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Tobacco Farmers, Other Farmers and Terms of Exchange

Jean Debusk Russell

University of Tennessee, Knoxville

To the Graduate Council:

I am submitting herewith a thesis written by Jean Debusk Russell entitled "Tobacco Farmers, Other Farmers and Terms of Exchange." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Business Administration.

<div align="right">Ross M. Robertson, Major Professor</div>

We have read this thesis and recommend its acceptance:

Robert M. Strahl

<div align="right">Accepted for the Council:
Dixie L. Thompson</div>

<div align="right">Vice Provost and Dean of the Graduate School</div>

(Original signatures are on file with official student records.)

March 3, 1953

To the Graduate Council:

  I am submitting herewith a thesis written by Jean Debusk Russell entitled "Tobacco Farmers, Other Farmers and Terms of Exchange." I recommend that it be accepted for nine quarter hours of credit in partial fulfillment of the requirements for the degree of Master of Science, with a major in Marketing.

                  Ross M. Robertson
                  Major Professor

We have read this thesis
and recommend its acceptance:

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Robert M. Strahl

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               Dean of the Graduate School

TOBACCO FARMERS, OTHER FARMERS AND TERMS OF EXCHANGE

A THESIS

Submitted to
The Graduate Council
of
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in
Partial Fulfillment of the Requirements
for the degree of
Master of Science

by

Jean DeBusk Russell

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CHAPTER I

INTRODUCTION

The United States of America, through Congress, is trying very hard to establish a principle which, after all, is the great principle of American liberty, the principle which really, more than any other, is representative of a democratic form of Government. It is embodied in a popular song of a hundred years ago:

"Give to me the land where all inherit Liberty to rise by honest merit."

We think that if there is an honest opportunity for a man to grow and sell his tobacco leaf without restraint, if there is an honest market in which the products of tobacco may be sold, that there will be an opportunity for the man, growing and selling, to rise by honest merit and for the dealer, by honest merit, to advance in his business; and perhaps for some little man, with only a few hundred dollars but with ingenuity and zeal and energy, to work in some back shop somewhere, manufacturing cigarettes or other tobacco products, and compete with the largest companies in the world and, finally, reach that high point of eminence that has been reached by such men as Henry Ford and a number of others.[1]

With this impassioned oratory the Government opened its case against the major tobacco companies in 1941. For the companies this was no new experience. In some ways it was different, but in reality the tobacco industry had been on trial since the 1890's. The companies had been tried and found guilty by the Government, by farmers, and by the

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[1] The American Tobacco Company et al. vs. United States of America, U. S. Circuit Court of Appeals for the Sixth Circuit, Vol. VIII, p. 5855.

economic literature of several decades. The accusations had varied, but always included was the charge that they were guilty of exploiting the tobacco farmer by depressing the prices of the product on which he depended for his living.

A recent writer has said, "One would think, from the volume of protest over the years, that the principal use of market power in this industry has been to drive down the prices of leaf tobacco."[2]

Glenn Johnson, prominent agricultural economist, has remarked:

> The belief was prominent among tobacco people at this time (1933) that tobacco manufacturers had been taking "unfair" advantage of producers. Rowe quotes figures to the effect that between 1923 and 1932 returns to farmers for domestically manufactured tobacco decreased from 174 million dollars to 68 million dollars while manufacturers' profits increased from 76 to 146 million dollars. From the very beginning (of farm price support programs), tobacco producers were given special attention among producers of different farm products.[3]

From almost every major work on the tobacco industry could be drawn quotations to describe the sentiment which has prevailed during this century among the tobacco growers concerning the tobacco companies. How strong the feeling has been at times is indicated by the actual outbreak of physical violence in the major growing areas. Perhaps even stronger evidence of underlying suspicion and distrust is furnished by

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[2] Richard B. Tennant, The American Cigarette Industry (New Haven: Yale University Press, 1950), p. 316.

[3] Glenn L. Johnson, Burley Tobacco Control Programs (Kentucky Agricultural Experiment Station, University of Kentucky, Lexington, Bulletin 580, February 1952), p. 7.

the elaborate precautions which have been taken in recent years to assure a "competitive" market at the tobacco auctions. No one familiar with tobacco growing or its manufacture would deny that the farmer is still convinced that the buyers could and would exploit him in the absence of strong preventive measures.

The Problem

A casual inspection of data on prices, production, and income for tobacco growers indicates that, on balance, they may have been in an historically favorable position. It will be of interest to investigate the situation of the tobacco farmers relative to that of the growers of other commodities, particularly to determine whether the peculiar conditions of competition in the tobacco industry may not have redounded to the benefit of the grower of the raw product.

Such a study can best be approached by computing over time, for tobacco and other agricultural products, the "terms of exchange" suggested by Theodore Schultz and the "Ames School." There are certain limitations upon conclusions which can be drawn from such an analysis. One must keep in mind that this paper has not as its purpose the measurement of exploitation of tobacco growers. It is rather concerned with the relative price position of tobacco as a commodity and with the relative position of tobacco growers, whether or not they are subjected to exploitation.

The theoretical analysis and the evidence presented at trials and hearings concerned with tobacco companies indicate that there may be some

exploitation of tobacco growers. The evidence of exploitation can be
set down rather easily along with some generalizations about the serious
social implications. It seems impossible, however, for reasons to be
shown, to measure the precise amount of exploitation.

Importance of the Study

This study is significant in that it helps to sharpen the issues
in a controversy which has had and will continue to have far-reaching
implications in our time and in time to come. We shall be more and more
concerned with industry size and its implications in the future, and all
paths which seem to hold promise must be investigated.

In the past writers who have dealt with the leaf-buying phase of
the tobacco industry have tended to concentrate their attention upon an
investigation of the monopsonistic exploitation which, unfortunately, is
not measurable. There has been much investigation because this industry
is the almost perfect example of the oligopoly-oligopsony market structure.
Yet one is left to face the fact that while much has been done, there is
much to do.

The tobacco grower has been imbued with the notion that he suffers
unjustly, and that in some way the large tobacco companies are responsible
for his suffering. Circumstantial evidence points in this direction.
The tobacco grower would be confounded to discover that the prices of his
crop have held up over time much better than the prices of other farm

products and that perhaps he must look elsewhere than to the tobacco companies for a scapegoat for his complaints.

This, then, is the importance of this study. It is an attempt to view an old problem with a new light.

Related Studies

There are no studies which have a direct relation to this one, in the sense that no attempt has been made to measure the relative position of tobacco farmers and other farmers.[4] There are certain writers in the field who are well known and with whose works one must be familiar in order to determine the amount and nature of previous investigation. These works have served as background material for parts of this study and as the point of departure for the heart of the study.

Extensive work in the general area has been done by William M. Nicholls. His Imperfect Competition Within Agricultural Industries[5] is accepted as the guidebook for those who are interested in economic

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[4]It might be well to state here that no attempt will be made to differentiate between tobacco farmers as such and other types of farmers as such. To do so would necessitate the choice of some arbitrary figure (number of pounds or bushels of a product raised or the amount of land devoted to a certain product) for differentiating purposes. In both the literature and in agricultural statistics writers seem to use the terms "tobacco farmer" and "tobacco grower" synonymously. No one seems to have decided who is a tobacco farmer. Our problem, however, is one of relative commodity prices and relative farm income from particular commodities.

[5]William H. Nicholls, Imperfect Competition Within Agricultural Industries (Iowa: The Iowa State College Press, 1941).

analysis and economic theory as it is concerned with agricultural indus-
tries. After laying out this theoretical framework, Nicholls turned to
the specific case of the tobacco industry and wrote Price Policies In the
Cigarette Industry.[6] This book is in the nature of an historical study
which brings together in one volume many of the facts and figures essential
to an expert knowledge of the industry. He attempts no theoretical analy-
sis and offers no prescriptions. It is, one presumes, left to the reader's
discretion to attempt to fit this industry into Nicholls' previous theo-
retical framework.

Among other writers in the field are Meyer Jacobstein, Reavis Cox,
Richard B. Tennant, Ross Robertson, Nannie Tilley, T. J. Woofter, Jr.,
and Warren C. Baum, all of whose writings will be referred to later.

Sources of Data and Methods of Procedure

The literature mentioned in the foregoing section has been investi-
gated along with all available articles in periodicals touching upon the
subject. The voluminous court records of the 1941 Tobacco Case have been
studied as have been other Government hearings, notably those of the
Federal Trade Commission. Because the method of procedure involves large
amounts of statistical data, the various issues of Agricultural Statistics

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[6] William H. Nicholls, Price Policies In the Cigarette Industry
(Nashville, Tennessee: The Vanderbilt University Press, 1951).

published by the Department of Agriculture have figured prominently in the study.

The problem and the method of approach used has been discussed with farmers, warehousemen, representatives of tobacco companies and the Department of Agriculture, and economists in an attempt to gain a clear and broad insight into the study.

The use of the "terms-of-exchange" concept for comparative analysis has been facilitated by Theodore Schultz's Agriculture In An Unsteady Economy.[7] The concept underlying the terms of exchange procedure in this analysis involves the determination of the relationship between the prices of the products which the farmer has to sell and the prices of the products which he must buy. In order to have comparable figures, the data must first be translated into index numbers. Indices which are used must be compiled with the same year or years as their base period. The agricultural indices published by the Government have been based on the average of the 1910-1914 prices or the average of the August 1909 - July 1914 prices. The industry indices are weighted indices covering various industrial products. For the purposes of this paper agricultural indices have been compiled from agricultural statistics where it was desirable to use a base period for which indices were unavailable.

After the indices are computed, the ratio between the index of prices which the farmer received and the prices which he paid is computed.

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[7] Theodore W. Schultz, Agriculture In An Unsteady Economy (New York: McGraw-Hill, 1945).

A base year is selected, and the ratio of the "prices received" index to the "prices paid" index is set equal to 100 as the terms of exchange index for the base year. The selection of the base year must be, in a sense, arbitrary. Any attempt to select a "normal" year as the base must be frustrated by the difficulty of defining "normalcy." Historically significant points in time have been chosen.

Thus, the terms of exchange show the change in purchasing power of the farmer's product as measured from a selected year. General agricultural terms of exchange and specific terms for individual crops have been computed for the purpose of comparative analysis.

Organization of the Study by Chapters

The present chapter is devoted to a broad statement of the problem of the study and to relating the problem to published sources of information. Chapter II contains an historical sketch of the tobacco industry which is included for the sake of clarity and a comprehensive viewpoint. A certain theoretical background is essential for the understanding of this problem. The necessary analytical material is presented in Chapter III which is concerned with a brief statement of the theory of exploitation and with a fairly detailed sketch of the theory of oligopsony and oligopoly. In this chapter the tobacco industry is fitted into the theoretical framework. The comparative analyses for which the early part of the study is background material are contained in Chapter IV. Chapter V is devoted to a summary statement and a statement of the author's conclusions.

CHAPTER II

THE HISTORY OF THE TOBACCO INDUSTRY

The story of tobacco has held a fascination for countless writers; historians and romanticists have capitalized on the gold leaf as subject matter to an almost greater extent than economists. It is impossible here to trace the tobacco industry from the days of its incipiency. Attention must be focused on the years for which there are acceptable price data—and these begin with the 1890's.

Here we shall survey briefly the development of the tobacco industry—as it has been viewed by writers in the field—as background material for the price analysis presented in a later chapter. This chapter will be meaningful to the reader to the extent to which he correlates it with the later section on price analysis.

The Trust, 1890-1910[1]

The original American Tobacco Company was formed in 1890 as the result of the consolidation of five companies: Allen and Ginter; W. Duke, Sons and Company; Kinney Tobacco Company; Goodwin & Company; and W. S. Kimball & Company. At the time of the consolidation these companies

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[1] Unless otherwise stated, the early industry background in this section is taken from Ross M. Robertson's "Monopsony and Monopsonistic Markets" (Unpublished M. A. thesis, Department of Economics, University of Kansas, 1939).

controlled over 90 per cent of the cigarette production in the United States and competed strongly in the purchase of leaf tobacco and the distribution of cigarettes.

Between February, 1891, and October, 1898, fifteen tobacco concerns doing business in eight states were acquired. In 1898 the Continental Tobacco Company was organized by the American Tobacco Company to control the plug tobacco business, and shortly thereafter Continental gained control of P. Lorillard Company. In 1898 the American Tobacco Company was manufacturing 86 per cent of the cigarettes in the United States. In 1899 Continental acquired the Liggett and Myers Tobacco Company and in the same transaction American gained control of the Union Tobacco Company. In 1900 the American Snuff Company was organized and in 1901 the American Cigar Company was formed. Thus the American Tobacco Company had gained a relatively firm hold on the distribution of all tobacco products.

In 1901 the American Tobacco Company and the Continental Tobacco Company created the Consolidated Tobacco Company, a holding company which acquired practically all of the common stock of the two companies. The American, Continental, and Consolidated Tobacco Companies merged in 1904 to form the American Tobacco Company of New Jersey. Table I shows the growth of control and extent of control which the American Tobacco Company acquired from 1890 through 1910.

M. R. Thompson, an early writer on the problem of monopoly, says,

TABLE I

PERCENTAGE OF TOTAL U. S. PRODUCTION IN EACH BRANCH OF THE
INDUSTRY CONTROLLED BY THE AMERICAN TOBACCO COMPANY[a]

	Plug	Smoking	Fine Cut	Snuff	Cigarettes	Little Cigars	Cigars
1890	–	7.9	–	–	–	–	–
1891	2.7	18.0	3.3	3.6	88.9	–	–
1892	3.5	21.9	4.1	4.0	87.9	–	–
1893	5.9	21.7	4.7	4.7	85.3	–	–
1894	5.6	20.6	4.3	3.4	86.5	–	–
1895	12.4	22.5	4.3	3.9	87.3	–	–
1896	20.0	20.7	4.5	5.6	83.4	–	–
1897	20.9	22.7	4.6	4.8	80.0	–	–
1898	23.0	26.9	6.0	6.1	88.3	48.7	2.2
1899	56.3	54.3	48.5	32.4	94.7	54.7	4.0
1900	62.0	59.2	50.5	78.0	92.7	60.6	4.8
1901	67.7	57.8	48.1	80.2	88.9	73.3	10.9
1902	71.2	66.3	73.7	85.9	84.6	71.8	14.3
1903	76.9	67.1	77.6	89.4	83.9	57.9	16.4
1904	78.2	69.2	80.4	90.6	87.7	79.2	13.9
1905	80.7	68.7	81.7	93.8	84.7	78.3	13.3
1906	81.8	70.6	80.9	96.0	82.5	81.3	14.7
1907	80.5	72.4	81.4	95.7	81.7	90.8	14.5
1908	81.0	73.6	79.6	95.7	81.8	88.7	13.0
1909	83.3	75.3	80.1	96.1	83.6	89.0	13.1
1910	84.9	76.2	79.7	96.5	86.1	91.4	14.4

[a] Source: M. R. Thompson, Trust Dissolution (Boston: 1919), p. 115.
The table is compiled from the Report of the Commissioner of Corporations
on Tobacco Industry, Part III, pp. 49, 84, 127, 130, 153, 181, 192.

This monopolistic position was secured by improper methods of competition among which may be mentioned frequent reconsolidations for the purpose of centralizing control in the hands of a few and to hide the results obtained; restrictive covenants with competitors whose interests had been acquired; restrictive contracts with jobbers and dealers by which only the combination's goods could be handled; acquisition of stores and factories and their operation as independents; ruinous price cutting and trade wars waged with fighting brands, sometimes sold below cost; division of territory both at home and abroad; monopolization of raw materials, especially licorice root; extended loans and credits to retail dealers; acquisition of stocks, trade-marks, patents and other essential elements of tobacco manufacture.[2]

In 1907 the Government filed a bill to dissolve the company, and the decision of the Circuit Court of Appeals in 1908 was appealed to the Supreme Court by both sides. In May, 1911, the Supreme Court handed down its decision and the cause was remanded to the Circuit Court to work out some method of dissolution in accordance with the law. On November 16, 1911, a decree was entered whereby the American Tobacco Company was divided into fourteen successor companies[3] which were to take over the property and business of the defendants in the case. The defendants were enjoined from merging or from entering into any agreements whatsoever regarding the control of the successor companies or regarding the purchase

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[2]M. R. Thompson, Trust Dissolution (Boston: 1919), pp. 115-116.

[3]American Tobacco Company, Liggett & Myers Tobacco Company, P. Lorillard Company, American Snuff Company, J. S. Young Company, George W. Helme Company, The Johnston Tin Foil & Metal Company, Weyman-Bruton Company, R. J. Reynolds Tobacco Company, British-American Tobacco Company, Ltd., United Cigar Stores Company, Porto Rican-American Tobacco Company, The Conley Foil Company, Mac-Andrews and Forbes Company.

and sale of tobacco and its products. None of the corporations could hold the stock of another, and it was required that the business of each company be carried on under its own corporate name for a period of five years. The fourteen companies could not have interlocking directorates and were enjoined from employing common agents to purchase tobacco leaf.[4]

Because of the limited information available pertaining to the subject, the evidence of the buyer's control in the raw tobacco market during this first period of the modern industry has not been considered in detail by writers. Robertson said, however, "The writer is convinced that here is the best example of monopsony on a large scale that can be found."[5]

Meyer Jacobstein, an early writer on the subject of the tobacco industry, stated that ". . . discontent and unrest among southern growers have their origin in the undue advantage possessed by the Tobacco Trust in purchasing its leaf."[6] He discussed the failure of the auction system as a method to secure competition in the purchase of leaf tobacco, and blamed this failure on the fact that ". . . the buyers agree to pool their interests and depress prices by curtailing the very competition which the

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[4] Federal Trade Commission, Report on the Tobacco Industry, 1920, p. 155.

[5] Robertson, op. cit., p. 69.

[6] Meyer Jacobstein, "The Tobacco Industry in the United States," Studies in History, Economics, and Public Law, Vol. XXVI (New York: Columbia University Press, 1907), p. 36.

warehouse market sought to invite."[7] He continued,

> Such accusations are, of course, difficult to substantiate.
> One fact, however, becomes more and more obvious, namely,
> that in proportion as the Trust has extended its power over
> the market, prices of leaf have fallen. . . . . Despite
> all denials to the contrary, the blame for the price de-
> pression has been placed by planters, with unanimous accord,
> at the door of the trust.[8]

The story of the farmer's attempts to better his position during

the years of the Trust has been traced effectively by several writers in

the field.[9] It is only necessary to point out here that such attempts

were unsuccessful.

There are sufficient data available to substantiate the claims

that tobacco farmers were in a relatively poor position price-wise

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[7] Ibid., p. 75.

[8] Ibid., pp. 75-77.

[9] See John G. Miller, The Black Patch War (Chapel Hill: The
University of North Carolina Press, 1936). Robertson quotes Anna
Youngman's statement in "The Tobacco Pools of Kentucky and Tennessee,"
found in a 1910 issue of the Journal of Political Economy. ". . . (it)
is true that the influence of a trust over prices can in no case be
properly gauged if investigation be confined solely to the amounts
charged for the finished product offered to customers. Potency in
dictating the sums to be paid for the raw materials used in manufacture
is frequently of far greater significance. It may be no part of the
policy of the trust to antagonize the public at large and to diminish
sales by putting up the prices of its standardized products. It may
conceivably be much more profitable to exercise its power as buyer
rather than as seller to increase the margin between the prices of the
crude material and of the manufactured article. Certainly the American
Tobacco Company has not advanced the price of the plug tobacco, cigars,
and cigarettes which it markets so extensively; and without doubt the
price of leaf tobacco has fallen. But it is questionable whether the
trust can be regarded as entirely responsible for that fall."

during the years in which the Trust was operating effectively. These
data are presented in Chapter IV.

The Post-Dissolution Years

Professor Reavis Cox has said that in order to appraise the
policies of the successor companies in the years between 1910 and 1930,
one must remember that the conditions which they faced were shaped to a
large extent by factors over which they had no control. He traces the
effect on the tobacco industry of World War I, the increase in popula-
tion, the increased concentration of consumer demand on cigarettes and
the mechanization of cigar manufacture.[10]

The 1920's saw an almost phenomenal growth in the demand for
tobacco products. Between the years of 1910 and 1930, the consumption
of leaf tobacco in this country increased from 550,820,000 to 783,981,000
pounds, an increase of about 42.3 per cent. The cigarette production in
1910 was eight and a half billion and in 1930 over one hundred twenty-
five billion. This was an increase of something over 1500 per cent.[11]
The first World War had a great effect on the tastes of American smokers.
The difficulty of obtaining the Near Eastern tobaccos led to a substitution
of domestic blends. This factor combined with population increases and

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[10] Reavis Cox, Competition in the American Tobacco Industry (New
York: Columbia University Press, 1933), pp. 40-59.

[11] Ibid., pp. 41-44.

the breaking down of the prejudice against cigarette smoking (which was effected through an all-out advertising campaign waged by the tobacco companies and directed toward women as well as men) started the cigarette industry on its way to being the giant industry it is today.

