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Cyclical Patterns in the Interwar Period, 1921-1938

During the period between the two world wars (exclusive of 1919-1920) federal government finance was a much more important factor in the economy than it had been before World War I. Expenditures were larger relative to gross national product, especially in the thirties. Fiscal policy played a much greater role in the cycles of the interwar period than it did in the prewar period, and to a certain extent was consciously used for this purpose.

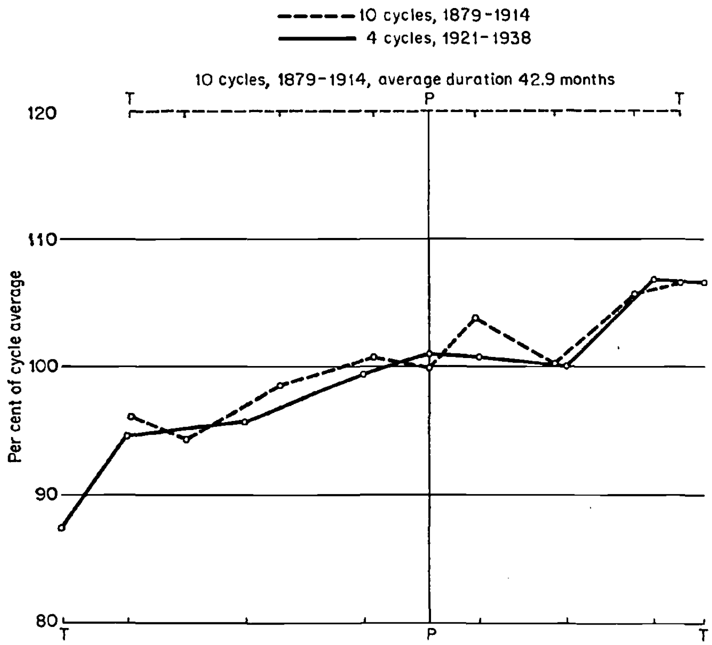
An additional and potentially powerful countercyclical instrument was placed in the hands of the government in 1913 when the Constitution was amended to permit the taxing of incomes. Prior to the introduction of the income tax, the federal tax system was much less effective in automatically stimulating or restraining business or consumer spending. When times were good, people bought more goods, both domestic and imported. The more they spent in general, and on liquor and tobacco specifically, the greater the revenue of the federal government. But the increased federal revenues during prosperity did not necessarily result in a more than proportionate reduction of consumer purchasing power relative to total income, any more than the reduced federal revenues in depression meant that proportionately more money was available for the purchase of consumption goods. The proportion of the consumer's dollar that went to the government was determined by the kinds of commodities the public purchased. Only if a larger proportion was spent for liquor and tobacco, and imported items which bore a high tariff rate, did the government's revenues include a higher proportion of the consumption dollar. Most of the cyclical flexibility in revenues was imparted, as we have seen, by customs receipts, which varied with the volume of imports.

Progressive income taxes, on the other hand, have a more certain and more potent countercyclical effect. In periods of rising incomes, such taxes, even without changes in rates or exemptions, drain off a larger proportion of spending power, and in recessions leave a larger proportion in the hands of the taxpayer, barring unusual shifts in the size distribution of income. This countercyclical effect can, of course, be enhanced by manipulating rates and exemptions.[1] The corporate income tax also, although it has been levied, for the most part, as a flat percentage rate, yields widely fluctuating revenues because of the wide cyclical swings in net profits.

Because of the introduction of the income tax and the greater role that government assumed in the nation's economic life following the First World War, one would expect greater sensitivity of business conditions to fiscal policy and, conversely, that business conditions would, in turn, exert a greater influence on the government's taxing and spending programs.

CHART 7

Federal Expenditures, Average Reference Cycle Patterns, 1879-1914 and 1921-1938



Source: Table A-5, Section B.

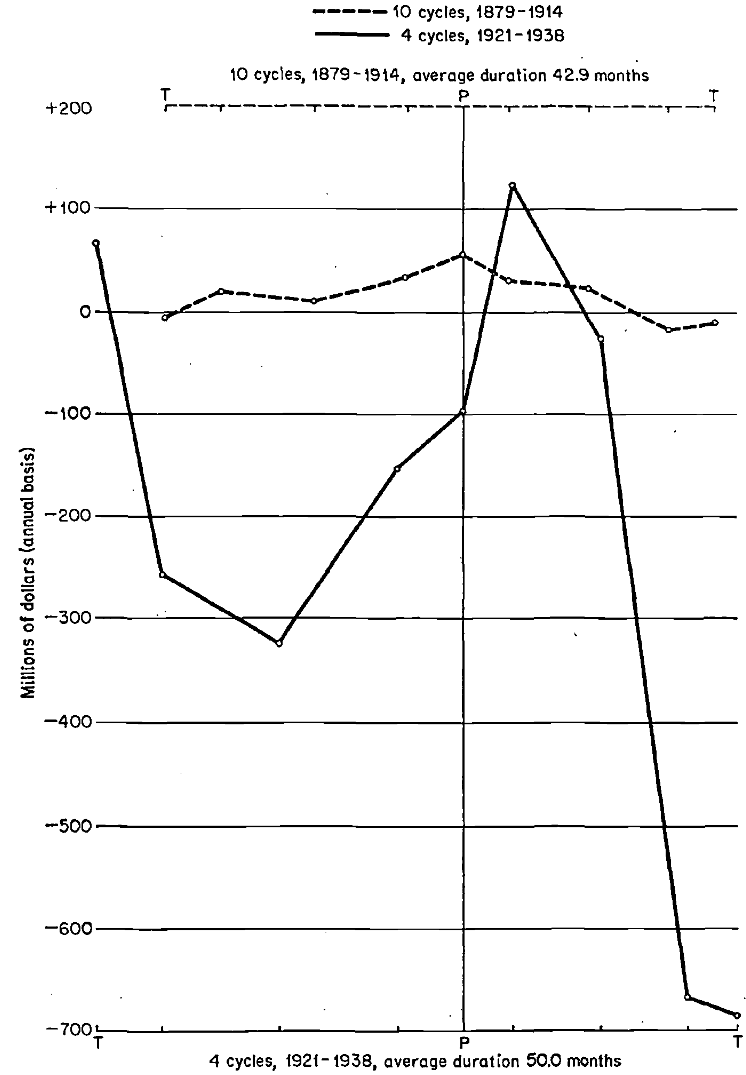
[1] See, for example, *Personal Income During Business Cycles* by Daniel Creamer, New York, NBER, 1956, pp. 103-109; and "Yield of the Individual Income Tax during a Recession" by Joseph A. Pechman in *Policies to Combat Depression,* New York, NBER, 1956, pp. 124 ff.

