



**DEWAN EKONOMI NASIONAL
REPUBLIK INDONESIA**

DEN's Practical Utilization of the GTAP Model

11 December 2025

About DEN & GTAP

- Dewan Ekonomi Nasional (DEN) or National Economic Council (NEC), Republic of Indonesia is an advisory arm of the Government with the President as its client.
- The reciprocal tariff is the perfect use case for the GTAP model.
- Prof. Arief Anshory Yusuf and I (Imed Krisna) are no stranger to GTAP, GEMPACK, and some other CGE models.
- Some exercises we did:
 - Reciprocal tariff shock
 - Energy purchasing scenario
 - Potential impact of the IEU-CEPA



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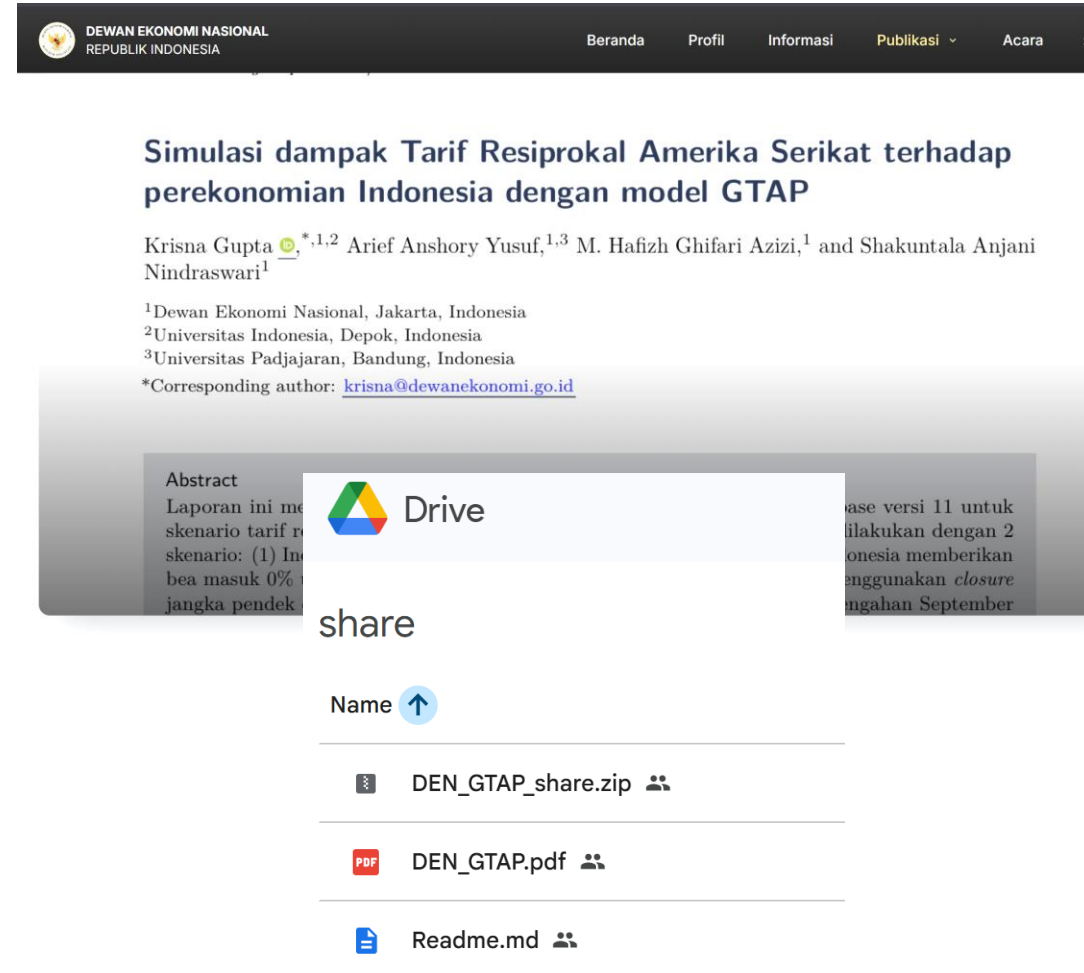
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The Reciprocal Tariff Exercise

- 31 Regions x 64 Sectors (oil & gas is aggregated) x 5 factors of production.
- Due to constant change in tariffs, we wrote two other programs:
 - A small program (consists of tablo and HAR database) to calculate the tariff shock.
 - A small program (sltght & python) to quickly extract most important results to csv and png files.
- We have disseminated the early results to other government agencies as well as think-tanks
- All are zipped, written, and soon to be published at DEN website, currently with September tariffs.



