Economics 102
Summer 2017
Homework #3
Due June 15, 2017

Directions: The homework will be collected in a box **before** the lecture. Please place your name, TA name and section number on top of the homework (legibly). Make sure you write your name as it appears on your ID so that you can receive the correct grade. Please remember the section number for the section **you are registered,** because you will need that number when you submit exams and homework. Late homework will not be accepted so make plans ahead of time. **Please show your work.** Good luck!

Please remember to
- Staple your homework before submitting it.
- Do work that is at a professional level: you are creating your "brand" when you submit this homework!
- Not submit messy, illegible, sloppy work.

1. For each of the following scenarios determine the effect on GDP of the described event. Then, explain the reasoning behind your answer.

a. Window Makers produced 500 windows in 2015 and sold 300 of these windows in 2015 for $400 per window. In 2016 Window Makers produced an additional 500 windows and sold 600 windows for $400 per window. What was the impact of Window Makers on GDP in 2015 and 2016? Explain your answer using two different methods to get to this answer.

b. Mario has 10,000 shares of Exxon stock and he decides to sell this stock in 2017. He sells his share through a broker for $120 a share and the broker collects a commission of 2% of the value of the transaction. What is the impact of this transaction on GDP in 2017? Explain your answer.

c. Jenny sold her house in 2017 for $400,000. She purchased the house as its third owner in 2004. Over the years she made $150,000 of renovations that were all completed prior to 2015. She sold the house without using any real estate brokerage help. What was the impact of this transaction on GDP in 2017? Explain your answer.

d. Charlene and Michael live across the street from one another. Both are tax preparers. Charlene does her own taxes as does Michael. They both spend 15 hours preparing their taxes and their wage rate if $50 per hour. How does this transaction affect GDP this year? Explain your answer.

e. Charlene and Michael from the previous scenario decide they would both feel better about their taxes if they were prepared by an objective third party. They both independently hire Jane to do their taxes. Jane spends 12 hours preparing Charlene's taxes and 8 hours preparing Michael's taxes. Jane's hourly rate is $30 per hour. What is the impact of this transaction on GDP this year? Explain your answer.

f. Mary went to the store and bought $20 worth of grapefruits grown in the state of Texas, $15 of cheese produced this year in France, $8 of crackers made in Wisconsin this month, $40 worth of beef produced this year in Argentina, and $30 of flour grown and milled last year in Minnesota. What was the impact of this transaction on GDP this year? Explain your answer and use at least two methods to get your answer. And, if your answer is different depending upon the method, redo the example so that the two methods agree.

2. Suppose you are told that in the economy of McKeiverville that rent payments for land resources are equal to $2000 million in 2015, interest payments for capital are equal to $750 million in 2015, consumer expenditures on goods and services are equal to $1800 million in 2015, profits are equal to $250 million in 2015, investment spending is equal to $800 million in 2015 and net exports are equal to $200 million in 2015. You also know that in McKeiverville in 2015 that wage income was 20% of the amount spent by the government on goods and services during 2015. Determine the level of GDP in McKeiverville in 2015, the level of wage income in 2015, and the level of government spending in 2015. In determining these levels verbally describe how you are finding these answers and in your verbal description make specific reference to the definition(s) of GDP you are using to find the answers.

3. You are told the following information about the economy of Smithville. Lee Enterprises a company located in Smithville produced $2 million worth of goods in 2016 and sold $1.8 million of these goods as final goods to consumers in Smithville. Lee Enterprises sold an additional $.5 million of these goods as final goods to consumers located outside of Smithville. Consumers in Smithville during 2016 made purchases of $3 million on goods and services. Included in these consumer purchases were $500,000 worth of French wine produced in 2016 in France rather than Smithville; $200,000 worth of bananas produced in Costa Rica; and $700,000 worth of steel produced in Japan. Consumers in Smithville also purchased $1.2 million worth of new residential construction during 2016. The government of Smithville spent $1.2 million in 2016. There is no other data to consider when computing the GDP for Smithville in 2016. For each question show how you got your numerical value.

 a.   Given the above data, what is the level of consumer expenditure in Smithville in 2016?

b. Given the above data, what is the level of government expenditure in Smithville in 2016?

c. Given the above data, what is the level of investment expenditure in Smithville in 2016?

d. Given the above data, what is the level of imports to Smithville in 2016?

e. Given the above data, what is the level of exports to Smithville in 2016?

f. Given the above data, what is the level of GDP in Smithville in 2016?