Average Patterns, 1879-1914 and 1921-1938

In keeping with these expectations, we find that the average reference cycle pattern for federal receipts has a substantially greater amplitude during

CHART 8

Federal Surpluses and Deficits, Average Reference Cycle Patterns, 1879-1914 and 1921-1938



Source: Table A-5, Section A2 (averages on annual basis).

1921-1938 than during 1879-1914 (Chart 6). In large part, however, this is attributable to the wider swings in the business cycle that occurred in the later period. This change can be measured, at least roughly, by the shift in the average size of the swings in bank clearings or debits between the two periods (bottom section of Chart 6), since this series is an index of the total dollar volume of transactions in the economy. (As the chart shows, it compares closely in the later period with gross national product). The average rise and fall of bank clearings or debits during reference cycles increased from 31 per cent of the cycle base in 1879-1914 to 47 per cent in 1921-1938. The corresponding average rise and fall in federal receipts increased from 25 per cent to 46 per cent, a somewhat greater relative shift. Apart from the increase in amplitude, the average cyclical pattern of federal receipts displays a striking similarity in the two periods.

The average pattern for federal expenditures is similar in the two periods and markedly different from revenues (Chart 7). Expenditures generally rose during business expansion and contraction alike. As a result, in both periods, the average pattern for net surpluses or deficits resembles that of revenues (Chart 8). The swings in the dollar magnitudes, however, were vastly greater in the interwar period.

The availability of quarterly estimates of gross national product since 1921 makes it possible to compare the cyclical behavior of federal finances with this comprehensive measure of economic activity. The average patterns for 1921-1938 show roughly the same swing, percentagewise, in federal revenues as in GNP, in sharp contrast to the pattern of expenditures.

Surpluses and Deficits

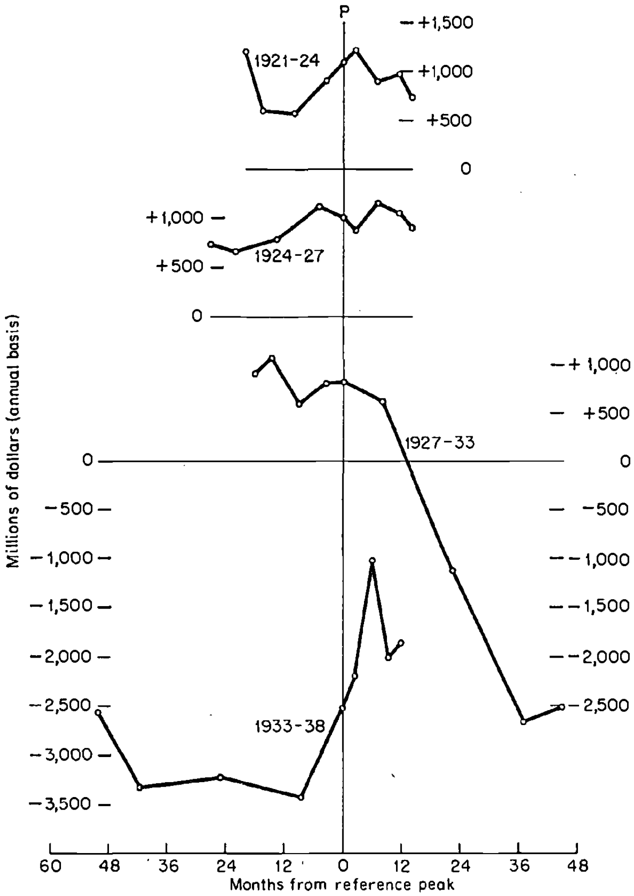
There was little uniformity in the cyclical behavior of government balances during the interwar period (Chart 9). The index of conformity for full cycles is +71, but it is 0 for expansions and +50 for contractions. That is, during 2 expansions government balances rose (were higher at the business cycle peak than at the trough); in the other 2, balances fell. In 3 of the 4 contractions, balances moved down with business, in the fourth (1937-1938), they moved counter to business. However, the full-cycle index of +71 means that, with only one exception (1933-1937), balances moved up faster or declined less rapidly during reference expansions than during either the preceding or following contraction.

Because of the wide divergence in the individual cyclical patterns, the average cyclical pattern for the interwar period has limited significance. However, it does indicate the differences in the magnitude of surpluses and deficits compared to the prewar period and shows the much wider swings that changing economic conditions and government tax policy produced in the government's fiscal position.

