

Formulas to Know for Macro Economics:

Symbol Key:

Land=L Labor=N Capital=K Entrepreneurship=e
Rent=R Wages=W Interest=i Profit= Π
Inflation= Π Expected= Π^e Happened= Π
Income=GDP=Y Consumers=C Suppliers=I Government=G Exports=X Imports=M
Private Sector=C+I (Consumers and Suppliers) Public Sector= G (Government)
Statistical Adjustment=SA Quantity=Q Price=P
Labor Force= LF= U+E Unemployed=U Employed=E
Tax Revenues= T Interest Rate=ir

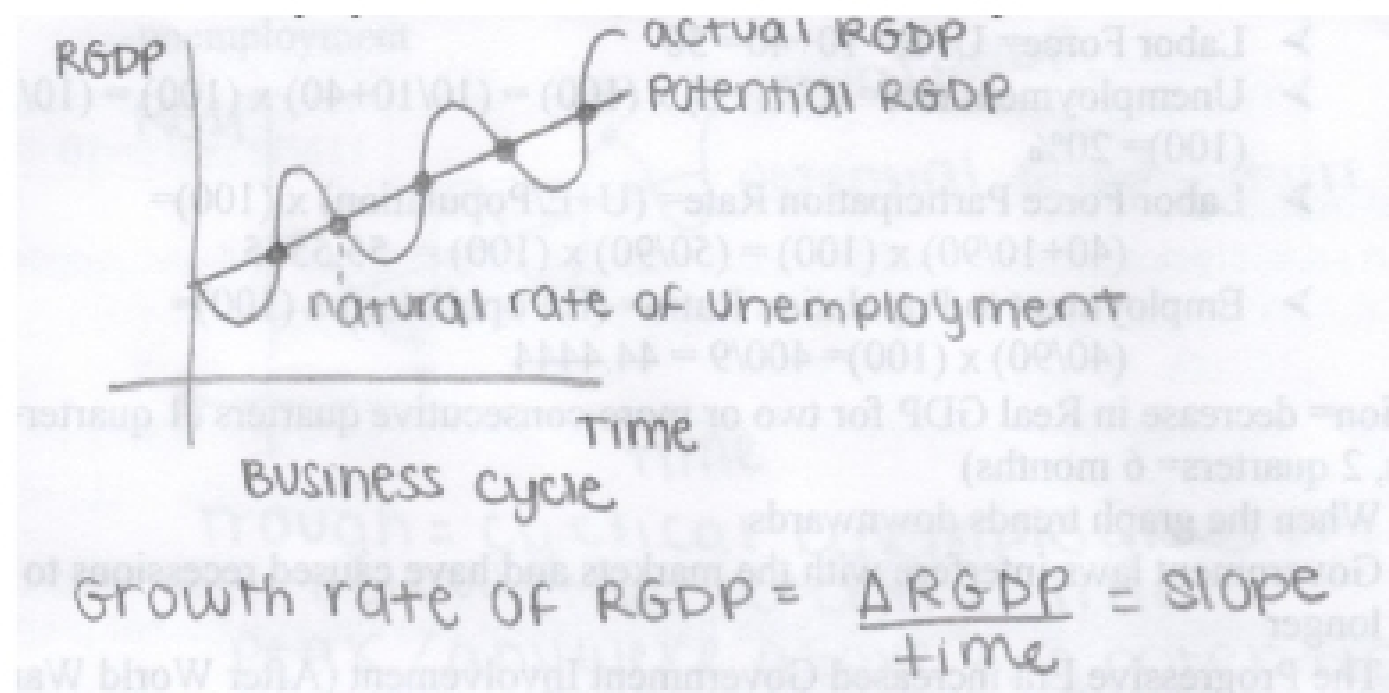
Equations:

Total Revenue= Base x Height on Supply and Demand Curve
Producer Surplus= $\frac{1}{2}$ Base x Height on Supply and Demand Curve
Consumer Surplus= $\frac{1}{2}$ Base x (Height- Market price) on Supply and Demand Curve
GDP Per Capita= (GDP/Population) x 100
Expenditures approach to calculate GDP= $Y = C + I + G + (X - M)$
 If $X > M$; Exporting more
 If $X < M$; Importing more
Income/Cost approach to calculate GDP= $Y = R + W + i + \Pi + SA$
To measure inflation $Y = QP$
 If Q increases= good
 If P increases= bad
Real GDP= (Nominal/CPI) x 100
Inflation rate= (Current CPI-Last Years CPI)/(Last years CPI) x 100
Growth Rate of RGDP= Change in RGDP/time= slope of Business Cycle Graph
Civilian Labor Force= U+E
Unemployment Rate= (# of U)/(U+E) x 100
Labor Force Participation Rate= (U+E)/Population x 100
Employment to Population Rate= E/population x 100
Anticipated inflation
 Nominal GDP= RGDP + Inflation Expected
 NGDP=RGDP+ Π^e
Fiscal Policy= Change in G and change in T
 G=T means a balanced budget
 G<T means a surplus
 G>T means a deficit
Profit= Total Revenue-Total Cost
 $\Pi = TR - TC$
Total Revenue= Price x Quantity (of the final product sold)
 P x Q
Total Cost= (LNKe) x (RWi Π) (of the intermediate goods that contribute to the final product)
 p x q
Average Price Level= APL= Price of Goods and Services + Price of Resources
 Short Term= APL increases, Profits increase, Producers produce more

Long Term= APL increases, Total Revenue increases, Profits have no change
Real interest rates= opportunity cost of \$ + risk of default premium
Nominal interest rates= real interest rate + inflation premium
Ex ante nominal interest rates= real interest rate + π^e
Ex post real interest rate= nominal – inflation premium

Chapter 8: Business Cycles, Unemployment & Inflation

- A Business Cycle Graph:
 - o Shows how Real GDP changes over time
 - o If actual RGDP is beyond potential we are producing a lot (Peaks= Booming Economy)
 - o If actual RGDP is below potential we are not producing enough (Troughs=Busting economy)
 - o Contractionary phase (GDP and income are declining)
 - o Expansionary phase (GDP and income are recovering)
 - o GDP increases, Unemployment decreases. GDP decrease, Unemployment increases.
 - o Healthy rate of unemployment is 4-6% and is a point on the potential line
 - o Full employment = 95% of Labor Force has a job



- What are economic indicators that help determine the business cycle?
 - o A) The civilian labor force
 - Labor Force = Unemployed + Employed (LF=U+E)
 - To be considered part of the labor force, one must be 16 years or older, non-institutionalized, willing and able to work.
 - Retirees are NOT included in the Labor Force
 - Discouraged workers are NOT included in the labor force, so when they stop looking for jobs, unemployment rates decrease, which is an inaccurate statistic.
 - Example: Cuba's government forces people to have jobs, but people just show up to work and don't do their job.
 - ❖ Unemployed:
 - A person who does not have a job but who is actively seeking a job or waiting to begin a job or return to a job
 - Ex. A contractor without jobs for a week
 - Having 0 unemployment is bad! Ex. Cuba requires everyone to have a job.