

This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: Price-Quantity Interactions in Business Cycles

Volume Author/Editor: Frederick C. Mills

Volume Publisher: NBER

Volume ISBN: 0-87014-114-7

Volume URL: <http://www.nber.org/books/mill46-1>

Publication Date: 1946

Chapter Title: Patterns of Outlay and Revenue: Aggregative Record

Chapter Author: Frederick C. Mills

Chapter URL: <http://www.nber.org/chapters/c5528>

Chapter pages in book: (p. 56 - 72)

〈 CHAPTER 4 〉

*PATTERNS OF OUTLAY AND REVENUE:
AGGREGATIVE RECORD*

IN Chapter 1 attention was given to recent cyclical fluctuations in gross national product. We now undertake a more intensive study of the monetary outlays of buyers (and the monetary receipts of sellers) in a somewhat more restricted sphere. We trace fluctuations in aggregate payments for a sample group of commodities which includes about one-third, by value, of total goods exchanged in the United States. From it we may learn something about the characteristics of cyclical fluctuations in the monetary outlays of buyers and about the relative importance, as factors in outlay variations, of changes in price and in the physical volume of goods traded.

The general cyclical patterns of buyers' outlays (i.e., aggregate values), average unit prices, and physical quantities are defined by the measures in Table 18, and are plotted in Chart 5. The movements of buyers' outlays conform closely to the movements of business at large during reference cycles, rising from a low at stage I to a peak at stage V, and falling to a low at stages VIII and IX. These monetary values have a range of

TABLE 18

Average Movements of Aggregate Values, Average Unit Prices,
and Physical Volume in Business Cycles, All Commodities

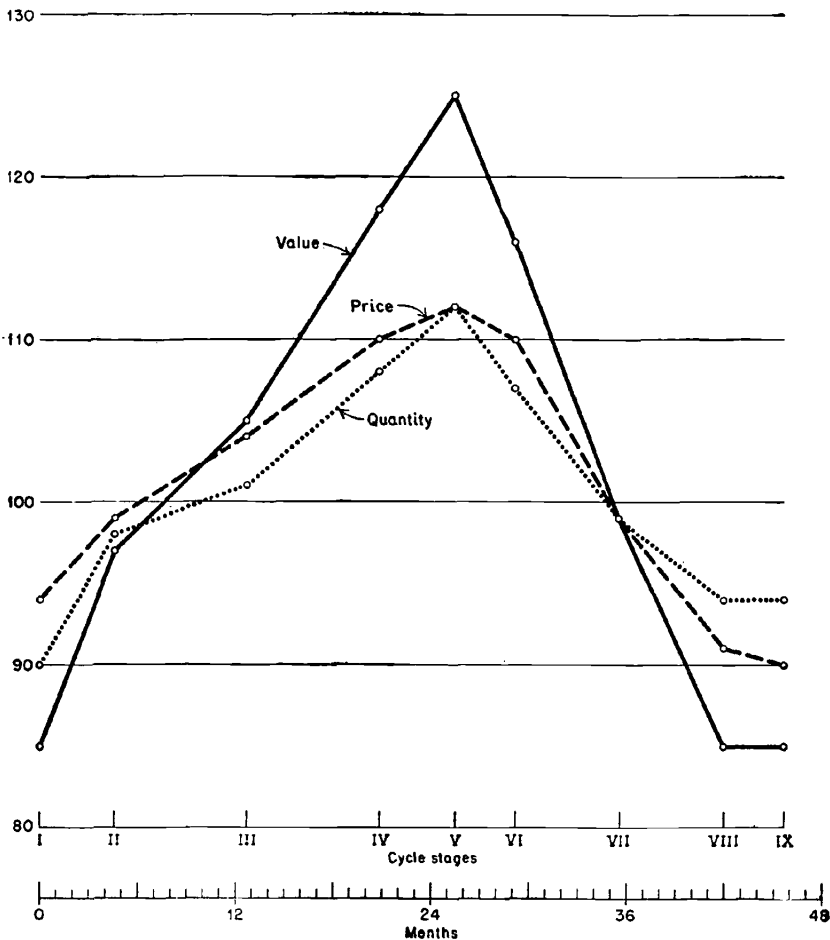
	STAGE MEASURES								
	Reference Cycle Stages								
	I	II	III	IV	V	VI	VII	VIII	IX
Value	85	97	105	118	125	116	99	85	85
Price	94	99	104	110	112	110	99	91	90
Quantity	90	98	101	108	112	107	99	94	94
	PHASE MEASURES, AVERAGE CHANGE				FULL CYCLE MEASURE				
	Expansion		Contraction		Average Amplitude				
Value	+40		-40		+80				
Price	+18		-22		+40				
Quantity	+22		-18		+40				

These averages for all commodities are derived from stage averages defining price, quantity, and value patterns for 64 individual commodities. Stage averages for individual commodities are given equal weight in the derivation of the general averages in Table 18.