When the 1921-1924 cycle started the postwar readjustment in tax rates was not yet in full operation. The government balance at the business cycle trough in July 1921 was at a high level. In addition, there was a lag in receipts because of the lag in income tax liability. During the 1921-

CHART 9

Federal Surpluses and Deficits, Reference Cycle Patterns, Four Cycles, 1921-1924, 1924-1927, 1927-1933, 1933-1938

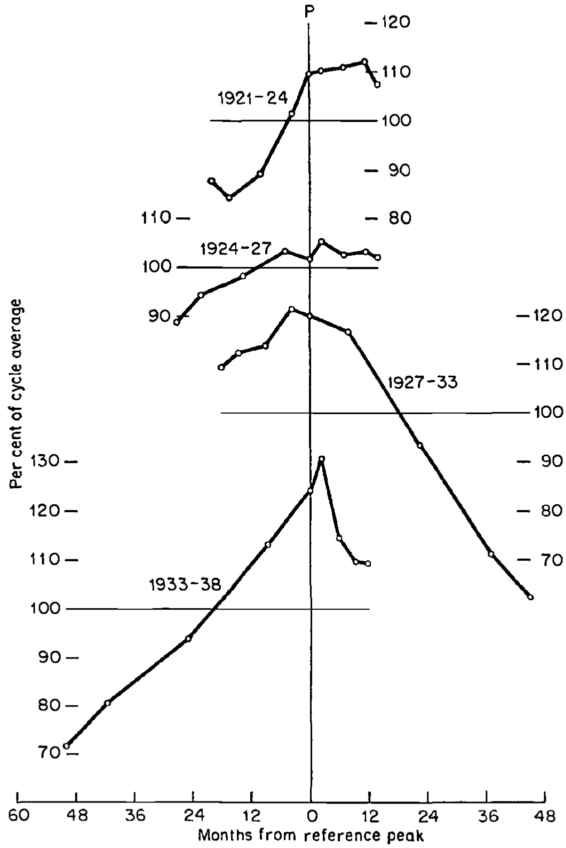


Source: Table A-5, Section A2 (averages on annual basis).

1923 expansion, therefore, the surplus first declined and then rose. Coolidge economy in government was reflected by the surpluses of the second (recession) half of this cycle, although the size of the surplus declined. In the 1924-1927 cycle, the prosperity of the mid-1920's, the lag in tax liability, and the economy philosophy of the Coolidge administration provided a continuing surplus even though tax rates declined. This condition extended through the expansion phase of the 1927-1933 cycle, during the Hoover administration. Because of the time lag between income earnings and tax liability, the full effect of the recession on the government's financial position did not appear until the second half of 1930, when the first of a long succession of deficits began. The 1933-1938 cycle saw a continuation of deficits during the recovery period (1933-1937) because of the extremely heavy expenditures incurred under the New Deal. But about 1936, there was a sharp reversal, a rise toward a surplus that carried to the middle of the 1937-1938 contraction and may have contributed to it.

CHART 10

Gross National Product, Reference Cycle Patterns, Four Cycles, 1921-1924, 1924-1927, 1927-1933, 1933-1938



Source: Table A-6.

In general, these four cycles show a tendency towards the kind of pattern often described by writers on fiscal policy as countercyclical, namely, mounting surpluses during expansion followed by mounting deficits during contraction—but only with a long lag (compare Charts 9 and 10). In the 1921-1924 cycle, the low in the surplus was reached early in 1923, a year and a half after the 1921 trough in business, and the peak was reached at the end of 1923, six months after the cyclical peak in May of that year. In the 1924-1927 cycle, the low in the surplus was reached in the early fall of 1925, more than a year after the cyclical low; and the high, in the fall of 1927, a year after business reached its peak. In the 1927-1933 cycle, the low was reached in the fall of 1928, ten months after the business low, owing largely to the lag in income tax liability; but the peak coincided approximately with the 1929 business peak. The rough coincidence at the 1929 peak is probably due to the decline in customs revenues, which started in the fall of 1929. The decline to stage VI (centered at February 1930) was relatively small. The steep decline took place between stages VI and VIII (centered at July 1932). The turn toward a balanced budget did not come until late 1936, three and a half years after the business upturn. The peak was reached in stage VII, centered at November 1937, six months after the cyclical peak.

The lagging relation between the net surplus and business cycles in the interwar period is an important consideration in evaluating the role of the surplus as a countercyclical instrument. The continued decline or low level of the surplus during the initial stages of cyclical revival presumably must be counted as one of the factors helping to promote economic recovery. By the same token, the continued rise in the surplus or its maintenance at a high level during the initial stages of recession presumably must be counted as a factor contributing to recession. In each of the four business cycle contractions from 1924 to 1938, the net surplus either rose or remained at a high level for six months or more after the contraction began.

