FINANCIAL ALTERNATIVES AND MINIMUM RESOURCE REQUIREMENTS FOR LOW RESOURCE, BEGINNING FARMERS IN OKLAHOMA

By

DALE LEE MINNICK

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Oklahoma State University

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FINANCIAL ALTERNATIVES AND MINIMUM RESOURCE

REQUIREMENTS FOR LOW RESOURCE, BEGINNING

FARMERS IN OKLAHOMA

Odell L. Walker
Thesis Adviser

Robert L. Oehrtman

Ralph A. Jones

Harry P. Mapp Jr.

N N Durham
Dean of the Graduate College

PREFACE

This study is an analysis of capital barriers to entry in five areas of Oklahoma. Primary emphasis is given the practices and attitudes of agricultural lenders, the estimation of minimum resource requirements, and the determination of first year cash flows under various assumptions, for each of the study areas. The study was conducted under the Hatch 1535 project regarding entry-exit problems.

I am deeply indebted to my major advisor, Dr. Odell L. Walker for his guidance and prompt assistance during this study and for his patience and continuous encouragement throughout my graduate program. Special thanks are also due Dr. Robert L. Oehrtman, Dr. Harry P. Mapp, and Dr. Raleigh A. Jobes for their invaluable assistance during this study and in the preparation of the final manuscript.

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CHAPTER I

INTRODUCTION

The purpose of this study is to identify specific financial obstacles to entry into farming in five Oklahoma areas and provide information concerning alternative solutions. Barriers to entry are not unique to only the areas of the study. Entry problems constitute a continuing dilemma for all agricultural production regions. The dynamic agricultural environment with its changing human resource situations require that increased research emphasis be given the entry or establishment phase of the farm firm life-cycle.

The chronological aging of existing farm operators and the associated implications give impetus to the study of entry problems. U.S. Census data reveal that the average age of U.S. farm operators increased from 47.6 years in 1950 to 51.7 years in 1964 [42, p.527]. Approximately 40 percent of the U.S. farm operators were 55 years of age or older in 1964 and 17.4 percent of these operators were age 65 or older [42]. Therefore, a significant proportion of the current number of farm operators will be retiring or reaching points of reduced efficiency within the next decade. This fact alone points to the substantial future demand for new operators and specific solutions to overcoming entry barriers. Without an efficient transfer of assets to beginning farmers, the capital resources involved will be absorbed by existing production units, prolonging the eventual need for new entrants.

The areas of study were selected to provide an effort as comprehensive as possible for the wide varieties of resource and enterprise situations prevalent in Oklahoma. Acknowledging that a study of all situations would be infeasible, the areas selected represent a gamut of farming situations for which the methodology used can be widely applicable.

The Problem

In 1964, 4,881 Oklahoma commercial farm operators were 65 years of age or older and 11,528 farmers were 55 to 65 years of age [42]. By 1969 the number of farm operators in the 65 and older category had almost doubled to 8,015 [43]. The number in the 55 to 65 age grouping increased to 15,266. Forty-five percent of the commercial farm operators in Oklahoma were 55 years of age or older in 1969. The average age of all commercial farm operators was 51.7 years in 1969. The resulting implications of these data are that younger farmers will soon have to succeed the aging entrepreneurs in order to sustain agricultural production.

Because of historical attempts by farm firms to meet income goals, achieve economies of size, and adopt new technology, the amounts of capital required to acquire a financially viable farm unit have increased significantly [43]. Therefore, acknowledging that barriers to entry are present in various forms, the most difficult obstacles appear to proliferate from the financial aspects of capital acquisition related to entry. The development of personal skills, acquisition of education technology, and accumulation of managerial capacity are obstacles easily identifiable as being internal to the individual.

Conversely, the acquisition of adequate amounts of debt capital is an external problem of often indeterminant magnitude.

Very little tangible evidence is available with respect to what factors now constitute restrictive capital barriers to entry into production agriculture for given areas of Oklahoma. In recognizing these restraints the pertinent questions become: What are the minimum resource requirements for a viable farm unit? What are the specific alternatives for overcoming the capital barriers to entry? The agricultural industry and especially individual farmers, both potential and established, have much at stake in the answers to these questions. This study was designed to shed some light on these problems.

Objectives

The specific objectives of this study include:

(1) To gather information regarding agricultural lender practices and attitudes toward prospective farmer entrants;

(2) to determine relevant financial alternatives available to beginning farmers;

(3) to estimate minimum capital requirements for a specified income level in the areas of study;

(4) to identify specific capital barriers to entry for the farm situations in the areas of study;

(5) to analyze alternative financial strategies available and pertinent to beginning farmers in the study areas.

Previous Research

Minimum Resource

The initial work in determining the minimum resource requirements for specified income levels was conducted in 1957 by Brewster [12]. In this work, Brewster presented the following question that minimum resource research could help answer:

> For various regions and types of farming systems, what bundle of resources represents the minimum size of farm and the minimum earnings that would offer a reasonable chance for success? Farms with these resources constitute the safe floor of American agriculture. Information as to their characteristics is needed especially by beginning farmers, particularly from the standpoint of safe credit commitments by themselves as borrowers and by farm lenders, whether public or private [12, p.4].

Brewster's 1957 study was undertaken to determine the minimum resources required to attain specified levels of income for farm operators on selected types of farms in six areas of the United States. In addition, this early work examined the effects of various farm ownership-acquisition plans on family living residuals obtained via minimum resource research. Brewster later discussed the methodological problems of a minimum resource study at the Southern Farm Management Committee in October, 1957 [11]. In this paper he considered the methodological problems related to (1) the attributes of the income requirements, (2) the values to be minimized, and (3) the construction of resource situations to be considered.

Barnhill expanded Brewster's early work to include 15 major types of farming areas in 1962 and 29 types of farming areas in 1964 [4]. This report briefly analyzed the effects of variations in yields and price-cost relationships on minimum resource requirements.

Strickland determined minimum resource requirements for an area in the low rolling plains of Southwestern Oklahoma [41]. This study examined the effects of variable hired labor prices, land prices, and soil types. It also introduced the concept of owned resources (non-labor resources owned by the operator) into minimum resources studies.

Plaxico and Goodwin presented a paper at the Agricultural Policy Institute in North Carolina in which they estimated minimum land and capital requirements needed by farmers in various areas to earn the equivalent of an average factory wage under alternative assumptions with respect to product prices and institutional restrictions [33].

The relationship between minimum resource requirements and economic equilibrium has been reviewed by Varley and Tolley [44]. They noted that the minimum resource model under varying land prices approaches the profit maximization model under these conditions. Connor further developed the analytical approach suggested by Varley and Tolley and applied it to a minimum resource study of the Oklahoma Panhandle [13]. This study extended the owned resource concept as an adjustment criterion under different land prices, yields, and soil resource conditions [14].

Halbrook utilized the operational model developed by Connor to analyze the effects of off-farm employment, yield levels, owner equity, and land quality on minimum resources required for specific levels of income to livestock producers on the eastern prairies of Oklahoma [20].

More recently, Walker investigated the minimum size wheat-feed grain farm required to obtain specified labor, management, and owned capital returns and pay business overhead costs in Northcentral Oklahoma [45]. This study investigated alternative levels of yields, off-farm

employment, equity positions, interest rates, land prices, and product prices.

Finance

In contrast to research involving minimum resource requirements, little work has been accomplished toward relating specific production alternatives to available financial alternatives in overcoming barriers to entry. Those studies which cite a need for this type of endeavor typically outnumber those actually completed. In addition, many research efforts have merely stated the difficulties associated with entry rather than investigating the feasibility of alternative solutions.

Lee expressed a need for the type of research undertaken in this study in the following statement:

> Concern has been expressed that entry into farming will become even more difficult and that this will lead to domination of the farm sector by large-scale interests with special access to nontraditional sources of financing.
>
> To evaluate these possibilities, we need first to know the magnitude of capital needs at the firm level .... Thus, research is needed on problems related to getting started in farming ... [29, p. 1553].

A history of capital accumulation by Michigan farmers was presented in 1961 by Brake and Wirth [10]. This analysis included a questionnaire regarding the various means of capital acquisition used by operators in becoming established in farming. It also presented a comparison of selected financial and structural information related to operators who began farming in succeeding time periods.

Baker and Irwin conducted a study which included an evaluation of the effects of lender liberalism or conservatism, experience, and dis-

crimination as to loan types on the financial planning of selected types of farms in Illinois [3].

Hunter researched the farm characteristics and capital growth of 352 Farmers Home Administration borrowers in southeastern Oklahoma [26]. This study summarized data obtained from a representative group of farmers using FHA as a source of credit to obtain capital resources.

Seibert interviewed 45 farmers in 1961 who had begun farming within ten years prior to the study [36]. His work attempted to identify sources of credit and other means used by beginning farmers to initially acquire capital resources. The NC-15 Technical Committee conducted similar research for 13 ecomonic subregions in the Northcentral U.S. [34]. The resulting publication provided a variety of practicable information regarding the various alternatives to resource acquisition toward completing the entry process.

Watzek interviewed several beginning farmers in one county in Indiana to examine the relationships between financial success and family assistance, education, farm size, and beginning financial positions [46]. His study revealed that approximately 80 percent of the farmers interviewed received some form of family assistance to get established and that part-time farmers made very limited financial progress.

Krause conducted research in 1971 regarding successful and unsuccessful Farmers Home Administration and Production Credit Association borrowers in South Dakota [28]. This study attempted to develop hypotheses about and measurements of personality characteristics associated with borrowers' financial success. Krause suggested that the

use of personality variables may be a more feasible way of evaluating borrowers than requiring complete farm operating information.