Simulasi dampak Tarif Resiprokal Amerika Serikat terhadap perekonomian Indonesia dengan model GTAP


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Abstract
Laporan ini memuat hasil simulasi dampak tarif resiprokal Amerika Serikat terhadap perekonomian Indonesia dengan menggunakan model GTAP. Skenario: (1) Indonesia memberikan bea masuk 0% untuk semua barang impor. (2) Amerika Serikat memberikan bea masuk 0% untuk semua barang ekspor. Hasil simulasi menunjukkan bahwa kebijakan ini akan memberikan dampak positif terhadap perekonomian Indonesia, terutama pada sektor manufaktur dan jasa. Dampak terbesar adalah peningkatan ekspor dan pendapatan pajak.

base versi 11 untuk melakukan dengan 2 onesia memberikan menggunakan *closure* nggahan September

share

Name 

	DEN_GTAP_share.zip	
	DEN_GTAP.pdf	
	Readme.md	



The Reciprocal Tariff



Scenarios



Do Nothing



Tariff Indonesia: 32%

Tariff Vietnam: 20%

VS

Make a Deal



Tarif Indonesia: 19%

Cost: Tarif 0% for USA

The simulation

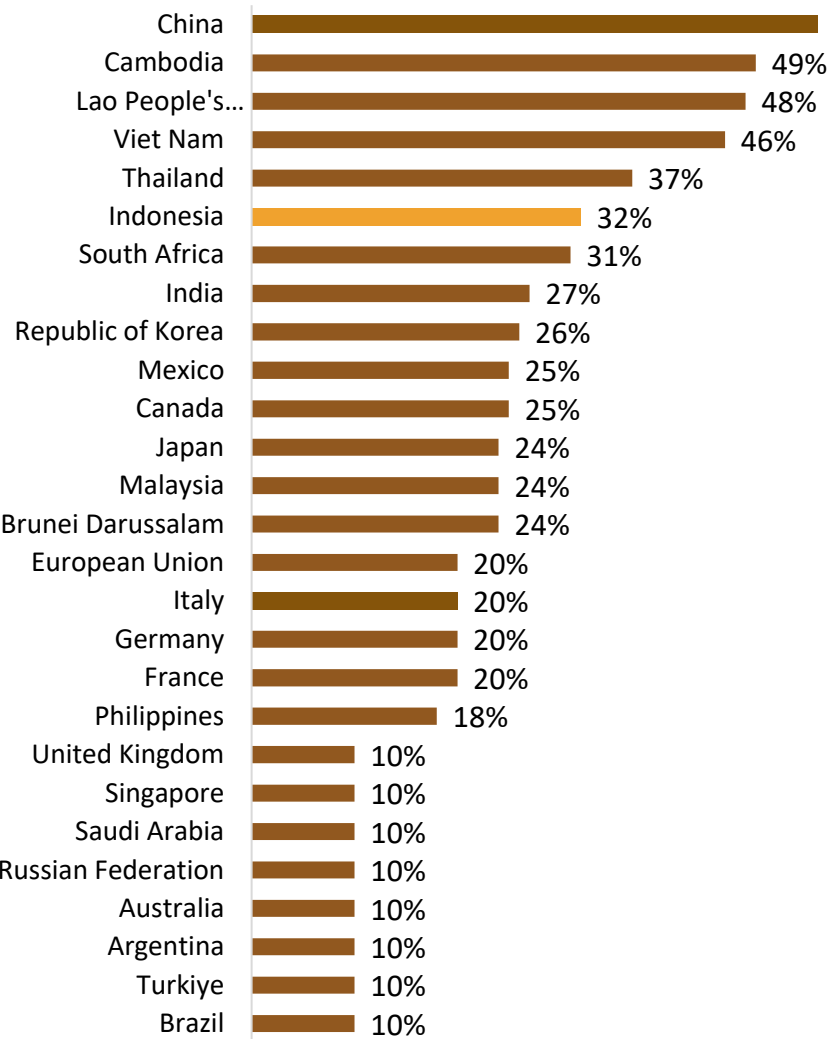
The standard **GTAP Model is a multiregion, multisector, computable general equilibrium model**, with perfect competition and constant returns to scale. Innovative aspects of this model include:

- The treatment of private household preferences using the non-homothetic CDE functional form.
- The explicit treatment of international trade and transport margins. Bilateral trade is handled via the Armington assumption.
- A global banking sector which intermediates between global savings and consumption.

