraine.  
2 And, recently, we were also looking quite a lot on the  
3 implications of the climate change mitigation policies on the  
4 distributional aspect.

5 And I'm going to walk you very quickly through a  
6 few examples of the results that we get, so the projections  
7 for what looking at simulations of the potential  
8 distributional impacts of different trade policy changes.

9 The headline message is that the government get out  
10 of them. For example, from the AFCFDA study, we found that  
11 it has the potential to lift 30 million people out of poverty  
12 in addition to what we would have anticipated in the data in  
13 2030. We did the analysis of the -- position in Sri Lanka  
14 and this hypertypical scenario, we found that it would, you  
15 know, lead to faster growth and poverty reduction. However,  
16 it could also exacerbate the existing regional inequalities  
17 as the new jobs would tend to occur in already  
18 well-established manufacturing sectors.

19 And, finally, on climate change, what we found is  
20 that more ambitious climate change mitigation scenarios could  
21 really hurt top earners in the income distribution.

22 So here is an example that we did for the AFCFDA  
23 and the number that I mentioned for the extreme poor. And  
24 just to show you some granularity, that in addition to  
25 looking, of course, at the headline numbers, we have data on

1 the country level and, for example, we find that the  
2 countries with high regional poverty rates will experience  
3 the greatest decline in poverty. So this is really a  
4 promising outcome.

5 We also look at the number of jobs generated or  
6 reallocated across the region. We look at the changes in  
7 wages. Here, for this application, we have skilled,  
8 unskilled female and male workers, and what we found is that  
9 AFCFDA generates opportunities especially for unskilled  
10 workers and that the growth rate of female wages or female  
11 workers' wages is a bit faster than the growth of male  
12 workers, so kind of helping bridge the gender wage gap.

13 Just very quickly, as I mentioned, we started to  
14 look at the impact of trade policy changes at the  
15 sub-national level, and this really, this example really  
16 illustrates well the usefulness of this approach. And as I  
17 mentioned, even though we found that overall trade benefits  
18 the country, as a whole, there will be some regions that will  
19 be much better off than others, and those tend to be already  
20 well-developed regions. So addressing worker mobility and  
21 providing social protection for displaced workers might be  
22 some policy options to consider when implementing these  
23 policies.

24 Okay, and I see that I have one minute left. So  
25 very briefly, what are the next steps and how have we been

1 building on the work so far.

2           So, on the macro side, you know, the analysis is  
3 only as good as the data and the tools that we use, so we've  
4 invested a lot of time and effort in interpreting our data  
5 sets. So a new social impact in a lot of cases for the  
6 general data set, improving the CGE model to distinguish  
7 between different types of workers. And on the micro side is  
8 adding more households in labor force surveys, disaggregating  
9 by sector, by education, by location and so on. And for  
10 that, we have generated a gender disaggregated labor database  
11 which includes also in addition to sector attitude and  
12 industrial classification data on wages and employment. We  
13 also have 70 categories with information at the sub-national  
14 level.

15           And, finally, what are the next steps, and I think  
16 this leads really nice to what Hans will be talking about.  
17 The next steps are, in addition to working on data and tools,  
18 we want to focus on the adjustment path, so basically looking  
19 at the transition matrixes, which workers are likely to  
20 switch jobs and build that adjustment path into the CGE  
21 model, which typically allows for immediate adjustment across  
22 sectors. Although there is some migration from rural to  
23 urban sectors, I think this must be done and we're going to  
24 learn from Hans's approach.

25           So over to Hans. Thank you.

1 DR. POWERS: Thank you, Maryla.

2 And as you've just indicated, we have Hans Lofgren,  
3 also at the World Bank, up next.

4 DR. LOFGREN: Okay, thank you very much.

5 Good afternoon. I will try to share my screen,  
6 hopefully with success. Is that visible now?

7 MR. SECRETARY: Yeah. Perfect. Thank you.

8 DR. LOFGREN: Okay. Great. So my name is Hans  
9 Lofgren. I'm a retired World Bank economist. I had the  
10 pleasure of working with Maryla and Israel, and in the past,  
11 also I worked for the International Food Policy Research  
12 Institute, working on CGE modeling.

13 I will talk about the specific approach to labor  
14 mobility in CGE models that I have worked on, developed  
15 together with a colleague, Martin Ciecowiez. And I will talk  
16 a little bit in general about CGE models, but I will focus on  
17 the issue of the labor mobility question.

18 So, first of all, why do we use the CGE models to  
19 analyze these issues? It's because it is a modeling  
20 framework that is linking different parts of the economy,  
21 production sectors, the incomes they generate to households,  
22 the links to the government, the links to the market, the  
23 links to the international trade, and it's important to have  
24 this kind of a comprehensive view of the economy when  
25 analyzing these issues because, for example, if there is an

1 increase in an imported good, that will have consequences for  
2 the sectors that produce import substitutes, employment  
3 income streams there. It will have implications for  
4 households that may be buying this imported good. It will  
5 have implications for sectors that may be using this import  
6 as an input. And as a result, there are lots of things in  
7 the economy that may change as a result of such a change, and  
8 then it's important to have a comprehensive model where you  
9 also have the policy tools that the government can use to  
10 improve the outcomes beyond what is generated by the markets.

11 Now our labor market is treated in CGE models, but  
12 there are lots of different models, lots of different  
13 treatments, but in almost all cases, one has labor split into  
14 a few categories, perhaps by education, occupation, gender, a  
15 much finer disaggregation of sectors. For example, the  
16 current GTAP model has 65 sectors. And for each type of  
17 labor, there is what you could call a segment, and that  
18 segment could be the whole national economy, and that segment  
19 typically has an exogenous level of total employment and full  
20 mobility within that segment for labor. And that statement  
21 could be in other cases all the sectors in the region or all  
22 the sectors of a certain type like all agriculture sectors.

23 Now this treatment of labor mobility tends to  
24 exaggerate the ease of moving between jobs. When employment  
25 declines in a sector, the workers that lose their jobs will

1 immediately be able to find jobs in other sectors and also be  
2 as productive as the workers that already work in the  
3 receiving sectors.

4 And also, by having this very big, broad labor  
5 market, the impacts of shocks also tend to become weakened or  
6 dissipated across the whole economy whereas, in reality,  
7 particularly in the short run, the shocks are felt in a  
8 specific sector in a specific region where the sectors are  
9 important and for certain categories of labor types.

10 So this approach, we developed a proximity-based  
11 approach that makes certain assumptions that I will discuss  
12 and how it influences the results.

13 So, here, we have firms that maximize profits in  
14 assessing where the capabilities of workers typically are  
15 viewed as being different depending on which sector they are  
16 working in. So workers at a certain level of education in a  
17 certain category of a certain type, they're assumed to have  
18 different capabilities also seen through the sector in which  
19 they are working. And there is a proximity parameter that is  
20 measuring the degree of similarity between sectors in terms  
21 of the capabilities, and this proximity parameter is seen to  
22 be efficiency of the workers.

23 So one is looking at the efficiency of a worker  
24 that is initially in Sector A, moves to Sector A Prime, how  
25 efficient that worker is relative to the workers that already

1 were in A Prime. And the workers, they receive wages on the  
2 basis of their efficiency, and as a result, workers that are  
3 reallocated are less efficient than the workers that already  
4 work in the sector they move to will be receiving lower  
5 wages.

6 From the perspective of the worker, we look at all  
7 the different wage earning options they have in the current  
8 sector, in other sectors, taking into account that they may  
9 lose or may receive a lower wage than the workers that  
10 already are in those sectors because of the lower efficiency,  
11 their lower efficiency. And if the highest wage they can get  
12 is below their reservation wage, then the workers may fall  
13 into unemployment.

