

UNITED STATES INTERNATIONAL TRADE COMMISSION

In the Matter of:)
)
GENDER-SEGMENTED LABOR MARKETS) Inv. No. 332-599
AND TRADE SHOCKS)
)

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

Monday,
 July 15, 2024

The seminar commenced, pursuant to notice, at
 10:00 a.m., before the United States International Trade
 Commission.

PARTICIPANTS:

USITC:

TAMAR KHACHATURIAN, Moderator
 BILL POWERS, Chief Economist, Director, Office of
 Economics
 TAMARA GUREVICH, Economist

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 Information Officer
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P R O C E E D I N G S

(10:13 a.m.)

MR. POWERS: Thanks, Tamar.

Good morning, everyone, and good evening for some of you. Welcome to the first seminar of the Commission's 2024 DE seminar series, one of the events we are holding in the lead-up to our next report on the Distributional Effects of Trade and Trade Policy on U.S. Workers.

Some of you may have joined us for one of our similar events last year. If so, great seeing you back. For those of you who are unfamiliar with this series of USITC reports on the distributional effects of trade, the Commission put out our first report in October 2022. USTR has since asked for a series of five more reports on this topic over the next 15 years. The Commission will put out the first of those reports in January 2026.

Please see our website for more details on the seminars in this series and the upcoming report. Perhaps we could put the link to the website in the chat?

Before I introduce Raymond Robertson, our speaker today, I want to go over how we will conduct today's session. Professor Robertson will present for about 60 minutes. Tamara Gurevich, our discussant from the USITC, will follow for 10 minutes each. That will leave about 20 minutes at the end for Q&A. Please put any questions you have into the

1 chat, or use the raise hand function, and we will get to them
2 during the Q&A session.

3 Our speaker today is Professor Raymond Robertson,
4 who will be presenting his paper, co-authored with Carlos
5 Goes and Gladys Lopez-Acevedo, entitled "Gender-Segmented
6 Labor Markets and Trade Shocks."

7 Raymond Robertson is Professor and holder of the
8 Helen and Roy Ryu Chair in Economics and Government at the
9 Bush School of Government and Public Service at Texas A&M
10 University. He is the Director of the Mosbacher Institute
11 for Trade, Economics, and Public Policy and also a research
12 fellow at the Institute for the Study of Labor in Bonn,
13 Germany. He is widely published in the fields of labor
14 economics and international economics. Among many other
15 positions, Professor Robertson previously chaired the U.S.
16 Department of Labor's National Advisory Committee for Labor
17 Provisions of the U.S. Free Trade Agreements.

18 The paper Raymond is presenting today examines how
19 trade openness influences income inequality within countries.
20 The paper examines whether foreign demand shocks increase or
21 decrease the female-to-male employment ratio. The paper
22 examines the case of Tunisia in more detail and finds
23 empirical support for their predictions.

24 I now turn it over to Raymond.

25 (Technical interference.)

1 MR. ROBERTSON: -- important distinction between
2 the effects on the industry and the effects on a factor like
3 women.

4 So, when I'm going to be talking about the effects
5 on women, largely, what we're going to argue is that a shock
6 to the apparel industry which is female-intensive is going to
7 affect the factor of women, right? It's going to affect
8 women. And it's not just going to affect women in apparel,
9 which is the way most people think about it, that it's an
10 industry-specific effect, but it actually spreads throughout
11 the economy by affecting women everywhere.

12 So some of the labor market outcomes that we're
13 going to focus on are employment, labor force participation,
14 and potentially relative wages. And I'll talk about why
15 we're not going to be talking about wages in a minute but
16 mainly employment and labor force participation.

17 So that's a key point, right, so that we can't have
18 industry versus factor effects, but some shock to a
19 particular industry can have factor-specific effects, and
20 I'll explain that in more detail.

21 The next point is that rising or falling exports
22 are expected to increase or decrease the demand for labor
23 generally, right? So this is one of the reasons why so many
24 countries are really excited about promoting exports.
25 Basically, they see exports as a way to increase labor

1 demand. And just simple supply and demand, I mean, this is
2 going to work exactly like you think. All of you, I'm sure,
3 are very familiar with supply and demand obviously, but an
4 increase in demand is going to be increasing both wages and
5 employment, and lots of countries are interested in this, and
6 they see all the success of the East Asian countries, where
7 the increase in exports really boosted the demand for labor.
8 We see this around the world.

9 But we're going to make a much more subtle
10 distinction here about looking at the intensively used factor
11 and look at those labor markets, local labor market effects
12 of those exports.

13 So I want to just take a step back and highlight
14 this difference between industry and factor, and part of the
15 difference here is obviously distributed by time. So I'm
16 going to be drawing upon another paper that we did for
17 Bangladesh, actually, where we have a two-industry
18 Heterogenous Comparative -- Heterogenous Firm Comparative
19 Advantage -- that's the HFCA, is Heterogeneous Firm
20 Comparative Advantage models. And we simulate how a trade
21 shock, like an export shock, is going to be affecting
22 different industries and factors.

23 And most of the time people think about an adverse
24 or a positive shock as being industry-specific. If you look
25 at this graph, this is the results of the simulation that we

1 did in that other paper. You see that when you simulate it,
2 the industry effects emerge immediately, so a positive shock
3 to say, this is just in industry one, is going to increase
4 the wages of males and females in that industry in the short
5 run. But what happens over time is that the wages that are
6 going to converge into the factor-specific effects as workers
7 move between industries, and you end up having
8 factor-specific effects.

9 And so the factor that gains is going to be the
10 factor that is intensively used in the industry that had that
11 shock, right? So, if there's a positive shock to a
12 male-specific industry, in the short run, both the men and
13 the women are going to benefit from that. But, in the longer
14 run, it actually is going to help the men as the intensive
15 factor and hurt women as the non-intensive factor but not
16 just in that industry but everywhere, right?

17 So, in the short run, we see these
18 industry-specific effects. In the long run, we see
19 factor-specific effects.

20 So, if we look at, for example, and this is data,
21 this is an example from Bangladesh where a positive price
22 shock to apparel should close that male/female wage gap
23 everywhere, not just in apparel. So this is just to
24 highlight the relevance of this approach and to highlight
25 this distinction.

1 So what we did in this other story that I just
2 wanted to highlight for you is we had an exogenous price
3 shock to Bangladeshi apparel because, in 2011, the European
4 Union relaxed the rules of origin for least developed
5 countries and allowed imports of clothing that use textiles
6 from any source and still qualify for preferential treatment.

7 So what happened here was that there was a positive
8 price shock to a particular kind of apparel. And you can see
9 this is a distinction within apparel of knit versus woven.
10 And so they shifted towards the more or higher-priced type of
11 apparel, and that led to a positive price shock, right?

12 And so you can see here that knit versus woven have
13 clearly different prices. They have very different prices,
14 and so this shift in the European Union was an exogenous
15 shock for Bangladesh, which increased the relative price of
16 just apparel exports relative to all other goods.

17 And what we saw then in that country, in
18 Bangladesh, was that there was a sharp increase in the
19 relative price of apparel both for EU and the U.S. measures,
20 and that increased the exports, obviously, to the European
21 Union. So we had a very clear exogenous price shock in the
22 Bangladeshi case.

23 And all I'm going to highlight for you is just real
24 quick, and, obviously, I'm trying to -- this is the preview
25 for the paper that we're talking about today, so you can go

1 watch that paper as well, but the wage gap closed
2 significantly, right? So the male/female wage gap in
3 Bangladesh following this price shock closed by nearly 80
4 percent economy-wide, economy-wide.

5 So the price shock to apparel actually closed that
6 wage gap by 80 percent economy-wide, not just for women in
7 apparel, it was throughout the entire economy. And we have
8 pooled cross-section instrumental variable estimates to show
9 that the weighted instrumental exports were positively
10 associated with that wage gap, as I said, and we had Bartik
11 results as well, which is the approach we're using today,
12 that are consistent with the short-run dissipation to the
13 factor-specific effects, and these results are actually
14 pretty robust.

15 And so the point here is that Bangladesh was one of
16 the winning countries from apparel. They had a clear
17 increase in apparel exports because of this policy change.
18 This led to closing the wage gap in Bangladesh. And I'm only
19 mentioning this to highlight the fact that industry-specific
20 shocks can have factor-specific effects. And I think I've
21 said that so many times, as my sons would tell me, that horse
22 is probably bleeding and almost dead by now. So we're going
23 to just move on.

