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# INTRODUCTION

CHANGES in the amount of consumer instalment sales credit are frequently given a prominent place in theories of economic fluctuations. Yet, despite the existence of an extensive literature on this type of credit, no quantitative-statistical explanation of these changes has been offered. The purpose of the present study is to supply such an explanation, that is, to identify the principal factors affecting the volume of consumer instalment sales credit granted, to define them as precisely as possible, and to measure the extent of the influence exerted by specific factors separately or in combination.

The statistical analysis is of necessity limited in the main to the period 1929-41, owing to the unavailability of adequate data for the years prior to 1929 and to the introduction of consumer credit controls and the persistence of war and postwar shortages of durable consumer goods after 1941. A question may be raised, therefore, as to the value of an analysis based on this period. Naturally, one would expect the relative importance of some of the factors affecting the demand for instalment sales credit to be modified by structural changes in the economy. For example, such conditions as wartime unavailability of durable consumer goods and the war and postwar accumulations of liquid assets by consumers exerted powerful influences on the extension of consumer credit, but these factors would, in all probability, be of little or no importance under peacetime conditions. While the study should be of interest from a purely historical viewpoint, it may also serve as a starting point for the prediction of future instalment sales credit demand. The problem of applying the study's findings to the postwar period is dealt with in the concluding section.

In deriving its explanation of changes in the volume of instalment sales credit, the present study utilizes both the classical "single-equation" approach of the multiple correlation theory and the more modern "equation-system" approach, that is, the instalment sales credit function is considered both as a separate relationship and as part of a more complete system of economic relationships. However, the limited number of observations available—due to the necessity of using only annual data—and the unavailability of information on certain relevant factors, make it possible to use only a very modest equation-system approach, reducing the number of relations to a bare minimum, and utilizing aggregative data. But since the use of aggregative data results in the loss of certain valuable information, the volume of consumer instalment sales credit was divided into two parts—automobile credit and so-called "diversified" credit—and analyzed separately by single-equation techniques. At the loss of a certain statistical consistency and perhaps efficiency it has been possible, by these separate treatments, to make the study more realistic through the analysis of specific variables in relation to particular types of credit. This combination of approaches gives a better understanding of the forces that affect total instalment sales credit.

The method of analysis adopted in this study has determined which statistical technique had to be employed. In the equation-system approach the parameters of the instalment sales credit function were estimated jointly with other parameters.[1] In the single-equation approach, on the other hand, the estimates of parameters were obtained by means of the traditional multiple correlation technique. Although the estimates produced by the latter method may be expected to be somewhat biased, they nevertheless give a good indication of the order of magnitude of the relevant parameters, as well as of the degree of correlation between the variables.[2]

### *Definitions and Scope of Study*

Instalment sales credit is defined in this study as credit of relatively short or intermediate duration obtained by consumers, from or through vendors, as a means of meeting part of the purchase price of durable goods. It is generally repayable in regular, prescheduled instalments, and the credit carries a finance charge. The lender is ordinarily protected by a contract clause which permits repossession of the commodity in the event of default.[3] Cash instalment loan credit and home mortgage credit, while extensively used by consumers, are excluded from this analysis because the factors affecting the extension of these types of credit differ materially from those affecting fluctuations in instalment sales credit.

The data on credit granted used in this study are estimates developed from information provided by creditors, and are classified by the type of establishment from which the credit purchase was made. It should

[1] Use was made of the "reduced form" method developed by T. W. Anderson, Jr. and H. Rubin. For a brief discussion of this method see M. A. Girschick and Trygve Haavelmo, "Statistical Analysis of the Demand for Food," *Econometrica,* Vol. 15, No. 2 (April 1947) pp. 79 ff.

[2] It may be observed that when multiple correlation coefficients are high the estimates obtained by the two methods often do not differ substantially. Admittedly, things other than the degree of correlation affect the bias involved in a single-equation, least-squares estimation of the parameters. For example, the relative sizes of the standard errors of the various estimated parameters are of some importance. However, it is a fair empirical observation that high correlation and low bias of single-equation estimates are closely associated.

[3] See Gottfried Haberler, *Consumer Instalment Credit and Economic Fluctuations* (National Bureau of Economic Research, Financial Research Program, 1942) Chapter 1, for a discussion of this definition and of the economic character of the institutions supplying consumer instalment credit.

be observed that the series cover instalment transactions in both new and used cars, and in other durables as well. They also include a small proportion, probably not over 10 percent, of credit related to semi-durable goods, for example, clothing. Finally, the data include finance and other charges; these raise the level of the series on credit granted by about 10 percent, although the direction of their change is probably not materially affected. Series of this character are not ideal for present purposes but they are a fair approximation of the amount of credit used.

Three measures of credit activity are available for analysis: (1) *credit granted* (G) is the gross amount of credit extended over a stated period of time; (2) *credit outstanding* (O) is the cumulated total, as of one point in time, of credits granted less cumulated repayments (E); (3) *net credit change* (NG) is the difference between credit extensions and repayments during a given period of time, which is equivalent to the difference between the amount of credit outstanding at the beginning and at the end of the period.[4]

All three of these measures of credit are related to each other ($NG = O - O_{-1} = G - E$) and, accordingly, any one of them may be regarded as a measure of the amount of instalment sales credit used. In this study, however, only credit granted (G) will be analyzed since this eliminates the need to introduce factors explaining the accumulation of credit in periods other than the one being studied.

The following analysis of changes in the amount of credit granted (G) may be taken as, in the main, a study of factors influencing the demand for instalment sales credit in so far as supply conditions appear to have exerted little influence on the amount of credit granted. The highly liquid condition of the money markets from 1929 to 1941, and the generally high credit standing of instalment credit agencies, made it possible for instalment sales credit to be adjusted readily in response to changes in consumer demand.

[4] Types of credit extinguishments other than repayments, such as charge-offs, are included in some series and excluded in others.