# ON LABOR MARKET INDICATORS

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The unemployment rate is, perhaps, the most closely watched of all economic statistics. In many quarters, it is taken as a good indicator of current economic conditions and of overall well-being in the country. Among professionals, however, the unemployment rate is widely recognized as a controversial statistic that is often of limited accuracy as a measure of labor market conditions as well as of general welfare. As it is currently structured, the statistic is designed to measure the extent of the so-called "involuntary" unemployment in the economy. Thus, unemployment, as defined by the Bureau of Labor Statistics, includes only those persons who are not employed and are *actively* seeking work. This definition of unemployment is a source of pitfalls for the social as well as the economic interpretation of changes in the statistic.

One such pitfall relates to the so-called "discouraged" worker effect. "Discouraged" workers are workers who are unemployed but who have been frustrated with their job search and no longer actively seek work. These workers are not included in the unemployment statistics. The number of "discouraged" workers varies with the state of the economy, and because such workers are excluded from the unemployment statistics, the unemployment rate may understate labor market slackness during recessions and understate labor market tightness during recoveries.

The "discouraged" worker effect is not the only source of dissatisfaction with the unemployment rate's usefulness as an indicator. Others include the so-called "additional" worker effect (another member of the household enters the labor market to supplement the family's income when the principal breadwinner loses his job) and the definition of employment (part-time workers are defined as employed even if they desire full-time work). Professionals, of course, have been aware of these limitations for years. The criticisms have intensified recently, however, because the unemployment rate's usefulness as a coincident indicator has apparently diminished since 1969.

Before 1969, turning points in the unemployment rate tended to coincide with those in other important indexes of economic activity. During the 1970 recession and the subsequent recovery, however, the unemployment rate rose above 6 percent and remained close to its cyclical peak until June 1972, well after recovery had begun. The 20-month plateau around the 6 percent peak level was the longest such aberration in the history of the series. Moreover, the unemployment rate has never since regained its low 1968 and 1969 levels. Throughout the first months of 1973, when other economic indicators were rising strongly and the economy was approaching full capacity, the unemployment rate continued to indicate a relatively slack labor market.

**Gauging Labor Market Pressures** Economic statisticians have long recognized that unemployment data should be interpreted in the light of the behavior of other labor market statistics, especially that of employment data. Geoffrey Moore, former U. S. Commissioner of Labor Statistics, has made a compelling argument that employment data are, as a matter of fact, superior to unemployment data as labor market indicators. In one of his more recent statements, written for the *Wall Street Journal*,[1] he reasons as follows:

> . . . the concept of employment is firmer than the concept of unemployment. Having a job and being paid for it is, for the most part, an observable experience. . . . The concept of unemployment is quite different. For those who have had a job and have just been laid off, the situation may be obvious. Nevertheless, unless the worker is doing something to seek work, he will not be counted as unemployed . . . . Moreover, those who . . . have been laid off usually constitute less than half of the unemployed. The rest have either quit their jobs voluntarily or have not recently (or ever) had a job.[2]

Another important consideration, also noted by Moore, is that the employment numbers, being substantially larger than the unemployment numbers, contain less relative sampling error.

Most observers no doubt would agree with Moore respecting the technical superiority of the employment figures. But a practical problem in relying exclusively on employment data is there is no generally agreed upon standard against which to measure changes in employment. Moore has suggested a simple employment/population ratio as a yardstick, but such a ratio may itself suffer from serious limitations.

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[1] Geoffrey Moore, "A Measuring Stick for Employment," *Wall Street Journal*, May 9, 1975.

[2] *Ibid.*

This article examines Moore's employment/population ratio in detail and proceeds to develop a somewhat more refined "labor market pressure index" that may offer an even more sensitive indicator of labor market conditions.

