Announcements

Midterms Graded

Good Job!

Mean=72
SD=12
Median=79
n=171

3 100s, 2 101s (Piece of Cake!!!)

Announcements

Midterms Graded

No grades given, but for rough guide for this particular test (relatively easy, graded liberally!)

A (A-,A) level work: 85 or more
B (B-,B,B+) level work: 70 or more
C (C-,C,C+) level work: 55 or more

Announcements

All of you could have gotten most points on this test.

A level work: Could miss 15 points
on relatively hard Q (b of externality, b/c of monopoly, price elasticity of demand T/F,c of welfare)

B level work: C work plus 15

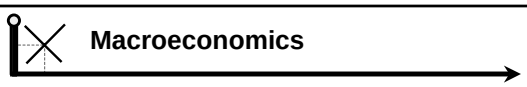
C level work: 55 or more
game theory, welfare part a, a and b of TF, PC assumptions, a of monopoly, plus 10 points

Tariff & Quota Graphical Analysis From Last Time

Test situation: most likely get graphical analysis question

Tariff
- Show Import Free trade
- Show world price plus tariff
- Show new imports
- Show CS falls, PS rises, govt's tariff revenue

Quota
- Show Import Free trade
- Supply with quota (shift out by quota)
- Show domestic price with quota
- Show quantity demanded, supplied
- Show CS falls, PS rises, (revenue to quota holders)

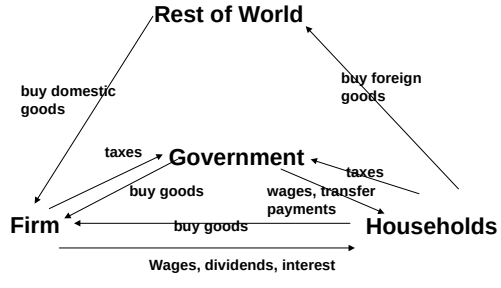


Macroeconomics

Recall Marshall: **Economics is study of individual & social action most concerned with material requisites of well-being.**

In Macro we study "well-being" of collective of individuals in economy. That is, we study economic performance and policy, in the aggregate.

Circular Flow Diagram



Arrow points from source of expenditure to destination of expenditure

Key Markets in Macroeconomy

Rest of World

Firm **Government** **Households**

Interact In:

Goods Market **Labor Market** **Financial/ Money Market**

SStandard of Living & Productivity

GDP

Real GDP per capita

Average Productivity of Labor (APL)

GDP: Measure of Well-being

- Gross Domestic Product (GDP)
- Market value of final goods & services at given period of time.
- Example: Orchadia's 2003 GDP
- 2003 Production: 4 apples @ 25 cents
- 6 bananas @ 50 cents , 3 pr shoes @ $20
- 2003 GDP = $1 + $ 3 + $60 = $64

GDP: Measure of Well-being

- Market value of final goods & services at given period of time.
- We need to define this way to be able
- to add together different goods, here fruits
- shoes.
- We don't include leather, etc, only value
- final goods produced in 2003

GDP: Measure of Well-being

- 3 Methods to Calculate GDP
- 1) Expenditure: We use this in Econ 1
  - » (C, I, G, NX)
- 2) Income: labor and capital (all spending by
- C, I, G, NX must go to workers and owners of capital)
- 3) Value Added
- All give market value of final goods & services produced within time period

GDP: Expenditure Method

- Consumer Expenditure C (Household spending)
- Durables (long lived goods, like cars, furniture)
- Nondurables (short lived goods, like food, clothing)
- Services (haircuts, legal services)
- Investment Expenditure I (Firms' spending)
- Not "investment" as in buying stocks & bonds.
- Rather, spending on newly created goods
- eg capital goods (goods that produce other goods)
- eg new homes

GDP: Expenditure Method

- Investment Expenditure (Firms' spending)
- Business Fixed Investment: new capital good, eg equipment
- Residential Investment: new home, new apt
- Inventory Investment: goods produced & not sold during
- current period