Most recently, Boehlje outlined the importance of and need for increased emphasis on research regarding the life cycle of the family farm firm and entry-exit problems [9]. He suggested the following methodology to conduct practicable research related to overcoming barriers to entry:

> To investigate the entry problems, survey procedures might first be used to describe and classify the various historical and current methods utilized by farmers to enter the agricultural sector ....
>
> Next, minimum resource analysis techniques such as minimum resource programming can be used to estimate the minimum land, labor, and physical capital requirements for successful entry into farming in the future ....
>
> Decision models that include the alternative methods of resource acquisition could be used in this analysis. Consistent with the limited equity of most new entrants, these models could be structured to minimize the equity capital requirements subject to the constraints imposed by financial institutions and customary lease and rental arrangements and a minimum profit restriction [9, p.25].

Much of the remaining content of this study is very similar to the suggestions for analysis outlined by Boehlje.

Areas of Study

The geographic areas to which this study applies include northeastern, southeastern, southcentral, northwestern, and panhandle regions of Oklahoma as depicted in Figure 1. These areas are centered by Wagoner, Atoka, Garvin, Woodward, and Texas counties, respectively.

The northeastern Oklahoma area constitutes a portion of the soil classification region referred to as the Cherokee Prairies. Small grain-livestock production is the principle type of farming. Wheat,

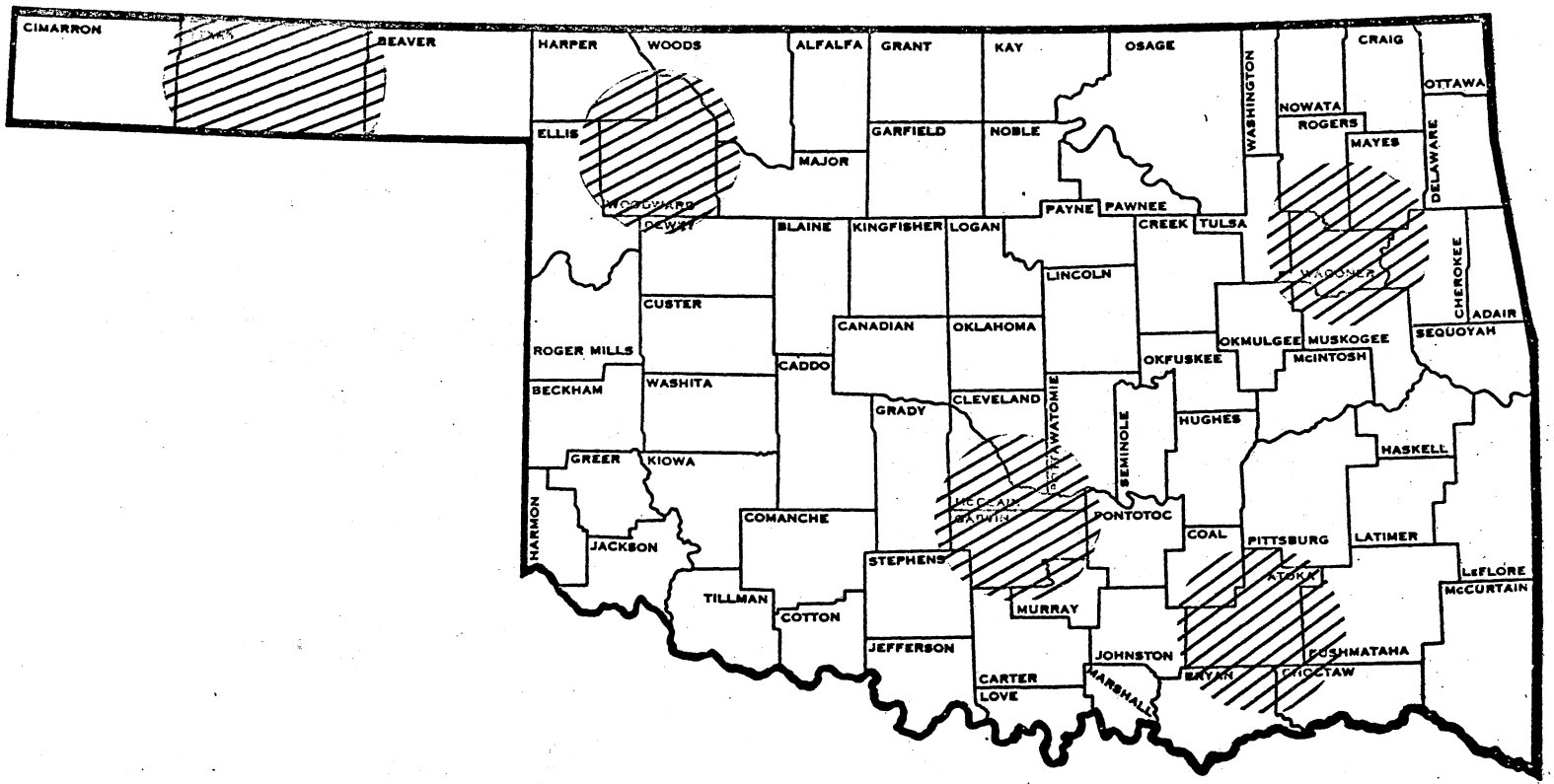

Figure 1. Map of Oklahoma Depicting the Areas of Study

oats, grain sorghums, alfalfa, corn, cotton, and soybeans are the major crops grown here. Large quantities of prairie hay are harvested for both local use and sale outside the area. Much of the cropland acreage has been reduced since the 1930's and has been reseeded or improved with bermuda grass, brome, and fescue. The average annual rainfall in this area ranges from 37 to 42 inches [19, pp. 13,27].

The southeastern Oklahoma area includes portions of the soil classification regions known as the Ozark Highlands, Forested Coastal Plains, and Cross Timbers. Average annual rainfall here ranges from 38 to 44 inches with an average growing season of 200 to 230 days. The primary crops include small grains, grain sorghums, peanuts, and some corn. Improved pastures of bermuda grass, clover, and fescue have been established on acreages cleared of brush and timber. Commercial forests are dominant in the area and cattle are raised on free range in the wooded hills. Much of this area is devoted to livestock production [19, pp. 21,25,31].

The southcentral area includes portions of the soil classification regions Cross Timbers and Reddish Prairies. This is a moist subhumid area which has an average annual rainfall of 28 to 35 inches and an annual growing season of 200 to 225 days. Wheat, grain sorghums, peanuts, soybeans, and alfalfa are the principle crops. The rolling areas are used for small grain-cattle farming, while the more wooded areas are used primarily for livestock production. Mixed native grasses and alfalfa are cut for hay and used locally as well as sold commercially [19, pp. 13,14,30,36,37].

The northwestern Oklahoma area selected comprises a portion of the Rolling Red Plains soil classification regions. This dry subhumid area

has an average annual rainfall of 22 to 28 inches and a typical growing season of 190 to 225 days. Occasional high winds, droughts, and high moisture evaporation characterize the region. Small grain-cattle farming constitutes the principle enterprise situation. The primary crops of wheat and grain sorghum are grown on the clayey and extremely sandy soils, respectively. Medium-sized cow herds are wintered on locally grown sorghum and alfalfa hay. Grama and buffalo grasses dominate the clay soils of native pastures while tall grasses are dominant on the loam and sandy soils [19, pp. 13,14,42].

The panhandle area is part of the soil classification region known as the High Plains. This is a semi-arid area where the annual rainfall ranges from 17 to 22 inches. The growing season is the shortest in the state and long drought periods are common. The primary crops are wheat on loam soils and grain sorghums on the sandy lands with some alfalfa and corn grown on irrigated bottomland or upland soils. Buffalo and grama grasses dominate the native pasturelands which are low in grass forage yield but high in nutritive value [19, pp. 12,14,49,50]. Irrigation techniques are widely used for approximately half the existing cropland [12].

Outline Of Following Chapters

The order of presentation for the remainder of this thesis is as follows:

Chapter II describes the theoretical considerations for using the minimum resource model. The conceptual effects of different levels of land prices, operator equity, and product prices are evaluated using land as the resource to be minimized. The theoretical relationship

between minimum resource solutions and profit maximations solutions are also discussed.

Chapter III provides information regarding the structures, backgrounds, policies, and significance of seven financial intermediaries considered pertinent and accessible to potential entrants.

Chapter IV presents data obtained via a questionnaire survey of sixty-one agricultural lenders in the five areas of Oklahoma. Information obtained from (1) commercial banks, (2) Farmers Home Administration, (3) Federal Land Bank Associations, (4) Production Credit Associations, (5) private individuals, and (6) life insurance companies, regarding loan terms, services offered, and attitudes toward beginning farmers are presented.

Chapter V describes the operational linear programming model used to estimate the minimum resource requirements (and representative farm sizes) in each area for a specified income level. The assumptions involved, the data used, and the results obtained are explained.

Chapter VI presents the effects of three output price levels upon the net incomes and capital requirements of the representative farms. The subsequent effects of six operator equity-land rental situations and three financial alternatives are investigated. Implications are explored as to the relative feasibility of accomplishing entry into farming in each situation.

Chapter VII summarizes the results of the study and presents the conclusions and their implications for overcoming capital barriers to entry.

CHAPTER II

THEORETICAL CONSIDERATIONS IN ESTIMATING RESOURCE REQUIREMENTS FOR BEGINNING FARMERS

One of the objectives of this study is to identify specific capital barriers to entry for beginning farmers in particular regions of Oklahoma. Brewster outlined a model which would be effective in determining the minimum farm sizes and capital requirements that farm operators could combine with their labor and management to obtain a specific income level and offer reasonable chances for success [12, p.3]. Boehlje supported the use of this technique for estimating the land, labor, and capital requirements for successful entry [9].