When Cox turns to an analysis of competition in the purchase of leaf tobacco, he says:

> . . . the more conspicuous successors of the American Tobacco Co. have prospered phenomenally since the disintegration. Tobacco growers, on the contrary, have suffered severely. In part, no doubt, their woes are attributable to the general agricultural depression which started in 1920; but there is evidence that tobacco producers' incomes have held below those of growers of other crops. Thus the incomes of growers of cigarette leaf, who should have prospered if any tobacco farmer did, have been estimated as averaging from one-half to two-thirds those of other farmers even in good years. Confronted with such conditions, tobacco growers would be more or less than human if they failed to see in the contrast conclusive evidence of a purchase monopoly exerting its power to enslave and exploit them.[12]

Cox attempts to prove the existence of a purchase monopoly during post-partition days. He first tries a theoretical analysis which necessitates the determination of what a monopoly price would be and concludes that this approach is impossible. The empirical analysis of competition or collusion in tobacco leaf purchases offered by Cox has been improved upon very little by subsequent writers in the field. Cox says,

> We shall find that it is impossible either to prove or to disprove that monopoly has been an important force in

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[12]Ibid., p. 141.

reducing large numbers of tobacco farmers to the level of bare subsistence; but we shall also find that there are a great many forces other than monopoly contributing to this result.[13]

It might be well to review briefly these factors as presented by Cox. They are applicable, with modifications, to the entire post-dissolution period and through the present time. There was, first, no production control during the years between 1910 and 1930, and farmers quite definitely disproved the theory that each man working toward his individual goal will work for the common good. With surplus production came low prices. Second, the institutional pattern of tobacco farming was also conducive to trouble for the individual grower. Tobacco is a product particularly well-suited to the tenancy system and thus suffered from the usual ills of that system. Third, the farmers' difficulties may have been (and may be) due in part to the faults of the leaf tobacco marketing system. The auction system may allow for ease of collusion, and the confusion attending sales and the speed with which they are conducted makes it virtually impossible for the tobacco grower to be an intelligent and informed seller. Fourth, because exports played an important part in the fortunes of tobacco growers, it is evident that conditions affecting world trade were of vast importance to the growers. Finally, Cox mentions the fact that there was little product substitutability available to tobacco growers—they were unable, because of

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[13] _Ibid._, p. 147.

distinctive soil and climate requirements, to shift to other types of tobacco in the event of changes in demand.[14] This factor was of importance to growers who were unable to raise cigarette tobacco when consumer demand shifted to and centered upon cigarettes to the virtual exclusion of other tobacco products. Having discussed and summarized these factors, Cox concludes, "Chronic widespread distress becomes almost inevitable, purchase monopoly or no purchase monopoly."[15]

Cox concludes his analysis of leaf prices with the following statement:

> The major conclusions to be drawn . . . . are that for the period under review as a whole monopoly prices, while they probably would have been slightly lower than competitive prices, would not have differed very greatly from these competitive prices, the influence of dynamic forces being strong enough to prevent their settling all the way to the short-period monopoly level; that in the absence of such dynamic forces prices would probably go below competitive levels; that many forces other than monopoly account for the woes of large numbers of tobacco farmers during the last decade; that there is no reason to quarrel with the Federal Trade Commission's conclusion that evidence of collusion to control prices and wreck the cooperatives in 1920 was inconclusive. . . . .[16]

Certain sections of Cox's material have been dealt with rather fully because they present clearly the picture of the post-dissolution years in the tobacco industry. However, there are other writers in the

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[14]Ibid., pp. 148-160.

[15]Ibid., p. 160.

[16]Ibid., pp. 185-186.

field who have handled this material and this period with finesse. Of particular interest is T. J. Woofter, Jr.'s book, The Plight of Cigarette Tobacco.[17] Woofter had a flair for dramatic phraseology and at times seemed inclined to become overwhelmed with the emotional impact of his own writing. If Woofter's book obtained any circulation among tobacco farmers, it is easy to see why they complained loud and long in the 1930's. He said:

> The tobacco farmers today are poor, disgruntled, and resentful. Their incomes are among the lowest farm incomes in the country. . . . . On the other hand, the tobacco manufacturers are among the most prosperous concerns in the country. . . . .[18] Thus, to deal with hundreds of thousands of poorly organized, poorly informed farmers, there are four highly organized and powerful domestic tobacco companies with a tremendous surplus supply of the commodity on hand and with profits piling up, because of monopoly advantages, diminishing costs, and a demand which shows a tendency to keep climbing regardless of minor price fluctuations. Under these circumstances, the "big four" have piled up enormous profits and have been able to exert great influence not only on the retail price of their product, but also on the farm price of leaf tobacco.[19]

After examining the situation carefully, Woofter concludes, ". . . If the producers of cigarette tobacco are to escape the conditions of a sweated industry developing rural slums, these difficulties must be surmounted by resolute action. . . . ."[20]

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[17]T. J. Woofter, Jr., The Plight of Cigarette Tobacco (Chapel Hill, North Carolina, 1931).

[18]Ibid., p. 4.

[19]Ibid., pp. 40-41.

[20]Ibid., p. 88.

At the instigation of the tobacco growers, the Federal Trade Commission made three reports to Congress in 1920, 1922, and 1925[21] concerning the competitive situation in the tobacco industry. The 1920 Report on the Tobacco Industry came in response to a Congressional resolution which requested the Federal Trade Commission to investigate the decline in tobacco prices during the years 1919 and 1920, to ascertain the causes of the decline, and to inquire into the facts relating to possible violation of the anti-trust acts. Complaints had been made to members of Congress by growers of Kentucky, Ohio, and Tennessee regarding the low prices; charges were made by the growers that the buyers for large companies would not bid against each other and that there was organized effort on the part of the large tobacco interests to beat down the price of tobacco.

The Commission advanced seven reasons for the decline in tobacco prices: excessive production of low-grade tobaccos, adverse foreign exchange rates, general financial instability in the United States, the dominant position of large companies, the use of common buying agencies, "holding off" the market and buying "under cover" by large interests, and collusion among buyers.[22] It will be impossible to discuss fully these

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[21] Federal Trade Commission, Report on the Tobacco Industry, 1920; Prices of Tobacco Products, 1922; The American Tobacco Company and The Imperial Tobacco Company, 1925.

[22] Federal Trade Commission, Report on the Tobacco Industry, 1920, pp. 34, 38, 48, 51, 53, 58, 144.

reasons for price declines as advanced by the Federal Trade Commission. The charge of collusion was not substantiated by the evidence. Warehousemen and independent dealers were questioned at length, and it was found that there was a difference of opinion among individuals. The most important evidence of collusion adduced had to do with apparent harmony among buyers of large concerns and with apparent careful efforts of some companies to buy fixed percentages of offerings on certain markets. The Commission concluded that while the evidence was not conclusive it indicated a very close relationship between some of the large manufacturers and dealers. Since the companies involved were such important buyers it was felt that the evidence should be given considerable weight. The Commission's final conclusion in the 1920 Report was that eight of the successor companies had violated the spirit of the dissolution decree.

In the 1922 report the Commission stated that there had been no changes regarding competitive conditions in the buying of tobacco leaf, and it renewed its recommendations for modification of the decree.[23] The 1925 report on the American Tobacco Company and the Imperial Tobacco Company contained the information that the successor companies dominated the leaf markets as always, but that American and Imperial had ceased to use common buying agencies since 1920.

It is evident that in the two decades following the dissolution of the American Tobacco Company, tobacco farmers were still dissatisfied

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[23]Federal Trade Commission, Prices of Tobacco Products, 1922.

with the prices they were receiving for their product. Having found a
scapegoat for their complaints, they were not to be placated easily.
Through the years when the complete economic system of the United States
was reeling under the impact of the Great Depression, tobacco farmers
were blaming their hard luck on the Big Three.[24]

Previous to this, however, tobacco farmers had again decided to
take matters into their own hands and had joined in the wave of cooper-
ative marketing which was sweeping the country in the early 1920's. The
movement failed so far as tobacco cooperatives were concerned, however,
and it would seem that the cooperatives were never strong enough to affect
prices appreciably.

The Period of Government Aid to Agriculture

In May of 1933 the Agricultural Adjustment Act was passed. The
Act signified the beginning of a new era for agriculture, for it sym-
bolized the dawning of the recognition that specific steps were necessary
to alleviate the distress which was prevalent in agriculture as a whole.
The general purpose of the Act was to control agricultural production in
order to raise prices through a reduction of supply. An acreage allot-
ment plan was used for basic crops (of which tobacco was one), the allotment

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[24]The term used to designate the American Tobacco Company, R. J.
Reynolds Tobacco Company, and Liggett & Myers Tobacco Company.

for individual farmers to be based on their crop history for a previous period. Plus the indirect benefit of higher prices, the farmer was to receive direct benefit payments for acreage reductions. Such payments were to be financed by a processing tax which in the case of tobacco would be paid by tobacco manufacturers.

The tobacco program was in reality six programs, the distinctive types of tobacco being treated separately. A production adjustment plan was worked out for each type, but all employed individual contracts with benefit payments financed out of processing tax returns. It is not necessary to study the contracts in detail. With the exception of the cigar filler and binder type tobacco, each contract provided for a limitation on the acreage planted and for individual production quotas representing what each grower was entitled to market. The voluntary contract procedure was reinforced by the Kerr-Smith Tobacco Control Act which levied a tax on tobacco marketed in excess of quota.

In January of 1936 the Supreme Court ruled that the use of the processing tax was unconstitutional, and shortly thereafter Congress repealed the Kerr-Smith Act. In analyzing the effects of these first years of controlled production, Nourse, Davis, and Black conclude:

> . . . that growers' incomes were materially enhanced. . . . .
> In part this enhancement resulted from the distribution of
> more than 56 million dollars as benefit payments during the
> period. The remainder resulted from the substantial enhance-
> ments of prices under the program, which more than offset the
> volume curtailments that were effected. While estimates of
> these gains can be made only within wide limits, it seems
> probable that they amounted to something between 100 and 150

million dollars. Thus growers' incomes from tobacco production, including benefit payments, were probably from 150 to 200 million dollars larger than they would have been in the absence of any adjustment programs.[25]

It may be well to point out here that while only the tobacco program is presently discussed in some detail, control programs for the other basic commodities to be used in a comparative price analysis in a later chapter were effected under the same legislation and did not differ substantially from the tobacco program.

The farm program did not die with the decision of the Supreme Court. The Soil Conservation and Domestic Allotment Act was passed in 1936 and provided the basis for the revised AAA programs. This act was an open offer to make benefit payments to farmers who would reduce their acreage of soil-depleting crops (including tobacco). The Commodity Credit Corporation was established to make non-recourse loans to farmers on their crops and thus the loan rates became minimum prices.

In 1938, Congress reconsidered the agricultural problem and passed the Agricultural Adjustment Act of 1938. The passage of this act connoted a shift of emphasis from crop curtailment to a support price program. While crops were still restricted through the use of marketing agreements and marketing quotas, the act made it mandatory on the Commodity Credit

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[25] Edwin G. Nourse, Joseph S. Davis, John D. Black, Three Years of the Agricultural Adjustment Administration (Washington, D. C.: The Brookings Institute, 1937), pp. 314-315.

Corporation to make loans on the basic crops at 52 to 75 per cent of parity. Until this time adherence to the parity concept had been a matter of lip service only. Parity for the basic commodities was established as that point at which their purchasing power would be equivalent to that of the base period, August, 1909, to July, 1914. Tobacco was the exception in that its base period was designated to be August, 1919 to July, 1929 because, due to shifts in consumption and changes in the character of tobacco produced, current prices for some types were already above parity as established by the pre-war base.[26]

In 1940 the parity price of burley and flue-cured tobacco was redefined using August, 1934 to July, 1939 as the base period. In 1941 legislation was enacted which led to the support of tobacco at 85 per cent of parity; and in 1942 support was increased to 90 per cent of parity. This support price was maintained throughout the next five years and reaffirmed by the Agricultural Act of 1948. The Agricultural Act of 1949 redefined the parity concept to take into consideration prices paid and prices received during the most recent ten-year period. For the basic commodities the level of price support was to be dependent on the supply with the exception of tobacco which was to be supported at 90 per cent of parity, regardless of supply.

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[26] Johnson, op. cit., p. 7.

In Bulletin 580 published by the Kentucky Agricultural Experiment
Station, Glenn Johnson gives a clear and concise chronology of the burley
tobacco program which can be used as a guide in studying the tobacco
programs as a whole and in determining their effects.[27] Johnson comes
to the conclusion regarding burley tobacco

> . . . that the present control programs are supporting the
> price of burley considerably above the free equilibrium
> price which would exist in the absence of such programs.
> When changes in the purchasing power of a pound of burley
> tobacco are compared through the years 1933 to date, it
> is evident that the purchasing power per pound of burley
> tobacco has not been increased a great deal by the pro-
> grams. Similarly, when changes in the price of burley
> tobacco from the 1933-36 period to the 1946-49 period are
> compared with the corresponding changes in prices of other
> farm products, it is evident that burley prices have not
> increased a great deal more than prices of other farm
> products. It follows, therefore, that the increases in
> the efficiency with which burley tobacco is being produced
> accounts for much of the improved current position of
> burley tobacco producers. If burley prices were permitted
> to fall to the equilibrium levels referred to in the first
> sentence of this paragraph, benefits of the increases in
> productive efficiency would be passed on to consumers. In
> effect, the programs have retained for the benefit of
> burley producers the income derived from the increased
> productive efficiency.[28]

Johnson stresses a fact with which the writer fully concurs. Any
attempt at evaluating the merits of the tobacco program must be assayed
in the light of the values of the person making the evaluation. The
program involves welfare questions and therefore cannot be judged by

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[27]Glenn L. Johnson, op. cit.

[28]Ibid., pp. 87-88.

simple criteria. It is beyond the scope of this essay to evaluate the
program, and the problem posed by the paper does not require such an
evaluation. For an interesting picture of price and production move-
ments over the years of the control program, the reader is referred to
the U.S.D.A. publication Tobacco which is incorporated in the Appendix
as Figure 15.

The Tobacco Case of 1941

While it is not the purpose of this paper to determine whether or
not tobacco farmers have been exploited or whether or not tobacco companies
are guilty of collusion, it is virtually impossible to discuss the tobacco
industry and the problems of the tobacco grower without taking into con-
sideration what has come to be called "The Tobacco Case of 1941." The
entire proceedings of the trial have been studied as have the excellent
analyses made by William Nicholls[29] and Warren C. Baum.[30] For purposes
of brevity and simplicity, Nicholls' and Baum's material will be drawn
on whenever possible rather than the lengthy and complicated court
proceedings.

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[29] William H. Nicholls, Price Policies in the Cigarette Industry
(Nashville: The Vanderbilt Press, 1951), pp. 337-403.

[30] Warren C. Baum, "Workable Competition in the Tobacco Industry"
(Unpublished Ph.D. thesis, Department of Economics, Harvard University,
March 1949).

Because criminal procedure was used, the court record is surfeit with emotional arguments and appeals to prejudice, as is the literature of the 1920's and 1930's concerned with the issue. It is inconceivable that a lay jury could have been expected to comprehend the issues involved.

On July 24, 1940, the Government filed in the Eastern District of Kentucky a criminal information charging the major tobacco companies and leaf dealers[31] with violation of the Sherman Act on four counts: (1) conspiracy to restrain trade; (2) monopolization; (3) attempting to monopolize; and (4) conspiracy to monopolize. The companies were accused of having obtained control of the leaf marketing system and of having exercised this control in such a manner as to deprive tobacco farmers of bargaining power. They were also accused of agreeing upon and manipulating leaf prices so as to forestall competition among themselves. We are not here concerned with the criminal methods allegedly employed by the companies on the distribution side.

Defendants other than the Big Three were severed from the trial at its outset on a plea of nolo contendere. When the Big Three were found guilty, the others were obliged to so plead and were fined accordingly.

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[31] The defendants were: American Tobacco Company; American Suppliers; Liggett and Myers Tobacco Company; R. J. Reynolds Tobacco Company; P. Lorillard and Company; Imperial Tobacco Company, Ltd.; British American Tobacco Company, Ltd.; Phillip Morris and Company, Ltd.; Universal Tobacco Company, Inc.; and certain of the executives of these companies.

The Government contended that the companies had obtained control of the leaf markets by refusing to buy on a market unless each of the Big Three were represented; by indirectly determining the market opening dates through the Tobacco Association of the United States; and by determining market rules through their representation on local boards of trade. The Government further contended that the companies controlled leaf prices by using advance price instructions or following the lead of the American Tobacco Company; by percentage buying; and by buying distinct and different kinds of tobacco.[32]

The defendants contended, of course, that they did not control the leaf-marketing system nor did they exert control over prices within the system. They stated that their reason for not buying on markets where all were not represented was to keep the prices of tobacco up, and the evidence would seem to have proved that there was an adequate number of markets. The companies held that there was no evidence that they had actually used the Tobacco Association of the United States or the boards of trade to control leaf prices or coerce warehousemen or growers. The companies argued that leaf prices were fixed by supply and demand, that percentage buying was favorable to farmers, and that they did not buy different grades of tobacco.

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[32] William H. Nicholls, op. cit., pp. 346-347.

Of extreme interest to this paper are the defendants' exhibits
and testimony concerning relative crop prices,[33] and this testimony
will be discussed in a later chapter.

On October 27, 1941, the jury returned a verdict of guilty on all
four counts for each of the three defendant companies, American's leaf-
buying subsidiary, and thirteen of their executives. The companies
filed notice of appeal, but in higher courts the verdict was confirmed.
Fines were exacted, and the companies were left with the problem of
charting their future courses of action in the light of the verdict.
The court had, in effect, condemned the normal consequences of the
oligopolistic market structure and had provided no remedial action. A
study of the industry since the trial can only lead one to believe that
the companies are proceeding exactly as before.

In commenting upon the practices for which the companies were
condemned, Baum said,

> . . . The practices are necessary, reasonable, and non-
> predatory, and it is difficult to conceive how the
> companies might act otherwise under the circumstances.
> The leaf price structure which results is probably
> higher than would prevail if the three firms were to
> reach a monopsonistic understanding or simply to abandon
> their present common practices. A substantial increase
> in the number of firms on the buying side, however, would
> probably bring higher prices to farmers.[34]

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[33] The American Tobacco Company et al. vs. United States of
America, Vol. VI, Exhibits No. 1111, 1113-1141, Vol. VI, Transcript,
pp. 4230-4298.

[34] Warren C. Baum, op. cit., pp. 2-3.

In reviewing the tobacco case he said,

> Subsequent chapters will endeavor to show that the weight
> of circumstantial evidence is not adequate to establish
> guilt of conspiracy on most of the specific charges alleged
> by the government. This is particularly true of the leaf
> market, where the major lines of the alleged price-fixing
> conspiracy seem almost entirely without substantial founda-
> tion in the evidence.[35]

Summary

The history of tobacco is a study in economic dynamics. The

tobacco industry has grown phenomenally in the twentieth century, and

the concensus seems to be that tobacco prices have not kept pace with

the rate of growth, or that, at any rate, the tobacco farmer has

suffered unjustly. The history of the industry is one of investi-

gation and litigation which has been instigated by the farmer. There

has been little investigation of relative farm prices or of the insti-

tutional factors which may have accounted to a large degree for the

income position of the undefined man known as the tobacco farmer.

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[35] _Ibid._, p. 80.

CHAPTER III

SOME THEORETICAL CONSTRUCTS IN THE THEORY OF

MONOPSONISTIC MARKETS

Much has been written during the last three decades on the
theoretical analysis of industries in which the competitive condition
known as "oligopoly-oligopsony" prevails. Although Joan Robinson's
"World of Monopolies"[1] remains a beautifully clear-cut and concise
theoretical analysis, we seem to be moving ever nearer to a world of
oligopolies.

One of the earliest attempts to assay the contributions to the
literature and thinking on the subject of fewness of buyers, which is
the phase of the problem in which we are particularly interested, was
made by Ross Robertson in a master's thesis at the University of Kansas
in 1939.[2] In this paper he reviewed the writings of Otto Effertz,
Rudolf Auspitz and Richard Lieben, Adolphe Landry, Henry Sidgwick,
Friederich von Wieser, A. L. Bowley, J. E. Meade, and Joan Robinson.
All have made important contributions to the theory, but it is
Mrs. Robinson's analysis with which students have become most
familiar.

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[1] Joan Robinson, Economics of Imperfect Competition (London:
Macmillan and Company, 1946), pp. 307-326.

[2] Robertson, op. cit.

As Robertson pointed out in his thesis, in the tremendous amount of literature which has been written on the subject of small numbers, major emphasis has been placed on the study of control over price by a few sellers.[3] The same has been true of more recent literature on the subject. The reason for such emphasis may be in part the difficulty encountered when one attempts to measure quantitatively the consequences of the influences on price of a few buyers. It is possible, however, that the tremendous interest in the position of the consumer, which had its origin in the early 1900's in what is known as the "consumer movement," has had a direct bearing on the economist's approach to the problem. American anti-trust laws focus attention on the individual as a purchaser who is unable to combine with other men in his own self-interest and therefore must be protected. Monopsony nearly always affects producers--i.e., the seller of factor services--and the problem rarely appears in a harsh light, except for the case where a single firm may be a monopsonistic buyer of labor in a particular area. For these and other reasons, the subjects of monopsony and oligopsony are still fields for fruitful research.