14 Now, if we look at the results, this approach, it  
15 depends on the parameters that you are using, but it will  
16 certainly remove the short-term ability workers to move to  
17 other sectors without wage losses, and if your skills are  
18 very let's say -- not very applicable in other sectors, then  
19 you may fall into unemployment, and if you look at the  
20 dynamic, you need to consider learning by doing as when  
21 workers have spent some time in the sector, then they will  
22 catch up in terms of their efficiency.

23 Now the main challenge with this approach is  
24 related to data, so in the paper that we refer to, we are  
25 using data estimated using product space analysis that refers

1 to similarities between sectors, but looking at sectors as a  
2 whole as opposed to the specific similarities in terms of  
3 what is required from the workers. So, in order to apply  
4 this approach, for example, to analysis of U.S. trade policy,  
5 one needs to estimate the sectoral proximity parameters based  
6 on survey data that would need to include information about  
7 workers that have been moving between different sectors,  
8 which sectors they have been employed in, and how their wages  
9 have developed and what they look like compared to the wages  
10 received today, received by workers in the receiving sectors.

11 And also, without empirical data, you can still use  
12 the approach to just test when you are doing simulations how  
13 sensitive are the results to the degree of mobility, so if  
14 you have a very mobile starting point, you can look at what  
15 could happen if you make it more mobile and which is likely  
16 to flatten over time.

17 And two final observations, first of all, involving  
18 labor mobility. In the current version of the GTAP model,  
19 there is an approach where they have made labor a sluggish  
20 factor that finds it more difficult to move between the  
21 different sectors in a way that is similar to that there are  
22 difficulties involved in if you're looking at production to  
23 reallocate production between different markets of  
24 destination, perhaps domestic and foreign.

25 And indeed, apart from the treatment of labor

1 mobility, it's also important to do many of the things that  
2 Maryla was referring to to try to desegregate labor by as  
3 many dimensions actually as the data would permit I would  
4 say, and secondly was to try to get creation of  
5 disaggregation into the national models since, as I said,  
6 these shocks are typically felt much more in certain parts of  
7 the economy, and I note this here. There are some references  
8 that you find and there is certainty models of the U.S.  
9 economy where indeed there is a bit of disaggregation.

10 I heard the bell, and I am done here, so thank you  
11 very much for your attention, and for those who are  
12 interested in mathematics, there is two appendices that try  
13 to summarize what we are doing in the paper, so thank you  
14 very much.

15 DR. POWERS: Thank you very much, Hans, and thank  
16 you for ending right there, in fact, perhaps even early, but  
17 let us move on to our next panelist or presenter, who is  
18 Rafael Dix-Carneiro at Duke University and also a visiting  
19 scholar now at the U.S. International Trade Commission.  
20 Rafael, take it away.

21 DR. DIX-CARNEIRO: All right. Okay. All right.  
22 Classic question. Can everyone see this?

23 MR. SECRETARY: We sure can.

24 DR. DIX-CARNEIRO: All right. Classic answer. All  
25 right. Thank you very much for the invitation and to pursue

1 me to present my recent work with Joao Paulo Pessoa, Ricardo  
2 Reyes-Heróles, and Sharon Traiberman, and the paper is  
3 motivated by the fact that it has been widely documented that  
4 large globalization shocks, such as the rise of China, trade  
5 localization episodes, these shocks have been leading to  
6 substantial disruptions in the labor market, and this  
7 empirical literature has led to an increasing interest of  
8 trade economists in modeling and quantifying the labor market  
9 adjustment process in response to these shocks.

10 And that literature has mostly focused on measuring  
11 and unpacking mobility frictions that workers might be facing  
12 in switching sectors or occupations, and we have used these  
13 models to quantify the implications of these frictions both  
14 for the adjustment process but also for their distributional  
15 consequences, right? And many of us have also used these  
16 frameworks to think about policies that might be implemented  
17 by the government to smooth some of these consequences of  
18 globalization shocks.

19 Now this literature has mostly focused on small  
20 open economy models, though, and on the other hand,  
21 multi-country, multi-sector general equilibrium models tend  
22 to be static and, typically, they don't allow for  
23 unemployment and they tend to be silent about the role of  
24 trade imbalances for the labor market adjustment process.

25 So what my collaborators and I have done here is

1 that we developed a model which is a multi-country and  
2 multi-sector general equilibrium model where, one, we're able  
3 to understand the adjustment tasks economies go through in  
4 response to globalization shocks, okay? So we're going to be  
5 able to characterize how economies behave dynamically in  
6 response to changes in the global environment.

7           The other thing is that we also are able to think  
8 about problems of adjustment that arise when economies face  
9 large globalization shocks, okay? So we're going to be  
10 thinking about whether it is hard for workers to move across  
11 sectors, across occupations, and whether, when they do,  
12 whether they're going to be facing unemployment spells, and  
13 then finally, and what is really special about this project,  
14 is that we're going to be thinking about the role of trade  
15 imbalances in this adjustment process, okay, and in  
16 particular, we show that trade imbalances can actually  
17 magnify problems of adjustment and can have important impacts  
18 on the labor market, okay?

19           So a bird's-eye view here is that this is a  
20 practical model that can be used to study the impact of trade  
21 policy on the labor market with a quite rich set of labor  
22 market facts. Yeah, so what is the paper about and what is  
23 the model, what are the different pieces of the model. So we  
24 again have a model that can be taken to the data, so it's a  
25 model that is estimable, it's a general equilibrium model

1 with many countries in many sectors, okay?

2           And this model is going to have three main building  
3 blocks. So the first building block is that we're going to  
4 have consumption-saving decisions in each country commended  
5 by a representative family following the spirit of Obstfeld &  
6 Rogoff, and these consumption-smoothing decisions, if you  
7 wish, at the country level is going to be generating trade  
8 imbalances, okay?

9           So the second component of the model is that we're  
10 going to have labor market frictions across and within  
11 sectors, so mobility frictions across sectors are modeled  
12 according to Artuc Chaudhiri McLaren, and these are models of  
13 classic mobility costs, so workers here are forward-looking.  
14 They're looking at wages in each sector, but whenever there's  
15 a shock to their sector to another sector, they're going to  
16 be trading off net present values of choosing a sector, but  
17 they have to incur mobility costs in order to switch sectors.

18           Now, even when they switch sectors, they're not  
19 guaranteed to find a job in the new sector because they're  
20 going to facing certain matching frictions within sectors,  
21 and this is the part of the model that is going to be  
22 generating unemployment.

23           Now we're going to be wrapping up all of these  
24 components into a comparative advantage model with costly  
25 trade. This is more of the bread and butter of trade

1 economies these days because it'll be based on the  
2 comparative advantage model of Eaton & Kortum and Caliendo &  
3 Parro if you want to have input/output linkages across  
4 sectors.

5           Now it's said the model can be estimated, and it  
6 can be estimated using data from the work input/output  
7 database if you want to get information on various aggregate  
8 variables from many countries, ILOSTAT to get information on  
9 unemployment rates across countries, and we can also use  
10 microdata on wages in worker sector transitions across  
11 countries in order to be able to estimate these mobility  
12 costs that workers face in switching across sectors.

13           So here's a bit of a slide with some of the  
14 findings that we got in this paper. So, first, we find that  
15 modeling trade imbalances can be quite consequential for us  
16 to understand transitional limits in response to  
17 globalization shocks. We do get quite distinct dynamics of  
18 adjustment compared to models that just impose that we have  
19 balanced trade, okay?

