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income of manufacturing industries, which was higher for the recent period than for any of the earlier periods, when current dollars were the standard of value, becomes the lowest of the figures compared, when correction is made for changing monetary values.

Recent advances in wage disbursements and in the rewards of labor remain substantially above similar gains during earlier periods of recovery, after full account is taken of changing living costs. The total purchasing power of manufacturing labor increased 46 per cent between the low point of early 1933 and the beginning of 1935. The nearest approach to this figure, during periods marked by equal degree of recovery, came in the 1921-22 recovery, when payrolls, corrected for changes in the cost of living, advanced 27 per cent. Comparison of the entries for the last two periods shows that the major part of the recent gain of 46 per cent came after mid-summer, 1933. Reference to the measurements relating to average real hourly wages shows that the active factor in this gain was provided by a sharp increase in real hourly rates of pay (i.e. money rates corrected for living costs). The rise of 19 per cent in these rates, from 1933 to 1935, stands in notable contrast to the narrower movements of earlier revivals.

If we may measure changes in the purchasing power of the manufacturer's dollar with reference to changes in the general level of wholesale prices, and deflate total payrolls accordingly, we have the corrected wage disbursement figures given after item (9b) of Table 6. In dollars of constant purchasing power at wholesale the wage bill of manufacturing industries shows an advance of 26 per cent over the period of recovery in 1933-35. This is distinctly higher than the advances during earlier revivals marked by roughly equal increases in the volume of manufacturing production. The explanation is found in the measurements of changing labor costs, per unit of product. In terms of the same constant dollars, these costs dropped 8 per cent from 1933 to 1935, as compared with drops of from 12 to 25 per cent in earlier recoveries.

Perhaps the most significant comparisons to be made, among the measurements in Tables 5 and 6, are those relating to the changes from February-March, 1933, to May-June, 1933, and from February-March, 1933, to December, 1934-January, 1935. The actual degrees of recovery were nearly the same; the bases from which changes are measured are identical. It is reasonable to assume that the differences between the two sets of measure-

1935, is to be interpreted with reference to the base from which the change is measured. At the low point of early 1933 manufactured goods enjoyed a much greater relative advantage than in any of the three preceding depressions. Reduction of this advantage was the more imperative, therefore, with reference to the conditions of general recovery.

ments are due to new factors introduced into the operations of manufacturing industries after June, 1933. The most important of these new factors were those connected with the industrial codes.

IV. SUMMARY

We may accept the figures presented above as generally representative of the currents of change that have been running in recent months and in earlier periods of business revival, although we recognize that in detail they would be subject to correction were data relating to all manufacturing industries available. Certain general conclusions are suggested by the findings of fact.

The advance of the pre-code period, from February-March, 1933, to June-July, 1933, definitely followed the pattern of the earlier periods of revival. Primary emphasis was on production as a means of expanding income, profits and the returns of labor. Production advanced more rapidly than selling prices. Production advanced more rapidly than the number of persons employed, and productivity per worker increased. Production advanced more rapidly than number of man-hours worked, and output per man-hour increased. Production advanced more rapidly than wage disbursements, and labor cost per unit of product declined. Expanding production was a major factor in advancing gross income.

With respect to the purchasing power of labor, expanding production played a dominant part. Labor costs per unit of output declined, with rising volume augmenting the total wage bill. Time rates for labor held practically constant, during revival; increasing man-hours of employment operated as the active factor in the expansion of aggregate returns. Total employment (man-hours) rose more rapidly than did the number of persons employed; hours of employment per person increased.

Rapidly increasing production and more slowly rising prices contributed to a sharp advance in gross income. This meant, although present records do not bear on this point, immediate increases in profits, in the aggregate.

These were the conditions accompanying a revival of the traditional type. There is, of course, no reason to accept the pattern of earlier revivals as a criterion to which recovery from the depression of 1931-33 must necessarily conform. This was a graver depression than those we had known before; it differed in character as well as in degree from similar periods of economic stagnation in the past. Moreover, the periods of activity that were launched by these earlier revivals were marked by important economic as well as social defects. There is nothing sacred about the standard defined by these precedents. Yet, in default of other standards, we must get from them such information as we may concerning the operating conditions of this little-understood industrial machine of ours.

The recovery of 1933-35 is differentiated from earlier revivals by the reversal of the traditional pattern of revival that may be dated, it appears, from the general adoption of industrial codes that began in mid-summer, 1933. Of course, it is not fair to conclude that the codes alone accounted for all the reversals we have noted. Many circumstances affected the economic changes of these disturbed months. But it is a just assumption that the new industrial environment created by the codes had an immediate effect upon the internal operating conditions defined by the various ratios presented in earlier sections.

