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A THEORY OF THE CONSUMPTION FUNCTION

CHAPTER I

Introduction

THE relation between aggregate consumption or aggregate savings and aggregate income, generally termed the consumption function, has occupied a major role in economic thinking ever since Keynes made it a keystone of his theoretical structure in *The General Theory*. Keynes took it for granted that current consumption expenditure is a highly dependable and stable function of current income—that "the amount of aggregate consumption mainly depends on the amount of aggregate income (both measured in terms of wage units)." He termed it a "fundamental psychological rule of any modern community that, when its real income is increased, it will not increase its consumption by an equal *absolute* amount," and stated somewhat less definitely that "as a rule, . . . a greater *proportion* of income . . . (is) saved as real income increases."[1]

Theoretical interest stimulated empirical work. Numerical consumption functions were estimated from two kinds of data: first, time series on consumption, savings, income, prices, and similar variables available mostly for the period after World War I; second, budget data on the consumption, savings, and income of individuals and families available from numerous sample surveys made during the past century and a half.[2] Both sources of data seemed at first to confirm Keynes's hypothesis. Current consumption expenditure was highly correlated with income, the marginal propensity to consume was less than unity, and the marginal propensity was less than the average propensity to consume, so the percentage of income saved increased with income. But then a serious conflict of evidence arose. Estimates of savings in the United States made by Kuznets for the period since 1899 revealed no rise in the percentage

[1] J. M. Keynes, *The General Theory of Employment, Interest and Money* (New York and London: Harcourt, Brace and Co., 1936), pp. 96, 97.

[2] See Faith M. Williams and Carle C. Zimmerman, *Studies of Family Living In the United States and Other Countries* (Department of Agriculture, Miscellaneous Publication 223, 1935); George J. Stigler, "The Early History of Empirical Studies of Consumer Behavior," *The Journal of Political Economy*, LXII (April 1954), pp. 95–113.

of income saved during the past half-century despite a substantial rise in real income. According to his estimates, the percentage of income saved was much the same over the whole of the period. The corresponding ratio of consumption expenditure to income—the constancy of which means that it can be regarded as both the average and the marginal propensity to consume—is decidedly higher than the marginal propensities that had been computed from either time series or budget data.[3] Examination of budget studies for earlier periods strengthens the appearance of conflict. The average propensity to consume is roughly the same for widely separated dates, despite substantial differences in average real income. Yet each set of budget studies separately yields a marginal propensity decidedly lower than the average propensity. Finally, the savings ratio in the period after World War II was sharply lower than the ratio that would have been consistent with findings on the relation between income and savings in the interwar period. This experience dramatically underlined the inadequacy of a consumption function relating consumption or savings solely to current income.

The conflict of evidence stimulated a number of more complex hypotheses. Brady and Friedman suggested that a consumer unit's consumption depends not on its absolute income but on its position in the distribution of income among consumer units in its community. They presented a good deal of evidence, mostly from budget data, in support of this relative income hypothesis.[4] Duesenberry based the same hypothesis on a theoretical structure that emphasizes the desire to emulate one's neighbors and the demonstration by neighbors of the qualities of hitherto unknown or unused consumption goods. In addition, he suggested that the relative income hypothesis could be used to interpret aggregate data by expressing the ratio of consumption to income as a function of the ratio of current income to the highest level previously reached.[5] Duesenberry computed such a regression for the United States for 1929–1941 and obtained reasonably good results. Modigliani independently made essentially the same suggestion for the analysis

[3] For a summary of Kuznets's estimates and an analysis of their implications, see Simon Kuznets, "Proportion of Capital Formation to National Product," *American Economic Review, Papers and Proceedings*, XLII (May 1952), pp. 507–526.

[4] Dorothy S. Brady and Rose D. Friedman, "Savings and the Income Distribution," *Studies in Income and Wealth*, X (New York: National Bureau of Economic Research, 1947), pp. 247–265.

[5] James S. Duesenberry, *Income, Saving, and the Theory of Consumer Behavior* (Cambridge, Mass.: Harvard University Press, 1949). A crucial chapter of Duesenberry's book appeared earlier in *Income, Employment and Public Policy; Essays in Honor of Alvin H. Hansen* (New York: W. W. Norton & Co., 1948), pp. 54–81.

of aggregate data, submitted it to extensive and detailed statistical tests, and concluded that it gave excellent results.[6]

Tobin has recently examined the consistency of the relative income hypothesis and the earlier absolute income hypothesis with a limited body of empirical evidence. Though he finds neither hypothesis entirely satisfactory, he concludes that the weight of evidence favors the absolute income hypothesis, and he tentatively suggests that changes in wealth may explain the rough constancy over time in the fraction of income saved.[7] Tobin's analysis is examined in more detail below (Chapter VI, section 4).

