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## Cost Accounting in Relation to Business Cycles

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COST ACCOUNTANTS**

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**Official Publications**

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**Vol. IV.      July 16, 1923      No. 21**

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**Cost Accounting in Rela-  
tion to Business Cycles**

**BUSH TERMINAL BUILDING  
130 WEST 42nd STREET, NEW YORK**

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Vol. IV, No. 21

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Cost Accounting in Relation to Business Cycles

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BUSH TERMINAL BUILDING  
130 WEST 42nd STREET, NEW YORK CITY

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# National Association of Cost Accountants

## **COST ACCOUNTING IN RELATION TO BUSINESS CYCLES\***

W. S. Jevons, an eminent English economist who lived from 1835 to 1882, is probably best known to the present generation, in this country at least, as the propounder of the theory of sun spots. Jevons' general reasoning tended strongly to bring economics into relation with physical science, and he advanced the theory that there is a connection between commercial crises and sun spots. The reasoning was somewhat involved and had to do with the diminution of the heat from the sun and its effect on crops. In short, given sun spots of sufficient size, Jevons contended that panics are bound to ensue.

### **PANICS IN THE UNITED STATES**

Looking back over the history of the United States for the past one hundred years, there are a number of crises which stand out. They are usually referred to as panics, and while it does not seem necessary to differentiate between panics and crises, if, indeed, there is any substantial difference, the outstanding periods of depression began, respectively, in 1837, 1873, 1893, 1907, 1921. They are of some interest in examining the question of business cycles, because, with one exception, they have well defined points in common, and it is not unlikely, in the case of the exception, that sufficient investigation would reveal the presence of causes which are common to the other instances. Some of the panics synchronize with the occurrence of sun spots and crop failures; others show no relation to these phenomena.

#### **PANIC OF 1837**

The panic of 1837, as it is usually called, followed a marked period of territorial and business expansion, with excessive extension of credit and speculation in public lands. The panic was precipitated by the suspension of specie payments, resulting in great financial disturbance, and was accompanied by crop failures. There is no evidence available apparently to show that sun spots appeared at that time.

#### **PANIC OF 1873**

In 1873, due to over-expansion in railway construction, increase in the demand for iron, over-expansion in the iron industry, industrial expansion generally, inflation of prices, came another

\*Paper read before the New York Chapter of the N. A. C. A.

so-called panic. This depression is usually attributed to the fact that railroad development and construction, particularly through the west, was too far ahead of the transportation needs of the country, and as a result the roads with new extensions were unable to earn sufficient amounts to meet the interest on the investment. There were no crop failures. There were no sun spots, but the depression was deep and far-reaching.

#### PANIC OF 1893

Just twenty years later another panic occurred which lacked, generally speaking, the ear-marks of its predecessors, with respect to over-expansion and speculation. The panic of 1893 is traceable more clearly to lack of confidence in the ability or intention of the Federal government to redeem government obligations in gold and maintain a parity between gold and silver. In this year there were both sun spots and crop failures.

#### PANIC OF 1907

The next panic occurred in 1907, and may be charged principally to a group of bankers who were pyramiding bank stocks. At that time trust companies were not members of the Clearing House, and were obliged to clear through banks which belonged to the Clearing House Association. The immediate cause of the panic was the refusal of one of the largest New York City banks to accept and put through the clearings of a prominent trust company. A financial crash ensued, and while business throughout the country generally was in a satisfactory condition, money became exceedingly tight, and it was necessary to resort to Clearing House exchanges and certificates, in order to keep the wheels of business moving. This depression was known as a money panic, and so far as may be learned there were no sun spots attending or preceding it.

#### DEPRESSION OF 1921

The depression of 1921 is so recent as to have come within the practical experience of everyone in the present generation, but a word or two regarding it may not be out of order. High prices, brought about by the demands of war and for a long time a demand in excess of supply, gave rise to over-expansion in plant facilities and over-production generally after the close of the war. The things which sent prices tumbling were a decrease in demand which had been anticipated as a natural outcome of the readjustment process expected of Europe in its rehabilitation, and a buyers' strike in this country in protest against the excessive prices which had developed out of the war period. During this year sun spots appeared which were the largest on record, but at the same time there were bumper crops. It will be noted that this depression occurred just fourteen years after the panic of 1907, which is in accordance with some theories as to recurrence of depressions. It will also be noted that the panic of 1893 was just twenty years after

the panic of 1873, which is also in accordance with another theory regarding recurrence.