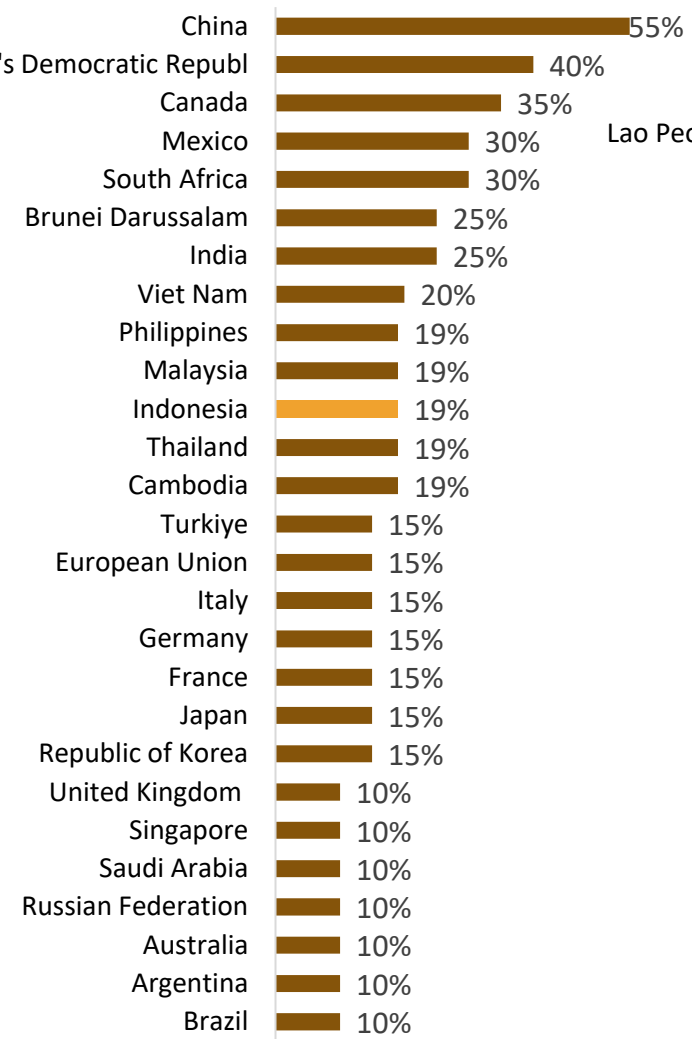
- We run various **closure**, but ended up with Short run /unemployment closure:
 - Swapping q_e with $pefactreal$ for both labor.
 - We add no sectoral tariffs. Strictly only reciprocal.
 - No treatment for non-tariff measures

Tariff Reciprocal Development: differences are getting smaller

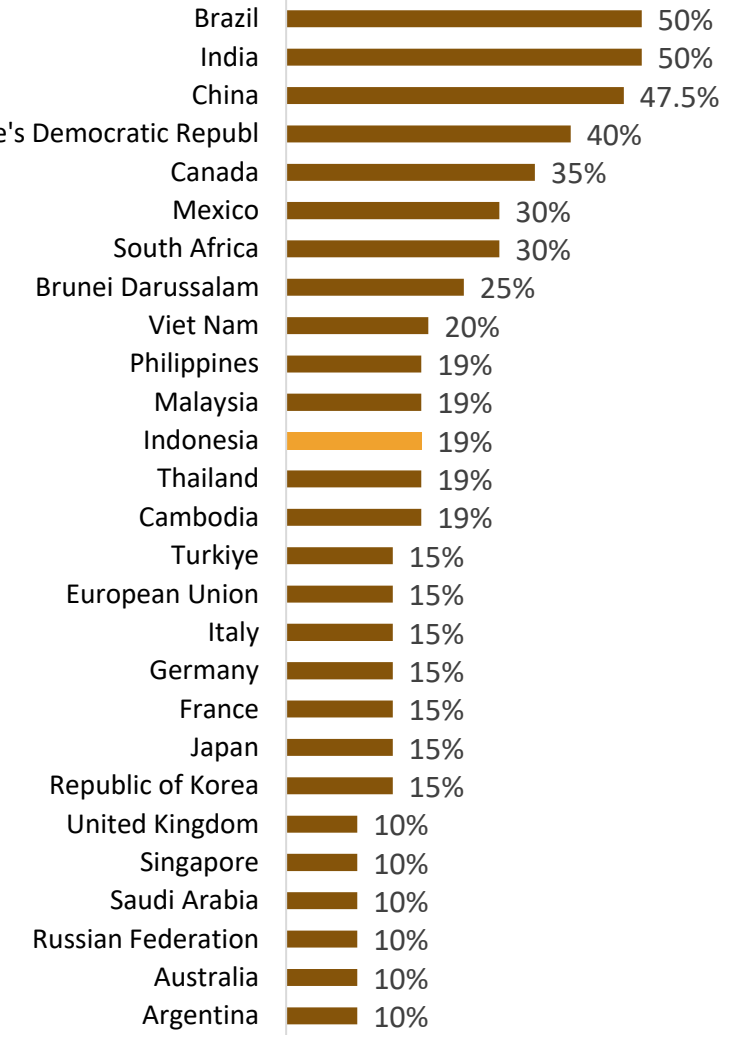
2 April
(%)