OUTLAY PATTERNS: AGGREGATIVE

fluctuation during business cycles materially wider than that of average unit prices or physical quantities. For the commodities here studied, the amplitude of the cyclical swings in aggregate buyers' outlays is measured by an index of 80 (see the last column of Table 18). This signifies a fluctuation, from the

CHART 5
Average Movements of Unit Price, Physical Quantity, and
Aggregate Buyers' Outlay in Business Cycles
All Commodities



PRICE-QUANTITY INTERACTIONS

trough of the cycle to the peak and back to the trough again, over a range equal to about 40 percent of the cycle average.¹ Price variations are about one-half as wide, some 20 percent of the cycle average; quantities have about the same amplitude as prices.² Cyclical variations in unit prices and in physical output, when averaged as they are in Table 18, are generally concurrent and in the same direction. They thus reenforce one another, and contribute to variations in monetary commitments (and in monetary payments) substantially wider than the variations in quantities. Business cycles are particularly manifest in monetary incomes and outlays, and in the dollar value accounts by which business enterprise records its operations and appraises its successes and failures.

There is variation behind the averages in Table 18, but the detailed record tells the same general story. If for each commodity we define the ratio of quantity amplitude to value amplitude, and array the commodities on the corresponding scale, the heaviest concentration lies between .50 and .70; i.e., quantity amplitudes are from 50 to 70 percent of value amplitudes. Characteristically, cyclical fluctuations in outlays and revenues are wider than in the flow of physical goods.

¹ The measure of amplitude employed in this study is the algebraic difference between movements during expansion and contraction (i.e., between reference cycle stages I-V and V-IX), in reference cycle relatives. The average of the two may be interpreted as a percentage of the reference cycle average for a given series. As already noted, if the specific highs and lows of a given series do not coincide with the highs and lows of cycles in business at large, the measure of 'reference cycle amplitude' of that series will understate the actual extent of its cyclical movements. For the three series of averages in Table 18 highs and lows coincide with, or are very close to, the peaks and troughs of reference cycles. The 'reference cycle amplitudes' are, therefore, meaningful.

The measures of reference cycle amplitude employed in general National Bureau procedure are based on the stages characteristic of each series' own movements. Thus if the low comes at stage VIII and the high at stage IV for a given series, the amplitude will be the algebraic difference between the change from VIII to IV and the change from IV to VIII. With this flexibility in locating lows and highs there is less understatement of amplitude than there is when lows and highs are arbitrarily set at stages I and V, respectively. But for the purposes of the present study a standard framework, with points of measurement at stages I, V, and IX, was considered desirable in the definition of cyclical amplitudes.

² If war cycles are omitted the average measures of reference cycle amplitude for all commodities are modified: value, 77; price, 34; quantity, 43. The quantity factor is some 25 percent again as variable as price, under peacetime conditions.

OUTLAY PATTERNS: AGGREGATIVE

Rates of Change in Buyers' Outlays

The general direction of movement of buyers' outlays (and of sellers' revenues) during cycles in general business is shown in Chart 5 and Table 18. But how rapidly is the current flowing during the several stages of expansion? With the setting-in of contraction after stage V, how rapid is the ebb, and how do the rates of decline compare with the rates of advance? In answering these questions we use measures of interstage changes, expressed in terms of monthly rates (see Table 19).

TABLE 19

Average Monthly Interstage Changes in Prices, Quantities,
and Values in Business Cycles, All Commodities

INTERSTAGE PERIOD	PRICE	QUANTITY	VALUE
I-II	+1.1	+1.7	+2.5
II-III	+0.6	+0.4	+0.9
III-IV	+0.7	+0.9	+1.6
IV-V	+0.6	+0.9	+1.6
V-VI	-0.7	-1.6	-2.5
VI-VII	-1.6	-1.1	-2.7
VII-VIII	-1.3	-0.9	-2.0
VIII-IX	-0.3	+0.1	-0.2

The unit is 1 percent of the average reference cycle standing of a given series. For an explanation of the derivation of average interstage changes see the footnote to Table 11.