GDP: Expenditure Method

- Government Expenditure G (Government spending)
- Spending by federal, state local governments
- Exclude transfer payments
- Transfer payments aren't payments for newly created
- goods/services. Eg SS & UI payments, interest on debt
- Net Foreign Expenditure (Exports Less Imports)
- Exports are sales to ROW, Imports are purchases from ROW. NX=X-M

GDP: Expenditure Method

- Net Foreign Expenditure (Exports Less Imports)
- Note that spending on imports get counted positively as spending by C, I or G, and gets counted in net exports.
- Imports have no contribution to GDP. GDP is domestic output. Makes sense, right.
-

GDP: Expenditure Method

- GDP Example:
- Economy produces 1M cars, imports 25,000 cars, price per car is $15000. Consumers buy 675000 domestic
- and 25000 imported cars. Business buys 200000
- cars. Government buys 50000 cars. Foreigners buy
- 25000 cars. Unsold cars go to inventory of car sellers. What is GDP?
- C = (675000 + 25000)x15000 = 10.5B
- G= 50000 x 15000 = 0.75B
- NX = (25000 - 25000)x 15000 = 0
-

GDP: Expenditure Method

- GDP Example:
- Inventory = 1M - (675000 + 50000 + 200000 + 25000)
- Total production less purchase by C, G, I, X
- Inventory Investment = 50000 x 15000 = 0.75B
- Business Fixed Investment = 200000 x 15000 = 3B
- I = 3.75B
- C + I + G + NX = 10.5 + 3.75 + -.75 =15B
- Note: 1) 15B = market value of output
- 2) Imports don't add anything to GDP

GDP: Comparison over Time

- Real GDP:Quantity produced domestically and valued in base year prices
- When measuring changes in well-being over time
- don't use nominal GDP use real GDP since want to
- measure change in production or output. Real GDP
- takes out effect of inflation.
- Example: Orchadia Real GDP in 2004
- Production in 2004 8 apples, 12 bananas, 6 pr shoes
- Real GDP (2003 Dollars) == $2 + $ 6 + $ 120 = $128
- Shows "well-being" / output doubled

GDP: Comparison over Time

- Example: Orchadia Real GDP in 2004
- Production in 2004 8 apples, 12 bananas, 6 pr shoes
- Calculate Nominal GDP (2004 Dollars)
- Need 2004 prices. Suppose apples @ 50 cents,
- bananas @ $1, shoes @ $40 (prices doubled)
- Nominal GDP = $4 + $ 12 + $ 240 = $256
- Would incorrectly shows "well-being" improved 4-fold
- relative to 2003!!! Use Real GDP.

GDP: Good But Imperfect Measure

- Good Measure: consistent with other measures of well-being

	Industrialized	Developing
Real GDP per capita	**26000**	**3500**
Infant Mortality (per 1000 births)	**6 deaths**	**61 deaths**
Undernourishment	**0%**	**18%**
Adult Litteracy	**99%**	**73%**
Secondary School	**96%**	**60%**

GDP: Good But Imperfect Measure

- Imperfect Measure:

1) Ignores Non-Market Goods
   - leisure time
   - volunteer work
   - domestic work (primarily done by women)
2) Ignores Poverty/Inequality
   - no consideration of distribution
3) Ignores quality of life

GDP: Growth

- Improvement in well-being, as measured by improvement in Real GDP per capita happens with growth

Due to compounding, small differences in annual growth rates over time can make a huge difference. Japan that started out way behind Australia, and caught up with higher annual growth rates.