20           Interestingly here, maybe for policymakers, we  
21 don't find that trade imbalances are systemically related to  
22 changes in unemployment, okay? We can actually have trade  
23 surpluses, countries going through trade surpluses and still  
24 going through increases in unemployment in the same way as we  
25 can have countries going through increases in trade deficits

1 and also experiencing increasing unemployment, so we don't  
2 find such a systemic relationship here, okay?

3           When we apply our model to the China shock, we  
4 actually find that, one, the China shock did lead to a  
5 sizable deterioration of the U.S. trade deficit between 2000  
6 and 2014. We find that China accounted for a quarter of the  
7 decline of manufacturing in the U.S. over that period, and,  
8 actually, this estimate is halved if we had instead  
9 considered a balanced rate model again here showcasing the  
10 importance of taking trade imbalances into account when you  
11 think about the labor market effects of trade, and also, if  
12 we had imposed a balanced rate model, we would drastically be  
13 underestimating reallocation towards services, okay?

14           Interestingly, though, we find virtually no  
15 aggregate unemployment effect with the China shock because  
16 many of these workers that lose jobs in manufacturing,  
17 they're able to find jobs in services quite quickly, okay?

18           Now the other thing that is interesting as well,  
19 and I'm just going to put it here for the interested  
20 economists, we do find quite distinct welfare predictions  
21 compared to the ACR formula, so adding labor market frictions  
22 in trade imbalances can lead to quite divergent predictions  
23 for welfare compared to the canonical way that trade  
24 economists these days used to compute welfare effects of  
25 trade shocks.

1           Okay. So one thing that I have to be up front here  
2 is that the current version of this model does not speak to  
3 inequality effects of trade, but we are currently extending  
4 it to allow for different types of workers as well as  
5 endogenous gap accumulation in order to be able to talk about  
6 the effects of globalization on the steel premium, okay? Now  
7 the model can be easily sealed up on the number of sectors  
8 and industries, and just a bit of an advertising here, what  
9 we're advising, we're advising the U.S. ITC's Office of  
10 Economics to add this model to its toolkit.

11           All right. So, since I was asked to think about  
12 tradeoffs here, so one thing that is interesting to mention,  
13 important to mention, is that our model does not feature  
14 realistic geography within countries and many papers have  
15 shown that taking geography into account can be consequential  
16 for how we think about distributional effects of trade within  
17 countries.

18           The other thing that is important to mention is  
19 that the current model does not feature a lot of worker  
20 heterogeneity, but, you know, there are other models out  
21 there that feature wide, rich heterogeneity, but these models  
22 demand a lot more information on workers, and in particular  
23 here, I have a paper and my co-author, Sharon Traiberman, has  
24 a paper as well using Brazilian data and Danish data to be  
25 thinking about very rich distributional consequences of trade

1 but in the context of small open economy models, okay?

2 Now a note of caution here is that, you know, if  
3 you're thinking about using these models, if you're thinking  
4 about forward-looking individuals facing mobility across  
5 sectors, occupations, adding geography can be incredibly  
6 computationally challenged in here, high dimensionality of  
7 the problem is a bottleneck. So I'm done. Thank you very  
8 much, and talk to you later.

9 DR. POWERS: Rafael, thank you very much.

10 Now we are on to our next presenter, Kirill  
11 Borusyak at the University College London. Kirill, are you  
12 ready to take it away?

13 DR. BORUSYAK: I am. Rafael, maybe you can stop  
14 sharing so I can share?

15 DR. DIX-CARNEIRO: If I can figure out how I can  
16 stop sharing, I will. I cannot.

17 DR. BORUSYAK: Okay. Can you see my screen now?

18 MR. SECRETARY: Yep, you're all good.

19 DR. BORUSYAK: Okay. Excellent. Let me just move  
20 this other window away. All right. Thanks a lot for  
21 inviting me on this panel. It's a pleasure to see all the  
22 other presentations and I'll try to briefly talk about two  
23 papers actually, one about distributional effects of trade  
24 here and evidence from the U.S., which is an exact analysis  
25 of small trade shocks, and we'll look at the distributional

1 effects of these shocks through both cost of living and  
2 wages, and the other paper was experiential shift share  
3 redesigns, which is a methodological paper at the core  
4 focusing on shift share regressions like many that you have  
5 seen today, especially on the first panel, but I'll focus on  
6 how we revisit the Gordon and Hanson seminal study of the  
7 China shock.

8           Okay. So, on the trade and the cost of living  
9 first, so our idea here is that one can do a forward-looking  
10 analysis of a potential counterfactual trade shock based on  
11 measuring exposure of different consumers to these shocks,  
12 you know, the economics of it is that if you have a small and  
13 uniform change in import prices, then the effect of this  
14 shock on the cost of living or the price index of any  
15 household is governed primarily by the share of imports and  
16 the spending of that consumer, and, you know, households  
17 buying more imports will gain relatively more when the import  
18 price falls, and so it boils down to just measuring how  
19 originating import spending.

20           Of course, you know, there are many details. You  
21 need to measure the import share carefully, including  
22 intermediate inputs which are imported but then used in  
23 domestic goods production. Of course, this results about the  
24 sufficient statistic requires assumptions. For example, you  
25 need the perfect pass-through of cost enterprises for it to

1 work, but at the same time, it is kind of non-parametric and  
2 regardless of preferences of consumers, so you don't need to  
3 think about substitution patterns and so on. You just need  
4 to measure the exposure.

5           And important is this approach in nature naturally  
6 applies to more uniform shocks like, you know, we'll look at  
7 the trade war with China specifically, tariff elimination and  
8 so on, and so then kind of empirically the problem here is to  
9 measure heterogeneity in import spending for which we build  
10 three complementary data sets. Why so? Well, because, to  
11 measure import spending of a given household or household  
12 group, you need to see imports in terms of each product and  
13 then the consumer-specific expenditure shares, and that's not  
14 easy.

15           So we'll kind of do it in part. We'll first look  
16 at some groups' spend on categories of goods which are more  
17 imported on average, more than others, so that, you know,  
18 will match consumption data from consumer spending survey to  
19 the IO tables as a measure of import shares, but I'll also  
20 look at whether reach of more household, indicated or not  
21 indicated and so on spend more on imported goods within some  
22 categories of products, specifically fast-moving consumer  
23 groups using the Nielsen consumption data merged with  
24 economic census data on trade and the same for motor vehicles  
25 again to see who spends -- who buys imported cars in the U.S.

1 and who buys domestic.

2 And so our overall finding is that while import  
3 shares are similar across income groups, education groups,  
4 whatever groups, it also holds for China, it holds for, you  
5 know, specific products involved in the 2018 trade war  
6 specifically and so on, suggesting that probably these shocks  
7 do not affect the inequality of cost of living in the U.S.

8 The final part of the paper in terms of cost of  
9 living is to compare our measurement strategy with an  
10 alternative popular approach, for example, from the --  
11 well-known study, which doesn't measure -- which doesn't  
12 observe, you know, household specific or income group  
13 specific import shares but instead leverages across country  
14 more standard trade data to identify which products should be  
15 equalized from cross country.

16 The data predict within country heterogeneity in  
17 import shares and found very different from us strongly  
18 proper gains from trade shocks, from trade liberalizations,  
19 and so we show high sensitivity of such estimates to the  
20 demand system assumptions which are necessary for this  
21 approach, in particular, the aids in that system used by a  
22 number of papers, mechanical engineer rates before gains, we  
23 find that a different demand system of -- matches our  
24 measurement better, but, ultimately, if you can measure,  
25 that's all you should do, okay? So that's the first part

1 about inequality and the cost of living.