In the terminal period of contraction, between stages VIII and IX of reference cycles, buyers' outlays decline slightly, as a result of a minor drop in average unit prices that more than offsets a very slight advance in quantities.³ The turn in this aggregate tide after stage IX is sharp. The maximum rate of advance (2.5 per month) is recorded during the first period of recovery, between stages I and II. There is a sharp check during the next period (between stages II and III), but the advance continues. The current speeds up between stages III and V, but does not attain the earlier rate. The rise in outlays continues at a relatively high rate to the peak of activity in business at large, with no pause comparable to the almost com-

³ Apparent minor discrepancies between Tables 18 and 19 are due to the fact that the entries in Table 18 are rounded to the nearest whole number while those in Table 19 are based upon figures carried to one decimal place.

PRICE-QUANTITY INTERACTIONS

plete immobility of the final period of contraction. The transition from expansion to contraction is therefore sharper. The rate of decline in the first two periods of contraction is high, the maximum rate occurring between stages VI and VII. The general picture is of recession in monetary payments for goods that moves steadily and with no great accelerations or retardations between stages V and VIII. The ebb of the tide in buyers' outlays is more concentrated and more uniform than the flow. At its maximum (2.7) the rate of decline is somewhat greater than the maximum rate of advance (2.5).⁴

The rates of change in the two component factors, which in all except the terminal period are lower than the rates for the total value series, were compared in the preceding chapter. We noted the narrow range of movements in the final period of contraction; the maximum rates of advance, for both unit prices and quantities, during interstage period I-II; the pronounced retardation of both between stages II and III; the maximum rate of decline in physical quantities during the first period of contraction, between stages V and VI, and the steady tapering off thereafter; the maximum rate of decline for unit prices between stages VI and VII; the excess of rates of fall in prices over those in quantities in all periods of contraction after stage VI.⁵

The amplitudes of the cyclical swings of prices and quantities, as averaged for all commodities, are about equal, and the stages at which cyclical lows and highs are recorded are nearly the same. However, the behavior of these two factors is far from the same during the expansion and contraction phases of business cycles. In the first rush of recovery and during the stages when prosperity is in full bloom rates of advance in quantities exceed those in prices. When the turn is rounded,

⁴ The rate of decline in buyers' outlays appears to be at its maximum in the first period of contraction (between stages V and VI) when war cycles are omitted. But the records including and excluding war cycles show substantially the same sequences and relations.

⁵ It will be understood that these statements relate to the particular sample studied. The final condition noted (excess of rates of fall in prices over those in quantities in all periods of contraction after stage VI) probably reflects the fairly heavy weight given to agricultural products in this sample. (Prices of farm products are subject to a notable weakening after stage VI.) The relationship observed is not generally true of industrial products.

OUTLAY PATTERNS: AGGREGATIVE

and contraction sets in, quantities drop more sharply at first. Thereafter, prices are the chief bearish factor, in the over-all record of Table 19.

Scope of Expansions and Contractions in Buyers' Outlays

Measures of the average standing of buyers' outlays and of corresponding unit price and quantity series fail to define actual conditions in commodity markets during business cycles, in all their complexity. For there are innumerable cross-currents in these markets. Buyers' outlays may be increasing for some commodities while they are declining for others. Behind these diverse movements of monetary payments are still more diverse combinations of related price and quantity changes. We may get at some of these, from the value side, by studying the extent to which commodities participate in the general advances and declines of aggregate outlays during business cycles, and in the different phases of business cycles. We seek, that is, to determine the degree to which fluctuations in the stream of monetary payments for commodities accord with the general tides of business expansion and contraction.