**Moore's Employment/Population Ratio** The data for Moore's employment/population ratio were derived simply by dividing the number of persons employed by the total working age population. For purposes of this article, that technique was modified slightly and the ratios were calculated by dividing those employed (16-64) by the population (civilian resident non-institutional) in that age bracket. This ratio, along with the unemployment rate, is plotted in Chart 1 for the period January 1955 to June 1975. The chart clearly shows that the employment/population ratio for all civilian workers, in contrast to the unemployment rate, exhibits a definite upward secular trend over the time period as a whole. The upward trend has been particularly pronounced since 1965, and as a result each succeeding month of 1974 set a new record high. This behavior pattern differs considerably from that of the unemployment rate, which has not yet regained its 1969 level.

The theoretical rationale usually associated with the well-known Phillips curve relationship argues that as an economy approaches full utilization of its labor resources, certain scarcities of critical skills develop. As firms endeavor to expand production, they must bid against one another for workers, thus introducing upward pressure on wages and, ultimately, prices. Conversely, slack conditions in labor markets cause wage and price pressures to subside. But the experience of 1973-1974 did not follow this script. Moore has indicated that part of this apparent anomaly may be attributable to the statistical deficiencies in the unemployment rate as an economic indicator. Indeed, his employment/population ratio conforms more closely than the unemployment rate to the relationship between inflation and labor market conditions that was widely accepted in the 1960's. The high levels of the employment/population ratio in 1973 and early 1974 coincide with the rapid rates of increase in the consumer price index at that time. As Moore notes:

> High employment ratios have been associated with high rates of inflation. . . . There has been relatively little inflation when the percentage employed has been in the range 53.5% to 55.5%, but higher employment ratios have been associated with increasingly sharp advances in the rate of inflation. . . . In general, rates of wage and price inflation have been far more closely correlated with the employment ratio than with the unemployment rate. . . . In particular, 1974 was . . . in a class by

itself, with considerable unemployment and a great deal of inflation. What was largely overlooked was the record high employment ratio.[3]

**A Critical View** Moore's employment ratio represents a useful contribution to the interpretation of labor market statistics and provokes further refinement of this sort of analysis. Some of these refinements cast doubt on the inferences he draws respecting the relationship between the employment ratio and inflation pressures. For example, when the employment/population ratio for all civilian workers is separated into male and female components, plotted in Chart 1, the data no longer lend unambiguous support to Moore's inference.

The behavior of the ratio for all civilian workers over the period observed results from two conflicting trends. The male employment/population ratio exhibits a definite *downward* trend from 1955-1975. This ratio, in fact, was higher during the 1960-1964 time period, a period of relatively stable prices, than it was in the 1972-1974 time period.