24 So what do we do in this paper that's going to be
25 different? So, in this paper, we derive a very specific

1 policy, a policy-focused model that focuses on household
2 decision-making, right? So I'm going to go through this
3 relatively slowly and carefully, but the main point that I
4 want you to think about is what we're doing that's different
5 in this paper is we're specifically and explicitly modeling
6 both the intensive and the extensive margin of labor supply
7 decisions at the household. So this means that households
8 are going to make a decision about consumption, right?
9 They're going to maximize utility by choosing optimal
10 consumption. But they're also going to decide the male labor
11 supply and the female labor supply.

12 We're going to continue to assume that, you know,
13 there's a certain number of regions D or whatever, and these
14 regions -- and I apologize, I guess, in advance, right? I
15 want to make it clear that we do know that in modern families
16 there's all kinds of families, but we're just going to be
17 assuming that there's a male and a female. We're not saying
18 this is the right way to go. We're just not even saying
19 it's -- you know, we're just doing this for simplicity,
20 right?

21 We're just saying this is just a household that's
22 going to have a male and a female, and they're going to make
23 decisions about how they're going to allocate time. It's not
24 the only way to have a household, there's lots of different
25 ways, but this is just the way we're modeling it.

1 So these migration costs across regions are
2 prohibitive and they're going to be choosing, as I said,
3 consumption, male and female labor supply. There's going to
4 be two goods and these two goods are going to be
5 differentiated by their production intensity, right? So
6 one's going to be male-intensive to produce and one is going
7 to be female-intensive to produce.

8 And so C , D , and M -- CDM and CDF are going to be
9 the quantities demanded for Goods M and F , respectively, in
10 Country D . The prices of those goods are PDM and PDF ,
11 respectively. Those are obviously the prices of the two
12 goods. And then LDM and LDF are the male and female labor
13 supplies, which, as I said before, are endogenously chosen at
14 the household level.

15 We also include like ED , which is a term for some
16 other endowment, which is just an income shifter. So you
17 might have some additional resources in the household, but we
18 don't want to focus too much on that because primarily we
19 want to focus on this differentiation between the labor and
20 female labor supply.

21 We also acknowledge, and this is really important
22 actually for the model, is that social norms may influence
23 household preferences for supplying female versus male labor
24 outside of the household, and we're going to model that by a
25 parameter of VD .

1 So what you see here is we're going to be
2 maximizing consumption and labor supply, right, and you can
3 see we have sort of a Cobb-Douglas production in the utility
4 function there and we're going to subtract off the labor
5 supply because it's costly to supply labor. That N, that
6 Greek letter that looks like an N there is an elasticity
7 parameter which is going to show up again later.

8 Subject to the constraint, this is the regular
9 income constraint that they're going to be paying for
10 consumption by multiplying the prices times the consumption
11 bundles, and then that's got to be less than their income
12 parameter, and the income is purely the wages that they get
13 from working, for the men working times the amount that the
14 men work, and then the wages times the amount that the
15 females work, plus you have this exogenous income shifter and
16 that's going to be defined as their total income, which we're
17 going to be specifying as Y.

18 So this is actually a very straight-up setup, but
19 one of the differences here is that we allow for these corner
20 solutions where it might make sense in some cases for the men
21 not to work and just stay home or the women not to work and
22 just stay home, and we actually draw upon -- I'm not
23 including these papers here, but there's a very large labor
24 economics literature about endogenous labor supply that we're
25 also being informed by.

1 So the elasticity of substitution between males and
2 females might be a concern to some of you. Some people might
3 think that this is a ridiculous exercise because males and
4 females are perfect substitutes in production. It turns out
5 that empirically they are not. So we estimate in that
6 Bangladeshi paper an estimate of elasticity of substitution
7 between, like, 2 and 2.5., 2.6, 2.9, somewhere in there.
8 Obviously, if they were perfect substitutes, the elasticity
9 would be infinity. We're a far, far cry from infinity.

10 And it turns out that these estimates are very
11 similar to others in the literature. Hardly anyone --
12 there's nobody -- there's no study I've ever seen, so if
13 you've written one, I apologize, I'd love to hear about it,
14 but there's no studies in the literature that we have seen
15 that find really large elasticities of substitution between
16 men and women. They're actually usually relatively small.
17 Bigger than 1 but generally quite small.

18 So we're very comfortable at least empirically
19 estimating men and women as different factors, right? And
20 that's what you would need to define them as different
21 factors, is an elasticity of substitution that's less than
22 infinity, and that's empirically supported basically by
23 everyone as far as I know.

24 So, based on that, now we're going to dive into the
25 production side, right? So we have perfect competition,

1 domestically competitive firms are going to aggregate into --
2 they're going to aggregate country-specific differentiated
3 varieties, which is the little c , so we're going to shift
4 from the big C to the little c , into a composite good using
5 the kind of CES structure that you see here. That sigma
6 obviously there is the elasticity of substitution between
7 goods, as is the usual case in all CES specifications.

8 And then we get a price of each composite good
9 which is also going to be an aggregation of the individual
10 prices. And the demand for every differentiated variety also
11 is going to satisfy this relationship where the small p is
12 the price of the individual variety and the big P is the
13 aggregate price index, as seen above, and then that's just
14 going to be multiplied times the overall consumption, right?

15 So the basic idea is just this is kind of a CES
16 foundation production structure where firms in Sector I are
17 going to combine male and female, male or female labor,
18 right, combine male and/or female labor to produce their
19 variety using a CRS technology with varying male and female
20 intensities.

21 So this is actually a very familiar production
22 function. Actually, I don't obviously know what you're
23 familiar with, but this is just a simple Cobb-Douglas
24 combination, where ZOI here is a production, a productivity
25 shifter, an exogenous productivity shifter, and then these

1 betas are going to represent the factor intensity of the
2 production of every individual variety.

3 So, obviously, the higher that B -zero, beta zero,
4 is, the more male-intensive the good is going to be, and this
5 is pretty straightforward actually.

6 So what we do then is we combine the consumption
7 side and the production side -- this is very standard. I
8 know all of you have done this since grad school. You've
9 been doing this forever, but we're going combine all of these
10 into a trading equilibrium. We're going to assume that -- we
11 do the same thing everybody does, basically, is that we have
12 traditional iceberg costs for international trade, but
13 domestic trade will be costless.

14 So we have expressions for the prices you can see
15 here for the male-intensive good and the female-intensive
16 good, where that τ now, that Greek letter tau, is going to
17 be the iceberg cost basically.

18 And then we derive expressions here for the
19 consumer expenditures in D , which is country or region D , on
20 goods from country O . So O is going to stand for origin. So
21 we're going to be importing from country O , and we have an
22 expression for, basically, the exports from O to D are going
23 to be represented by this expression. You can see again it's
24 just a combination of the different price indices with the
25 elasticity of substitution factoring into econ, and there's

1 imports of the male-intensive good and imports in D of the
2 female-intensive good.

3 And then we can also express this as a share of the
4 total expenditure in country D. So this XD is the total
5 basically consumption or, you know,, production of that good,
6 of good D, and then this is the amount that we import right
7 above that. And so we can derive the import shares.

8 And so this is very -- it's very -- it seems like
9 there's a lot of math, but, actually, the math is pretty
10 relatively simple and straightforward, and we just use that
11 in order to get to the labor market equilibrium, right?

12 So we assume that labor markets are
13 going to be clearing. We have total labor income in the
14 origin country. This is total labor income for the females,
15 the males, and then here's the total income.

16 And the result of this then is we have a system of
17 three times big N non-linear equations with $3N$ endogenous
18 variables which you can solve directly. But the main result
19 here that we get from all of this is we get an expression for
20 the male/female labor supply is going to be rising in the
21 relative wage ratio just like any labor supply curve would,
22 but now we have a relative labor supply curve, so the
23 male/female labor supply is rising in the relative wage
24 ratio, and the relative labor demand is decreasing in the
25 relative wage.

1 And I realize, and I sympathize with any of you in
2 the audience who might feel this way, but I know some of you
3 really think this is exciting. Others are thinking this is a
4 long way to go for supply and demand, but that's basically
5 where we end up. We end up with a labor supply and labor
6 demand, but it's different in this sense in two ways, that we
7 have the intensive and the extensive margin are included, and
8 secondly, it's relative labor demand, right?

9 So then we take the relative labor demand to get
10 this proposition one, and this is actually pretty critical
11 because it defines our assertion about how foreign demand
12 shocks are going to be affecting the gender-segmented labor
13 market, right?

14 So, if the world economy is described as above,
15 right, what happens is a foreign demand shock, which is an
16 increase in ED for some arbitrary country, will increase the
17 female-to-male employment ratio if and only if the
18 consumption of the destination market is significantly
19 male -- is sufficiently male-intensive and the destination
20 market in which the demand shock originates is a sufficiently
21 important destination of the origin market. That is, you
22 can't just trade with anybody. It's got to be someone who's
23 really significant. And so, as it's a larger shock, you're
24 going to have a much different effect. Okay?

