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**STRATEGIC FACTORS  
IN BUSINESS CYCLES**



PART ONE

THEORETICAL APPROACH

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*The Nature of the Study*

THE reader should be warned at the start that this study is not exclusively or mainly devoted to the current depression, but is a study of business cycles in general, as they have been experienced during the period for which fairly comprehensive and organized statistical records have been gathered. The special features of the present catastrophe are rather briefly dealt with in Part IV, and the trends of the post-War period leading up to it in Part III. By setting the crisis against the background of experience some well-founded idea may be gained of the extent to which it resembles other depressions, the extent to which its extraordinary severity and persistence are due to unique causes that may not reappear, and

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the extent to which they are due to changes in the economic system that introduce new elements with which we shall have to reckon in the future, and which may make future cycles more serious than those of the recent past. The peculiarly grave and threatening character of the present emergency needs no proof. As to how close it has brought us to a complete collapse of our economic system economists, like others, can only conjecture. When such questions can be definitely answered, it is always too late to make use of the answer.

The origin and purpose of this study have been explained in the introduction. The special objective assigned was the attempt to select, among the many factors involved in business cycles, a limited number which have especial strategic importance. The task is not primarily one of statistical description nor of statistical analysis in the usual sense. It is perhaps better described as an application of theoretical analysis to an unusually comprehensive array of concrete data. Thus, while the study deals with statistical materials, it makes no attempt to present a complete or voluminous statistical picture of the history of business cycles. Other studies of the latter character are under way; and it would be neither useful nor proper to attempt to duplicate or anticipate them.

In trying to pick out factors of special significance, the question arises on what basis significance is to be

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judged. It may be judged from the standpoint of an objective diagnosis seeking to learn what brings about the conditions we observe, and suffer from; or it may be judged with a more pragmatic eye to controlling these results. The two approaches are not wholly distinct, since results can often best be controlled indirectly, via their causes, and can never be controlled without taking these causes into the reckoning. But the ultimate purpose justifying such an investigation is to help toward doing something to improve conditions; and toward this end, causes we cannot control do not have the same grade of significance as those whose action we can modify. They still have to be reckoned with, but in a different and more limited fashion.

Let us say that variations of weather, acting on agriculture, cause changes in supplies of raw products; and that in our economic system these cause changes in prices and in demands for other products, and so play a part in the general business cycle. The weather itself we shall not, in the present state of our meteorological knowledge, attempt to control; but we may search the economic system for factors responsible for the economic disturbances that come about, changes in weather being taken for granted. And having found factors about which something can be done, we shall focus attention on them. The weather, if we could learn enough about it, might tell us how to time some of our safeguarding meas-

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ures; but not what measures to take. Thus we may fairly say that the weather has only a secondary grade of significance. The possibility of control, then, is one of the keys—perhaps not the only one—to the human significance of causes. For this reason it will be kept in mind throughout our study. On the other hand, details as to ways and means of control are not our present concern. They constitute the next step.

The special purpose this study may serve can be expressed in another way. Theoretical studies give us causes that are too few and too simple, such as over-production, under-consumption, over-saving, or failure to distribute to laborers their whole product or enough of the whole product of industry to enable them to buy the things they have produced. Inductive studies, on the other hand, reveal so many factors at work, so completely interrelated, that we are likely to come to the conclusion that everything is both cause and effect, and everything is the result of nearly everything else, or that all features of modern industrialism are jointly responsible for the business cycle. The attempt in the present study is to steer a course between these two extremes, including anything which a well-rounded survey of the facts can suggest, but selecting those factors which seem to have the greatest strategic importance, if any can be picked out. A factor may be said to have strategic importance if it has real power to control other factors, and

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to determine the general character of the result; and it has peculiar strategic importance if, in addition, we have power to control it; if it is not, like the weather, beyond the reach of anything we can now do.

The field of study will be construed somewhat broadly. The most clearly marked cycles are relatively short wave-like movements of general business, which in this country vary from two to five years in length, with an average length of about forty months. But it would be arbitrary to limit our study to these short cycles and still more arbitrary to focus attention on their usual course. Differences between successive short cycles are important, and may yield evidence of the existence of longer cycles, or at least of longer movements. And any movements are significant which manifest phenomena similar to those that make the problem of business cycles such a serious one. Lack of equilibrium, unemployment and inability to use all of our existing powers of production, or even a reasonably large proportion of them—these are all properly parts of our study, in whatever forms we find them.