For simplicity of exposition, we shall first define the types of markets before moving on to the complex study of oligopoly and oligopsony.

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[3]Ibid., p. 1.

Perfect competition is said to exist in a market when the following conditions are fulfilled:

(1) There are a large number of buyers.
(2) There are a large number of sellers.
(3) There is product homogeneity.
(4) There is complete mobility of resources.
(5) There is perfect knowledge.

No one individual acting alone can have a significant effect on price, so each will act as if price were determined by outside factors. Yet the determination of the market price is dependent upon the actions of all the individuals involved in the competition. The most common illustration of a purely competitive market is that of the agricultural commodity markets generally.

Monopsony exists when one buyer purchases a homogeneous good from a large number of sellers. Monopoly exists when one seller has complete control of a product for which there is no near substitute and thus his control of the price of his product is limited only by the demand curve for his product. The cases of pure monopoly and monopsony are relatively rare.

A prevalent market type is designated as monopolistic competition; on the buying side its parallel is monopsonistic competition. A monopolistically competitive market has the characteristics of pure competition in that there are many buyers and sellers; it differs in that there is differentiation of the product. The seller or buyer has some degree of control over his individual price but little control over prices in general at which his product and close substitutes will be sold.

The market form in which we are particularly interested is designated as oligopoly on the selling side and oligopsony on the buying side. Such markets are characterized by fewness of buyers and sellers. The problem of price determination in a market where there are few buyers or sellers is called the problem of "small numbers." The first problem encountered in dealing with the subject is one of definition—how does one define "few"? Whenever the sales or purchases of any individual or any firm have more than a negligible effect on the price of a good in a particular market and when such influence is not the result of product differentiation, then the market must be oligopolistic or oligopsonistic.

We shall accept as our definitions that oligopoly exists when there is a market in which a few sellers sell a homogeneous product to a large number of buyers and that oligopsony exists when there is a market in which a few buyers purchase a homogeneous product from a large number of sellers. By definition, therefore, the tobacco industry is very nearly a perfect characterization of the oligopoly-oligopsony market structure. On the selling side, the products are differentiated, so the market in which the manufacturers sell is one of heterogeneous oligopoly.

The distinguishing characteristic of the oligopoly-oligopsony market structure finds its basis not in the homogeneity or heterogeneity of products (though in some instances this may be important) but in the fewness of buyers or sellers. The distinguishing characteristic is

that any one seller (or buyer) by varying his output (or takings) can
affect the price of the good or service and thus bring about a change
in his rivals' policies. Since, in turn, a firm is partly dependent upon
the price policy of its rivals in either buying or selling, the induced
change in its rivals' policies must have repercussions back upon itself.
Under oligopoly or oligopsony, there is circular interdependence among
the few firms' price and volume policies.

"Oligopoly-Oligopsony" Market Structures

An attempt to draw together empirical data and theoretical analysis
of oligopoly-oligopsony is a perplexing and baffling task. This is true
because of its basic characteristic of circular interdependence. Triffin
has said of the selling side:

> The root of the difficulty, in the case of oligopolistic inter-
> dependence, may be stated as follows: if a seller has such an
> influence upon one or several competitors that his own price-
> output decisions are capable of influencing the price-output
> decisions of this, or these, competitors, this influence will
> be a factor to be taken into account in his profit-maximizing
> calculations. This would not be so troublesome if this in-
> fluence were perfectly definite, the other sellers taking
> passively the decisions of the first as parameters of action.
> But the other sellers may also have an influence on the first
> one, and will then try to take advantage of it to induce him
> to take some price-output decision favorable to their own
> interests. It is this mutual, but indecisive, influence that
> opens the door to an infinitely varied pattern of possibilities.
> The oligopolists may be afraid of unleashing unpredictable
> reactions, and are thus frozen into a policy of immobility.
> Or, on the contrary, they may feel in a fighting spirit and
> launch an undercutting policy in the hope of ruining their
> rivals and driving them from the field. Or again, they may
> accept, tacitly or expressly, unreservedly or only within

some more or less definite range, the lead of one of them and
abstain from price competition. Any number of tacit agree-
ments are conceivable (partition of the market according to
various criteria, limit to advertising expenditure, etc.),
and any amount of restriction on competition. If, as is usual,
price competition is barred, other types of competition may
or may not be preserved: competition with respect to service,
to advertising, to pressure upon government agencies to obtain
big orders or tariff favors, etc. . . . . Such considerations
as financial backing, political influence, prestige psychology,
optimistic or pessimistic slant, enterprising or routine-like
attitude in business, etc., may well play an overwhelming role
in determining the solution.[4]

The extent of concentration in the tobacco industry will be the

subject of comment and discussion in various sections of the paper. As

has been shown, in the days of the Trust the American Tobacco Company

controlled 86 per cent of the cigarette market and even greater per-

centages of other tobacco products markets. After the dissolution of

the Trust, the successor companies began to establish their control.

By 1934 the three largest domestic companies purchased 46 per cent of

the leaf offered, with the largest company taking 22 per cent.[5] These

figures, however, do not show the extent of control because of the

localization of the various types of tobacco and the differing usages

to which they are put.

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[4]Robert Triffin, Monopolistic Competition and General Equilibrium
Theory (Cambridge: Harvard University Press, 1940), pp. 70-71. Quoted
in Nicholls, op. cit., p. 151.

[5]Federal Trade Commission, Agricultural Income Inquiry, 1938,
p. 260.

The two most important types of tobacco are burley and flue-
cured; the leading markets for these tobaccos are Lexington, Kentucky,
and Wilson, North Carolina, respectively. Table II shows the degree
of control on these two leading cigarette-tobacco markets. The three
largest tobacco companies in 1934 distributed 80.1 per cent of the
cigarettes in the United States, and the largest single manufacturer
distributed 27.3 per cent of the cigarettes.[6] The same three companies
are also the largest manufacturers of smoking tobacco and, with one
exception, chewing tobacco. None produce snuff. The degree of concen-
tration in the cigar industry is relatively small because of the fact
that it remained a hand process until recent years.

Table III shows the concentration of leaf tobacco purchases in
the 1938 crop year. Unfortunately, there are no later studies to
indicate the amount of concentration of leaf purchases in the 1940's.
It can be assumed, however, that the same high degree of concentration
exists. There have been no changes in the buying policies of the
major companies, and observation of isolated market operations would
confirm this view.

There is more recent information concerning concentration on
the distribution side. Figures published in a 1949 report by the Federal
Trade Commission indicate that in 1947 36.6 per cent of the net capital
assets in the cigarette industry were held by one company, 64.4 per

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[6] *Loc. cit.*

TABLE II

CONCENTRATION OF CONTROL OF PURCHASES OF TOBACCO AT THE
NATION'S TWO LARGEST TOBACCO LEAF MARKETS, 1933-1935[a]

Market and Type of Tobacco	Average Percentage (1933-1935) of Total Tobacco Leaf Sales Bought by		
	Three Largest Domestic Buyers	Largest Single Domestic Buyer	Largest Single Export Buyer
Lexington, Ky. (Burley)	61.3	24.7	8.4
Wilson, N. C. (Flue-cured)	24.8	12.6	23.2

[a]Table taken from William H. Nicholls, _Imperfect Competition Within Agricultural Industries_, op. cit., p. 74.

TABLE III

LEAF TOBACCO PURCHASES BY SIX COMPANIES
AND BY ALL OTHERS, 1938 CROP YEAR[a]

Company	Percentage of Total	
	Flue-cured	Burley
Reynolds	9.5	27.5
American	7.4	24.3
Liggett	11.9	15.5
Universal	13.0	16.7
Export Leaf	17.0	-
Imperial	24.7	-
Other	16.4	16.0

[a]Richard B. Tennant, op. cit., p. 208.

cent by two companies, 77.6 per cent by three companies, and 87.8 per cent by four companies.[7] Table IV illustrates the extent of concentration in the production of cigarettes in the past two decades. A pictorial presentation of the concentration in tobacco manufactures is incorporated in the Appendix as Figure 14.

We have seen that the actions of an oligopolist or an oligopsonist depend upon his rivals' actions.

In exploring this idea, William Fellner has said:

> The oligopolist, instead of "setting up" a supply function, attempts to select a definite price to be charged and a definite quantity to be sold, which, in combination with one another, are optimal from his point of view. But the quantity he is capable of selling at any given price depends on the prices charged by his competitors, which, in turn, are appreciably affected by what price he sets. Consequently, not only does the oligopolist fail to set up a supply function, but also it is impossible to define for him a demand function from information pertaining to buyers' preferences alone. Similarly, the oligopsonist, instead of setting up a demand function, attempts to select a definite price to be paid for the materials and services he buys and a definite quantity to be purchased, which, in combination with one another, are optimal from his point of view. But the quantity he is capable of buying at any given price depends on the prices paid by his competitors, which, in turn, are appreciably affected by what price he pays. Consequently, he not only fails to set up a demand function, but also is not faced with a supply function such as could be calculated from technological data and utility functions alone.[8]

Fellner proceeds to work out a theory of determination based on conjectural interdependence which is somewhat beyond the scope of this

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[8] William Fellner, Competition Among the Few (New York: Alfred A. Knopf, 1949), p. 11.

TABLE IV

ESTIMATED PERCENTAGE OF CIGARETTE OUTPUT BY LEADING COMPANIES[a]

	American	Reynolds	Liggett & Myers	Phillip Morris
1929	31.1	31.3	23.6	–
1932	35.4	23.1	20.2	–
1936	21.6	30.3	22.4	2.3
1937	21.2	29.4	21.3	3.2
1938	22.2	26.7	20.6	4.8
1939	22.2	24.8	19.2	5.4
1940	25.4	23.4	21.5	6.3
1941	26.2	22.3	21.2	8.0
1942	28.0	22.5	18.7	9.5
1943	29.6	22.7	19.6	9.8
1944	29.3	21.2	21.8	10.0
1945	29.5	21.0	20.4	9.7
1946	33.7	26.4	20.6	7.6
1947	32.9	28.7	21.0	7.7
1948	32.6	27.4	21.2	8.3
1949	31.4	26.4	20.5	9.3
1950	31.1	26.6	18.9	10.9
1951	30.9	26.5	18.0	11.6

[a] Source: Estimated by Standard and Poor's Corporation in Standard & Poor's Industry Surveys, "Tobacco," March 27, 1952, p. T4-4.

paper. His quotation is used to illustrate the position in which the oligopolist or oligopsonist finds himself when he endeavors to set his prices.

This leads us into Nicholls' classification of oligopoly-oligopsony. The prices and volumes resulting under this type of market structure will depend upon the relationships existing between the few firms; that is, whether there is formal collusion, and, if not, what each firm expects his rivals to do. The policies of any one firm, where there is not formal collusion, depend upon whether or not it recognizes the existence of circular interdependence and whether or not it correctly judges the timing and extent of interactions which any change in its policies sets in motion.

Nicholls offers as typical limiting cases of oligopoly-oligopsony those presented in the following outline:[9]

    I. Where firms formally combine:
        A. Formal collusion
        B. Complete merger
    II. Where firms do not formally combine:
        A. A few firms of about equal size:
            1. Perfect knowledge
            2. Limited knowledge
                (a) Circular interdependence ignored:
                    (1) Rivals' purchases and sales assumed fixed
                    (2) Rivals' buying and selling prices assumed fixed
                    (3) Follower-leader pattern
                (b) Circular interdependence recognized:
                    (1) Extent and timing unknown
                    (2) Extent and timing known

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[9]Nicholls, op. cit., pp. 83-84.

a) Rivals' price assumed always
   <u>uniform</u> with own price
b) Rivals' <u>percentage</u> of total pur-
   chases and of total sales assumed
   fixed (market-sharing)

B. One or a few very large firms and many small firms:
    1. One dominant firm
    2. A few dominant firms

There is neither time nor need to discuss the theory of each of

these types. We must be concerned, however, with the placing of the

modern tobacco industry within this theoretical framework. The period

between 1890 and 1910 was one of formal collusion and finally of merger

in the tobacco industry. There are those who hold that the modern

industry has also been guilty of formal collusion. As was pointed out

in Chapter II, evidence of collusion which was presented in the FTC

hearings of the 1920's and the 1941 trial was not conclusive. Further

analysis will show that formal collusion has not been a necessary means

to the ends desired by the industry. The modern tobacco industry

(1911 to date) in its early years fits rather neatly into Nicholls'

classification. It was an industry in which firms did not formally

combine; there were a few firms of about equal size; and there was

limited knowledge. The circular interdependence was recognized, but

its extent and timing were unknown. This is the most difficult of the

oligopoly-oligopsony types with which to deal from a theoretical stand-

point. If the firm determines its purchase and sales curves on the

assumption that its rivals will react in a certain manner, even though

the assumption may be erroneous, it at least has a starting point. But

if the firm is simply uncertain as to what assumptions to make as to

its rivals' prices and volume of sales its problems are increased tremendously. For each oligopolist-oligopsonist, there will be a number of sales and purchases curves, and a stable equilibrium will exist only if (1) each has guessed its rivals' reactions correctly and (2) the resulting division of business has been at the same time the optimum adjustment for each.

Since such adjustment is highly problematical, what price situation may be expected? Chamberlin has concluded that the price may be anywhere between the limits of collusive oligopoly-oligopsony and pure competition ". . . depending upon the one which chance, shrewdness, or desperation leads him to choose, and depending also upon whether his rival chooses the same one."[10] Chamberlin has pointed out several reasons for uncertainty as to the extent and timing of rivals' reactions. In the first place, if each entrepreneur assumes his rival's present policy to be unaffected by changes in his own policy, he has no way of knowing whether this fixity will express itself in his rival's volume or in his price. Secondly, whereas an entrepreneur may be aware of his influence upon competitors' reactions, he has no certainty that they are aware of their influence upon his. Again, when the number of competitors is small, each may be able to perceive his interdependence but be unable to determine the degree of reaction to be expected. And

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[10] E. H. Chamberlin, Theory of Monopolistic Competition (3d ed.; Cambridge: Harvard University Press, 1939), p. 51.

finally, each of the competitors may be in doubt as to the timing of
his rivals' reactions.[11]

As the tobacco industry has developed, it has passed into the
stage where the extent and timing of the competitors' reactions are
apparently known to each other. Stigler has held that there is an
interim between these two cases in which there usually occurs formal
collusion while the competitors work out rules of the game.[12] While
this may be true in most cases, it should not have been necessary in
the case of the tobacco companies which had worked together in the
Trust.[13] If circular interdependence is recognized and extent and
timing of rivals' reactions are known, we may suppose that the tobacco
companies have correctly assumed that any price cut in selling or price
increase in buying on the part of one will be met by the others. Each
realizes the futility of price competition, so that even though the
firms are completely independent, the equilibrium prices and volumes
in both buying and selling may well be those which would exist under
formal collusion. This result would, of course, be most profitable for
all the firms.

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[11]Ibid., pp. 51-53.

[12]George J. Stigler, "Notes on the Theory of Duopoly," Journal
of Political Economy, 48:533, August 1940.

[13]An opinion with which there is not complete concurrence by
writers in the field.

Certain of the evidence presented in the Federal Trade Commission's Report on the Tobacco Industry of 1921 would indicate that there was some degree of uncertainty among the tobacco companies as to the motives of their rivals so that the prices might be established somewhat above the formal collusion prices. Equilibrium at the formal collusion level depends upon perfect knowledge which is, in turn, dependent upon experience.

Burns has remarked that there is little evidence of market-sharing among the tobacco companies.[14] Such sharing would simply be additional evidence of knowledge of extent and timing of rivals' reactions. Nicholls interprets the absence of market-sharing as being due to the dynamic nature of the cigarette industry in the past years which has prevented it from settling down to any consistent market pattern.

An over-all analysis of oligopoly-oligopsony points to the probability that, where an industry is dominated by a few large firms, pricing policies in both buying and selling will tend to be nonaggressive. This statement has real significance when one realizes that evidence of lack of aggressiveness in pricing has been used to convict the tobacco companies on criminal charges, whereas it is in reality a natural characteristic of their market structure.

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[14] A. R. Burns, The Decline of Competition (New York: McGraw-Hill, 1936), p. 140.

Some Remarks on Exploitation

As has been pointed out earlier an ideal analysis of the tobacco farmer's position could be made by a measurement of the exploitation to which he is subjected due to the competitive or non-competitive marketing structure he faces when he sells his tobacco. Such an analysis, however, seems virtually impossible because of the unavailability of reliable cost figures for either the farmer or the tobacco manufacturing companies.

Because the oligopoly-oligopsony theory leads to the conclusion that the tobacco farmer is in an ideal position to be exploited--whether or not such position is being taken advantage of by the companies--it may be well to consider briefly the theory of exploitation.

As is true with much economic terminology, the very word "exploitation" has been interpreted by different writers in different lights. Consequently, it has lost its precise definition and has become more or less adaptable to varying situations. As Gordon F. Bloom has remarked, "Exploitation, like discrimination and monopoly, has ceased to be a noun and has become a noise."[15] Nevertheless, the word still has a precise meaning. This we proceed to define.

Consider first the case of a pure monopsonist who is a monopolist with respect to the sale of his manufactured product. Such a market situation is, of course, a normative one. Like that of a perfectly

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[15] Gordon F. Bloom, "A Reconsideration of the Theory of Exploitation," Readings in the Theory of Income Distribution (Philadelphia: The Blakiston Company, 1946), p. 245.

competitive market, the concept is helpful even though the precise market type is never encountered in the real world. Certainly, however, this was the approximate position of the old American Tobacco Company before the dissolution decree of 1911.

In Figure 1 inputs of factor (in this case, tobacco) are measured along the OX axis and price is measured along the OY axis. There are four relevant quantities which vary as input of the factor varies. These are the average outlays on the factor, the marginal outlays on the factor, the average net productivity of the factor, and the marginal net productivity of the factor.[16] A monopsonist with respect to a factor, who is a monopolist with respect to the sale of the manufactured product, will take the agent of production up to the point where marginal outlay and marginal net productivity are equal. Thus, a quantity of the factor (tobacco) OQ will be taken at a price per unit OP, even though the marginal net productivity is OR and average net productivity is OS. The price OP is sufficient to call forth the quantity OQ, at which profits for the monopsonist-monopolist are maximized, and the monopsony-monopoly profits are represented by the area PMNS. If the factors were combined in the same proportions under pure

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    Some writers, like Professor William Nicholls, prefer the construction of curves of derived average revenue and derived marginal revenue to that of productivity curves. The meaning is precisely the same no matter which terminology is used.
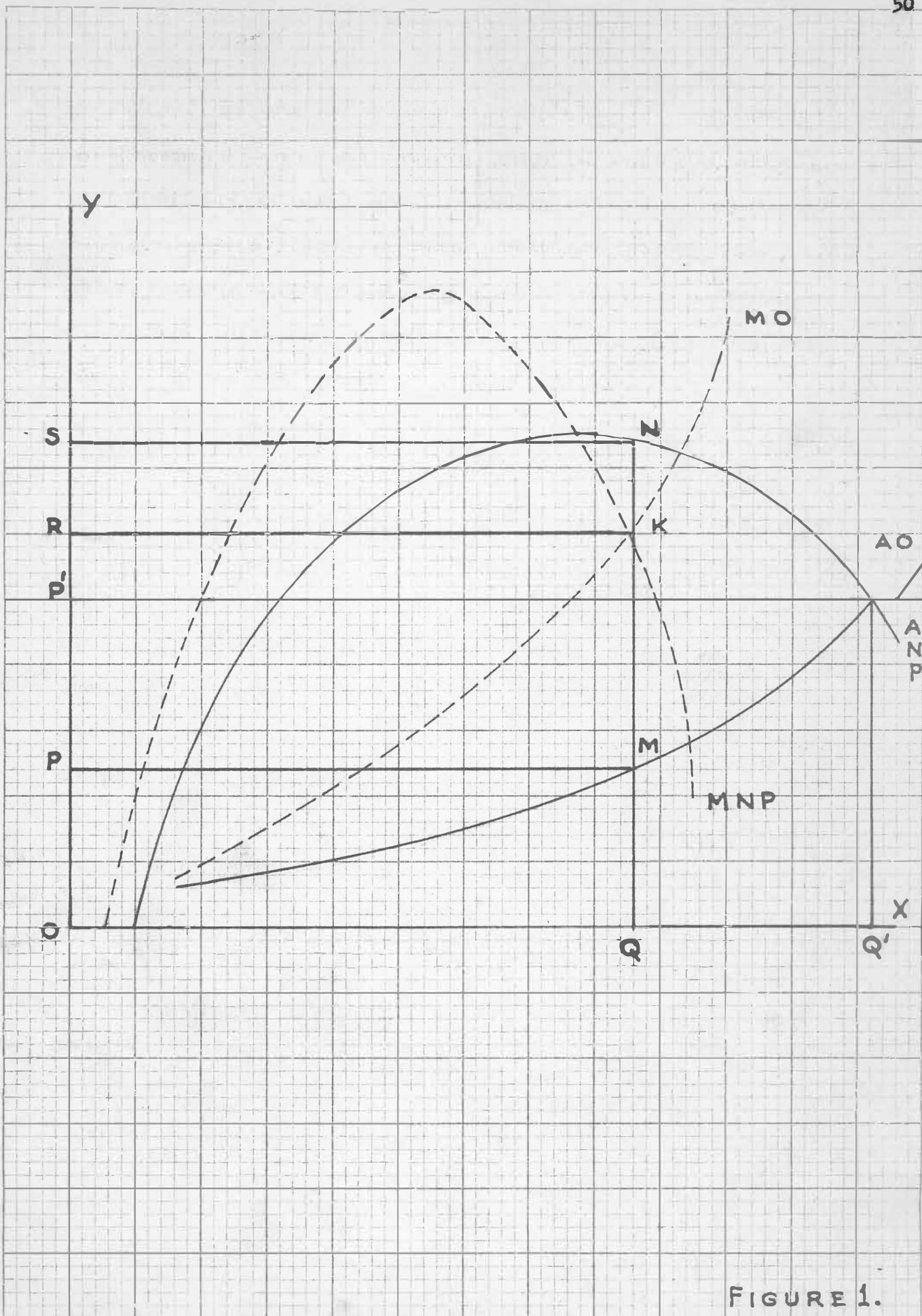
FIGURE 1.

competition, the amount of the factor taken under pure competition would be ●Q' and the competitive price would be OP'. It is not likely that the factors would be combined in the same proportions under conditions of both monopoly and pure competition, but it is certain that the quantity employed and the price paid under a competitive system would be greater than under a monopoly.