The female employment/population ratio, in pronounced contrast to the male series, exhibits a substantial *upward* trend over the same time period. This upward tendency, of course, is associated with well-known changes in women's work preferences, and it is particularly pronounced since 1965. In any event, the upward trend in female employment more than offset the downward trend in the male ratio, and as a result the total employment/population series exhibited a moderate but definite upward trend. This domination of the total employment/population series by increased female participation leads to some ambiguity in interpreting the series.
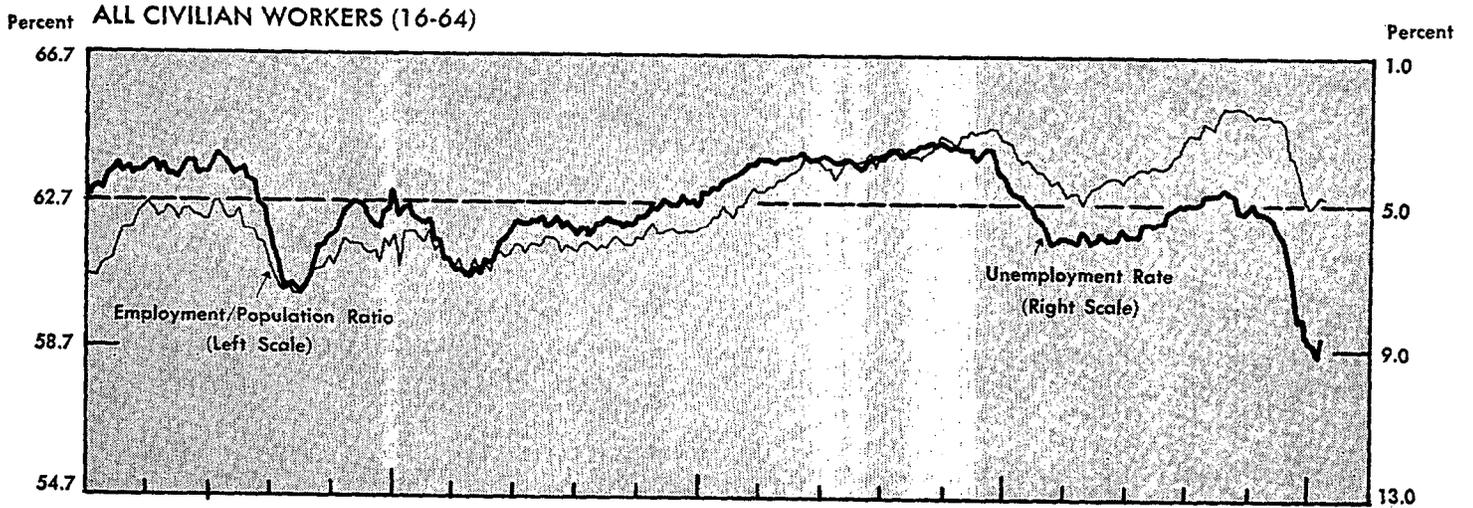
The record ratios registered in 1973 and 1974, for example, can logically be interpreted in either of two conflicting ways. They may, as Moore suggests, indicate labor scarcities. On the other hand, the higher percentage employed may have been entirely attributable to an increased supply of females in the labor force and thus indicate nothing about labor market slackness or tightness. Viewed from this perspective, the closer association of prices with the employment ratio could possibly reflect nothing more than parallel trends in excess aggregate demand and increased female participation in the labor force in the late 1960's and early 1970's.