#### DEPRESSION FOLLOWS OVER-EXPANSION

The history just recited seems to prove nothing with respect to regularity or synchronism. In two instances during the past hundred years, have depressions occurred in accordance with theoretical lapses. In two instances have depressions been accompanied by crop failures. In two cases have sun spots appeared in the same year with panics, but only on one occasion have sun spots and crop failures coincided. Further, in the year 1921, when the depression was unprecedented in depth and sun spots were the largest in years, the crops were bountiful. There is, however, one feature which is applicable to all cases cited, except possibly that of 1893, namely, that depressions followed over-expansion of one kind or another. First came speculation in public lands; next, over-development of railway construction; then, speculation in bank stocks, and, last, over-expansion of investment in war facilities and munitions, and the other necessities and luxuries which follow the trail of war conditions.

Imagination would indeed be needed to derive any fundamental principles with regard to panics from the past experience of this country during the last hundred years. Almost anyone with intelligence would hesitate to predict the recurrence of panics with regularity. It does not require an especially keen sense to enjoy the humor of the sun spots suggestion. But out of past experience has emerged the theory, which appears to be sound, that as night follows day, and there is a succession of dawn, daylight, twilight, and darkness, so business conditions follow the sequence of depression, revival, elevation, and decline. Practical experience of the past five years needs no supplementary argument to prove the existence of a business cycle. Since 1918 we have seen prosperity followed by a decline; a severe depression recently giving place to a period of revival.

#### UNEMPLOYMENT CONFERENCE

The President's Conference on unemployment, which met in Washington in September, 1921, perhaps had no intention of considering or recognizing any such thing as a business cycle. It was rather a body convened to consider emergency measures looking toward the relief of some four or five millions of persons unemployed in the country at that time. Out of this convention, however, came a proposal to consider the question of attempting to stabilize business and industry, so as to prevent the wide fluctuations which make up the business cycle. After an exhaustive investigation a committee appointed by Mr. Herbert Hoover has made a comprehensive report, with recommendations, recently published under the title "Business Cycles and Unemployment."<sup>1</sup> In the foreword Mr. Hoover makes the following statement:

<sup>1</sup> See fourth reference in Bibliography on page 10.

“Broadly, the business cycle is a constant recurrence of irregularly separated booms and slumps. The general conclusion of the Committee is that as the slumps are in the main due to the wastes, extravagance, speculation, inflation, over-expansion, and inefficiency in production developed during the booms, the strategic point of attack, therefore, is the reduction of these evils, mainly through the provision for such current economic information as will show the signs of danger, and its more general understanding and use by producers, distributors, and banks, inducing more constructive and safer policies.”

#### STEPS IN THE BUSINESS CYCLE

Beginning with a period of depression, plants are idle, inventories are large; demand for goods is lacking; collections are slow; prices are high. There is labor unemployment; wages are low; fixed charges are going on; losses occur, and failures increase. Incident to the revival, prices first fall; demand increases; goods begin to move; plants begin to operate; the demand for labor increases; wages increase; collections improve; fixed charges are felt less; losses decrease and tend to be transformed into profits; failures are fewer. In the period of prosperity there is a demand for goods, steady and increasing; plants operate at capacity; plant enlargements are numerous; imagination, vision, enthusiasm, ambition, or what not, stimulate expansion; borrowings from banks and others increase; additional capital is sought, because prices tending higher and higher require more capital to swing the same volume of business; fixed charges tend to increase; wages increase, but lag behind the general price level; profits are the rule instead of the exception. The prosperity goes to the head. Business men are carried away with their success. They see visions of untold wealth and the power which usually goes with such wealth. Ambition leads to over-production; to the accumulation of excessive inventories at high cost; to the development of a price level which is out of proper relation. Then comes less demand for goods; bank credit contracts, and the decline which comes on calls for the liquidation of inventories; reduction of wages, with the accompanying dissatisfaction; the laying off of laborers; restricted operations; shattering of confidence; a feeling of uncertainty, and business is back again in the valley.