The outstanding feature of the code period lies in the apparent reduction of emphasis on production and industrial productivity as a means of swelling gross income and increasing the aggregate return of labor. Rising prices and somewhat reduced output marked the code period. As regards the productivity of manufacturing industries, the preceding advance (as measured in output per man-hour) appears to have been checked, although no significant decline occurred during the period of operation under the codes. Too much weight should not be placed upon this development, for the factors involved are complex, and the reasons for changes in productivity are seldom clear. The sharp preceding increase in productivity per man-hour (20 per cent in four months) probably represented a full realization of the potential advantages existing at the low point of the depression. A subsequent check does not provide definite evidence of technical or organizational weakness, or of human inefficiency. It is fair to conclude, however, that the new conditions existing after mid-summer, 1933 did not provide a stimulus to enhanced industrial efficiency.

An increase in the aggregate purchasing power of labor was one of the objectives of the recovery program, and such an increase has been very definitely won. Over a period of some 22 months, while the physical volume of manufacturing production was increasing 37 per cent, aggregate wage disbursements by manufacturing industries increased 65 per cent.¹³ Equal production increases during the three preceding revivals had brought advances of from 14 to 24 per cent in total wage disbursements. What is here notable is not the degree of increase, however. The fact that wage payments had dropped to excessively low levels in the winter of 1932-33 would lead one to expect a sharper relative advance, with recovery. The distinctive features of the recent rise are found in its relations to other movements of the recovery period. It was an advance accompanied by higher costs, per unit of time and per unit

¹³ These figures relate to changes between February-March, 1933, and December, 1934-January, 1935. The percentages of increase in production and wage disbursements become 49 and 72, respectively, if the records are carried to January-February, 1935. Since the present figures are given for comparison with movements in earlier revivals, the shorter period is covered.

of output, for the services of manufacturing labor, and herein it departed most significantly from the traditional pattern of revival.

Adjustment of these various measurements to take account of changes in the level of prices and in living costs alters the general picture somewhat. The rise in selling prices of manufactured goods in the recent recovery is reduced by such adjustment. The increase in the aggregate purchasing power of manufacturing labor is less pronounced than the increase in wages in terms of current dollars (the actual increase in purchasing power amounted to 46 per cent, however). So, also, the measurement of the changes occurring during the recovery of 1933-35 against a pre-recession standard changes the perspective, and reduces the apparent magnitude of some of the recent changes.

But the characteristic features of the recovery of 1933-35 are clearly discernible, no matter what the standard of reference may be. An apparent check to the advance in industrial productivity, after mid-summer, 1933, a reduction of working hours and an exceptionally heavy use of men to maintain a given volume of physical output, a relatively sharp advance in the aggregate purchasing power of labor and notable advances in labor costs per unit of time and per unit of product are distinctive of the recent recovery.

High labor costs were, of course, a necessary accompaniment of a rapid increase in the time rate of wage payment, unaccompanied by an equal gain in productivity, and of a rise in total wage disbursements far exceeding the increase in physical volume of production. The price of an expansion in purchasing power, so achieved, was the exceptional rise in costs we have noted.

Why did this notable rise in hourly wage rates, in aggregate wage payments, and in labor costs per unit of product not lead to a much sharper rise in the selling prices of manufactured goods than that actually recorded? The prices of manufactured goods rose less rapidly than the general price level during the recovery of 1933-35, a fact apparently inconsistent with the declining productivity and advancing costs we have noted.¹⁴ The answer, I think, is that

¹⁴ If we take account of the relative movements of the prices of raw and processed goods over the entire period extending from February, 1933, to the end of 1934, definite reductions of the disparities developing during the recession are to be observed (see *Bulletin 53*, National Bureau of Economic Research, December 22, 1934). Yet we mis-read the changes of this period if we fail to note the actual course and timing of these readjustments.