Reference cycles, it will be recalled, are divided into nine stages, I to V covering expansion, V to IX, contraction. Observations on our 64 commodities cover, in all, 4,160 interstage movements of commodity values (the unit of observation is the change in the value of a single commodity between two stages, e.g., from II to III, of a given reference cycle). The complete record shown in the accompanying summary of the movements of monetary payments for commodities, in successive stages of

Movements of values in full cycle	INTERSTAGE CHANGES	
	Number	Percent
With cyclical tide	2,791	67
Against cyclical tide	1,369	33
Total	4,160	100

business cycles, reveals a fairly high degree of concordance between changes in commodity values and the prevailing tides of business. Approximately two-thirds of all interstage changes in commodity values are in the same direction as the cyclical

PRICE-QUANTITY INTERACTIONS

movement of general business; about one-third run counter to it. In indicating the mixed character of cyclical movements, these figures give a just picture of business cycles. Conflicting currents and countermovements are always present;⁶ the cyclical swings of business reflect preponderant tendencies toward expansion or contraction, never complete uniformity of movement in one direction.⁷

When we pass from the record for the full cycle to separate phases of expansion and contraction, we note some variation in the relative importance of the contracyclical currents. For

	INTERSTAGE CHANGES	
	Number	Percent
Movements of values		
During expansions		
With cyclical tide	1,460	70
Against cyclical tide	620	30
Total	2,080	100
During contractions		
With cyclical tide	1,331	64
Against cyclical tide	749	36
Total	2,080	100

⁶ Not all the countermovements represent changes conflicting with the currents of business cycles. Cyclical forces themselves generate some nonconforming movements—leads, lags, and inversions.

⁷ If we take as the unit of observation not the movement of values for one commodity between two successive stages of a given reference cycle but the movement of values for a single commodity between two successive stages of the average pattern for that commodity (as exemplified by pig iron in Chart 1) we reduce markedly the aberrant behavior behind the pattern for a single commodity. With primary interest attaching to the typical behavior of individual commodities it is desirable, indeed, to ignore the idiosyncrasies of individual reference cycles and concentrate on the average pattern characteristic of each commodity. On this basis we have observations on average patterns for 64 commodities, each pattern comprehending 8 interstage periods—a total of 512 observations, divided as in the accompanying tabulation. Here the agreement between changes in commodity values and the prevailing tides of business is higher. More than three-quarters of the interstage changes in average value patterns are with the cyclical movements of business at large. The removal of aberrations in individual reference cycles reveals typical changes in buyers' outlays for individual commodities conforming in high degree to the pattern of reference cycles.

	INTERSTAGE CHANGES	
	Number	Percent
Movements, in full cycle, of values defined in average patterns		
With cyclical tide	394	77
Against cyclical tide	118	23
Total	512	100

OUTLAY PATTERNS: AGGREGATIVE

the 4,160 observations cyclical expansion is marked by a movement of buyers' outlays somewhat stronger and more uniform than that found in contraction. During expansion values move with the cyclical tide in 70 percent of all interstage changes; during contraction only 64 percent move with the tide. The larger proportion of aberrant movements during contraction doubtless reflects the influence of the rising secular trend in physical volume characteristic of most of the period covered by these observations. This movement, which apparently outweighs the declining trend in unit prices, would tend to diminish the intensity of contractions, and to enhance the intensity of expansions.⁸

The ebbs and flows of the stream of monetary payments during business cycles may be studied in greater detail in the records for interstage periods—four in expansion, four in contraction. Relevant evidence bearing on variations, from stage to stage of expansion and from stage to stage of contraction, in the intensity and uniformity of the flow of payments for commodities is summarized in Table 20 and is presented graphically in Chart 6. Table and chart are based on average outlay patterns for the commodities studied. In this summary, therefore, we are working with typical or characteristic modes of cyclical behavior of individual commodities, abstracting from the variations that occur from cycle to cycle.

Changes in the outlays of buyers (and in the revenues of sellers) are predominantly positive between stages I and V of refer-

⁸ When attention is concentrated on the average patterns for the 64 commodities studied, the same general relations are found. Conformity of outlays, as defined by average patterns, is high in both expansion and contraction, but somewhat higher in the former.