The materials upon which this essay is based are, for the most part, those collected by the National Bureau of Economic Research, together with studies made by a special staff consisting of members of this Bureau and others, engaged in an investigation of the cycle ending with the current great depression,



STRATEGIC FACTORS IN BUSINESS CYCLES and working in collaboration with the Committee on Recent Economic Changes. These studies have been discussed in joint meetings of the special staff and the Committee. Among the materials of the National Bureau of Economic Research, the most extensive use has been made of a set of series especially prepared on a common pattern devised by Dr. Mitchell for the purpose of affording comparable pictures of cycles of different lengths. A brief description is here given of the essential features of the scheme on which these series were prepared. It is necessarily somewhat difficult and technical, but the reader is asked to be patient with it, since it is necessary to an understanding of the nature of the evidence underlying the main findings of this study.

More specifically, the object of these specially prepared series was to make possible a composite picture of the average cyclical pattern of each single series—pig iron production, car-loadings, etc.—in the face of two outstanding difficulties. The first arose from the very different lengths of the successive cycles of general business, and the second from the further fact that the single series have their own cycles which do not agree exactly with the cycles of general business, and are also of different lengths.<sup>1</sup>

<sup>1</sup> For a brief description of these specially prepared series see the article on "Business Cycles" by W. C. Mitchell in the *Encyclopedia of the Social Sciences*. A fuller development will appear in Dr. Mitchell's forthcoming second volume on *Business Cycles*, which will also be published by the National Bureau of Economic Research. It would be clearly in-

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The problem of differing lengths of different cycles is met by dividing each cycle up into the same number of 'stages'. One of three months represents the point at which the trough is reached and expansion begins, another of three months represents the point at which the peak is reached and recession begins, while each individual expansion and recession is arbitrarily divided into three equal parts, which will of course be longer in a cycle of four years than in one of two. Thus each cycle is divided into eight stages, or nine if we include the revival which marks the end of that cycle and the beginning of the next. This is done both for the cycles of general business and for the 'specific cycles' which appear in the particular series, and which do not have the same timing as the general business curve, though some of them follow it very closely.

The movements of each series—for example, pig iron production—are then tabulated in two ways. First, the average rates of pig iron production in the successive stages of the general business cycles are recorded (in terms of percentages of the average

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appropriate to publish these same tables and charts in the present essay, and this may serve to explain why the evidence on which this study rests is not presented in full. Short of this, the writer has endeavored to indicate the basis of his statements by describing the behavior of the series. And in order that such descriptions may be understood, the character of these special series must be explained. The reader who wishes fuller verification is referred to Dr. Mitchell's forthcoming book.

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value for the cycle) and second, a similar record is made of the rates of pig iron production in the successive stages of the cycles marked off by the high and low points of pig iron production itself, which may not come at exactly the same times as the high and low points of general business. The second table gives the 'specific cycles' of pig iron production itself, while the first table gives the behavior of pig iron production during the successive phases of the 'reference cycle' or cycle of general business. Finally, the successive cyclical curves, both reference and specific, are averaged into a composite picture of average behavior for a series of cycles.

As a matter of interest we reproduce Dr. Mitchell's table of standard reference dates for the United States.<sup>2</sup> The dates, based upon a study of business annals and the best statistical indicators of business activity available, purport to show the month and year of successive revivals and recessions in general business activity. As Dr. Mitchell says:

it cannot be claimed that the reference dates are more than fair approximations to the central points in a long succession of turns that occur in the economic activities of a nation.

. . . . Quite apart from doubts whether we have made the best choices of reference dates, we recog-

<sup>2</sup> *Recent Economic Changes*, II, 892 (National Bureau of Economic Research, 1929).