Correction of the disparities existing in February, 1933, called for a rise in raw material prices, relatively to the prices of manufactured goods. Between February-March, 1933, and June-July, 1933, raw materials rose 22.3 per cent in price, manufactured goods 9.0 per cent. This was the pre-code period. During the ten succeeding months from June-July, 1933, to April-May, 1934, the prices of raw materials rose 8.5 per cent, the prices of manufactured goods 10.0 per cent. The earlier ameliorative move-

these advancing costs impeded a downward adjustment of the real prices of manufactured goods, an adjustment imperatively necessary if the foundations of a lasting recovery were to be laid.* During the 43 months of recession from July, 1929, to February, 1933, the prices of raw materials fell 49 per cent; the prices of manufactured goods fell 31 per cent. The gain in the real value, that is in the average per-unit purchasing power, of manufactured goods during this period was 11 per cent. In default of a permanent shift in inter-group relations, correction of this excessive over-valuation of manufactured goods was essential to the restoration of trade in anything approaching normal volume. Some degree of correction was effected, during the period of recovery we have reviewed, but a disparity still existed in the early months of 1935. It was this differential advantage existing at the low point of recession,¹⁸ an advantage that became substantial with an expanding volume of production, that permitted the payment of higher labor costs, and even made it possible for profits to expand, without an exceptional rise in the selling prices of manufactured goods. But the persistence of the margin that permitted higher labor costs to be paid and profits to be reaped, even though volume of output remained low by

ments were definitely reversed, during this period of operation under the codes. A new correctional movement took place during the summer of 1934, a movement clearly attributable to the influence of the drought on the prices of farm products. From April-May to August-September, 1934, the prices of raw materials rose 9.6 per cent, the prices of manufactured goods 2.1 per cent. Thereafter, to the end of 1934, there was no net change in the prices of these groups of commodities.

There was, thus, definite improvement in the relative position of raw materials during the period prior to code enforcement, and during the summer drought in 1934. When the movements of these two periods are removed, we find price changes working against the downward readjustment of the real per-unit value of manufactured goods.

***DIRECTOR'S COMMENT:**

Other and equally important causes of the failure of these real prices to fall were: the power to sustain prices and restrict output exerted by industry through N.R.A. codes and non-legal monopolistic devices; the relatively large proportion of overhead in manufacturing costs in heavily mechanized industries; the accounting habits which tend to recover all existing overhead even on small volume, thus increasing unit overhead costs; the resistance that large industries are able to offer to capital reorganization or bankruptcy. It cannot be assumed that lower prices would not have been compatible with the existing wage rates if less efficient competitors had been eliminated, if prices had been forced down either by competition or regulation, and larger volume of production had resulted.

—GEORGE SOULE

¹⁸The potential advantage resulting from price relations was rendered much greater by a considerable increase in output per man-hour during the 43 months of recession.

normal standards, retarded full expansion of sales and of output and the restoration of employment in customary volume. And in so doing it worked to prevent the restoration of a normal volume of wage disbursements.

In following the notable increases in wage disbursements and in labor costs during the recovery of 1933-35 we should not overlook the severity of the preceding declines. If labor costs be measured in the dollars the manufacturer receives for his products (i.e. if labor costs be deflated by an index of the selling prices, at wholesale, of manufactured goods) we find that at the beginning of 1935 these costs stood about where they did in June, 1929. If labor costs in manufacturing industries were high in 1935, then, they were high to the extent that the prices of manufactured goods as a class were high. In respect of the relation of labor cost to the selling prices of manufactured goods, the sharp advance of the period of recovery had done no more than correct for the severe recession that preceded. For labor costs per unit of product had fallen 29 per cent, from June-July, 1929, to February-March, 1933, while the selling prices of manufactured goods had fallen 31 per cent. This means that, with only a minor difference, the aggregate wage bill showed a net decline equal to that occurring in the gross income of manufacturing industries. Wage liquidation paralleled the general drop in gross income, during these four years of recession. In this respect, the recession of 1929-33 stands alone, among recent cyclical declines. For, traditionally, the decline in wage disbursements lags behind the drop in the gross income of manufacturing industries, and labor finds itself, at the bottom of the depression, getting a larger share of the aggregate receipts. This was not true of the 1933 situation.¹⁹

Of course, the difference between time rates of pay and labor costs per unit of product is to be distinguished, in this analysis. If time rates of pay remain constant, when industrial productivity is increasing, this means that labor as a producer is getting none of the rewards of higher productivity. (As a consumer, of course, manufacturing labor would gain, if the higher productivity were reflected in lower selling prices.) If labor costs per unit of goods produced remain constant, when industrial productivity is in-

¹⁹The comprehensive biennial records available in Census compilations throw light on these changes, during the 1929-33 recession. In 1929 total wage disbursements constituted 16.5 per cent of the gross income of manufacturing industries. By 1931 this percentage had increased to 17.4. This change is in accord with past experience. By 1933, however, the percentage had dropped again to 16.8. Liquidation of wages lagged behind the general process of liquidation during the first two years of recession, but thereafter the reduction of wages was speeded up. By 1933 wage payments constituted only a slightly larger fractional part of the gross income of manufacturing industries than in 1929.

creasing, this means that manufacturing labor, as a producer, is getting rewards of higher productivity in the form of higher pay. If the real selling prices of manufactured goods fail to fall, at such a time, it means that the benefits of the increased productivity are not being passed on to consumers generally. (Agents of production other than labor are almost certain, of course, to gain, also.)