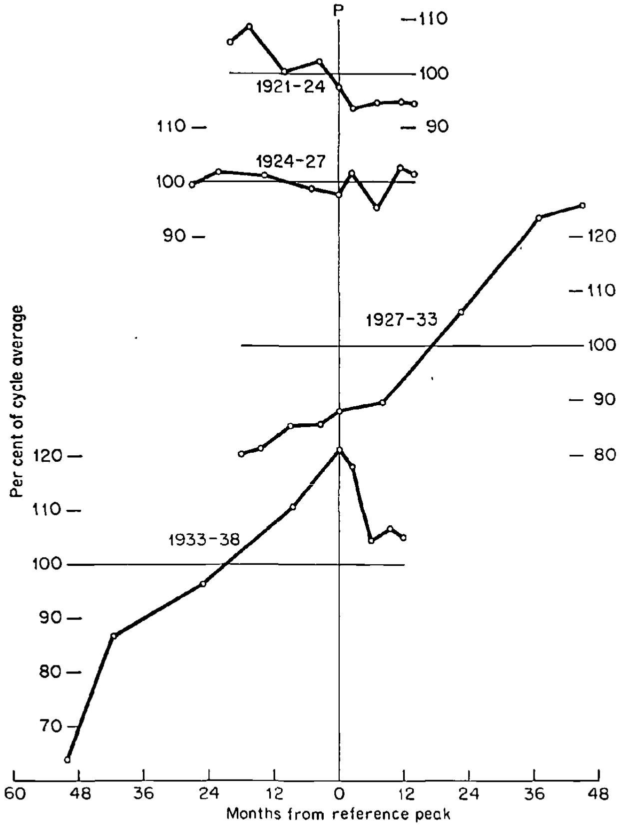
Expenditures

Government expenditures show divergent patterns in the interwar period (Chart 11). A comparison of the average pattern during the interwar period with that during the prewar period shows a continuation of the upward trend, but the upward trend was produced exclusively by the tremendous increase in government expenditures associated with the Great Depression. The trend was downward in the 1921-1924 cycle, horizontal in the 1924-1927 cycle, and upward in the 1927-1933 and 1933-1938 cycles. The indexes of conformity are 0 for the expansion period, 0 for the contraction period, and +14 for the full cycle, signifying virtually no conformity.

During the 1921-1924 cycle, expenditures were reduced during the expansion period and stabilized in the contraction phase. Expenditures were again stabilized in the 1924-1927 cycle, with only minimal fluctuations apparent

CHART 11

Federal Expenditures, Reference Cycle Patterns, Four Cycles, 1921-1924, 1924-1927, 1927-1933, 1933-1938



Source: Table A-5, Section B.

throughout the cycle. But in the 1927-1933 cycle, expenditures rose slowly through 1929 and rapidly thereafter, as a result of the severe depression and the increasing costs of relief measures undertaken by the Hoover administration. During the 1933-1938 cycle, government expenditures rose throughout the expansion phase and fell during the first half of the contraction.

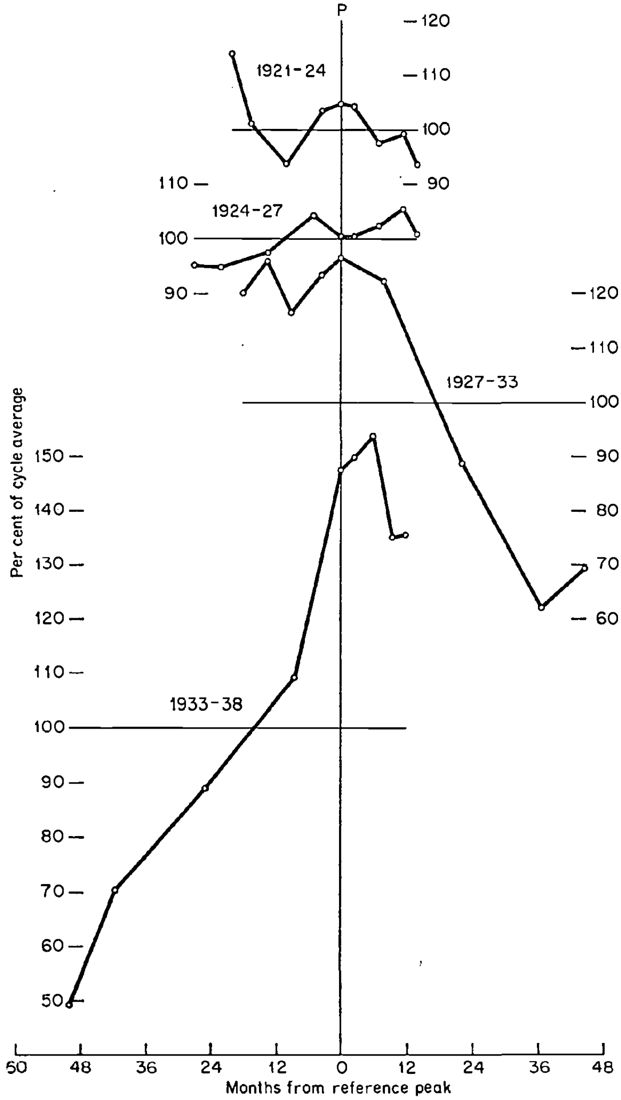
Revenues

Until 1930, the interwar period was marked by decreases in tax rates and in the tax base. Revenue bills enacted in June 1924, February 1926, May

1928, and December 1929 provided successive reductions in income tax rates and the repeal or marked lowering of assorted excise taxes.[2] The excep-

CHART 12

Federal Receipts, Reference Cycle Patterns, Four Cycles, 1921-1924, 1924-1927, 1927-1933, 1933-1938



Source: Table A-5, Section C.

[2] Randolph E. Paul states, "One of the first steps taken by the Administration to counteract the depression was to propose a tax reduction in December, 1929" (*Taxa-*

tions to these trends were the emergency tariff of May 1921, the Fordney-McCumber Tariff of September 1922 and the Hawley-Smoot Tariff of June 1930, all protectionist in character and resulting in rates well above those of the Underwood Tariff of 1913.

As the business contraction that began in 1929 continued, the disparity between shrinking receipts and rising expenditures became alarming to both Congress and the Administration. The revenue acts from 1930 to World War II provided for higher and higher taxes, except for a slight decrease in liquor taxes in 1936 and some decreases in miscellaneous taxes in 1936 and in 1938. The net result was a marked diversity among the cyclical patterns of federal receipts, although the diversity clearly resembles that which obtained in business activity itself (compare Charts 10 and 12).

A comparison of receipts and expenditures in individual cycles (Charts 11 and 12) shows that there is smaller relative variation within each expenditure cycle than in the corresponding receipts cycle, particularly in the two later cycles. It is this, then, that accounts for the broad similarity in the movement of receipts and of surpluses or deficits in the several cycles (cf. Charts 9 and 12).