25 So just to represent that in a figure, right, we

1 can see here there's, like, a demand curve and a supply curve
2 obviously for females and males, so this is defined as female
3 to male. So the rise in labor supply, as the female relative
4 wage increases, you're going to see an increase in female
5 employment and vice versa here because it's all endogenous
6 together.

7 But, if we considered a foreign increase in the
8 demand for domestic male-intensive goods, we're going to get
9 the shift from the black demand downward-sloping demand line
10 to the red, so that's a downward movement in the demand
11 curve. That's an increase in the demand for males as a
12 factor, and that's going to reduce the relative demand for
13 women as a factor. The net result is a lower wage and
14 employment ratio.

15 And it's really critical here because, in the
16 Heckscher-Ohlin result, right, which is a special case of our
17 model, and we can get the Heckscher-Ohlin result, but it
18 depends obviously on the parameterization. But, since labor
19 supply is endogenous, the key difference here is that women
20 might be actually operating or adjusting on the extensive
21 margin, which means that when there's an adverse shock in the
22 Heckscher-Ohlin case that hopefully many of you studied in
23 grad school, right, trade is not a big deal in the long run
24 because there's no adjustment costs and anybody from the
25 import competing industry is fine because they just move to

1 the export competing industry, right, or the exporting
2 industry, and there's always full employment.

3 That's not the case in this model, right? In this
4 case, women can drop out of the labor force and just on the
5 extensive margin and so that's the margin that we're going to
6 focus on. That's what's different about this model.

7 So let's talk about Tunisia a little bit.
8 Obviously, on the upper right, the kind of purple country in
9 the middle there is Tunisia. It's a small Middle East/North
10 African nation. The country is divided up into a number of
11 different regions, like 24, as you can see here. And one of
12 the key things about Tunisia that makes it a great
13 application for this model is that Tunisia, as I mentioned
14 earlier, exhibits significant gender segmentation.

15 So we will say on the positive side, right, that
16 there's a lot of women working, so that's good. The female
17 labor force participation rate is 29 percent. That's higher
18 than the MENA average of 20 percent and obviously much higher
19 than countries like Pakistan and Afghanistan. But the thing
20 that I didn't put on the slide and maybe a lot of you already
21 know is that the MENA average and the Tunisia average is far
22 below basically every other region of the world. So it's
23 much lower than obviously Europe, the United States, any of
24 the developed countries. It's much, much lower even than
25 East Asia. And you look at, you know, China or Japan or if

1 you look at, you know, Cambodia, for example.

2 So women, you know, struggle a lot in Tunisia in
3 the labor market. So we also, in addition to having a lower
4 labor force participation rate, which makes that extensive
5 margin particularly relevant, we also have very high
6 unemployment rates. So even the women that want to work, you
7 know, have a lot more difficulty finding jobs with rates that
8 by 2016 are almost double what the male unemployment rate is.

9 And the other point that obviously I did want to
10 make here is you can see that over time from 2006, right, the
11 ratios weren't that much different, but the male rates, you
12 know, they kind of rise and fall during the global financial
13 crisis around 2011, somewhere in there, and the Arab Spring,
14 but the males kind of recover, but the females really don't,
15 right? The females really don't.

16 And so there was something obviously happening over
17 time that made it more and more difficult for females to be
18 participating in the labor market, and we're going to assert
19 that we have falling female-intensive exports varying across
20 the 24 regions. So specifically, if you look at 2006,
21 apparel which is the female-intensive industry were 26
22 percent of exports, and it falls to 16 percent.

23 So the main point here is that there is this
24 significant shift in Tunisia away from female-intensive
25 exports, and that coincides with the rise in female

1 unemployment. And you know what I'm saying? These are just
2 summary statistics. These are just suggestive. There's no
3 kind of analysis going on other than the heuristic summary
4 statistics, but that's certainly suggestive.

5 If you look at what the country did, you know,
6 instead was they also shifted away from electrical machinery,
7 which is HS-85. That's also significant because that's like
8 the second highest industry that employs women as well. So,
9 I mean, women are not just in apparel, they're also in
10 electronics, electrical machinery. But there was a
11 significant shift towards other merchandise exports. These
12 other merchandise exports were significantly male-intensive,
13 right? So there was a clear shift in Tunisia away from
14 female-intensive exports towards male-intensive exports.

15 And I wanted to again do a call-back to what I was
16 talking about earlier with Bangladesh. I mean, one of the
17 reasons I wanted to share with you the Bangladesh story was
18 exactly the opposite is happening in Bangladesh, right?

19 So, for practical purposes, there's the shift away
20 from apparel being produced in Tunisia to apparel being
21 produced in Bangladesh. And it's kind of a simplification,
22 but that's not too far off, right? So Bangladesh is a clear
23 winner in this case. Tunisia, in terms of apparel exports
24 and for women, this was not so great.

25 So now what I want to do is get into the specific

1 empirical analysis, and to do that, I have to describe the
2 data and present some summary statistics.

3 So how are we going to analyze this? So the data
4 sources are going to be the usual trade data sources where
5 we're going to take merchandise trade from Comtrade. We also
6 have service trade from the WTO/OECD BaTiS database. And
7 then we combine those at the industry level with the National
8 Survey on Population and Employment that's produced by the
9 Tunisian government. And we have a number of different waves
10 here, right?

11 So there's 21 industries, 24 regions. So we have a
12 number of different regions and time periods, and you can see
13 our N here is 120 because we did have to aggregate, we're
14 going to difference the time variable, so that's going to
15 take out at least one of those time periods. And we had to
16 aggregate some of these regions. So that's where this 120 is
17 coming from, Tamara, so thanks for highlighting that for me.
18 I want to give Tamara credit for making sure I said that.

19 But you can see that there is significant variation
20 in the standard deviations across export exposure, and that
21 was in this graph that I actually had earlier here, where
22 this graph of Tunisia demonstrates the difference in
23 export -- the change in export exposure varies a lot across
24 regions, right? So we're going to take advantage of that as
25 a source of our variation, and we see obviously there's a

1 change in female employment that you can look at the range
2 here. It varies significantly across regions and time, and
3 the change in male employment also varies. So we have a lot
4 of kind of within country variation even though we have a
5 relatively small number of observations.

6 The figure here on the right is the export growth
7 contribution as a function of the females sharing employment.
8 And this basically just, this downward, the significant
9 downward-sloping relationship basically just demonstrates
10 that it was the female-intensive industries that grew the
11 least and it was the male-intensive industries that grew the
12 most. So this figure is designed to illustrate the
13 male-intensive export shock that Tunisia experienced, okay?

14 So, yeah, but the data are pretty standard. Like I
15 said, what we do is we combine those. Obviously, one of the
16 big problems is that the ideal data would have exports by
17 region, and we don't have that.

18 And before you say that that's a main weakness of
19 our paper, I will point out that's the same problem Autor,
20 Dorn, and Hanson and every other paper in this literature
21 also had, right? So, basically, what they had to do was
22 figure out a way to assign that export shock to different
23 regions. And what we do is the same thing they do, except we
24 do it for exports, not for imports. We assign total exports
25 to regions using a priori employment, right?

1 So we have the employment in, you know, industry R
2 in region I or whatever in the previous period, and we have
3 the share of employment in a particular industry as a share
4 of total employment, and we're going to multiply that times
5 the change in exports and then we're going to aggregate those
6 up in order to get a regional employment exposure variable.

7 So it's called the shift-share approach. Other
8 people call it the Bartik approach. I know you all have seen
9 this over and over and over. But, like I said, we're doing
10 the same thing everybody else has done.

11 And then what we're going to do is after the
12 construction of that as our independent variable, we're going
13 to then include that in just a regular, basically, it's going
14 to be an IV equation, but it's a regular equation, estimation
15 equation for labor market outcomes, where this capital-owned
16 L represents, and we're going to just substitute in a bunch
17 of different labor market outcomes. So it's going to be
18 mainly employment or the male/female employment ratio. In
19 other studies, we include other things.

20 The one thing I didn't mention that I probably
21 should and I promised I would, so I'm going to do it now, is
22 these household surveys do not include any information on
23 wages. So that's a big drawback. And so, obviously, we'd
24 love to corroborate the results with wage effects, but we
25 don't have any wages, so there's nothing else we can do, so

1 we're going to be focusing on employment.

