Discussion Handout #3
Econ 102
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Goals for today

- Explore topics related to Unemployment (measurement, calculations, types, and dynamics)
- Understand CPI vs PCE measures of prices.

Vocabulary

- Frictional Unemployment Unemployment that occurs with the normal workings of the economy. For example you graduate from UW-Madison, but it takes you a while to find a job that requires your college degree. During this period you are 'frictionally unemployed'
- Structural Unemployment Unemployment that occurs when there is a mismatch of jobs and skills. For example you are a mechanical engineering major, exclusively focusing on gas engines. You had a job at an engine manufacturing firm, however, the federal government passed a law saying all cars sold need to on alternative fuels. Your firm goes bankrupt and nobody wants your expertise on an archaic technology. You are considered 'structurally unemployed'
- Cyclical Unemployment Unemployment that occurs during fluctuations in GDP. For example if you lose you job during a recession, or get a job during an expansion when GDP is growing fast.
- Consumer Price Index (Deflator) (CPI) Price index based on a basket of goods chosen in the fixed base year.
- Personal Consumption Expenditures Deflator (PCE) Price index calculated using chain-weighted consumption and nominal consumption.
- Cost of Living Adjustments (COLA) Adjustments to salary or other compensation due to changes in the general price level. There could be a COLA if you move from a 'cheap' city like Madison, to an 'expensive' city like New York. Or there could be a COLA if prices rise over time.

Problems

1. Measurement of Labor Force Data:
   (a) How is employment data collected/where does it come from? Employment data is collected using a 'payroll survey'. This means that they look at firms to see how many people they employ.

(b) How is unemployment data collected/where does it come from? Unemployment data is collected by calling household land lines. They ask people questions about whether or not they are looking for work, and how long they have been searching.

(c) What are 4 reasons why employment and unemployment data may be distorted, due to the way it is collected? 1. People who are employed in the underground economy don't show up on payrolls, and also when they are called, claim they are unemployed, when in reality they are employed albeit illegally. 2. Millenials/Tech-Savvy People/More Highly Educated don't have landlines anymore, so they can't be surveyed using the current methodology. 3. Poor people don't have landline phones. 4. Unemployed people have more time on their hands and have higher response rates in the survey.

2. Make a "tree" diagram and explain how the following are calculated as a portion of the total US population:

   (a) Labor Force

   (b) Not in Labor Force

   (c) Employed

   (d) Unemployed
   [Total US Population aged 16 and over] has two branches - [In the labor force (LF)] and [Not in the labor force (NILF)]. Labor force participation rate is NILF/LF. The LF branch has two sub-branches - [Unemployed (UE)] and [Employed]. As stated again below, the formula for the UE rate is UE/LF.

3. What is the formula for the unemployment rate? UE/LF

4. (True/False) The only reason for an increase in the unemployment rate is because people lose their job. FALSE. Look at the definition for the UE rate. The LF can increase if people move from NILF to LF!

5. Is the unemployment rate ever 0%? Why or why not? Is this a bad thing? No, in practice UE is never 0%. This is because of frictional unemployment. It takes time for people to find jobs. This is not necessarily a bad thing, it is just a fact of life. It would be better to do what we can to reduce frictional unemployment (say online sites like monster or other things which assist employers finding employees), but there will always be some frictional unemployment.

6. What do economists call "Full Employment"? Full employment is when the unemployment rate is at the 'natural rate'. This is when cyclical unemployment = 0, but there is still some frictional and structural unemployment.

7. CPI vs PCE measures of prices:

   (a) Write out the formulas for the CPI and PCE deflators.

$$\text{CPI in year K} = \frac{\text{cost of basket in year k}}{\text{cost of basket in base year}} * 100$$

$$\text{PCE Price Index} = \frac{\text{Nominal C}}{\text{Chain-weighted C}} * 100$$

(b) What is the important distinction between these two measures? With CPI you need to choose a basket based on a given base year. With the PCE price index, since it is based on chain-weighted consumption, there is no base year.

(c) Which one is more similar to chain-weighted real values? Traditional real values? PCE price index is closest to chain-weighted, since it is used in the calculation. CPI is more similar to traditional since it depends on the base year.

(d) You are negotiating with a new employer for COLA in your contract. Should you ask them to use the CPI or PCE deflator when making the COLA? You should ask for the CPI deflator! CPI overstates inflation so it will mean you will get paid more.

(e) Why does the government continue to use CPI? Many unions negotiate contracts with their employers to use the official government measure for prices to adjust wages. Social security also uses the same measure to adjust its payouts. Unions (e.g. United Auto Workers (UAW)) and retired people (e.g. AARP) have huge lobbying budgets and use their leverage to make sure the government continues to use CPI since it benefits them.

8. You are a lender who is offering a mortgage with a 3% interest rate for a homebuyer. At this point inflation is 1%:

   (a) What is your approximate real rate of return? In growth rates, approximately: Nominal = Real + Inflation. Therefore your real rate of return is 2%.

   (b) If the inflation rate increases, is this a good or a bad thing for you as a lender? How might you set up the mortgage contract to avoid distortions due to changes in inflation? If the inflation rate increases this is a BAD thing for me as a lender. Using the formula in the previous question, if inflation rises, it erodes my real return. If inflation is high enough my return could be NEGATIVE!!! This unanticipated inflation is a distorition which helps the borrower by making their mortgage cheaper, but hurts the lender since the payments they receive aren't worth as much in real terms. To combat this, lenders use adustable rate mortgages which change as inflation changes, keeping the real return constant.

For Discussion:

1. Many economists think that all cyclical unemployment is frictional - what do you think? Is this reasonable? Yes this is reasonable: Cyclical unemployment is basically only frictional. When GDP falls there are massive layoffs, and all of these people won't immediately find jobs. However, when they do find jobs it will be in the same industries/capacities so this was not structural unemployment. You could think there might be a counterargument that the drop in the economy exposed some weak industries which shut down for good, in which case the unemployed workers from these industries may be considered structrually unemployed if their skillset for the industry which was destroyed cannot be transferred to a new industry/employer.

2. The labor force participation rate has dropped dramatically since 2000. Some people argue that workers are getting discouraged (i.e. moving from unemployed to out of the labor force). Do you think this is occuring? What else might be causing labor force participation to fall? With the great recession, there were definitely many people who became

discouraged. These people retired early, took on disability benefits, or basic welfare, and stopped looking for work. However, we are also aging as a society. Since labor force has no maximum age, only a minimum age of 16 if there are a greater fraction people over retirement age, your labor force participation will drop.
Read https://www.brookings.edu/wp-content/uploads/2016/07/Fall2014BPEA_Aaronson_et_al.pdf (or google "brookings aaronson labor force participation" for a great paper summarizing the reasons for labor force decline!

3. Does it make sense for states to have different minimum wages? What about cities? Discuss in terms of COLA. From a strict pricing standpoint, yes it makes sense for states and even cities to have different minimum wages. If we want the minimum wage to be 'equitable' no matter where the minimum wage earner lives, there needs to be COLA due to prices.