Outlook

RE: Voice Message From: 1 (425) 3612854

From Pennucci, Annie (OFM) <Annie.Pennucci@ofm.wa.gov>
Date Fri 7/11/2025 2:01 PM
To john martin <jmartinnoj@hotmail.com>

Hi John,

Thank you for the clarification.

OFM does not currently have an I-O model that incorporates elasticities for sub-state regional impact analysis. While regional analysis would be helpful, it is out of scope for our current work.

Have a good weekend,

-Annie

From: john martin <jmartinnoj@hotmail.com>
Sent: Friday, July 11, 2025 11:30 AM
To: Pennucci, Annie (OFM) <Annie.Pennucci@ofm.wa.gov>
Cc: Roberts, Fanny (OFM) <fanny.roberts@ofm.wa.gov>; Traore, Abdel (OFM) <Abdel.Traore@ofm.wa.gov>
Subject: Re: Voice Message From: 1 (425) 3612854

External Email

Annie Pennucci
Director
OFM Forecasting & Research Division

Thank you very much for your prompt reply to my inquiry and for keeping a time frame as promised by Dr. Fanny Roberts.

However, I must point out that I did not indicate I-O modeling was a reliable method for evaluating economic effects of eternal shocks like tariffs.

Rather, I indicated I was specifically interested in the the validity and reliability of economic impacts that are calculated with the Washington State Input-Output (I-O) Model with customizations to allow for sub-state regional impact analysis.

The study was done in 2022, and I am concerned that the tariff situation impacts the 2012 Washington State Input-Output (I-O) Model.

The model assumes:

Fixed Input Structure:
This assumes that the mix of inputs (raw materials, labor, etc.) used by an industry to produce its output stays constant, even if the overall output level changes.

and

No Supply Constraints:
The model assumes that there are no limitations on the availability of inputs, raw materials, or labor, allowing for unlimited production.

I realize how difficult it is to construct economic models in a rational and objective manner and how awkward it is when people come up to you and want to immediately get answers and forecasts . For example, yesterday there was no 35% tariff increase on Canada threatened and today there is a 35% tariff increase on Canada threatened. People may come up to you and ask, "What's going to happen? What's your forecast?" Without time to adjust a statistical model, you have to immediately make your best guess, based on your experience and education.

In this situation, evaluating a 2022 Regional impact analysis, we have time to reflect.

I think the current tariff situation impacts both the mix of inputs and the availability of inputs and thus, the forecasts generated.

The OFM admirably combines a trade elasticities framework with the I-O model to address some of the limitations and resulting changes in output and employment estimates across industries.

The I-O analysis I am concerned with was done in 2022.

Then, on April 2, 2025, a day he called "Liberation Day", Trump declared a national emergency regarding the national trade deficit and announced "reciprocal tariffs" on all countries not subject to other sanctions.

Now, 2025, using a trade elasticities framework with the I-O model will result in changes in output and employment estimates across industries.

I appreciate all the information you provided relative to the I-O model and elasticities applied to the national and statewide economy. My concern, however, is with customizations to allow for sub-state regional impact analysis using the (I-O) Model, specifically, the 2012 Washington Input-Output Model.

It would be optimal to run the I-O model again, with the elasticities you described, changes in customizations to allow for sub-state regional impact analysis, and current census data which will be incorporated into the I-O model next year.

However, like your self and the OFM forecasting Division, I must answer questions now.

Because today is a "35% tariff increase on Canada threatened day," and you and your staff are very busy, I will limit my questions to a very practical nature.

1). Does the OFM currently have an I-O model that incorporates elasticities for sub-state regional impact analysis?

2). Would customizations to allow for substate regional analysis be useful?

Again, thank you very much for your prompt reply to my inquiry and for keeping a time frame as promised by Dr. Fanny Roberts.

I look forward to hearing from you again at your earliest convenience.

In the meantime, I hope you can look forward to a very wonderful weekend.

Best Regards,

John E. Martin
425-361-2854
jmartinnoj@hotmail.com

From: Pennucci, Annie (OFM) <Annie.Pennucci@ofm.wa.gov>
Sent: Friday, July 11, 2025 7:48 AM
To: john martin <jmartinnoj@hotmail.com>
Subject: RE: Voice Message From: 1 (425) 3612854

Greetings John,

I am the Director of OFM's Forecasting & Research Division, responding on behalf of our economics unit, which I oversee. Thank you for your interest in the Input-Output model and the insights you shared. I address your questions below.

As you noted, I-O modeling is a well-established and reliable method for evaluating the economic effects of external shocks like tariffs. It is particularly effective in capturing interdependencies among sectors, allowing analysts to trace how disruptions in one industry ripple through the broader economy. For instance, Fajgelbaum et al. (2020) used an I-O-based general equilibrium model to study the 2018–2019 U.S. tariffs and found that the economic burden was largely borne by consumers and downstream industries. Similarly, Caliendo, Dvorkin, and Parro (2019) applied an I-O structure in a computable general equilibrium model to examine the U.S.-China trade conflict, demonstrating how sectoral shocks propagate through supply chains.

