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The Market for Professional and Technical Workers

THE LAST YEAR HAS SEEN A STRIKING reversal in conditions in the market for highly trained professional and technical workers. Throughout the decade of the 1960s, demand in this market was brisk, to say the least. Employment grew faster here than in any other basic occupational group; it increased by 53 percent from January 1960 to January 1970, far more than the 21 percent gain in total employment during the decade. Unemployment rates of professional and technical workers remained low throughout the decade. After May 1963, the unemployment rate remained below 2 percent, and in April 1968 it actually dropped below 1 percent. Suddenly in 1970, and even more dramatically in 1971, the situation changed. The growth in employment ceased almost entirely: On a seasonally adjusted basis, there were 11,064,000 professional and technical employees in January 1970 and 11,132,000 in December 1970. The unemployment rate jumped to 2.2 percent in March 1970 and reached 3.4 percent in March 1971, the highest level recorded since this series became available in 1958.

In this brief note I will discuss three coincident forces that have combined to bring about this situation: the general cyclical contraction in the economy, specific reductions in the demand for professional and technical labor, and a substantial increase in the supply of highly trained workers. After attempting to measure some of the separate effects of these forces, I will mention some of the ways by which the market will regain equilibrium.

Table 1 presents data on unemployment rates for professional and technical workers for 1969 to the present, and for 1960 and 1961, the only other recession period fully reported in the data. The table also gives the unemployment rate for the whole labor force, and the ratio of the rate for professional and technical workers to the overall rate. The behavior of this ratio shows the dramatic difference between the experience of professional and technical workers in the present recession and their experience in the recession of 1960–61. In the earlier recession, the ratio held roughly constant at its customary level of about 0.31. In the fourth quarter of 1961, it reached 0.35, but fell back immediately in the first quarter of 1962. In the present recession, the ratio began to rise during 1969, reached 0.44 in the first quarter of 1970, and shows signs of rising even higher this year. The ratio of the unemployment rates for the first quarter of 1971 was 0.54, close to double the ratio of two years earlier.

The stability of the ratio in the recession of 1960–61 suggests a crude method for separating the total increase in unemployment among pro-

Table 1. Selected Unemployment Rates, 1960–61 and 1969–71
Seasonally adjusted

Year and quarter	*Professional and technical workers*	*Total labor force*	*Ratio of professional and technical rate to overall rate*
1960:1	1.6	5.1	0.31
2	1.6	5.2	0.31
3	1.8	5.5	0.33
4	1.8	6.3	0.29
1961:1	2.1	6.8	0.31
2	2.1	7.0	0.30
3	1.9	6.8	0.28
4	2.2	6.2	0.35
1969:1	1.1	3.4	0.32
2	1.3	3.4	0.38
3	1.4	3.6	0.39
4	1.5	3.6	0.42
1970:1	1.8	4.1	0.44
2	1.9	4.8	0.40
3	2.0	5.2	0.38
4	2.5	5.9	0.42
1971:1	3.2	5.9	0.54

Sources: *Employment and Earnings*, Vol. 17 (February 1971), pp. 52, 169, 184; (April 1971), p. 46.

Table 2. Number of Unemployed Professional and Technical Workers, 1970–71

Thousands, seasonally adjusted

Year and quarter	*Total unemployed*	*Cyclical unemployment*[a]	*Excess unemployment*[b]
1970:1	206	143	63
2	212	169	43
3	230	185	45
4	282	209	73
1971:1	362	208	154

Sources: Unemployment rates in Table 1 and employment data in Table 3.

a. Number of professional and technical workers unemployed if rate for group were 0.31 of rate for all workers.

b. Calculated as total less cyclical unemployment.

fessional and technical workers into a component associated with the recession and a component caused by other changes in supply and demand. I have done this by calculating a hypothetical series for unemployment as the professional and technical labor force multiplied by 0.31 times the unemployment rate for the entire labor force. The results of this calculation appear in the second column of Table 2, and should be compared with the total level of unemployment shown in the first column. Thus, much of the increase in unemployment among professional and technical workers reflects the general slackening in the labor market. The "excess" unemployment, shown in the third column of the table, fluctuated above and below 50,000 during 1970, and then jumped to 154,000 at the beginning of 1971, almost 1.5 percent of the professional and technical labor force.

What forces specific to professional and technical occupations account for this excess of unemployment beyond the level that would be expected in a recession? In the first place, supply increased substantially during 1970. About 775,000 individuals finished higher education in the academic year 1969–70 and at least two-thirds of those entering the labor market sought jobs in the professional and technical category.[1] In addition, an undetermined number of individuals, especially women, reentered the professional and technical labor force during late 1969 and 1970, mainly as school teachers. Retirements in this group are not large, so the supply of professional and technical workers increased, as a rough guess, by 500,000 during 1970. Another procedure for estimating the increase in supply, yielding approximately the same result, is based on the assumption that the

1. *Manpower Report of the President, March 1970*, pp. 164, 166.

rate of growth of supply was the same in 1970 as in the period from 1962 to 1969—4.4 percent per year. The first column of Table 3 gives the hypothetical supply calculated on this assumption, and shows a rise of 498,000 between the first quarter of 1970 and the first quarter of 1971. By either estimate, the supply of professional and technical workers grew considerably during 1970. Only a comparable expansion in demand could have maintained equilibrium in the market. In past years, supply increased by similar amounts, but demand increased to match it. In 1970, this process came suddenly to an end. Demand did not shrink, but it did not expand either, and the market was thrown into sudden disequilibrium. The gap between the hypothetical supply and actual employment is a rough measure of the magnitude of the disequilibrium. This gap, shown in the third column of Table 3, reached almost 300,000 in the fourth quarter of 1970 and over 550,000 in the first quarter of 1971.

