Additional Reading 3——Q&A on Unemployment,inflation and output growth

1. **Q: What are the shortcomings of employment-unemployment classification?**

    A:Employment-unemployment classification of labor force has been used for a long time, and is the basis for the data that we study concerning employment and unemployment in the economy. There are shortcomings to this scheme, however. For example, people who would like to be employed full time but can only find part-time work, and who logically might be classified as partly employed and partly unemployed, are counted as employed (**involuntary part-time employment**).

    In the same vein, people who would like to work but feel no work is available and hence have stopped looking are counted as being out of the labor force, despite the fact that a stronger economy would induce them to search actively again (these are **discouraged workers**). Note the cyclical dynamics: improved economic activity increases the number of jobs, but also pulls previously discouraged workers into the market, meaning that the overall level of unemployment declines only with a lag.

    Finally, people unable to find work in the field in which they are trained who end up accepting lower-level jobs (the lawyer driving a taxi, the college grad working behind the counter at Burger King) are classified as employed. But this fails to take account of the fact that they are in fact not utilizing the skills they have acquired (this is **underemployment** – when you're working at a job that does not make full use of your skills).

    These shortcomings lead some critics to argue that official unemployment figures do not always accurate reflect the extent of unemployment and underemployment in the economy. This criticism is most pertinent in time of recession, when involuntary part-time employment, discouraged workers, and underemployment will be most prevalent.

2. **Q: What is the relationship between unemployment rate, labor force participation rate and employment to population ratio?**

    A: We use the following notations: LF Labor Force ; N Employed;U Unemployed;Pop. Population of 16 years or older; NR Employment Rate; UR Unemployment Rate.

    The **labor force participation rate (LFPR)** measures the labor force as a percentage of the adult population: $LFPR = LF/Pop. \times 100\% = (N+U)/Pop. \times 100\%$. The **LFPR** exhibits a modest amount of pro-cyclical behavior, largely because expansions tend to attract previously discouraged workers back into the labor force while recessions eventually "push" people into discouraged-worker status. In addition, as shown in Figure 1, there is a clear upward trend in the aggregate participation rate over the past few decades, reflecting the rapid growth in participation by women that has more than offset the gradual declines in participation by men.

    The **employment to population ratio** gives the percentage of the adult population that is employed: $EPR = N/Pop. \times 100\%$. Like the aggregate LFPR, it has an upward trend and behaves pro-cyclically, but in a less pronounced manner than the NR (NR=1-UR, so it mirrors the UR).

    With a little reflection, it should be clear that these three measures are linked, in that

$$EPR = \frac{N}{Pop.} \times 100\% = \frac{N}{LF} \times \frac{LF}{Pop.} \times 100\% = NR \times LFPR \times 100\% = (1-UR) \times LFPR \times 100\%$$

    From this relationship, we can see that although the **employment rate(NR)** tend to be overestimated in a period of recession and underestimated in a period of recovery because of the flows of discouraged workers in and out of the labor force. EPR is a statistics less responsive to these flows than NR (or UR) because lower LFPR would balance an underestimated UR in a recession while higher LFPR would compensate for an overestimated UR in a recovery. Or considering its denominator is Pop. which is invariant to the flows of discouraged workers, EPR is more withstanding to the bias in NR (UR) induced by discouraged worker effect.

    In your homework question 6 tells you EPR and UR, how would you calculate LFPR?(hint: using formula above LFPR= EPR/(1-UR))
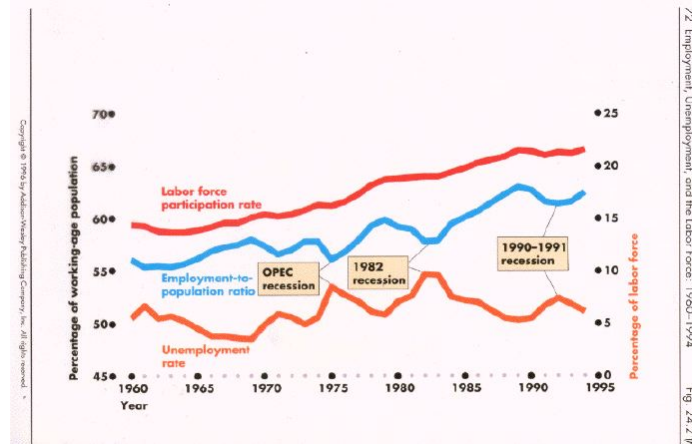
Fig. 24.2 (A