2 Now let me quickly talk about the second part about  
3 the labor market. So here again our paper tries to argue  
4 that a key statistic or key set of statistics you want to  
5 understand is heterogeneity in exposure of different workers,  
6 like different earnings group or the education groups, to  
7 different margins of trade, and that will be informative  
8 about the effects of counterfactual small trade shocks in the  
9 labor market.

10 And the idea here is that well, labor demand for  
11 these workers originates from product demand, and so, you  
12 know, worker groups which are kind of best exposed to trade  
13 shocks in various ways, they're the ones for whom the labor  
14 demand will grow more, and this exposure depends on, like,  
15 was the industry or the firm where you work at supposed to  
16 grow after the trade shock or shrink, and that is, in part,  
17 determined by observables, things like, you know, export and  
18 import competition measures in your industry or firm if you  
19 can measure that and similarly imported intermediates.

20 And so, by measuring the exposure of different  
21 groups of workers to these margins of trade, we get very  
22 useful information about the potential counterfactual effects  
23 of trade shocks. Now that's not all you need, and like the  
24 cost of living side, you also need elasticity as a  
25 substitution across different goods, which we calibrate, but

1 mainly we check robustness to various values of that, with  
2 the idea that if there are no differences of exposures and  
3 whatever, elasticity of good, it's unlikely that there will  
4 be differences in impacts.

5 As a final step here is to translate changes in  
6 labor demand predicted by the exposure statistics in the  
7 changes of wages, which requires thinking about the labor  
8 market mobility more, which we do a little bit on, but,  
9 again, if there is no difference in exposure, we don't expect  
10 a lot of systemic difference in incidence, so we formalize  
11 and implement these ideas in a simple quantitative trade  
12 model that are static, very simple. I'm not going to spend  
13 time on it quite yet, and so, again, we define that on  
14 average worker groups in the U.S. by earnings or education  
15 have very similar exposure to the various margins of trade  
16 that we can measure.

17 At the time same, there is a lot of heterogeneity  
18 in exposure within these groups coming from different  
19 industries, you know, some are exporting, some are not and so  
20 on, and so, as a result, we see that and we predict that  
21 there will be little effect of small trade shocks on income  
22 inequality while there may be strong heterogeneous or  
23 distributional effects as long as mobility of workers across  
24 industries is limited, so we call this horizontal  
25 distributional effects, which are kind of musical chairs.

1 They move around workers and create winners and losers within  
2 income groups rather than across, so we kind of conclude that  
3 at least through the mechanism that our model can understand,  
4 trade wars are not class wars, unlike the popular, you know,  
5 phrase these days.

6 And now, finally, in the last three minutes, let me  
7 switch gears completely and talk about shift share designs  
8 and regressions which are a popular tool for exposed  
9 evaluation of observed trade shocks. They are central to the  
10 local labor markets approach and therefore informative about  
11 the spatial inequality aspect of our theme today, and, as you  
12 all know, exposure in a typical scenario, exposure of region  
13 I to some shock, like, you know, a growth of import  
14 competition with China, is the sum across manufacturing I is  
15 the sum across manufacturing industry.

16 G is also local employment shares times the  
17 measured industry shock, and so the popularity is in part due  
18 to the fact that by comparing regions which are more and less  
19 exposed and not industries, we can better capture skill over  
20 effects, for example, on an effect of the industries within  
21 the same affected regions, and so our paper shows that we can  
22 think about these regressions, even though they are the  
23 regional level, we can think of identification of them as  
24 coming from the industry level and so whereas an industry  
25 level as good as randomness assumption, which is not a

1 trivial assumption by all means, but still it guarantees that  
2 the idea or less regression that you're running is going to  
3 be valid.

4 We also propose it by, you know, industry-level  
5 balance test, corrective errors there and so on, a bunch of  
6 practical tools which would verify these assumptions and make  
7 your estimates actually correct within the philosophy or, you  
8 know, thinking -- we're thinking that the industry  
9 exogeneities is something which is relevant in these  
10 regressions, and so a particularly important kind of  
11 empirical message, practical message from our study that I  
12 have the last minute for is what I call the incomplete share  
13 problem.

14 So, you know, all this is good. You can have  
15 exogenous shocks, but you need to put in an extra control for  
16 education to actually come from the industry heterogeneity,  
17 which in the simplest case is the -- it's always the soft  
18 share of exposure shares, which since trade shocks only shift  
19 manufacturing, it's basically the local share of  
20 manufacturing employment, and without it, we're not comparing  
21 different, you know, regions with alleging different things,  
22 such as wages.

23 We're just comparing manufacturing to  
24 non-manufacturing heavy industries, which may suffer from  
25 different shocks at the same time, and so, you know, a slight

1 complication here is that, you know, this is a simple  
2 control, but if our industry shock is only exogenous,  
3 conditioned on some observables like if you want to put time  
4 paradigm is -- then you should interact the sum of shares,  
5 the local manufacturing share wisdom and so, once we revisit  
6 the ADH study, the initial ADH study including that control,  
7 we find that the results change, and that's something which  
8 we hope will be taken by following work, which it hasn't  
9 always been.

10 So we see that, for example, in the initial paper,  
11 the effects on manufacturing employment of the China shock go  
12 down by about 30 to 55 percent, remaining insignificant,  
13 while the negative effects on various other outcomes, like  
14 non-participation in labor force or unemployment wages, they  
15 all become small and insignificant, which absolutely doesn't  
16 necessarily mean that the China shock didn't affect those  
17 margins, but it does mean that the initial regression doesn't  
18 really suggest that, and, again, we hope that this is  
19 something which, you know, this control is something that  
20 everybody should pay attention to in other work of this sort.

21 Thank you very much.

22 DR. POWERS: Kirill, congratulations on getting  
23 through two papers in the very short time period allotted.

24 Now we are moving on to our last presenter, Michael  
25 Waugh.

1 DR. WAUGH: Yeah, I'm ready. Can everyone hear me  
2 and see my slides? Yeah? Okay. Good.

3 MR. SECRETARY: We sure can.

4 DR. WAUGH: Great. So I got to preview anything  
5 I'm going to say does not, you know, reflect the fed or my  
6 fed in Minneapolis. So I'm really happy to be here. This is  
7 a paper that I worked really hard on in the fall of 2019  
8 leading up to the negotiations with China and then Covid hit  
9 and it kind of died with Covid. I stopped working on it for  
10 a while, and then I'm happy to bring it back and hear your  
11 thoughts on it.

12 So, in about 2016, I became very interested in  
13 distributional issues in trade. And I kind of came into this  
14 actually coming from the modeling side, is like how do I want  
15 to think about a model that could reconcile the stuff that we  
16 see in Autor Dorn and Hanson, and, you know, in my head, a  
17 bunch of questions came up, but one of the questions that  
18 this paper kind of seeks to address is this idea that -- so  
19 we see a lot of action going on on the labor market side. In  
20 fact, all today a lot of people are saying we see this  
21 particular aspect of, you know, labor market impact from  
22 trade, but, you know, conceptually, what you want to do is,  
23 if you want to get a welfare statement, is you want to go  
24 labor market into consumption and then into welfare.

25 And this was kind of a missing piece that I saw in

1 the literature, is, like, how do I actually get to something  
2 like what we see -- like see that shows up in the utility  
3 function, how that moves in response to a labor demand shock.  
4 Now the problem about this is it's very hard to measure  
5 consumption, right, and so that's kind of one of the  
6 innovations, I marshaled a bunch of resources to kind of do  
7 this, so let me tell you how I do it.

