Unemployment vs. Employment

During the last recession, the U.S. experienced the highest unemployment rates since the great depression of the 1930s. During this same recession, however, the lowest employment rate was approximately the same as that prevailing during the boom years of the late 1960s when unemployment was very low. Although the employment rate (the percent of the adult population employed) did decline during the 1981–82 recession, it fell only 2 percentage points. This decline contrasted markedly with the 3.6 percentage point rise in the unemployment rate. How can one reconcile these apparently divergent statistics? Does the *unemployment* rate or the *employment* rate give a better picture of labor market conditions?

In this *Letter,* I show that variations in rates at which persons enter and leave the labor force over the business cycle strongly affect the unemployment rate. Consequently, the interpretation of the unemployment rate is not entirely straightforward, and, for some purposes at least, the employment rate is a superior measure of labor market conditions.

Measuring unemployment

The unemployment rate (as defined by the Department of Labor) is simply the ratio of the number of persons unemployed (persons actively looking for work plus persons on temporary layoff) to the labor force (persons employed plus persons unemployed). The unemployment and employment rates are measures of the probabilities of being unemployed and employed, respectively. However, the unemployment rate is a measure of the probability of being unemployed at a moment in time *conditional* on being a labor force participant. In contrast, the employment rate is simply the unconditional probability of being employed.

If labor force participants were a fixed group of the population who either worked or were unemployed, then the unemployment rate would have a straightforward interpretation. High unemployment would mean a smaller probability of being employed for a member of the group. Furthermore, if the labor force group were a constant fraction of the population, employment and unemployment rates would be mirror images of each other—high unemployment would imply a low likelihood of employment and vice versa. However, neither the labor force nor the unemployed is a fixed segment of the population. In some months, for instance, considerable numbers of persons previously not in the labor force enter to search for employment, increasing the number of unemployed persons and the unemployment rate. This changing composition of the labor force means that high unemployment does not necessarily imply low employment.

Business cycles and the labor force

Economists have long recognized that flows into and out of the labor force might vary over the business cycle and thus affect unemployment. Two theories of the cyclical behavior of labor force entry and exit—the added-worker and discouraged-worker hypotheses—have played a prominent role in the economics literature.

The added-worker hypothesis postulates that as labor market conditions deteriorate during a recession, secondary workers, with weak attachment to the labor force, would enter. This might happen because the unemployment of the primary earner would lead secondary earners to search for employment and thus add to the ranks of the unemployed. Such an influx of job seekers would cause aggregate unemployment to increase during a recession by a larger amount than the increase due solely to the deteriorating employment prospects of those already in the labor force. If such an influx did occur, the corresponding increase in the unemployment rate would overstate the decline in demand for labor because each job loss would result in more than one person being reported as unemployed.

Alternatively, the discouraged-worker hypothesis posits that the rise in unemployment during recessions is understated. According to this view, the increased costs of finding a suitable job would lead to a reduction in job search and hence a reduction in the number of persons counted as unemployed. In other words, as labor market conditions deteriorate during a recession, more and more searchers would become discouraged by poor labor market conditions and leave the labor

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force, and fewer persons not in the labor force would enter to search for employment. If the reductions in job-search activity were sufficiently large, the unemployment rate might not even rise as labor market conditions deteriorated.

Determining which of these effects dominates with aggregate data on the cyclical variation in the number of persons employed, unemployed and not in the labor force is difficult. Such data do not enable us to measure directly changes in the propensity to enter the labor force to search for employment or changes in the likelihood unemployed persons will withdraw from the labor force. For example, aggregate statistics showing an increase in unemployment do not indicate whether the increase is due to increased layoffs, reduced hiring, increased labor force entry, or reduced withdrawal from the labor force by unemployed persons.

It is possible, however, to measure these flows directly using unpublished data from the monthly Current Population Survey. Below, an analysis of these flow data, which provide direct evidence about the relative importance of added-worker and discouraged-worker effects, is presented. (A more detailed version appears in the FRBSF 1984 Summer *Economic Review*)

Labor market flows
Variations in aggregate employment and unemployment are determined by labor market flows into and out of employment, unemployment and out-of-the-labor force. For example, the change in the number of unemployed persons in any given month equals the flow in minus the flow out. Thus, given an initial distribution of the population among the three employment status categories, the number of persons in each category for all future periods is determined by labor market flows.

