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**STRATEGIC FACTORS
IN BUSINESS CYCLES**

**Gokhale Institute of
and Economic**

STRATEGIC FACTORS IN BUSINESS CYCLES

JOHN MAURICE CLARK

WITH AN INTRODUCTION BY
THE COMMITTEE ON RECENT
ECONOMIC CHANGES

A PUBLICATION OF THE
NATIONAL BUREAU OF ECONOMIC RESEARCH
IN COOPERATION WITH THE
COMMITTEE ON RECENT ECONOMIC CHANGES

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INTRODUCTION

BY THE COMMITTEE ON RECENT ECONOMIC
CHANGES

IN 1921, in the midst of the early post-War depression, the President of the United States called a national Conference on Unemployment to deal with urgent emergency problems. Out of this Conference came a series of important investigations, each sponsored by committees set up by the Conference.

In 1927 a continuing committee of that Conference was brought together under the chairmanship of Herbert Hoover, then Secretary of Commerce, designated as "The Committee on Recent Economic Changes of the President's Conference on Unemployment." Its purpose was to make a comprehensive fact-and-figure picture of the results of the working of economic forces during a major business cycle, assembled in the form of a descriptive record with statistical measurements, which should reveal the developing pattern of our economic evolution.

In order that this project might be carried out in a thoroughly scientific spirit, and be utterly free from partisan bias, the National Bureau of Economic Research, Inc. was enlisted by the Committee to assemble, assimilate and organize the factual and statistical material for study and interpretation. For

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this undertaking a group of fifteen of the most competent economists in the country was assembled by the National Bureau of Economic Research. To the broad background knowledge of this collaborating group the National Bureau added its wealth of statistical data and its facilities for progressively measuring the operation of economic forces, reflecting the actions of millions of human beings engaged in the normal processes of living.

In 1928 Arch W. Shaw succeeded Mr. Hoover as Chairman of the Committee on Recent Economic Changes, and early in 1929 the Committee's first report was brought out, a two-volume work covering the period from 1922 to 1928, entitled *Recent Economic Changes in the United States*, intended as a record, partly statistical and partly descriptive, of the ascending curve of the cycle which started after the depression of 1921 and carried through 1928.

When, a year later, the country entered upon the descending curve of the major cycle under observation, the part that public works might be expected to play in stabilizing our national economy was engaging the attention of thinking men. Inasmuch as this represented a field where a statistical picture could be made with reasonable promptness, and one which would fit into its broad program, the Committee sponsored a study, which was prepared at the National Bureau of Economic Research under the

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direction of Dr. Leo Wolman, and published as *Planning and Control of Public Works*.

In 1932 the developing pattern of our economic experience was further disclosed by the publication of a work by Dr. Frederick C. Mills entitled, *Economic Tendencies in the United States*. This book, published cooperatively by the Committee on Recent Economic Changes and the National Bureau of Economic Research, summarized and extended the record covered by the two-volume report already described. In this work Dr. Mills essayed the important task of bringing out the characteristics of the tendencies prevailing during the period preceding the current economic depression, in comparison with the tendencies prevailing during the period preceding the World War. This served to clarify many economic relationships which had previously been little understood.

In this program the Committee and its collaborator, the National Bureau of Economic Research, have been concerned chiefly with making a quantitative analysis by means of facts and statistics, picturing as they do the movement of commerce and industry—ships crossing the seas with cargoes of imports and exports, freight and passenger trains rumbling across the continent, the daily transactions in banking houses, stock and produce exchanges, wholesale establishments and retail stores—all representing the reality of life and the relation of industry

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to industry and individual to individual. Without such a statistical and descriptive record as had been undertaken, representing the 'measurables' of our economic life, little progress could be made in the analysis or understanding of the motives and operations that underlie and affect the movement of economic forces.

All statistical measurements must of necessity be on a common basis if comparison is to be possible. In the statistical record compiled over the whole period covered by the Committee's program, whatever monetary units have been used have been in terms of dollars based on a constant relationship to gold. Early in 1933 the United States went off the gold basis. The Committee recognized this as a natural stopping point for its undertaking, and it determined to bring to a head as rapidly as possible all of the separate studies which formed its program of publication, thus fulfilling its mission at a time when the results would be of the most timely interest and service.

In line with this decision, there will follow as rapidly as they can be completed and prepared for the press, a study of "Profits" by Dr. Ralph C. Epstein; a study of "Prices" by Dr. Frederick C. Mills; a report on "Wages and Consumption," by Dr. Leo Wolman; a report on "Industrial Trends" by Dr. Willard L. Thorp; and possibly one or more additional reports or surveys.

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Meanwhile, the Committee sponsored a special study, from the descriptive and statistical record which had been assembled, to endeavor to disclose, so far as might be possible, what factors play an active role in throwing the economic mechanism out of balance and what factors adapt themselves passively to the changes produced by the active factors. It is this phase of the Committee's exploration which explains the present volume. While the statistical and factual record of the cycle was being made by the collaborating group of economists, Dr. Clark was a regular attendant at the meetings of the group. He participated in the discussions, studied the wealth of factual and statistical material which had been assembled, and assimilated much of the picture of our economic life which it reflected. Then, viewing the whole picture objectively, he essayed to make an appraisal and draw certain conclusions.