The indexes of conformity for receipts are +50 for expansion and contraction, which means positive conformity in three cases out of four, while for the full cycle the index is +100, i.e. perfect conformity. Receipts were relatively stable until the severe depression set in after 1929. Because of the time lag in collecting income taxes, revenue declined little at first, but when the drop did occur it was steep. Receipts fell more than 50 per cent between 1930 and 1933. During the 1933-1938 cycle, receipts rose by more than 200 per cent and kept rising until the middle of the 1937-1938 contraction period, partly because of the successive sharp increases in income tax rates throughout this period. The decline that followed in the last third of the contraction phase was a modest 15 per cent of the cycle base. Part of this was undoubtedly due to the short duration of the recession, the time lag in income tax receipts, and the practical difficulties of adjusting a revenue system quickly.

Customs Revenues

In the interwar period, as in the prewar period, customs receipts conformed closely to cycles in general business activity. The indexes of con-

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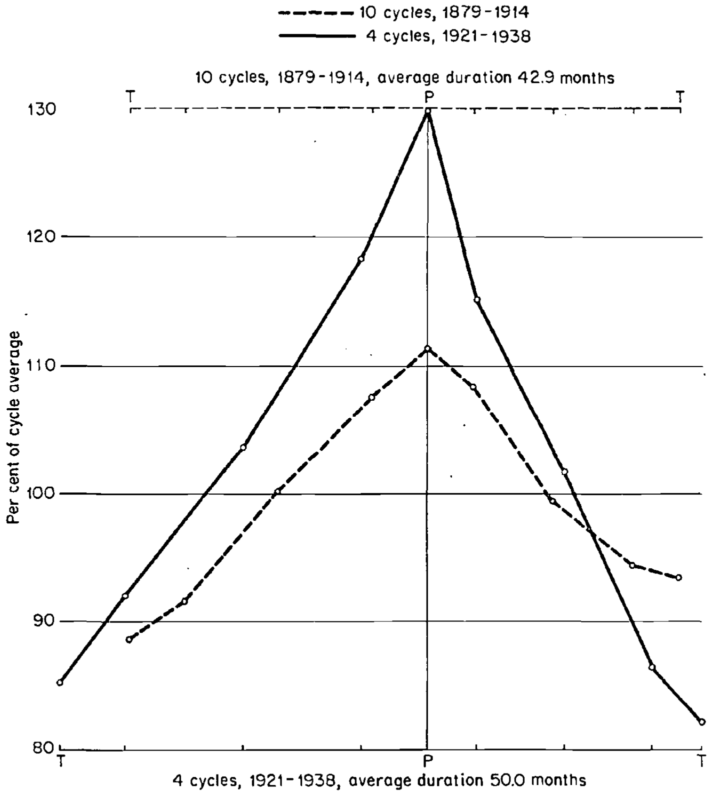
tion in the United States, 1954, p. 148). Andrew W. Mellon, Secretary of the Treasury, states, "This is the first instance in which income tax rates have been reduced for a single calendar year in order to relieve individuals and corporations from taxes when a surplus of receipts was anticipated without assurance that this surplus would continue for more than one year. During the calendar year 1930 the income tax reduction afforded relief to both individuals and corporations during a period of unfavorable business developments" (Secretary, *Annual Report,* 1930, p. 2).

formity for expansion, contraction, and the full cycle are all +100. The amplitude of variation in the interwar period was more than twice as great as in the prewar period (Chart 13). Imports, also, conformed closely to

CHART 13

Customs Receipts, Average Reference Cycle Patterns, 1879-1914 and 1921-1938



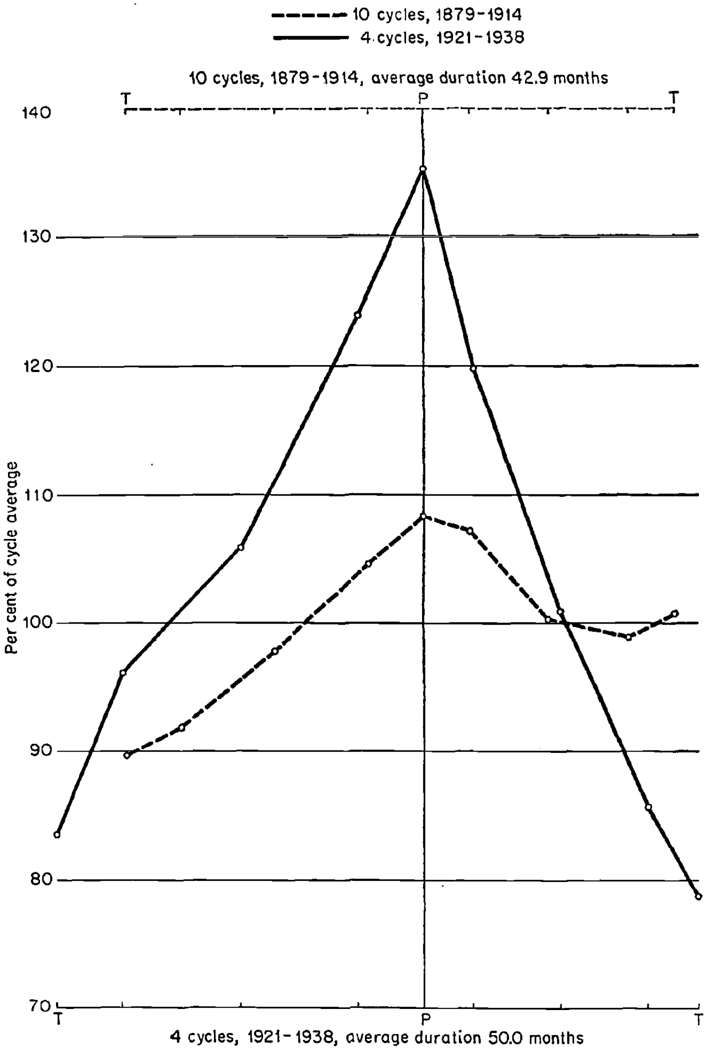
Source: Table A-5, Section D.

business activity, and showed wider swings than in prewar cycles (Chart 14). The two periods also differed in trend. Customs revenues had moved upward in the prewar period (reflecting largely the rapid economic development of the country), but they now turned downward.