2 Another concern you all might have is addressing
3 endogeneity, right? You might say, well, you know, these
4 domestic factors might be affecting exports. And so we're
5 going to instrument for exports using GDP-driven foreign
6 demand. And if you're familiar with Mundel-Fleming, I don't
7 know how many of you are trade economists, there's fewer and
8 fewer of us these days because trade's so unpopular. But the
9 Mundel-Fleming model anyway basically uses GDP as the
10 explanatory variable for imports.

11 So what we do is we use trading partner GDP
12 basically as a variable that drives imports, and so, you
13 know, like, Germany's imports are going to be Tunisia's
14 exports. And so we take the amount of imports that are due
15 to GDP and use that as our instrument for exports from
16 Tunisia.

17 And so the resulting estimation approach is a
18 two-stage least-squares approach where we're going to first
19 use predicted exports or the change in predicted exports as a
20 function of GDP and we're going to include that in the
21 equation. And you can see here that that is actually super
22 tight. So the predicted values and th actual values are
23 actually very closely related. You know, trade economists
24 have known this for years, that imports are largely driven by
25 changes in GDP, so this is not at all surprising that this

1 would be a great instrument. And I don't think that's
2 necessarily a brilliant contribution or any thing, but we're
3 definitely going to exploit that for this paper.

4 And then, obviously, even though I don't think I
5 need to say this anymore, but I'm going to anyway, all risk
6 to horses aside, and that is that we're going to assume that
7 foreign GDP is exogenous to Tunisia labor market conditions.
8 So local labor market conditions in Tunisia are not, you
9 know, driving Germany's GDP, right? That's the
10 identification assumption here, and I think that's pretty
11 straightforward, but I need to say that out loud anyway.

12 Okay. So kind of winding into the last quarter
13 here, I'd like to just talk about some of these. First of
14 all, the way to interpret these is we're going to interpret
15 the change in outcome for a one billion USD increase in
16 exposure to exports.

17 So there's a number of results here, right? And
18 when you're not including the time and region fixed effects,
19 you don't really get anything statistically significant. And
20 so we include those time and region fixed effects in Column
21 2. So we run a number of different specifications on the
22 same sample. And we have a number of different -- like I
23 said, we're going to be swapping out those dependent
24 variables.

25 So the first one is the change in the

1 male-to-female -- the female-to-male employment ratio, right?
2 So just focus on this first row for now. And when exports --
3 regions that are more exposed to exports, that is, the export
4 shift, basically, from female to male goods, experience a
5 negative or a decline in the female-to-male employment ratio.

6 So another way to interpret this first line, which
7 is increasingly significant when we include, obviously, the
8 sociodemographic controls, is that the export shocks
9 benefitted the males. So the export shocks were
10 male-intensive. They pulled men into the labor force. Men
11 were more likely to be working. And that's completely
12 consistent with what I showed you before, which was that the
13 increase in exports, the shift in EU imports were in
14 male-intensive goods. So they shifted out of
15 female-intensive goods, they shifted towards male-intensive
16 goods. That increases the relative male-to-female employment
17 ratio and decreases the female-to-male employment ratio. And
18 that's economy-wide in the sense that it's not
19 industry-specific, right, so we definitely see that.

20 Then we have the second one is the change in female
21 employment, right, and so this could obviously be explained
22 by more men working or fewer females working, so we try to
23 break that apart in the next two rows.

24 Panel B has the female employment ratio, and you
25 see in Columns 2 and 3 that there's a very, very large and

1 significant drop in female employment when we saw that shift
2 towards male-intensive exports.

3 And the next row, which I will say is -- this is
4 going to seem a little counter-intuitive perhaps, but the
5 change is also large and positive for men, but it's not
6 statistically significant, right? So there's other things
7 that are also affecting men's employment. But part of the
8 reason why we're -- why we think we have this result is that
9 in Tunisia men are -- you know, I don't want to say -- this
10 is going to be a little bit of an exaggeration, but they're
11 basically fully employed, right? So they're already kind of
12 the ones in the labor market, they're the ones expected to be
13 in the labor market, so it does create opportunities. But,
14 basically, the increase in opportunities for men comes from
15 this crowding out of women.

16 And then we do the Panel D, the first stage
17 response variable, changes in employment. We get kind of the
18 same thing again, which is the first stage, you know, it's
19 statistically significant and highly so. That's in that
20 first stage of the two-stage least-squares regression.

21 So what happens here, again, I'm going to just kind
22 of keep repeating this, is, right, that they stopped
23 export -- they reduced their exports of apparel. That's
24 where women worked. Women then had a falling employment.
25 And they didn't just move into other sectors, right? They

1 dropped out of the labor force significantly.

2 There's a number of concerns. Obviously, we run,
3 like I said, these separate regressions for males and
4 females. You see that there's not a lot of change in
5 unemployed females and unemployed males, right? So there's a
6 number of different variables that we use. And part of the
7 reason, you know, for this might be that the relevant margin
8 of adjustment was the extensive margin and not the intensive
9 margin in the sense that we're arguing here that females just
10 dropped out of the labor force.

11 And when you drop out of the labor force, you don't
12 get counted in unemployment statistics. So they didn't
13 bother to kind of hang out and see if there's going to be
14 another job because they knew that there wasn't because the
15 gender segmentation of the labor market is such that it
16 doesn't make sense for women to go into the unemployment pool
17 hoping for a job in another industry because it's just not
18 there for them. So, instead of just going into unemployment,
19 they just drop out. Obviously, you know, the unemployment,
20 change in unemployed males drops, but it's not statistically
21 significant, so that doesn't really vary across regions.

22 So then you might say, well, you know, wait a
23 minute, I don't know about that because, you know, it could
24 be lots of other things or whatever. Well, one way to think
25 about this is the marital status in the household is going to

1 have a big effect on that joint labor supply decision.

2 That's coming out of our model.

3 So that when you're in a household and you're
4 deciding whether or not the male or the female is going to
5 work, and the opportunity for women kind of dries up, is the
6 male going to drop out? Is the female going to drop out?
7 Maybe the female will start taking on more household
8 responsibilities. You raise the kids, you do the cooking or
9 whatever. Those are things men could do, but if the female's
10 external opportunities are fewer, right, then the family
11 might decide to have the female do that.

12 That's not an option that single women have, right,
13 as much. I mean, they don't have that option as much
14 because, if you're a single woman and you're on your own, you
15 kind of have to work or you work. I mean, that's kind of
16 your choices. Otherwise, you're going to have to get some
17 other support.

18 So, in order to explore that, we looked at the
19 difference in the change of female employment for married
20 women and single women, and you can see here that the change
21 for married women is not quite double, but it's almost
22 double. The effect on married women is much larger and much
23 more negative. So that reflects kind of the relevance of
24 this household labor supply decision where, when the external
25 option for women dries up, it's, you know, the married women

1 are just like, well, I might as well just stay home and just
2 not work because there's no other option for me anyway. And
3 that's muted, of course, for single women, who have to find
4 work elsewhere.

5 If you look at the changes in married men and
6 single men, there really isn't much of a difference at all,
7 right? There's nothing really statistically significant.
8 These numbers are also really relatively small, and so we
9 don't see the same kind of effect for married men, again,
10 because of these labor market frictions and maybe societal
11 expectations. We also provide here the first stage exposure
12 as well.

13 So the results are going to show, you know, that
14 female employment decreases, male employment increases, and
15 then the decrease is much larger for married women, as I
16 said, consistent with that household decision-making.

17 So the labor market effects of exports are really
18 significant and they seem to be affecting women along that
19 extensive margin.

20 There is a number of other caveats obviously that
21 we'd like to make and I am going to end a little bit early.
22 I hope that's okay, I guess. I mean, we're just -- I talk
23 really fast and I'm very passionate about this work.

24 But the labor force survey data do not include
25 wages, right? I mean, I've already mentioned that. There

1 are a number of papers that have come up talking about the
2 concerns about the shift share approaches, right? So, you
3 know, Chodorow and Reich and Wolf show that the shift share
4 approach interpretation is limited to comparisons across
5 regions, which actually is the same as kind of a difference
6 and difference approach, right? So we're
7 looking at the change in region A versus the change in region
8 B, but it's not -- they say there's basically no intercept,
9 right? So you can't really interpret the levels so much as
10 you can the direction and magnitudes of change. It's not
11 really -- you don't want to interpret these as, you know,
12 this many women dropped out per se. It's this many more
13 women in affected regions dropped out in other regions, which
14 I actually think is a strength of the paper, but we'll see
15 what we see, what people say in the comments.

16 But there's nothing else I can say about that
17 except that's a caveat that's already been raised, and we're
18 acknowledging that.