A moment's reflection will assure the reader that these familiar conclusions of partial equilibrium analysis are valid. Under the most general case of the technical combination of the factors, we take it that, as inputs of a variable agent increase, the curve of average physical product will rise at first and then fall. It follows that the curve of marginal physical product will rise through an early range of inputs of the factor and then fall. Now the value of the marginal physical product is obtained by multiplying marginal physical product by average revenue (selling price) whereas the marginal value product is obtained by multiplying marginal physical product by marginal revenue. Under conditions of pure competition the value of the marginal product will be equal because average revenue and marginal revenue are equal. But in those situations when output is sold in an imperfect market, the marginal value product must be less than the value of the marginal product for the simple reason that marginal revenue will be less than average revenue.

Thus, under perfect competition any unit of a factor will receive both the value of its marginal product and its marginal value product.

The entrepreneur, if he would maximize net revenue, will take any factor up to the point where the marginal value product of the factor is equal to the marginal outlay on the factor; to hire an agent beyond this point would add more to costs than it would add to revenue. Now the principle by which the monopolist is guided in hiring (purchasing) an agent of production is the same as that by which the entrepreneur under perfect competition is guided. He, too, will take units of a factor up to the point where marginal value product of the agent and marginal outlay are equal. Two broad cases are possible. If the monopolist hires an agent in a pure market, average outlay and marginal outlay will be the same. But since he sells his product in an imperfect market, the marginal value product of the agent will be less than the value of its marginal product. Thus, if we take it that "exploitation" occurs whenever a factor receives less than the value of its marginal product, this kind of "monopolistic exploitation" results even though the agent of production is bought in a perfectly competitive market.[17]

If, however, we restrict our notion of exploitation to the situation in which a factor receives less than its marginal value product, we shall find the manifestation of such exploitation in the second of the two cases suggested above. A monopolist may very well be a monopsonist of some agent necessary to his combination. Normally the average outlays

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[17]Compare Joan Robinson, op. cit., especially pp. 284-288.

necessary to obtain greater and greater quantities of the agent will
increase. In a pure market for the agent the curve of average outlays
would constitute a supply curve. The monopsonist, however, will equate
marginal outlays and marginal value product. Thus, for any input the
agent will receive an amount indicated by the curve of average outlays
(average cost to the supplier of the agent). Since the average outlay
curve is rising, the curve marginal to it must be above it. Hence the
factor cannot but receive less than its marginal value product and
"monopsonistic exploitation" occurs.[18]

The explanatory discussion has thus far been confined to short
periods of time. But the notion of average and marginal net productivity
(see Figure 1) implies a time period sufficiently long to permit changes
in inputs of all the factors. Thus average gross productivity is the
average value of output per unit of former variable factor--let us now
say tobacco--and the marginal gross productivity is the increment of
value of output resulting from adding to the productive combination
an additional unit of tobacco with the appropriate addition to other
factors. Thus, average net productivity is the average value of output

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[18] The merits of defining exploitation as occurring when a factor
receives less than its marginal value product versus those of defining
exploitation as resulting when the factor receives less than the value
of its marginal product need not be gone into here for the reason that
we are focusing attention on the monopsony problem. For discussion see
Joan Robinson, op. cit., pp. 281-304, W. H. Nicholls, op. cit., pp. 58-
63, and A. C. Pigou, The Economics of Welfare (3d. ed.; London: Macmillan
& Company, 1946), pp. 551 et. seq.

per unit input of tobacco _minus_ the average outlays on other factors employed. Marginal net productivity is the marginal net increment of value of output resulting from the input of an additional unit of tobacco. It is, then, the quantity which is marginal to average net productivity.

Given a perfectly competitive market in equilibrium, for any firm marginal net productivity _and_ average net productivity will equal both average and marginal outlays on tobacco. Thus, for a perfectly competitive industry, the curve of average net productivity would constitute a demand curve for tobacco. The monopsonist, however, pays attention only to the two relevant _marginal_ quantities. (See Figure 1.)

To return to our original discussion, the total profits of the monopolist-monopsonist (Figure 1) will equal the area PMNS. The monopsonistic exploitation is indicated by the rectangle PMKR. There is nothing sinister or evil about the existence of the exploitation. It follows from the attempt of the entrepreneur to maximize net revenue. But exploitation, even as here narrowly defined, implies a worse economic position for the suppliers of a factor than would otherwise prevail.

Ideally, we should like to measure the exploitation. But how shall we proceed? The relevant productivity and cost figures are simply not available, nor, by any stretch of the imagination, will the cost figures for tobacco ever be. Yet we should like to devise some means of testing the validity of the proposition that the tobacco grower is worse off than other agriculturists. In the chapter which follows such a means of testing will be suggested.

CHAPTER IV

COMPARATIVE COMMODITY ANALYSES

The sketch of the theory of price determination in a market in
which some element of monopsony is present may cause the unwary to make
hasty inferences. The static analysis within the framework of neo-
classical theory appears to lead to the conclusion to which tobacco
growers have always come--that tobacco prices have been lower and out-
put less than if "competition" had prevailed among the buyers of their
product. Yet we are here confronted with a problem in economic dynamics
in which the relevant variables change over time.

The thought must occur to anyone who seriously considers the
matter that tobacco may have a certain advantage which the growers of
farm products generally may not have. That advantage lies in the fact
that the finished good, of which their crop is the chief raw material,
is sold by an oligopolistic industry. May not these few firms, by
affecting the position and shape of the demand curves for tobacco
products and by achieving more efficient scales benefit themselves and
place their suppliers in a position quite favorable relative to those
growers whose product is sold under conditions of pure competition? A
cursory examination of the raw data on price and income figures indicate
that this question may be answered affirmatively.

This problem is only a small phase of a broader problem with
which agricultural economists have had to grapple--an explanation of

"the agricultural problem," which is of an evolutionary nature and is a
problem in dynamics. This challenge has not gone unaccepted. Much work
has been done by what has been referred to as the "Ames School," and such
men has Theodore Schultz, Gale Johnson, and E. O. Heady have proposed
interesting and helpful solutions.[1] This "School" has set up a framework
within which we can explain the evolution of "the" agricultural problem
by tracing over time forces which affect the supply of and the demand
for farm products. Close scrutiny of the prices farmers receive, their
income from crops, and the prices they pay for the things they buy will
certainly give an indication of the relative position of agriculture.[2]
What has been needed, however, is a measuring device with which a single
index of relative welfare can be formulated. Such a device is furnished
in the terms of exchange.

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[1] Most helpful to the present inquiry have been two works of
Theodore Schultz: Agriculture in an Unstable Economy, op. cit., and
Production and Welfare of Agriculture (New York: Macmillan, 1949).

[2] In the tobacco case of 1941 the defendants offered as evidence
certain statistical material designed to show comparisons among farm
prices. The data were in the form of index numbers showing price changes
of tobacco, wheat, cotton, corn, fruits, dairy products, chicken and eggs,
hogs, beef cattle, and all farm products for the period 1921-1939. Graphs
had been constructed, and in most instances these showed the index of
tobacco prices well above those of other farm products. This evidence
was offered by Dr. John Coulter, a consulting economist and statistician
in the field of agriculture. His direct testimony was clear and impres-
sive, but the limitations of his analysis were emphasized by the Govern-
ment in cross-examination. The evidence probably had little effect on
the lay jury, and its very nature led to discussion which could only
cloud and obscure the issues.

The terms-of-exchange concept involves the determination of the relationship between the prices which a farmer pays for products he buys and the prices which he receives for the products he sells. The technique of formulating terms of exchange has been explained in some detail in the introductory chapter; specific illustrations of the method will follow shortly. The terms-of-exchange concept is no panacea. It deals with aggregates, and there is danger that the effect of some isolated forces operating in the economy may be missed. But as a consequence of its use some misapprehensions may be corrected. As has been noted repeatedly, it is generally accepted that because of peculiar conditions of competition in the tobacco industry the tobacco farmer is put upon, and the implication has been that of all farmers his lot is the worst. If we jump from the static theoretical analysis to this conclusion, we fall into serious error.

It is generally recognized that the significance of a statistical presentation depends upon the integrity of the statistician. It is an old and, in most instances, true saying that figures can be used to prove anything. The method of analysis here presented has been checked carefully with statisticians, and much thought has been given to the question of whether the presentation may be biased because of arbitrary selection of base periods for index numbers or for terms-of-exchange indices.

As has been mentioned before, the selection of the base year for the terms-of-exchange indices is to some extent an arbitrary one. A base

period is considered by statisticians simply as a convenient starting point; it is recognized that there is no period which is "normal" in the accepted sense of the word. In selecting the base year for the terms-of-exchange indices, emphasis has been placed upon the selection of years which are of historical significance with the recognition, however, that the choice of a year in which there are gross price distortions will present an unfair picture of the terms-of-exchange relationship.[3] With one exception, which will be noted later, the years 1910 and 1933 have been used as base years in the computation of terms-of-exchange indices. These years were selected for their convenience and for their historical importance, 1910 being the year before the dissolution of the Trust and 1933 being the first year of extensive Government programs of agricultural aid.

Terms of Exchange

Table VI contains data for the years 1890-1916, inclusive, the first twenty of these years being those in which the Tobacco Trust, the original American Tobacco Company, was in operation. In order to

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[3] A terms-of-exchange index of tobacco and food grains for the 1933-1950 period was constructed using 1944 as the base year for the index. In 1944 the price index (1910-1914 = 100) for tobacco stood at 348, over three and one-half times that of 1933; the price index for food grains was 165, just over one and one-half times that of 1933. A graphic presentation on this basis of the terms of exchange showed food grains in a favorable position throughout the period. Such an analysis demonstrates the difficulty of selecting as a base period a year of extremes.

familiarize the reader with the procedure, the method by which this table was constructed will be explained in some detail. The industry series is one published by the U. S. Bureau of Labor Statistics; 1913 is the base year and the index is based on a weighted average of prices of seventy manufactured commodities.[4] No agricultural index with a 1913 base period was available, so an index was constructed by taking the average prices of the commodities to be compared for the period 1890-1916.[5] In each instance the average price for 1913 was set equal to 100, and the index for the other years then computed. Table V is a worksheet which shows how terms of exchange between all farm products and the seventy manufactured commodities are obtained after the data are translated into index numbers. Column 1 is the index of prices for "all farm products;" column 2 is the index of prices for manufactured commodities. Column 3, which is the ratio between columns 1 and 2, is obtained by dividing column 1 by column 2. The year 1890 was chosen as the base year for the terms-of-exchange index because it was the first year of operation of the Tobacco Trust. Putting 80.6 equal to 100, column 4 is readily obtained $\left(\dfrac{80.6}{100} = \dfrac{87.6}{x}, \text{ etc.}\right)$. The terms of exchange for each commodity are computed in a like manner and are presented in Table VI. Figure 2 is a graphic presentation of the material contained in Tables V and VI.

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[4]U. S. Bureau of Labor Statistics, Index Numbers of Wholesale Prices on Pre-War Base, Washington, 1928.

[5]U. S. Department of Agriculture, Agricultural Statistics, 1939.

TABLE V

COMPUTATION OF TERMS OF EXCHANGE FOR ALL
FARM PRODUCTS, 1890 = 100

	Farm Products[a]	Manufactured Commodities[b]	Ratio	Terms of Exchange
1890	69.8	86.6	80.6	100
1891	75.0	85.6	87.6	109
1892	68.5	81.5	84	104
1893	70.7	83.2	84.9	105
1894	61.4	72.4	84.8	105
1895	61.2	72.5	84.4	105
1896	55.0	70.1	78.4	97
1897	59.2	71.2	83.1	103
1898	62.8	73.6	85.3	106
1899	64.1	78.5	81.7	101
1900	70.4	83.0	84.8	105
1901	73.6	81.5	90.3	112
1902	81.4	86.9	93.7	116
1903	77.2	85.9	89.8	111
1904	81.1	86.2	94	117
1905	78.8	88.5	89	110
1906	80.3	87.5	91.8	114
1907	86.7	94.2	92	114
1908	86.5	92.8	93.2	116
1909	97.0	97.8	99.2	123
1910	103.2	101.4	101.8	126
1911	93.0	92.9	100.1	124
1912	101.3	99.7	101.6	126
1913	100.0	100.0	100.0	124
1914	102.6	101.0	101.6	126
1915	103.9	105.9	98.1	122
1916	122.8	131.0	93.7	116

[a]Compiled from 1939 Agricultural Statistics, USDA, 1913 = 100.

[b]U. S. Bureau of Labor Statistics, Index Numbers of Wholesale Prices on Pre-War Base, Washington, 1928, 1913 = 100.

TABLE VI

TERMS OF EXCHANGE FOR ALL CROPS, TOBACCO, WHEAT,
AND COTTON, 1890-1916, 1890 = 100

	All Crops	Tobacco	Wheat	Cotton
1890	100	100	100	100
1891	109	103	100	85
1892	104	118	79	103
1893	105	102	66	85
1894	105	99	70	65
1895	105	101	72	106
1896	97	84	106	97
1897	103	112	117	96
1898	106	90	81	79
1899	101	96	78	90
1900	105	86	77	112
1901	112	94	80	88
1902	116	85	75	88
1903	111	83	84	124
1904	117	97	111	106
1905	110	99	87	123
1906	114	118	78	112
1907	114	114	95	112
1908	116	119	108	99
1909	123	111	105	140
1910	126	99	93	139
1911	124	108	97	#
1912	126	116	79	122
1913	124	138	83	124
1914	126	105	100	69
1915	122	92	90	105
1916	116	121	127	152

#Price data unavailable.

62
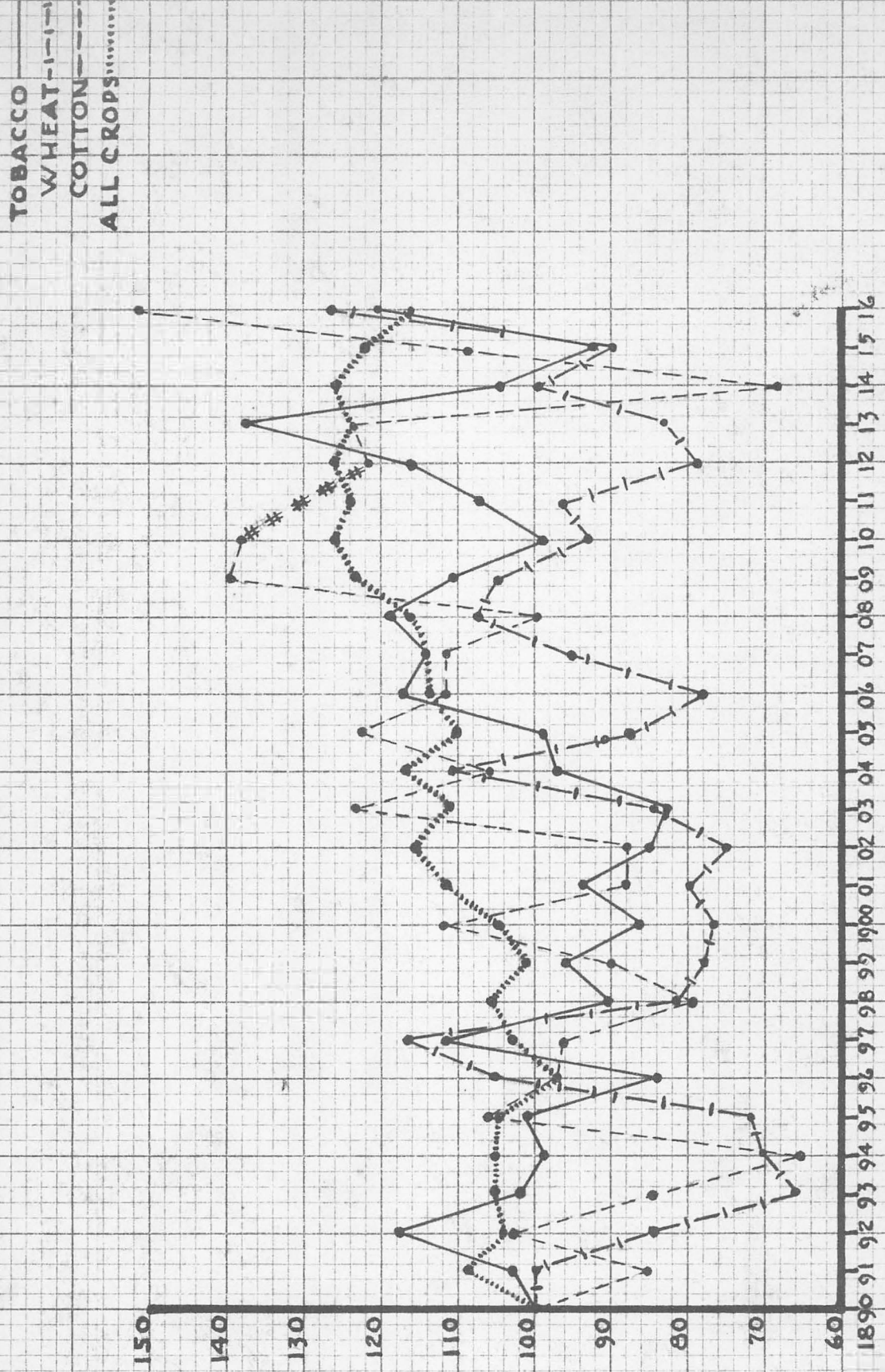
TERMS OF EXCHANGE (1910 = 100) BASED ON INDEX OF WHOLESALE PRICES ON PRE-WAR BASE AND INDEX COMPILED FROM AGRICULTURAL STATISTICS, 1939.
(1913 = 100)
#1911 AVE. COTTON PRICES NOT GIVEN.

FIGURE 2.

The relationships indicated in Figure 2 are those which could be expected from the brief survey of the Trust years. The terms of exchange, compared with those for agriculture as a whole, are generally unfavorable for the tobacco grower through 1910. (The words "favorable" and "un-favorable" are concerned with the relative position of the terms of exchange for one commodity as against another. In the usual sense of the words, terms would be favorable for a specific commodity only if they were above 100. However, the implication here is one of relativity, and tobacco terms of exchange may be favorable as compared with other terms when they are well below 100.) The graph would indicate that the effect on prices of the formation of the original American Tobacco Company was not felt strongly until 1893. During the next seventeen years tobacco terms of exchange compared favorably with the terms of exchange for all crops in only three years--1897, 1906, and 1908. It is worth noting that during this period, when it may be concluded that the tobacco growers were being seriously and persistently exploited by the Trust, the tobacco terms of exchange were not subject to the severe fluctuations which characterized those of the wheat and cotton growers. It is also significant that during most of the period under consider-ation the terms of exchange for wheat farmers showed them at a distinct disadvantage as compared with tobacco growers.

