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Volume Title: The Postwar Rise in the Velocity of Money: A Sectoral Analysis

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Volume Publisher: NBER

Volume ISBN: 0-87014-392-1

Volume URL: <http://www.nber.org/books/seld62-1>

Publication Date: 1962

Chapter Title: Summary and Conclusion

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Chapter URL: <http://www.nber.org/chapters/c2085>

Chapter pages in book: (p. 530 - 534)

VI. SUMMARY AND CONCLUSION

SUMMARY OF FINDINGS

This study has pursued twin objectives: to discover the reasons for the postwar velocity rise and to develop a new dimension to velocity analysis. The objectives are not unrelated, of course; sectoral analysis of velocity offers several interesting pieces of information concerning the rise in aggregate velocity in recent years.

Many of the findings can best be summarized in a series of negative propositions. Some of these are well known and scarcely require extensive statistical documentation; others, however, have either been unexamined or untested prior to the present study.

1. The postwar velocity rise did not result from changes in the degree of business integration, the volume of financial payments relative to income payments, or changes in other variables that affect aggregate transactions velocity and income velocity differentially.

2. Velocity—undoubtedly the demand for money as well—is not the same in all sectors. It is higher in large cities than in small; in businesses than in the federal government, and in the federal government than in households; it is higher in trade than in manufacturing and in manufacturing than in the public utility sector; and, finally, it is higher in small than in large firms. Furthermore, cyclical variations in velocity differ by sector, being much more pronounced for businesses than for others.

3. The postwar velocity rise did not result from an increase in importance of sectors with relatively low demands for money. In fact, such structural changes as have occurred appear to have been velocity-reducing in nature.

4. The velocity rise was not confined to one or two major sectors; it was a very general phenomenon, taking place in every broadly defined sector and in all but a few of the more narrowly defined business sectors. However, the degree of rise has varied substantially from sector to sector. Taking 1939 as a prewar benchmark, we found that velocity increased most in large cities, the corporate and federal sectors, the manufacturing and public utility industries, and large firms.

5. The postwar velocity rise was not merely a "return to equilibrium" after the abnormalities of the war years. We found that a major part of the wartime velocity declines resulted from shifts in the ownership of cash, the growth in real income, and the associated

decline in the cost of holding money for small firms—changes that were permanent rather than transitory. That portion of the wartime decline that was transitory appears to have been fully reversed by about 1949.

6. Analyzing the velocity ratio in terms of its subratios—spending to assets and assets to cash—we found that the postwar rise in corporate velocity consisted not of a rise in the ratio of spending to assets—this ratio has been remarkably stable—but rather of a rise in the ratio of assets to cash.

7. The postwar rise in corporate velocity is not attributable to a shift from cash to government securities. In fact, non-financial corporate holdings of government securities in 1957 were smaller, relative to cash, than a decade earlier. The ratio of corporate spending to total liquidity (including non-cash liquid assets as well as cash) probably rose even faster than did corporate velocity.

8. We have failed to discover any clear evidence that the fear of inflation caused a flight from cash in the postwar period. Total fixed claims have grown much faster than cash alone, and at about the same rate as other assets.

These negative propositions add to our knowledge of postwar velocity movements, but they leave the basic question unanswered. Unfortunately, on the basis of existing data, it is not possible to explain with certainty why velocity rose during this period. It seems quite clear that the rising cost of holding money, as measured by the cost of borrowed funds, has been an important force responsible for higher velocity. Perhaps our key finding has been that velocity levels at a point in time and velocity changes over time have been functions of the size of cash holders; in large measure the industrial differences in postwar velocity behavior are simply reflections of their differential size structure. The importance of the cost of holding money as a determinant of these velocity differences according to size is suggested by several pieces of evidence: (1) the higher velocity level of small firms, which face higher borrowing costs than large firms; (2) the higher velocity level of deficit firms, which face higher borrowing costs than firms with net income; (3) the dramatic decline in small-firm velocity when business conditions improved sharply during the early war years; and (4) the much greater rise in large- than small-firm velocity after 1950, accompanied by a greater rise in interest rates on large than on small bank loans to businesses.

This last item (4) is not as easily attributable to the cost of hold-

ing money as are the other three. The fact that the cost of large bank loans rose more than that of small loans during 1950-57 does not seem to be sufficiently important to explain the much greater rise in velocity of large firms. It may well be, although there is no direct evidence of this, that small firms have been operating in a less elastic segment of the demand function for money in this period, so that even a general rise in borrowing costs (rather than the differential rise that took place) would have caused a greater rise in large- than in small-firm velocity.