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### STANDARD REFERENCE DATES FOR BUSINESS CYCLES, UNITED STATES

		Expansion		Recession		Contraction		Duration in Months	
								Ex- pansion	Full Cycle
Revival	High	Low	Low	Low	Low	Low	Low	Low	Low
January	1855 to June	1857	July	1857 to December	1858	30	18	48	
January	1859 to October	1860	November	1860 to June	1861	22	8	30	
July	1861 to April	1865	May	1865 to December	1867	46	32	78	
January	1868 to June	1869	July	1869 to December	1870	18	18	36	
January	1871 to October	1873	November	1873 to March	1879	34	65	99	
April	1879 to March	1882	April	1882 to May	1885	36	38	74	
June	1885 to March	1887	April	1887 to April	1888	22	13	35	
May	1888 to July	1890	August	1890 to May	1891	27	10	37	
June	1891 to January	1893	February	1893 to June	1894	20	17	37	
July	1894 to December	1895	January	1896 to June	1897	18	18	36	
July	1897 to June	1899	July	1899 to December	1900	24	18	42	
January	1901 to September	1902	October	1902 to August	1904	21	23	44	
September	1904 to May	1907	June	1907 to June	1908	33	13	46	
July	1908 to January	1910	February	1910 to January	1912	19	24	43	
February	1912 to January	1913	February	1913 to December	1914	12	23	35	
January	1915 to August	1918	September	1918 to April	1919	44	8	52	
May	1919 to January	1920	February	1920 to September	1921	9	20	29	
October	1921 to May	1923	June	1923 to July	1924	20	14	34	
August	1924 to October	1926	November	1926 to December	1927	27	14	41	
January	1928 to June	1929				18			

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nize that recession and revival are changes in the condition of business which take much more than a month. They are not turning points, but turning periods. It is probable that on the average more than a year elapses from the time when the activities which respond most promptly to changes in business prospects turn upward or downward, to the time when the most sluggish activities respond to the changes which have already taken place in other parts of the economic system. To date one of these turns by a single month is therefore arbitrary. But we need some set of bench-marks in time by which to record the sequence in which the specific cycles of different business factors make their cyclical turns. The reference dates serve that purpose.

The specific cycles of pig iron production, for example, approximate so closely in respect of timing the cycles of general business that there is little difference in that respect between the two curves. But there are large discrepancies between the specific cycles of construction contracts or volume of stock exchange transactions and general business cycles. The former show large leads with peaks occurring, on the average, well ahead of the peaks of general business. And the fact that the peaks of the reference cycle curves for these series are considerably lower than the peaks of their own specific cycles registers

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the fact that their peaks occur at different stages of successive general business cycles. If there were a consistent and uniform lead, the amplitudes of the specific and reference cycles would be the same.

When such discrepancies appear, it is a signal to the student to turn from the composite pictures of average cycle patterns to a study of the behavior of the series cycle by cycle. Indeed, the writer has found it desirable to do this wherever it was a question of comparing the behavior of different factors which bear a vital relation to one another. For this purpose the writer has used the device of charting the behavior of one factor through a series of cycles, and below it the behavior of related factors through the same series of cycles. These charts themselves are not presented in this study, largely because the transition from one cycle to the next makes this type of chart confusing to the eye. The conclusions drawn from them are used, since they serve especially to show whether resemblances in the average cycle patterns of different series represent truly consistent behavior in which each single cycle exhibits the same resemblance. In what follows, attention is thus paid not merely to the average patterns but also to the variations from cycle to cycle.

### *Framework of a Theory*

It may be worth while at the start to outline in the most general terms the form which the results of

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this study are to take, leaving it to later sections to put material into this framework. First, we should understand that there are no causes that are aboriginal in the sense that they have not themselves causes; but there are some that may be treated as originating forces for our purpose. There are, on the other hand, the responses of the business system in the form of rising or falling prices, the reaction of profits to changes in volume of production and of volume of production to changes in profits, the ordering of increased capital equipment to satisfy an increasing demand, etc. Some theories of business cycles run mainly in terms of originating forces, others in terms of the responses of the business system. It appears, however, that cycles cannot be regarded as results of one or the other of these groups of forces exclusively; they are joint results of the two groups and of their interaction.