Employment ratios adjusted for long-term trends in labor force participation and calculated for major labor force groups might represent a useful refinement of Moore's efforts to improve the interpretation
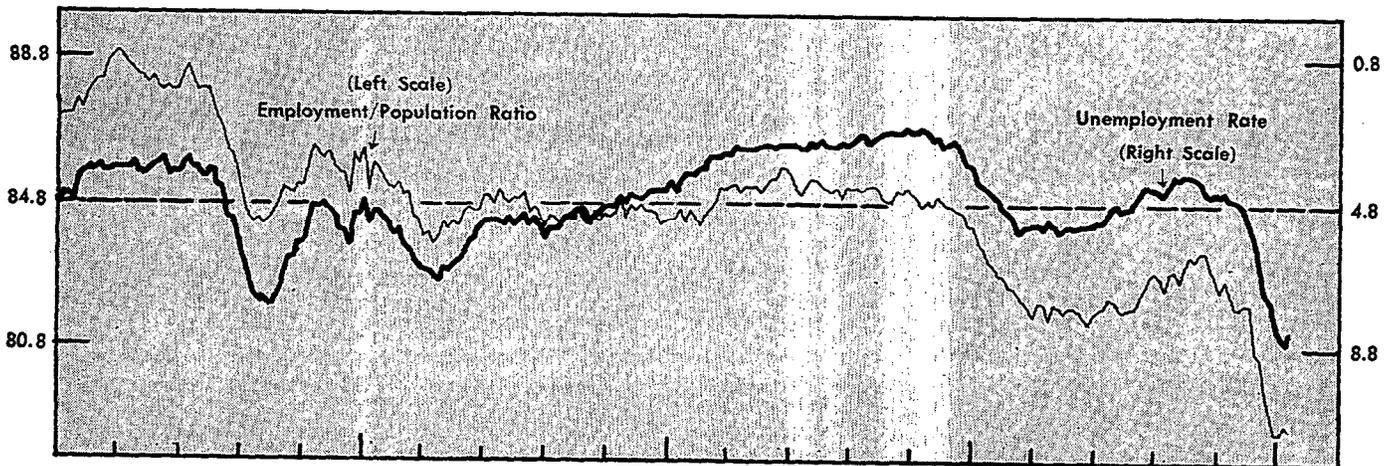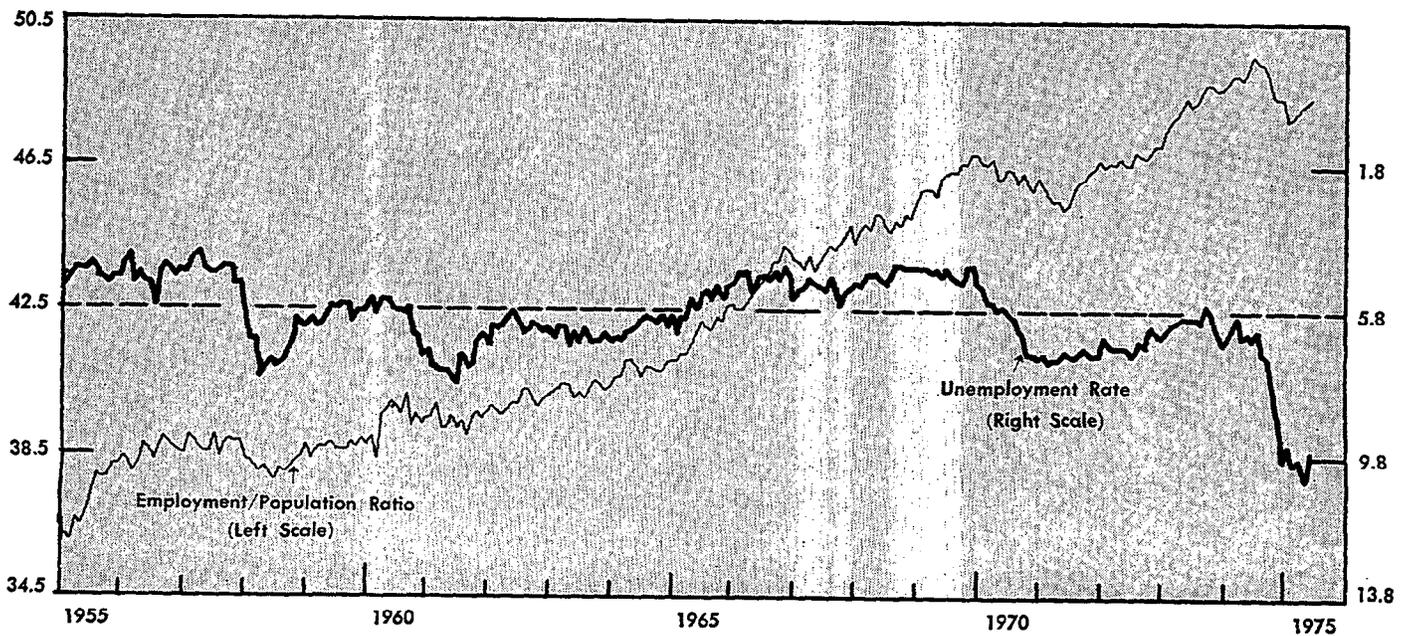
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[3] *Ibid.*

Chart 1

# EMPLOYMENT/POPULATION RATIO AND UNEMPLOYMENT RATE (INVERTED)
## JANUARY 1955 — JUNE 1975

**ALL CIVILIAN WORKERS (16-64)**

Percent (left): 66.7, 62.7, 58.7, 54.7
Percent (right): 1.0, 5.0, 9.0, 13.0

Employment/Population Ratio (Left Scale)

Unemployment Rate (Right Scale)

**MALE CIVILIAN WORKERS (16-64)**

Left: 88.8, 84.8, 80.8
Right: 0.8, 4.8, 8.8

(Left Scale) Employment/Population Ratio

Unemployment Rate (Right Scale)

**FEMALE CIVILIAN WORKERS (16-64)**

Left: 50.5, 46.5, 42.5, 38.5, 34.5
Right: 1.8, 5.8, 9.8, 13.8

Unemployment Rate (Right Scale)

Employment/Population Ratio (Left Scale)

1955    1960    1965    1970    1975

Source: U. S. Department of Labor.

of labor market data. A so-called "employment pressure index" directed toward this end is offered in the paragraphs that follow.