Figure 1: LFPR vs UR vs EPR

3. **Q: What are the three ways of becoming unemployed**

A: There are three basic ways by which people become unemployed: by losing a job (being fired or laid off, which represents an involuntary separation); by leaving a job without already having or quickly finding another job (quits, or voluntary separation); or by entering or reentering the labor force without finding a job right away (cf., students who finish school, mothers who return to the labor force after having children, previously discouraged workers). Reflecting the importance of job destruction in the economy, job losers are the largest of these three categories. Further, the number of job losers varies counter-cyclically, rising sharply in time of recession and falling in time of expansion.

4. **Q: What is real wage?What is nominal wage? What's the difference?**

A: The nominal wage rate is the (money) wage earned by the workers usually measured as per piece wage or per hour wage (more commonly used) .However, the **real wage rate** is a more important economic indicator defined as the (nominal) wage rate divided by the price level (W/P), and hence it measures the purchasing power of labor time (i.e., the amount of goods and services that an hour's work can buy).From this relationship,we can derive another relationship that the rate of change(%) in real wage=the rate of change(%) in nominal wage-inflation rate.

Over time, we experience inflation, but we also observe increases in nominal wages. If the money wage increases exceed the price increases, then real wages are rising based on the formula above. Economic growth in per capita terms is equivalent to a phenomenon of rising real wage rates, and for most of American history there has been a clear upward trend in real wages.

If inflation is higher than expected and nominal wage rate is fixed, then workers would be adversely affected which implies that the purchasing powers would be redistributed from workers to producers and vice versa.

However, the experience of the past 20-25 years has been taken by many people to indicate that the long-term trend has been halted. This can be seen in the red line in Figure 2, which shows declining average real hourly wage rates for production workers in manufacturing from the early/mid-1970s to the present. There is a good deal of newspaper ink devoted to the idea that since the 1970s real wages have been either declining or at least stagnant.

If we broaden further our consideration of compensation, it gives an even brighter picture of real wage changes since the 1970s. That is, if we include fringe benefits such as employers' payments for health insurance and pension contributions (which amount to roughly 25-30% of wages and salaries and hence 20+% of total compensation), it appears that there was only a brief slow-down in the mid-1970s and that in fact even since 1975 real compensation has been increasing (the blue line in Figure 2).

5. **Q: What are the shortcomings of GDP deflator and CPI as measures of inflation?What are the effects of inaccuracy in measurement?**
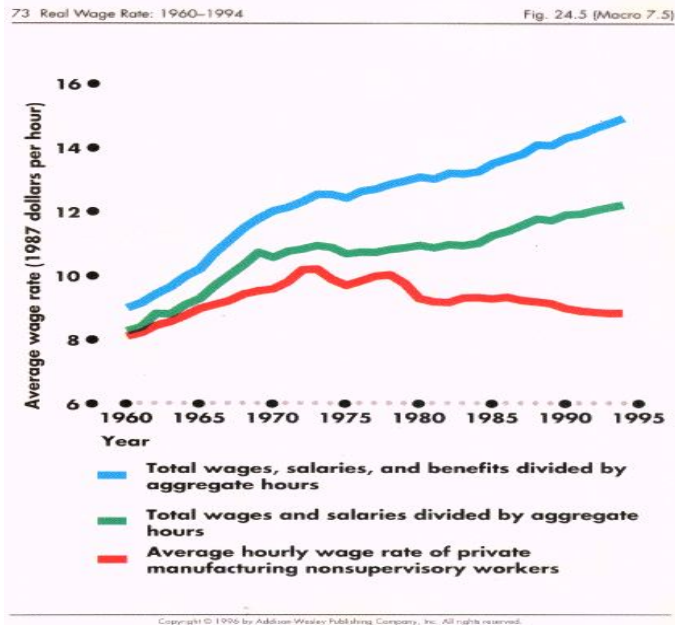
Figure 2: Real Wage Rate from 1960 to 1995

A: There are three principal sources of bias in our measures of price changes that have been identified: new goods bias, quality change bias, and substitution bias. In each case, these biases become increasingly important as the length of the period being compared increases (i.e., comparing this year vs. last year, these biases are small; but if we're comparing 1996 to 1976 or 1966, they may be very important).