Movements of values defined in average patterns	INTERSTAGE CHANGES	
	Number	Percent
During expansions		
With cyclical tide	203½	79
Against cyclical tide	52½	21
Total	256	100
During contractions		
With cyclical tide	190½	74
Against cyclical tide	65½	26
Total	256	100

PRICE-QUANTITY INTERACTIONS

TABLE 20

Changes in Proportions of Commodities for Which Buyers' Outlays Increase and Decrease between Successive Stages of Business Cycles

	INTERSTAGE PERIOD							
	I- II	II- III	III- IV	IV- V	V- VI	VI- VII	VII- VIII	VIII- IX
Percentage of commodities for which outlays:								
increase (value changes are positive)	84	64	89	80	23	16	17	45
decrease (value changes are negative)	16	36	11	20	77	84	83	55

The base of the two percentages given for each interstage period is 64.

ence cycles, predominantly negative between stages V and IX, but mixed movements occur at all stages. The proportion of all transactions involving increases in the monetary outlays of buyers is at a minimum between stages VI and VIII. Forces making for contraction dominate markets at this time; the tide of business is ebbing most strongly. Yet even in this period about one-sixth of all changes in the monetary values of goods are positive. In some markets buyers are increasing their outlays; the receipts of sellers are expanding. In the final phase of general contraction, when business at large is at its lowest point, positive value changes amount to 45 percent of the total. The tide is still ebbing—55 percent of all value changes are negative—but the forces of recovery in the markets for commodities are almost strong enough to offset the negative factors.

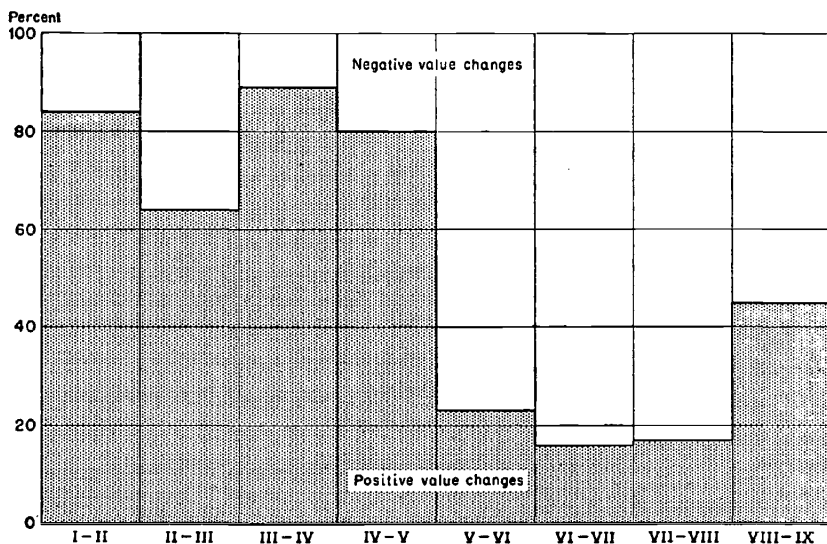
When stage IX (which coincides with stage I) has been passed, the tide is running strongly toward recovery. Between stages I and II, 84 percent of all changes in monetary outlays for commodities are positive. Some declines persist—16 percent of the total—but forces making for expansion dominate commodity markets at large. In the next period, between stages II and III of reference cycles, a check occurs; positive outlay changes fall to 64 percent of the total; declines constitute 36 percent. This retardation, coming after the first sharp spurt of recovery, is a characteristic and persistent feature of business cycles, observable over a wide range of economic processes.⁹

⁹ See the forthcoming monograph by Wesley C. Mitchell, *What Happens during Business Cycles: A Progress Report* (National Bureau of Economic Research).

OUTLAY PATTERNS: AGGREGATIVE

CHART 6

Changes in Outlays for Commodities by Stages of Business Cycles
Proportions of all commodities for which buyers' outlays increase
and decrease between successive cyclical stages



Between stages III and IV the stream of monetary payments again swells. Of all outlay changes 89 percent are positive, 11 percent negative. Indeed, at this period the stream of monetary payments is running more uniformly in one direction than it is at any other cyclical period. As stage IV is passed, the forces of recession gain strength. The percentage of positive value changes drops to 80 between stages IV and V; the percentage of negative changes rises to 20. With the general turn of the tide at stage V, 57 percent of all outlay changes shift from the positive to the negative column, and the percentage of negative value changes rises to 77. Thereafter the extent of participation in the contraction rises, reaching a maximum between stages VI and VIII when buyers' outlays are declining for about five-sixths of all commodities. In the final period of general contraction this proportion falls to slightly more than one-half (55 percent).