#### RELATION OF COST ACCOUNTING TO BUSINESS CYCLES

It may seem a far cry from cost accounting to the business cycle, although costs are admittedly a vital element in successful business operations. But if costs affect business operations, costs are also affected by commodity prices, wages, establishment expenses, and fixed charges. It therefore seems not wholly impractical that the cost accountant in serving the business man as an agency of information and advice should give consideration to the trends of business activity with respect to their probable effect on the factors of cost. As the periods of the cycle follow in order, commodity



prices in a period of depression, starting high, first decline, only to mount again with increased prosperity, and hold until they are broken, when the decline begins. Wages, starting low, increase until the period of decline is reached. Establishment (overhead) expenses, beginning high, decline, then increase, and hold until they are carried down along with the general price level. Fixed charges, heavy in the period of depression, become decreasingly heavy in the period of prosperity, but are again felt with more severity when the downward trend begins. These observations, it must be remembered, have to do with long swings, and relate to the cycle without any attempt to fix the extent of the respective periods. They apply to general movements making up the cycle, although they may be punctuated frequently by sharp fluctuations out of line with the general tendency.

#### AN INDUSTRIAL EXPERIENCE

The manufacturer of a chemical preparation distributed in large volumes and in which preparation arsenic is the chief constituent, makes prices in the fall and sells his product for delivery beginning during the latter part of February. Arsenic in the condition in which it is used in this product was selling during the summer of 1922 around 7½ cents. The price rose between August, 1922, and March, 1923, from 7½ cents to between 15 and 16 cents. Not all of the output which the plant was capable of producing had been sold by the first of December, when it was apparent that the price of arsenic was increasing rapidly, and that if the margin of profit computed on 7½ cent arsenic was to be maintained, it would be necessary to advance the selling price. Forward purchase contracts made provision for about one-half the capacity output for the season but there was no prospect of obtaining the remainder necessary to complete the quantity required by the production program at anything like the summer price of 1922. Looking forward to orders not yet booked at December 1, but with confidence that such orders would be booked and have to be filled largely from higher priced raw materials, the manufacturer advanced the price, effective December 1. This step was based on cost calculations which took into consideration the probable price of arsenic around February 1, 1923, shortly after which deliveries would begin on orders for the season, some of which would have to be filled from arsenic purchased at an increase of one hundred per cent. over the price at which some of the supply had been purchased.

#### SOME STEPS IN THE DEVELOPMENT OF COST ACCOUNTING

Surveying briefly the development of cost accounting in this country during the past twenty years, we find, after it had seeped into the consciousness of some progressive business men that a knowledge of costs is a necessity in intelligent business planning, unit costs which included material and labor. Then followed unit costs in which overhead was added on an estimated percentage; next, departmental costs from which unit costs were assembled,

and this required more or less accurate distribution of burden to departments. Afterwards came the theory of production centres and the establishment of rates for the application, usually of burden, but sometimes including labor, and in rare instances material also. Subsequently, the cost accounting world was more or less shocked by the suggestion of predetermined costs which were predicated on forward contracts for materials, labor bills of prices extending into the future, estimated overhead, and estimated production.

One who is constantly in a cost environment, one who reads cost literature, or one who keeps in touch with the rapidly increasing activity in the field of uniform cost systems, is likely to have the impression that cost accounting is pretty generally entrenched in the manufacturing establishments of the country. It is therefore somewhat startling to read a statement coming from a report of a joint congressional commission on agricultural inquiry, of which the Honorable Sydney Anderson was the chairman, to the effect that one of the bits of information gleaned by the commission from this work is that only nine per cent. of the country's manufacturers have cost systems.

In the face of this statement, it is perhaps strange that anyone should be talking about cost accounting in relation to business cycles, instead of exhorting manufacturers on the need of cost accounting. But I venture to suggest that it is a phase of the development in the cost field which may well engage the attention.

#### SOME USES OF COSTS

Consideration of costs must distinguish between those which are to be used for checking financial results and efficiency, and those which are to be used for formulating sales policies, and fixing sales prices where it is practical to base such prices on costs. Post-mortem costs, as some wit has said, are dead ones, but dead or alive, they suffice for determining the measurement of profits or losses and bring to light waste and inefficiency. Costs, however, which are required for purposes of considering sales prices are those which are forecasted, since sales prices are usually fixed and policies formulated with respect to the future. It is obviously as foolhardy to attempt the important matter of fixing selling prices without giving thought to what is likely to happen, even though the happenings may be without the control of the manufacturer, as it would be to ignore those factors which are within his control.

