PRESENTING UNEMPLOYMENT IN PRINCIPLES CLASSES: MICRO AND MACRO PERSPECTIVES

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Abstract

The interpretation of unemployment can differ, depending on whether it is presented in a micro or macro context. Instead of glossing over these different perspectives, instructors can expound on them as a means to reinforce basic graphical analysis, to introduce or review the distinction between stocks and flows, and to discuss policy issues related to unemployment, the measurement of unemployment and the labor market.

Introduction

Unemployment is an important topic in both macroeconomic and microeconomic principles courses. In macroeconomics, the unemployment rate is a major headline variable, and one of the most politically sensitive macro variables. In microeconomics, the concept of unemployment is usually presented as a specific type of market surplus. There is often an inconsistency, perhaps subtle, in the presentation of unemployment in these two different contexts. As I show below, this inconsistency relates to the difference between stock and flow variables, as well as the way the government measures unemployment. Although instructors of an economics principles class at the high school or college level may choose to gloss over these differences in the presentation of unemployment, they may alternatively choose to expound on them as a means to reinforce basic graphical analysis, to introduce or review the distinction between stock and flow variables, and to discuss policy issues related to unemployment, the measurement of unemployment, and the dynamics of the labor market.

In macroeconomics, the focus is on the government's official definition of the unemployment rate. Therefore, in the macro context both the labor force and the level of unemployment are measured in terms of people who are in those respective categories *at a point in time*. Consequently, the unemployment rate, which is simply the percentage of the labor force that is unemployed, is a stock. However, the typical labor market graph in price theory is usually a depiction of the flow of labor, where the quantity of labor on the horizontal axis can be measured in work-hours. The quantity of labor, then, can change along two margins: (1) the number of people employed and (2) the flow of hours per person.

There is another important difference between the two contexts. In microeconomics, unemployment is typically presented as a surplus of labor, but in the macro-economy unemployment may or may not be associated with a surplus of labor. That is, there is frictional unemployment which is due to the process of matching workers with jobs. The labor market clears, but it takes time for agents to find the right match. While the macro definition of
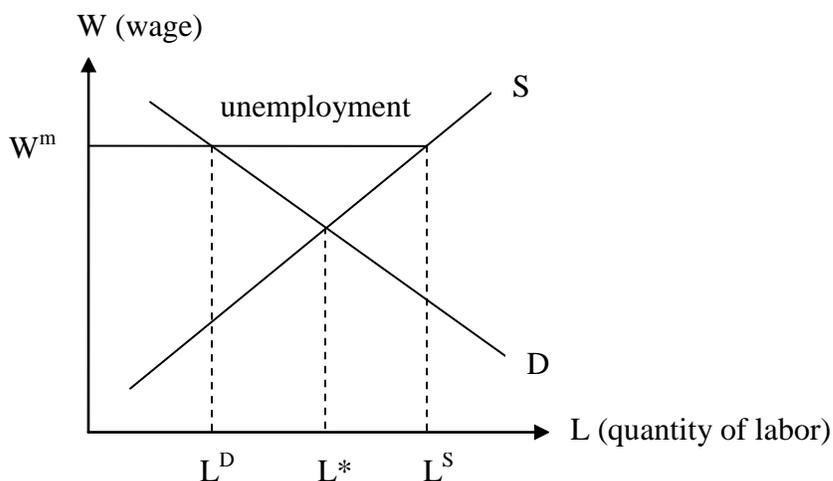
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unemployment is a stock, there is a flow variable corresponding to this stock. This flow is the transition from one labor market category to another (e.g. from employed to unemployed) during a given interval of time. In addition to frictional unemployment, there may be factors leading to a surplus of workers for a particular region, sector or—in some models—for the aggregate labor market.

Binding Minimum Wage Laws

The first inconsistency comes to the fore when analyzing the effect of binding minimum wage laws in the labor market. Suppose a textbook or an instructor presents a graph of the labor market when there is a binding minimum wage law, similar to the one in the Figure 1. Notice that in this graph the surplus of labor, (L^S-L^D) is labeled as "unemployment." However, unless one makes certain assumption about how to define a unit of labor, this concept of unemployment is not the same as that used in the macro definition of the unemployment rate. Rather, the surplus of labor shown in the labor market graph is a broader concept that includes involuntary, part-time employment. That is, the surplus of labor in the graph could represent a situation where everyone who wants a job at W^m does indeed find a job, but firms hire some of those workers for fewer hours per week than they are willing to supply. In which case, there is no unemployment according to the macro or government definition of unemployment, but there is a surplus of labor according to the flow concept of labor services.[2]