The record of buyers' outlays set forth above has deficiencies

PRICE-QUANTITY INTERACTIONS

in both coverage and accuracy, but it represents with reasonable faithfulness the changing aggregate of monetary payments for major classes of commodities as business cycles run their course. It shows the strongly concentrated surges of expansion and contraction that set their impress on the general economy, and reveals the character of the accelerations and retardations that mark the transition from prosperity to depression and from depression to prosperity. It reveals, moreover, the diversity of movement that is always present—the contractions in some markets in the midst of prosperity and the expansions in the depths of depression. At different stages of cyclical expansion, these figures indicate, outlays and revenues are contracting for 11 to 36 percent of the buyers and sellers of commodities included in our sample; in stages of cyclical contraction outlays and revenues are expanding for 16 to 45 percent of these buyers and sellers. This absence of complete uniformity of movement is in both its aspects an element of stability in the economy at large.

The Roles of Prices and Quantities in Shaping the Movements of Monetary Payments for Commodities

The outlays of buyers and the revenues of sellers may change because of alterations in the physical quantities of goods being exchanged, or because of alterations in average unit prices. The average patterns of behavior of these two factors have been noted (see Chart 5 and Table 18) and the relation of their rates of change to changes in buyers' outlays has been examined (see Table 19). We seek now to trace in greater detail the parts played by changes in quantities and in average unit prices in the cyclical movements of commodity values. Which is the dominant factor in determining the cyclical fluctuations in outlays and revenues? Which is the more important in expansions? In contractions? Which is dominant at each stage of expansion and contraction?

For the over-all record we use 4,160 cases of interstage change in commodity values, a majority being movements with the cyclical tide, a strong minority running counter to the current. In 58 percent of the recorded movements the quantity factor

OUTLAY PATTERNS: AGGREGATIVE

	NO. OF INTERSTAGE CHANGES	PERCENTAGE IN WHICH Price is dominant	Quantity is dominant
Movements of values in full cycle			
With cyclical tide	2,791	44	56
Against cyclical tide	1,369	39	61
Total	4,160	42	58

was the chief determinant of the direction and amount of the observed change in value; changes in unit prices were dominant in 42 percent of the cases. Both factors contributed, but changes in the quantities of goods exchanged were chiefly responsible for the expansions and contractions in monetary outlays during business cycles. This evidence, which is straightforward and detailed, is of considerable importance. Comparison of the relative amplitudes of price and of quantity cycles, of relative rates of change in averages of the two factors, of the extent of participation of prices and quantities in the cyclical movements of general business are all somewhat indirect and equivocal in their bearing on the central question here at issue: Are changes in prices or in quantities chiefly responsible for cyclical expansions and contractions in the stream of monetary payments for commodities? The full count of individual cases, period by period of reference cycles, shows a clear predominance of the quantity factor.¹⁰

In investigating the character of the influence exerted by each factor this general count may be analyzed in various ways. We have seen that about two-thirds of all changes in the monetary values of the commodities here studied were movements with the cyclical tide of general business; one-third were against the tide. Quantity is dominant in shaping both movements, but its influence is distinctly stronger in determining the value changes that reverse the cyclical tide. Here the percentage of quantity dominance is 61 as against 56 for quantity dominance in value movements conforming to cycles in general business.

For further light on these movements we study the separate phases of expansion and contraction. The relative dominance

¹⁰ When the count is made on the basis of *average* patterns for individual commodities, we find that the quantity factor is dominant in 60 percent of interstage changes in outlay, price in 40 percent.

PRICE-QUANTITY INTERACTIONS

	NO. OF INTERSTAGE CHANGES		PERCENTAGE IN WHICH Price is dominant	Quantity is dominant
Movements of values				
During expansions				
With cyclical tide	1,460		41	59
Against cyclical tide	620		42	58
Total	2,080		42	58
During contractions				
With cyclical tide	1,331		46	54
Against cyclical tide	749		36	64
Total	2,080		43	57

of the quantity factor is substantially the same in the two phases, but there are appreciable differences when changes in value that accord with the cyclical tide are distinguished from changes countering the tide. Quantity movements are most important, relatively, when they are pushing values upward against an ebbing cyclical tide. Prices exert their greatest influence when they are pushing values downward with an ebbing cyclical tide. The record in this respect is the same whether we include the full count of value changes in separate reference cycles or concentrate on patterns of average behavior of individual commodities. Both counts agree, moreover, in indicating the preponderant influence of quantity in determining value changes.