The present volume is the result. Intended to achieve a perspective on the pattern of our recent economic experience, it shows something of the evolving design and, in careful fashion as becomes a work by so eminent a student of economic theory, examines into the general direction the pattern is taking.

While Dr. Clark is responsible for the conclusions herein set forth, the Committee on Recent Economic Changes is pleased to offer this report of his findings as a valuable and timely contribution to current economic thought. Indeed, the Committee hopes

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that it may prove to be helpful in relating yesterday's economic experience to tomorrow's economic needs. For out of his intensive study of the pattern of our recent economic life Dr. Clark has endeavored to isolate what he terms the "strategic business factors"—strategic because they seem to have a causal influence upon the business cycle and are possibly susceptible of conscious control by the community. Highly suggestive, also, is his analysis of the character of and requirements for national economic balance, and the discussion of the means and possibilities of attaining and maintaining it.

The Committee is glad to have the opportunity of presenting an analysis of this character. It is also glad to add its emphasis to Dr. Clark's call for an improvement in the quality and quantity of the country's statistical services. But it realizes that effective results can be achieved only by putting to work the results of scientific analysis and continued statistical investigation in the realm of practical affairs. What is perhaps more needed at the present time than anything else is the development of means of coordinating and utilizing the experience of men of affairs and the results of economic research.

It is the Committee's belief that economic research itself is made more fruitful through contact between economists and men who are more familiar with business than with text books, for whatever scientific analysis has to contribute to human wel-

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fare must be done through the channel of practical application. Among the things which the Committee views with most satisfaction is that its work has made at least a modest contribution toward the achievement of some such union. In the carrying out of this work it has had the generous support of the Rockefeller Foundation, the Economic Club of Chicago, the Carnegie Corporation, and various socially-minded groups and individuals, whose support it here gratefully acknowledges.

Recognizing the timeliness of Dr. Clark's report, the Committee has been led to hasten its publication that it may serve the immediate need of clearer perspective. It is presented, not as a full and matured expression of the Committee's own collective viewpoint, but as the findings of an able thinker upon a broad problem of great significance at the present juncture in our social-political-economic life. It leads up to the great question that we face as a nation: which factors are and which are not amenable to purposive control by public or private agencies?

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(Resolution of October 25, 1926, revised February 6, 1933)

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APPENDIX

AGGREGATE FLUCTUATIONS OF PRODUCERS' GOODS, RESIDENTIAL HOUSING AND AUTOMOBILES

THE aggregate movement of a group of such diverse series as here considered is not easy to estimate, in view of their differences of timing. The diversities of one series from cycle to cycle can be overcome by taking its average pattern through the successive stages of the cycle of general business. But this average pattern still differs in timing from one series to another. In meeting this difficulty, the fluctuations of these series will be presented in two ways; first, the fluctuations in the average general-cycle pattern of each series between the high and low points of its individual average movements; and second, an attempt will be made to estimate roughly the stages of the general business cycle which mark the high and low points of this group of series as an aggregate; and the fluctuation of each series between these points will be noted. These fluctuations will be stated as averages of the upward and downward movements, an

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upward movement of 60 per cent and a downward movement of 40 per cent appearing as an average movement of 50 per cent. The percentage is in each case a percentage of the average value of the series for the cycle in question.

The average cyclical movements of the series representing the groups in question are shown below, with the stages ¹ of the general business cycle in which their high and low points occur and notes as to their general conformity. As already observed in the text, a pattern whose low point occurs in the eighth stage of the general cycle instead of the ninth is sufficiently typical of production series to be regarded as representing perfect conformity for series of this sort.

SERIES	STAGES OF GENERAL BUSINESS CYCLE		
	MARKING HIGH AND LOW POINTS OF AVER- AGE-CYCLE PATTERN OF SPECIFIC SERIES	AVERAGE MOVE- MENT (PER CENT)	CONFORMITY TO TIMING OF GENERAL BUSINESS CYCLE
Producers' goods, physical production (Leong's study), 1919-27, 3 cycles..	5, 8	27	Virtually perfect; one-stage lead on upturn.
Manufacture of basic materials (Harvard series adjusted), 1919-27, 3 cycles	5, 8	28	Virtually perfect.

¹See text, p. 9 for description of method of dividing the cycle into nine stages for purposes of comparing cycles of different length.

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Passenger cars, physical production, 1914-27, 4 cycles 4, 6	43	Three - stage lead on up-turn, one-stage lead on down-turn, some irregularity.
Trucks, physical production, 1914-27, 4 reference cycles, 3 specific cycles... 5, 8	58	Virtually perfect.
Construction contracts awarded, total 1912-24, 4 cycles 4, 7	52	Two - stage lead on up-turn, one-stage lead on down-turn. This series might reasonably be lagged one stage, resulting in more perfect conformity.