**The Employment Pressure Index** The employment pressure index is a measure of excess supply or excess demand for labor. An underlying assumption in the construction of the index is that actual employment is a proxy for labor demand and that population and trends in participation rates determine long-term labor supply. Its theoretical basis is described in detail elsewhere.[4] Briefly, however, it is derived by dividing actual employment figures by estimates derived from long-term trend and changes in population.

The employment estimates were derived from the equation

$$E_T = a + b_1 t + b_2 t^2 + b_3 P$$

where $E_T$ is the employment estimate, $t$ is time (January 1954 = 1), and P is population in the relevant group. The least squares multiple regression technique was used to estimate $a$, $b_1$, $b_2$, and $b_3$. Separate estimations were made for each of sixteen employment categories grouped by sex, race, and age (16-19, 20-24, 25-34, 35-64) from monthly data for the 1955-1975 time period. The estimates for each of the categories were then summed to get an aggregate estimate for each month, and the total was divided into the actual employment figure for the appropriate month to determine the pressure index. The resulting data for the period January 1955 through June 1975 are shown in the Appendix. Chart 2 shows the employment pressure index for total employment in comparison to the unemployment rate.

**Interpreting the Pressure Index** The employment pressure index takes changing work preference patterns into account, because long-run changes in labor supply are incorporated into the trends. Because of this, the pressure index data parallel the unemployment rate data much more closely than employment/population ratios. Even so, there have been some important differences between the unemployment rate and the employment pressure index (EPI), particularly since 1970.

During the 1970-1971 recession, when the unemployment rate leveled off at approximately 6 percent, the EPI continued to fall, not reaching a definite lower turning point until June 1971. After that,

according to the pressure index, a vigorous recovery in the labor market ensued, reaching a peak in January 1974 and remaining at relatively high levels until August of that year.