As I noted earlier, the failure of demand to grow during 1970 can be explained partly by the general recession and partly by special factors independent of the recession. There does not seem to be any satisfactory basis for distinguishing the two in the aggregate data, but a few remarks about certain occupational groups may be illuminating.

Of the occupational groups making up the professional and technical category, only medical and other health workers experienced a substantial

Table 3. Hypothetical Supply and Actual Employment of Professional and Technical Workers, 1970–71

Thousands, seasonally adjusted

Year and quarter	*Hypothetical supply*[a]	*Actual employment*	*Difference between hypothetical supply and actual employment*	*Difference between actual and 1969 average unemployment*[b]
1970:1	11,068	11,026	43	61
2	11,191	11,139	51	67
3	11,314	11,253	61	85
4	11,440	11,153	287	137
1971:1	11,566	11,009[c]	557	217

Sources: *Employment and Earnings*, Vol. 17 (February 1971), pp. 54, 148; (March 1971), p. 48. Differences are calculated from unrounded data.

a. Extrapolation of 1962–69 trend.

b. Number of unemployed, from Table 2, less 145,000.

c. Adjusted upward by 167,000 to account for revision in occupation classifications starting in January 1971.

increase in employment during 1970. From the fourth quarter of 1969 to the fourth quarter of 1970, employment in this group grew from 1,691,000 to 1,808,000.[2] These jobs are almost entirely insulated both from the business cycle and from the other forces that depressed demand for other professional and technical workers.

Employment of primary and secondary school teachers increased slightly between 1969 and 1970, but not by nearly as much as in previous years. The Bureau of Labor Statistics has prepared the following estimates, in thousands, of actual and future employment of teachers:[3]

Actual				*Projected*		
1963	*1967*	*1968*	*1969*	*1970*	*1973*	*1978*
1,806	2,097	2,178	2,225	2,245	2,286	2,334

The leveling off in demand in this case is caused by a fundamental demographic factor—a decrease in the rate of growth of the population of school age. Again, teaching is an occupation that is almost completely insulated from the decline in aggregate demand.

Among the remaining professional and technical workers, those who work directly for the federal government or indirectly for it through private contractors are also immune to the business cycle. Federal employment in all civilian occupations declined by 50,000 from January 1970 to January 1971. Employment in the Department of Defense decreased by 75,800 to just under 1 million, while employment in most other agencies increased slightly.[4] What fraction of the jobs eliminated were in the professional and technical category is not known. The following estimates of federal employment of scientists and engineers suggest that total federal employment of professional and technical workers has dropped considerably since 1969:[5]

June 1969	*June 1970*	*June 1971*
108,500	101,700	99,700

One of the best publicized sources of decline in the demand for professional

2. *Employment and Earnings*, Vol. 17 (November and December 1970, and January 1971), Table A-18.

3. *Manpower Report of the President, March 1970*, p. 171. These data are less inclusive, and probably more accurate, than those collected in the household survey and reported in *Employment and Earnings*.

4. *Employment and Earnings*, Vol. 17 (March 1971), p. 57. These data are prepared by the U.S. Civil Service Commission and are probably close to exact.

5. *Manpower Comments*, Vol. 8 (February 1971), p. 25.

and technical workers arises in cutbacks in federal military contracts. It does not seem possible to estimate the total effect of these cutbacks on professional and technical employment. In principle, even a large diversion of output from military to civilian purposes should have little effect on the demand for professional and technical workers, since they constitute only a slightly larger share of the total privately employed defense-related labor force (14.4 percent) than they do of the entire labor force (12.8 percent).[6] In the short run, however, this principle is unlikely to rule, since the professional and technical workers engaged in military work are among the most specialized of all workers. It seems clear that reductions in military expenditures and in the related expenditures of the National Aeronautics and Space Administration have contributed substantially to the leveling off of demand for professional and technical workers in 1970 and 1971. The potential magnitude of the contribution can be seen from the fact that 680,000 private workers in this category owed their jobs to military programs in fiscal year 1968.[7]

What forces will bring the market for professional and technical workers back into equilibrium? First, demand will grow again as the economy moves closer to full employment. Even if the unemployment rate in this category remains at half the overall rate rather than returning to its historical average of one-third, it will still fall to 2 percent if the overall rate reaches 4 percent. Second, supply will grow less rapidly because of the reduced attractiveness of professional and technical jobs, particularly in specialties where the disequilibrium is most acute. Some aeronautical engineers will take jobs selling mutual funds. Others may retire early. There is some hint of this process in the data of Table 3: The increase in unemployment over its level of 1969 was only about half the gap in demand in the fourth quarter of 1970 and the first quarter of 1971. In the longer run, the supply of newly trained specialists in many areas will shrink. Already, applications for admission to engineering schools have declined, and enrollments in the junior and senior years of engineering programs have declined slightly as well.[8] The combination of these equilibrating forces makes it unlikely that the unemployment rate for professional and technical workers will remain high for long.

6. Max A. Rutzick, "Skills and Location of Defense-Related Workers," *Monthly Labor Review*, Vol. 93 (February 1970), pp. 11–16.

7. *Ibid.*, p. 15.

8. *Manpower Comments*, Vol. 8 (March 1971), p. 8.