For our analysis of tariffs, we are combining a trade elasticities framework with the I-O model to address some of the limitations you describe. The trade elasticities model captures how changes in tariffs affect the dollar value of imported and exported goods. These changes in trade flows serve as external shocks that are inputs into the I-O model, which then estimates the resulting changes in output and employment across industries. In this integrated approach, the trade elasticities model acts as a constraint or driver for the I-O model so that the analysis better reflects realistic trade responses.

The Washington State Input-Output (I-O) model is updated structurally every 5 years using U.S. Census data and recalibrated annually with the current dollar value to reflect current economic conditions. At present, we are in the midst of a structural update of the I-O model and will release a new version next year.

Again, thank you for your feedback, and have a good weekend.

-Annie

From: john martin <jmartinnoj@hotmail.com>
Sent: Thursday, July 10, 2025 4:11 PM
To: Roberts, Fanny (OFM) <fanny.roberts@ofm.wa.gov>
Cc: Pennucci, Annie (OFM) <Annie.Pennucci@ofm.wa.gov>; Traore, Abdel (OFM) <Abdel.Traore@ofm.wa.gov>
Subject: Re: Voice Message From: 1 (425) 3612854

External Email

Fanny Roberts, PhD
Senior Economist
OFM Forecasting and Research Division

Dear Dr. Fanny Roberts,

I hope your weekend was good

It is a busy time for tariffs and economists.

I hope to hear from you by the end of the week.

Best Regards,

John E. Martin
425-361-2854
jmartinnoj@hotmail.com

From: Roberts, Fanny (OFM) <fanny.roberts@ofm.wa.gov>
Sent: Wednesday, July 2, 2025 3:40 PM
To: john martin <jmartinnoj@hotmail.com>
Cc: Pennucci, Annie (OFM) <Annie.Pennucci@ofm.wa.gov>; Traore, Abdel (OFM) <Abdel.Traore@ofm.wa.gov>
Subject: RE: Voice Message From: 1 (425) 3612854

Good afternoon, Mr. Martin

Thank you for contacting the OFM Forecasting & Research Economics unit. We appreciate your concern about the use of the Washington Input Output model to analyze the economic impact of tariffs on Washington's economy.

We will get in touch with you early next week to address your concerns and share the assumptions used in the analysis.

Thanks once again and have a happy 4th of July.

Best regards,

Fanny

Fanny Roberts, PhD
She/her/hers
Senior Economist
OFM Forecasting and Research Division
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From: john martin <jmartinnoj@hotmail.com>
Sent: Tuesday, July 1, 2025 11:21 PM
To: Roberts, Fanny (OFM) <fanny.roberts@ofm.wa.gov>
Cc: Pennucci, Annie (OFM) <Annie.Pennucci@ofm.wa.gov>; Traore, Abdel (OFM) <Abdel.Traore@ofm.wa.gov>
Subject: Re: Voice Message From: 1 (425) 3612854

External Email

Fanny Roberts, PhD
Senior Economist
OFM Forecasting and Research Division
1500 Jefferson St SE
Olympia, WA 98501
Phone: 360-701-1697
Fax: 360-586-1988
Email: fanny.roberts@ofm.wa.gov

Dear Dr. Fanny Roberts

Thank you very very much for your reply.

I am specifically interested in the validity and reliability of:

Economic impacts that are calculated with the
Washington State Input-Output (I-O) Model published by the
Washington State Office of Financial Management (OFM) with
customizations to allow for sub-state regional impact analysis.

The analysis was done in December 2022, so it is reasonable to assume that the 2012 Washington Input-Output Model was used.

The Office of Financial Management indicated that the 2012 Washington Input-Output Model was developed by Dr. Fanny B. Roberts, Forecasting and Research Division, Office of Financial Management and Dr. William Beyers, University of Washington Geography Professor.

With a great deal of sadness, the Department of Geography marked the passing of their long-time faculty colleague and former chair, William Bjorn “Bill” Beyers, in early February, 2022.

As you know, Washington State has a unique history of input-output models in the United States, and the University of Washington Department of Geography has been involved with most of them. Nine models have been constructed, benchmarked against the years 1963, 1967, 1972, 1982, 1987, 1997, 2002, 2007, and 2012. These are all Economic Census years, a source providing baseline data for construction of these models. No other state has an history of locally-constructed models of this type.

As you also know, Input-Output models are portraits of national or regional economies that are widely used to calculate economic impacts, such as the impact of the Boeing Company on the Washington State economy, or the economic impact of arts and cultural organizations on the Central Puget Sound regional economy. They measure economic impacts through estimates of sales (output) by industry, labor income, and jobs created. They were developed in the 1930’s by Wassily Leontief, a Harvard University professor who won the Nobel Prize in Economics for his pioneering work on these models for national economies.