The progressively related assumptions which must be made prior to enlisting this type of analysis are (1) that sufficient motivation for entry is provided by the multiple goals of the prospective entrants, (2) that specific income goals are justifiable and relevant in terms of decision criteria for determining minimum resource requirements [41, p.20].

The purposes of this chapter are (1) to outline the theoretical model within which minimum resource requirements may be estimated and (2) to delineate the conceptual relationships between minimum resource requirements and profit maximization with differing levels of specific variables.

Theoretical Minimum Resource Models

The Basic Minimum Resource Model

The basic model is depicted in Figure 2. The segmented revenue curve OEFGHI represents the return to land, operator labor, and management from various farm sizes (or land capital amounts) prior to deducting land, operator labor, and management costs. It represents the returns remaining after hired labor, interest charges on non-land capital and other cash costs have been paid.

Land (farm acreage) is considered the variable input in each of the theoretical minimum resource models illustrated. Farm acreage is directly related to land capital and highly correlated to total capital. For this reason, and because the determination of representative farm sizes constitutes the ultimate objective in using minimization techniques, farm acreage is the variable resource referred to in the discussion of each of the minimum resource models.

The revenue curve, OEFGHI, reflects the typical pattern of diminishing returns for additional increments of land. It approximates a continuous curve with a series of linear segments which exhibit progressively lesser slopes as additional increments of land are included and as different levels and combinations of enterprises enter the solution. The kinks along this curve may be indicative of (1) increases in enterprises that are land intensive (e.g. livestock), (2) reductions in the activities that are land extensive (e.g. crops), (3) the indivisibility of certain inputs, and (4) the exhaustion of certain inputs and subsequent substitution by other types of inputs with different costs -- such as hired labor for operator labor.

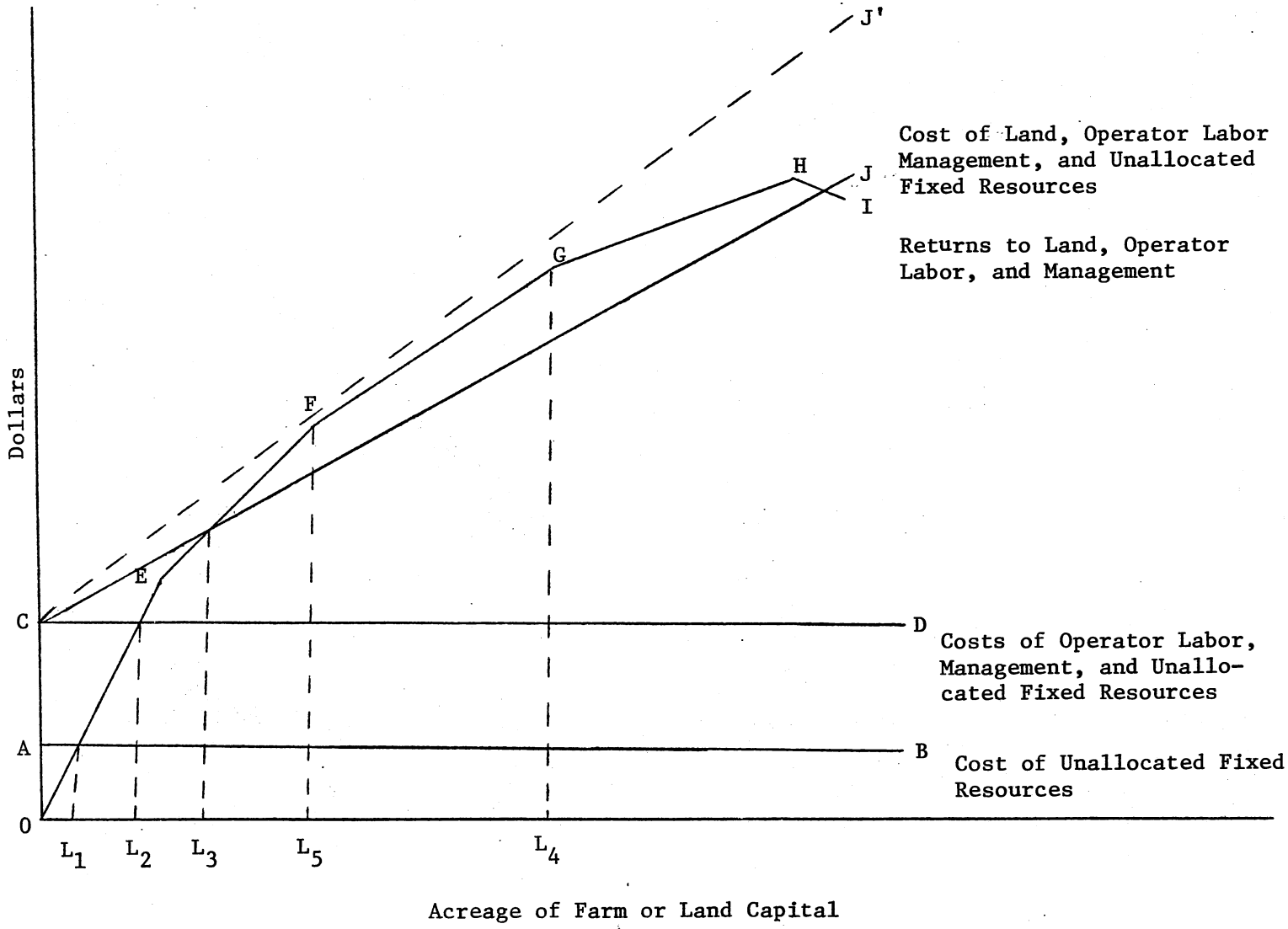

Figure 2. Basic Conceptual Minimum Resource Model

If line AB represents a specified return OA, a farm size of OL_1 would be required to cover unallocated fixed costs. Line CD represents opportunity returns, AC, for operator labor and management. A farm size of OL_2 is needed to cover fixed overhead costs in addition to providing opportunity returns to operator labor and management. Land costs -- rent or interest on land capital plus taxes -- are represented by the height of line CJ. Above CD a minimum farm size of OL_3 is required to cover all costs.

Given the costs and returns of Figure 2, farm sizes larger than OL_3 will provide profits whereas those smaller than OL_3 will not. This acreage is not the most profitable farm size nor is it the equilibrium farm size for the area. The most profitable farm size is at OL_4 where the difference between OEFGHI and CJ is the greatest. However, at OL_4, profits are being realized and new entreprenuers would be attracted to farming or existing operators would be encouraged to expand. Since additional land is needed to obtain these profits, competition would result and land prices of rental rates would be expected to increase. Market forces would cause land costs to change and CJ would shift upward to CJ'. Under these conditions the profit maximizing size of farm would be OL_5.

Within this framework of analysis it is possible that land prices, interest on land capital, or rental charges could increase beyond those levels which denote the profit maximizing farm size. These increases would be due to changes in exogenous market forces -- such as unusually high interest rates, increased demand by "tax-loss" farmers, or increased investment by speculators. This additional competition would cause total land costs to change as depicted in Figure 3, shifting CJ upward