Table VII presents the terms of exchange (1910 = 100) for tobacco, wheat, and cotton for the period 1910-1937. Wheat and cotton were singled out for comparison because their finished products are usually sold in

TABLE VII

TERMS OF EXCHANGE FOR TOBACCO, WHEAT, AND
COTTON, 1910-1937, 1910 = 100

|	Tobacco	Wheat	Cotton
1910	100	100	100
1911	94	96	82
1912	107	89	80
1913	120	82	90
1914	109	94	62
1915	86	107	69
1916	96	104	92
1917	115	125	104
1918	135	114	114
1919	164	112	117
1920	107	102	83
1921	124	83	70
1922	155	74	108
1923	145	69	141
1924	140	84	123
1925	129	103	102
1926	130	93	67
1927	126	91	95
1928	142	80	94
1929	148	80	92
1930	125	62	61
1931	104	42	42
1932	103	41	48
1933	137	73	66
1934	171	79	82
1935	160	75	70
1936	179	88	76
1937	189	88	51

markets which approach the norm of "pure" competition. The year 1926
was selected as the base year for the computation of the price indices
because it was a year in which tobacco was relatively well off price-
wise, so that if there is bias because of the selection of the base
period, it would be in favor of the wheat and cotton farmers. The
industry index, which is a weighted index of wholesale prices of all
commodities, is taken from a Bureau of Labor Statistics publication
taking 1926 as the base period.[6] This is not a perfect index for the
purpose because we are in reality comparing farm products against them-
selves to the extent that their prices are contained in the wholesale
index. Nevertheless, the 1926 index was available, and a consistent
comparison was possible. The agricultural indices were compiled from
a selected series of average prices.[7]

Figure 3 is a graphic presentation of Table VII. One can
readily see that the tobacco terms of exchange are generally highly
favorable. Wheat has a slight advantage in 1911 and is in a very
favorable position in the period 1915-1917. The favorable position in
the 1915-1917 period was, of course, the result of the greatly increased
demand for wheat products during World War I.[8]

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[6] Bureau of Labor Statistics, Historical Statistics: 1801 to 1945,
Wholesale Price Indices, Series L15.

[7] Frederick Strauss and Louis H. Bean, Gross Farm Income and Indices
of Farm Production and Prices in the United States, 1869-1937 (Washington:
USDA, Technical Bulletin No. 703, December 1940).

[8] Such information as to changes in demand and supply conditions is
taken from various copies of Yearbook of Agriculture published by the U. S.
Department of Agriculture unless otherwise cited.
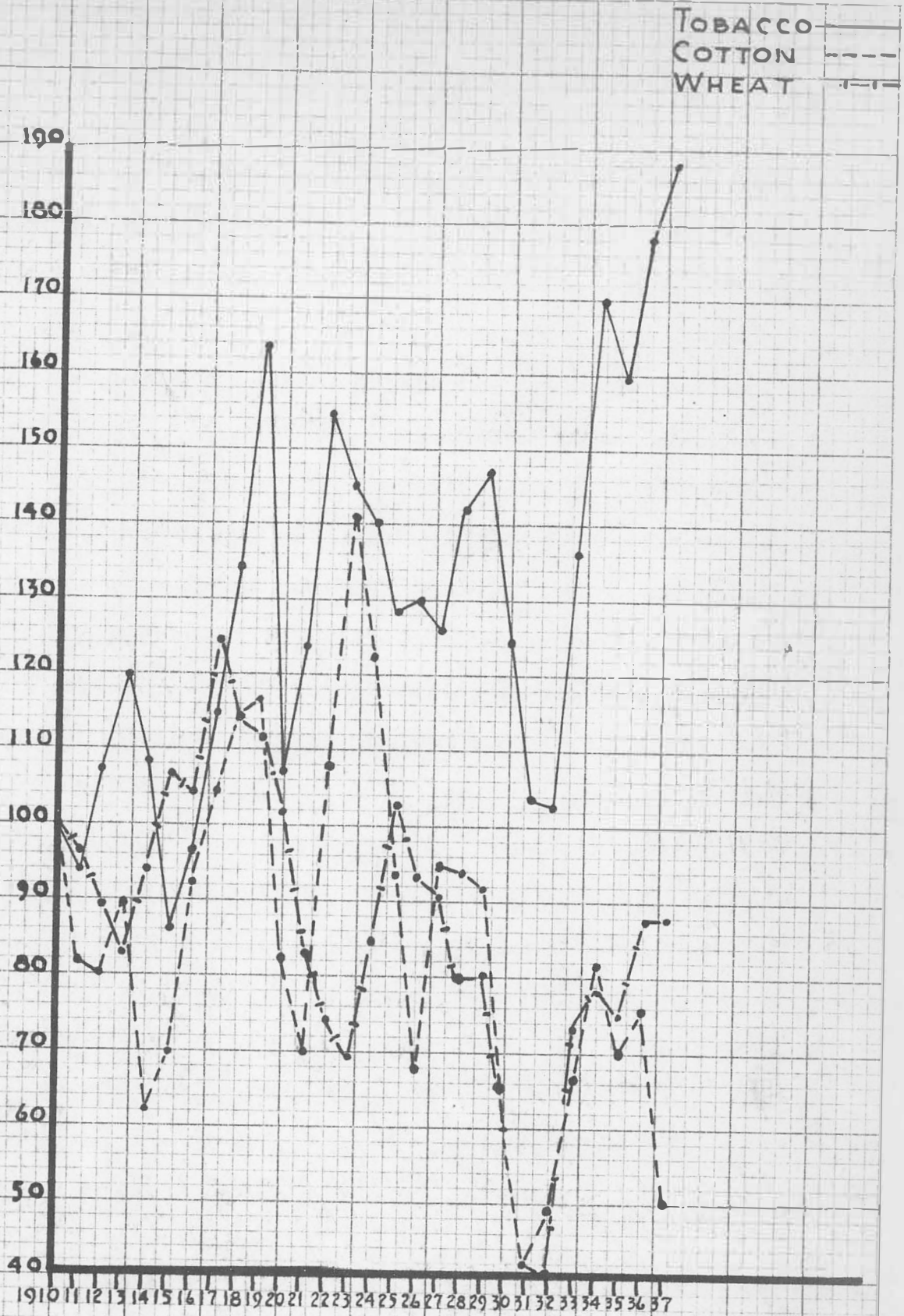
TERMS OF EXCHANGE (1910 = 100) BASED ON WHOLESALE PRICE
INDICES: BUREAU OF LABOR STATISTICS AND INDICES COMPILED
FROM GRASS FARM INCOME AND INDICES OF FARM
PRODUCTION AND PRICES IN THE UNITED STATES. 1869-1937
(1926 = 100)

FIGURE 3.

Figure 4 is a graphic presentation of Table VIII. Here terms of exchange are computed for "all crops," tobacco, cotton, and food grains for the period 1910-1932, inclusive, with 1910 as the base year. The price indices are computed on a 1910-1914 base period. The industry series is a wholesale price series of all commodities and again is imperfect in that it includes agricultural prices.[9] The agricultural price indices are those constructed by the Department of Agriculture on a 1910-1914 base.[10] As will be noted, certain of the time periods under consideration have been analyzed more than once. This is not needless repetition, because in each instance a different industry series or a different base period has been used. Such repetition would strengthen the viewpoint that our terms-of-exchange relationship is valid. As can be observed, much of the same relationship is evidenced by Figure 4 as was evidenced by Figure 3. In this instance, however, the favorable position of tobacco as measured by terms of exchange is more pronounced. In only one year, 1915, do the terms of exchange for food grains lie

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[9] U. S. Department of Commerce, Historical Statistics of the United States 1789-1945 (Washington: 1949), Series L2, p. 231.

[10] U. S. Department of Agriculture, Agricultural Statistics, 1944 and 1951. There is a slight discrepancy in that the indices for the 1910-1928 period are constructed on a basis of average prices for the period August 1909-July 1914 whereas the 1929-1950 indices are on a 1910-1914 base. The Department of Agriculture shifted its base period because of the greater ease with which prices could be obtained for calendar years. The variation in the indices is so slight that they can be used interchangeably with the same results. This has been done in all the comparisons using the USDA price indices.

TABLE VIII

TERMS OF EXCHANGE FOR ALL CROPS, TOBACCO, COTTON, AND
FOOD GRAINS, 1910-1932, 1910 = 100

	All Crops	Tobacco	Cotton	Food Grains
1910	100	100	100	100
1911	105	107	97	97
1912	99	123	78	96
1913	96	145	87	84
1914	95	133	76	95
1915	93	100	66	118
1916	94	106	81	101
1917	109	129	94	125
1918	113	155	114	115
1919	112	183	109	115
1920	103	126	102	104
1921	85	140	65	86
1922	98	160	101	78
1923	105	157	135	72
1924	109	148	138	84
1925	108	136	108	107
1926	96	142	76	98
1927	97	144	85	92
1928	102	149	97	86
1929	97	147	98	80
1930	92	133	75	70
1931	71	110	55	49
1932	61	106	47	44
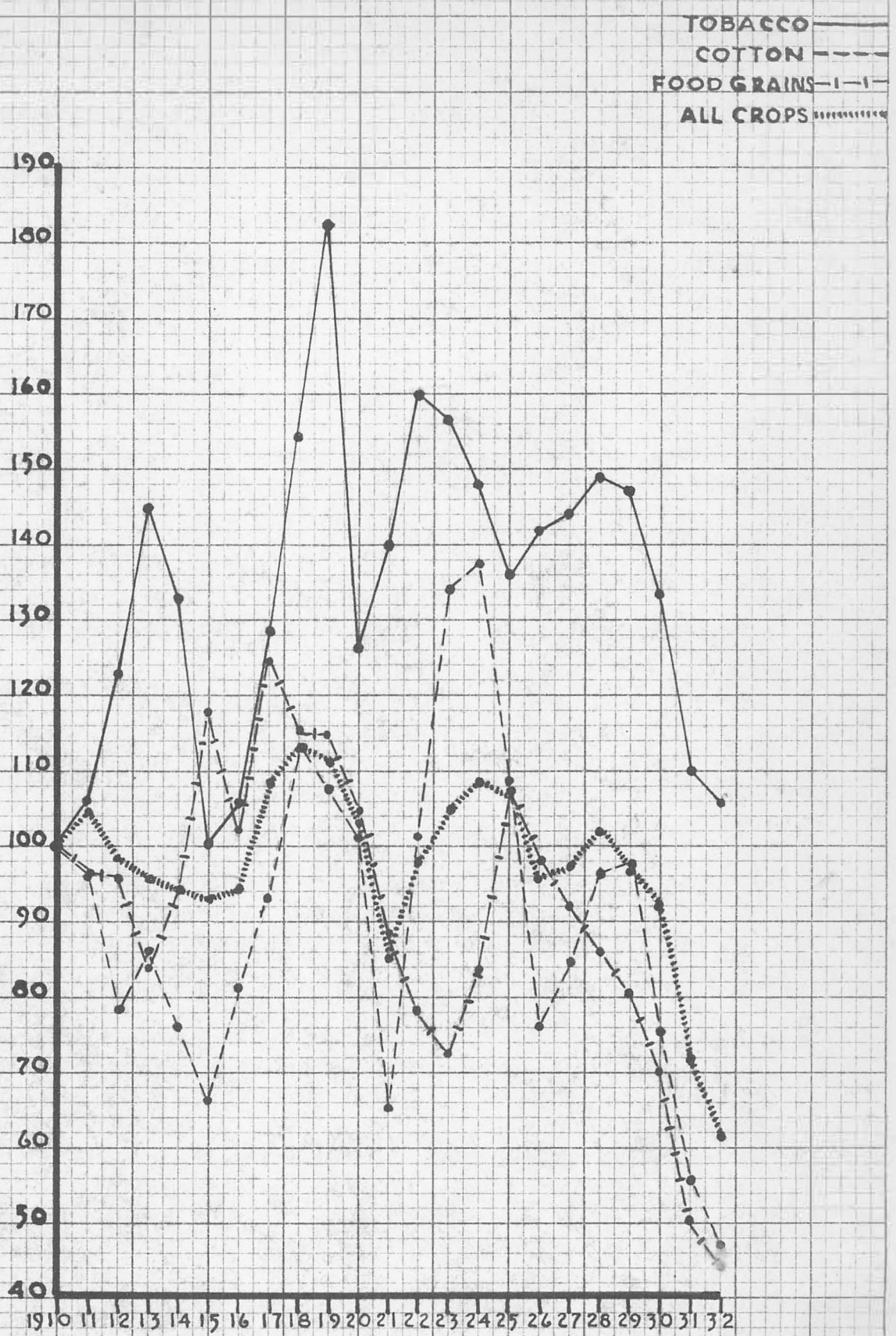
TERMS OF EXCHANGE (1910 = 100) BASED ON WARREN AND PEARSON WHOLESALE PRICE INDEX AND DEPARTMENT OF AGRICULTURE PRICE INDEX (1910-1914=100)

FIGURE 4.

above those of tobacco, and in all other years the favorable relation-
ship is obvious.

The next analysis is based wholly on indices published by the
Department of Agriculture (1910-1914 = 100). These are the "prices
paid"[11] and "prices received" indices used by the Department in formu-
lating its parity concept.[12] The "prices paid" index contains all
commodity prices, including interest and taxes, paid by farmers. The
Department publishes other indices concerned only with commodities used
in production, commodities used for home consumption, etc., but it
appears that the index of all commodity prices is the relevant one.
The analyses are concerned with the 1910-1932 and 1933-1950 periods;
1910 and 1933, respectively, are used as the base years for the terms-
of-exchange indices.

Table IX and Figure 5 present data for the years 1910-1932,
inclusive, for all crops, food grains, tobacco, and cotton. Again the
tobacco terms of exchange are highly favorable with the exception of
the year 1915 when the food grains terms lie above them. It is
significant that, although the effects of the depression of the late
20's and early 30's can be seen in the terms for all the commodities

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[11]U. S. Department of Agriculture, Agricultural Statistics, 1949,
"Index Numbers of Prices Paid by Farmers," Table 672, p. 622.

[12]U. S. Department of Agriculture, Agricultural Statistics, 1944
and 1951.

TABLE IX

TERMS OF EXCHANGE FOR ALL CROPS, TOBACCO, COTTON, AND
FOOD GRAINS, 1910-1932, 1910 = 100

	All Crops	Tobacco	Cotton	Food Grains
1910	100	100	100	100
1911	93	95	86	85
1912	93	116	74	91
1913	89	135	81	79
1914	86	120	69	85
1915	82	88	58	104
1916	88	98	75	94
1917	118	140	102	135
1918	116	159	117	118
1919	106	174	104	109
1920	107	131	106	109
1921	68	113	53	69
1922	78	128	81	63
1923	86	129	111	59
1924	87	118	110	67
1925	90	113	90	89
1926	78	115	61	80
1927	76	112	66	72
1928	80	116	76	67
1929	75	114	76	62
1930	68	98	55	51
1931	50	70	39	35
1932	44	76	34	31
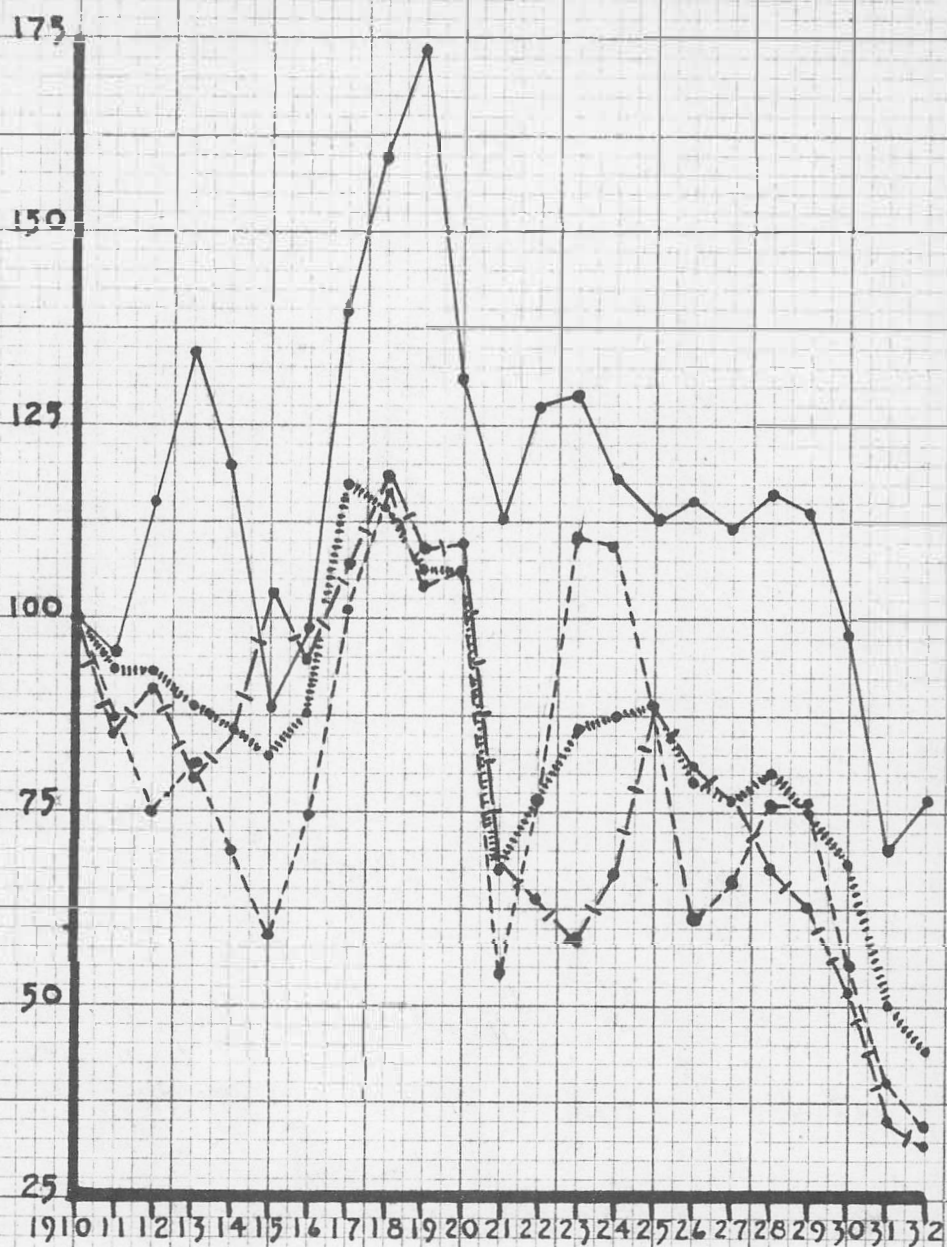
TERMS OF EXCHANGE (1910=100) BASED ON
INDEX OF COMMODITY PRICES PAID BY FARMERS
AND INDEX OF PRICES RECEIVED BY FARMERS
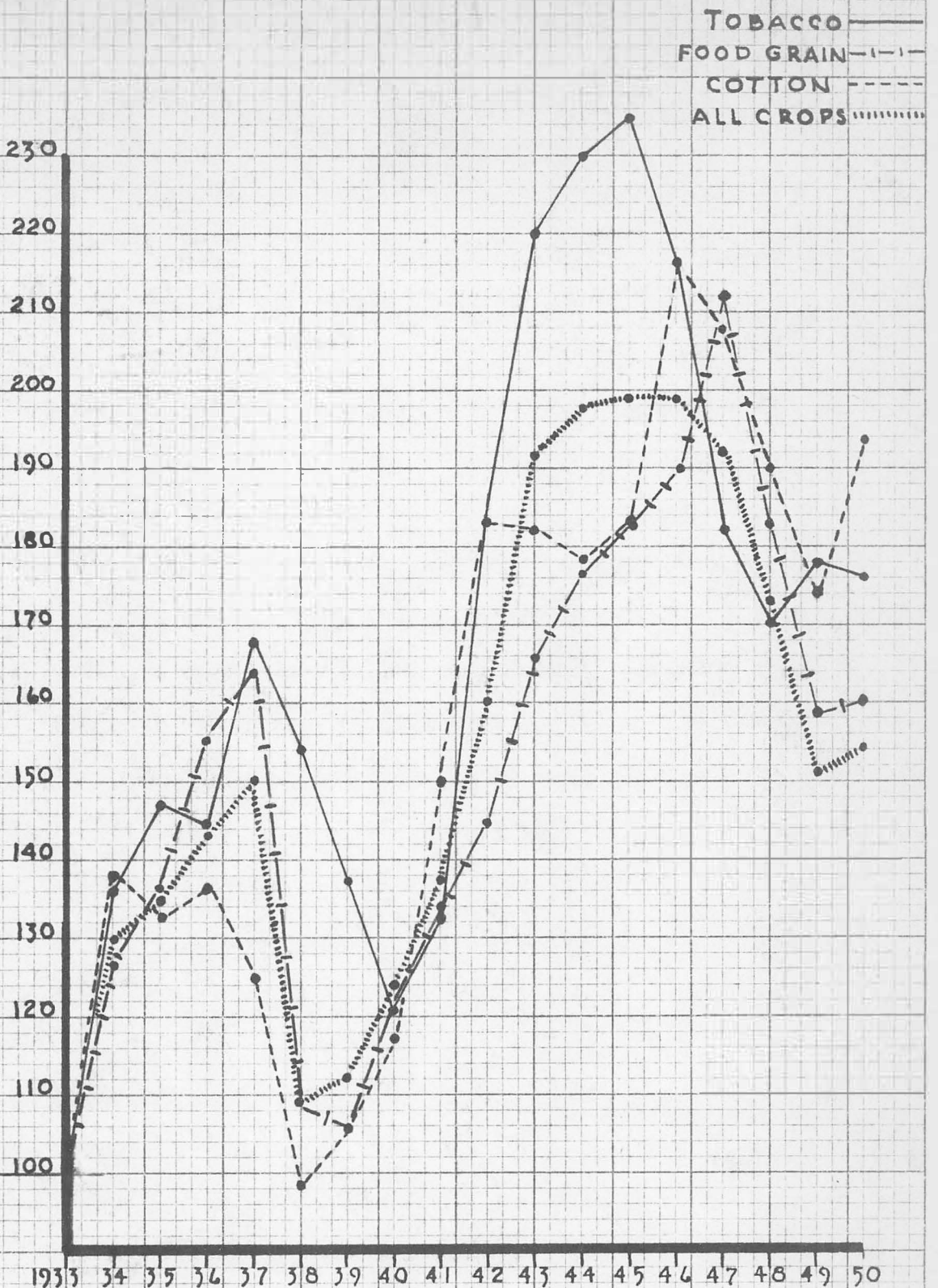
(1910-1914= 100)

FIGURE 5.

under observation, tobacco maintains its favorable position and begins
a recovery in 1932 while terms for other farm commodities are still
falling.