Customs receipts constituted 40 to 70 per cent of total receipts during the prewar period, but only 16 per cent of the total in the 1920's and 9 per cent in the 1930's, even though the dollar volume of customs receipts had about doubled between the prewar and the interwar periods. The introduction of the income tax and the increase in excise taxes and their application to many more commodities and services reduced customs revenues to relative insignificance. Hence, the influence of customs revenues on the cyclical pattern of total receipts became progressively smaller. During this period the individual cycles in customs revenues displayed a much more

CHART 14

United States Imports, Average Reference Cycle Patterns, 1879-1914 and 1921-1938



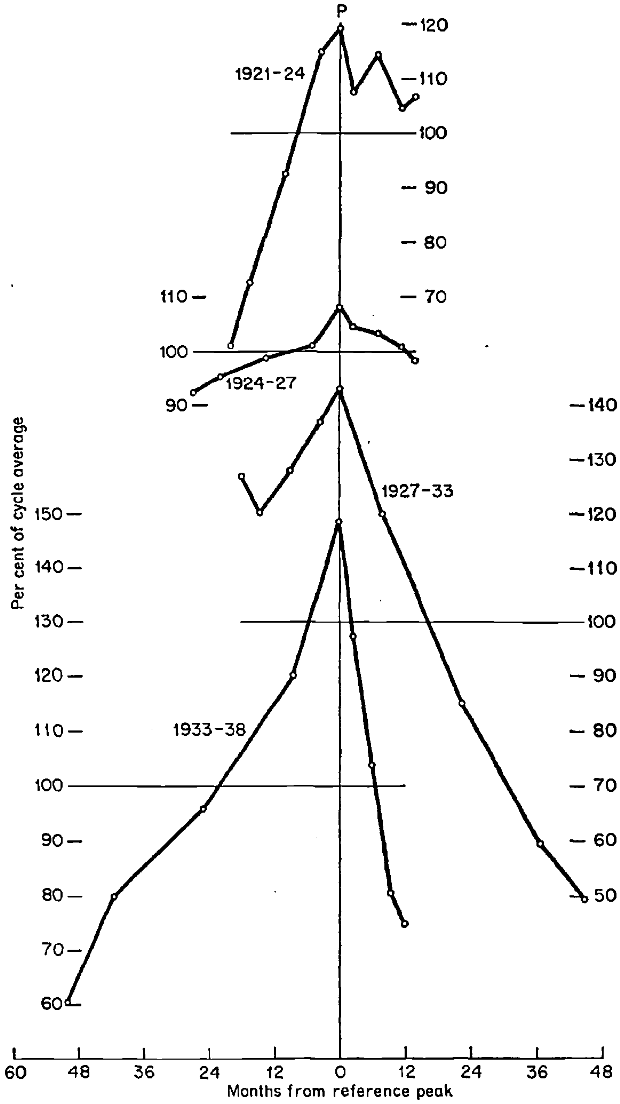
Source: Table A-7.

regular and consistent pattern with respect to timing, direction of movement, and amplitude of variation than was true of total receipts (Charts 12 and

15). Particularly noteworthy is the fact that customs revenues compared to total receipts showed much clearer conformity to the reference cycle without lags, as well as wider relative amplitude.

CHART 15

Customs Receipts, Reference Cycle Patterns, Four Cycles, 1921-1924, 1924-1927, 1927-1933, 1933-1938



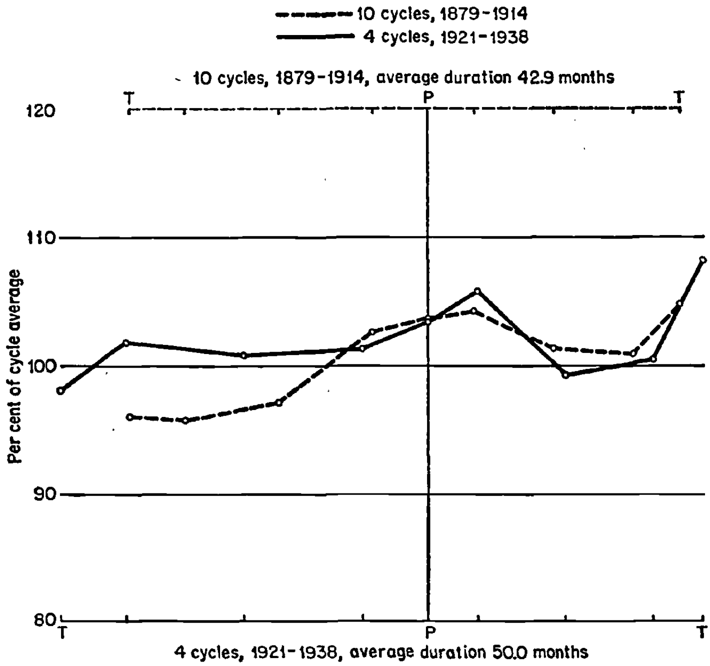
Source: Table A-5, Section D.