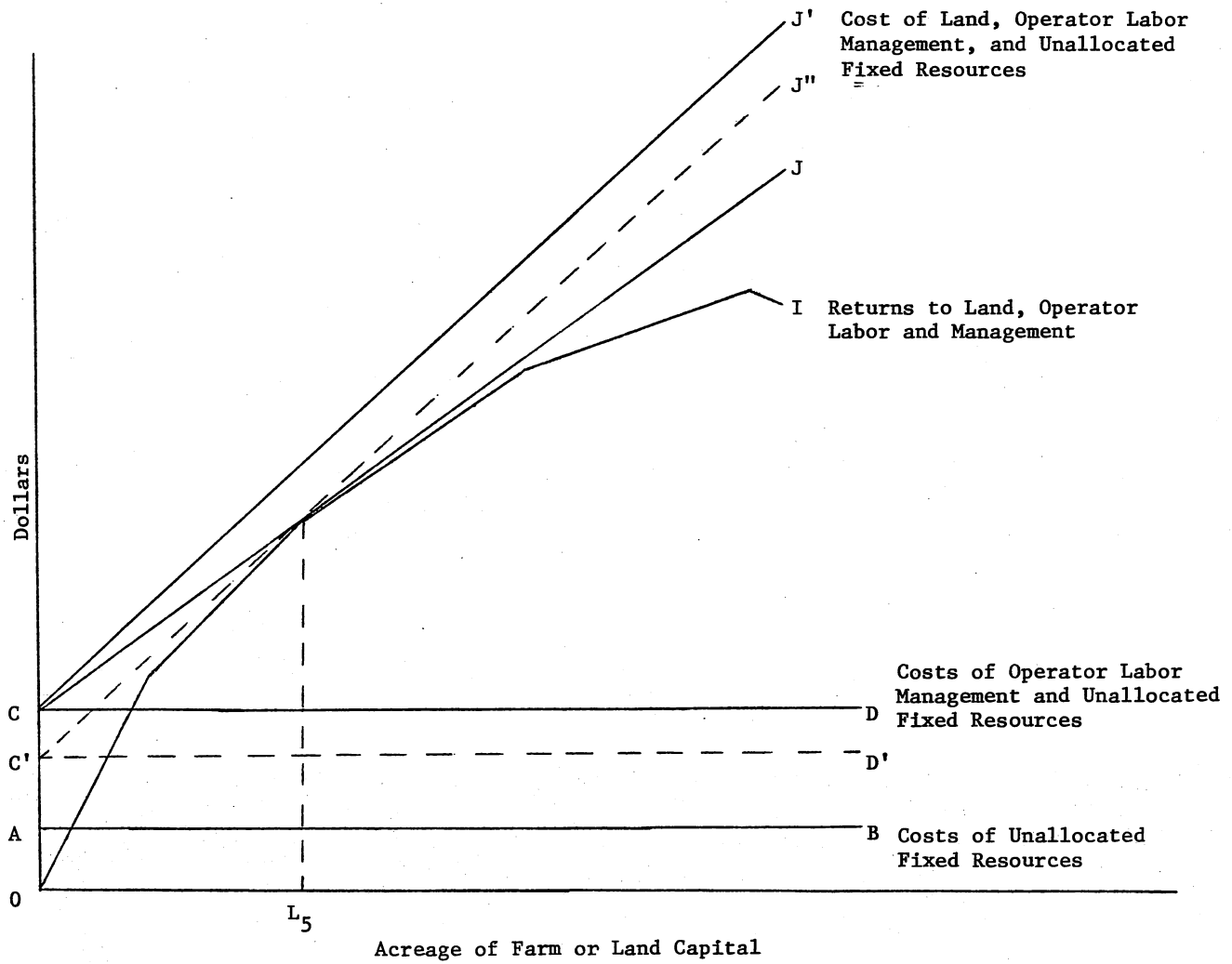

Figure 3. Basic Conceptual Minimum Resource Model With High Land Costs

to CJ'. Given the costs and returns assumed in Figure 3, no profits would be realized. New entreprenuers would not attempt entry into farming and some existing operators would be forced out of production. The situation described above would occur unless potential or established operators (1) could significantly reduce unallocated overhead costs, (2) obtain supplementary income through off-farm employment, or (3) are willing to accept less than an opportunity return for their labor and management. The selection of any one of these alternatives or some combination of all of them has the potential of reducing total costs to a level such that a profit maximizing size of farm could be achieved. In Figure 3, this would represent a reduction in the costs of operator labor, management, and unallocated fixed resources from OC to OC'. Total costs (CJ') would then decrease by the amount CC' to the level C'J'' which would once more result in an optimum farm size of OL_5.

Minimum Resource Model with Variable Levels of Owner Equity

Owner equity is defined as the nonlabor owned resources of the operator. The introduction of owned resources into the minimum resource model results in reduced external capital costs (Figure 4). First, as land equity increases, land capital costs would decrease and the slope of the land costs curve would change from AJ to AJ'. Second, as nonland equity increases, less interest on operating capital is deducted from gross revenue, raising the returns curve from OI to OI'. Conceptually, the zero equity level would by the same as depicted in the basic minimum resource model illustrated in Figure 2.

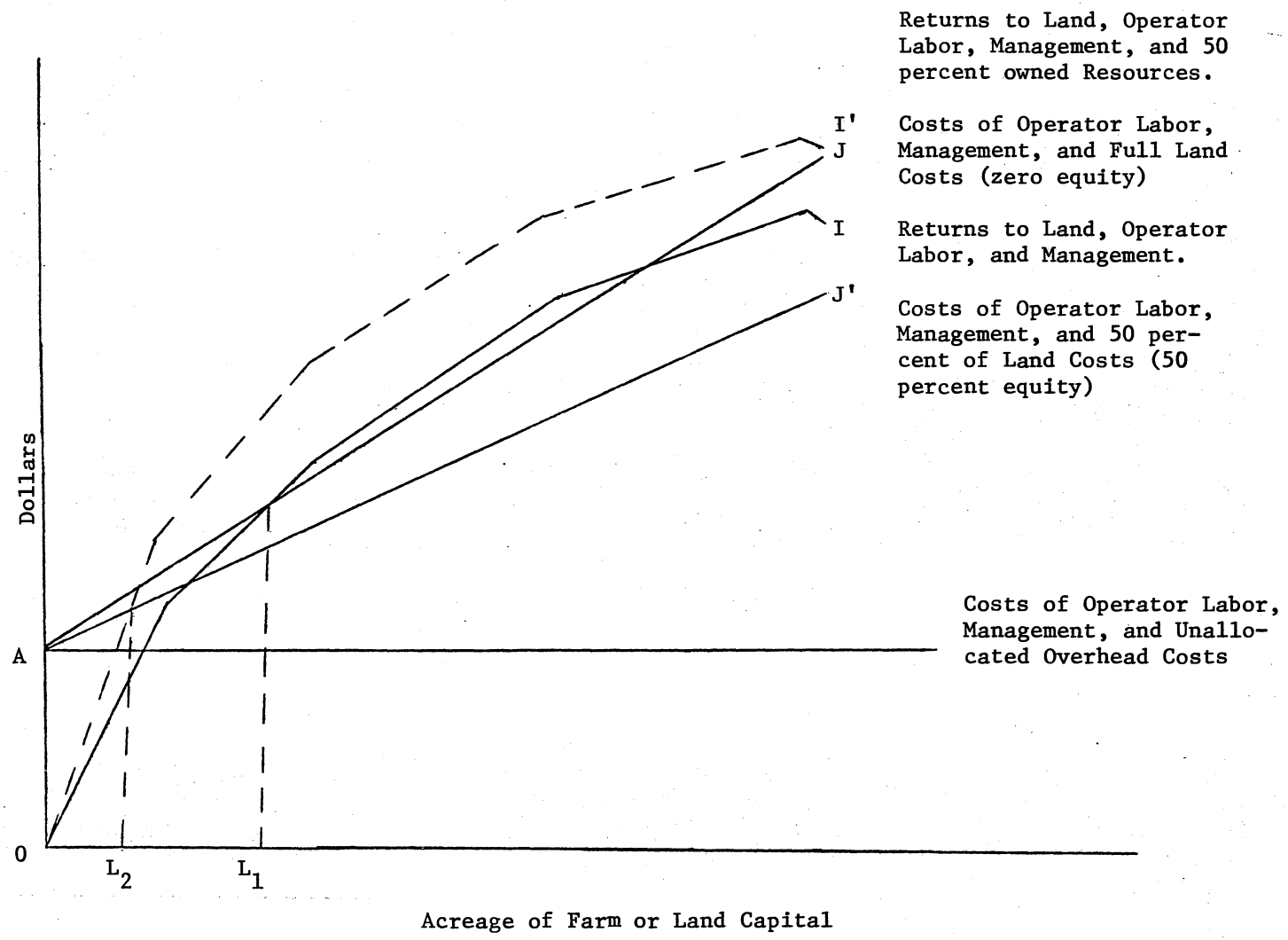

Figure 4. Theoretical Minimum Resource Model With Variable Levels of Operator Equity

Inherent in the minimum resource model with variable levels of operator equity is the assumption that the operator does not require an opportunity return for his owned resources. That is, in Figure 4, the specified level of income needed to cover unallocated fixed costs and provide opportunity returns for operator labor and management is not greater than OA.

A farm size of at least OL_1 is required for a specified income level at zero equity, but a minimum farm size of only OL_2 is required with 50 percent operator equity. Theoretically, a farm size between OL_1 and OL_2 would result from varying the equity level from zero to 50 percent -- such as 25 percent.

An alternative means of analyzing this model involves the assumption of a farm size fixed at OL_1. With zero equity, no profits are realized and only the specified costs are being covered. However, with farm size fixed at OL_1 and a 50 percent equity level, returns greater than specified costs are being obtained. Similarly, returns over and above the specified costs would result when equity levels vary from zero to 50 percent. These relationships portray the types of analyses used in a portion of this study.

Various levels of land rental should not be confused with variable levels of operator equity. Rental rates are assumed analagous to interest charges on land capital and do not shift the cost and return curves as do variable equity levels. Thus, rental situations are represented by the relationships for zero equity as depicted in the basic minimum resource model, Figure 2.

Minimum Resource Model with Variable Product Prices

The conceptual minimum resource model with variable product prices includes not one, but a family of returns curves, as illustrated in Figure 5. This model proffers possibilities for analyzing minimum resource requirements for prospective entrants into agriculture in an uncertain marketing environment.

Assuming that the cash costs given for the preceding models are unchanged and that the returns specified in those models were obtained with average product prices, a minimum farm size prevails at OL_2, as shown in Figure 5. When high product prices are introduced into the model, the required farm size decreases to OL_1. However, when low prices are used, no feasible solution exists and the model assumes characteristics similar to those described by Figure 3. That is, adjustments to reduce operator labor, and management opportunity returns as well as unallocated overhead costs are necessary to obtain a minimum farm size.