4. The economy of Uberia has 2000 people living in it. You are given the following information and your task is to answer a set of questions based on the information that you have been given.
- In Uberia there are 400 people who are children less than 16 years old.
- In Uberia there are 500 people currently at least 16 years old that are not working and are not actively seeking work.
- In Uberia there are 800 people currently at least 16 years old that are working full-time for pay.
- In Uberia there are 160 people currently at least 16 years old that are working part-time but who wish they were working full time.
- In Uberia there are 50 people who are fully retired.
- In Uberia there are 60 people who are currently not working, are available to work, and have submitted job applications during the past four weeks
- In Uberia there are 30 people who are currently not working, are available to work, but who have given up submitting job applications because they do not believe there is any work to be had in Uberia

In your answers round to the nearest tenth of a percent when calculating the percent value.

a. What is the number of employed people in Uberia? Explain how you got your answer.

b. What is the number of unemployed people in Uberia? Explain how you got your answer.

c. What is the labor force equal to in Uberia?

d. What is the unemployment rate in Uberia? Show how you found your answer.

e. How would the unemployment rate change in Uberia if discouraged workers were counted as unemployed workers? Verbally describe how the unemployment rate would

change and then calculate a numeric value based on this change in the definition of unemployment.

f. How would the unemployment rate change in Uberia if part-time workers were counted as unemployed workers rather than employed workers? Assume that discouraged workers are not being counted as unemployed workers. Verbally describe how the unemployment rate would change and then calculate a numeric value based on this change in the definition of unemployment.

5. For each of the following scenarios decide whether the person is employed, unemployed or not in the labor force. Explain the reasoning behind your answers.

a. Sarah turned sixteen on October 15, 2016. She currently works without pay at her parents' restaurant for 20 hours a week. She is not enrolled in school.
b. Preston is thirty years old and works for a car washing business. He has been on vacation for the past two weeks.
c. Jason volunteers with the local literacy network by teaching English as a Second Language ten hours a week. He does not get paid. He is a full time college student and turned 19 on February 1, 2017.
d. Jorie is currently not working but is available to work and is looking for work. She is finding it a tough job market however and she has not submitted a job application in the past six weeks.
e. Jack is currently not working and is looking for work. He submitted ten job applications last week. He and his best buddy, Joe, are off to hike for a week next week.
f. Laurie is 50 years old and currently working part-time in retail. She would like to work full-time and she has submitted an average of ten job applications per week for the past six months.
g. Terrence is 48 years old and works at a fast food restaurant. But, he has been sick for the past two weeks and has stayed home, without pay, due to his illness.

6. For this problem you may find it helpful to use either a calculator or an Excel spreadsheet. For your answers, round to the nearest hundredth if necessary.

In the economy of Greensboro the market basket for purposes of calculating the consumer price index (CPI) consists of 5 pizzas, 1 bike and 10 apples. You are given the following information about prices of these three goods for the years 2014, 2015 and 2016. Assume the price is the price per unit.

	Price in 2014	Price in 2015	Price in 2016
Pizza	$10.00	$12.00	$12.00
Bike	$800.00	$1000.00	$1200.00
Apples	$1.00	$1.50	$3.00

a. Given the above information, calculate the cost of the market basket and put your answers in the following table. In your homework show how you got these costs.

Cost of Market Basket

Year	Cost of Market Basket
2014	
2015	
2016	

b. Calculate the CPI for 2014, 2015, and 2016 in Greensboro using a two hundred point scale and with the base year equal to 2014. Put your answers in the following table. Round your answer to the nearest hundredth.