The 'originating forces' are taken to include such things as wars, the effect of the weather on crops, certain elements in the processes of change in consumers' wants and, with some qualifications, inventions and the discovery of new goods. Secular changes in price-levels would be included, and especially deflections or changes in the direction or rate of change; together with the causes which bring them about.

It is necessary, however, to avoid confusing changes in consumers' wants, of an 'originating'

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character, with changes in effective demand in the market, or the development of invention of processes or goods with the rate at which these are actually installed, applied or exploited in industry. Changes in effective demand are mainly the results of the fact that in prosperous times people have more income to spend on new goods and more confidence to expand purchases on credit, and so buy more. These conditions result in turn from changes in the rate of productive activity. They are thus, in the main, part of the system of business responses. In the same way the rate at which new capital is actually invested in installing new types of equipment to utilize new inventions, and the rate at which new goods are marketed, or even the times when they are placed on the market, are all the results of the prospects of business profits, which vary with the varying phases of the business cycle itself.

The originating forces underlying these factors do not appear directly and unmodified in the statistical record, but they are nevertheless important. If they were acting on an economic structure with radically different types of response from those of the present form of business organization with its pseudo-individualism and its partial freedom of enterprise and limited competition, they would presumably produce results bearing little resemblance to those we now witness.

Even steadily progressive changes may be sources



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of disturbance if the adjustments they make necessary are sluggish or encounter resistance, allowing pressures to accumulate until there is a more or less sudden giving way. It is possible that the great collapse of prices in the last three years is a case in point, representing the final breaking-down of resistances to the forces of post-War deflation, which may have been gathering strength progressively for seven or eight years previous to 1929. The resistances have taken various forms. There were measures for the valorization of specific commodities. Currencies were restored to a gold basis by the 'gold exchange' system, whereby multiple burdens were placed on the gold reserves of those countries whose exchanges were used as means of stabilization of the currencies of other countries. Systems of trade barriers and exchange restrictions have multiplied in a warfare of mutual defeat, ultimately ending in a general crippling of export markets for basic commodities entering into international trade.

Another possible case is the development of labor-saving machinery and processes. This has almost certainly made necessary larger adjustments than actually occurred in wages, in the length of the working day, in consumption and in the development of new goods. Such situations may give rise to recurrent disturbances of an equilibrium which was only apparent, and under cover of which tension had been increasing. This appears to have been happening,

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for example, throughout the period from 1922 to 1929. As another example, the great increase in durable goods used has, as we shall see, aggravated one of the most powerful elements of instability in our system, and may be responsible for a lasting change in the length and severity of business cycles.

The term 'originating' does not mean that the forces so described are necessarily of superior importance for the purposes of our study to the other group described as 'business responses'. Of the 'originating causes' some may be unavoidable, like the uncertainties of the weather, or even desirable in the sense that it would not be desirable to take the steps which would in practice be necessary in order to remove them, like the irregularities inseparable from invention. On the other hand, the factors concerned with the responses of the business system may be the factors we can change, and so utilize as working causes in the attempt to improve conditions.

Furthermore, it seems almost certain at the start that the factors which account for the effects of disturbances taking the particular forms they do, and producing cycles with their fairly rhythmic swings, will be factors concerned with the responses of the business system. We have apparently had cycles just as long as we have had this type of business system.<sup>3</sup>

<sup>3</sup> See Wesley C. Mitchell, *Business Cycles: The Problem and Its Setting* (National Bureau of Economic Research, 1927) Chapter II.

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Moreover, some of the originating causes, such as wars and crops, clearly do not follow the same rhythm as the shorter business cycles; as to the others, there is no sufficient reason for thinking that they do, and every reason for thinking that they do not. Some new inventions mature very quickly, others slowly, while major developments in the way of new wants may require from a decade to a generation to reach their full potentialities. If these forces produce the familiar business cycles, or play a part in producing them, it is because they are acting on a particular kind of business system, which reacts to them in particular ways. As already remarked, on a different system they would have different effects. Our examination of the detailed statistical materials affords no reason for modifying this conclusion.