16 Juli
(%)



24 November
(%)

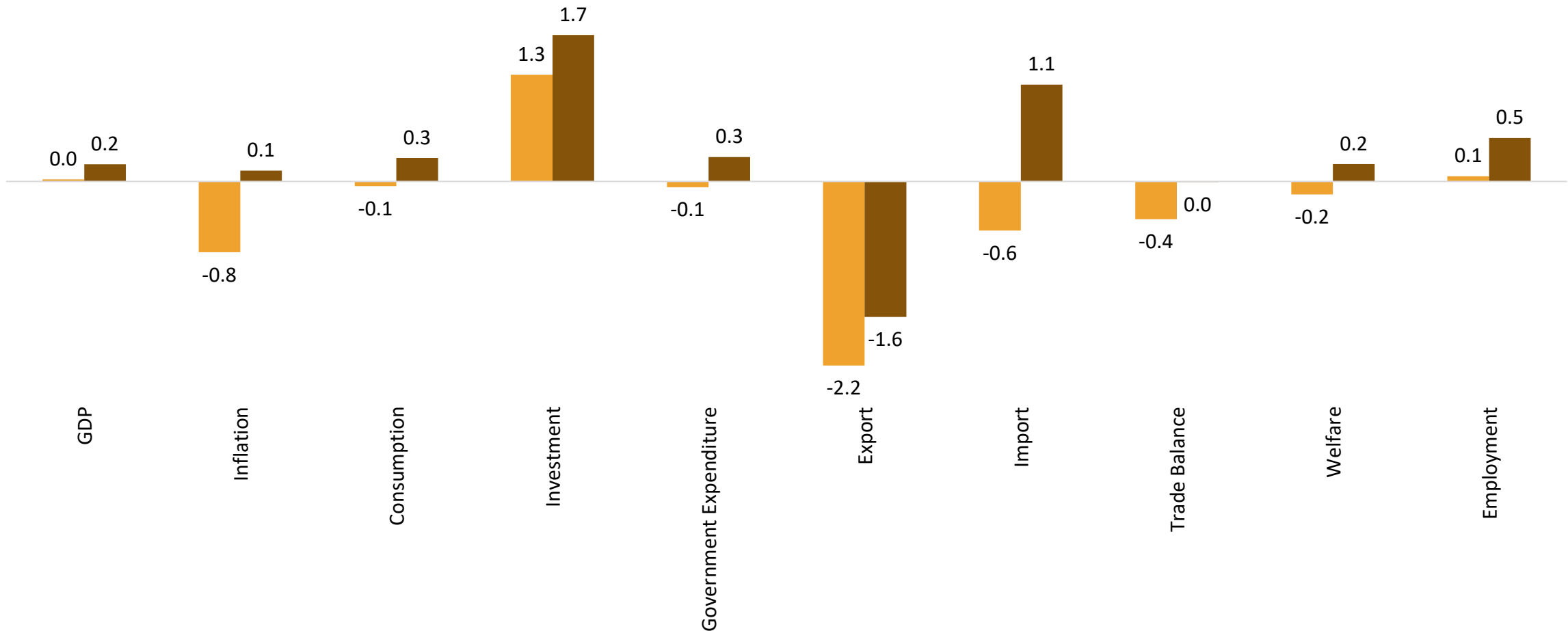


Macroeconomic results



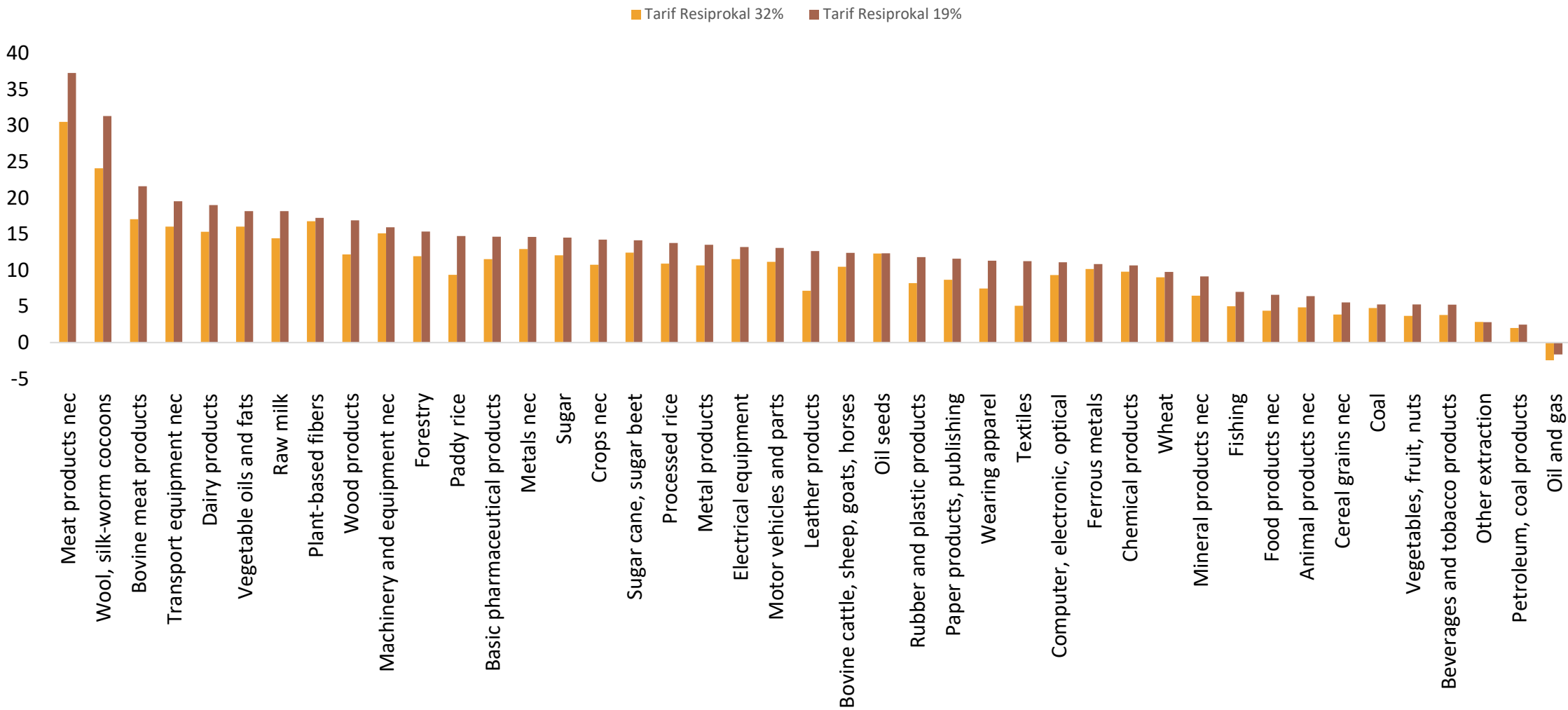
Impact of US Reciprocal Tariffs on Indonesia's Economy
(Percent to Baseline)

■ Reciprocal Tariff 32% (Do Nothing) ■ Reciprocal Tariff 19% (Make a Deal)



