14.02 Principles of Macroeconomics
Problem Set 1
Fall 2004

Posted: Monday, September 15, 2004
Due in class: Wednesday, September 22, 2004

Part I. True/False/Uncertain
Justify your answer with a short argument.

1. From 1960 to 2000, the US, EU, and Japan all have experienced similar rates of unemployment.

2. GDP is the value of all goods and services produced in the economy.

3. The Phillips Curve describes the negative relationship between the change in unemployment rate and inflation.

4. Inflation is bad for the economy because goods and services are more expensive.

5. The multiplier (Keynesian multiplier) is always greater than 1 if T = 0 and G = 0.

Part II. NATIONAL ACCOUNTS (GDP, GDP DEFLATOR & CPI)

For part II, assume the following:
1. MIT is an autonomous country.
2. The only good/service produced at MIT is undergrad (freshmen) education.

1. Fill in the following:

<table>
<thead>
<tr>
<th>year</th>
<th># of MIT freshmen</th>
<th>Price (Tuition)</th>
<th>Nominal GDP</th>
<th>Real GDP (1950 $)</th>
<th>Real GDP (2000$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>300</td>
<td>2,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>900</td>
<td>20,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>1,000</td>
<td>21,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>1,100</td>
<td>23,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>1,000</td>
<td>25,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>1,200</td>
<td>28,000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


5. Why are your answers in 2, 3 and 4 different/same?


7. Beside GDP deflator what other price indices are used in measuring inflation?

8. Which one is the best? Why?

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**Part III. THE GOODS MARKET**

(All units are millions of US dollars)

\[
C = 500 + (0.5)Y_D \\
I = 100 \\
T = 80 \\
G = 200
\]

1. Solve for the goods market equilibrium. (Find equilibrium Y, Z, C, and Y_D.)

2. Graph (with correct labels) equilibrium Y and Z.


4. What is the value of marginal propensity to consume (mpc)? What does it mean?

5. What is the value of marginal propensity to save (mps)?

6. What is the relationship between mpc and mps?

7. Find the multiplier and autonomous spending. Explain what they mean.

8. Now, the government is facing a reelection and increases G from 200 to 240. (Fiscal expansion) Why would the government want do so? Find the equilibrium demand, output, consumption, and disposable income, then graph.