The doubts about the adequacy of the Keynesian consumption function raised by the empirical evidence were reinforced by the theoretical controversy about Keynes's proposition that there is no automatic force in a monetary economy to assure the existence of a full-employment equilibrium position. A number of writers, particularly Haberler and Pigou,[8] demonstrated that this analytical proposition is invalid if consumption expenditure is taken to be a function not only of income but also of wealth or, to put it differently, if the average propensity to consume is taken to depend in a particular way on the ratio of wealth to income. This dependence is required for the so-called "Pigou effect." This suggestion was widely accepted, not only because of its consistency with general economic theory, but also because it seemed to offer a plausible explanation for the high ratio of consumption to income in the immediate postwar period.

One empirical study, by William Hamburger, finds that the ratio of wealth to income is closely correlated with the ratio of consumption to income, as judged by aggregate time series data for the interwar and post-World War II period.[9] Other studies, particularly some by Klein, have used budget data to investigate the role of particular kinds of wealth, especially liquid assets.[10]

[6] Franco Modigliani, "Fluctuations in the Saving-Income Ratio: A Problem in Economic Forecasting," *Studies in Income and Wealth*, XI (New York: National Bureau of Economic Research, 1949), pp. 371–441. For further discussion of the relative income hypothesis, see Chap. VI, below.

[7] James Tobin, "Relative Income, Absolute Income, and Savings," in *Money, Trade, and Economic Growth, in honor of John Henry Williams* (New York: Macmillan Co., 1951), pp. 135–156.

[8] Gottfried Haberler, *Prosperity and Depression*, 3rd ed. (Geneva: League of Nations, 1941), pp. 242, 403, 498–502; A. C. Pigou, "The Classical Stationary State," *Economic Journal*, LIII (December 1943), pp. 343–351.

[9] William Hamburger, "Consumption and Wealth," unpublished Ph.D. thesis at the University of Chicago; "The Relation of Consumption to Wealth and the Wage Rate," *Econometrica*, XXIII (January 1955), pp. 1–17.

[10] Lawrence R. Klein, "Estimating Patterns of Savings Behavior from Sample Survey Data," *Econometrica*, XIX, No. 4 (October 1951), pp. 438–454; George Katona,

This brief sketch may convey something of the flavor of the work that has been done in the past few decades on the consumption function. It cannot properly convey the wealth of detailed empirical evidence on consumption behavior that has been added during this period to earlier material, or the extraordinary number and variety of analytical studies that have been made of this evidence.

This monograph presents yet another hypothesis to explain the observed relation between consumption expenditure and income. The justification for doing so is that the new hypothesis seems potentially more fruitful and is in some measure more general than either the relative income hypothesis or the wealth-income hypothesis taken by itself. It incorporates fully the wealth-income effect and explains why the relative income hypothesis should be valid under special conditions. The hypothesis follows directly from the currently accepted pure theory of consumer behavior, seems consistent with existing empirical evidence, and has observable implications capable of being contradicted by additional evidence. Its essential idea is to combine the relation between consumption, wealth, and income suggested by purely theoretical considerations with a way of interpreting observed income data that I developed earlier for what at first glance seems a completely different purpose, namely the analysis of changes in relative income status.[11] This way of interpreting income data can be extended to consumption data, and in the process, the problem of changes in relative income status can be linked intimately with the problem of the determinants of consumption expenditure. The hypothesis thus enables much of the wide range of statistical evidence accumulated about the distribution of income to be brought to bear directly on the interpretation of consumption behavior.[12]

Lawrence R. Klein, John B. Lansing, and James N. Morgan, "Statistical Estimation of Economic Relations from Survey Data," *Contributions of Survey Methods to Economics* (New York: Columbia University Press, 1954), pp. 189–240.

[11] Milton Friedman and Simon Kuznets, *Income from Independent Professional Practice* (New York: National Bureau of Economic Research, 1945), Chap. V.

[12] After completing an earlier draft of this monograph, I saw two recent papers by Franco Modigliani and Richard Brumberg on the consumption function that embody a very similar approach, but that develop its implications in a rather different direction. The similarity of approach reflects, I believe, the influence of a common intellectual environment. See Modigliani and Brumberg, "Utility Analysis and the Consumption Function: An Interpretation of Cross-Section Data," *Post-Keynesian Economics*, ed. by Kenneth K. Kurihara (New Brunswick: Rutgers University Press, 1954), pp. 383–436. Also, "Utility Analysis and Aggregate Consumption Functions: An Attempt at Integration," (to appear in a Supplement to *Econometrica*).