Year	CPI with Base Year 2014 with Two Hundred Point Scale
2014	
2015	
2016	

c. Calculate the CPI for 2014, 2015, and 2016 in Greensboro using a two hundred point scale and with the base year equal to 2015. Put your answers in the following table. Round your answer to the nearest hundredth.

Year	CPI with Base Year 2015 with Two Hundred Point Scale
2014	
2015	
2016	

d. Calculate the annual rate of inflation in Greensboro using 2014 as the base year. In your answer show how you found this annual rate of inflation. Then put your answers in the following table. Round your answer to the nearest tenth.

Year	Annual Rate of Inflation with Base Year 2014
2014	
2015	
2016	

e. Calculate the annual rate of inflation in Greensboro using 2015 as the base year. In your answers show how you found this annual rate of inflation. Then put your answers in the following table. Round your answer to the nearest tenth.

Year	Annual Rate of Inflation with Base Year 2015

2014	
2015	
2016	

f. Are your answers in (e) and (f) the same? If they are not, then you have made an error and you should go back and correct the error before submitting your homework.

7. Veronica graduated from college in May and received four job offers for a position in graphics in four different cities. The work at each of the jobs will be interesting and challenging to Veronica and she does not have a strong personal preference as to where she would like to live. She does think it is important to compare the salaries for the four offers as well as the likely cost of living in each of the communities. The following table provides the information about the job offers that Veronica has received.

Location of Offer	Salary (assume that all employee benefits are comparable and that all Veronica needs to consider is the salary)
Green Bay, WI	$35,000
Asheville, NC	$42,000
Kansas City, KS	$38,000
Savannah, GA	$45,000

Veronica knows that the cost of living is different in these four cities and she would like to choose that job which offers her the best standard of living. Based upon information I got from a Cost-of-Living Calculator on a website entitled money.cnn.com/calculator/pf/cost-of-living I have extrapolated an "inflation index" for each of these cities. Use this information to help guide Veronica on her decision: remember she only wants to know where her nominal income will provide the best standard of living.

Here is some data that you will find helpful:

Location	Extrapolated Inflation Index
Green Bay, WI	1.00
Asheville, NC	1.05
Kansas City, KS	1.01
Savannah, GA	0.97

a. Use the above information to fill in the following table:

Location	Nominal Salary	Real Salary	Extrapolated Inflation Index
Green Bay, WI			1.00
Asheville, NC			1.05
Kansas City, KS			1.01

Savannah, GA			0.97

b. Given your results in (a), which offer should Veronica accept?

c. Given your results in (a), which offer is the worst offer in terms of standard of living?

8. You are given the following information about an economy:

Year	Nominal GDP	Real GDP	GDP Deflator
2010			
2011	$120 million		80
2012			
2013			
2014			

You are also told that
- Nominal GDP increased by 20% between 2010 and 2011
- Real GDP stayed constant between 2010 and 2011
- The GDP deflator for 2012 had a value of 100
- Overall inflation, as measured by the GDP deflator, over the period 2010-2014 was 400%
- Real GDP increased 40% between 2011 and 2012
- Inflation increased by 60% between 2012 and 2013 as measured by the GDP deflator
- Nominal GDP between 2013 and 2014 stayed constant at $440 million

a. Given the above information fill in the missing cells in the table. Round your answers to the nearest tenth.

b. Given the above information calculate the annual percentage change in nominal GDP, real GDP, and the GDP deflator. Put your answers in the following table. Round your answers to the nearest tenth.

Year	Percentage Change in Nominal GDP	Percentage Change in Real GDP	Percentage Change in GDP Deflator
2010	----	----	----
2011			
2012			
2013			
2014			

c. What does it mean if the percentage change in real GDP is a negative number?

d. According to your calculations is the percentage change in nominal GDP always equal to the percentage change in the GDP deflator?

e. According to your calculations is the percentage change in real GDP always equal to the percentage change in nominal GDP?