Monthly data from January 1968 through March 1984 reveal that there are large flows into and out of the labor force as well as between employment and unemployment. In a typical month, for example, 1.3 million persons not previously in the labor force entered to look for employment while 1.5 million unemployed persons gave up their job searches and dropped out of the labor force. These are very large flows compared to the 6.4 million persons who were unemployed in an average month during this period. Because these monthly

flows between out-of-the-labor-force and unemployment are so large, relatively small changes in them can have large effects on the unemployment rate.

For example, if, as predicted by the added-worker hypothesis, the flow from out-of-the-labor-force into unemployment increased during a recession as new entrants began searching for jobs, the number of unemployed and the unemployment rate would increase. Or, if, as predicted by the discouraged-worker hypothesis, more job searchers gave up their job search and dropped out of the labor force, unemployment would decrease. Thus, labor market entry and exit decisions can have powerful effects on the unemployment rate even when *for labor market participants* there have been no changes in the difficulty of finding jobs or the likelihood of losing jobs or when there have been no economy-wide changes in individuals' employment prospects.
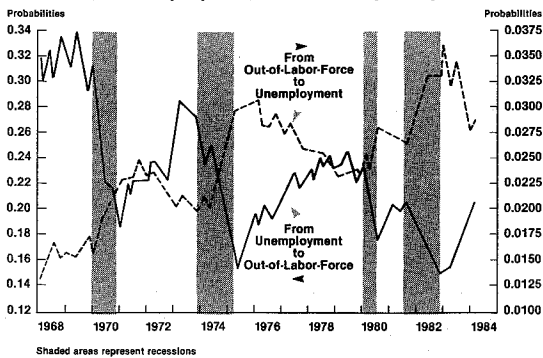
If either of these views of the cyclical variation in flows between persons not in the labor force and unemployment were correct, the cyclical variation in the unemployment rate would not accurately represent the variation in the demand for labor or individuals' employment prospects. Yet, flows between unemployment and out-of-the-labor-force do not directly affect the number of employed persons or the employment rate. Thus, the employment rate does not suffer from this sort of potential bias as does the unemployment rate.

The evidence
Analysis of the monthly flow data shows that additional workers do enter the labor force to search for employment during recessions but provides no indication that job searchers become discouraged. Chart 1 shows that labor force entry by persons previously not in the labor force into unemployment rises substantially during recessions. Such a cyclical increase is consistent with an influx of secondary workers caused by the increase in unemployment among primary earners.

In addition, Chart 1 shows that labor force exit from unemployment falls during recessions—just the opposite of what would be expected if job searchers become more discouraged about their job prospects during recessions. Such a reduction in the rate of labor force exit from unemployment might be due to a larger proportion of the unemployed receiving unemployment insurance bene-

Chart 1
Monthly Flow Probabilities
(seasonally adjusted, 3-month moving average)

Shaded areas represent recessions

Chart 2
Simulated Versus Actual Unemployment Rate
(monthly)

Shaded areas represent recessions

fits (which subsidize job search) during recessions than expansions. Whatever the reason, the cyclical pattern of these two types of labor force entry into and exit from unemployment have strong and direct effects on the unemployment rate—they cause it to be higher during recessions than if these flows did not vary over the cycle.
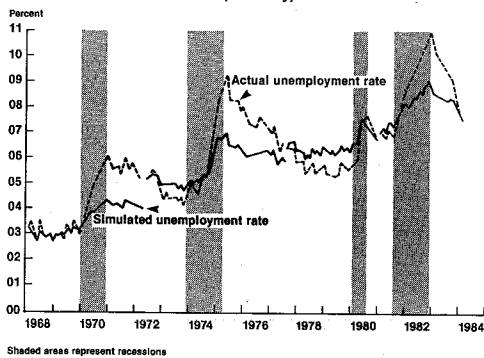
Although these two flows into and out of unemployment directly affect the number of unemployed persons and hence the unemployment rate, they do *not* directly affect the number of employed or the unemployment rate. This explains why the unemployment rate has a much larger cyclical variation than the employment rate.

