Problem Set 3: U.S. Customs data and the trade elasticity

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You have until 3/3 9am to complete this problem set.

1. Download the most recent U.S. customs import trade data for the month of December 2024 creating your own API-key. Check the documentation in the set of slides from last lecture. Download the data at the HTS 10-digit, country of origin level.

2. Become familiar with the data by picking a product - that means think of a good, then search their HS 6-digit code here and using this document as well as the trade data you just downloaded answer the following questions:

   - How many sub-heading are below the HS-6 definition (HS-8,HS-10), how are they defined. Calculate the import share of each of them (as the share of total imports of the HS6 good that you picked). What are their average unit values, calculated as the FOB import value over the quantity imported (use first quantity).
   - What are the column 1 and column 2 tariffs for each of them according to the HTS schedule and what are the average applied tariff you can calculate using the standard definition of applied tariffs as the sum of duties collected over the FOB consumption value of imports.
   - What are the 5 main exporters of each of the HS-10 sub-headings and what are their import shares.

3. The expectation that the new administration was going to impose further tariffs lead to a surge in imports from China in 12/2024.

   - Download the same data for 12/2023.
   - Plot the distribution (use k-density command). of annual December growth between 2024 and 2023 in total imports of the top-100 import sources. Point out where china is (use scatter command).
   - Do the same but for the change in US import share.
   - Now dig into imports from China. Plot the growth of imports per HS section (there are 21, look for the definition following the link to the HTS archive above) for China and the sum of all other countries. Which sector displayed the biggest growth and which one the biggest relative growth (compared to the rest of the World).
   - Within the top growth sector (HS section), which HS6 product grew the most?
   - Finally consider the mode of shipment: Are there any HS6 imports from China for which there has been a substantial increase in air shipment (relative to vessel shipments)? Consider only goods for which there trade is superior to 10 million USD. List the following information of the top 5 goods with the largest increase in air shipment: The share of value imported by air relative to their total imports, the tariff rate, and their value per measure of weight, all of them for both periods.

4. Download the annual US import data from Peter Schott's website and estimate the trade elasticity of imports from China during the trade war. Consider at most 7 years: 2017-23. You can construct measures of tariffs using the duties collected (no need to download statutory tariffs from elsewhere). Perform the analysis at the HS-6 level and control for US good-specific demand shocks, aggregate bilateral shocks, and origin-sectoral supply shocks, and non-time varying variety-specific taste. Choose one of the following papers and adopt their estimation method Alessandria et al. (2025), Fajgelbaum et al. (2020) or Boehm et al. (2023).

References

Alessandria, George, Shafaat Y. Khan, Armen Khederlarian, Kim J. Ruhl, and Joseph B. Steinberg (2025) 'Trade war and peace: U.s.-china trade and tariff risk from 2015–2050.' *Journal of International Economics*

Boehm, Christoph E., Andrei A. Levchenko, and Nitya Pandalai-Nayar (2023) 'The long and short (run) of trade elasticities.' *American Economic Review* 113(4), 861–905

Fajgelbaum, Pablo, Pinelopi K. Goldberg, Patrick J. Kennedy, and Amit Khandelwal (2020) 'The return to protectionism.' *Quarterly Journal of Economics* 135(1), 1–55