8           So I'm going to exploit the U.S./China trade war  
9 and in particular the first episode, which was very rapid,  
10 geographically disbursed, but I'm going to layer on top of it  
11 what I'll argue is a very high-quality measure of  
12 expenditures by households at a narrowly defined level, and  
13 the way I do this is I'm going to have the universe of U.S.  
14 new auto sales by month by county covering that whole  
15 particular time period. I mean, this -- I'll come back --  
16 I'll talk more about this, but this is essentially  
17 administrative-level style data set, and then I'm going to do  
18 something super simple. I'm just going to be correlating  
19 them with the geography at the county level with actions in  
20 the U.S./China trade war.

21           And you see super clear evidence in particular on  
22 the Chinese retaliation side, so counties that had higher  
23 exposure to Chinese retaliation, you see consumption drop  
24 quite dramatically and in particular in response to what  
25 looks like poor looking behavior, so it actually looks like

1 expectations are buying import in bulk here, you know, and  
2 I'm not going to talk about it today, but this kind of fits  
3 in with like what Rafael is doing, is I'm going to layer in  
4 on top of this a, you know, heterogeneous agent,  
5 multi-region, multi-country trade model to kind of interpret  
6 this evidence, and this is partly work in progress, but I  
7 won't go into this today.

8           So I just got to always be clear about what I'm not  
9 doing, so there's, like, a sequence of really important  
10 papers about the U.S./China trade war, but I call it that  
11 they typically think about the standard way to go about this  
12 is, like, trade is affecting prices, variety, and then that  
13 feeds into consumption and welfare, all right? That's not  
14 what I'm doing, all right? I'm connecting it thinking more  
15 conceptually with this labor market side is that trade at a  
16 narrowly defined geographic level is affecting labor market  
17 outcomes.

18           And then I want to see how that feeds into  
19 consumption. That's the idea. That's the whole premise of  
20 this, and so, again, like we saw concept papers on this, you  
21 know, we know something from today. We know something from  
22 Autor Dorn and Hanson about the first arrow, but the second  
23 arrow we kind of don't know a lot about, so that's kind of  
24 the real key contribution of this paper.

25           Let me just add one more thing about this is why I

1 think consumption is important, is it's from a normative  
2 standpoint for how to design policy. So one way to think  
3 about this is actually in the context of this paper by, like,  
4 Mark Bailey and Ron Arshetti, there's two papers. But the  
5 basic idea was about how you design off the mole unemployment  
6 insurance, and one of the key results that comes up on those  
7 papers is you need to know how consumption responds to an  
8 unemployment spell, so the way to think about this is if I  
9 know how the consumption is responding to the trade shock,  
10 then that can help me design how I should, you know, design  
11 trade policy or some other kind of insurance in response to  
12 the shock, so that's why I think this is something.

13 So the way I correlate with this geography is  
14 pretty simple. It's similar to what people have done. I'm  
15 basically going to take the tariffs from the U.S. side and  
16 the Chinese side and start at like the highest level, merge  
17 it into NAICS and then use 2017 employment statistics from  
18 the BLS to construct, like, you know, apportion the tariff  
19 based on, you know, how much employment is in a particular  
20 sector, so it's always like, if you get confused, sometimes I  
21 do, for example, if a county's employment is all soybeans,  
22 then that county is going to be effectively facing the  
23 soybean tariff, all right?

24 Now most of the results here that I'll talk about  
25 today, you know, is on the Chinese side, but I have some of

1 -- the U.S. side isn't as clear. I can talk about that more  
2 later. You know, the one other thing when I do this is I  
3 only focus on the initial period of the U.S./Chinese trade  
4 war, and partly that's to avoid a treatment on a treated  
5 problem when you start looking at the last period, so I'm  
6 going to be exploiting this like very fine window and when  
7 you see these rapid policy actions, so this is like a very  
8 high frequency study.

9           So this is kind of -- I mean, I'm not going to talk  
10 too much about these maps, but, you know, a lot of people  
11 have maps today, and then Kirill didn't have a map, but, you  
12 know, this is, you know, the Chinese retaliation in  
13 particular hit agriculture, rural kind of counties, so that's  
14 in a sense about, you know, the kind of communities that this  
15 is affecting, the Chinese retaliation. U.S. retaliation is  
16 -- or U.S. actions were correlated with Chinese retaliation,  
17 but it was more upper Midwest kind of thing than less  
18 agriculture.

19           So now here's the consumption measure. So I  
20 purchased this from IHS Polk. I actually have an NSF grant  
21 that allows me to continue to purchase this. It's at the  
22 county level by registration, so this is important, so it's  
23 actually where people are registering it, not where they're  
24 buying it, so if I bought when I used to live in New York, if  
25 I bought a car in Pennsylvania, it's going to show up on my

1 data set as being in New York, right, because it's registered  
2 to my household, so I have it bi-monthly, so it's high  
3 frequency.

4 I actually have actually minor details. I have it  
5 make, model, and so forth, and this is derived from  
6 registration at the state DMVs. You know, this matches  
7 national and common product accounts that are like within  
8 like decimal points in terms of -- so I basically capture  
9 everything. You know, you can't match this data set in terms  
10 of high frequency, geography in near real time. Like, I was  
11 doing a bunch of this stuff in fall 2019, so I could see  
12 actually very quickly what was going on. You can't see this  
13 in CX or the PSID.

14 And then the other issue is it's not sent like, you  
15 know, another question that typically comes up is why don't  
16 you look at the -- credit card data stuff. Typically, these  
17 data sets have, you know, sampling or, you know, various  
18 restrictions on who's looked at, whereas this is the  
19 universe. I have the universe here, so here's like kind of  
20 the main result, and once you kind of unearth this, you kind  
21 of see a lot of stuff, so this is just simple -- two by two  
22 diff and diff kind of thing, so I'm going to chop this up  
23 pre-trade war, post-trade war. I'm going to define it as  
24 June 2018, all right?

25 So the first column says -- this is in the Chinese

1       retaliation side, upper quartile of the change, so who got  
2       hit the most, bottom quartile who got hit the least, and then  
3       that's pre-trade war, so the way to interpret this is these  
4       are in log points, but this is like upper quartile was like  
5       growing, auto sales were growing at about one percent per  
6       year, and then the bottom quartile, auto sales were growing  
7       at about one percent a year, so when you kind of look at  
8       this, it looks like the trends in auto sales across these two  
9       different types of counties are about the same.

10               Post-trade war, what you see is both growth rates  
11       go down. Partly, that's because of my employer, my employer  
12       now, they were raising interest rates during that time, so  
13       that reduced the auto demand, but what you see is in the  
14       upper quartile, the places there were more exposed, they saw  
15       larger decreases in auto sales growth, all right? And you  
16       can do -- visually, I'll show some regression scales which  
17       have both the U.S. and the Chinese tariff. You know, columns  
18       1 and 2 are just the most simplest kind of projections that  
19       you could see, so just projecting auto sales growth on this.

20               Column No. 3 shows that when I include both, what's  
21       happening is everything's loading on the Chinese retaliation  
22       tariff, and then 4 and 5 include various time effects and  
23       then time by observation controls, which actually kind of  
24       look like the stuff that Kirill was talking about, the last  
25       thing here, and what again comes out very clearly is that

1 counties that were more exposed to Chinese retaliation saw  
2 actually substantial decline in auto sales growth in response  
3 to it. So this is my sense about like auto sales isn't all  
4 consumption, but it's a sense that it's picking up, you know,  
5 declines and you can see.