We probe more deeply into these processes by examining the roles of price and quantity factors in shaping the movements of monetary outlays at successive stages of expansion and contraction. Here we shall deal with the average behavior of individual commodities. For each interstage period we have a record of the average change in buyers' outlays for each of 64 commodities. These are summarized in Table 21, and shown graphically in Chart 7.

We may start with the interstage period VII-VIII, when only 11 of the 64 commodities included show positive value changes in their average outlay patterns. Increases in the quantities of goods exchanged account for all positive value changes. At this stage of contraction, when the tide is ebbing strongly, pick-ups in physical volume are responsible for all observed expansions in monetary payments for commodities as these are reflected in average outlay patterns for individual goods.¹¹

¹¹ If we go behind the averages to detailed commodity records, cycle by cycle, we find less uniformity, but the quantity factor is still dominant.

OUTLAY PATTERNS: AGGREGATIVE

TABLE 21

Value Changes by Reference Cycle Stages
Roles of Price and Quantity Factors

	INTERSTAGE PERIOD								
	I- II	II- III	III- IV	IV- V	V- VI	VI- VII	VII- VIII	VIII- IX	
	POSITIVE VALUE CHANGES								
Number	54	41	57	51½	15	10½	11	29	
Percentage in which									
Price is dominant	41	43	42	40	53	17	0	21	
Quantity is dominant	59	57	58	60	47	83	100	79	
	NEGATIVE VALUE CHANGES								
Number	10	23	7	12½	49	53½	53	35	
Percentage in which									
Price is dominant	45	24	43	32	37	47	55	39	
Quantity is dominant	55	76	57	68	63	53	45	61	

For each interstage period there are 64 observations. Each observation defines the change in buyers' outlays for a single commodity during that period as averaged for all the business cycles covered by the value series for that commodity.

The entries in Table 21, and in the similar tables following, are based upon comparisons of average monthly rates of change in the prices, quantities, and monetary values of individual commodities. The rates of change for each commodity are unweighted averages of the monthly rates, by interstage periods, for all the reference cycles covered by the records for that commodity. That is, in getting an average rate of change in the price of a given commodity between reference cycle stages III and IV, for example, we average, with equal weights, rates for that interstage period in all the reference cycles covered. No attempt is made to weight on the basis of duration. For the present purpose we assume that a monthly rate-of-change observation for an interstage period lasting four months is as important as a monthly rate-of-change observation for the same period (in another cycle) lasting twelve months. The reference cycle is the unit of measurement, and all reference cycles are assumed to be of equal weight.

For consistency with such graphic presentations as that given in Chart 1, in the derivation of which account is taken of interstage durations, weights based on duration should be used in the computation of average rates of change. Both weighted and unweighted average rates will be given by the National Bureau in publishing basic cycle records.

Between stages VIII and IX, the final period of general business contraction, the number of positive changes among buyers' outlays increases substantially. The quantity factor accounts for 79 percent of these, prices for 21 percent. In the next four interstage periods, between stages I and V of the reference expansion, the role of quantities remains predominant. Approximately three-fifths of all increases in buyers' outlays are chiefly

PRICE-QUANTITY INTERACTIONS

due to increases in the number of units exchanged, approximately two-fifths to price increases. With the passing of the peak in general business activity at stage V the number of value increases falls sharply, and there is a reversal of the relative strengths of prices and quantities as positive factors. Price accounts for slightly more than half of the few outlay increases between stages V and VI. After stage VI the positive influence of prices declines sharply, reaching its minimum between stages VII and VIII.