Increased import from China

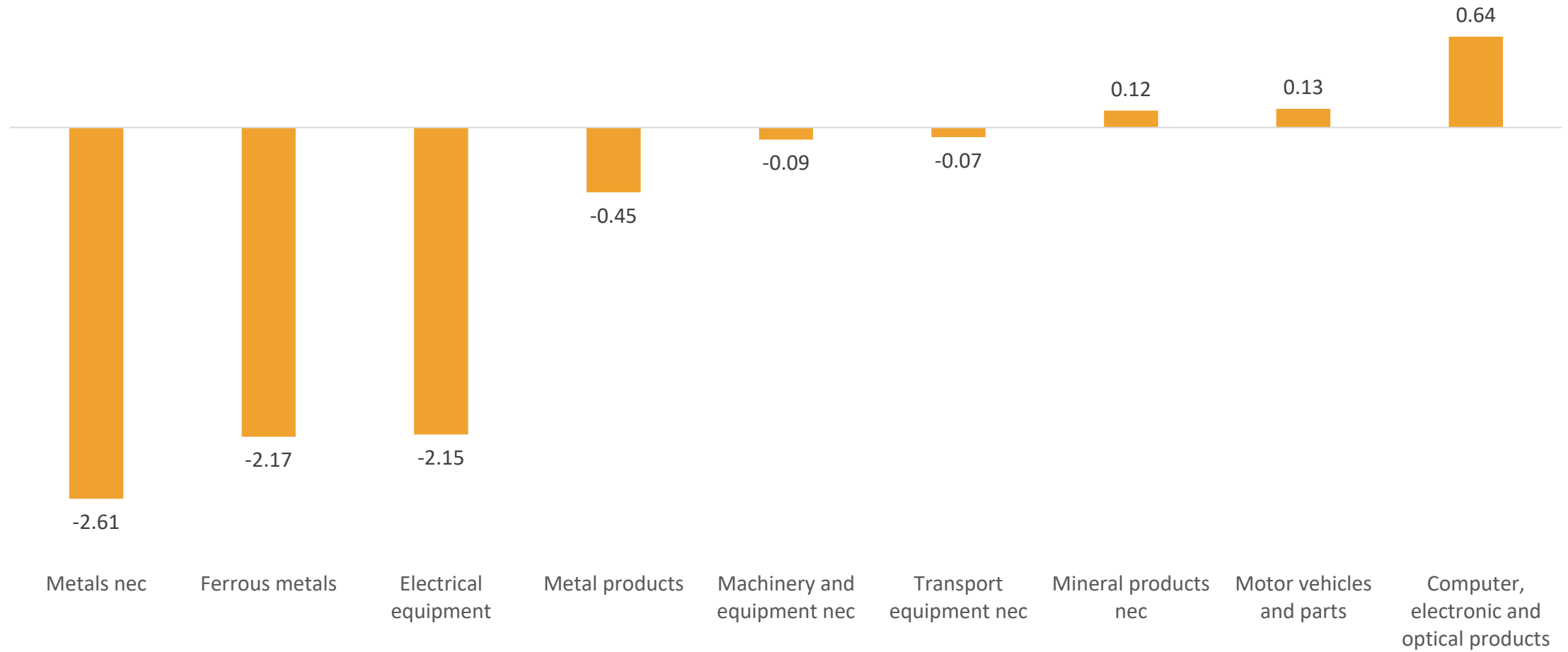
Change in import from china, qxs(comm,"chn","idn")
(%)