Thus, the pressure index indicated that labor market conditions were much tighter during the fourth quarter of 1973 and the first quarter of 1974 than did the unemployment rate. The index had, by then, recovered to its 1968 level, while the unemployment rate averaged 5.0 percent compared with 3.6 percent in 1968. Hence, it appears that the EPI may have been the better indicator of the extent of the recovery from the 1969-1970 recession, although both indicators pointed to a substantial deterioration in employment conditions beginning in September 1974.
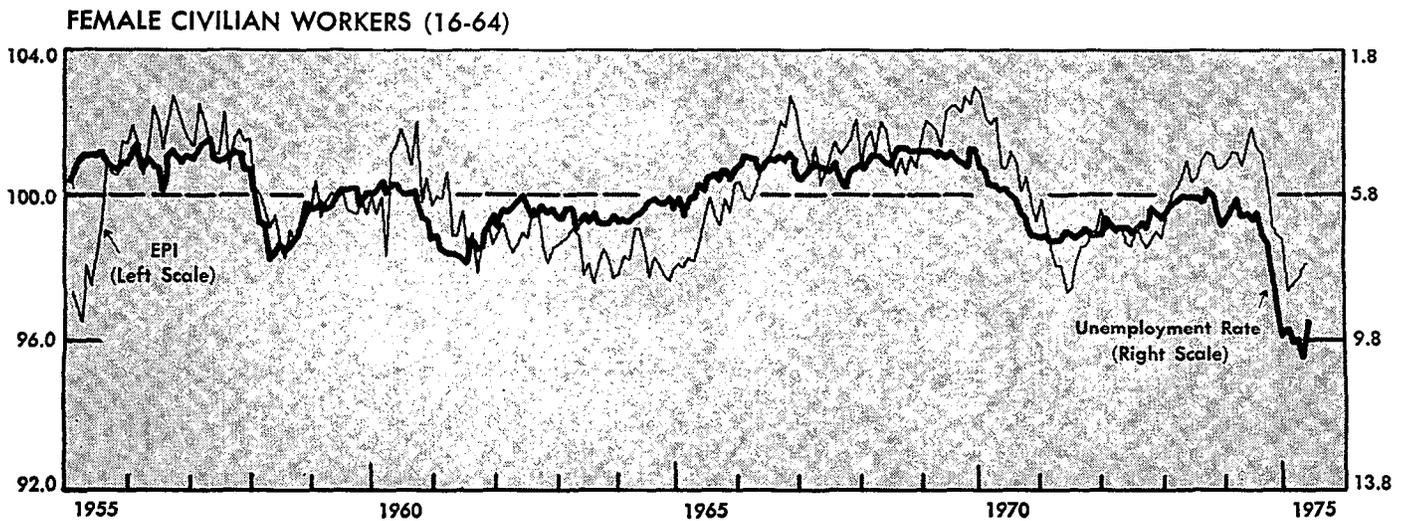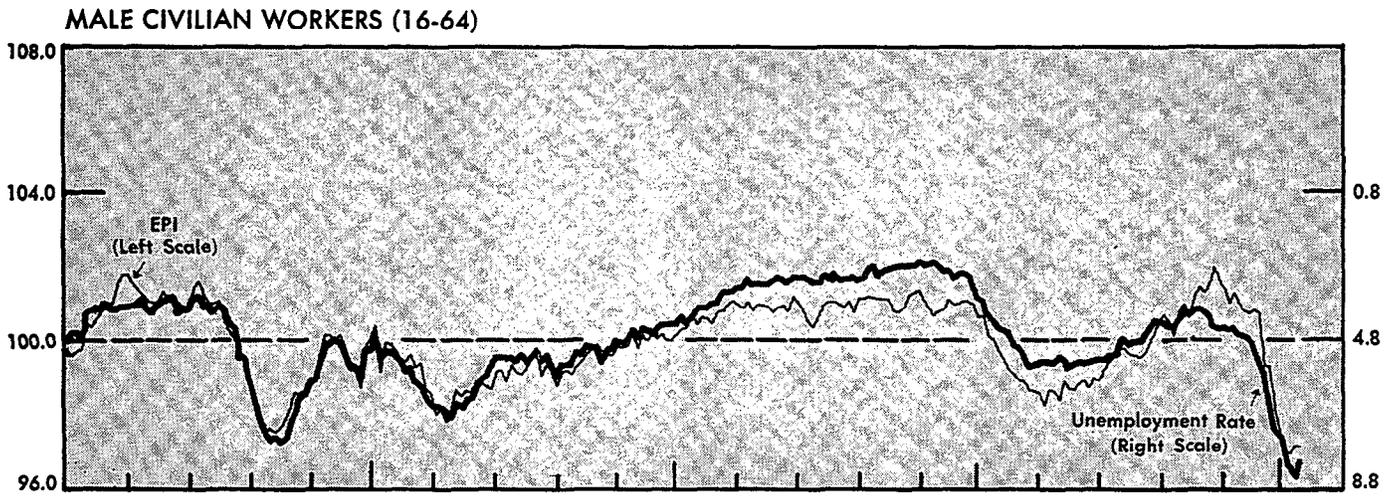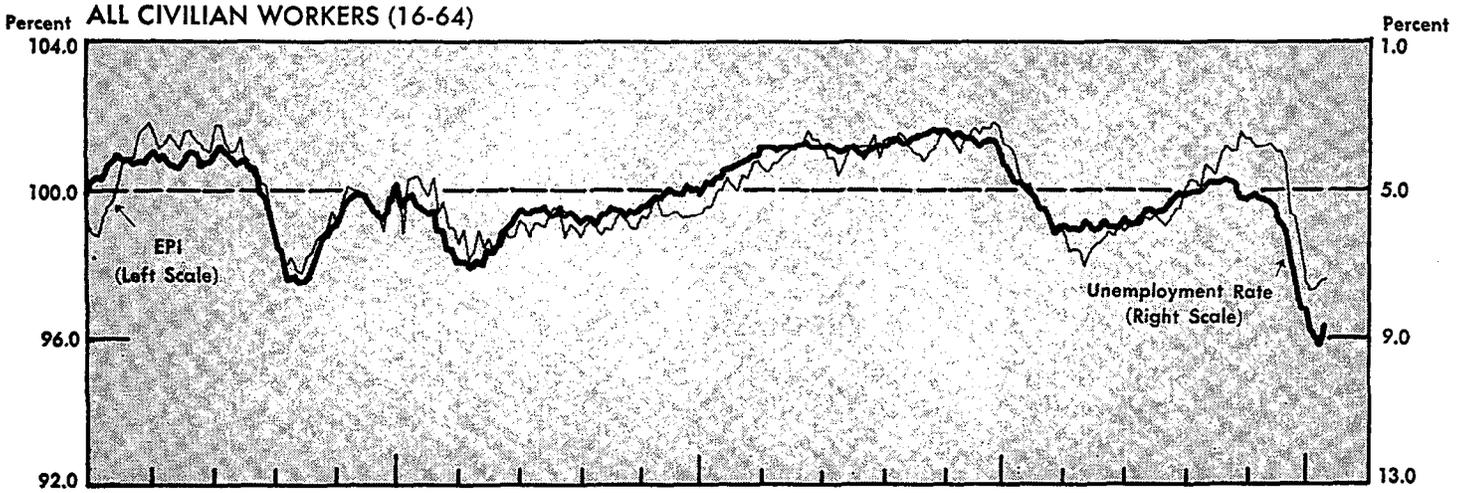
Chart 2 also shows employment pressure indexes and unemployment rates for males and females separately. Although the relationship between the EPI and the unemployment rate is much closer for males than for females, it is obvious that a close relationship exists for both groups. Using the EPI, a picture emerges of tight labor markets for both male and female workers in 1974 that is consistent with Moore's conclusion about employment during that year. The employment pressure index for males reached a record level in January 1974, and the EPI for females recorded relatively high, although not record levels, throughout the first half of 1974.