6 I'll end on this table here. This is kind of  
7 projecting on the forward, so it's trying to pick up  
8 anticipation effects, and, again, here, leading up into the  
9 trade war is you see this stuff is in, you know, the standard  
10 error, no effect of the lead, but then almost on  
11 announcement, you see a big drop in consumption, so the  
12 consumption response does look like it's not only picking up,  
13 you know, what's happening today but expectations about the  
14 future, and that's kind of like the whole point about, you  
15 know, adding in the model is that here I can then think  
16 about, you know, both how people are reacting to expectations  
17 about how this is going to play out in the future, so I'll  
18 just end it here and then we can talk more in the chat.  
19 Thank you.

20 DR. POWERS: Thank you, Michael.

21 So we are moving in to the question and answer  
22 portion of this. I don't believe we have any from the  
23 audience yet, so I would encourage you to send in your  
24 questions to de@usitc.gov, but I have several questions, and  
25 one of the issues that I've heard across several of the

1 presentations today is ex ante analysis, and as an  
2 organization that provides analysis and things approaching  
3 advice to policymakers, the Commission is often tasked with  
4 doing ex ante analysis, and oftentimes policymakers very,  
5 very much want to know what the effect of something that they  
6 are considering doing will be on, in this case, you know, a  
7 distributional population.

8           But, you know, in any of their policies, they like  
9 to know, and we are one of the places they come to, so, you  
10 know, we know that the benefits of CGE in ex ante analysis,  
11 and we heard that from both Maryla and Hans, you know, they  
12 are disaggregated. They can look upstream and downstream.  
13 They can look at the effects across sectors. They can look  
14 at the effects across countries, and so that's what we've got  
15 going on there, and now, Rafael, I think one of the  
16 challenges with these CGE models have traditionally been that  
17 it's very difficult to incorporate any regional data into  
18 them.

19           And, Rafael, it was quite interesting to hear you  
20 say as well that it's quite difficult to integrate regional  
21 information into yours, and that may just be, as you said,  
22 fundamental to any forward-looking GE model, so let me ask  
23 this. Which of these models, given that this is a  
24 requirement, this is something that stakeholders absolutely  
25 have interest in knowing and really want to know to get their

1 policies right, how do we go about -- given all the tools we  
2 have at our exposure, at our command, how do we go about  
3 doing that type of ex ante analysis? What's our best set of  
4 tools right now?

5 DR. DIX-CARNEIRO: Was it a question for me  
6 specifically or for everyone?

7 DR. POWERS: For the panel, but, yeah, why don't  
8 you lead us of off because you kind of started us down that  
9 direction.

10 DR. DIX-CARNEIRO: So, okay, I'll take the lead  
11 because, I mean, very coincidentally, we just had a seminar  
12 here at Duke by Rodrigo Adão, who just wrote a paper with  
13 Dave Donaldson and Arnaud Costinot precisely on that  
14 question. You know, trade economists, typically, we don't  
15 have much of a culture to, you know, assess, you know, how  
16 our model's predictions are, which is quite different from  
17 what actually the macro-economists have been doing, which  
18 they're all the time assessing how their models are doing out  
19 of samples.

20 So there's something we don't have this culture,  
21 and we've been debating over the standard areas is because of  
22 lack of data, is this because, you know, trade economists  
23 mostly work with the same models and so forth, but I think  
24 that the truth, and I think I'll be honest here at least from  
25 my side, is that we don't know how well some of our models

1 actually do in projecting some of these counterfactuals, and  
2 I think that the big value here about estimating an  
3 instructional model and simulating it is mostly about really  
4 understanding the mechanisms and getting a good picture of  
5 the magnitudes that are involved in these counterfactuals,  
6 but I'm very curious to hear other people's perspectives as  
7 well.

8 DR. POWERS: Thank you. Kirill?

9 DR. BORUSYAK: Yeah, so just to add to what Rafael  
10 said, I mean, I think these like at least two papers by  
11 Rodrigo Dow are pushing us very nicely in that direction and  
12 specifically in terms of how we can, you know, achieve this  
13 goal of evaluating our models, right? So something which I  
14 don't think, you know, our field has quite adopted yet but  
15 should is to take the same model using a historical, you  
16 know, episode of trade policy, predict, you know, what the  
17 model, you know, see what the model predicts, and that can be  
18 done for any model as complicated as you wish, and then  
19 regress the truth in the prediction and the coefficient has  
20 to be one, and nothing else should predict -- you know,  
21 everything else should be unpredictable, and I think that,  
22 you know, Dow's papers are doing this, and I think we all  
23 should.

24 DR. POWERS: Thank you. I see that, Michael,  
25 you've got your hand up as well, and then I think Maryla

1 after that. All right. Hans, we've got the full group.  
2 Michael, please.

3 DR. WAUGH: Yeah, I just wanted to kind of take a  
4 different take on this, is that, you know, for example, like  
5 what Rafael is doing today is, you know, a lot of -- you kind  
6 of strip down the forward-looking model to kind of  
7 investigate mechanisms and kind of understand things, and  
8 then, like, for example, your question is how do we do  
9 forward-looking analysis, and, you know, one of the things  
10 that comes up, though, is -- I'd like to hear this from you  
11 is how do we think about policy forward-looking analysis,  
12 and, you know, some of these models and a lot of these models  
13 is there's kind of no role for policy because the allocations  
14 in these models are first best, and so somehow we need to  
15 think about, well, what is the source of the inefficiency.

16 Maybe that's the -- you know, and partly that's why  
17 I started talking about the consumption, was, you know, you  
18 could have a bunch of labor market frictions, but if you have  
19 a complete markets allocation, even though people aren't  
20 adjusting on the labor market side and the consumption side,  
21 everything's a-okay, so I think the thing is like forward  
22 looking, I mean, I would kind of say is like, well, what's  
23 the friction? Like, how do we kind of answer that and then  
24 evaluate policy.

25 DR. POWERS: Michael, I will return to that.

1 Hopefully, I'll have a chance to give my impressions, but  
2 first I'm going to go to the other panelists. Maryla?

3 MS. MALISZEWSKA: So thank you. I'm going to give  
4 some substitution models. I'm going to maybe be a little  
5 controversial by saying that we now have the -- what -- how  
6 good we are at predicting the future, they are terrible, and  
7 there's no doubt about it, but that's just by design because  
8 the world is so much more complicated that we should ask for  
9 better tools to predict the future and adjust the ability to  
10 do a default ex -- to understand the mechanism, which sector  
11 is the order of magnitude, but the world is so much more  
12 complicated, which I think we've learned from the analysis  
13 exposed on areas of soft math, which basically doesn't  
14 reflect volumes of G models.

15 They just are an immediate view of the world, so if  
16 you're missing FDI, if you're missing other macro  
17 development, the labor market is mostly driven by market  
18 development models that have trade, even don't have a good  
19 handle on technology and that that's driving a lot of like  
20 trade decision. We don't have often -- I mean, I know the  
21 U.S. ITC has a model of FDI, but, nevertheless, there is a  
22 lot more going on, so even though I think it's a valuable  
23 exercise and I know that Peter Dixon does an amazing job for  
24 U.S. economy of trying to do this exposed validation  
25 experiment, I still think that we should acknowledge the

1 limitations and maybe the goal should still be improving the  
2 models but never use them for prediction, just for  
3 understanding the mechanics that work.

4 That's my take on this, and then the original  
5 question I think, Bill, was what they're good at doing, what  
6 they're not so good at doing, but maybe we'll come back to  
7 it, so I'll turn it over to Hans.

8 DR. POWERS: Hans.

9 DR. LOFGREN: Okay. Well, I have sort of a general  
10 observation that it is actually very difficult to compare  
11 these different models because they're enormous in terms of  
12 the labor disaggregation, the household disaggregation, the  
13 sectoral disaggregation, whether you have regions, what kind  
14 of policy tools you have available in the model, and then the  
15 question is then what is it that is relevant to the  
16 policymaker and what is the empirical validity of this, so  
17 it's a very, very difficult question to answer, and,  
18 unfortunately, the literatures are quite sort of separate  
19 here, the ones that we have recorded here.

