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## 9. Toward Understanding Cycles

The original purpose of the investigation described in this paper was largely descriptive. General disturbances in economic activity can hardly be understood until they have been identified in time and space with some particularity. During what periods, in each of the major industrial countries, was the growth of business enterprise interrupted? Were some of the interruptions brief and mild, while others were severe and protracted? What of the intervening expansions? For answers to such questions, many economic activities should be examined. The activities of transport enterprises and their customers must rank high on any list. Railways have played a central part in modern economic development. They carry almost everything that industry produces, and their freight traffic is therefore a broad if rough measure of industrial production. Railway statistics for Britain before World War I are especially valuable because direct measures of industrial production in that period are very limited.

The railway data confirm, in an approximate manner, the Burns-Mitchell chronology. Cycles in railway traffic correspond in a general way with the cycles that, according to the chronology, occurred in business at large. Even when traffic did not decline in the business contractions, its rate of growth was retarded.

Some investigators of business cycles have been fascinated by the thought that they were dealing with a phenomenon of regularly recurring frequency and magnitude. A glance at the railway traffic data in Table 6 should leave any reader skeptical of simple periodic theories. Either there is no tendency toward periodicity, or the effects of that tendency are deeply buried among the effects of non-periodic influences, or several different periodicities are concurrently and complexly interwoven.

The various aspects of economic life differ greatly in degree of dis-

turbance. Passenger traffic is less variable than freight traffic; the latter is more stable than production of steel. Changes in the composition of freight traffic provide additional evidence that fluctuations in durable goods industries are more severe than those in other industries.

We have described the operations of British railways in fairly intensive detail from 1919 to 1952. In 9 of these 34 years they and the British economy at large were directly affected by war or by great strikes with very general consequences. To what extent should we draw distinctions between the cycles in which these events figured and other cycles? The railway operating concomitants of the traffic changes in the 1921 and 1926 strikes were different from the operating concomitants of other fluctuations in traffic. The 1926 strike may have dislocated the sequence of prosperity and depression for several years; the annual reference chronology for Britain is curiously out of step with the chronology for the United States from 1925 to 1928. Here is meat for those who like problems of definition.

Notation of features like those briefly mentioned in the preceding paragraphs is part of the descriptive task. Lively minds will not be content with descriptions, but will wish to know why general economic disturbances occur, and why some are more violent or prolonged than others. Strikes and wars explain some characteristics of some disturbances, but they do not obviously explain a cycle like 1879-86 or 1932-38. Transportation data alone will hardly provide explanations. But they nevertheless have some relevance to various lines of thought along which the problem has been approached.

In recent years there has been much discussion of the stimulating effects that are supposed to flow from an increase in expenditures on plant, equipment, and inventories. Under favorable circumstances, the increase of investment is believed to induce a much larger increase of expenditure on goods for consumption. There is a "multiplier" effect on employment and presumably on the volume of traffic offered for transportation. On the other hand, one can readily imagine circumstances under which the increment of investment will express itself primarily in an inflation of prices. In weighing such possibilities it seems pertinent to note that an increase in railway traffic will ordinarily be accompanied by a less than proportionate increase in railway employment and purchases, and that the situation in some other industries is probably similar. Conversely, influences depressing traffic will

have a less than proportionate depressing effect on employment.

Railway profits, on the other hand, increase and decrease out of proportion to traffic and revenues. In the United States, during the good years of the interwar period, the railroad companies used large portions of their profits to finance improvements in plant and equipment. Presumably the manner in which investment is financed has something to do with its impact on the national economy. British railways appropriated virtually all earnings for payments to security holders (Table 38). Their rather modest capital expenditures were financed from other sources than earnings.

The British railway companies did, however, follow a system of operating expenditure that was potentially countercyclical. In some years they spent more, especially for maintenance, than they charged against current revenue, charging the balance to "renewal" or "suspense" accounts. In other years they charged greater sums against revenue than they actually spent. The countercyclical effect was not very regular in practice. The maximum excess of total expenditure over the sum regarded as attributable to the current volume of traffic did not always occur in a trough year. The minimum excess, or the maximum postponement of expenditure, did not always occur in a peak year. In any case, the amounts involved were small.

While some analysts of cycles have occupied themselves with the effect of investment on sales, others have concerned themselves with the effect of sales on investment. In particular, it has been supposed that an increase in the physical volume of business necessitates an increase in the stock of equipment used to handle that business. Applied to periods no longer than a business expansion, this idea finds little support in railway operating experience. British railways handle considerable increases in their traffic largely by keeping their equipment in use more of the time. Stocks of equipment sometimes diminished during an expansion of traffic. Over longer periods the idea has more validity. The tremendous cumulative growth of traffic during the nineteenth and early twentieth centuries could not have been cared for without a great accumulation of equipment. Since 1920 increases in traffic during business expansions have been almost offset or more than offset by decreases during contractions, and stocks of equipment have also increased very little or have gradually declined.