In February 1936, a similar time period, John Maynard Keynes published "The General Theory of Employment, Interest and Money," and formally introduced the concept of the multiplier effect.

Milton Friedman, a leading figure of the Chicago School of Economics who won the Nobel Memorial Prize in Economic Sciences in 1976, argued that the Keynesian multiplier was incorrectly formulated and fundamentally flawed. The theory ignores how governments finance spending by taxation or debt issues. Raising taxes takes the same or more out of the economy as saving, while raising funds by bonds causes the government to go into debt. The growth of debt becomes a powerful incentive for the government to raise taxes or inflate the currency to pay it off, thus lowering the purchasing power of each dollar that workers earn.

The 2012 Washington Input-Output Model includes: Section 4: The Input-Output Impact Multipliers (PDF)

The conflicting Keynes and Friedman views seem to be addressed in:

Section 3: The Washington Input-Output Tables for Impact Analysis (PDF)

Limitations of Input-Output Impact Analysis

(4) I-O analysis estimates total impact from an external change in final demand. For projects that bring into the state investment money or other spending from outside the state and thus result in direct external changes in final demand, using an I-O model to estimate total economic impact caused by these projects is straightforward. When the project’s funding is not external, such as a local government investment activity funded by tax dollars, the impact needs to be evaluated on both the activity (positive effect) and the corresponding funding (taxes’ negative effect on consumption) to derive a “net” impact.

Do the exogenous changes in tariffs impact the following assumptions of the model?

Assumptions:

(1). No Supply Constraints:

The model assumes that there are no limitations on the availability of inputs, raw materials, or labor, allowing for unlimited production.

(2). Fixed Input Structure:
This assumes that the mix of inputs (raw materials, labor, etc.) used by an industry to produce its output stays constant, even if the overall output level changes.

The Limitations of Input-Output Impact Analysis also includes:

(1) The model will better approximate the economy the closer to the year for when the model is constructed. In other words, the farther away from the model year, the less accurate the impact estimation would be.

Given the impacts of tariffs on the State of Washington's economy studied by Abdel Traore, I feel it is likely that Limitation (1) would be exacerbated.

As noted, the analysis was done in December 2022.

Currently, the "customizations to allow for sub-state regional impact analysis" are not available to me so I cannot share them with you.

Again, thank you very very much for your reply.

It would be appreciated if you could acknowledge the receipt of this email before the 4th of July weekend.

In the meantime, I hope you have a Happy 4th of July Weekend and I look forward to hearing from you at your earliest convenience.

Best Regards,

John E. Martin
425-361-2854
jmartinnoj@hotmail.com

Cc:
Pennucci, Annie (OFM) <Annie.Pennucci@ofm.wa.gov>
Traore, Abdel (OFM) <Abdel.Traore@ofm.wa.gov>

From: Roberts, Fanny (OFM) <fanny.roberts@ofm.wa.gov>
Sent: Tuesday, July 1, 2025 4:54 PM
To: jmartinnoj@hotmail.com <jmartinnoj@hotmail.com>
Cc: Pennucci, Annie (OFM) <Annie.Pennucci@ofm.wa.gov>; Traore, Abdel (OFM) <Abdel.Traore@ofm.wa.gov>
Subject: RE: Voice Message From: 1 (425) 3612854

Hello Jon,

I have received your voice mail regarding a question you have about the Washington Input Output model and tariffs. Please email me at fanny.roberts@ofm.wa.gov or abdel.traore@ofm.wa.gov. I specialize mostly on the Washington input output model and my

colleague Abdel is doing a study on the impact of tariffs on the State of Washington's economy. You can contact either of us or you can contact Abdel directly on the email address above if you have specific questions regarding tariffs.

Thanks,

Fanny

Fanny Roberts, PhD
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1500 Jefferson St SE
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From: OFM mi Main Voicemail <OFMmiMainVoicemail@ofm.wa.gov>
Sent: Tuesday, July 1, 2025 4:40 PM
To: Roberts, Fanny (OFM) <fanny.roberts@ofm.wa.gov>; Hughes, Rachel (OFM) <Rachel.Hughes@ofm.wa.gov>
Cc: OFM mi Main Voicemail <OFMmiMainVoicemail@ofm.wa.gov>
Subject: FW: Voice Message From: 1 (425) 3612854

Hello,

This VM is from John Martin , who is trying to get ahold of Fanny Roberts and William Byers (sp?). He got a bounce back on his email to William Byers.
425-361-2854
JMARTINNOJ@hotmail.com

Thank you,

Sarah Gosney | **Administrative Specialist**
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WASHINGTON STATE OFM Office of Financial Management

From: 1(425)3612854 <avayavoicemessaging@watech.wa.gov>
Sent: Friday, June 27, 2025 12:53 PM
To: OFM DIRECTORS 3609020555 <3609020555@voicemail.dis.wa.gov>
Subject: Voice Message From: 1 (425) 3612854