19 But another concern which is probably more
20 significant is that we assume that there's no migration,
21 right, across regions, but, obviously, migration's probably
22 not zero. I mean, I don't think that's necessarily a very
23 realistic assumption. So, if there is migration, that's
24 going to imply that the Stable Unit Treatment Value
25 Assumption, the SUTVA, be on hold, but we do address that in

1 the paper by trying to show that migration flows are
2 uncorrelated with the instrument, right?

3 So the key thing here is that, yeah, these local
4 labor market effects might be muted a little bit or whatever
5 by the migration effects, but to the extent that we're
6 finding the instrumental variables being associated with
7 those changes interpreted as the difference to difference,
8 you know, I think we're probably okay on that point.

9 The other big paper obviously was the Sedow
10 (phonetic) et al. paper, which is a very significant paper
11 and really important, that showed that most of the kind of
12 Bartik approach or shift share approach estimates or
13 underestimates these standard errors, so they suggest a
14 standard error correction approach, and we do that. So we
15 implement the standard error correction approach, but it
16 doesn't really -- it doesn't affect the results at all. As a
17 matter of fact, the significance levels are still the same
18 and everything else. So we survived that gauntlet. And so,
19 basically, the results seem to be pretty robust, yeah.

20 So just to highlight some of these, like, I have
21 the results for migration here. You know, if you look at the
22 change in district population, there's nothing statistically
23 significant here and the change in export exposures. So the
24 main message here is that we don't see people moving into
25 those areas where there is a lot more exports. I mean, if

1 anything, we get a negative result, which is people leave
2 those areas where there's lots of rising exports, which we
3 don't necessarily have a story for that, but, you know, the
4 main point is that's not statistically significant and it's
5 probably not driving the results. So we don't think the
6 migration is driving it.

7 And then we also, I told you that the standard
8 error of correction doesn't really matter, so that's this
9 panel here, where we include the standard error corrections
10 and we still get, you know, as you can see, it's the same
11 results, and if anything, it turns out that those standard
12 error corrections actually reduce our standard errors and
13 make the results more statistically significant. So our
14 results actually get stronger once we incorporate those
15 standard error corrections. So we appreciated that.

16 But we don't present those as the main results, you
17 know what I mean, just because we're not trying to inflate
18 our results or anything, we're just trying to do the
19 robustness.

20 So that's basically most of it. The other thing is
21 that people were concerned about this initial shared
22 manufacturing, right, and so the idea there is that the
23 variability across employment areas could be exclusively
24 attributed to differences in employment within manufacturing.
25 So there might be some industries within manufacturing which

1 are larger than others. But it might be manufacturing as a
2 whole that's driving the results. That's the problem, right?

3 So we re-estimate by controlling for the initial
4 share of manufacturing, which is also suggested, and the
5 results get stronger again. So we actually get more
6 statistically significant results, but qualitatively the
7 story is the same. So that's the other kind of big concern
8 people have about the shift share approach, and so we address
9 that directly and the results get stronger. So that's kind
10 of the main point.

11 So I know I keep trying to wrap up here. Now we're
12 at the conclusion slide coming up on 10.

13 And, obviously, foreign demand shocks, I mean,
14 there's a couple main things that I would like to share with
15 you because I'm probably not going to get another chance to
16 be with you in the near future.

17 So the foreign demand shocks can either increase or
18 decrease labor demand at both the regional level but also at
19 the factor level, right? So, when we're thinking about
20 writing you all's report or whatever, I would really
21 encourage you to think about the distinction between
22 industries and factors, right?

23 And I think one of the things that happened in the
24 United States was that -- and, obviously, this is just kind
25 of my speculation -- was that, you know, when the production

1 workers -- and let's just use that as kind of our grouping.
2 Our production workers were harmed in the United States due
3 to these imports from low wage countries. It doesn't just
4 hurt those regions, right? I mean, it's going to be hurting
5 production workers everywhere, and so that's actually a major
6 factor, is that we need to think about our adjustment
7 assistant programs at the factor level, not the industry
8 level. And, historically, we have not been very successful
9 with our adjustment assistance because it's been all focused
10 at the industry level and usually not even at the industry.
11 It's like at the firm level.

12 And we need to really rethink that in order to
13 design programs at the factor level because, you know -- and
14 I will say this a little bit tongue-in-cheek. But, you know,
15 Bill, I know you know this and I know a lot of people in the
16 audience know this, but Stolper and Samuelson pointed out
17 that factors were going to be adversely affected more than 50
18 years ago. So it's not like we haven't known this for 50
19 years. But our policies have not matched the assistance to
20 factors, right?

21 And so, in Tunisia, right, we need to think about
22 helping women adjust because women are adversely affected by
23 this apparel shock. In the United States, we need to be
24 thinking about production workers or less educated workers as
25 a factor. We can't be thinking about them at the industry

1 level because those assistance programs don't work and you're
2 going to undermine support for maybe otherwise beneficial
3 trade.

4 Our contribution in this paper specifically is,
5 obviously, we introduced this model that incorporates this
6 household decision-making along the extensive margin, which
7 is particularly relevant for females in many developing
8 countries, maybe especially MENA, but I would argue also
9 other places where women would drop out. And I'm sure
10 there's anecdotes of that happening for women in West
11 Virginia when textiles started moving out and apparel started
12 moving out.

13 Specifically, we find that the shift away from
14 female-intensive exports in Tunisia induces women to drop out
15 of the labor market. They don't have hopes because of the
16 segmentation, they don't really have hopes to move in. So
17 the long-run implications really hinge on the ability to
18 reduce that gender segmentation.

19 I mean, how do we figure out how to help women get
20 into other industries if we believe that women in the labor
21 force is a good thing? And I think most people, you know,
22 are pretty much on board with the idea that female labor
23 force participation is conducive to growth, it's conducive to
24 lots of different other positive social benefits. And, you
25 know, The World Bank's been very clear on that, and so has,

1 yo know, the WTO and, you know, World Economic Forum. I
2 mean, there's been a number of places that have been very,
3 very clear on the significant economic benefits of having
4 women equally valued in the labor force, but the first step
5 of getting there is addressing these gender segmentation
6 issues and helping facilitate mobility and thinking about
7 factor-specific adjustment programs, not industry-specific.

8 So, with that, I think it's basically 11:00 your
9 time. I kind of was planning on going for that hour. But,
10 if there's anything else, let me know. But now I'll turn it
11 over to Tamara for her comments, right?

12 MS. KHACHATURIAN: Thank you so much, Professor
13 Robertson, for your presentation.

14 And I'm going to turn it over to Tamara Gurevich,
15 an International Economist in our Office of -- sorry. The
16 Office of Economics, the Research Division within that
17 broader office.

18 Thank you so much, Tamara.

19 And just a reminder to the audience that following
20 Tamara's 10-minute set of comments we will be engaging in a
21 broader Q&A for 20 minutes. So thank you for patiently
22 holding your questions, and we look forward to hearing from
23 everyone.

24 MS. GUREVICH: Thank you, Tamar. Let me share my
25 slides and see if -- can you see my slides?

1 MS. KHACHATURIAN: Yes.

2 MS. GUREVICH: Yes. Okay. Good? Excellent.
3 Okay. Let's see if I can -- all right.

4 So thank you so much for having me and thank you
5 for giving me the opportunity to provide some comments for
6 this wonderful paper. I really enjoyed reading it, Raymond.
7 Thank you so much for writing it and highlighting this
8 important topic.

9 I'm going to take a couple of minutes just to
10 recap, and my apologies in advance. My comments are based on
11 a slightly older version of the paper, so if I am misstating
12 something, I have tried to update a little bit based on your
13 presentation just now, but if anything, please, please jump
14 in and correct me.

15 So what I'm going to do is spend the next few
16 minutes just giving a recap of what the paper is about, and
17 then I'm going to look at the empirical results a little
18 closer and ask a few questions on how we can expand this and
19 how we can apply this model to other instances that do not
20 provide as clear-cut of an example as Tunisia does.

21 So the paper makes excellent contributions both in
22 theory and empirical approach, which is very rare for a paper
23 on gender, so thank you so much for this, right?

24 So the model predicts that -- the model can
25 actually predict the changes to male to female employment

1 ratio, right? But, unfortunately, it's not designed to
2 predict those two independently from each other, which is
3 something that I would be very curious to see as a possible
4 expansion because, as you said, there are intensive and
5 extensive margins, especially to female participation in the
6 labor force, right, and being able to predict those
7 independently would maybe highlight some of those things,
8 right?