20 I think there's a strong case for doing model  
21 comparisons because often models are actually sometimes  
22 deceptively similar, but they look much more similar than  
23 they are, even models that are quite -- sort of belong to the  
24 same class are making assumptions that are actually quite  
25 crucial and different, so I think to put an effort into that

1 I think is quite useful. It has been done in the CGE area  
2 for energy policy analysis to try to understand why do you  
3 get different results.

4 And finally, regarding the CGE models, of course, I  
5 mean, we are doing counterfactual simulations. We're saying  
6 that, you know, Factors 1, 2 or 3 are changing and we see  
7 what will happen in the economy over time if you do that,  
8 but, of course, in the real world, you know, 10 other things  
9 will change too at least, right? So we don't know about the  
10 kind of information about. It's a big challenge. Thanks.

11 DR. POWERS: Thank you, Hans. I think you made an  
12 excellent point there that I actually was confusing two  
13 different questions. One is for the empirical validity and  
14 then one is the relevance to the policymakers, and I know  
15 that, Maryla, you were just about to say something about what  
16 they're good at and what they're not good at, and maybe that  
17 would get to that second question. If you could maybe chime  
18 in on that one? I know you mentioned you might have some  
19 thoughts on that.

20 MS. MALISZEWSKA: Yeah, so, basically, what I was  
21 trying to say, that indeed, like, we -- maybe we cannot  
22 predict the future exactly like Hans said. There are so many  
23 things we cannot predict, but what we can do is to think  
24 through the consequences of different scenarios, so the  
25 policymakers are facing different choices in trade policy

1 areas as to whether, you know, reduced barriers to trade  
2 through tariffs and Ems or trade facilitation reforms.

3 And, basically, our limited resources, you need to  
4 decide what's going to bring the biggest benefit and who it  
5 might hurt and what degree, what are the potential winners  
6 and losers. I think that's the advantage of having these  
7 filtering models, and, basically, the most we can do is to  
8 try to improve the data to try to improve the models themselves  
9 or how do you tackle different workers, transition across  
10 sectors, substitutability across different occupations.  
11 Maybe if we can build in tasks as well, I know that you can  
12 also -- there are CGE models that have some national  
13 component built in. There's models for U.S. and so just  
14 improving the data side, improving the mechanisms that we  
15 cover, I think that that's going to get us to produce better  
16 results for policymakers, more valuable insights.

17 DR. POWERS: Thank you, Maryla. I would like to  
18 return back to Michael Waugh's question earlier. Michael, I  
19 didn't want you to think I'm ducking it, but I did ask around  
20 other things, so sort of what are we looking for? Or, first,  
21 I guess to the Commission, what am I looking for in these  
22 things? And I think, if you hear what Maryla just mentioned  
23 in terms of tariffs and non-tariff measures and trade  
24 reforms, the types of things that U.S. policymakers are  
25 interested in, and we're an independent agency and we give

1 analysis to both the executive branch and Congress, really  
2 spans an enormous amount of things.

3           And so one of the things that a practical model has  
4 to be able to do is you need a whole basket of different  
5 models to analyze things, which is one approach and one that,  
6 you know, certainly don't put all your eggs in one basket, or  
7 you need to have one that's fairly adaptable to putting  
8 different types of policy shocks in it. It's often about  
9 what does this provision in a trade agreement do, and so it's  
10 actually is there any way to put a provision effect, you  
11 know, in an agreement, you know, and into a model and so that  
12 it has to be flexible enough for that.

13           And I completely understand what you're asking  
14 about. You know, your paper makes this great point about,  
15 you know, labor market frictions are not really going to  
16 affect much if you have complete insurance and, obviously, we  
17 don't. We must not have complete insurance because they sure  
18 do affect consumption, but even before I get to the analysis  
19 of what those inefficiencies are and that helps me choose a  
20 model, I have to figure out is the model practically  
21 applicable to the multitude of questions that I'm likely to  
22 get in this situation?

23           All right. I do have a question for Kirill,  
24 specifically for you, and sorry to just -- and maybe you all  
25 can just chime in, and this is the question I sent you

1 earlier, and you didn't get a whole lot of time to get to it  
2 in your shift share analysis, but we have heard that type of  
3 analysis applied repeatedly today and you have suggested that  
4 perhaps with the addition of additional controls -- there was  
5 some -- before your paper, there was some talk in the  
6 literature that perhaps that wasn't what -- Autor Dorn and  
7 Hanson were using, for example, weren't good instruments.

8 But you said with the addition of additional  
9 controls, it is actually a pretty reasonable approach to  
10 doing this, but if you look at it, wait a minute, some of  
11 these effects are lower or not even significant. Given how  
12 pervasive this method is in the literature right now, how  
13 reassured should we be by your findings or how worried should  
14 we be by your findings?

15 DR. BORUSYAK: I mean, you know, I think there is  
16 -- let me give you two answers to this question. One is  
17 idealistic and one is realistic. The idealistic answer is  
18 that, I mean, you know, no empirical work is ever perfect,  
19 and as long as we get our best estimates, that's as good as  
20 it gets, and so I think that, you know, our paper tried to  
21 contribute some tools to improve the estimates, and our paper  
22 did it in one dimension, but there are many others like, for  
23 example, again, the work of, for example, Dow -- and  
24 Esposito, and the spatial spillovers of these shocks is  
25 another dimension muted by the initial shift share which can

1 be incorporated into the shift share kind of reality, and,  
2 you know, if you take all of the things and put together,  
3 you'll get the best estimate you can.

4 Now, on the other hand, that requires diffusion of  
5 the tools, which is something which we don't see fully, and I  
6 encourage everyone using the methods to pay serious attention  
7 for the data I showed in the case of the initial Hanson  
8 paper, you know, matter quantitatively for the most important  
9 estimates we have in the literature.

10 Now, again, this doesn't mean that, you know, the  
11 change didn't have an impact to anything. In fact, the 2021  
12 paper of Autor Dorn Hanson didn't make -- you know, didn't  
13 exclude the control we're talking about and still found  
14 significant impact. They also changed many other things, and  
15 so I don't quite know which changes contributed, but, you  
16 know, I think we should try to adopt the best, you know,  
17 tools here to, you know, get the estimates which are  
18 certainly better than the ones without them.

19 DR. POWERS: Thank you. I've got five minutes left  
20 and I'm hoping -- I think it's -- is it five or 15? Jean,  
21 what do I have?

22 MS. YUAN: I think we are actually still having,  
23 like, eight minute and a half.

24 DR. POWERS: Oh, thanks. I lost track of the  
25 clock. Thank you. I've got eight-and-a-half minutes left.

1 Thank you, Jean.

2 So I've got one question here, and it's about what  
3 we would find if we added distributional effects, additional  
4 types of distributional effects into our model. I'll just  
5 give you some examples.

6 Michael, you had talked here in this back and forth  
7 that, you know, the large difference between consumption --  
8 that large changes in consumption means that firms -- people  
9 -- excuse me -- workers can't ensure against these shocks. I  
10 think our ability, given the differences in wealth by  
11 demographic groups and other things, I think that that could  
12 be pretty substantially different by demographic groups.

13 On the other hand, I think it was -- you're finding  
14 it's not -- you know, that some of these heterogenous effects  
15 are not that strong. I may be mischaracterizing that, and if  
16 I am, it would be worth having you put that out there for us.