Figure 1

A way to reconcile these different concepts of unemployment is to convert the level of employment from a flow to a stock. Just as one can analyze the loanable funds market through stocks or flows, one can use a similar approach with the labor market. If the quantity of labor is defined as total hours per unit-of-time, one can simply assume that hours per unit-of-time is constant across individuals, and then divide by that constant. The labor demand curve becomes the quantity of workers demanded by firms at each wage rate, and the labor supply curve becomes the quantity of workers supplied by households at each wage rate. For example, if the quantity of labor is 2,000 hours per week, and we assume that everyone works 40 hours per week; then dividing the flow of 2,000 hours/week by 40 hours/week yields a stock of 50 workers. At this point, an instructor may want to point out that a uniform work-week is a simplifying assumption which, of course, does not hold in reality. Now it is straightforward to relate the graph of unemployment to the definition of the unemployment rate. At a given wage, above the market-clearing wage, L^D represents the number of people employed, L^S represents the labor force, and the difference, (L^S-L^D) represents the number of people unemployed. The unemployed workers come from two sources: job losses and additional workers in the labor force. Job losses are reflected in movement along the labor demand curve, where (L^*-L^D) is the number of workers who have lost their jobs. Additional workers are reflected in movement along the labor supply curve, where (L^S-L^*) is the number of new workers who have decided to enter the labor force.

In this way a discussion of the unemployment created by a binding minimum wage law provides a nexus of both micro and macro perspectives: micro because the analysis involves the surplus created in a single market by a binding price floor; macro because unemployment is interpreted as the number of people who want to supply their labor, but cannot find employment. Accordingly, many textbooks interpret the supply and demand of labor in a way that is consistent with the macro definition of unemployment. For example, Frank and Bernanke (2007, p. 606) graph minimum wage-induced unemployment (their Figure 21.8), and describe the quantity of labor supplied as "the number of people who want to work at the minimum wage," and the quantity of labor demanded as "the number of people that employers are willing to hire." In a similar graph, Colander (2004, p. 116) labels the horizontal axis as the "Quantity of workers," and within the text he describes the surplus labor as "an excess supply of workers." Hubbard and O'Brian (2008, p. 109) also use "number of workers per year" to measure the quantity of labor when graphing minimum wage induced unemployment. Mankiw (2007, pp. 122, 443) labels surplus labor as "labor surplus (unemployment)" and as "surplus of labor = unemployment" when discussing minimum wage laws. Taylor (2009, pp. 85, 585) graphs surplus labor in Figure 2 of Chapter 4 and in Figure 8 of Chapter 20. In the former, quantity supplied and quantity demanded are labeled, respectively, as the "number of workers who want to work" and the "number of workers that firms are willing to hire," while in the latter, the quantity demanded is labeled as, "…firms hire this many workers."

Unemployment due to job search

The coverage of unemployment in macroeconomic textbooks typically includes a variety of causes and types of unemployment. Increasingly, principles texts are emphasizing frictional unemployment and the basic concepts of the job-search model. I believe this is a positive development. Although formal labor-market search models are not appropriate for most high school and college students at the principles level, the economic intuition behind the model is very accessible. When describing the three states of the labor market: employed, (involuntarily)

unemployed and not in the labor force, I often give an example of a student who transitions from one state to another. A brief summary follows below.

Consider a full-time student, Rebecca, who is deciding whether or not to work. At first wages are too low, given her preferences, abilities and alternatives, so she chooses not to work. This puts her outside of the labor force. Now suppose that wages increase, and she now decides to look for a job so she can work ten hours a week. Her decision to start looking for work transfers her into the labor force. She seeks a job for a month before becoming employed. She is unemployed during the month she is searching, and then finally transitions from unemployed to employed when she accepts a job offer.

An additional scenario adds the possibility of under- or over-employment. This may be especially relevant to students since these outcomes may occur more frequently in low-skill, low-experience labor markets. In this case, Rebecca desires to work ten hours a week as previously stated, but she has trouble finding a job with those work hours. Suppose her first job offer involves an eight-hour work week. Given her preferences, she rejects the offer. She subsequently accepts a job with a fifteen-hour work week. Although she is better off than not working, she is now over-employed.

Since job-search unemployment can be easily put into the context of a story, it is an effective way to explain the population categories used by the Bureau of Labor Statistics, and to show the dynamic nature of the labor market. Although simple diagrams showing the flow from one category to another are found in intermediate texts such as Mankiw (2007, p. 161) and Abel, Bernanke and Croushore (2008, p. 96), such diagrams (see Figure 2) are helpful additions to a macro principles lecture on unemployment.

Figure 2
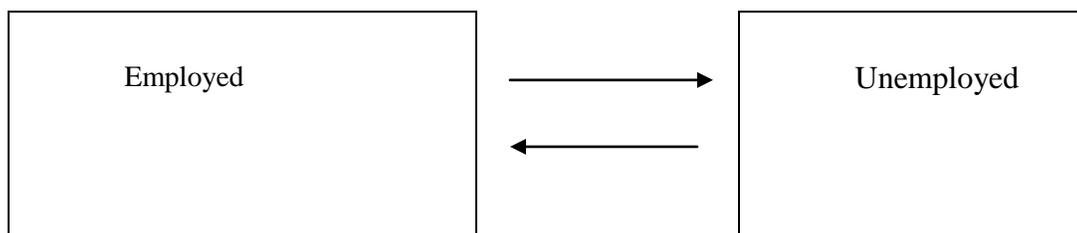
Many students are unaware of the 'churning' that occurs in the labor market which is masked by the statistics on net job creation or destruction. Although the magnitude of net job creation or loss as reported monthly by the BLS is usually in the tens of thousands, the flow of employed to unemployed and vice versa is of a much larger magnitude. Typically two to three million jobs are created each quarter; likewise for jobs lost. I think it is important for students to realize that when they read a headline that a particular firm has laid-off, say 80,000 workers; this is largely irrelevant from a macro perspective. The job-search story is also a useful context to demonstrate the meaning of reservation wage, and the accept/reject decision of job-seekers when they receive a job offer. Again, I believe the intuition behind these ideas is quite accessible to principles-level students.