The pressure index thus tends to corroborate Moore's conclusions that in early 1974 the employment statistics were considerably more consistent with the behavior of price and other economic data than were the unemployment data. The employment pressure index indicates a great deal of pressure on labor markets at that time, although a record level only for males. However, much of the inflation during 1974 has been attributed to scarcities of raw materials and other basic production inputs and foods. Increased production of basic commodities may have necessitated a more male-intensive labor force than production increases in other types of commodities would have, and according to the EPI, employable males were scarce in early 1974.

Finally, the recent behavior of the EPI is noteworthy. Although the unemployment rate indicates further deterioration in the employment scene in April and May (1975), the EPI indicated some improvement in each of the two months. Final conclusions are, of course, premature, but the employment pressure index may thus be indicating that the downturn ended in March and that recovery is under way.

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[4] See William Cullison, "An Employment Pressure Index as an Alternative Measure of Labor Market Conditions," *The Review of Economics and Statistics*, Vol. 57, No. 1, February 1975, for a detailed description of the theory underlying the employment pressure index.

Chart 2

# EMPLOYMENT PRESSURE INDEX AND UNEMPLOYMENT RATE (INVERTED)
## JANUARY 1955 — JUNE 1975

Percent **ALL CIVILIAN WORKERS (16-64)** Percent



Percent **MALE CIVILIAN WORKERS (16-64)**



**FEMALE CIVILIAN WORKERS (16-64)**



Source: U. S. Department of Labor.

**Summary** A number of arguments have been cited for the use of employment in conjunction with unemployment statistics as economic indicators. Basically, these arguments are:

1. Employment data are firmer, involving fewer definitional problems.
2. Employment data are subject to less relative sampling error.
3. Employment data are not biased by the "discouraged" worker effect.

The difficulty with using employment data as an economic indicator, however, has been that there is no standard against which to measure changes in employment. Geoffrey Moore suggested that an employment/population ratio might provide an appropriate measuring stick for labor market conditions. A refinement on this ratio, represented as the employment pressure index and developed in this article, may provide additional insights in interpreting labor market conditions since 1969.