As revealed by these studies, the responses of the business system seem to form a closely-knit sequence of cause and effect, in which a state of over-contraction appears to set in motion forces leading to over-expansion, and this in turn to over-contraction once more. In these swings, movements tend to be self-reinforcing rather than self-limiting, until they have gone so far that a marked reversal becomes inevitable. This is so true that it has proved possible to construct theories of the self-generation of business cycles by the business machinery itself, which have more verisimilitude and have gained wider acceptance than those theories which interpret the timing

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of the cycle as wholly governed by outside originating causes, such as weather. And in any case these latter theories, granting their truth, cannot explain the particular characteristics of the cycle without reference to the system of business responses. Sunspots might affect human affairs in a variety of ways, but only in collaboration with a particular business system could they conceivably bring about stock exchange booms or widespread unemployment among construction workers.

Whether the theories of self-generation are true or not it is not necessary at this time to discover. There are always independent disturbing influences at work, and they modify the resulting course of events. But it is significant that there is much less variation in business cycles than in the outside influences which act upon them. Major or minor wars, in which the country in question is either a belligerent or a neutral, expanding or contracting domestic farm production coordinated with like or unlike movements of foreign production, upward or downward secular price trends—all these occur in an indefinite variety of combinations, while the new goods and new processes which form the foci of successive waves of expansion change from decade to decade. But at whatever varied points and in whatever varied forms such 'outside' factors have their first impact on the business system, the resultant is to initiate or modify expansions and contrac-

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tions which spread rapidly through the system as a whole, and which produce very similar symptoms. Cyclical movements of prices go on through rising or falling secular trends, though the relative lengths of the upward and downward cyclical movements are affected. Basic industries, factory employment, general retail and wholesale trade, credit and securities markets—all show essentially similar movements. All this argues that the responses of the business system are more important in determining the results than the particular character of the original disturbances, even if one grants provisionally that without some kind of outside disturbance business cycles would not be initiated in the first place, or would not continue their more or less regular succession of ups and downs.

The indicated probability is that the average period of these upward and downward swings is determined by the character of business responses, for example, the time required to finance capital expansions and to construct new factory units or new apartment buildings. The variations in the timing of these movements appear to arise partly from changes in the conditions governing these responses directly, and partly from the random behavior of the outside or originating causes. We must also not forget the possibility that certain types of response may have different periods from others, with the result that changes in the timing and

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severity of cycles may be in part due to the varying conjunctures of responses with different normal periods. For example, among the more mechanical features having to do with the construction of capital equipment and the using up of stocks of goods, some of the more important may have periods the combination of which tends naturally to produce a cycle of about 40 months, while the more violent psychological brainstorms represented by the stock market mania of 1929 and the 'new era' delusion which went with it, and similar waves in the past, may require more time to work up their full momentum—perhaps something like ten years. They are, of course, subject to interruption by such outside disturbances as wars.

In general, the 'originating' causes may be provisionally assumed to have two effects. The first is to keep the responses of the business system from dwindling away to zero, in case they would naturally do so in time if left to themselves. Whether they would do so or not is impossible to prove and is in any case non-essential, since it is not allowed to happen. There are continually-renewed disturbing impulses. The second presumptive effect of these 'originating' causes is to induce variations in the timing and severity of the resulting cycles.

Within this framework of theory, itself subject to modification as we proceed, we may search for causal factors of peculiar significance. They may be

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defined as those which, by variations in their characteristic behavior, can bring about significant differences in the course of business prosperity and depression. The ones most worthy of study are those which actually do vary, or which could be made to vary—in other words, are subject to control. The most useful thing to find would be an element which was always present, whose behavior made a vital difference to the resulting course of business, and which could be controlled. But if a factor is always present, and regularly behaves in the same way, it becomes impossible to determine its significance by the inductive method of observing the difference that is made according as it is present or absent or varies in its behavior. As a result, the more abstract theoretical method may become necessary. And among factors that are not always present, or that vary their behavior from cycle to cycle, the multitude of factors and variations is so great, and the number of systematically observed cycles so small, that the methods commonly characterized as inductive face almost insuperable difficulties in attempting to isolate the significance of particular factors by correlating their variations with variations in the course of business. The data appear to be just approaching the state in which such methods, handled with the utmost care, may yield some useful results with respect to a few among the many questions which the business cycle raises.