HE1002 Macroeconomics

Group 1

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8/31/2023

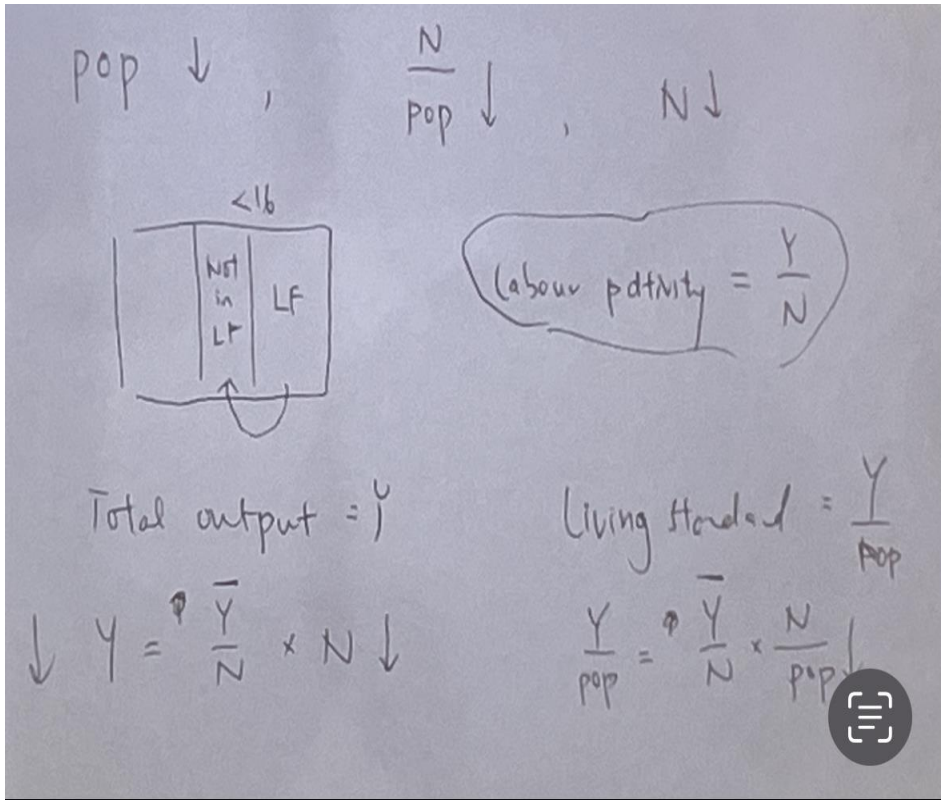
Question 1

Over the next 50 years the Japanese population is expected to decline, while the fraction of the population that is retired is expected to increase sharply. What are the implications of these population changes for total output and average living standards in Japan, assuming that average labor productivity continues to grow? What if average labor productivity stagnates?

Answer

- Output per person may fall in the near future as the Japanese population is expected to decline and the retirement age increases sharply. The share of the population employed might see an enormous decrease. Based on the formula, output per person = the average labor productivity * the share of the population employed. Average living standards in Japan will likely fall as well due to more and more people retiring earlier and the total population declining. If average labor productivity stagnates, this situation may worsen. The output per person may experience a decrease

- As more and more people retire earlier, more and more people will move from the labor force to the non-labor force. N/POP will decrease.
- Living standard= Y/POP , labor productivity=Y/N, Y/POP= Y/N x N/POP. The productivity may decrease, or increase depending on the rate of increase and decrease. If there is a stagnates the living standard will drop.



Question 2

- The Bureau of Economic Analysis, or BEA, is a government agency that collects a wide variety of statistics about the U.S. economy. From the BEA's website (www.bea.gov), find data for the most recent year available on U.S. exports and imports of goods and services. Is the United States running a trade surplus or deficit? Calculate the ratio of the surplus or deficit to U.S. exports.

Answer

- Exports of US G&S 2022 (Jan – Dec): 3,018,455 million
- Imports of US G&S 2022 (Jan – Dec): 3,969,643 million
- Hence, United States is running a trade deficit (imports > exports)
- The total trade deficit is = Import - Export = 951,188 million
- Ratio of deficit to US exports = (951,188/3,018,455) x 100 = 31.51%

Exhibit 1. U.S. International Trade in Goods and Services

In millions of dollars. Details may not equal totals due to seasonal adjustment and rounding. (R) - Revised.

Period	Balance			Exports			Imports		
	Total	Goods (1)	Services	Total	Goods (1)	Services	Total	Goods (1)	Services
2021									
Jan. - Dec.	-841,573	-1,083,511	241,938	2,567,027	1,765,884	801,143	3,408,600	2,849,395	559,205
Jan. - June	-396,252	-526,700	130,448	1,230,786	846,560	384,226	1,627,038	1,373,260	253,778
January	-62,331	-85,047	22,716	198,973	136,205	62,768	261,303	221,252	40,052
February	-64,872	-87,377	22,506	194,937	132,405	62,532	259,808	219,782	40,026
March	-65,941	-87,882	21,941	207,834	144,343	63,492	273,775	232,225	41,551
April	-65,898	-87,120	21,222	207,083	143,361	63,722	272,981	230,481	42,500
May	-66,379	-87,797	21,417	209,768	144,556	65,212	276,147	232,352	43,795
June	-70,831	-91,477	20,646	212,192	145,691	66,501	283,023	237,168	45,855
July	-69,338	-87,381	18,043	215,164	148,116	67,049	284,503	235,497	49,006
August	-71,816	-89,214	17,398	216,566	149,017	67,549	288,383	238,231	50,152
September	-76,771	-95,168	18,397	213,010	144,856	68,153	289,781	240,024	49,757
October	-67,360	-85,645	18,285	227,130	158,297	68,832	294,490	243,943	50,547
November	-79,379	-98,941	19,562	229,746	157,725	72,021	309,125	256,666	52,459
December	-80,656	-100,462	19,806	234,625	161,312	73,313	315,282	261,774	53,507
2022									
Jan. - Dec.	-951,188	-1,183,010	231,822	3,018,455	2,089,925	928,530	3,969,643	3,272,935	696,707
Jan. - June	-526,942	-641,694	114,752	1,477,787	1,025,411	452,376	2,004,729	1,667,105	337,624

