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Volume Author/Editor: George J. Stigler and James K. Kindahl

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Chapter Author: George J. Stigler, James K. Kindahl

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## APPENDIX D

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### Prices in Specific Cycles

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The specific cycles are identified in the outputs of industries or products as part of the National Bureau cyclical analysis. Such cycles must be at least fifteen months, and preferably two years, in length, in order to eliminate seasonal and short-lived fluctuations. Our interest is somewhat different. It is in those sharp changes in output which presumably reveal substantial, unpredicted changes in demand that would normally lead to price changes in the same direction. To this end we define a specific cycle as a change in seasonally corrected monthly output data having the following characteristics:

1. The expansion (contraction) of output must last at least eight months. A ten month change was used in the calculations.
2. The level of output rises (falls) by at least 20 per cent.
3. The expansion succeeds a period of contraction or at most stability of output, and similarly for contractions.

These criteria are intended to identify periods in which one would expect a substantial force to have been exerted on the market price by changing demand. Of course if the output changes are brought about by supply (curve) changes, we would expect the opposite price behavior to that resulting from demand (curve) changes; in this latter case, price would fall when output rose, and vice versa. But since none of our commodities is agricultural, we expect sharp short-run fluctuations in output of these durations to be dominated by demand changes.

Specific cycles were sought in forty-six commodities for which we

have output data. Few specific contractions were found, and the latter half of our period was too continuous in its expansion. A tabulation of price movements against output movements in specific cycles leads to unprepossessing results (see Table D-1); in general, neither price index conforms to output changes.

One possible explanation for these results is that we employ a much too simple model of behavior. It is possible that short-run demand fluctuations are usually less than the eight months in duration that is our minimum specific cycle, and are met chiefly from inventory. The period of eight months is sufficient to allow a very large change in the rate of output in most industries. An alternative hypothesis is that the output changes may be cost-induced and then our cases of "non-conformity" are actually conforming to the law of demand. If output (production) rises but inventory is stable, there is less probability of a rise in demand

TABLE D-1

Movements of BLS and NB Prices in Specific Cycles  
(conformity = movement of price and output in same direction)<sup>a</sup>

Commodity Class	Number of Commodity Cycles			
	BLS Conforms, NB Does Not Conform	NB Conforms, BLS Does Not Conform	Neither Index Conforms	Both Indexes Conform
<i>1. Expansions after Trough</i>				
Metal products	1		6	2
Rubber products		1	7	
Paper products			3	1
Chemical products	3	1	22	2
Other products	1	1	4	1
<i>2. Contractions after Peak</i>				
Rubber products	1	1	2	
Chemical products			5	
Other products			1	

<sup>a</sup> Price changes of less than 2 per cent are considered nonconforming. Percentage changes are between three-month average at turning point and three-month average centered ten months later.

TABLE D-2  
 Illustrative Specific Cycles in Commodity Groups

Commodity	Beginning of Specific Cycle		Percentage Change <sup>a</sup>		
			NB Price Index	FRB Output Index	FRB Inventory Index
	Trough	Peak			
Steel products		2/57	4.4	-28.9	13.3
	4/58		1.9	55.2	3.6
		11/59	-0.8	-33.3	17.5
Nonferrous metals	11/60		-0.4	41.9	3.0
		7/57	-9.1	-19.3	-4.0
	6/58		8.7	24.7	3.8
Petroleum and coal	4/61		-1.7	14.2	-18.4
Rubber tires	3/58		-4.2	10.0	-7.3
		3/57	5.4	-16.5	10.1
	4/58		0.8	39.9	0.9
		6/60	-3.0	-17.0	1.7
		2/61	-1.4	24.4	-7.2
		8/63	-1.7	21.4	-2.8
Paper and paperboard	4/58		-0.3	10.5	1.0
	11/60		-1.9	9.8	2.6

<sup>a</sup> Percentage change over ten months: beginning and ending date based on three-month averages.

than if inventory falls (but more than if inventory rises). Conversely, if output falls and inventory rises, there is a higher probability of downward pressure of demand upon price. When inventories exist, in principle much more precise investigations of the impact of short-run demand changes should be possible.

Unfortunately, seasonally adjusted inventory data are not available for any appreciable number of individual products. Indeed such data are not plentiful for commodity groups—and the price indexes of groups are an inappropriate place in which to look for large short-run demand changes because the demand for a group of commodities is more stable than the demand for one commodity. A few specific cycles for such groups are available, however, and are presented in Table D-2. This

particular collection of price indexes shows a moderately better conformity to expectations than the individual commodity price indexes of Table D-1: six of fifteen cases are "conforming". It is apparent that a useful study of price flexibility cannot be undertaken with only price data.