#### NEED OF FUNDAMENTAL STATISTICS

In the general conduct of business there is need for a greater study of fundamental statistics rather than so much adherence and dependence on comparative statistics. There are many illustrations, if they were needed, to show that the most successful business men are those who study not only their own particular organiza-

tion, but consider their problems in the light of general business conditions and activities, and the statistics which are related to the great divisions of industry and lines of production for the country as a whole. The genius, who is sometimes described as the country's second richest man, has been foresighted enough to see that if his organization is to continue making and selling more automobiles than any other concern in the world, he must needs give attention to acquiring related industries which control the sources of supply. Iron mines, coal mines, woodlands, steel plants, railroads, steamship lines, chemical plants, and one might facetiously add, tin plants, all come within the purview of any manufacturer who is looking forward to turning out large quantities of a highly standardized product.

#### BOTH ACTUAL AND FORECASTED COSTS IMPERATIVE

Traditional cost recording, notwithstanding the various expedients of estimate and approximation which are frequently necessary, does not need to be and should not be replaced. There is probably no one, save a few cranks, who would consider seriously trying to displace the recording of cost data in accordance with the actual happenings incident to operation with a lot of calculations based on theories or probabilities. But the cost data of fact do need to be supplemented for certain purposes, if cost work is to keep up with the trend of the times, with calculations which are projected into the future, call them budgeted costs, forecasted costs, or what you will. Intelligent planning for the future calls for a study of general business conditions, for a consideration of the trend of commodity prices, labor, overhead expense—all linked up with the production program based on probabilities indicated by the trend of general business. If cost data are to be a guide to policy making, there must be a full complement of data. The data are not complete if they do not consider the cycle.

#### MARKED IMPROVEMENT IN BUSINESS CONDITIONS

Knowing that business must inevitably follow the cycle, although there will always be forces impossible to control, and knowing what makes and breaks the period of prosperity, it is perhaps not too much to hope that there is a possibility of sustaining the period of prosperity, the characteristics of which are good prices and steady demand. There can be no doubt about the present signs of a period of prosperity. Like everything else, prosperity is somewhat relative. Comparisons, however, show marked improvement in profits now as compared with two years ago, and profits are as good an index as anything else of prosperity. A list of forty representative industrials develops the interesting fact that the net profits for the year 1922 were 131 per cent. greater than those for the year 1921. In the outstanding instance, the concern in question showed an increase of 360 per cent. when the net profits for the two years were compared. Twenty representative railroads do not give such an encouraging result, since the increase in net for

the list is only 17 per cent. The average, however, is brought down by three or four roads which suffered during the year 1922 from serious labor difficulties. On the whole the improvement is marked, and the country generally appears to be approaching, if indeed it has not already reached, a period of prosperity.

#### PLACE OF THE COST ACCOUNTANT IN BUSINESS FORECASTING

The point of this discussion is a plea for consideration by cost accountants of general business conditions, fundamental statistics, and the influences which affect the periods of the business cycle. While everyone may be willing to accept the theory of business cycles and recognize that they are comprised of certain periods, indefinite though the periods may be as to extent, the particular one which chiefly concerns everyone is that of prosperity. Given a period of prosperity, the factors which break it are prices which are too high, over-production, excessive inventories, at high cost, and a decrease in the demand for goods. Forecasted costs based on a study of future conditions would apparently, if offered sufficiently in advance of the prospective transpiring events, furnish data from which influences affecting future results might be directed. Stabilizing prices through manipulation predicted on forecasted costs has the appearance of more scientific business operation than sailing along, throwing care to the winds, or professing helplessness, to escape whatever condition the future may bring forth. It may sound like flying in the face of good business theory to suggest to the business man that he reduce his prices when forward calculations indicate that the marginal price is in sight. Sporadic effort may have little effect but the combined force of a herd has much to do with the direction in which the herd goes. Some day, and perhaps not more than a hundred years hence, this nation will probably develop a body of business men who will make a scientific study of the country's business as a whole and conduct their own business affairs accordingly. It does not seem too much to hope that the cost accountant may take his proper place in any such scheme of organization, and supply the business man with a good deal of the data which he needs for such purposes.

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