Policy Applications

Although many principles textbooks convert labor from a flow to a stock when graphing the unemployment caused by minimum wage laws, they do not call attention to this conversion, or elaborate on how this differs from the usual interpretation of supply and demand curves. Nevertheless, for a number of reasons, it is beneficial for students if the instructor goes through this conversion process explicitly.

In addition to reconciling the different concepts of unemployment, it provides a concrete example of the important distinction between stocks and flows. Further, it provides a springboard for a discussion on how governments measure unemployment. For example, two common criticisms of the official measurement of unemployment in the United States are that it misclassifies discouraged workers as not in the labor force, and that it fails to account for those who are involuntarily, part-time employed. Conceptually, a surplus of the flow of labor would include the unemployment created by the presence of both discouraged workers and the involuntarily, part-time employed. A surplus of the stock of labor, however, cannot by definition include the unemployment created by the involuntarily, part-time employed. In contrast, the presence of discouraged workers is exclusively a measurement problem due to the way the Bureau of Labor Statistics classifies, or misclassifies, survey respondents. Students should realize that when interpreting labor as a stock, quantity supplied can be interpreted as the number of people who are willing to work at that wage, regardless of their job-search effort.

Finally, there are policy implications related to the two margins along which the quantity of labor can change. For instance, in discussing the adverse effect of a minimum wage law, politicians sometimes admit that the quantity of labor demanded – and hence employment – will decrease, but they obfuscate with a statement like, "I think most people are willing to work fewer hours in exchange for a higher wage." This is misleading, because the firms decide how to decrease employment. Firms can do this by reducing the number of workers, by reducing the flow-hours per person, or a combination of both. Needless to say, they often rely heavily on reducing the number of workers.

An instructor could also discuss the average work week and how it differs among countries or within a country through time and how this may impact employment or productivity. Certain labor laws that are associated with 'Euro sclerosis' can affect the quantity of labor on both margins: unemployment insurance and constrictive laws on firing reduce the number of people employed; mandatory vacations and legal limits on the length of the work week reduce the flow of hours per person.

Instructors could also touch on the potential relationship between the number of employees and the average worker's hours per week. For example, in the recent past there has been a binding constraint in both France and Germany in the form of a thirty-five hour work week. Supporters of this policy in government and labor unions may have fallen prey to the mistaken belief that there is a fixed sum of work-hours that firms desire, so that forcing a reduction of the work week will automatically lead to a higher level of employment. These differences in the average work week also arise in comparing per capita output across countries. The higher output per capita of the U.S. relative to the E.U. can be separated into three components: the productivity of labor, the employment rate, and *working hours per employee*.

An interesting question is the extent to which differences in the average work week are due to restrictive labor policies as opposed to different preferences (Munchau 2006). These and other issues cannot be addressed without explicit reference to the distinction and probable interplay between the two margins of labor.

A discussion of unemployment insurance benefits provides another application in the job-search framework. As unemployment insurance benefits increase, the reservation wage for job-seekers increases, leading to more unemployment. This is consistent with basic supply and demand analysis in the aggregate labor market: a higher reservation wage decreases the supply of labor, leading to less employment and a higher market-clearing wage. This is also a good point to facilitate a discussion on the pros and cons of unemployment insurance. Such a discussion should include the normative/positive distinction, the proper role of government, and the usefulness of the unemployment rate as a measure of social welfare.[3]

Conclusion

A lecture of the type discussed above would fit most naturally within a section devoted to the labor market. With the exception of unemployment in macroeconomics, labor markets are often given short shrift in principles classes. However, labor market issues are increasingly topical and relevant. Increases in income disparity due to changes in technology and the returns to education, the effect of international flows of capital from globalization, and the effects of immigration are a few examples of important issues which are accessible to principles students through basic graphical analysis of the labor market.

Explaining the difference between the macro and micro interpretations of unemployment provides an opportunity for instructors to reinforce the distinction between stocks and flows and the graphical interpretation of demand and supply, as well as introducing policy analysis. Consequently, a lecture on the distinction between the two perspectives becomes more than a technical exercise; it becomes a way to introduce important issues related to employment, labor laws and the labor market.

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[3] In addition to the measurement problems, one could argue that a higher unemployment rate may be associated with more leisure and better job-worker matches.