New goods bias refers to the fact that new goods keep replacing old goods, and these new goods often are more expensive (as well as being better) than the old goods. (Note that this bias occurs steadily with the GDP deflator, while being relevant only periodically – when the market basket changes – with the CPI). By virtue of the fact that more expensive new goods replace cheaper old goods in the index/deflator, there is an upward bias introduced into the estimate of changes in the price level.

Quality change bias results from the fact that many goods undergo improvements in quality over time. These quality improvements often entail price increases (e.g., safety equipment or new technology in cars), but we do not want such price increases to be included in a measure of inflation (which should reflect price increases for goods and services of constant quality).

Estimates of the impact of new goods and quality change suggest that perhaps one to two percentage points worth of calculated inflation should instead be attributed to new goods and quality change – i.e., measured inflation overstates the underlying "true" rate of inflation by 1-2 percentage points. Substitution bias is a problem with the CPI. We saw in the micro part of the course that one response of consumers to changes in (relative) prices is to substitute away from commodities that have become more expensive and toward commodities that have become cheaper. However, since the CPI is based on a fixed market basket of goods and services, such substitution is not taken into consideration, except when the market basket is revised (as occurs about once every 10 years). So what is the impact of these different sources of bias which lead to an overstatement of the true, underlying level of inflation? This overstatement is significant for several reasons.

First, as we noted last time, cost-of-living adjustments (COLAs) are based on the CPI. Hence, if the CPI overstates the true underlying rate of inflation, COLAs for social security will be too large, overcompensating the elderly for such changes and straining the federal government's budget. Indirect support for this argument may be seen by the fact that 30 years ago the incidence of poverty among the elderly was higher than that among the rest of the population, while today it is lower. Children have replaced the elderly as an especially poverty-prone group in the American economy.To put the matter a bit differently, if (for example) COLAs were

limited to changes in the CPI minus 1.5%, tax revenues would increase and social security expenditures would decrease, thereby reducing the government budget deficit.

A second major reason for concern about the accuracy of our measures of inflation is that they are used to adjust nominal GDP to real GDP, and hence to estimate real economic growth. A one to two percent upward bias in estimated inflation entails a corresponding downward bias in estimated real economic growth. Thus, the implication here is that real growth is probably higher than implied by the official statistics.

We see articles in the newspaper frequently that growth in the U.S. economy has been too slow. The argument I've just made is that if we take seriously the notion that the U.S. inflation rate has been consistently overestimated, then real economic growth has been higher than the measured growth rate. This is the argument made in the article "Coming This Year: Marx for Dummies" from the Wall Street Journal (following page).

A third reason for wanting to measure inflation and real economic growth accurately pertains to international comparisons of real GDP. Such comparisons are useful for assessing differences across countries in the material standard of living of the population, and in changes of these standards over time. If our measures are overstating inflation and understating growth, then international comparisons of levels and trends in the standard of living will be flawed (unless everybody else has the same bias).

6. **Q: what are the driving forces of economic growth in the short run vs. long run?**

A: In the short run, there are many sources that may contribute to the economic growth such as increasing the employment rate, increasing the utilization rate of capital, increasing the size of capital and labor.

In the long run, besides the expansion of the size of capital stock and labor force, three sources are the most important: Saving rate; Investment in human capital (e.g.education, on-the-job training); Technological advances.

One thing to know is that the ratio of capital to labor(worker hours)only affects the growth rate in Output per worker hours(Productivity) not the growth rate in GDP itself. Everything else equal, the rate of change in the size of capital and labor determines the general growth rate of GDP.(Refer to the page 141-142 in your textbook)

If you are interested "discouraged worker effect", feel free to check the following link below and read the lives of discouraged workers in real world.
Discouraged workers face tough road back to employment **NBC news business section June 27 2011**

If you are interested in measuring inflation using actual data (CPI,PPI or GDP deflator)on FRED or even more subtle concept like core inflation, please click the following link and do this exercise.
Fred in classroom:"measures of inflation" **Federal Reserve Economic Data**