A selected list of producers' goods could be made up which would show far more than 27 per cent fluctuations, and might well account for the major part of the excess of this group above the average for all branches of production, at least in the 'industrial' class. Some of the items would be the following:

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SERIES	STAGES MARKING HIGH AND LOW POINTS OF AVERAGE- CYCLE PATTERN OF SERIES	AVERAGE MOVE- MENT (PER CENT)	CONFORMITY TO TIMING OF GENERAL BUSINESS CYCLE
Pig iron, 1885-1927, 13 cycles	5, 8	40	Virtually per- fect.
Steel ingots, 1919-27, 3 cycles	5, 8	48	Extremely close.
Coke, 1912-27, 5 cycles..	5, 9	46	Perfect.
Machine-tool shipments (yearly basis), 1904-21, 5 reference cycles, 4 specific cycles	5, 9 (Stages 2, 4, 6 and 8 lacking)	52.5	Virtually per- fect. Monthly figures would show larger fluctuations.
Fabricated structural steel sales, 1915-24, 3 cycles...	3, 7	80	Two-stage lead.

All but the last of these series conform so closely in their average pattern to the general business cycle and to one another, that their aggregate fluctuations, taken as a group, would be very nearly as great as that of a properly weighted average of their individual fluctuations for the same succession of cycles. Thus the aggregate impact of these products on the economic system is extremely heavy. For purposes of comparison, the following series might be used.

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SERIES	STAGES MARKING HIGH AND LOW POINTS OF AVERAGE- CYCLE PATTERN	AVERAGE MOVE- MENT (PER CENT)	CONFORMITY TO TIMING OF GENERAL BUSINESS CYCLE
Physical production of consumers' goods excluding automobiles (Leong's study), 1919-27, 3 cycles..	4, 8	12	Lead, good conformity but some irregularities.
Industrial production, (Standard Statistics Company's index), 1912-27, 5 cycles	5, 9	24	Perfect.
Basic industries, (Federal Reserve Board index), 1919-27, 3 cycles	5, 8	23	Almost perfect.

It would be possible to determine the aggregate fluctuation of the group including producers' goods, construction and automobiles, by building up an inclusive series, properly weighted: but in this there would be one difficulty. What is the real meaning of the differences in timing between 'construction contracts awarded' and 'production of producers' goods'? Should the lead of the construction series be taken at its full face value? The one series records the completion of work, the other a preparatory stage in work which typically takes some months to complete. Thus it is reasonable to suppose that the timing of the actual work involved in construction might be better represented if the series were lagged, let us say, three months or even more.

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In dealing with series already divided into 'stages', it has seemed legitimate to lag the series of construction contracts by one stage, always recognizing that this is a very rough and ready procedure.

If this is done, it seems fairly clear that the high and low points of the aggregate movement of the group will occur in the fifth and eighth periods. If the average movement of each series, then, be taken between these two periods, the result will be a series of percentages which, if properly averaged, would give a fairly true measure of the aggregate movement of the group. Since the behavior of the construction series is regarded as abnormal for the last two cycles, and two of the other series go no further back than 1919, completely comparable series are available for only two cycles: 1919-24. Most of the series are available, however, for three cycles: 1915-24. The following evidence may, then, be used.

SERIES	AVERAGE MOVEMENT, STAGES 8-5-8 (PER CENT)	REMARKS
Producers' goods, physical production (Leong's study), 1919-24, 2 cycles	32	
Manufacture of basic materials (Harvard series adjusted), 1919-24, 2 cycles	34	
Passenger cars, physical production, 1915-24, 3 cycles	18	Peak in stage 4; sharp drop to stage 5.
Trucks, physical production, 1915-24, 3 cycles	69	

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Construction contracts awarded 1915-24, 3 cycles (lagged one stage)	44
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Further evidence afforded by these same series taken for a longer period where available, together with other particular series of the same character (involving some overlapping) is as follows:

SERIES	AVERAGE MOVEMENT, STAGES 8-5-8 (PER CENT)	REMARKS
Producers' goods, physical production (Leong's study), 1919-27, 3 cycles	27	
Manufacture of basic materials (Harvard series adjusted), 1919-27, 3 cycles	28	
Passenger cars, physical production, 1915-27, 4 cycles	19	
Trucks, physical production, 1915-27, 4 cycles	58	
Construction contracts awarded, 1912-27, 5 cycles ...	32	
Same series, lagged one stage	52	
Pig iron, 1885-1927, 13 cycles	40	
Steel ingots, 1919-27, 3 cycles	48	

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Coke, 1912-27, 5 cycles	37	
Machine-tool shipments (yearly basis, 1904-21, 5 reference cycles, 4 specific cycles	52.5	(Stage 8 lacking. Monthly figures would show larger fluctuations)
Fabricated structural steel, sales, 1915-24, 3 cycles	71.8	

One must allow for the fact that construction contracts are reported in money terms, thus exaggerating the actual physical movement, and for the further fact that the diffused effects of construction work are somewhat distributed in time. Taking these facts into consideration, it may very roughly be estimated that the aggregate fluctuation of this entire group in an average cycle could be not less than about 30 per cent.

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