Question 3

Which of the following statements are positive and which are normative?

a) If the Federal Reserve raises interest rates, **demand for housing is likely to fall**. **(Positive)**

b) The Federal Reserve **should raise** interest rates to keep inflation at an acceptably low level. **(Normative)**

c) Stock prices are **likely to fall over the next year** as the economy slows.**(Positive)**

d) A reduction in the capital gains tax (the tax on profits made in the stock market) would lead to a **10 to 20 percent increase in stock prices**. **(Positive)**

e) Congress **should not reduce** capital gains taxes with-out also providing tax breaks for lower-income people. **(Normative)**

Note :

Positive Analysis - **focus on economic consequences whether desirable or not**

Normative Analysis - **recommendation on whether a policy should be implemented**

Question 4

Which of the following would be studied by a macroeconomist? By a microeconomist?

a) The worldwide operations of General Motors.

b) The effect of government subsidies on sugar prices.

c) Factors affecting average wages in the U.S. economy.

d) Inflation in developing countries.

e) The effects of tax cuts on consumer spending

Answer

a) Microeconomist as it only affects one firm in the economy.

b) Microeconomist as it's only involving one sector.

c) Macroeconomist as it’s the aggregation of the wages in the economy.

d) Macroeconomists as this issue is tackling inflation, which is a macroeconomic phenomenon.

e) Macroeconomists as it is referring to the national economy.

Question 5

Richland's real GDP per person is $40,000, and Poorland's real GDP per person is $20,000. However, Richland's real GDP per person is growing at 1 percent per year, and Poorland's is growing at 3 percent per year. Compare real GDP per person in the two countries after 10 years and after 20 years. Approximately how many years will it take Poorland to catch up to Richland?

Answer

Richland in 10 years: 40000(1.01)^10 = 44184.9

Richland in 20 years: 40000(1.01)^20 = 48807.6

Poorland in 10 years = 20000(1.03)^10 = 26878.3

Poorland in 20 years = 20000(1.03)^20 = 36122.2

For Poorland to catch up to Richland

40,000(1.01)^n = 20,000(1.03)^n

2(1.01)^n = 1.03^n

2 = 1.03^n / 1.01^n

Log 2 = n log (1.03/1.01)

N = approximately 36 years

It will take approximately 36 years for Poorland's real GDP per person to catch up to Richland's.

Question 6

	Average labor productivity	Share of population employed
1960	$47,263	36.4%
2016	$110,384	46.8%

- The “graying of America” will substantially increase the fraction of the population that is retired in the decades to come. To illustrate the implications for U.S. living standards, suppose that over the 56 years following 2016, the share of the population that is working returns to its 1960 level, while average labor productivity increases by as much as it did during 1960–2016. Under this scenario, what would be the net change in real GDP per person between 2016 and 2072? The following data will be useful:

ANSWER

- Definition: “the Gross Domestic Product (GDP) is the market value of the final goods and services produced in a country during a given time.” **Real GDP = adjust inflation when comparing economic activity at different points in time. Pick a particular year called the base year and use the prices from that year to calculate the market value of output.** (from tb)

- Shared population of employed will decrease by 10.4% from 46.8% in 2016 to 36.4%, back to 1960 levels, due to the accelerated increase in retirements in America. At the same time, the average labor productivity will increase by more than 2 times, equivalent to the increase during 1960-2016 = +$63121

Answer

- Y/POP = Y/N x N/POP
- Growth rate of output per person = growth rate of labor productivity + growth rate of share of population employed.
- Growth rate of labor productivity = 63121/110384 x 100% = 57.2%
- Growth rate of share of population employed = - 10.4 %
- Growth rate of output per person = 57.2% - 10.4% = 46.8%

Conclusion: although shared population of employed would decrease, there will be an overall net positive change in real GDP per person between 2016 and 2072. --> labour productivity improved drastically.

The growth rate of real GDP per person increases less than proportionately than the growth rate of labor productivity and this is because of the shrinking working population due to the substantial increase in retirees.

Question 7

What is human capital? Why is it economically important? How is new human capital created?

Answer:

Human capital comprises the talents, education, training, and skills of workers. Workers with a large stock of human capital are more productive than workers with less training. More productive workers are able to produce more goods in a certain period. Workers with large stock of human capital may increase productivity based on the formula Real GDP per person = Average labor productivity x Share of population employed. New human capital can be produced by investing in energy, time, and money. For example, sending a worker for advanced training to increase his/her productivity.

THANK YOU