	1870	2000	Annual Growth Rate
Australia	5626	24708	1.1
Japan	963	24772	2.5

GDP: Growth

Example of Compounding Calculation

$100 compounded annually at 2% for 10 years

$100 \times (1.02)^{10}$

Calculate for different growth rates 1, 2.5, 3 %
Calculate for different time periods, 50 yrs, 100yrs

Per capita Real GDP & APL

Y = Real GDP

Y/Pop = per capita GDP
N/Pop = Share of population that workd
Y/N= average productivity of labor APL

Y/Pop = Y / N x N / Pop

Main Source of Y/Pop growth is APL growth

Determinants of APL

1) Technology (Premier Determinant)

For instance computer technology responsible for huge increases in productivity that was responsible for the 90s boom.

Medicine and communications are other areas of technological progress that have increased APL

Determinants of APL

2) Human Capital (talent , education, training, skill)

eg. secretary=worker letter =output output/worker higher if skilled in word processing, bus writing etc

eg W Germany & Japan recover quickly, catch up to real GDP per capita of industrialized countries due to labor force with high APL. W Germany had talented engineers & scientists. Japan had educated workers.

Determinants of APL

3) Physical Capital (factories, machines)

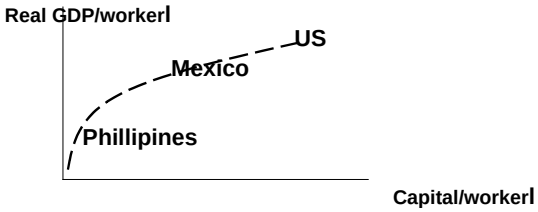
eg. secretary & letters. physical capital=computer APL rises with having computer

However, note that adding more physical capital to fixed labor and other input, get diminishing return to capital eventually

Determinants of APL

3) Physical Capital (factories, machines)

Empirical Evidence: low levels capital huge gains high levels capital gains smaller. Still positive relationship



Determinants of APL

4) Land & Natural Resources

Having natural resources could help but not without ability to harness for productive use

5) Entrepreneurship & Management

Need people who know how to organize resources and technology for productive uses

eg Medieval China had lots of inventions, technology. But entrepreneurs not rewarded so could not harness technology for real GDP growth

Determinants of APL

6) Political & Legal Environment

Well-defined Property Rights: gives right incentives

Political Stability

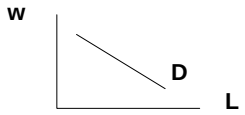
Free Markets: gives incentives

eg absence of this seen in ex-communist countries. some had talented scientists/workers. Had low standard of living prior to removal of communist system (property rights ill-defined, central command on output decisions, etc)

Productivity & Standard of Living Labor Market (wages & employment)

Can see impact of productivity on standard of living by observing wages in labor market. Here we refer to MP labor so we can study labor market effects

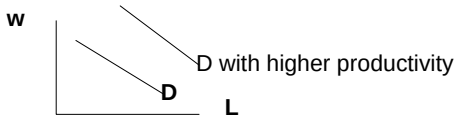
- Recall: Labor demand is derived demand
  Wage paid to labor is value of marginal product
  w = P x MP of labor



Productivity & Standard of Living Labor Market (wages & employment)

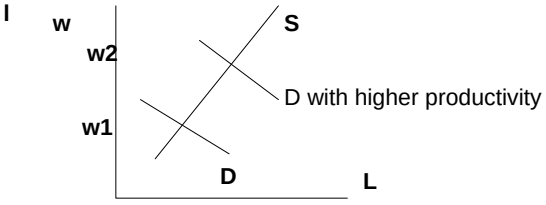
w = P x MP of labor

- As MP rises at every level of L, D shifts out/up
  w higher at every level of L



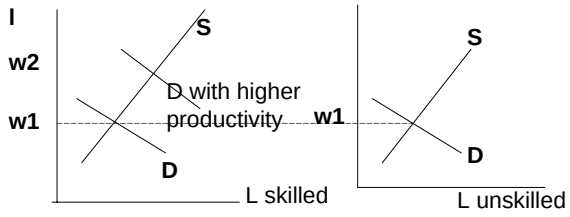
Productivity & Standard of Living Labor Market: Observation

Industrialized Countries experienced huge increase in real wages. Due to huge increases in productivity. Increase from w1 to w2

- 

Productivity & Standard of Living Labor Market: Observation

With Skill-based technological change get rise in skilled worker wage, inequality between skill & unskilled increase. Start with equal wage w1.