If we compare early 1935 with June-July, 1929, we find a notable increase in productivity (probably exceeding 20 per cent per man-hour), practically constant real labor costs per unit of product, substantially higher real rates of pay, per hour of work done, and an actual advance in the real prices at which manufactured goods exchange for other goods. In place of the reduction of real production costs and real selling prices that was to be expected in manufacturing industries, in view of the substantial increase in industrial productivity that had occurred between June, 1929, and February, 1935, those costs and prices had advanced. At a time when the strongest considerations relating to general recovery called for lower selling prices, these prices were maintained at levels above those prevailing for commodities in general.

There is some analogy between the situation prevailing in manufacturing industries from 1933 to 1935 and that which prevailed from 1922 to 1929 (see *Economic Tendencies in the United States*, National Bureau of Economic Research, 1932, Ch. VIII). From 1922 to 1929 profits and overhead charges were maintained at high levels, and the selling prices of manufactured goods failed to decline, to a degree commensurate with the increase in industrial productivity and the fall in labor costs that occurred in that period. This situation tended to reduce marketings and so contributed to the unstable situation existing in 1929. The rise in time rates of pay and in total wage payments in

1933-35, and the failure of overhead and fabrication costs to reflect the great gain in productivity that had occurred since 1929, helped to perpetuate excessively high prices of manufactured goods. (The fabrication costs which thus remained high were not restricted to labor costs. The fact that labor costs did no more than parallel changes in selling prices, when material costs were relatively low indicates that other fabrication charges, such as overhead costs, remained on the same high level as labor costs.) The advance in the prices of these goods, at a time when such goods were already over-valued, retarded a needed expansion in the volume of sales. During the decade of the 'twenties a high manufacturing differential (profits are here included with the differential) was a factor in preventing the *maintenance* of a large volume of production and sales. From 1933 to 1935 a high manufacturing differential was a factor in preventing the *restoration* of a large volume of production and sales.

We are far from knowing all the conditions essential to the steady and efficient operation of a modern industrial economy. But experience during the last ten years seems to justify one general conclusion. The immediate passing on to consumers of a major part of the benefit of increasing industrial productivity, in the form of lower prices, contributes directly to the maintenance of industrial operations on a high level, and to the raising of the standard of living of the people at large. Action designed to procure for special groups the advantages of increasing industrial productivity, or action tending to decrease industrial productivity and advance costs, runs the grave danger of defeating its own purpose, through setting barriers to the maintenance (or the restoration) of the volume of production and employment that is essential to the general welfare.

APPENDIX A

NOTE ON SOURCES OF DATA AND CONSTRUCTION OF INDEXES

Production: Index numbers are constructed by the Federal Reserve Board from 55 individual series of data representing the production of about 34 industries and estimated to represent, directly or indirectly, about 80 per cent of the total industrial production of the United States. The figures are reduced to a daily average output and are presented to show the actual production. No correction for seasonal movements has been made in the index numbers here employed. The monthly average for 1923-25 is the base.

Number employed and payrolls: Index numbers are constructed by the United States Bureau of Labor Statistics. The basic data are supplied by representative establishments in 90 important manufacturing industries of the country. For November, 1934, reports were received from over 25,000 establishments employing more than 3,550,000 workers, whose weekly earnings were about 70 million dollars during the pay period ending nearest the 15th of the month. The employment reports received cover more than

50 per cent of the total wage-earners in all manufacturing industries of the country. The three-year average, 1923-25, equals 100.

Average hours worked per week: The index numbers are constructed from data compiled by the United States Bureau of Labor Statistics. The reports come from a smaller number of establishments than are covered in the monthly survey of manufacturing industries. Not all reporting establishments furnish man-hour information. The figures are presented for only those manufacturing industries (78 in number) for which available information covers at least 20 per cent of all the employees in the industry.

Prices: Index numbers are computed by the National Bureau of Economic Research from wholesale prices compiled by the United States Bureau of Labor Statistics. The weighted index for manufactured goods includes 536 price series. The average for the year 1926 is used as base. For the three earlier periods, an average of the index numbers of the wholesale prices of semi-manufac-