Principles of Macroeconomics
Discussion Activity 3
February 10th, 11th, and 12th

Can you predict recessions better than AI? In this activity, you'll analyze 12 anonymized scenarios from U.S. economic history (1979-2022) and predict which ones led to recessions. You'll build your own leading indicator index, make predictions, then compare your accuracy to AI models.

Step 0: Learn About Leading Economic Indicators

Navigate to: https://matthewdlang18.github.io/macroeconomics-course-website/activities/activity3/recession-detective.html

On this page, you'll explore 8 leading economic indicators that economists use to forecast recessions:

- Yield Curve (10Y-2Y) - The spread between long and short-term Treasury rates
- OECD CLI - Composite Leading Indicator combining multiple signals
- ISM New Orders - Manufacturing demand indicator
- Building Permits - Housing sector activity (leads economy by 6-12 months)
- Consumer Confidence - Household expectations about the economy
- PMI - Purchasing Managers' Index for manufacturing
- Initial Claims - Weekly unemployment insurance filings
- S&P 500 - Stock market expectations

Click each indicator to see how it behaved before a real recession example. The charts show 24 months of data leading up to a decision point (T-0). Click "Reveal What Happened" to see if a recession followed. Notice how different indicators give different signals.

Step 1: Examine the 12 Mystery Scenarios

Click "Start Investigating" to see the 12 mystery scenarios (labeled A through L). Each scenario shows:

- Unemployment Rate over 24 months
- GDP Growth (Year-over-Year) over 24 months
- Key statistics at T-0 (your decision point)

Click any scenario card to view detailed charts. Get familiar with the economic conditions—some scenarios look alarming but didn't lead to recession, while others look mild but did.

Step 2: Build Your Own Leading Indicator Index

Now create your personal recession-prediction tool by assigning weights to each of the 8 leading indicators. Your weights must sum to 100%.

- Use the sliders or type values to set weights
- Click "Equal" for equal weighting, or customize based on which indicators you trust most
- Select different scenarios to see how your weighted index performs

- The index values are Z-scores (negative = below average/contractionary)

Answer Question 1: What weights did you choose and why?

Step 3: Make Your Predictions

For each of the 12 scenarios, predict: Did a recession start within 3-6 months of T-0?

- Click a scenario to view your weighted index plus unemployment and GDP charts
- Select R (Recession) or N (No Recession) for each scenario
- You must complete all 12 predictions before continuing

Answer Question 2: Which scenarios were hardest to predict? What made them difficult?

Step 4: Compare Your Results to AI

Click "Compare with AI" to see a detailed prompt containing all the economic data for each scenario.

1. Copy the prompt (click the Copy button)
2. Paste into an AI (ChatGPT, Claude, Gemini, etc.)
3. Record the AI's predictions (it will respond with format like "A:R, B:N, C:R...")

Answer Question 3: What predictions did the AI make? Did it explain its reasoning?

Step 5: Submit to the Class Google Sheet

Your TA will share a link to a Google Sheet with two sections:

Student Section:

1. Find an empty "Student" row
2. Enter your name
3. Enter your 12 predictions (R or N) in columns A through L

AI Section:

1. Find an empty "AI" row
2. Enter the AI model name + your name (e.g., "ChatGPT (Jane Smith)")
3. Enter the AI's 12 predictions (R or N) in columns A through L

Step 6: Class Reveal and Discussion

Your TA will reveal:

1. Human results - How did the class perform? What was the average accuracy?
2. AI results - How did different AI models perform?
3. Actual outcomes - Which scenarios really had recessions?

Answer Question 4: Did humans or AI perform better? What scenarios tricked everyone? What does this tell us about the limits of economic forecasting?

Name: _____ Perm #: _____

1. What weights did you assign to each indicator in your personal Leading Indicator Index, and what specific rule did you create to signal a recession? Explain your reasoning for these choices.

2. Which 2-3 scenarios were the most difficult to predict? What made them challenging?
   For your most uncertain prediction, what conflicting signals did you see in the data? (For example: "The yield curve was inverted but unemployment was still falling..."

3. How many of the AI's predictions matched yours? On which scenarios did you disagree? Did the AI provide reasoning for its predictions? If so, did its reasoning differ from yours?

4. AI models are trained on historical data, just like the indicators you used. What are the limitations of using past patterns to predict future recessions? Can you think of a type of recession that would be almost impossible for any indicator (or AI) to predict?

5. Did anything surprise you about this activity regarding how AI responded? What about your classmates?