An alternative means of analysis materializes if the farm size is assumed fixed at OL_2. This would represent the long-run equilibrium farm size where profit maximization occurs using average product prices and returns are just equal to the specified costs. If product prices increase to high levels, shifting the returns curve upward to OI', profits will be realized and entry into farming will be relatively easier. Conversely, if product prices fall to low levels the returns curve shifts downward to OI'' and entry becomes more difficult, if not impossible. Varying prices in this manner permits an analysis of entry feasibility in an uncertain marketing environment where year to

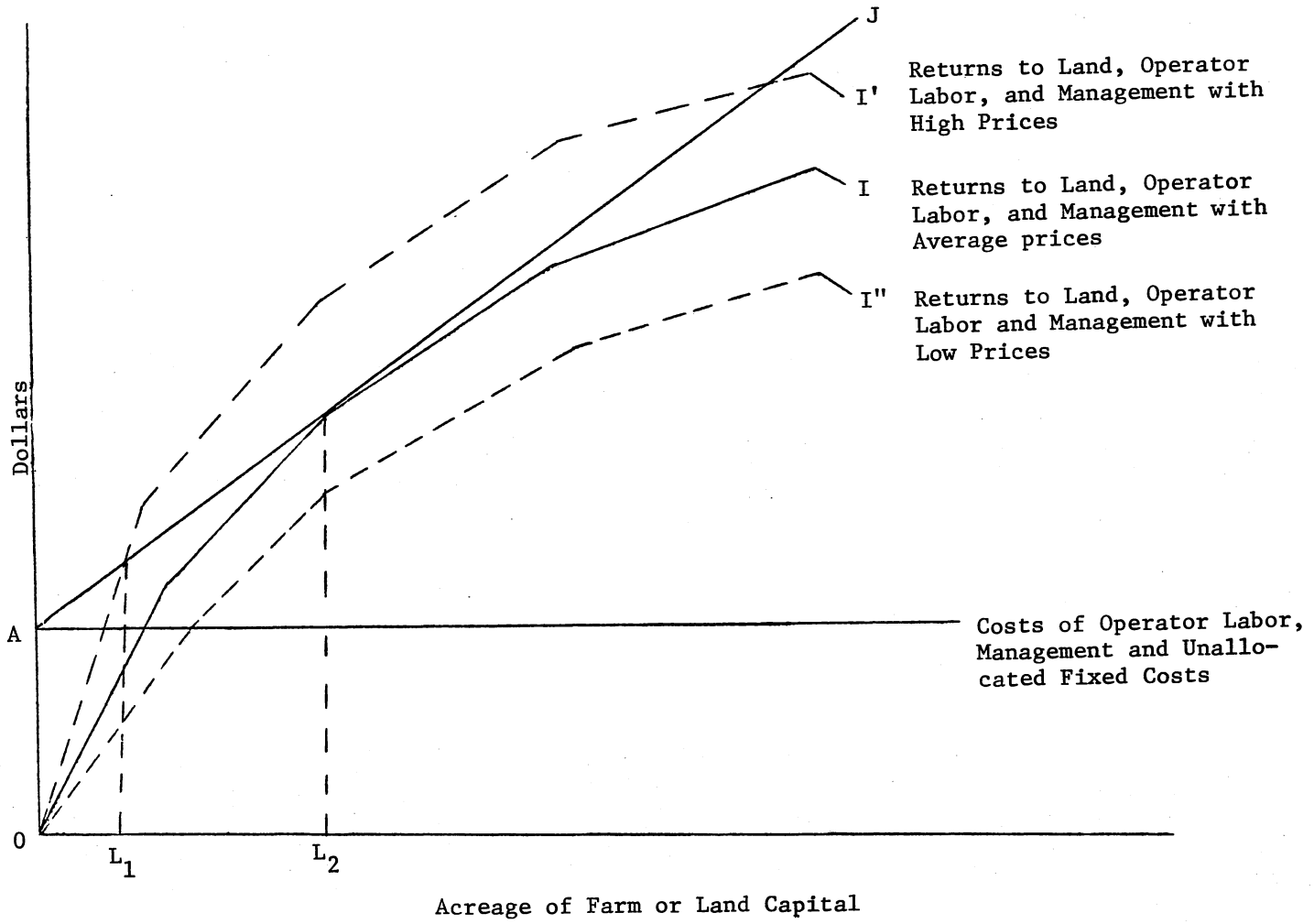

Figure 5. Theoretical Minimum Resource Model With Variable Product Prices

year prices fluctuate about a "normal" or typical condition. These latter situations provide a foundation for portions of the analyses used later in this study.[1]

The Profit Maximization Model

A minimum capital requirement solution may differ from the conventional profit maximization solution because the bias is toward high returns per dollar of capital in the former. Thus, the optimal solution would contain enterprises which substitute labor and other non-capital inputs for capital. The minimum resource model was used because of the efficiency with which it generates "approximate" amounts of capital needed to obtain a given income level.

Figure 6 illustrates the relationships between optimal solutions for situations where (1) capital is minimized and (2) profits are maximized in obtain specified levels of income $Y_{1...9}$. If solutions are sought which minimize capital, the expansion path would approximate isocline CA. That is, capital is treated as more expensive than labor (and other non-capital inputs), consequently, optimal solutions at each income level are biased towards the less expensive labor inputs. In a conventional profit maximizing framework the expansion path would be isocline DA and would result in relatively different optimal solutions. Only if capital and non-capital inputs (labor) were perfect complements would the expansions paths follow the same isocline.

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[1] Although certain long run adjustment hypotheses are implicit in these situations, they are not discussed due to the scope and purpose of this study. For detailed explanation of adjustment situations see [13] and [20].

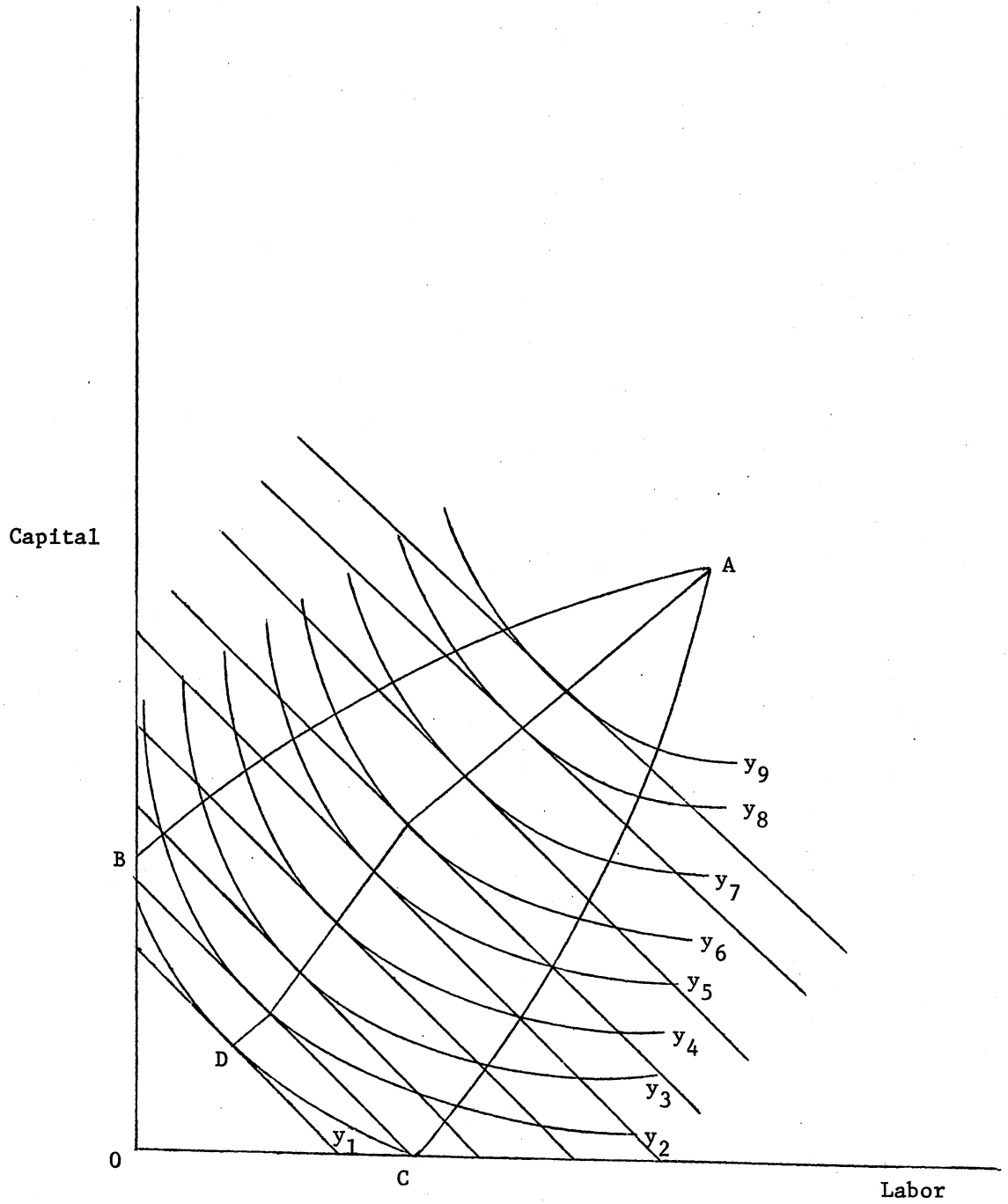

Figure 6. Theoretical Firm Profit Maximization Model

A profit maximizing formulation of linear programming was used to obtain optimum organizations for the representative farm sizes selected via the minimum resource model. The profit maximization model was used to derive income levels, orgainizations, and resources used for three price levels. Direct by-products of the profit maximization model are shadow prices for resources and stability ranges for activities in the optimal solution. The costs of substituting other activities are also given. Some of these values (e.g. shadow prices on capital) are useful in analyzing the results.

Definitions of Concepts and Terms Used In the Financial Analysis

Possible confusion may arise regarding the distinction between returns from the profit maximization solutions and cash flow considerations important to financing. Thus, these concepts deserve further discussion. The objective of a profit maximizing model is to organize available production alternatives so that net returns over variable costs may be maximized, given the resources available and the net prices used [5, p.12]. The resulting organization specifies the optimal levels of each production activity, land resources used, labor resources required, and total capital required, as well as the net income level attained.

Cash flows are tools of analysis that provide information regarding provisions for the repayment of operating capital as well as longer term obligations. In the context of this study, cash flows are used to determine the feasibility of entry under various economic conditions. The capital requirements and net income information contained in profit

maximizing solutions are requisite to the construction of cash flows and the ultimate determination of whether or not entry can be accomplished.