9 But the main mechanism from this model is basically
10 that the initial labor market segmentation really drives how
11 we see those demand shocks impact our domestic labor markets
12 in terms of industries and sector shifts and redistribution
13 of workers across industries as those would be induced by
14 trade shock, right? Even though you're not necessarily
15 touching upon those, every single one of those things in the
16 paper, I think there is a clear way of doing this and I think
17 it would be a very interesting second, third, fourth paper to
18 do this, right?

19 You said something about migration, but I think
20 there is also shifts within, you know, regions across
21 industries, and that would be really cool to see.

22 So the main findings are, as theory predicts,
23 right, we will see increase in male employment and decrease
24 in female employment when exports are shifting from sort of
25 female to male-dominated sectors, right?

1 So one question that I have here sort of for
2 theoretical model a little bit is you mentioned that in
3 Tunisia in particular and in general in the world, male
4 employment is probably already at full employment, right?
5 So, if we're shifting towards, you know, increase in male
6 employment, where are we getting those men, where are we
7 drawing the men out of, right? Are we taking them from other
8 industries? Or is this like, again, an extensive margin,
9 right?

10 So the impact here is statistically significant. I
11 did want to point out that economically it's fairly small,
12 but I think it's because of the nature of Tunisian labor
13 markets, right? So I just pulled the data for Tunisia for
14 2016, which I think is the last date in your data sample. So
15 there was less than a million women employed and the total
16 exports were about 17 billion for Tunisia.

17 So, to put these two together, what we would see is
18 your predicted decline of 7900 female jobs sort of if we see
19 a one billion increase in export exposure, right? That's a
20 huge jump in exports and a fairly small decrease for female
21 workers, which I think is good, right? That means that for
22 the most part women are staying employed. But, again, the
23 question is, is this sort of -- are we really -- like, is the
24 model predicting extensive margin losses where there are
25 maybe intensive margin tradeoffs on hours or something like

1 that, right?

2 And I think Tunisia makes this such a perfect sort
3 of sandbox to experiment with this model, but maybe there are
4 those drawbacks because it's so sort of perfect in a sense,
5 right? And I'm thinking trying to look and see how another
6 country would differ with either higher participation or
7 different gender norms would provide us some sort of
8 comparison and enlighten us on how things might work out in
9 different ways, right?

10 So some assumptions that I'm going to be sort of
11 discussing in the next slide, right?

12 So here in the model men and women are different
13 kinds of workers, right? There is this super important
14 assumption -- sorry, extension at the appendix of the paper
15 that I was reading where you talk about substitutability. I
16 think bring it forward a lot more, is going to improve the
17 paper and improve the results and strengthen everything
18 you're talking about because, as you said, nobody thinks that
19 women and men are perfect substitutes, but they're definitely
20 not completely not substitutable, right? So I think bringing
21 it forward is going to enrich your discussion a lot, right?

22 So these two things dictate household labor supply
23 decisions, in theory, probably both on intensive and
24 extensive margin, right, and also types of goods that are
25 produced by men and women and dictate policies that we can

1 think of later down the road. Like, for example, if we
2 wanted to increase labor force participation of women, in
3 particular industries, we could maybe address that through
4 domestic policy, right, because Tunisia is such a perfect --
5 I'm just talking about Tunisia here -- it's such a perfect
6 thing that I already said that it's a great example. I
7 really enjoyed how, like, really well it worked with your
8 model.

9 So I was looking again at data, and you mentioned
10 this, so export growth is concentrated away from where women
11 are employed, right? So this clearly might have a policy
12 application from your result where why don't we try to put
13 these women to work in those industries that are growing,
14 right? Again, that would -- in order to be able to answer
15 this question, you would need wages, and that's a big
16 problem, right? You don't have the wages here.

17 So that takes me sort of to discussion questions,
18 which are kind of I think what limited your results here but
19 not because you didn't do it, it's because the data just
20 weren't there, right?

21 So one is this first assumption of men and women
22 not being substitutes. It's almost kind of like implying a
23 deterministic outcome, right? So, if women cannot shift from
24 apparel to machinery, for example, right, where are they
25 going to go? They're going to have to drop out of the labor

1 market, right? So this is sort of why I want you to -- I
2 wanted to see, you know, you bring up the substitutable
3 model, which I think is going to enrich everything, right?

4 Now another question I have is how well would this
5 model work if we didn't have such a perfect distinction and
6 such a perfect specialization. In a sense, we're here in
7 this discussion to rely on the fact the market is so
8 segmented in Tunisia in particular, right? Your sample size,
9 as you said, is fairly small, right? Like, some regions
10 don't have the data. The timing is not that long. It's I
11 think 10 years' worth of data.

12 You showed some robustness which I don't think were
13 in the original paper, so that sort of ameliorates my
14 question, so you looked at that, but I think, again, are
15 there any other things that you can show to sort of prove
16 that those results are, in fact, robust, right? And that
17 would be especially interesting for men because you don't
18 have any statistical significance there when you estimate for
19 men, right?

20 And another extension where I could see this model
21 to be implemented, right, so you did the married versus
22 single women, but also maybe a deeper dive into sort of this
23 industry-specific workforce composition, right? So it's not
24 just that women are all in apparel and men are all in
25 machinery. What's happening in apparel, right? There may be

1 certain things that men do in apparel and certain things that
2 women do in apparel, which then brings me to this occupation
3 versus industry question, which I know everybody is asking
4 should we focus on, you know, occupation or industry, and we
5 don't know, right?

6 But I think especially if we think about gender and
7 we know from other literature that women tend to specialize
8 in certain tasks, maybe even looking at that and looking at
9 whether there is difference in Tunisia on, you know, what men
10 and women do, if you could actually look at it in those
11 export-growing and export-shrinking industries, maybe it
12 would shed some light on your results.

13 And with that, I think my time is up. And, again,
14 thank you so much for presenting. This is such an important
15 paper and I really look forward to reading a newer version of
16 it where you clearly added a lot of new things. Thank you.

17 MS. KHACHATURIAN: Thank you so much, Tamara, for
18 your comments.

19 And, Professor Robertson, I don't know if you
20 wanted to go ahead and respond to some, you know, questions
21 that Tamara raised or at least a portion of them. I'd like
22 to also open up the floor to broader questions. Please feel
23 free to just, you know, unmute and ask your questions or put
24 them in the chat, or whatever format works better -- best for
25 each one of you is very welcome.

1 MR. ROBERTSON: Great. Yeah. Well, obviously, the
2 first thing I want to say is thank you very much, Tamara, for
3 going over the paper and having such great insights. And I
4 really think that that is a great idea that you had, a number
5 of them, and I think you're spot on.

6 So, first of all, I think one of them is on the
7 significance of the results, and I agree with you that I
8 actually think that the small size of the results generally,
9 there's two responses to that.

10 Number one is, obviously, you're right, that
11 they're very small. But I think that the small results
12 characterize lots of these studies. Like, a lot of the shift
13 share studies generally have really, really small results
14 because you're looking at within the particular region
15 itself, right? So we're comparing regions to regions, not
16 the entire country per se. And so it's how much the
17 employment change in this region versus that region. And,
18 therefore, they'd be a little bit bigger. But, nevertheless,
19 I mean, I think that they are small.

20 And secondly, I also really at the same time,
21 though, I think it's kind of amazing, frankly, how we get
22 statistically significant results at all with these 120
23 observations. So, yeah, I think that the fact that I think
24 there's definitely something there, but I'm not definitely
25 trying to claim that this is, you know, catastrophic for

1 women in Tunisia, but I'm saying it's definitely been
2 something that was significantly affecting them.

3 I really, really like your ideas, kind of going
4 backwards, about looking at this occupation versus industry
5 and tasks in industries. I think that makes a lot of sense,
6 and I think we can do some of that with these data because,
7 like I said at the very beginning, there's a distinction
8 between apparel and textiles. And, you know, men tend to
9 focus on textiles as well, right? So, I mean, women
10 generally are the ones doing sewing more specifically. So I
11 think that there's plenty of room for that and I'd love to
12 dive into that some more.

13 I noted down the small sample techniques I think
14 was a good idea.

15 And I think that, you know, when you're saying the
16 lack of substitution might imply deterministic outcomes, you
17 know, that's definitely possible. But, you know, if I may
18 say in defense of economics, that's what we do all the time,
19 right, is we oversimplify the world in order to try and see
20 what the correlation response is. They're subtle and because
21 elasticity of substitution is not zero and that's kind of
22 what you're saying, is that but we kind of model it as zero
23 and it's not. And that might also explain some of the muted
24 effects, right? I mean, maybe the effects would be bigger if
25 we could focus on hours and obviously wages.