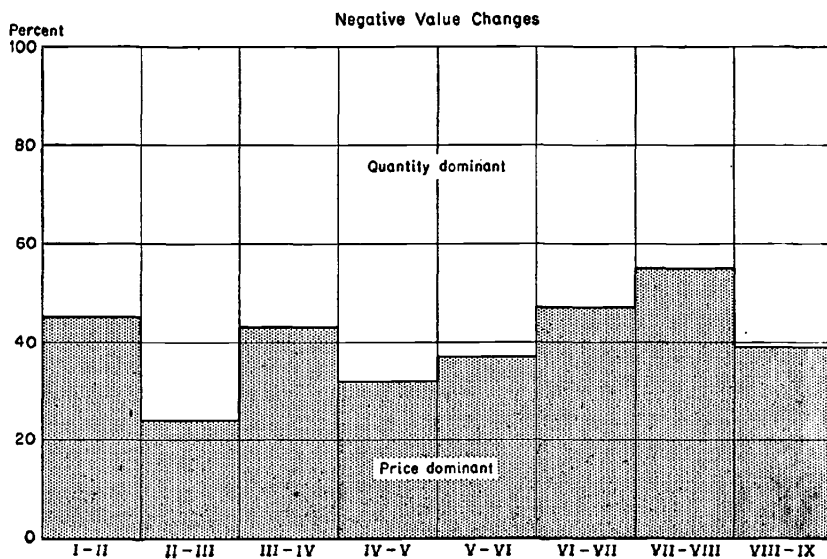
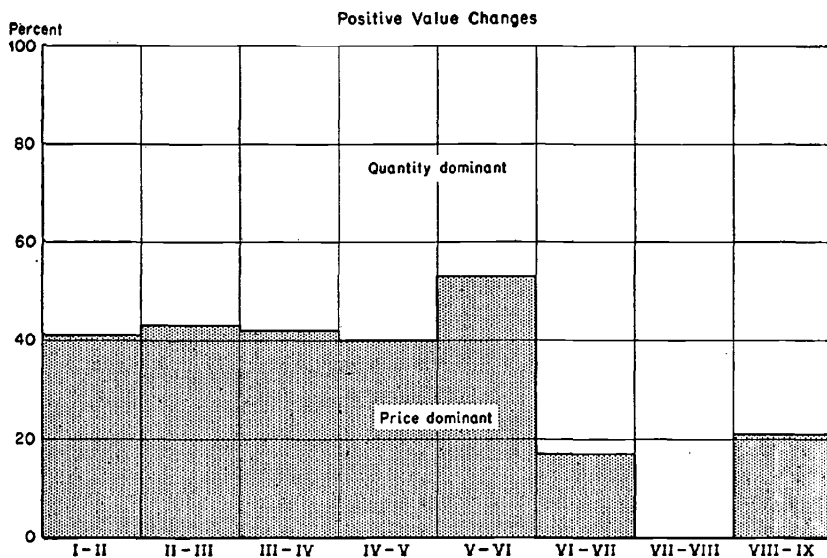
The roles of prices and quantities as factors contributing to increases in the outlays of buyers and the revenues of sellers are shown graphically in Chart 7. This reveals the dominant role of quantities in all interstage periods except V-VI; the high importance of quantity increases in the terminal stages of contraction; the relative constancy of the two factors during the entire reference expansion; the sharp drop in the positive influence of prices after stage VI when general contraction is characteristic of the economy.

The series measuring the number of decreases in buyers' outlays for goods (i.e., the negative value changes in Table 21) runs inversely to that measuring the number of increases, but the roles of price and quantity as factors in the decreases and the increases are quite different. Prices are pressing downward most strongly between stages VI and VIII of contraction, particularly between stages VII and VIII. These are the periods, it will be recalled, when the influence of price as a factor making for increases in monetary payments is at a minimum. When the full tide of contraction is running, prices are going with the current and doing little to check or reverse it. In its influence on buyers' outlays the quantity factor is dominant negatively in all except one (VII-VIII) interstage period, as it is dominant positively in all except one (V-VI). There is, however, considerable variation in the strength of the downward push exerted by physical quantities. They are strongest, relatively, in the check to expansion that comes after stage II and in the turn of the cyclical tide between stages IV and VI. The marked retardation of recovery after stage II and the first sweep of recession are primarily physical phenomena. The negative influence of price is at its lowest in these periods.

OUTLAY PATTERNS: AGGREGATIVE

CHART 7

Relative Importance of Price and Quantity Factors
in Determining the Proportion of Commodities for
which Buyers' Outlays Increase and Decrease,
from Stage to Stage of Business Cycles



PRICE-QUANTITY INTERACTIONS

In summary, the evidence we have here examined indicates that physical expansion is the dominant factor in the reversal of cyclical declines in buyers' outlays and sellers' revenues; that declines in physical quantity interrupt the general advance after stage II and play a leading role in the generation of recession; that prices follow the leader in expansion, turn downward with quantities after the peak of business activity has been passed (but work in an appreciable minority of cases to keep monetary payments rising during the first stage of general business contraction), and push strongly to reenforce contraction in the stream of monetary payments.