Business men increase or diminish their current investment expendi-

TABLE 38

Net Revenue, Interest and Dividends, and "Excess" Expenditure, 1919-1938  
(absolute figures in millions of pounds)

YEAR	LEVEL OF BUSINESS	NET REVENUE (1)	INTEREST AND DIVIDENDS		PERCENT OF NET REVENUE		EXCESS OF EXPENDITURE <sup>b</sup> (6)
			<i>Appro- priated</i> (2)	<i>Paid</i> <sup>a</sup> (3)	<i>Appro- priated</i> (2) ÷ (1) × 100 (4)	<i>Paid</i> (3) ÷ (1) × 100 (5)	
1919	Trough	49.5	48.3	.....	97.6	.....	-0.9
1920	Peak	49.4	48.2	48.4	97.6	98.0	-1.3
1921	Trough	44.0	48.4	47.9	110.0	108.9	.5
1922		51.3	52.0	52.4	101.4	102.1	-5.1
1923		49.3	50.0	49.9	101.4	101.2	-1
1924	Peak	44.9	50.1	49.9	111.6	111.1	2.5
1925		42.3	49.3	49.2	116.5	116.3	6.6
1926	Trough	24.0	42.0	41.9	175.0	174.6	3.6
1927	Peak	46.7	46.4	46.4	99.4	99.4	2.3
1928	Trough	45.2	44.9	44.9	99.3	99.3	2.5
1929	Peak	49.3	48.4	48.3	98.2	98.0	1.2
1930		42.0	43.8	43.8	104.3	104.3	2.4
1931		37.6	38.4	38.5	102.1	102.4	1.9
1932	Trough	30.4	31.9	31.7	104.9	104.3	.5
1932	Trough	27.2	28.8	28.7	105.9	105.5	.7
1933		29.6	30.8	30.7	104.1	103.7	-1.5
1934		32.3	33.1	33.0	102.5	102.2	1.2
1935		33.7	34.3	34.3	101.8	101.8	4.3
1936		36.5	36.4	36.5	99.7	100.0	4.5
1937	Peak	38.7	38.2	38.3	98.7	99.0	1.6
1938	Trough	29.8	29.9	30.1	100.3	101.0	1.1

<sup>a</sup> Amount appropriated, plus any decrease or minus any increase in the balance sheet accounts, "Unpaid interest and dividends" and "Interest and dividends payable or accruing and provided for."

<sup>b</sup> Excess of operating expenditures made over operating expenditures charged against gross receipts of the year, in the income account. A negative figure means that expenditures made were less than expenditures charged against receipts. Outlays on other operations as well as railway operations were included in computing these figures.

tures from time to time for reasons other than the current level of their sales or the recent direction of change in sales. Consumers likewise vary their expenditures for reasons other than the recent level or trend of their incomes. To a large extent these other reasons center around the

emergence, improvement, cheapening, and growing availability of new objects of expenditure, especially those of a durable character. It is a safe bet, for example, that more people with incomes of about \$4000 bought television sets in 1949 than in 1948. When the motives for increasing expenditure prevail over those for diminishing it, business at large is likely to expand; when the predominance is the other way around, it is likely to contract. In the nineteenth century, developments in transport opened vast new prospects of expenditure. Promoters and investors saw prospects of profits from building railroads. Merchants and manufacturers visualized a means of broadening their markets. Consumers found travel more inviting. In our own century, motor transport has largely taken over the role formerly played by the railroads.

When depressive influences preponderate over stimulating influences, many of the latter may nevertheless continue to operate and, when reinforced by new impulses, may help turn the tide again. Such influences can sometimes be identified from the cyclical pattern of the data. When consumers rapidly increase their outlays on a particular object of expenditure during business expansion, and diminish their outlays very little or not at all during business contraction, one may fairly infer that the "propensity" to spend for that object is rising. The propensity for motoring rose in Britain throughout the interwar period; the number of cars in use increased in every contraction. (The propensity for motor-cycling declined, at least after 1927.) On the business side, the number of motor trucks registered likewise increased continuously. These influences show themselves also in the consumption of motor fuel, the annual supply of which increased from year to year in every interwar contraction, except for a slight dip from 1924 to 1925 and from 1930 to 1931.

When the British government entered the war, it provided an obvious instance of an increase in spending prompted by something other than an increase in the receipts of the spender. In an industrially powerful and uninvaded country, war has many effects like those of other economic stimulants. Large quantities of goods and large numbers of men had to be moved; there was an unusually great boom in railway traffic. Centralized control of transport facilities and routing, and the tolerance of congestion on passenger trains, accentuated the railroads' usual ability to handle growing traffic without proportionate expansion of employment or stocks of equipment. The conveyance of durable

goods and of materials for making them doubtless increased faster than other freight traffic. The final uses, naturally, were different - war construction and munitions; we have seen how the railroads themselves had to curtail ordinary maintenance.

Peace brought a new kind of stimulus. There was a rush to buy long unavailable durable goods, and to resume other expenditures that had been discouraged. The railways endeavored to make up for neglected maintenance.<sup>1</sup> Owners of motor vehicles quickly restored them to circulation, booming the market for commodities associated with their use. Such impulses of reconversion must eventually fade, of course; future business expansion must depend on other and perhaps less readily identifiable stimulants.

<sup>1</sup>This was difficult. As late as 1949 we find the Railway Executive complaining that "the shortage of materials . . . governs the rate at which arrears of renewals can be overtaken."