Figure 6 is the graphic presentation of the terms of exchange
for the same commodities for the 1933-1950 period. Because tobacco
was in a more favorable position in 1933 (its terms of exchange had
not fallen so sharply and had begun to recover in 1932), one might
expect the relationship for this period to be less favorable. It might
be well to mention again that 1933 was the year in which the Government
began its program of aid to agriculture. As can be seen from casual
observation of Figure 6, the general agricultural picture as portrayed
by terms of exchange has been complicated by the Government programs and
by the effect of World War II on supply and demand in this latter period.
The tobacco terms of exchange for the overall period are generally
favorable. The fluctuations in the 1937-1941 period insofar as tobacco
is concerned, can be related almost directly to the farm legislation
and consequent supply and demand forces. With the invalidation of the
Agricultural Adjustment Act, there was a sharp increase in the 1937
tobacco crop resulting in an abrupt price decline in 1938. The growers
rejected the marketing quotas for the 1939 crop, the result being that a
record crop was produced and prices continued to decline. The 1940 crop
was reduced, but the large carry-over prevented large price increases
until 1941 in which year exports began to improve. The tobacco terms
of exchange show steady improvement until 1945 after which year the

TABLE X

TERMS OF EXCHANGE FOR ALL CROPS, TOBACCO, COTTON, AND
FOOD GRAINS, 1933-1950, 1933 = 100

	All Crops	Tobacco	Cotton	Food Grains
1933	100	100	100	100
1934	130	136	138	127
1935	135	147	133	136
1936	144	144	137	155
1937	150	169	125	164
1938	110	154	98	108
1939	112	137	105	105
1940	123	120	117	122
1941	138	133	150	133
1942	162	185	183	145
1943	193	221	182	166
1944	198	231	178	177
1945	199	235	183	182
1946	199	218	217	189
1947	192	182	208	213
1948	170	170	190	182
1949	151	178	173	159
1950	154	177	194	160

TERMS OF EXCHANGE (1933=100) BASED ON ALL
COMMODITY PRICES PAID BY FARMERS AND
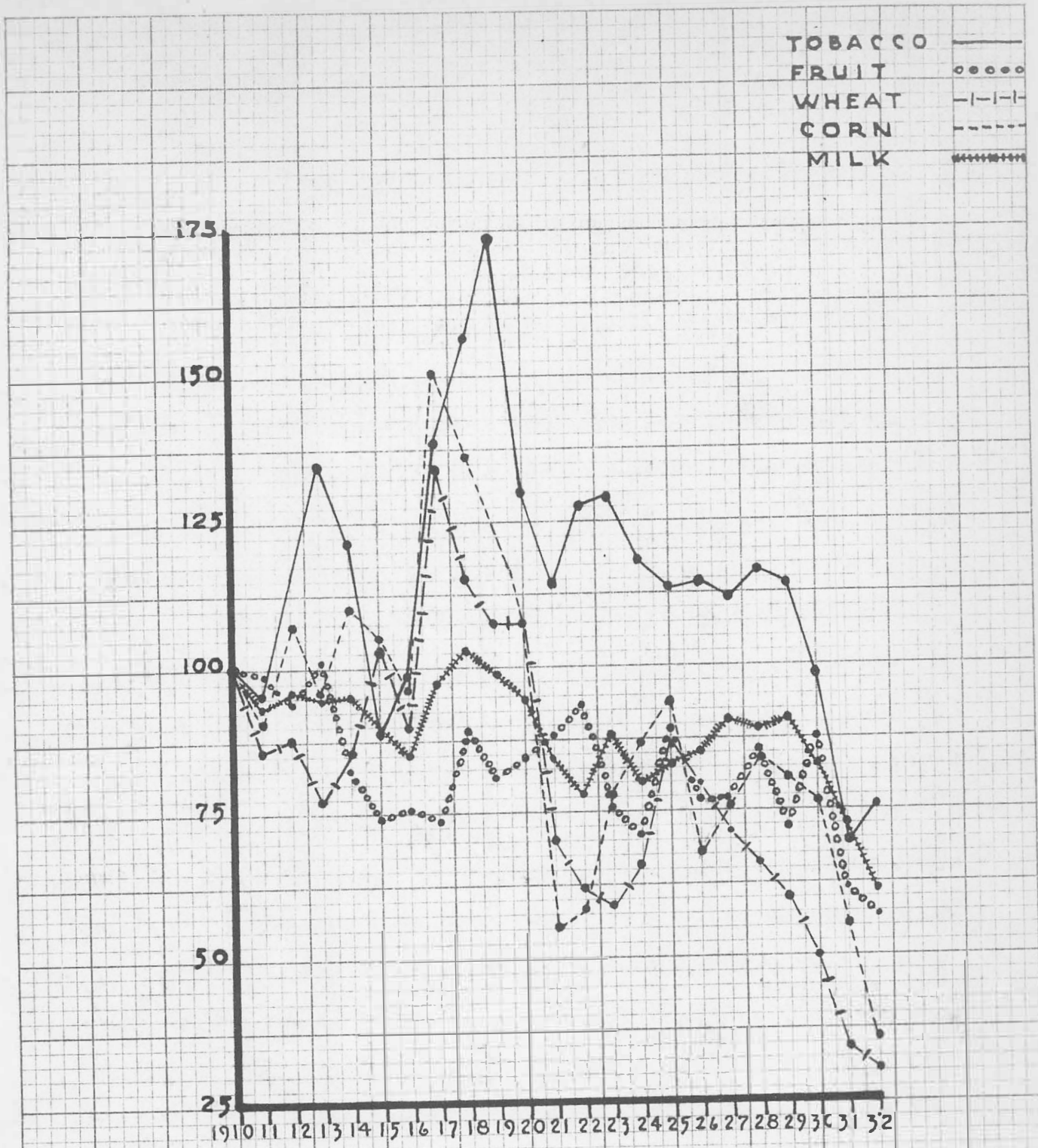PRICES RECEIVED BY FARMERS (1910-1914 = 100)

FIGURE 6.

dollar shortage abroad and a consequent decrease in tobacco exports is reflected by falling terms of exchange. Tobacco staged an early recovery from the general agricultural price decline of the late 1940's. Space does not permit the tracing of the forces affecting each of the commodities. One can judge from Figure 6, however, that the general situation of the tobacco farmer in the 1933-1950 period, as expressed by terms of exchange, has not been a particularly gloomy one.

The "prices received" indices published by the Department of Agriculture in annual Agricultural Statistics are concerned with fairly general groupings of commodities. For a more detailed analysis, available specific commodity price indices (fruit, wheat, corn, and milk) were obtained through direct correspondence with the Bureau of Agricultural Economics. These indices use August 1909-July 1914 as their base period, and terms-of-exchange indices were computed by using the Department of Agriculture "prices paid" index to which previous reference has been made. Table XI contains data for the 1910-1932 period with 1910 as the base year for the terms-of-exchange indices, and Figure 7 is a graphic presentation of the table. Again, the tobacco terms of exchange are generally favorable. As has been true in the foregoing analysis, the food grains (corn and wheat) occupy a favorable position in 1915. Corn maintains its favorable terms until 1917 from which year there is an abrupt and rapid decline in its position. The highly favorable position of tobacco in 1919, which has been evident throughout

TABLE XI

TERMS OF EXCHANGE FOR TOBACCO, FRUIT, WHEAT, CORN,
AND MILK, 1910-1932, 1910 = 100

	Tobacco	Fruit	Wheat	Corn	Milk
1910	100	100	100	100	100
1911	95	98	86	90	92
1912	116	94	88	108	96
1913	135	102	77	96	95
1914	120	82	85	111	95
1915	88	74	104	105	90
1916	98	75	94	96	84
1917	140	74	136	151	97
1918	159	90	116	136	103
1919	174	82	108	123	100
1920	131	85	108	109	95
1921	113	88	70	53	84
1922	128	94	62	57	78
1923	129	74	58	75	89
1924	118	71	65	85	80
1925	113	90	88	92	84
1926	115	77	79	65	85
1927	112	77	71	74	90
1928	116	87	66	83	90
1929	114	72	61	81	90
1930	98	88	50	76	83
1931	70	62	34	55	71
1932	76	57	31	35	61

TERMS OF EXCHANGE (1910=100) BASED ON ALL
COMMODITY PRICES PAID BY FARMERS AND
PRICES RECEIVED BY FARMERS. (1910-1914=100)

FIGURE 7.

the analysis, reflects the tremendous increase in the demand for cigarettes and the switch to domestic blends which was the result of the change in tastes during and after World War I.

Figure 8 is a comparison of the terms of exchange for these same products for the 1933-1950 period; again 1933 is used as the base year for the terms of exchange indices. This is the first analysis made in which a commodity other than tobacco occupies a generally favorable position as reflected by its terms of exchange. The corn terms of exchange are decidedly favorable in the 1934-1937 period and in the 1946-1948 period. Such a position is, in the former case, a reflection of the supply conditions which resulted from the drought in the corn belt in 1934 and 1936; in the latter case, corn's favorable position reflects the tremendous money demand for meat products after price controls were removed after World War II. Although this last analysis shows that for specific years and as compared with some commodities, the tobacco terms of exchange were not as predominantly favorable, one still does not gain the impression that the tobacco farmer was suffering unduly from competitive conditions in his market.

Cash Income and Farm Value Analyses

Although it has been previously noted that no one single index is an altogether fair measurement of the relative position of farmers, in the literature much emphasis has been placed on the low value of the

TABLE XII

TERMS OF EXCHANGE FOR TOBACCO, FRUIT, WHEAT, CORN, AND MILK, 1933-1950, 1933 = 100

	Tobacco	Fruit	Wheat	Corn	Milk
1933	100	100	100	100	100
1934	136	117	127	155	110
1935	147	117	136	196	122
1936	144	133	155	197	136
1937	169	145	165	234	136
1938	154	103	108	127	125
1939	137	102	105	126	125
1940	120	109	122	155	135
1941	133	120	131	160	153
1942	185	138	139	174	158
1943	221	202	162	208	177
1944	231	230	174	220	175
1945	235	230	179	209	171
1946	218	210	186	240	193
1947	182	149	209	265	172
1948	170	113	177	247	179
1949	178	129	158	153	147
1950	177	127	158	171	141
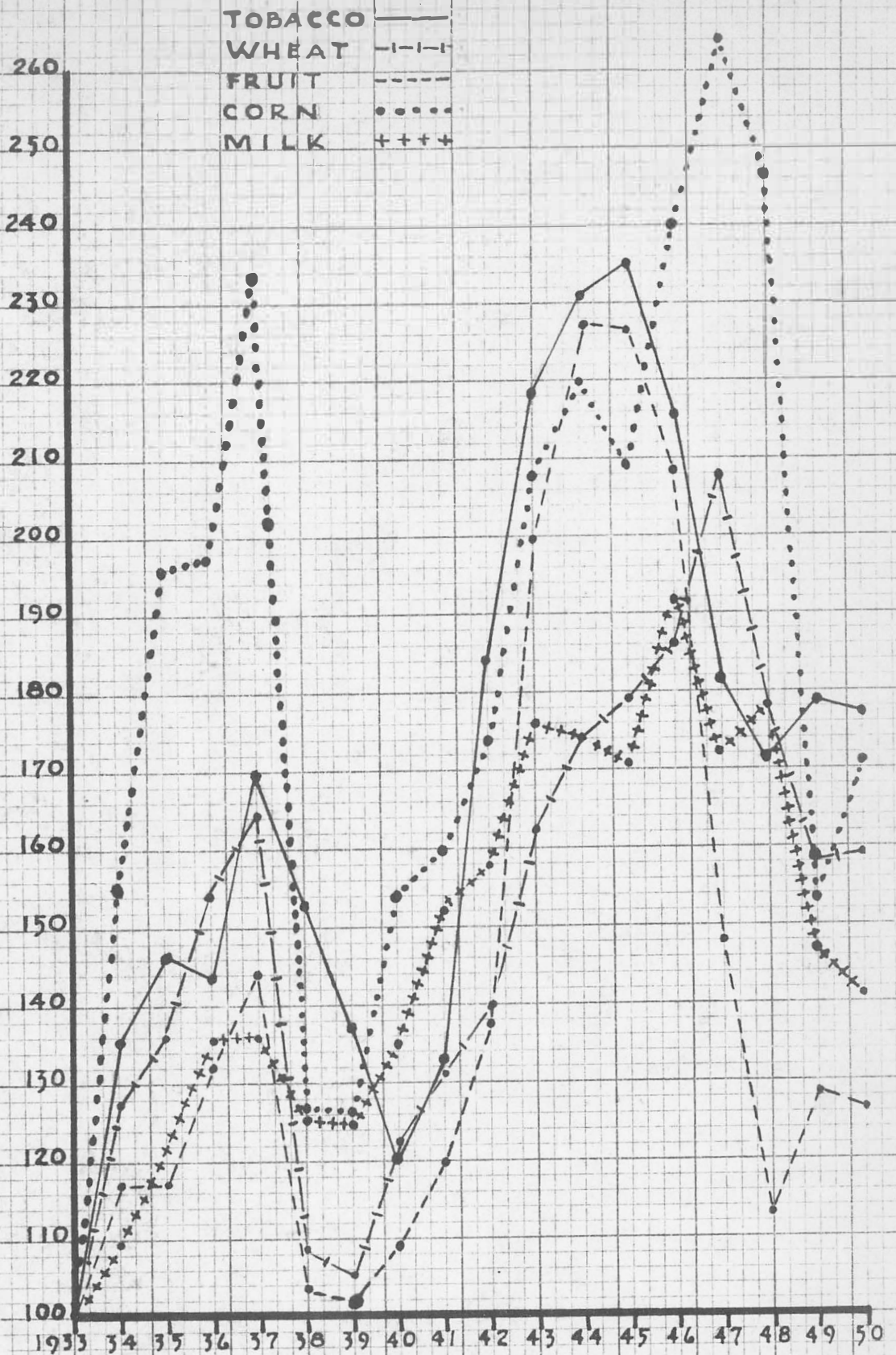
TERMS OF EXCHANGE (1933=100) BASED ON ALL COMMODITY PRICES PAID BY FARMERS AND PRICES RECEIVED BY FARMERS. (1910-1914 = 100)

FIGURE 8.

tobacco farmer's crop and on his low income. Figures 9-13 have been
constructed from Tables XIII-XVII in an effort to determine just what
the tobacco farmer's relative income position has been. Figures 9
and 10 are based on cash income from crops[13] for the period 1910-1948.
The comparison is made of cash income from "all crops," tobacco, bread
grains, and cotton and cotton seed. Indices were constructed from the
raw income data using 1910 as the base year for Figure 9 and 1933 as
the base year for Figure 10. There is little necessity for detailed
narrative. These figures show that in both of the periods under con-
sideration, the tobacco farmer has enjoyed a steadily increasing cash
income from his crop and a greater relative increase than that of the
other commodities being surveyed. The similarity between these figures
and figures concerned with terms of exchange (Figures 5 and 6, for
example) indicates that there is a close relationship between the cash
income and terms-of-exchange analyses.

Figures 11, 12, and 13 present the "farm value" of tobacco,
wheat, and cotton.[14] These are drawn to determine the relationships in
the 1890-1910 period, for which cash income figures are unavailable.

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[13]U. S. Department of Commerce, Statistical Abstract of the
United States, 1944, 1945, 1950.

[14]U. S. Department of Agriculture, Agricultural Statistics, 1939;
U. S. Department of Commerce, Statistical Abstract of the United States,
1921, 1926, 1934, 1940, 1951. "The term 'farm value' as used in the
various tables means the value of farm products at the local market."
U. S. Department of Agriculture, Agricultural Statistics, 1948, p. 2.

TABLE XIII

INDEX NUMBERS OF CASH INCOME FROM CROPS, 1910 = 100

|	Total	Cotton and Cotton Seed	Tobacco	Bread Grains
1910	100	100	100	100
1911	99.1	97.2	94.1	91.1
1912	105.4	96.8	105.8	100.7
1913	104.9	110	132.3	100.9
1914	98.9	68.4	97	135.8
1915	111.2	94.3	91.2	155.2
1916	137	130.4	136.3	169.6
1917	191.8	182.2	236.3	224.1
1918	236.7	202.8	336.2	320.6
1919	260.1	259.3	490.2	329.4
1920	225.6	167.7	289.2	290
1921	142.3	96.8	248	180
1922	146.4	130.4	244	141.1
1923	165.6	178.2	270.6	127.5
1924	183.6	189	254.9	167.7
1925	187.3	200	254.9	172.6
1926	165.7	138.8	235	171.3
1927	174.8	170.4	241.2	183.8
1928	170.9	165.1	242.2	158.1
1929	173.7	171.8	273.5	149
1930	130.2	93.6	239.2	94.1
1931	85.9	56.4	153.9	56.2
1932	67.7	52.4	112.7	41.5
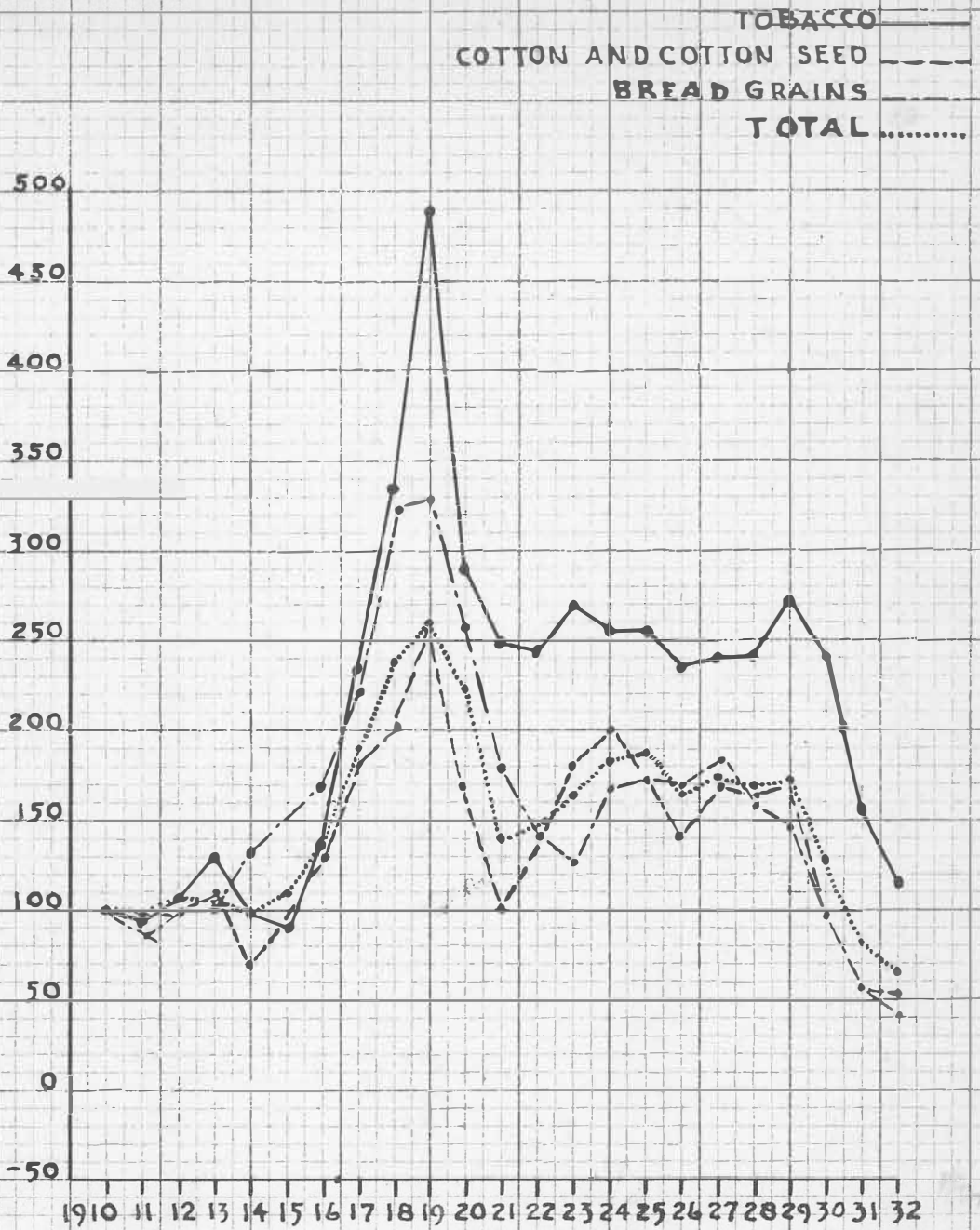
INDEX NUMBER OF CASH INCOME FROM CROPS.
(1910 = 100)

FIGURE 9.