Depreciation is an accounting concept which is used to determine the book value of a particular asset. It is typically considered a balance sheet item which accounts for an annual loss of value relative to the predetermined useful life of an asset. Depreciation is included as an ownership expense (for machinery, equipment, etc.) in constructing enterprise budgets and, therefore, shows up as a cost in maximization solutions. However, because depreciation does not represent a direct cash outlay by the operator, it must be added to the net incomes obtained via profit maximization to accurately depict cash available for distribution.

Uniform charges (in the form of interest rates) are assessed for all capital requirements in the maximizing model. Therefore, if some resources are owned, the costs deducted for them in the model are not actually incurred and must be added to the cash flow obtained.

When the charges for depreciation and owned resources have been added to net income from the profit maximization model, the result indicates the cash available for debt retirement and family living. Firther deductions for principal payments on borrowed capital (which depend upon the type of financing alternative used) leave the cash available for family living expenses and cash reserves or savings if any. This residual amount can be used to evaluate the relative feasibility of entry for the given level of owned resources and the financing alternatives available.

Changes in net worth (which are balance sheet rather than cash flow concepts) can be determined once the cash available for family living has

been calculated. These changes may be determined by subtracting depreciation charges from the principal payments (which now become owned resources) on borrowed capital. Any cash surplus after family living expenses is also added. A positive change in net worth will result in increased financial leverage--or rather, an improved equity position. This could potentially enable the operator to refinance his existing debt under another, perhaps more favorable financing alternative.

Theoretically, opportunity returns should be included in evaluating the effectiveness of income levels to accomplish entry. However, operators may have a "satisficing" income level which provides an adequate amount for family consumption. The reservation price for owned capital and operator labor and management might be defined as the amount of cash for family living deemed sufficient by the operator to provide for adequate family living, and perhaps firm growth. Assuming as before that income goals are relevant and justifiable, operators with and without owned resources may have similar income goals. This can be explained by the psychology of operators, for example, who do not require an opportunity return for their owned resources. That is, their endeavors are more toward maintaining an acceptable standard of living than realizing returns on their fixed investments.

CHAPTER III

ALTERNATIVE FINANCIAL INTERMEDIARIES

Because this study is concerned with low resource, beginning farmers, the assistance of financial intermediaries of some type is an ultimate inevitability. Therefore, a thorough description of the types of lenders available to beginning farmers assumes a role equal in importance to that of specifying the alternative conceptual models relevant to the analytical framework. This chapter is designed to provide information regarding the backgrounds, structures, general policies, and significance of those intermediaries pertinent and available to potential entrants.

Commercial Banks

Commercial banks in Oklahoma are an important source of short term, intermediate term and long term credit. Commercial banks are corporations, and depending upon whether they are chartered under state or fereral law, are denoted as being either state or national banks [32, p.320]. There are approximately 465 state and national banks operating in Oklahoma, virtually all of which have some type of agricultural loan volume [6]. Each of the two types of banks must adhere to certain restrictions and regulations set forth by their controlling agencies. The primary factors which distinguish these banks from each other, and from other lenders, lie in the regulation of their long term loans. National banks may make loans against unimproved

real estate up to 67 percent at the appraised value. They may also make loans against real estate improved by buildings up to 90 percent of the appraised value with amortization not required except where the loan exceeds 75 percent of the appraised value. Amortization where required is based on a maximum 30 year payout with no requirement that the loan be fully amortized by maturity if the term is less than 30 years [39]. State banks may make loans up to 70 percent of the appraised value of the real estate offered as security with no loan being made for a term longer than 5 years [40]. The following exceptions, however, apply: (1) Real estate loans may be made up to 70 percent of the appraised value for a term not longer than 10 years if the installment payments are sufficient to amortize 40 percent or more of the principal of the loan within 10 years or less. (2) Real estate loans may be made up to 80 percent of the appraised value of the real estate for a term not longer than 25 years providing the installment payments are sufficient to amortize the entire principle of the loan within a period ending on the date of its maturity.

Because various circumstances dictate that banks be flexible in their lending of short and intermediate term financing, no regulations exist in this area other than maximum loan limits expressed as a percentage of total capital and surplus or total deposits and savings [38].

Commercial banks constituted 15.3 percent of the total farm real estate debt and 38.3 percent of the total non-real estate farm debt in Oklahoma during 1972. This accounted for 125.14 million dollars in total farm real estate debt and 516.32 million dollare of total farm non-real estate debt [16] and [17].

Production Credit Associations

The 14 Production Credit Associations (PCA's) in Oklahoma [7] accounted for 163.5 million dollars of the total non-real estate from debt in the state in 1972 [17]. This constituted 21.9 percent of the total non-real estate farm loans held by institutional lenders in Oklahoma.

PCA's are primarily short term and intermediate term non-real estate farm lenders and may make loans with terms of up to 7 years in length. They may also make real estate loans with terms of up to 7 years in length [23, p.81].

PCA's operate under the direct supervision of a district Federal Intermediate Credit Bank (FICB). The FICB's do not loan money themselves, but are merely wholesalers of credit. The origin of the present structure dates back to its establishment in 1933 at which time it was entirely owned by the government. On December 31, 1968, all the FICB's retired their government stock and became wholly owned by borrowers through their Production Credit Associations [32, p.449].

Borrowers must buy Class B voting stock in their Association equal to 5 percent of the total amount of the loan borrowed. Interest must then be paid on the total value of the loan plus the value of the stock. The stock can either be retired as the loan is repaid, or may be retained after the loan has been repaid and converted, eventually, to class A non-voting stock and earn dividend payments [23, p.81]. Individual P.C.A.'s may not loan more than 15 percent to their capital and surplus on any single loan without prior approval of the local Board of Directors and the FICB. Individual loans in excess of 35 percent of the total capital and surplus of an individual association require not only local and FICB approval, but Federal Farm Credit Board approval [7].

Production Credit Associations also utilize a variable interest rate. This results from the FICB's acquisition of loanable funds through the sale of nine-month debentures. The interest rate to the borrower, therefore, varies each month and is calculated by averaging the interest rates of the outstanding debentures, and adding to it a margin to cover operating cost. This margin is typically less than 1 percent.

Production Credit Associations vary widely in their detailed lending practices. Some PCA's, in addition to requiring a 5 percent stock purchase, require a purchase of additional stock amounting to 5 percent of the first stock purchase. Other associations require not only the 5 percent initial stock purchase, but an additional 5 percent equity reserve which is treated similar to the stock purchase with respect to retirement and repayment alternatives [23, p.81].

Federal Land Banks

The Federal Land Banks System constitutes that portion of the Farm Credit System which provides real estate mortgage loans for farmers. Each Federal Land Bank Associaton (FLBA) is a corporation chartered under the Federal Farm Loan Act of 1916. Oklahoma, along with Kansas, New Mexico, and Colorado, is in the Wichita district which received the first national charter in 1917. Individual associations are under the district supervision of the district Federal Land Bank. Each association, being a corporation, is controlled by a board of directors. Directors are elected by the member-borrowers of the association for three-year terms and may number not less than five nor more than seven. Federal Land Banks have been completely owned by the FLBA's since 1947, whereas the FLBA's have always been entirely borrower

owned. Borrowers are required to buy stock in their association equal to at least 5 percent of the value of their loan. An additional 1 percent is assessed the borrower to cover the costs associated with the closing of the loan (e.g. appraisals, title searches, and abstract inspections). Total interest charges are subsequently based on the initial amount of the loan, plus the stock requirement, plus the loan closing charge [35]. FLB loans are made for long terms, 5 to 40 years, and in no case may exceed 85 percent of the fair market value of the real estate [23. p.80]. Loans are typically made for no more than 33 years, but in extreme cases are made for up to 40 years [35]. FLBA's will typically loan money for any purpose providing a first mortgage on real estate is committed as security.

In 1972 FLBA's held 23.7 percent of the total outstanding farm real estate debt in Oklahoma. This amounted to 194.16 million dollars in total farm real estate debt [16].

Farmers Home Administration

The genesis of the FHA was marked by the creation of the Resettlement Administration in 1935. This later became known as the Farm Security Administration. This organization, along with the Emergency Crop and Feed Loan division of the Farm Credit Administration, was abolished by the Farmers Home Administration Act of 1946. and replaced by the FHA [32, p.47].

The FHA in Oklahoma is comprised of a State Office in Stillwater, Oklahoma, and approximately 67 county offices [2]. The operations of each county office are maintained by a county supervisor who is responsible for receiving loan applications. An FHA Committee consists

of 3 members appointed by the state director for each county office area. These committees determine the eligibility of applicants, review borrower's progress and extend recommendations regarding loan approvals and loan servicing actions.

The FHA is a government credit agency, therefore, a detailed explication of its money sources is impertinent to the purpose of this study. One important note, however, is that FHA is authorized by law to make loans only to those farmers who are unable to obtain adequate credit from other sources on reasonable terms. Another lending practice frequently employed by FHA is that of participation with other lenders on both real estate and non-real estate loans. Their effectiveness in arranging real estate participation loans for low equity applicants stems from their acceptance of second liens on farm land as security.

FHA's are allowed to loan 100 percent of the appraised value of real estate and non-real estate assets. By law they are not permitted to lend more than $100,000 on real estate, provided the total debt secured by real estate does not exceed $225,000. Also, $50,000 is the maximum allowable for operating loans or non-real estate loans [23, p.88].

The Farmer's Home Administration accounted for one percent of the total outstanding farm real estate debt in Oklahoma in 1973 [16]. This amounted to 8.277 million dollars of total outstanding debt. They also accounted for 4.4 percent of total outstanding nonreal estate farm debt held by institutional lenders in Oklahoma in 1973 [17]. This amounted to 32.783 million dollars of total debt. As is evident, Farmers Home Administration does not provide a significant proportion of the total debt supplied by agricultural lenders in Oklahoma. This is

primarily because of the limitations placed on them with regard to the total state allocations received in each fiscal year by the state offices.

