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Volume Title: Monetary Trends in the United States and United Kingdom: Their Relation to Income, Prices, and Interest Rates, 1867-197

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1 Scope of the Study

This book analyzes the relation between the longer-term movements in the quantity of money in the United States and the United Kingdom and such other key economic magnitudes as income, prices, output, and interest rates. It starts from the broad theoretical framework that guided our earlier study of United States monetary history but was not explicitly spelled out in that book (chap. 2) and proceeds to elaborate, test, and give numerical content to some of the elements and hypotheses embedded in that framework as well as some of the generalizations suggested by *A Monetary History*.

In order to isolate the longer-term relations that are our primary concern, we have converted our basic data, which are annual, into a form designed to be free from the shorter-term movements that are called business cycles. These are brief in duration by comparison with the length of our series. For the United States, the nearly eleven decades from 1867 to 1975 for which we have continuous data contain twenty-six full reference cycles running from trough to trough, according to the NBER chronology. For the United Kingdom, the century from 1874 to 1975 for which we have continuous data contains eighteen and one-half reference cycles. Though brief, the cyclical fluctuations are often large relative to the more gradual long-period changes. Hence, comparisons between dates separated even by decades can be seriously distorted if the initial and terminal dates refer to different stages of the business cycle.

The device we have used to free the data from cyclical fluctuations is to take as our basic observation an average of annual observations over a cycle phase—that is, our basic observation is an average for either an expansion from cyclical trough to cyclical peak or a contraction from cyclical peak to cyclical trough, sometimes referred to as half-cycles. Chapter 3 discusses this device and the various statistical measures we

have constructed from the phase averages. Chapter 4 discusses our basic data; its appendix gives our annual series, and the appendix to chapter 5 gives the phase averages constructed from them.

Our substantive analysis begins in chapter 5 with a comparison of the long-term movements in nominal income and nominal money and their ratio (velocity), both within each country and between the United States and the United Kingdom. The movements in the nominal magnitudes can be regarded as resulting from changes in three elements: population, prices, and the real magnitude per capita. We proceed to decompose trends and fluctuations in nominal income and money into these elements. Throughout, we analyze both the levels of the various series and their rates of change. The rates of change provide a sensitive way to allow for trends and thereby to isolate the movements intermediate between the brief business cycles and the really long-term secular trends.

The most striking feature of the charts and tables is the extraordinary parallelism displayed by the movements in nominal income and money within each country and in velocity as between the two countries, combined with considerable apparent differences between the two countries in the decomposition of the movements in the nominal magnitudes.

These results, which are highly consistent with the general quantity-theory framework that underlies our analysis, suggest that there must have been a relatively stable demand function for money over the period of our data that had characteristics common to both the United States and the United Kingdom. Accordingly, chapter 6 explores the determinants of velocity, which is to say of the demand for money in the sense of a function relating the quantity of money demanded to a small number of other variables. Chapter 7 explores the interrelations between the movements in velocity in the two countries.

Chapter 8 goes on to study the way the demand function identified in chapter 6 accounts for the parallelism between the temporal movements in nominal income and nominal money, taking up one of the themes of chapter 5 and exploring in particular the dynamic process presented in abstract form in chapter 2, whereby changes in the quantity of money are reflected in current and subsequent changes in income.

Chapter 9 takes up another theme from chapter 5: the apparent difference between the two countries in the decomposition of nominal movements in money and income between prices and output. What determines this decomposition is one of the major unsettled questions in monetary theory; it has been the source of much of the dispute about the role of money in recent decades and is a key to the controversy between the quantity-theory framework and the Keynesian income-expenditure framework. It is the issue that generated the Phillips curve and all the opposing views that have peppered the economic literature. We do not,

of course, settle these hotly debated issues, but we believe our data greatly clarify them.

The relation between money and interest rates is another topic of long standing in the literature of monetary theory. Chapter 10 examines it at great length, on both a theoretical and an empirical level, with special reference to the reconciliation of the so-called Gibson paradox with both the theory and the evidence.

The final substantive chapter, chapter 11, is something of a digression. It deals with the relevance of our findings to the extensive work that has been done by economic historians and statisticians on long swings in economic activity. Though brief and a by-product of our main concern, this chapter settles the issue it deals with more definitively and with clearer implications for the corresponding body of research than do any of our other chapters.

Chapter 12 summarizes our main conclusions about the role of money.