Miscellaneous Internal Revenues

During the interwar period, miscellaneous internal revenues showed very little conformity to reference cycles (Charts 16 and 17). The indexes of

CHART 16

Miscellaneous Internal Revenues, Average Reference Cycle Patterns, 1879-1914 and 1921-1938



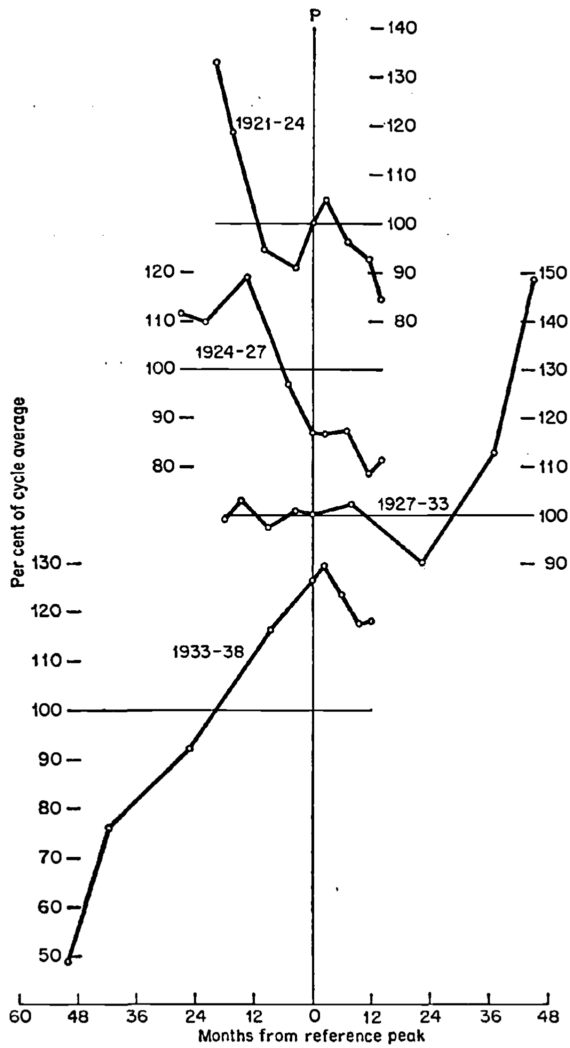
Source: Table A-5, Section E.

conformity are 0 for expansion, +50 for contraction, and +14 for full cycles. However, partly owing to accidental circumstances, the average pattern is very similar to that of the prewar period.

During the 1921-1924 and the 1924-1927 cycles, miscellaneous revenues declined more or less continuously because of the lowering and repeal of the war excise taxes. In the 1927-1933 cycle, miscellaneous revenues were fairly stable until the depression began. This decline was reversed by the Revenue Act of 1932, which broadened the excise tax base and raised income tax rates to offset the decline in revenues. The increase in revenues produced by this act was felt as the business contraction was drawing to a close; consequently, a sharp upturn occurred at stage VIII of that cycle. The repeal of the Eighteenth Amendment coincided with the March 1933 cyclical trough, but revenues from liquor taxes were not collected until late in 1933. Within two years, however, liquor taxes produced a 50 per cent increase in miscel-

CHART 17

Miscellaneous Internal Revenues, Reference Cycle Patterns, Four Cycles, 1921-1924, 1924-1927, 1927-1933, 1933-1938



Source: Table A-5, Section E.

laneous internal revenues. From 1921 to 1933 (the prohibition era when no liquor taxes were collected), miscellaneous internal revenues accounted for only 22 per cent of total revenues, as compared with 55 to 60 per cent of total revenues prior to World War I. The New Deal Revenue Acts of 1934 and 1935, together with the repeal of prohibition, expanded miscellaneous internal revenues until they accounted for 51 per cent of all revenues in 1936. Between 1933 and 1937 miscellaneous internal revenues trebled. The decline in 1937-1938 was relatively small. The 1933-1938 cycle is the only cycle of the four in the interwar period in which miscellaneous revenues conforms closely to business conditions.

Income Taxes

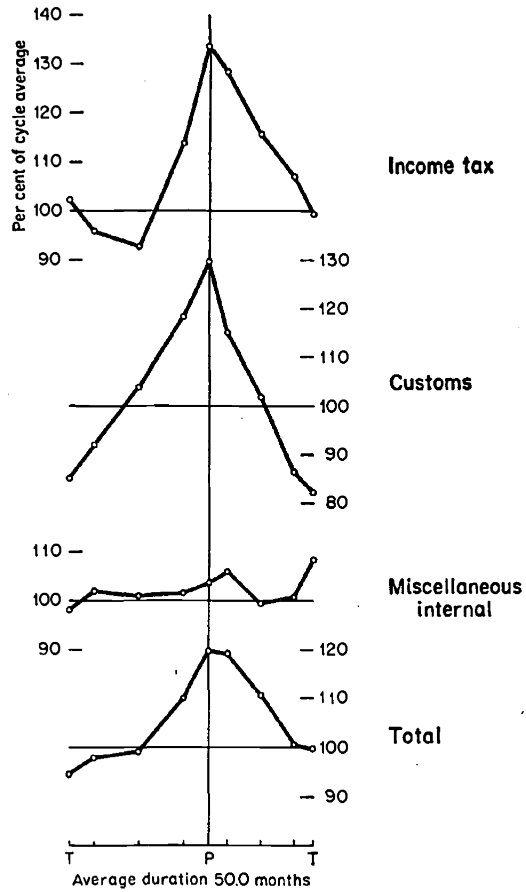
The most effective tax weapon of countercyclical policy is the income tax, which was introduced at the corporate level in 1909 and at the individual level in 1914. The regular corporate income tax has been augmented occasionally by the excess profits tax, primarily in emergency situations such as the war periods and the later 1930's. The rates on both corporate and individual income taxes in the early years were low; as a result, the yield was less than $50 million per year through 1914. The high cost of financing World War I necessitated unprecedented revenues, which the income tax together with the excess profits tax soon proved capable of providing. By the time peace had been established, the income tax had become the mainstay of our federal revenue system.