17 Rafael, you mentioned that getting it into your  
18 model is hard. But, if anyone has any thoughts about, you  
19 know, what we would -- how large these effects would be as we  
20 put them into our models, I think that would be great to  
21 hear.

22 Michael?

23 DR. WAUGH: Yeah, so let me, like, lead off on  
24 this. I mean, I have several papers that have these  
25 distributional issues floating around. So I wrote a paper,

1 you know, both with Spencer Lyon, and it's a -- where there's  
2 a distribution of wealth in locations. Having the geography  
3 is a little abstract, but it's in a way that we can solve it.

4 And one of the things that comes up is exactly what  
5 you're talking about, this notion that if you have a  
6 demographic group that's relatively poor in terms of wealth  
7 and then even if you have a small income shock, but you're  
8 hand to mouth, so you don't have any ability to smooth it,  
9 it's going to be very painful. So we can think about various  
10 demographic groups that have very low wealth, and when you  
11 have these just small shocks in income, it is a bad thing.

12 And, you know, the only thing that I'm going to add  
13 to this conversation is that in one of the papers with  
14 Spencer, what we did was we thought, how can you make things  
15 better? How can policy improve outcomes? And someone  
16 suggested this earlier, is what you do is you use a  
17 progressive tax scheme, and, in fact, you make the tax scheme  
18 more progressive as you become more open. And what that does  
19 is naturally provide insurance to those low income, low  
20 wealth households when you open up to trade.

21 DR. POWERS: Thank you.

22 Rafael, have your hand up?

23 DR. DIX-CARNEIRO: Yeah. So, I mean, there are  
24 different models to answer different questions. So the model  
25 that I presented here today, we don't speak to inequality,

1 but in past work, the focus has been on inequality of facts  
2 of trade. And I have a paper focused on Brazil where there I  
3 take heterogeneity very, very seriously. Workers can be  
4 heterogeneous in terms of education, age, gender, and  
5 sector-specific experience and also in innate ability across  
6 sectors.

7           So you have many dimensions of heterogeneity in  
8 this other paper, and we actually showed that, in the context  
9 of Brazil, shocks to sectors can have very large  
10 distributional consequences, right? So workers in sectors  
11 are affected by, adversely affected by price changes. These  
12 workers lose relative to the other workers. So that's one  
13 dimension of distributional effects.

14           But even within the sector that is hard hit you  
15 have very large distributional effects within the sector.  
16 For instance, older workers face much larger cost of  
17 switching across sectors, older workers lose  
18 disproportionately more than younger workers, and educated  
19 workers face lower costs of switching, okay? They tend to  
20 lose less than less-educated workers.

21           So, again, a different model for different  
22 questions, but, you know, in the context of Brazil, if you  
23 have a model with very rich heterogeneity -- but for this  
24 kind of model, you need a lot of data as well. So it's not  
25 easy to characterize these distributional effects in any

1 context.

2 DR. POWERS: Thank you, Rafael.

3 And, Kirill, if you'd like to jump back in and  
4 correct whatever I got wrong on your model, that would be  
5 fantastic.

6 DR. BORUSYAK: Not too much, but just a couple for  
7 a couple of comments. So, in terms of what I presented --  
8 sorry I didn't have a lot of time to speak in detail -- what  
9 our results show is that across the income dimension, which  
10 is the one relevant to inequality -- indeed, there doesn't  
11 seem to be a lot of heterogeneity through the mechanism which  
12 our model can understand, which is not all mechanisms and,  
13 you know, other papers today have shown very interesting  
14 others -- there is a lot of heterogeneity within income  
15 groups, right? So, yeah, and that's the kind of horizontal  
16 versus vertical distributional effects that we want to  
17 emphasize.

18 Now, on a broader point of, like, you know, how do  
19 we learn about this, I think a useful framework here is to  
20 think that the effect of any shocks on different people can  
21 be different for exactly two reasons: either their exposure  
22 to the shock is different, or their elasticity, kind of  
23 responsiveness, to the shock is different.

24 And, typically, exposure is easier to measure, and  
25 the elasticity is where structural modeling does a lot of the

1 heavy weighting, and that's significant, and that's fine.  
2 It's just that, you know, I think it's useful -- and our  
3 paper tried to do that as well -- to kind of measure what we  
4 can measure first, and if we don't find heterogeneity  
5 exposure, then you need to provide quite strong evidence that  
6 the elasticities that we are getting, which are always more  
7 difficult objects to measure, are real, and, therefore, our  
8 distributional effects is real.

9           And, of course, we know that there are real  
10 distributional effects. It's just that I think that the kind  
11 of burden of evidence here is stronger.

12           DR. POWERS: Thank you.

13           All right. Well, we might have time for one last  
14 question, and I think I'll throw it up to Hans. Hans, you  
15 know, I find this quite interesting. You were talking  
16 earlier about some of the CGE comparison efforts we've had.  
17 And if I were to broadly characterize your approach, you  
18 know, you've got a GE model where you have introduced the  
19 cost -- the loss in productivity of a worker shifting from  
20 one sector to another. And you did that, actually, by  
21 looking at the distance in trade in some sense. I think, if  
22 I were to broadly characterize Rafael's work, I could say  
23 it's a GE approach that has, you know, worker labor market  
24 frictions in a similar way.

25           And I guess, if you were to compare these models,

1 you know, if you were to look at these, what question do you  
2 think would be useful that you could take these quite  
3 different models on the inside but somewhat similar models in  
4 generalities, and what question should we ask so we could put  
5 these against each other and have a horse race and see which  
6 one is closer to reality?

7 DR. LOFGREN: Well, I mean, maybe by Michael's  
8 thinking, I think that this model that I presented is really  
9 part of the broader CGE literature, so it comes with the pros  
10 and cons of that literature, but it's clearly better at  
11 looking at things that do not have so much to do with the  
12 dynamics, but more the incidents or specific detail, tariff  
13 barriers, non-tariff barriers, price changes with certain  
14 products, and so on, and who is being hit by that. I think  
15 that's a strong suit of these kinds of models. And now there  
16 are 13 seconds left.

17 DR. POWERS: Well, thank you, everyone. I think  
18 I'll use these 13 seconds to say thank you to my panel. It's  
19 been a lovely conversation. I really appreciate the very  
20 different perspectives we've taken in to this and some of the  
21 insights we've generated.

22 And I think unless Sandra or somebody is going to  
23 come on and lead us out for the day, Sandra, who should say  
24 thanks to everyone?

25 (Nonverbal response.)

1           DR. POWERS: I think Sandra's saying I should do  
2 it. Anyway, thanks, everybody. I thought this was a super  
3 interesting and great opportunity, a very unusual  
4 opportunity, to get so many different and relevant papers  
5 together. I appreciate it, I am certain that our requestor,  
6 the U.S. Trade Representative, has enjoyed it as well.

7           And on behalf of the Commission, I thank everybody,  
8 and I look forward to seeing as many of you as we can get  
9 tomorrow. Remember, this is a two-day event, and tomorrow  
10 we're going to start off by looking at some of the data  
11 issues and then move to an international and a broad-picture  
12 perspective, so please come back for that. Hope to get you  
13 all tomorrow. And I will see you soon.

14           MR. SECRETARY: Thank you, everybody. Hope to see  
15 you tomorrow.

16           (Whereupon, at 4:45 p.m. the meeting in the above-  
17 entitled matter was concluded.)

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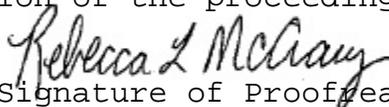
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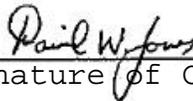
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