TABLE XIV

INDEX NUMBERS OF CASH INCOME FROM CROPS, 1933 = 100

|	Total	Cotton and Cotton Seed	Tobacco	Bread Grains
1933	100	100	100	100
1934	121.4	149.6	150.3	103.8
1935	120.4	123.4	154.1	123.7
1936	147.6	156.8	154.8	148
1937	159.6	153	204.4	195.5
1938	128.9	112.1	187.3	132
1939	136.1	108.7	172.6	140.9
1940	140.4	112.1	154.1	142.1
1941	190.7	181.3	204.4	224.3
1942	256	214.4	303.2	279.5
1943	322.7	227.7	343.3	285.2
1944	365.4	259.4	438.2	394
1945	385.7	207.8	571.9	452.5
1946	451.4	253.3	608.3	541.8
1947	546	388.6	655.4	821.4
1948	545.3	431.9	621	767.3
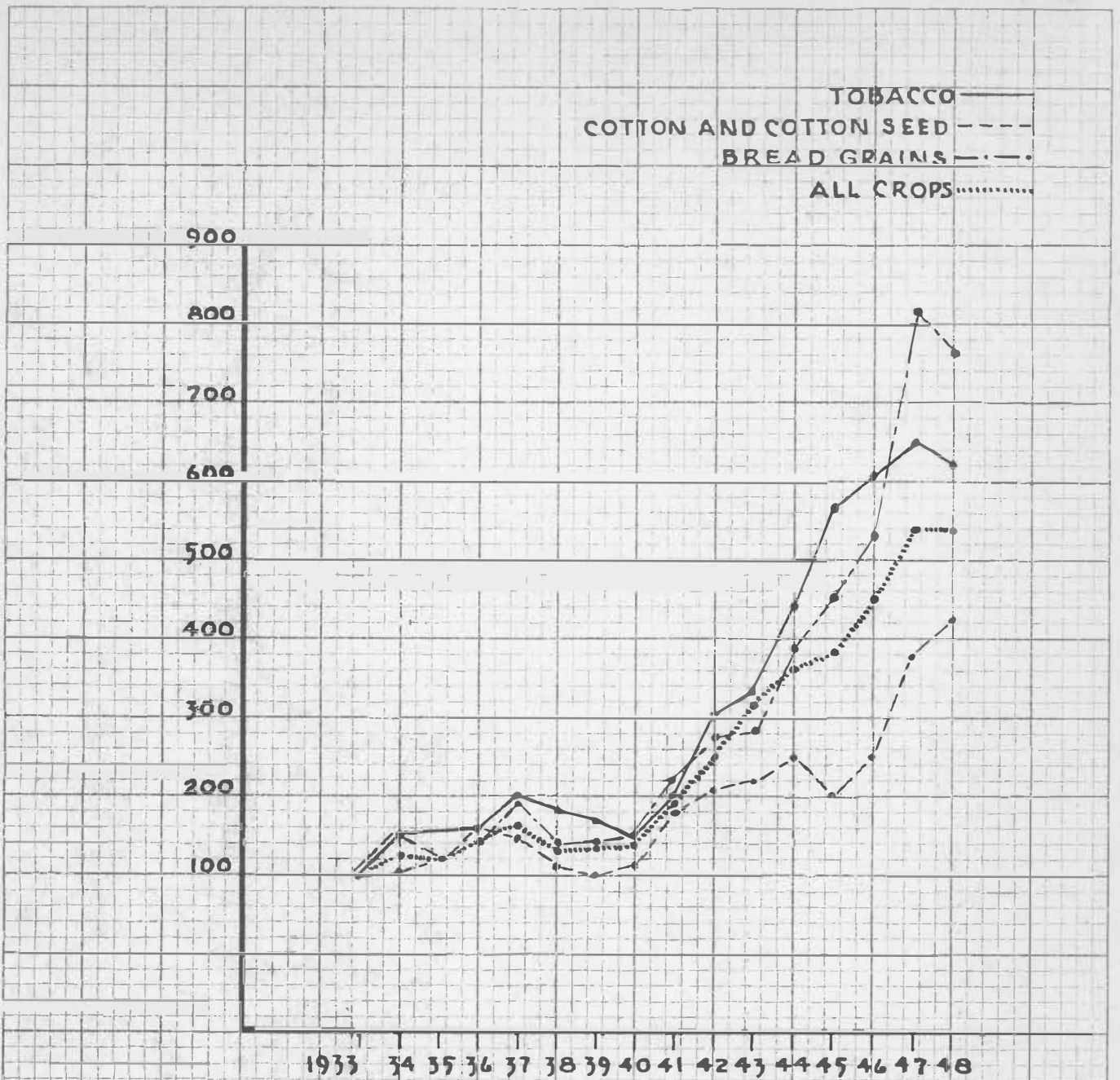
INDEX NUMBERS OF CASH INCOME FROM CROPS
(1933 = 100)

FIGURE 10.

TABLE XV

INDEX NUMBERS OF FARM VALUE OF CROPS, 1890 = 100

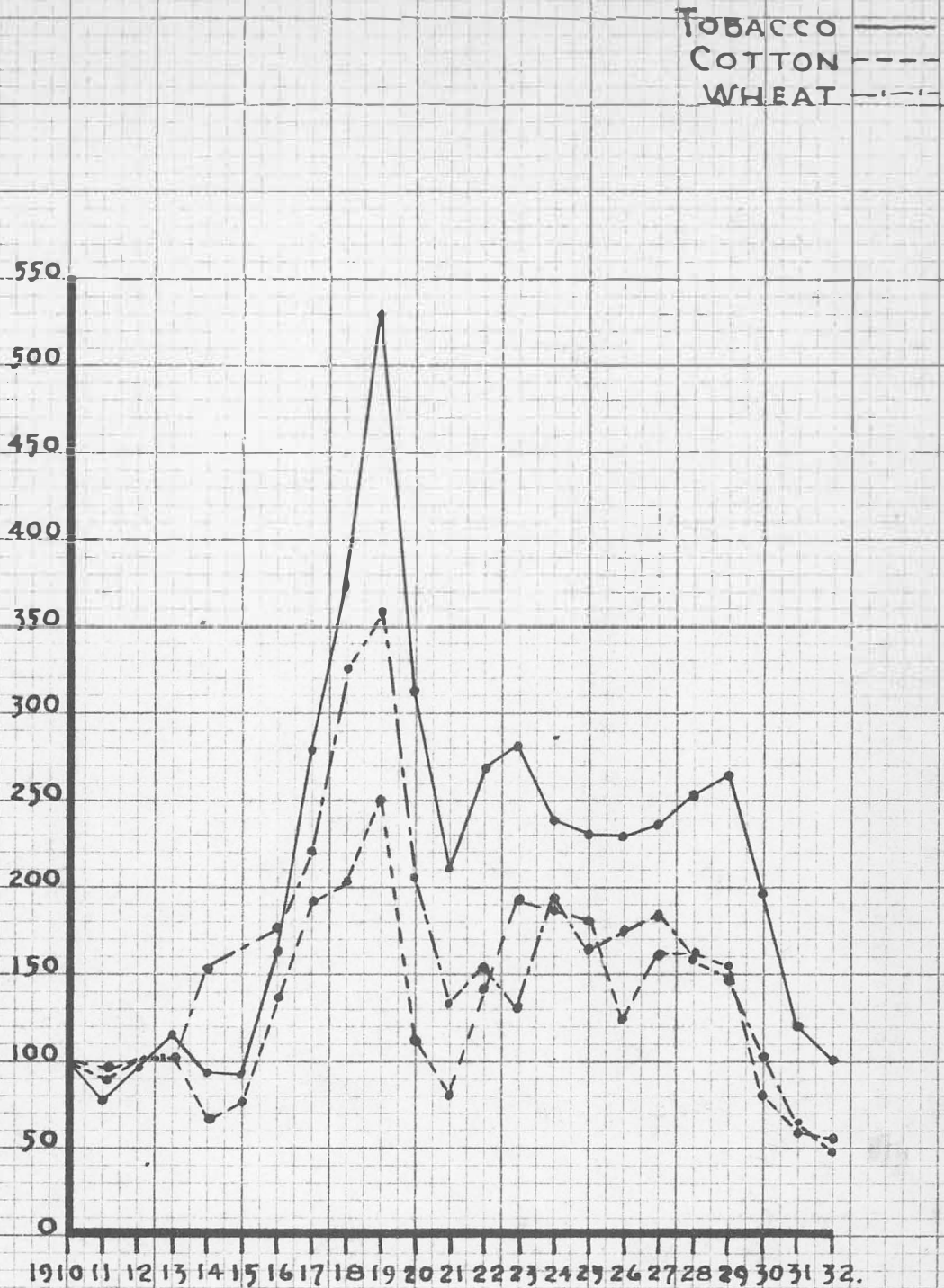|	Tobacco	Wheat	Cotton
1890	100	100	100
1891	119	150	88
1892	131	102	75
1893	117	72	71
1894	99	71	63
1895	98	73	74
1896	81	100	77
1897	101	130	100
1898	108	118	90
1899	121	102	89
1900	111	99	126
1901	124	128	91
1902	128	115	110
1903	128	122	140
1904	129	137	164
1905	149	140	155
1906	180	130	173
1907	171	144	156
1908	165	165	162
1909	206	178	185
1910	206	151	220
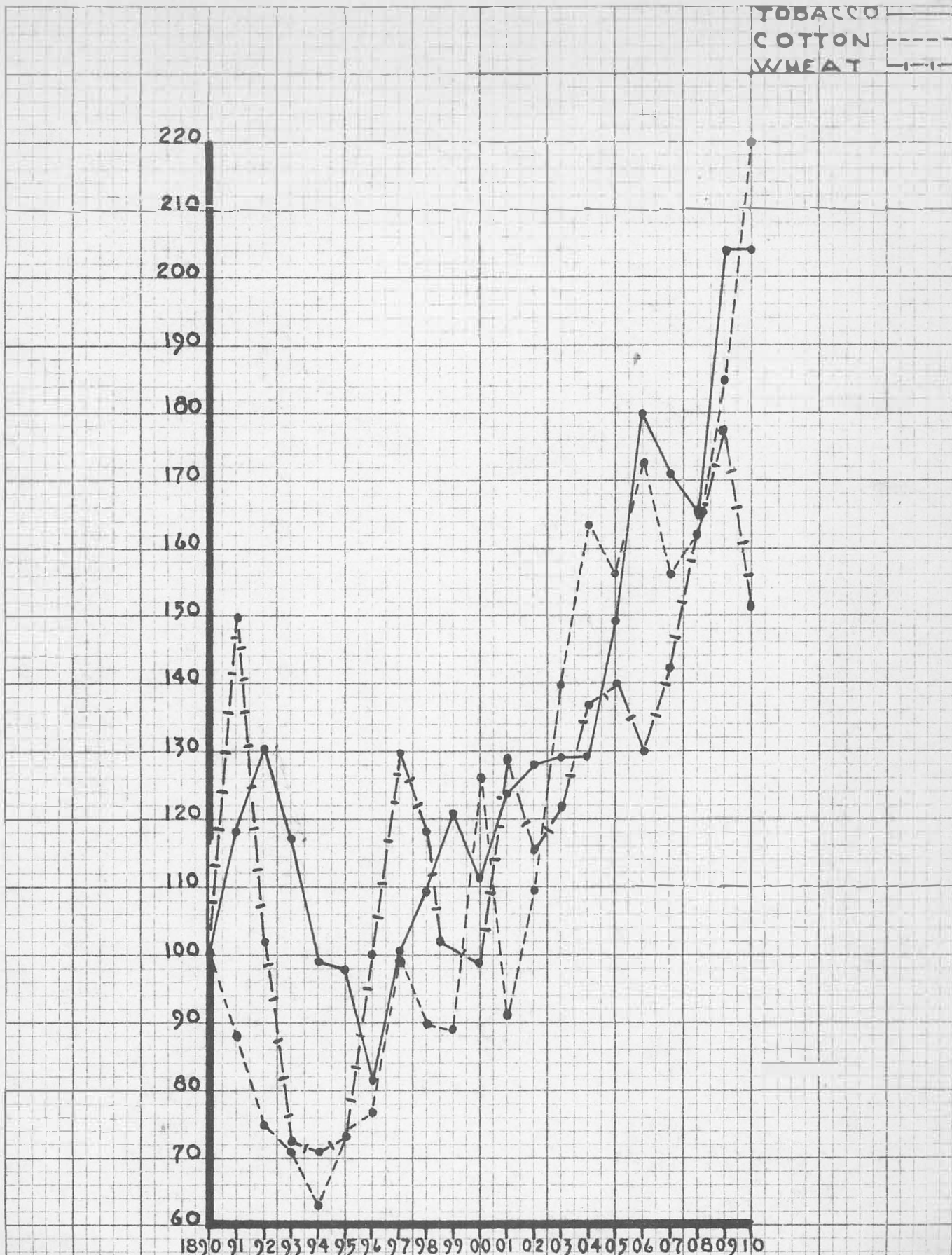
INDEX NUMBERS OF FARM VALUE OF TOBACCO, WHEAT AND COTTON. 1890=100.

FIGURE II.

TABLE XVI

INDEX NUMBERS OF FARM VALUE OF CROPS, 1910 = 100

	Tobacco	Wheat	Cotton
1910	100	100	100
1911	80	96	92
1912	98	98	101
1913	116	107	107
1914	96	155	68
1915	91	166	78
1916	160	179	138
1917	284	225	193
1918	380	331	205
1919	539	366	251
1920	317	210	115
1921	211	133	80
1922	273	154	143
1923	284	130	194
1924	245	197	190
1925	237	169	181
1926	232	176	126
1927	237	183	162
1928	259	160	161
1929	270	150	154
1930	201	105	81
1931	124	64	60
1932	101	50	52

INDEX NUMBERS OF FARM VALUES OF TOBACCO, WHEAT AND COTTON.

(1910 = 100)

FIGURE 12.

TABLE XVII

INDEX NUMBERS OF FARM VALUE OF CROPS, 1933 = 100

	Tobacco	Wheat	Cotton
1933	100	100	100
1934	126	109	89
1935	134	127	89
1936	153	157	115
1937	179	205	120
1938	151	127	77
1939	160	127	81
1940	131	135	94
1941	187	217	138
1942	291	260	184
1943	320	280	171
1944	460	365	191
1945	476	405	153
1946	587	537	212
1947	515	763	285
1948	536	637	341
1949	508	522	347
1950	588	496	303
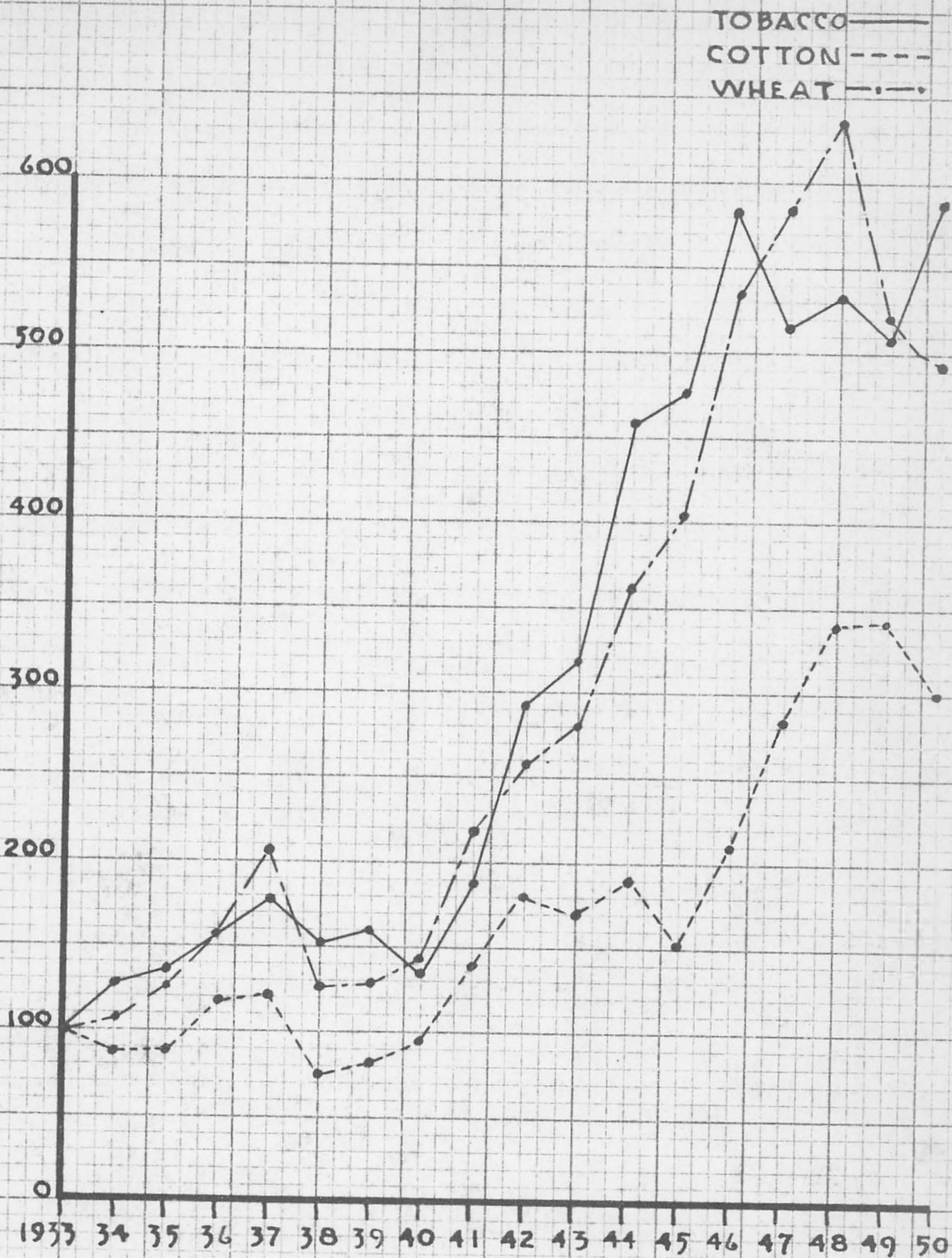
INDEX NUMBERS OF FARM VALUE OF TOBACCO, WHEAT AND COTTON.

(1933 = 100)

FIGURE 13.

They also offer a further check on the cash income analyses. The years 1890, 1910, and 1933 were used as base periods for the computation of indices. Figure 11, which is concerned with the 1890-1910 period, shows that the farm value of all commodities under consideration was subject to extreme fluctuation. After 1896 the trend is decidedly upward for tobacco and the fluctuations seem to have been controlled to some extent. Figure 11 is a surprising visual aid to the concept of a managed market which is presumed to have existed during the years of the Tobacco Trust. Figures 12 and 13 are quite comparable to figures 9 and 10. A similar relationship among commodities as to farm value and cash income is readily observable.

While there are shortcomings in the analyses concerned with cash income and farm value (we have not concerned ourselves with the relative costs of production, acreage and yield figures, etc.), again it must be concluded that arguments as to the tobacco farmer's low income are probably not valid. The truth seems to be that, while tobacco income stood up well, income from other farm products on which the tobacco farmer was partially dependent fell off so that his lot was indeed sorry. Here, however, we begin to concern ourselves with the institutional pattern of tobacco farming which may best be reserved for later discussion. It need only be said here that the income and farm value analyses as well as the terms-of-exchange analyses lead one to doubt seriously the validity of partial equilibrium analysis in dealing with the problem of the tobacco farmer's wellbeing.

CHAPTER V

SUMMARY AND CONCLUSIONS

Summary

The study of market types and of their economic and social consequences has been the subject of detailed inquiry in the past; the study of particular industries within market types appears to offer a more fruitful field for research at the present time. The tobacco industry was chosen as the subject for this research because of the writer's personal interest and because preliminary investigation revealed that those who have studied the industry had been the victims of delusions acquired as a consequence of misapplications of static price theory. The tools for measurement in the social sciences are being constantly discovered, revised, and refined over time; this study relies on such a tool, the terms-of-exchange index.