Private Individuals

Private lenders are primarily a source of long-term debt capital. These lenders are composed of retiring farmers who provide financing for the purchase of farmland they once owned, as well as a private individuals who loan accumulated savings.

This group of financiers held 328.6 million dollars in total outstanding farm real estate debt in Oklahoma in 1972 [16]. This constituted 40.4 percent of the toal outstanding land loans held by all lenders in Oklahoma. Although, private individuals do provide significant amounts of farm real estate debt capital, very little information is available regarding their lending terms and characteristics. This lack of useful data provided important incentives for obtaining relevant information via surveying techniques as depicted in the following chapter.

Insurance Companies

Life insurance companies are of two types: stock companies and mutual companies. Stock companies are owned by the stock holders who provide the capital required by the company. Mutual insurance companies, in contrast, are owned by the policy holders. Life insurance companies prefer diversifications of investments to reduce risks and to develop good will. They consider it sound policy to spread investment among different businesses or classes of investments, as well as to spread them geographically. Farm mortgage loans well satisfy the investment preferences of life insurance companies. These lenders typically make

only first-mortgage loans on farm and ranch property. In past years they have characteristically loaned on farm sizes somewhat larger than the average. Because most life insurance companies are chartered in states other than those occupied by their branch offices, their loan limits may vary. Insurance companies are authorized by law to grant mortgage loans up to 75 percent of the appraised value. The average life insurance company loan is usually greater than the average of other institutional lenders. Insurance companies loans typically range in terms from five to twenty-five years depending oncompany policy. These loans are amortized at rates relatively lower than those used by other lenders. As a result, a balloon payment at maturity is required. Insurance companies generally prohibit prepayments in any one year greater than 20 percent of the original amount of the loan. Beyond this limit a prepayment penalty is assessed the borrower. Some life insurance companies assess penalities for any amount of prepayment. Loan procurement may originate in branch offices, through agreements with commercial banks, or via farm mortgage correspondents such as mortgage bankers, mortgage companies and real estate offices [32, p.386].

In 1972, only 2.5 percent of total insurance company assets consisted of farm mortgages [32,p.372]. Life insurance companies provided 19.8 percent of the total farm real estate debt in Oklahoma in 1972 [16]. This amounted to 161.9 million dollars of outstanding farm real-estate debt.

Oklahoma School Land Commission

Very little data is available as to the percentage of total outstanding real estate farm debt in Oklahoma provided by the Oklahoma

School Land Commission. This lender grants only long term farm real estate loans to borrowers. These loans cannot exceed 50 percent of the agricultural value of the land as determined by the School Land appraiser.[1] No loans can be made in excess of $80,000. Tha amount loaned cannot exceed an average of $200.00 per acre. Loans are granted for a term of 33 years with interest at the rate of 7 1/2 percent per annum. Delinquent installments, both principle and interest, bear interest at the rate of 10 percent until paid. Payments may be made on either annual or semi-annual bases. An application fee is assessed the borrower amounting to no less than $50 and no greater than 1 percent of the amount applied for. Appraisals for the land purchase in question are made gratis unless tha land lies in more than one county. In these cases, the fee is $40 for each additional county. A $50 charge is also made for the examination of abstracts and transcripts.

In some instances the Oklahoma School Land Commission might be considered a viable alternative to financing low resources, beginning farmers. The limitations, however, provided by (1) the $80,000 maximum loan limit, (2) the 50 percent of appraised value maximum and (3) the per acre limit of $200, necessitate participation with FHA to be considered a practicable financial alternative for beginning farmers. As a result, further research was not conducted regarding this agricultural lender.

Summary of Agricultural Lenders

The backgrounds, structures, and general policies of seven financial intermediaries are discussed in this chapter. The primarily

[1]Most of this information was taken from a 1974 application form used by the Oklahoma School Land Commission.

long term farm real estate lenders are Federal Land Bank, Life Insurance Companies, private individuals, and the Oklahoma School Land Commission. Commercial banks and Production Credit Associations are primarily sources of short and intermediate term operating capital. Both of these latter financial institutions may also make long term land loans subject to their respective regulations. The Farmers Home Administration is a source of both non-real estate and real estate farm loans. The typical practices and lending procedures utilized by each of these lenders in Oklahoma (excluding the Oklahoma School Land Commission) are more fully explained in the following chapter, the survey portion of this study.

CHAPTER IV

SURVEY OF AGRICULTURAL LENDERS IN OKLAHOMA

Once the minimum resource requirements are determined, as outlined in Chapter II, the alternative methods of acquiring adequate funds to gain control of those resources must be considered. It is imperative to recognize that not only do various types of agricultural lenders exist but also that they encompass various types of practices, procedures, and attitudes. This chapter is designed to explicate these items as they relate to low resource, beginning farmers.

The best available method of investigating the various financial alternatives proved to be the collection of primary data. This stemmed from a lack of specific data for each of the areas in question as well as the absence of any information concerning lender attitudes toward entrants into agriculture in Oklahoma.

The first step in compiling relevant data was to design a pertinent questionnaire for each of the lenders discussed in Chapter III. In review, those lenders are (1) commercial banks, (2) Farmers Home Administration (FHA), (3) Federal Land Bank Associations (FLBA's), (4) Production Credit Associatons (PCA's), (5) private individuals, and (6) insurance companies. Because of the diverse structures, objectives, and services offered by each lender, the questionnaires differed in content. An attempt was made to tailor the questionnaires for their intended set of respondents and simultaneously maintain some degree of

standardization to provide a basis for comparative analysis[1].

The second step involved direct personal interviews with a representative sample of lenders in each of the selected areas. To achieve this a central county was chosen within each area and the agricultural lenders serving therin were personally visited. Some lending agencies, however, maintain regional or state offices only (e.g., insurance companies), rather than supply a representative in each county. Therefore, the agency office regardless of its location, which served the selected county, was the subject of the interview.[2]

Representatives of eighteen commercial banks in the five counties were interviewed. Questionnaire information was also obtained from individuals at five PCA's, five FLBA's, five FHA offices, five life insurance companies, and from twenty-three private lenders. The reactions supplied by the sixty-one respondents provide the basis for discussion in the remainder of this chapter.

Types of Loans Granted by Lending Institutions

Selected types of loans were specified in those questionnaires designed for commercial banks and Production Credit Associations.

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[1]See Appendix A for a sample of the questionnaires. Exhibit A (the questionnaire for PCA's) contains all the questions asked agricultural lenders except private individuals. Exhibit B is markedly different and shows those questions asked private lenders only.

[2]For example, the Durant FLBA in Bryan County serves Atoka County farmers and was used as a source of information for Atoka County.

Because all commercial banks and PCA's do not make each of the selected types of loans, responses were sought which would indicate the number of lenders who did (Table I). Only three of the PCA's made land loans; and one of the three granted land loans on a limited basis only. At least 15 of the 18 commercial banks granted all the types of loans specified, with the exception of "other production loans" (e.g., rental loans). Only 13 of the 18 banks made "other production loans."

Age Distribution of Agricultural Loan Volume

One method of evaluating the attitudes of lenders toward entrants into production agriculture was to determine the relative age distribution of the outstanding loan volume of each lender by age categories at the borrowers. Respondents were asked to estimate the percentage of their total agricultural loan volume which fell within selected age groups. These distributions were then averaged for all lenders in each county and for each lender in all counties, and expressed as a percentage of the total (Table II). Most respondents believed their loan volume fell into a normal bell-shaped distribution by age. Differences, however, were identified. Assuming that borrowers ages 20-30 constitute low resource, beginning farmers, Atoka County and Garvin County lenders estimated that 19 percent and 17 percent, respectively, of their loan volume fell into this category. Texas County lenders had the least loan volume in this age group, approximately 11 percent. By lender, FHA's and PCA's estimates were highest, 23 percent and 18 percent, respectively. Of the four lenders, commercial banks had the smallest proportion of their agricultural loan volume in this age category. Private lenders and insurance companies will be discussed individually in subsequent portions of this chapter.

TABLE I

NUMBER OF PRODUCTION CREDIT ASSOCIATIONS AND COMMERCIAL BANKS INTERVIEWED WHO GRANT SELECTED TYPES OF AGRICULTURAL LOANS

Loan Type	Production Credit Associations	Commercial Banks
	(Number of Respondents)	
Machinery	5	18
Livestock Breeding	5	17
Livestock Stockers	5	18
Livestock Fattening	5	15
Seed and Fertilizer, Etc.	5	17
Land	3	15
Buildings and Other Improvements	5	15
Other Prod. Loans (e.g. Rental)	5	13
Pasture Establishment	4	15
Total Number of Respondents	5	18

TABLE II

APPROXIMATE DISTRIBUTION OF TOTAL AGRICULTURAL LOAN VOLUME TO BORROWER AGE GROUPS, FIVE SELECTED COUNTIES OF OKLAHOMA

Respondents	Age Groups						Total
	20-25	26-30	31-35	36-50	51-60	Over 60	
	(Percent)						
Atoka County (all lenders)[a]	9	10	15	33	24	9	100
Garvin County (all lenders)	5	12	13	48	17	5	100
Texas County (all lenders)	4	7	20	43	19	7	100
Wagoner County (all lenders)	5	10	19	37	20	9	100
Woodward County (all lenders)	6	8	14	40	27	5	100
Banks (all counties)[b]	4	9	16	46	19	8	100
FLBA's (all counties)	5	8	19	39	22	7	100
FHA's (all counties)	10	13	16	31	26	4	100
PCA's (all counties)	6	12	15	35	23	9	100

[a] Lenders consist of commercial banks, Federal Land Bank Associations, Farmers Home Administration, and Production Credit Associations.