- 

Productivity & Standard of Living Labor Market: Other Observations

With globalization and trade, countries export good for which they have comparative advantage (eg which happen due to productivity increases and import other goods.) Demand for labor increases for export good, wage rises. Vice versa for import good.

Despite increase in productivity in US real wage increase slowed since 70 and employment risen. Real wage increase picked up in late 90s

Summary

Real GDP per capita has increased dramatically over the past century for industrialized countries.

The bulk of this rise in living standard has been due to dramatic increases in APL which in turn has been due to technological progress

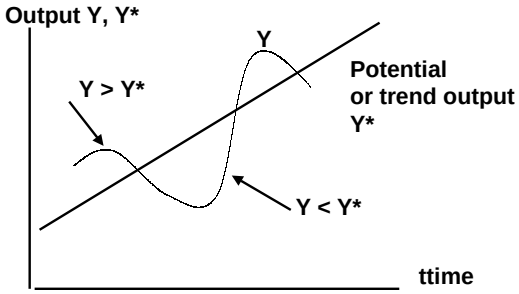
But, the rise in real wages that also is associated with rise in living standard has favored skilled workers, since much recent technological change has been skill-based technological change

Potential Output & Output Gaps

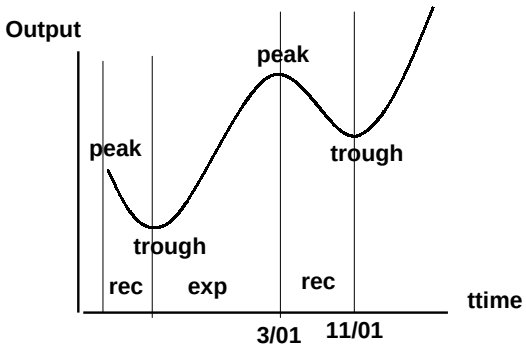
- Potential Output: Output produced when
- economy uses capital and labor at normal
- rates (near full capacity)

- Think of it as the economy has some long
- run rising path of potential output. In the
- short run there are deviations from potential

Potential Output & SR Output Gaps



Recessions (Latest NBER Announcement)



Calling Recessions

- Last week National Bureau of Economic Research announced that the recent recession ended in November 2001 (recession trough). Policy makers rely on NBER to make these judgments.

- Hard call since 1 million jobs have been lost since November 2001 and unemployment rate risen from 5.6%
- to 6.4%

- Committee observes real GDP. It now is 3.3% above pre-recession peak & 4% above trough. Personal income, manufacturing, wholesale, retail sales also above pre-recession peak.

SR Output Gaps: Why They Matter

- Output Gap= Potential Output -Actual Output
  »= Y* - Y

- Y* - Y > 0 positive output gap called recessionary gap

- Y* - Y < 0 negative output gap called expansionary gap

Output Gaps: Why They Matter

- Y* - Y > 0 recessionary gap
- unemployment rate high (above normal)
- economy incurs costs of unemployment

- Y* - Y < 0 expansionary gap
- inflation can be high
- economy incurs costs of inflation

- More on this in lecture 9

Problem Set 3 Hints in Notes

- We were not able to discuss unemployment
- and inflation. We shall continue that in lecture 9. We also could not discuss Okun's law which you use in problem set 3.
- In accompanying lecture notes, there are
- some hints to help you.

Summary

Short Run Output Gaps occur as the output deviates in the short run from potential.

Recessionary gaps are associated with high unemployment and expansionary gaps with inflation.

Monetary and fiscal policy can be used to bring output back in line with potential in order to remove the gap & reduce costs born by the economy due to high unemployment and inflation