1 So we're not done, obviously, and we're going to
2 continue with this paper, and these comments are super
3 helpful. We want to continue the work in other countries
4 that might have more extensive datasets. But, you know, I
5 couldn't have had a better discussion and better comments,
6 and I really appreciate your time, so thank you very much.

7 MS. KHACHATURIAN: Thank you so much.

8 And, again, please feel free to raise your hands or
9 drop your questions in the chat.

10 Saad, please feel free to ask your question.

11 MR. AHMED: Yeah. I just wanted to thank Raymond
12 again for a great presentation.

13 I have a couple of questions. And, again, I'm not
14 that big into development, but, you know, these questions
15 kind of popped up.

16 One was about the formal versus informal labor
17 markets. I know you're looking at Tunisia and Bangladesh.
18 I'm sure they're pretty -- like Bangladesh, I'm pretty
19 confident there's a pretty substantial informal labor market,
20 so even if women are not employed in apparel manufacturing,
21 they're probably employed somewhere else, you know, like, you
22 know, because you still need money to feed people, right?

23 And the other kind of factor to me, again, in the
24 developing countries context is also the joint family system.
25 I think, you know, one of the things you mentioned was the

1 single women versus married women distinction. But just
2 thinking, you know, in most of these countries, like, single
3 women and even single men are probably still living with
4 their parents, and so there's still like a household kind of
5 supply decision. So the marriage factor might not be as kind
6 of crucial in those countries as say in other countries, like
7 more developed countries.

8 So I just wanted to throw these couple of questions
9 out for you.

10 MR. ROBERTSON: Yeah. Those are great. Those are
11 great, Saad. Thank you very much.

12 The formal versus informal, we usually try to
13 address that by using these labor force surveys, which
14 usually don't distinguish, if you're employed, you're
15 employed, and they kind of -- you know, they don't really ask
16 necessarily where you're employed. So we think that they are
17 picking up a lot of informal employment. But I know that in
18 other studies that we've done, we specifically differentiated
19 between formal and informal.

20 But the thing is about the formal versus informal
21 is that you're totally right, I agree with you. The informal
22 sector is huge, right? I think there's a general consensus
23 on that. What there's less consensus on is how do we define
24 the informal sector or maybe even how do we measure the
25 informal sector? So I think what happened with these data

1 was that we didn't have the ability to make the same kinds of
2 distinctions that other datasets allow.

3 So I know that, for example, like, in Mexico, they
4 just say that you're in the informal sector if you don't --
5 if you're not in the EAPS (phonetic), right? If you're not
6 in the national Social Security organization, then you're not
7 in the formal sector.

8 Well, okay, I mean, but we don't have that same
9 variable here about whether or not you're enlisted in Social
10 Security or whatever, so we just didn't identify it. But we
11 can go back and look because it's totally relevant. It's a
12 great question, but I just don't -- the data weren't as rich
13 as we wanted.

14 On the second one, I love this comment, this is so
15 great, about the joint family context. The women are
16 probably still living at home. And to be honest with you,
17 that did escape me. I'll be totally honest with you. That
18 is a great comment because that would help explain why the
19 results for single women are large, but they're also -- you
20 know, they're still large because they can just stay home and
21 drop out, right? I mean, I would have thought that the
22 effects on single women would have been, you know, kind of,
23 you know, more muted, but, yeah, if they have that ability
24 then with the family context, that's awesome. So we'll
25 definitely add that to the text. That's really great.

1 And we'll see. I don't know if we can measure that
2 or not. I'll have to check and see if we can see what their
3 living situation is. But that's really, really insightful.
4 That's helpful. Thank you. Yeah.

5 MS. KHACHATURIAN: Why don't we wait for others
6 to -- oh, Bill, do you have a question? And then I'll ask
7 mine after yours.

8 MR. POWERS: All right. Thanks, Tamar. Either way
9 is fine with me.

10 So thank you so much for coming, and I have two
11 things. I really, really appreciate what you've got here in
12 this paper. And I also thank you for highlighting from the
13 start some of the things that the Commission and the broader
14 profession should be thinking about in this area. And it's
15 great because one of the points that we're doing this
16 every year is to keep it out there in the public and keep
17 people thinking about it. And so I'm going to actually ask
18 you a couple questions that maybe you can help us further
19 think along those lines, like what should we or the
20 profession be looking at.

21 And I was really happy that Tamara mentioned the
22 occupations, right, because there's other areas out there
23 where you see pretty substantial gender divides. And as you
24 were just saying, you've had some great results with your
25 limited datasets.

1 You know, let me just ask, so that's one of the
2 ways we can go look at this, occupations. Have you had any
3 thought about what kind of startling results you might find
4 if we were able, you know, to look somewhere else?

5 But the other thing is a similar thing, is, like,
6 what's a factor, you know, and in your approach, a factor
7 would work for anything which has, like, stark differences
8 across the two factors and non-perfect substitution across
9 them as well. And so, you know, age could be a factor. Or,
10 in the United States, race could be a factor, because I'm
11 sure there is -- you know, there are longstanding differences
12 in age and race by industry and also, certainly, a
13 non-perfect substitution between them.

14 Are there any other dimensions that you've thought
15 of or seen out there or we should be thinking about? And it
16 has a big impact, as you mentioned, trade adjustment
17 assistance should be aimed at the factor level. But, if
18 there's many things that can be a factor, how should we think
19 about that? So I guess that's my question. How should we
20 think about factors, and is there any work out there that
21 helps us do it better?

22 MR. ROBERTSON: Yeah. Those are awesome. That's
23 really great.

24 I guess I'll start with the occupations. So some
25 of the earlier work I did on wage and equality and looking at

1 kind of, I'm just going to say it, I know this is not
2 politically correct necessarily, but Stolper-Samuelson
3 effects because that's not the "in" word to use, but looking
4 at kind of the Stolper-Samuelson effects of wage and equality
5 in Mexico was all based on occupation, right? So the
6 occupational division that I think is really helpful still is
7 this production versus non-production workers. That's, you
8 know, a very common divide for workers.

9 And I think that that is correlated with lots of
10 characteristics that go into your second question, the second
11 part, which is what do we mean by factors, because production
12 workers share lots of common characteristics, right? I mean,
13 they're often less educated, they have less education,
14 they're usually younger, you know what I mean? They're maybe
15 more likely to be unionized or whatever. There are a lot of
16 things that are consistent with that. So I definitely think
17 that there's a lot in that occupation because it bleeds into
18 the factors.

19 You know, I'm obviously a huge fan of Jacob Mincer,
20 as all of us are, and, you know, this whole idea of kind of
21 stochastic economics that we're actually made up of a bundle,
22 we're a bundle of characteristics, and that's what you're
23 getting at exactly, which is which of these characteristics
24 can we tease out as a group into different categories to call
25 them factors?

1 And, obviously, that gets politically very tricky
2 very quickly, right? I mean, I think it's very socially
3 sensitive. But, you know, technically, on the technical
4 side, just to kind of run a grid search on elasticities of
5 substitutions between different groups would be really
6 helpful. I mean, that's kind of the way to think about
7 factors. And you can do that in your own office without
8 anybody seeing what you're doing. But you know what I'm
9 saying? You can just group people in all kinds of different
10 ways and just estimate the elasticity of substitution between
11 the employment. You can do that with household surveys. The
12 datasets that you need to do that are -- CPS, people do that
13 with CPS.

14 Obviously, I'm old now and I enjoy being old, but
15 going back to, like, Dan Hamermesh's Labor Demand book, he
16 shows you exactly how to do that, how to estimate the
17 different elasticities of substitution between different
18 factors, and grouping them with household surveys is a really
19 easy, quick way to do that and that would help you identify
20 what we mean by factors.

21 Does that make sense?

22 MR. POWERS: Oh, completely, yeah. Thanks.

23 MR. ROBERTSON: And, obviously, if I may just be
24 kind of shameless in this regard, you know, if you need more
25 help with that, I'd love to continue talking with you about

1 that. You know what I mean? I'm going to be in D.C. full
2 time starting in August. I'm moving to D.C. full time, so if
3 there's anything I can do to help you guys or work with you
4 or support you, I'd love to help you out because I really
5 believe in what you're doing.

6 MR. POWERS: That is fantastic. We will be
7 reaching out. Thank you.

8 MR. ROBERTSON: That would be great.

9 Tamar, were you going to say something?

10 MS. KHACHATURIAN: Yeah, I just think along the
11 same lines of what Bill mentioned, I was wondering if you
12 wanted to expand on the point about the policy prescription,
13 you know, implications of your research and, again, going
14 back to this factors discussion. And for trade adjustment
15 assistance specifically, if you had anything in mind or if
16 you expand on it in your paper that I haven't seen. I'm, you
17 know, just sort of giving you the floor to expand if you
18 would like.