## APPENDIX

### EMPLOYMENT PRESSURE INDEX

|  | Jan. | Feb. | March | April | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1955 | 99.0 | 98.8 | 98.8 | 99.3 | 99.6 | 99.7 | 100.2 | 100.9 | 100.9 | 100.9 | 101.6 | 101.7 |
| 1956 | 101.9 | 101.6 | 101.2 | 101.3 | 101.6 | 101.4 | 101.1 | 101.6 | 101.7 | 101.5 | 101.3 | 101.1 |
| 1957 | 101.1 | 101.8 | 101.8 | 101.4 | 101.1 | 101.1 | 101.5 | 100.7 | 100.7 | 100.7 | 100.2 | 100.2 |
| 1958 | 99.4 | 98.7 | 98.3 | 98.0 | 98.2 | 97.9 | 97.8 | 98.2 | 98.3 | 98.7 | 98.8 | 98.9 |
| 1959 | 99.4 | 99.1 | 99.7 | 100.1 | 100.1 | 100.0 | 100.0 | 99.7 | 99.4 | 99.5 | 98.9 | 99.9 |
| 1960 | 99.8 | 100.2 | 98.8 | 100.3 | 100.4 | 100.4 | 100.1 | 99.9 | 100.4 | 99.4 | 99.7 | 99.0 |
| 1961 | 99.0 | 98.6 | 99.0 | 98.1 | 98.3 | 98.9 | 98.5 | 98.7 | 98.3 | 98.9 | 99.0 | 98.7 |
| 1962 | 98.8 | 99.2 | 99.1 | 98.7 | 99.1 | 99.1 | 99.0 | 99.4 | 99.6 | 99.3 | 98.7 | 99.1 |
| 1963 | 99.0 | 98.7 | 99.1 | 99.2 | 99.0 | 98.8 | 99.0 | 98.9 | 99.3 | 99.4 | 99.2 | 99.0 |
| 1964 | 99.0 | 99.3 | 99.2 | 99.6 | 99.8 | 99.4 | 99.3 | 99.4 | 99.5 | 99.3 | 99.3 | 99.3 |
| 1965 | 99.3 | 99.4 | 99.6 | 99.6 | 100.0 | 100.0 | 100.4 | 100.2 | 100.0 | 100.5 | 100.3 | 100.7 |
| 1966 | 100.9 | 100.6 | 100.5 | 100.8 | 100.8 | 101.0 | 101.1 | 101.2 | 101.3 | 101.3 | 101.7 | 101.5 |
| 1967 | 101.4 | 101.3 | 100.9 | 100.9 | 100.4 | 100.7 | 101.1 | 101.3 | 101.2 | 101.2 | 101.2 | 101.6 |
| 1968 | 100.9 | 101.4 | 101.5 | 101.3 | 101.6 | 101.5 | 101.2 | 101.1 | 101.0 | 100.8 | 101.1 | 101.2 |
| 1969 | 101.5 | 101.7 | 101.5 | 101.4 | 101.0 | 101.5 | 101.5 | 101.8 | 101.6 | 101.8 | 101.7 | 101.9 |
| 1970 | 101.8 | 101.3 | 101.2 | 101.0 | 100.4 | 100.1 | 100.2 | 99.9 | 99.5 | 99.6 | 99.3 | 98.9 |
| 1971 | 99.1 | 98.8 | 98.4 | 98.4 | 98.4 | 98.0 | 98.3 | 98.5 | 98.6 | 98.7 | 98.9 | 98.8 |
| 1972 | 99.2 | 98.9 | 99.1 | 99.1 | 99.4 | 99.3 | 99.2 | 99.4 | 99.2 | 99.1 | 99.2 | 99.5 |
| 1973 | 99.5 | 100.1 | 100.3 | 100.3 | 100.1 | 100.8 | 100.6 | 100.4 | 101.0 | 101.3 | 101.1 | 101.1 |
| 1974 | 101.7 | 101.5 | 101.5 | 101.2 | 101.2 | 101.3 | 101.4 | 101.1 | 101.1 | 100.8 | 99.4 | 99.3 |
| 1975 | 98.5 | 97.6 | 97.3 | 97.3 | 97.6 | 97.7 |  |  |  |  |  |  |
|  |  |  | (97.30) | (97.34) | (97.58) | (97.65) |  |  |  |  |  |  |