In this thesis the tobacco industry has been investigated from both an historical and a theoretical standpoint. The industry was traced from 1890 to 1950. The history divided itself into three periods; 1890-1911, the years of the Tobacco Trust; 1911-1932, the years in which there was "free enterprise" in the industry, in the sense that the tobacco grower was free to produce and sell as he pleased and the tobacco companies were also free to buy and sell as they pleased, subject only to accepted anti-trust regulations; and

1933-1950, the years of Government intervention and aid to the tobacco
grower in the form of production control and price-support programs.
Each of these periods was discussed in detail. It was concluded that
during the first period the tobacco grower was subjected to harsh
treatment from which he has yet to recover mentally; in the grower's
mind he is still the unwilling victim of the wiles of the "Big Three,"
the American Tobacco Company, R. J. Reynolds Tobacco Company, and
Liggett and Myers Tobacco Company.

It was seen that there is vast concentration on both the buying
and selling side in the tobacco industry. Over the years some three or
four tobacco companies have purchased about sixty per cent of the
domestic tobacco crop and distributed about eighty per cent of the
tobacco products sold in the United States. The tobacco industry is,
indeed, a fair characterization of the market type known as "oligopoly-
oligopsony" in which a few firms deal with many sellers on the one hand
and buyers on the other and are able to affect the prices of the raw
materials which they buy and the finished product which they sell.
They are thus able to influence their rivals' policies who in turn
influence theirs; such a condition is called "circular interdependence."
The difficulty of decision-making under such circumstances was pointed
out, and it was explained prices and output might vary between the limits
of pure competition and pure monopoly.

An attempt to measure phenomena is often frustrated by the
inability to obtain data. This was found to be true in the case under

consideration. One quantity to be sought was that of the amount of exploitation to which the tobacco grower has been subjected. Upon examination of the theory of exploitation, it was seen that such measurement would require cost figures of both tobacco growers and tobacco companies, neither of which are available. Tobacco growers have always contended that they were worse off economically than other farmers and have asserted that the reason for their plight has lain in the exploitation by the tobacco companies. Academic people--historians and economists alike--have supported the position of the growers. If it is impossible to measure the exploitation, then perhaps it is possible to measure relative economic positions. The problem becomes one, then, of devising some method of measuring the tobacco grower's comparative economic position. Such a method was found in the terms-of-exchange index formulated by Theodore Schultz and the "Ames School."

In reality, even if exploitation could be measured, there would be much left to be ascertained as to the tobacco grower's status. Well-being is a relative matter, and in this sense the terms-of-exchange measurement is ideal because it makes the comparison in terms of the relationship between the prices farmers have received for their product and the prices they have paid for the things they buy. To be sure, the terms-of-exchange analysis has its limitations. It deals with aggregates, so that separate forces (yields, mechanization, specific costs of production, etc.) are not taken into consideration except insofar

as their influences tend to counter-balance each other in the "prices paid" index. The terms-of-exchange concept can be defended more readily, perhaps, when it is used to compare agriculture and industry as a whole; this was Schultz's original use of the concept. But precisely the same indices are used in the formulation of "parity" prices for agricultural commodities as were used in the computation of certain of the terms-of-exchange indices given in Chapter IV. The writer had no choice but to make use of the concepts and data furnished by the Bureau of Agricultural Economics, U. S. Department of Agriculture, even though it has meant using a "prices paid" index which was taken to be the same for both tobacco farmers and, say, wheat farmers. It is significant, however, that the outcome was the same whether tobacco was compared with cotton, a southern crop produced with large amounts of manual labor or with wheat, produced in the Midwest under highly mechanized conditions. Again, the terms-of-exchange analysis may be questioned because of the necessity of the arbitrary selection of some year as a base period for the formulation of price indices and terms-of-exchange indices. Such doubt has wide implications, for it casts a shadow upon innumerable statistical studies made in the past. Yet whenever the static analysis of the neo-classical theory fails, other approaches, though imperfect, must be tried. A terms-of-exchange analysis was made, with full recognition of its limitations, for the purpose of discovering the relative well-being of the tobacco grower.

The analysis was made on the basis of the historical periods into which the tobacco industry seemed to divide itself. The years 1890, 1910, and 1933 were used as the base years for the compilation of the terms-of-exchange indices. There was little difficulty involved in obtaining "prices received" indices. These could be computed, when necessary, from raw agricultural price series. The problem lay in the procurement of "prices paid" indices, which are not readily available. The terms-of-exchange indices were formulated on the basis of price indices using 1910-1914, 1913, and 1926 as base years; the writer thus took advantage of the available "prices paid" indices for the sake of comparison. It was found that only minute differences resulted from a change in the base period of the price indices.

Terms-of-exchange indices were computed for "all crops," tobacco, wheat, cotton, food grains, corn, milk, and fruit. The study was limited by the difficulty of obtaining price data and by the excessive amount of time required to translate the raw data into indices. All possibilities were not exhausted. Cotton and wheat figured prominently in the comparative analysis because they are primary examples of agricultural commodities which are considered to be sold under nearly purely competitive conditions. They differ in the extent to which there has occurred increased efficiency in their production as a result of mechanization and because of institutional factors. Because the meat industry is of the "oligopsony-oligopoly" type, it would be of interest to carry this study a step further and compare the terms of exchange for animal

products with those of tobacco. Such a step well might strengthen the validity of the terms-of-exchange analysis in dealing with specific producers' well being.

To summarize briefly the results of the terms-of-exchange analysis as applied here, the following relationships may be presented.

1. In the 1890-1910 period, tobacco terms of exchange were generally unfavorable, though they were even then more favorable than those of wheat. *A priori*, we should expect this on a number of grounds. The evidence of contemporary observers strongly supports the assertion that the powerful monopoly was an equally powerful monopsony and that a merciless exploitation did occur. The exploitation was not offset by efforts on the part of the monopoly, particularly through "modern" advertising campaigns, to affect the demand function for tobacco products. Too, cigars were relatively more important as a manufactured product in those days and they were sold in a highly competitive market.

2. In the 1910-1932 period tobacco terms of exchange were highly favorable as compared with those of other commodities. The graphic presentation of these data shows that only in the instance of the bread grains during a three-year period of World War I did the terms of exchange for any commodity studied lie above those of tobacco.

3. In the 1932-1952 period tobacco terms of exchange were generally favorable, though their relatively good position was not as pronounced as in the immediately preceding period. The general impression from the analysis, however, was that tobacco growers were not suffering.

A further attempt was made to assay the tobacco grower's relative position through a comparison of the cash income from "all crops," cotton and cotton seed, tobacco, and bread grains and through a comparison of the farm value of tobacco, wheat, and cotton over time. The limitations of such an analysis were set forth. The resulting figures showed much the same position for the tobacco grower as did the terms-of-exchange analysis.

Conclusions

The temptation to make too many generalizations as the result of such a study as this seems to be one that many writers have been unable to resist. Conclusions which are too strong or too sweeping can only add to the confusion which is already abundant in the area with which this particular study is concerned. Unfortunately, the confusion exists both in the literature concerned with economic theory and in the literature concerned with the history of the tobacco industry.

The purpose of this study was to discover the truth concerning the relative well-being of tobacco farmers insofar as that well-being has been dependent upon the production of a specific commodity, tobacco. The conclusion reached may be stated quite simply: the tobacco grower has been in a relatively favorable position since 1911 as measured by his terms of exchange and as compared with the growers of previously specified commodities. The arguments for and against the terms of

exchange as a measuring device have been stated. No conclusion has been reached as to whether or not the tobacco grower has, since 1911, been subjected to exploitation. Theoretical analysis shows that he may well have been, but this is not the point under discussion. No conclusion has been reached as to whether or not tobacco companies have colluded to force the price of tobacco below that which would result under a purely competitive situation. The evidence of explicit collusion are singularly unimpressive, but this is not the point under discussion. The terms-of-exchange analysis has shown convincingly that the tobacco grower has been and is, with or without exploitation, in a relatively favorable position insofar as his prices and their exchange value for the products he buys are concerned. If the tobacco grower feels that he has suffered to a greater extent than other farmers in agricultural recessions, the causes of this suffering must be looked for in factors which are beyond the control of tobacco companies. Some of the possibilities have been touched on briefly in preceding discussion, but while there is ample room for speculation, this subject is again beyond the scope of this paper.

Because the tobacco grower has been in a relatively favorable position, the inference might be made that the oligopoly-oligopsony market situation is a favorable one for the seller of an agricultural product. However, each industry must be studied in the light of its own peculiarities, and this is certainly true in the case of an industry which is classified as being of the oligopoly-oligopsony type. The

market situation is one of diverse uncertainties and potentialities; there is a certain understandable reluctance to make inferences so at odds with the usual ones.

A question has been asked; it has been answered. Yet a person of normal curiosity can hardly fail to ask the next question. Why? Why do the implications of static analysis not appear to be borne out? Why has the tobacco grower benefited from conditions which one would have expected to be harmful to him? Why is his position, as measured by the terms of exchange, remarkably more favorable than that of the cotton grower who has received a price for his product determined in a purely competitive market and who is subject to the vicissitudes of southern agriculture and the lack of mechanization to much the same extent that the tobacco grower is? These and other questions come readily to mind. The answer must lie in the peculiar conditions under which the buyer of the raw material sells his finished product. The control which the tobacco companies exert over the sale of their product apparently redounds to the benefit of the tobacco grower. Because these few firms are able to affect the shape and position of the demand curve for tobacco products and because they are able to achieve efficient scales, the long-run benefits of securing a certain, dependable quantity of raw material far outweigh the questionable gains to be had from a persistent and harsh depression of tobacco prices.

The nature of the tobacco industry as concerns the manufacturing and distribution process is such that it precludes competition from men

"with a few hundred dollars" and "ingenuity and zeal and energy." Thus the major tobacco companies have rarely been concerned about the entry of new firms into the industry. And that scale benefits are substantial can be a matter of little doubt.

The chief reason, however, for the relatively favorable position of the tobacco grower seems to lie in the fact that he is in the comfortable position of having a few firms, which make every effort to differentiate their manufactured products, do his advertising for him. This is especially important when we reflect that the income elasticity of demand for tobacco products is very low.[1] For this means that the consumption of tobacco products would not rise rapidly in times of expanding national income. (Contrariwise, of course, a low income elasticity of demand would be a protection in times of depression and falling national income.) Since the price elasticity of demand for tobacco, like that of many farm commodities, is likewise low, the tobacco manufacturing firms have concentrated their efforts to improve their demand position, one against the other, by heavy advertising campaigns. These have been exceeded in the gaudiness of their conception only by their extreme vulgarity.[2]

[1] See Tennant, op. cit., especially pp. 119-126.

[2] For figures on selling costs in the cigarette industry, which are relatively very high, see Warren C. Waite and Ralph Cassady, The Consumer and the Economic Order (2d ed.; New York: McGraw-Hill, 1949), p. 176.

They have been, nevertheless, indisputably effective. They have given an upward thrust to the demand curves for most tobacco products, but especially for cigarettes, which has been phenomenal. The result has been that tobacco growers have prospered along with the tobacco companies. There is more truth than jest in the comment that it is far better to be an exploited tobacco farmer than an unexploited cotton farmer. That this conclusion should offend one's sense of justice is scarcely less likely than that the major conclusion of this paper will please tobacco growers. Economists must long since have learned, however, that popularity is certainly not one of the rewards of the profession.

* * *

A battle has been raging in the arena of the social sciences for many years. On one side are those who believe that the ultimate goal of science is the discovery of truth, that science is measurement, that the chief value of the social scientist lies in his ability, given assumptions, to predict; on the other side are those who believe that science is creativity and that the social scientist must do far more than seek immutable laws. Somewhere, almost lost in the sound and fury of the battle, are a legion of men who, with a dispassionate view, see merit in the arguments of each side and who work quietly to find a compromise or a common meeting-ground where the two forces may join sides in the greater struggle for the preservation of posterity.

In the several fields of the social sciences, the battle lines have become more sharply drawn. In economics the struggle was long between those who debated the merits of "deductive" versus "inductive" studies. From the time of the incomparable Jevons economists have come more and more to recognize the futility of such argument, and much progress has been made in the direction of an appropriate joining of "theory" and "measurement." As has been generally true in all the social sciences, the development of economics as a science has been the result of the interaction of theory and measurement. Theory sets out propositions which generalize scattered observations and then proceeds to deduce the logical consequences of these propositions. Measurement provides a basis for refining or modifying and, in some instances, refuting theory. It is only when theory and measurement work together that the discovery process, which is science, is logically followed by creativity, which is science; it is only then that the social sciences and the social scientists fulfill their obligations to society. In a world of uncertainty, this is certainty.

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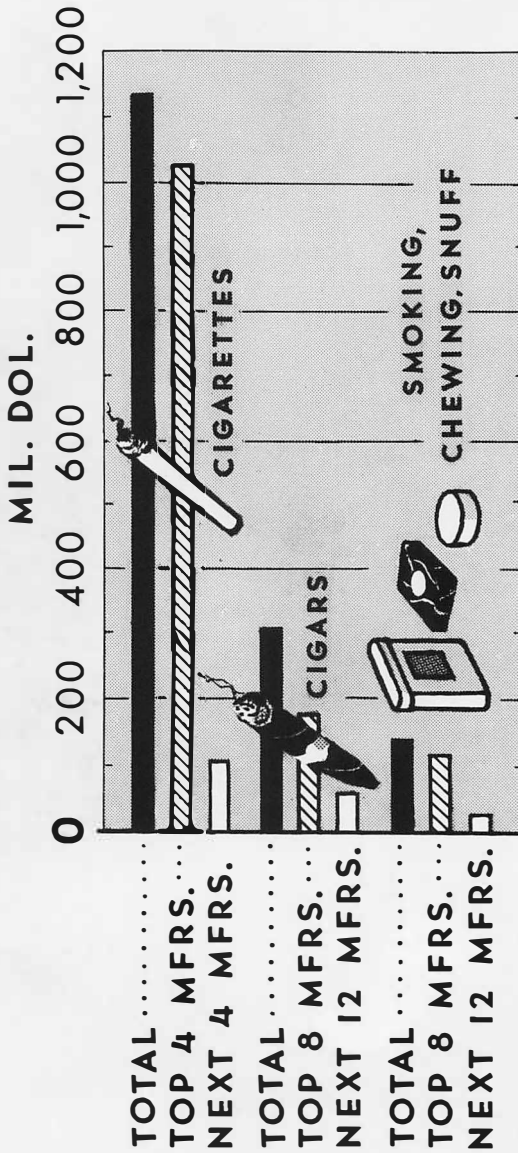
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APPENDIX

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Figure 14.

Figure 15.

TOBACCO - TWENTY YEARS OF PROGRESS

Growers Use Federal Farm Programs to Achieve Balanced Production and Fair Prices

Supply · Production
Disappearance [5]
(billions of pounds)

Farmers' Price [6]
(cents per pound)

Supply [1]
Production [2]
Disappearance [3]
Farmers' Price [5]
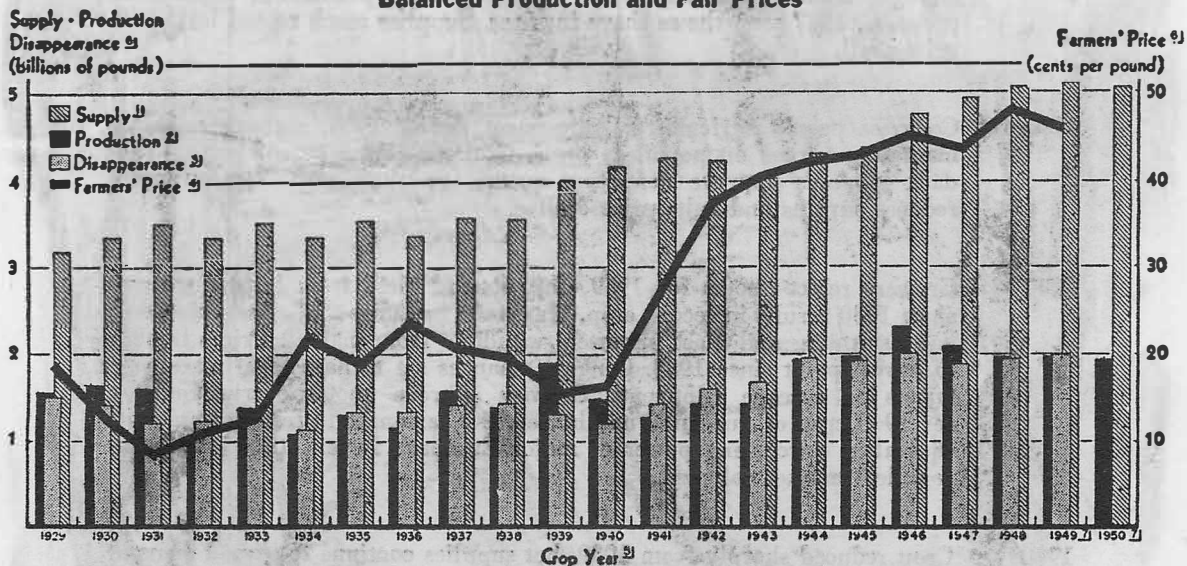
Crop Year [5]

[1] Carry-over from previous crop year plus current crop.

[2] Total production for current crop year.

[3] Total supply minus stocks at end of crop year.

[4] Season average farm price per pound.

[5] Crop year begins July 1 of the calendar year in which the crop is harvested for flue-cured, Connecticut Valley shade-grown, and Georgia-Florida shade-grown; all other types, October 1.

[6] All domestic types.

[7] Preliminary.

1920–28   Supplies and prices fluctuate widely. Gains in good years more than wiped out in poor ones. Small 1927 crop brings relatively good price but larger 1928 crop starts price decline.

1929–32   Record 1929 and 1930 crops create tremendous surplus, driving prices to lowest point since before World War I. Near-record 1931 crop causes market collapse, bankrupting thousands of growers.

1933–35   Congress passes Agricultural Adjustment Act of 1933. Complying with production adjustment contracts, growers make substantial progress toward eliminating price-depressing surpluses. Improved supply-demand ratio and stabilizing and price-supporting effect of marketing agreements bring farm price increase. By 1935, farm income from tobacco approximates pre-depression level.

1936–37   Agricultural Adjustment Act of 1933, invalidated by Supreme Court decision, replaced with Soil Conservation and Domestic Allotment Act. Drought limits 1936 crop. But without effective production adjustment program, 1937 crop shows sharp increase. Supplies reach record level and prices fall.

1938   Congress passes Agricultural Adjustment Act of 1938, authorizing farm marketing quotas on poundage basis. Growers of flue-cured, burley, and dark tobaccos approve marketing quotas for 1938 crop. Smaller crop reduces surplus and halts price decline.

1939   Growers reject quotas for 1939 crop. Record yield from largest acreage since 1930 results in record crop. War starts in Europe. Blockade virtually halts shipping and most importers withdraw from market. Prices tumble to lowest point since 1933. Congress changes act to base farm marketing quotas on acreage allotments. Growers approve quotas overwhelmingly for 1940 crop of flue-cured and burley. CCC arranges to restore to market equivalent purchasing power of major European buyers, thus preventing complete market collapse.

1940   Crop reduced sharply from 1939, but supplies continue to exceed demand because of further drop in exports and large carry-over from 1939 crop.

1941–45 Domestic consumption, particularly of cigarettes, increases sharply and exports also improve. In May 1941, Congress authorizes loan and purchase program to support price to cooperating producers at 85 percent of parity. Loan rate increased to 90 percent of parity in 1942. Surpluses disappear as demand exceeds production. Farm prices shoot upward and are well above parity for all kinds in 1943–45. Burley and flue-cured quotas are continued in order to prevent overexpansion at expense of "war crops"; are adjusted as necessary to meet requirements. Fire-cured and dark air-cured quotas suspended from 1943 to 1945.

1946   Quotas adjusted to fit new pattern of requirements as exports reach postwar peak. Production of all types is highest of record and consumption and farm price also hit new highs.

1947   Exports decline sharply owing to dollar shortage abroad. Reduction in 1947 crop is more than offset by large carry-over from 1946 crop.

1948   Quotas reduced sharply from 1947 levels to prevent new build-up of surpluses. Exports increase 15 percent largely because of ECA program.

1949   Exports somewhat above 1948. Domestic cigarette consumption continues upward trend, with resulting strong market for flue-cured, burley, and Maryland types. Quota adjustments allow larger plantings of flue-cured and burley, smaller plantings of dark tobaccos. Production of all types about 2 percent below 1948. Despite smaller total crop, total supply increases largely because of increased production of cigar leaf and decreased consumption of cigar leaf and some dark tobaccos. Virginia sun-cured quotas proclaimed for first time and voted by growers for 1950–52 crops.