19 MR. ROBERTSON: Yeah, because I do feel very
20 passionately about this. You know, I mean, I really believe
21 that trade right now is very unpopular because we failed -- I
22 mean, we knew what the problems were going to be, as I said,
23 from Stolper and Samuelson 50, 60 years ago, and we did not
24 take it seriously enough and we did not fully embrace the
25 kind of adjustment assistance and support for adjustment that

1 workers need to stay whole once the economy was exposed to
2 trade.

3 And I think that -- and, you know, I love America,
4 America first. You know, I'm a big -- I believe this is a
5 wonderful country and everything, but I also think that the
6 Europeans taught us -- can teach us something about how to
7 manage the labor market adjustment and tracking of workers in
8 ways that makes them less resentful about trade. I mean,
9 that's kind of been my sense, is that you don't see as strong
10 of a backlash in Europe necessarily even though they have the
11 same kind of import pressure. And I think they do maybe a
12 little bit better job of, you know, training people for, you
13 know, adjusting and giving them more support and that kind of
14 thing. And if workers don't get that kind of support, you
15 know, Stolper and Samuelson were very clear that the median
16 voter then is probably going to be a production worker and if
17 they're the factor -- if I can go back to that language -- if
18 they're the factor that's being harmed throughout the economy
19 and you don't take care of them, they're going to vote
20 against trade. And I think that that's what's, in my view,
21 right, in my view, that kind of explains what's been
22 happening in the United States for the last 20 years.

23 And so you can say, well, we had trade adjustment
24 assistance. Well, yeah, but it was, like I said, it was
25 industry-focused. It was actually in some cases

1 firm-focused. The bar for showing that there was a trade
2 injury was pretty high. And then, once you got the trade
3 assistance, I can tell you lots of anecdotes, right? I mean,
4 the women in south Texas, coming from Texas, right, that used
5 to produce lots of apparel got trade adjustment assistance
6 when the companies first moved to Mexico. Like Levis, for
7 example. And they decided to use that adjustment assistance
8 to get trained to be hairdressers. They didn't really get,
9 you know -- and this is obviously anecdotal for some towns
10 based on sociology research, not on econ, not that there's
11 anything wrong with sociology research, but I'm just saying
12 the sociology studies that I read.

13 But, you know, and then, you know, being a
14 hairdresser or beautician, all of a sudden there's like many,
15 many of these people in one tiny little border town, and the
16 market doesn't support it, so then they lose their jobs and
17 they go back to trade adjustment assistance and they're like,
18 well, no, you made a mistake, you know what I mean? Like,
19 sorry, I mean, you shouldn't have become a beautician. But
20 they're still the people who were hurt by trade and they
21 didn't get enough support, and now how are they going to
22 feel -- they're not going to blame it on the beautician
23 industry, they're going to blame it on losing their jobs at
24 Levis to begin with.

25 MS. KHACHATURIAN: Right.

1 MR. ROBERTSON: You know what I'm saying? And so
2 we need to be more, you know, broader thinking about how are
3 factors affected across industries.

4 And, you know, there's another great story I could
5 tell you is when long ago, this is several elections ago,
6 there was a reporter in Iowa that went to workers at
7 Caterpillar and they're like, you know, you guys are
8 exporting all over the world. You're one of the biggest
9 exporting industries. You're making this awesome Caterpillar
10 equipment that's the best in the world. How do you guys feel
11 about trade? And they're like, we don't like trade. And
12 they're like, why? They're like, we're production workers.
13 Basically, that's what they said. I mean, they're like,
14 we're production workers. This is hurting production workers
15 everywhere. It drives down our wages when we don't have
16 other options in other industries or whatever, and that's not
17 the way the structure of our policy was designed at all.
18 Like, it wasn't designed around factors.

19 And then, as a result, here we are, right, where
20 both major political parties are both anti-trade now if I may
21 say that, I mean, basically, right? And how did that happen?
22 I mean, you know, I think the roots are very clear in my
23 mind. And I'm sorry to be so soapbox-y about this, but you
24 asked.

25 MS. KHACHATURIAN: No, I'm really thankful for

1 that. So thinking about ways to sort of make adjustment
2 assistance more effective and thinking about, you know, the
3 populations or the factors as you are stating them that
4 across industries would benefit from the support that they
5 may need and looking to other countries to see what effective
6 strategies may be that we could help -- that we could
7 implement here to help, yeah.

8 MR. ROBERTSON: Yeah, there's lot of room for
9 improvement, yeah, for sure.

10 MS. KHACHATURIAN: Thank you. Thank you for
11 sharing your anecdotes. We like those.

12 MR. ROBERTSON: My pleasure. I've been studying
13 this a long time.

14 MS. KHACHATURIAN: Just checking, I don't see the
15 full screen in front of me, so if you have your hand up,
16 please feel free to ask your questions.

17 If there is, you know, conversely, Professor
18 Robertson, something that we haven't asked that you'd like to
19 bring up now, I, you know, give you the opportunity to do
20 that.

21 Gohar, I think you have a question. Please feel
22 free.

23 MS. SEDRAKYAN: Yeah. Thank you very much.

24 I was looking at statistics related to labor versus
25 exports and I noticed that exports were rising faster than

1 labor for men or declining of labor of women. So my question
2 is more about maybe the overall labor productivity improved
3 rather than the shift between male and female labor.

4 MR. ROBERTSON: That's also -- that's a very, very
5 smart question. I appreciate that question and, obviously,
6 we didn't even talk about that productivity. We have the
7 productivity parameter, the Z, in the model, as we mentioned,
8 but we didn't do anything with that and we didn't measure
9 that at all, so you totally caught us. A great suggestion of
10 what we need to do next. We did not look at labor
11 productivity, and it could be different for men and women.

12 The one thing that we did notice towards that
13 direction and we should have pushed it farther, so sorry that
14 we didn't, was that significant investments were being made
15 by the government and in the export direction on these more
16 traditionally capital-intensive industries. The problem with
17 that was that this investment in technology and capital is
18 traditionally in Tunisia but I think also generally much more
19 compatible with male employment generally, right? So the
20 technological advancements tend to favor men in this case.

21 But you're right. Like, how much of it was due to
22 the technology investments that the government was making, we
23 didn't tease that out. But we're pretty sure that they were
24 favoring men as well. I mean, that was part of our original
25 story because they were investing in -- basically, what the

1 government was basically saying was, at the time, and I
2 didn't mention this, but they're like -- you know, in a way,
3 they're like we don't want to do this labor-intensive stuff
4 anymore. We want to do this capital-intensive stuff because
5 that's what developed countries do, and we want to be a
6 developed country.

7 So, if you've been studying development economics
8 at all, you know that this is sort of the ISI, the import
9 substitution mindset, right, that we want to be a developed
10 country by doing what developing countries do. So there was
11 a deliberate shift by the government to invest in more
12 capital, right? And I agree with you that one way to really
13 highlight that would be to look at productivity, because it's
14 definitely going to increase productivity, but it also is
15 going to be favoring men as well, that policy. And so it
16 wasn't just that we're done kind of with this apparel thing
17 and now we're going to do these capital-intensive things.
18 There was technological investment as well. But that's why
19 we'd also love to have wages. Wages would also reveal that.
20 Yeah, I wish we had wages too. I see many of you nodding,
21 yeah.

22 Does that answer your question? Is that okay?

23 MS. SEDRAKYAN: Yes, thank you very much.

24 MR. ROBERTSON: That was a great question.

25 MS. KHACHATURIAN: Thank you, Gohar.

1 It looks like we're right at time here. I will
2 just sort of close by saying thank you so much for kicking
3 off our distributional effects seminar series. It was a
4 great presentation.

5 Thank you, Tamara, for your discussant comments
6 and, Bill, for providing all the introductory remarks.

7 We have our second in the series coming up tomorrow
8 morning, July 16, at 10 a.m. Eastern. So same exact time and
9 format as today.

10 Thank you again, and we look forward to continuing
11 with the rest of the papers this week.

12 MR. ROBERTSON: Thank you all very much.

13 (Whereupon, at 11:32 a.m., the seminar in the
14 above-entitled matter was adjourned.)

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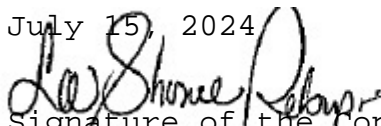
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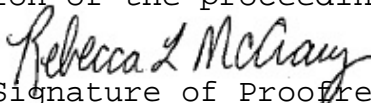
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