

Assignment 1

Due: Thursday, April 17th, e-mailed to me by no later than 1:55 PM EDT in **one** single **pdf** file. Make sure your **file-name** has this format **Yourlastname Assignment 1** (e.g., Smith Assignment 1).

Weight: 20%

Presentation: *All material must be typed (exceptions: graphs and equations may be drawn/written by hand and then scanned or photographed and embedded into the pdf file). All graphs must be clearly labelled, and preferably drawn on graph paper. You can generate professional graphs in Excel and/or EViews (or any other software with which you are familiar). The presentation of ALL material must adhere to high professional standards. You will lose points for shabby presentations.*

1. [14 + 5 bonus points] (For this question you may use EViews, STATA, R, Python, or Excel.) Go to FRED and, for the period 2006Q1 through 2024Q4, extract the following data for the U.S.: *expgsc1* and *impgsc1*, as defined in Handout [1A]. Also, extract data for *RTWEXBGS* (Real Trade Weighted U.S. Dollar Index: Broad, Goods and Services, January 2006 = 100).¹ Then:
 - a. Generate the U.S. net exports time series data for 2006Q1-2024Q4; call it *NX*.
 - b. Plot (scatter **and** line) *NX* versus *RTWEXBGS*. [In the scatter graph put *RTWEXBGS* on the horizontal axis and *NX* on the vertical.] What kinds of **overall** patterns do you observe? What is the relationship, if any, between changes in the exchange rate and the net export performance of the US? Explain.
 - c. What are some factors, **other than exchange rates**, that might affect the net export performance of a country? Briefly explain in words.

Caution: (i) For **line** graphs, when you plot two variables of different magnitude on the same diagram, you might want to normalize your data to get a better picture of what is going on. Alternatively, measure *NX* on the right-hand side vertical axis and *RTWEXBGS* on the left-hand side vertical axis. (ii) Real-world economic relationships are not always neat; or, they are neat in some periods, and messy in others. So, *look at your data carefully*. (iii) Make sure to talk about *appreciation/depreciation* of the dollar against other currencies; e.g., the following would be **ambiguous** “as *RTWEXBGS* goes up....” What does “goes up” mean? Does it mean *appreciation*, or *depreciation* of the dollar? (iv) Be brief and to-the-point. (v) Enclose **only** your line and scatter graphs; **do not enclose the raw data**.

¹For an exact definition of *RTWEXBGS* and for more details on this index see (under “Real Broad Dollar Index”): <http://www.federalreserve.gov/releases/h10/Summary/>. Note that the index uses “the prices of the U.S. dollar in terms of foreign currency.” For a simple definition, see page 447 of the textbook. **CAUTION:** pay close attention to definitions for the index, and the one in the textbook. At this stage, you need only an intuitive, man-in-the-street sense of real exchange rates. We’ll cover the details later in the course.

Extra Credit. (you are not required to do this section). Regress net exports (NX) on the exchange rate index ($RTWEXBGS$). Present, and carefully interpret your results. How reliable are your results? In what ways can your regression equation be improved? (Hint: among other things, take a second look at your plots in b above.)

2. [22 points] Income inequality in the U.S. (and many other countries) has worsened consistently since the mid 1970s. Many researchers cite free trade as a contributing factor. In a two-page² **executive summary/position paper** explain (a) the **extent** to which free trade might have contributed to this phenomenon, (b) the specific **ways in which** free trade might have contributed to income inequality, and (c) some **specific policy proposals** that have been put forward to address the issue. To prepare this executive summary, refer to the five papers at the course's website as your point of departure. Given the enormous debate that is currently going on regarding tariffs, I have included "Paper 5" which addresses the effects of tariffs on inequality. However, that paper is not the last word on this issue, as the debate is ongoing. You may use any additional sources (especially from *Google Scholar* or similar sources) to strengthen your paper. [Stay away from generalities and/or "opinion"; be very specific and evidence-based!]

3. [17 points] Refer to the PPF [graph](#) at the course's website. Based on the production possibilities frontier in that graph, draw the relative supply curve (on graph paper³).⁴

Now, suppose that the equation for the relative demand curve is $\frac{p_x}{p_y} = \frac{0.83y}{x}$, or,

equivalently, $\frac{p_x}{p_y} = \frac{0.83}{\left(\frac{x}{y}\right)}$. Draw this relative demand curve on the same graph as you drew

the relative supply curve. What is the equilibrium relative price, and **actual equilibrium quantities** of x and y ? Now, suppose consumers' preferences change and, as a result, the relative demand curve shifts to become: $\frac{p_x}{p_y} = \frac{2.36y}{x}$. Draw the new relative demand curve (on the same graph as above) and find the new equilibrium relative price and **actual equilibrium quantities** of x and y .

²Typed, double-spaced, one-inch margins all around, Times New Roman 12-point font typed on 8.5 by 11 format, absolutely not to exceed two pages. *I will not read beyond the second page.*

³You may download graph paper from online sources.

⁴For those of you who want to tackle this part of the problem mathematically (not required), the equations used to construct the PPF are: $x = L_1^{0.480959}$, $y = L_2^{0.7705}$, $L_1 + L_2 = 120$.

4. [20 points] The table below shows the number of days of labor required to produce a unit of output of computers and wheat in Spain and Germany.

	<i>Computers</i>	<i>Wheat</i>
Spain	100	4
Germany	60	3

- Calculate the autarky (self-sufficiency, closed economy) price ratios.
 - Indicate which country has a comparative advantage in computers and which in wheat, and explain why.
 - If the terms of trade are 1 computer:22 wheat, how many days of labor does Spain save **per unit of its import good** by engaging in trade? How many does Germany save **per unit of its import good**?
 - If the terms of trade are 1 computer:24 wheat, how many days of labor do Spain and Germany each save **per unit of their respective import goods**?
 - What can be said about the comparative distribution of gains from trade between Spain and Germany in part (d) as compared to part (c)? Explain your answer.
5. [8 points] Question 4, p. 22, textbook (you can answer this in three sentences).
6. [19 points] Questions 1, 2, and 3, pp. 48-49, textbook. (Use graph paper, or professional software, to draw the needed graphs accurately.) [Suggestion: for Production Possibility Frontiers, measure bananas on the horizontal axis and apples on the vertical.]

➡ **VERY IMPORTANT**
 READ THIS 📄 📄 📄

- Begin working on this assignment **TODAY!**
 Procrastination would be very costly. If you procrastinate, e-mail communication, and/or office hours will become jammed.