Effect on unemployment
To what degree is the unemployment rate affected by changes in labor force entry and exit flows? Comparing the variation in the actual unemployment rate over several recent business cycles to a simulated unemployment rate (calculated by holding labor force entry and exit flows constant at their mid-cycle levels but with flows within the labor force taking their actual values) shows that a substantial proportion of the cyclical variation in the actual unemployment rate is in fact due to variation in labor force exit and entry flows (Chart 2). Differences in the two rates were especially prominent in the 1974–75 and 1981–82 recessions.

Of course, labor flows from out of the labor force directly into employment (without an intervening unemployment spell) and from employment directly to out-of-the-labor-force also affect the unemployment rate. They do so because they affect the number of employed persons, which is part of the denominator in calculating the unemploy-

ment rate. Increased flows *into* employment from out of the labor force reduce the unemployment rate, and increased flows *out* of employment to out-of-the-labor-force increase it, all other things equal.

Not surprisingly both of these flows also vary over the business cycle with the demand for labor. During a recession (when demand is declining), flows from out of the labor force directly into employment fall. Similarly, flows from employment to out-of-the-labor-force increase. Thus, the cyclical variation in these two flows also causes the unemployment rate to be higher during recessions and contributes to the difference between the actual and simulated unemployment rates depicted in Chart 2.

Conclusions
The cyclical variation in labor force entry and exit rates causes the unemployment rate to vary much more over the business cycle—being higher during recessions and lower during expansions— than it would if exit and entry were constant. Conventional wisdom—that the rise in unemployment during recessions understates the deterioration in the demand for labor because of discouraged-worker effects—is inconsistent with the actual evidence on labor market flows. In particular, labor force entry into unemployment rises and labor force withdrawal from unemployment falls during recessions. Because the variation in these two rates of flow does not directly affect the employment rate, the employment rate has a much smaller cyclical variation than the unemployment rate. Consequently, the cyclical variation in the employment rate is a superior measure of the cyclical variation in the demand for labor as well as individuals' employment prospects.

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BANKING DATA—TWELFTH FEDERAL RESERVE DISTRICT
(Dollar amounts in millions)

Selected Assets and Liabilities Large Commercial Banks	Amount Outstanding 8/22/84	Change from 8/15/84	Change from 12/28/83 Dollar	Percent Annualized
Loans, Leases and Investments[1] [2]	182,704	1,067	6,679	5.4
Loans and Leases[1] [6]	163,762	1,200	8,407	7.8
Commercial and Industrial	48,620	231	2,657	8.3
Real estate	60,823	48	1,924	4.7
Loans to Individuals	29,650	114	2,999	16.2
Leases	5,023	− 3	− 40	− 1.1
U.S. Treasury and Agency Securities[2]	11,790	− 111	− 717	− 8.2
Other Securities[2]	7,152	− 22	− 1,011	− 17.8
Total Deposits	193,364	5,897	2,367	1.7
Demand Deposits	47,342	4,773	− 1,895	− 5.5
Demand Deposits Adjusted[3]	29,340	712	− 1,991	− 9.1
Other Transaction Balances[4]	12,884	868	109	1.2
Total Non-Transaction Balances[6]	133,139	257	4,154	4.6
Money Market Deposit Accounts—Total	37,988	268	− 1,599	− 5.8
Time Deposits in Amounts of $100,000 or more	41,116	− 199	2,951	11.1
Other Liabilities for Borrowed Money[5]	20,211	− 204	− 2,796	− 17.5

Weekly Averages of Daily Figures	Period ended 8/27/84	Period ended 8/13/84	
Reserve Position, All Reporting Banks			
Excess Reserves (+)/Deficiency (−)	60	43	
Borrowings	68	24	
Net free reserves (+)/Net borrowed(−)	− 7	19	

[1] Includes loss reserves, unearned income, excludes interbank loans
[2] Excludes trading account securities
[3] Excludes U.S. government and depository institution deposits and cash items
[4] ATS, NOW, Super NOW and savings accounts with telephone transfers
[5] Includes borrowing via FRB, TT&L notes, Fed Funds, RPs and other sources
[6] Includes items not shown separately