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Chapter Title: Changes in Relative Factor Prices

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service sector.[13] What we do not know is whether this was the result of sector differences in the pace and character of technological change or a response to changes in relative factor prices.

CHANGES IN RELATIVE FACTOR PRICES

Two major long-term changes in relative factor prices in the United States should be considered. One is the rise in the price of labor relative to the price of capital; the other is the rise in the price of unskilled labor relative to skilled labor. All industries would be expected to react to these changes by substituting the less expensive for the more expensive factor, but there is no guarantee that the ability to substitute (i.e., the elasticity of substitution) is the same in all industries. It may be that the goods industries found it easier to substitute capital for labor and skilled labor for unskilled labor. To the extent that this was true, the goods sector's share of total employment would tend to decline.

The question is further complicated by the fact that, even if the elasticities were the same in both sectors, and no technological change is assumed, there remains an a priori case for believing that changes in relative factor prices would alter employment shares. This is because the distribution of factors was not the same in the two sectors.

On average, it may be said that inputs of unskilled labor and physical capital were relatively more important in goods-producing industries and skilled labor was relatively more important in services. Of the three factors, the price of unskilled labor has probably risen the most, the price of physical capital the least. Given certain assumptions concerning the elasticities of substitution between factors in both sectors, it can be shown that the service sector's share of total employment would tend to rise as a result of the changes in relative factor prices and the uneven distribution of factors in the base period.[14]

Thus far I have considered only changes in relative factor prices that were experienced equally by both sectors. But what if factor prices did not change at the same rate in both sectors? What if the price of labor, and especially of unskilled labor, grew more rapidly in the goods sector than in the service sector? The result would probably be a greater substitution of physical capital and skilled labor in the former and, therefore, a shift of employment shares to the service sector.

Two important changes in the economy since 1929 suggest that this differential change in relative factor prices actually occurred. The first is the growth of unions in goods but not in service industries. Between 1929 and 1960, the degree of unionization in the goods sector rose from 11 per cent to 48 per cent. Change in the service sector was from 1 per cent to 7 per cent.[15]

The newly organized industrial unions in automobile production, steelmaking, coal mining, and so on worked to raise wages in those industries, and in particular tended to concentrate on raising wages for unskilled and semiskilled labor. The unorganized service industries did not face the same bargaining pattern.

A second development, working in the

[13] See Fuchs, *Productivity Trends*, pp. 23–30, 35, 36.

[14] It is assumed that the constant Allen partial elasticities of substitution are the same between each pair of factors and the same in both sectors. I am grateful to Richard Auster of the Massachusetts Institute of Technology for the mathematical proof of this theorem.

[15] Calculated from data in H. G. Lewis, *Unionism and Relative Wages in the United States* (Chicago: University of Chicago Press, 1963), p. 250.

same direction, was minimum-wage legislation. Large portions of the service sector (particularly retail trade and services) were exempt from this legislation (prior to 1961) and therefore did not experience the same statutory increases for the price of unskilled labor as did the goods industries. That the service sector has increased its share of unskilled employment more than its share of total employment is evident in data on demographic characteristics such as age, sex, color, and education.

WILL THE SHIFT TO SERVICES CONTINUE?

If we had firm answers to the many questions discussed in the preceding pages, we would be in a better position to forecast whether the shift of employment to services will continue. The analysis of the period since 1929 does not suggest any inevitable trend. Sector differences in income elasticity appear to have been relatively small and, if we exclude agriculture, possibly non-existent. The difference in trends in output per man has been substantial, but it is probably attributable only in part to technological change and in large part to differential changes in hours, quality of labor, and capital intensity—changes that can be explained by circumstances peculiar to the post-1929 period. Research on income elasticities of demand and elasticities of substitution of factors, as well as detailed studies of individual service industries, should help to provide a firmer base for predicting the future. My present estimate, which is only an informed guess, is that the shift will continue. I suspect that some of our "basic" manufacturing industries will begin to resemble agriculture—i.e., they will experience rapid gains in output per man while facing demand curves that are relatively inelastic with respect to both income and price. New additions to the labor force may be absorbed, in part, by employment in new manufacturing industries and in construction, but most of the growth will probably require increased employment in services, or result in unemployment.

IMPLICATIONS FOR THE ECONOMY

The shift from primary to secondary production has had profound consequences for every industrial nation; in most the adjustment process is still going on. Similarly, the shift to the service sector probably carries with it significant implications for our economy.

To be sure, such an attempt to look into the future is subject to important qualifications. A shift in the relative importance of different industries is only one of many changes that are occurring simultaneously in the economy, and these other changes may tend to offset the effects of interindustry shifts. Also, these shifts themselves may set in motion changes with implications different from those discussed here. Nevertheless, given the rapid growth of the service industries, it is useful to consider differences between them and the rest of the economy with respect to labor, industrial organization, the demand for capital goods, and cyclical fluctuations.

LABOR

Several important sector differences in labor force characteristics are summarized in Table 8. Probably the most significant difference is that many occupations in the service sector do not make special demands for physical strength. This means that women can compete on more nearly equal terms with men; we find women holding down almost one-half of all service jobs compared with only one-fifth of those in the goods sec-