Some sectoral impacts



Output change (%) of selected sectors





The Energy Purchasing Agreement

The Oil & Gas Purchase

MP

The WHITE HOUSE

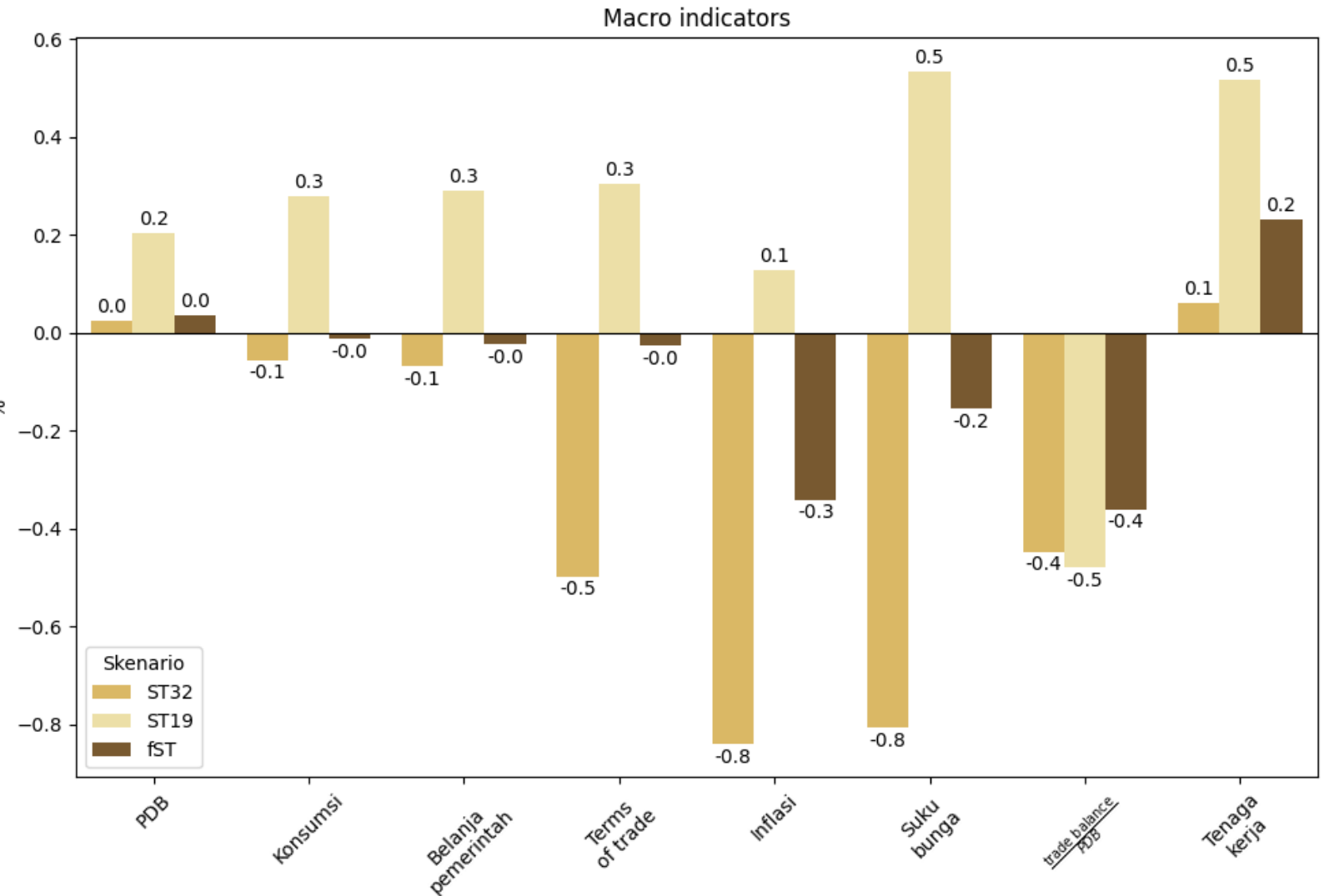
and through cooperation on export controls, investment security, and combatting duty evasion.

- In addition, the United States and Indonesia take note of the following forthcoming commercial deals between U.S. and Indonesian companies:
 - Procurement of aircraft currently valued at 3.2 billion USD.
 - Purchase of agriculture products, including soybeans, soybeans meal, wheat, and cotton with an estimated total value of 4.5 billion USD.
 - Purchases of energy products, including liquefied petroleum gas, crude oil, and gasoline, with an estimated value of 15 billion USD.

15 Billion USD = 500% increase of current (2024) import. If total Indonesian import of oilgas is the same, then import from other countries must reduce by around 6%.

Closure & Results

- We add one more scenario:
 - Negotiate (e.g., get 19% + 0% for US) + energy purchasing agreement.
- We add an exogenous variable $ftms(c,s,d)$ to the $pm ds(c,s,d)$ variable.
- We swap the $ftms(oilgas,reg,"idn")$ with qxs , then shock the qxs accordingly
- $pm ds$ changes dramatically:
 - US down 33% while others up 14%



Caveats

- Real data seems to suggest increase in export of heavy industries to US. Frontloading or permanent supply chain restructuring?
- Ceteris Paribus, i.e., assuming no additional intervention from any government.
- No monetary module means we don't know how to model the financial side of trade (e.g., US budget deficit & AI stock bubble, Chinese external investment).
- No sectoral tariffs, which can be very important.
- No NTM liberalization yet.
- Setting for energy purchasing may need improvements.



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THANK YOU