IMPLICATIONS OF FINDINGS

In at least one important respect the findings of the present study are at odds with those of my earlier studies of velocity. In *Studies in the Quantity Theory of Money*, I concluded:

The above findings offer little support to the hypothesis that velocity movements are mainly a result of changes in the cost of holding money. Whatever role the cost of holding money may have had during some periods of our history, it cannot account for the major velocity changes between 1919 and 1951.⁵²

I now believe that this statement, based on a series of correlations of measures of aggregate velocity and assorted measures of the cost of holding money is incorrect. There were two main defects of the earlier study, as I now view it: (1) it did not include the most relevant concept of the cost of holding money—the cost of borrowed funds, as represented by interest rates on bank loans; and (2) it did not make use of sectoral analysis. In short, the cost of holding money was viewed strictly in terms of investment yields available to holders of cash, rather than in terms of direct reduction in interest expense (including cash discounts on trade credit) available to debtors who hold cash. The present study leads to the conclusion that the latter is a much more significant determinant of velocity than the former, and I would expect to find a strong relationship between bank rates on business loans and business velocity.

Another difference between this and my earlier analysis of velocity movements relates to the World War II period. In *Studies in the Quantity Theory of Money* I placed heavy emphasis on wartime controls as the reason for the substantial velocity decline. I continue to feel that economic policy was partly responsible for velocity movements during the war, but there is convincing evidence in the present study that velocity would have declined markedly even if

52. P. 205.

the early 1940's had been a peacetime period of comparable economic growth, price-level stability, and monetary ease.

As was indicated at the outset, the trend of income velocity had been downward for several decades prior to the end of World War II. The principal reason for this downtrend appears to have been the long-term rise in income per capita, aided perhaps by the generally declining trend of interest rates.⁵³

The present sectoral analysis of velocity suggests the possibility that the secular decline did not occur uniformly in all sectors. If it is true that the income effect operates mainly on households, it may well be that the decline in aggregate velocity occurred largely in this sector. Such a development would imply a gradual increase in the household share of total cash, except insofar as offset by a decline in vertical integration of business activity.

In my judgment the income effect still operates much as before but has been swamped by other developments, such as the rising cost of holding money, the increased reliance of households on interest-bearing fixed claims as sources of liquidity, and increased use of consumer credit. Although some of these developments may well continue, it appears likely that they will be less important, relative to the income effect, than in the immediate past. By 1959, interest rates had approached levels comparable to those of the twenties; while there is no obvious reason why they cannot rise even more, substantial further rises seem most unlikely. Similarly, yields on money substitutes are probably close to their ceilings, and this source of rising velocity is likely to diminish in importance.

In the business sector we found that most of the velocity rise occurred among large firms and that, by 1957, these firms had nearly caught up with small firms. The fact that small-firm velocity did not rise much during a period of rising interest rates, coupled with the fact that small firms face higher borrowing costs at all times, has suggested that the demand function for money of large firms may become less elastic if interest rates continue to rise. Thus business velocity may have virtually reached a ceiling, regardless of a future trend to still higher interest rates.

In view of these considerations, it seems unlikely that aggregate velocity will long continue to rise at anywhere near its recent rate, and a resumption of the prewar secular decline would not be at all surprising. The rise in income velocity did slacken somewhat during

53. *Studies in the Quantity Theory of Money*, pp. 218-21. See also Friedman, *The Demand for Money, Some Theoretical and Empirical Results*, pp. 2-3.

1957-60, as compared with 1953-57—a 2.9 per cent annual growth rate in the later period, 3.4 per cent in the earlier period. However, it must be admitted that deposit turnover increased substantially in 1959 and 1960, remaining right on its 1946-58 trend.

The foregoing results, though inconclusive and exploratory, clearly indicate the value of sectoral analyses of velocity. Even within particular sectors the demand for money appears to be subject to a great many influences, which may operate dissimilarly in other sectors. The aggregate demand for money and hence aggregate velocity reflect not only changes that take place within sectors but also weight shifts and changes in the ratio of income payments to total payments. Because of the complexity of the forces impinging on aggregate velocity, it seems doubtful that a dependable and workable aggregate-velocity function exists, except during relatively short periods characterized by a stable economic structure. This does not mean that aggregate velocity cannot be studied or that velocity changes cannot be forecast. On the contrary, there is every reason to hope that, by disaggregating velocity, we can substantially improve our understanding of the behavior of money.

The least-known area in velocity studies is the household sector. Until some method is devised of investigating velocity differences among income, age, and other classes of households, we shall continue to be ignorant of major factors affecting the aggregate velocity of money. One way of approaching this problem would be to examine deposit turnovers in a sample of individual checking accounts and to gather income and other data from depositors by interview. The difficulties are obvious.

In the meantime, however, the data sources utilized above have by no means been exhausted, and in time new data will accumulate. Much progress can be expected from more intensive analyses along the lines indicated here.