As might be expected, income tax receipts conform well to the business cycle (Charts 18 and 19). The indexes of conformity for the four cycles are +50 for expansion, +100 for contraction, and +71 for full cycles. The sole deviation from perfect conformity occurred during the expansion phase of the 1921-1924 cycle when income tax receipts declined, primarily because tax rates were undergoing a drastic downward revision from the abnormally high levels of the war period. Income tax receipts tended to lag behind general business because the bulk of tax payments during 1921-1938 were made in March following the year in which the income was earned. Some of the types of income on which tax liability was incurred, such as dividend income, also tended to lag.

Income tax receipts varied more widely than total receipts in each of the interwar cycles as well as on the average. Although customs revenues tended to augment the cyclical swings in aggregate revenues, they became a less important source. Miscellaneous revenues became more important; but, except in the 1933-1938 cycle, they conformed irregularly and tended to damp down the swings in the aggregate. The wide swings in income tax receipts come about partly because one source, corporate earnings, experience exceptionally sharp cyclical fluctuations. Another factor is the progressive nature of the personal income tax. Personal income tax receipts, it is generally recognized, do not rise and fall proportionately with incomes.

CHART 18

Selected Federal Receipts, Average Reference Cycle Patterns, Four Cycles, 1921-1938

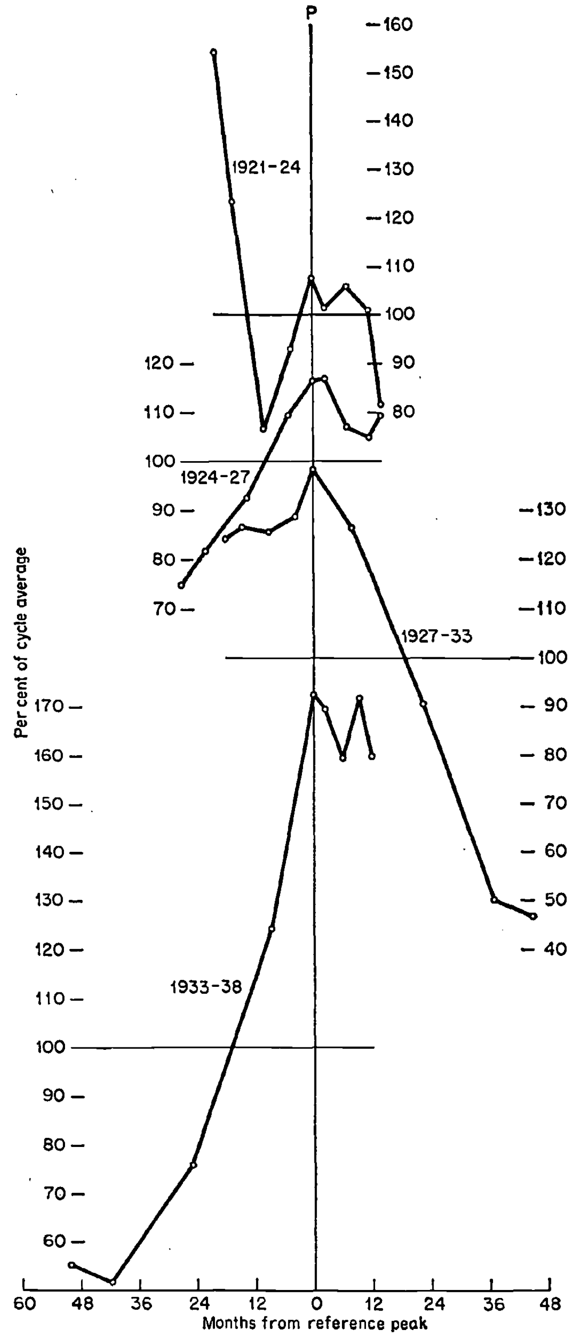


Source: Table A-5, Sections C–F.

Such fluctuation could occur only if the income distribution remained unchanged, if incomes of all sizes were taxed at a uniform rate, and if there were no personal exemptions. In actuality, the tax structures prevailing in this country have produced a more than proportionate rise in tax receipts

CHART 19

Income Tax Receipts, Reference Cycle Patterns, Four Cycles, 1921-1924, 1924-1927, 1927-1933, 1933-1938



Source: Table A-5, Section F.

during periods of rising income, with the converse true during periods of declining income.[3]

As stated previously, during the expansion phase of the 1921-1924 cycle federal income tax rates were cut. Partly for this reason, and partly because tax collection lags behind the receipt of income, revenues declined while incomes were rising. In the 1924-1927 cycle, income tax rates were reduced further, but by smaller amounts; despite the falling rates (and rising exemptions), receipts rose during the expansion period as the rise in incomes more than offset the reduction in tax rates. During the contraction phase of this cycle, income tax receipts fell moderately. In the expansion phase of the 1927-1933 cycle, reductions in tax rates were more than offset by rising incomes. However, the most striking feature of this cycle was the very sharp reduction in income tax receipts to one-third of the cyclical peak, while gross national product was declining to about one-half of its cyclical peak. As the government's deficit mounted, special excise taxes and higher and more steeply progressive income tax rates were introduced in the Revenue Act of 1932 to halt the loss of revenue. In the 1933-1938 cycle, more steeply graduated tax rates were imposed; and the rise in income tax receipts during the expansion period was so great that they had more than trebled by the time the cyclical peak was reached. During the contraction period, a short one, they declined less than 10 per cent.

[3] See William Vickrey, "Some Limits to the Income Elasticity of Income Tax Yields," *The Review of Economic Statistics,* May 1949, pp. 140 ff. Also, Joseph A. Pechman and Thomas Meyer, "Mr. Colin Clark on the Limits of Taxation," *The Review of Economic Statistics,* August 1952, p. 239; Daniel Creamer, *Personal Income During Business Cycles,* pp. 103-109; and Joseph A. Pechman, "Yield of the Individual Income Tax during a Recession," *Policies to Combat Depression,* pp. 124 ff.