[b] Counties include Atoka, Garvin, Texas, Wagoner, and Woodward counties

Interest Rates

A primary concern of any potential borrower, and especially beginning farmers, is the cost of borrowing money or, more explicitly, the interest rate. Because the interest rates charged by various lenders are determined by several factors, the rational credit seeker needs to be aware of existing rates when selecting from financial alternatives. The cost of borrowing money, therefore, often becomes the deciding factor when making a selection and warrants an objective investigation.

Federal Land Bank Associations, being primarily long-term, farm real estate lenders, have not typically undertaken rapid or drastic changes in their interest rates. Similarly, the Farmers Home Administration has not characteristically made significant alterations in its rates in past years. This is due primarily to its objectives and the requisite of congressional approval to initiate changes. At the time of this study, Federal Land Bank Associations were charging 8.5 percent annually for all types of loans. Farmers Home Administration's charges were 8.75 percent for operating capital and 5 percent for long-term land loans.

In contrast to the long-term lenders, short-term lending rates are more frequently subjected to changes. As a result each commercial bank interviewed was asked to specify normal and current interest rates charged for various types of agricultural loans (Table III). Current interest rates were those typically being assessed at the time of the study. Also, because of the unusual state of the national economy at the time of the study, the respondents were asked to specify an interest

TABLE III

NORMAL AND CURRENT INTEREST RATES CHARGED FOR SELECTED TYPES OF LOANS BY COMMERCIAL BANKS, FIVE COUNTIES OF OKLAHOMA

Loan Type	Atoka County	Garvin County	Texas County	Wagoner County	Woodward County	All Banks
				(Percent)		
Machinery						
Normal Rate	9.0	8.8	8.6	9.3	9.4	9.0
Current Rate	11.4	10.2	9.9	11.8	9.5	10.6
Livestock Breeding						
Normal Rate	9.0	8.7	8.6	9.3	9.4	8.9
Current Rate	11.4	10.2	9.7	11.8	9.7	10.6
Livestock Fattening						
Normat Rate	9.0	9.3	8.6	9.6	9.4	9.2
Current Rate	11.4	10.3	9.7	12.0	9.7	10.7
Livestock Stockers						
Normal Rate	9.0	8.7	8.6	9.3	9.4	8.9
Current Rate	11.4	10.2	9.7	11.8	9.7	10.6
Seed, Fertilizer, Etc.						
Normal Rate	9.0	9.5	8.6	9.3	9.4	9.1
Current Rate	11.4	10.5	9.7	11.8	9.7	10.7
Land						
Normal Rate	9.3	8.7	8.6	8.9	9.0	8.8
Current Rate	11.4	10.2	9.7	10.1	9.5	10.2
Buildings and Improvements						
Normal Rate	9.3	9.3	8.6	8.9	9.0	8.9
Current Rate	11.4	10.5	9.7	10.4	9.7	10.3
Pasture Establishment						
Normal Rate	9.3	9.4	8.6	9.3	9.4	9.2
Current Rate	11.4	10.5	9.7	11.8	9.7	10.8
Other Production Loans (e.g. Rental)						
Normal Rate	9.3	9.7	8.7	9.1	9.5	9.2
Current Rate	11.4	10.5	9.8	11.7	9.7	10.7

rate for each type of loan which they felt to be representative of more normal conditions. This followed the assumption that the relatively high prime interest rates and unusually high inflation rates prevalent at the time of the study were of a temporary nature.

Interest rates charged for various types of loans in each county exhibited little variability. The cost of borrowing for relatively long-term loans was not significantly different from the cost of borrowing for shorter term loans. The interest charged for land loans was lower than the rate charged for loans of other types in three of the five counties, but only be a negligible amount. The rates currently charged for various types of loans ranged from 9.5 percent to 12 percent, while the average of all the banks ranged from 10.2 to 10.8 percent. Commercial bank respondents ubiquitously felt that current rates were 1.5 to 2.0 percent higher than interest rates they considered normal.

Production Credit Associations were also asked to specify normal and current interest rates for the same types of loans presented in Table III. The results are not shown in detail by county to protect the confidential nature of the interviews. Similar to commercial banks, PCA's charged virtually the same interest rates for all types of loans. The average current interest rate was 9.36 percent. The average normal interest rate specified by the five PCA's was 7.06 percent. PCA respondents considered current interest rates to be an average of 2.3 percent higher than normal.

Percent of Appraised Value Loaned

Only infrequently do agricultural lenders grant loans which amount to 100 percent of the appraised (or market) value of the asset being

purchased. As a result the borrower is expected to provide a certain amount of equity capital. The asset is used to secure a proportion of the value loaned and protect the lender against losses. Especially in the case of low resource, beginning farmers, who control little or no equity, it is important to consider this aspect of borrowing funds.

Production Credit Associations and commercial banks were asked to specify the percentage of appraised value typically loaned for the purchase of selected types of assets. The information was then averaged for all banks in each county, all banks as a group, and all PCA's (Table IV). A distinction was made between those lenders who loan 100 percent of the value of an asset and those who typically loan a lesser amount. This was done because of the circumstances which normally induce a lender to provide 100 percent financing.[3]

Commercial banks loaned relatively less on land loans than for other types of assets. With the notable exception of pasture establishment loans, banks typically loaned more on short-term assets than intermediate or long-term assets. That is, the shorter the expected repayment period of a loan, the greater the amount of money loaned for its purchase. Prior to adjusting these loan limits by excluding those who supplied 100 percent financing, the average amounts loaned for various assets by all banks ranged from 73.0 to 91.0 percent. After the adjustment, the variation decreased to range from 71.0 to 76.0 percent of the appraised value loaned.

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[3]For example, many banks loan 100 percent of the value of livestock stockers providing the borrower can supply the wheat pasture, hay, and other items. Also, one bank loaned 100 percent on land loans which were 90-day interim loans only.

TABLE IV

AVERAGE PERCENTAGE OF APPRAISED VALUE LOANED FOR SELECTED TYPES OF LOANS, BY COMMERCIAL BANKS IN EACH COUNTY, ALL BANKS, AND ALL PRODUCTION CREDIT ASSOCIATIONS: FIVE COUNTIES OF OKLAHOMA

Loan Type	Commercial Banks					All Banks	All PCA's
	Atoka County	Garvin County	Texas County	Wagoner County	Woodward County		
				(Percent)			
Machinery							
Average of All Responses	85	76	81	75	83	80	70
Excluding Those Loaning 100%	70	76	74	75	83	76	70
Number Who Loaned 100%	1		1	0		2	
Livestock Breeding							
Average of All Responses	87	75	83	84	77	81	80
Excluding Those Loaning 100%	75	75	77	73	77	76	72
Number Who Loaned 100%	1		1	2		4	1
Livestock Fattening							
Average of All Responses	87	75	77	80	87	81	80
Excluding Those Loaning 100%	75	75	69	73	75	73	74
Number Who Loaned 100%	1		1	1	1	4	1
Livestock Stockers							
Average of All Responses	87	75	82	84	77	81	80
Excluding Those Loaning 100%	75	75	76	73	77	75	67
Number Who Loaned 100%	1		1	2		4	2
Seed, Fertilizer, Etc.							
Average of All Responses	100	81	92	80	90	89	81
Excluding Those Loaning 100%	0	75	67	75	80	74	69
Number Who Loaned 100%	1	1	3	1	1	7	2
Land							
Average of All Responses	70	68	76	64	75	73	81
Excluding Those Loaning 100%	70	68	68	64	75	71	69
Number Who Loaned 100%	0	0	1			1	1
Buildings And Improvements							
Average of All Responses	100	79	66	73	90	82	77
Excluding Those Loaning 100%	0	79	55	73	80	72	71
Number Who Loaned 100%	2		1		1	4	1
Pasture Establishment							
Average of All Responses	100	81	100	80	90	90	83
Excluding Those Loaning 100%	0	75		74	80	76	66
Number Who Loaned 100%	2	1	2	1	1	7	2
Other Production Loans (e.g. Rental)							
Average of All Responses	100	83	100	83	90	91	80
Excluding Those Loaning 100%	0	67		77	80	75	69
Number Who Loaned 100%	2	1	3	1	1	8	2

The responses of Production Credit Associations exhibited no uniform patterns. Before adjusting the averages to exclude those who extend 100 percent financing, the financing ranged from 70.0 to 83.0 percent. Subsequent to the adjustment, the averages of all PCA's ranged from 66.0 to 74.0 percent.

Length of Repayment

The relative fixity of various farm assets dictates that the length of time required to retire debt capital borrowed for their acquisition should also vary. That is, the longer the useful life of an asset, the longer the expected repayment period.

Production Credit Associations and commercial bank respondents were asked to specify the length of repayment typically established for selected types of loans. The resulting information was averaged for all banks in each county, all banks as a group, and all PCA's (Table V). The data were further adjusted to exclude those respondents who practice annual or semi-annual refinancing. The results were expressed to the nearest hundredth of a year.

As a whole, the data reinforce the concept of longer repayment lengths for loans on assets typically considered to have a relatively longer useful life. Land loans were granted by banks for an average length of 9.25 years. After adjusting for those respondents who required annual or shorter period refinancing, the average increased to 11.25 years. Machinery, livestock breeding, and farm building loans were also made for time periods relatively greater in length than loans granted for the purchase of livestock stockers, seed and fertilizer, and other similar items. All reporting banks granted loans for the purchase of short-term assets to be repaid in one year or less.

TABLE V

AVERAGE NUMBER OF YEARS ALLOWED FOR REPAYMENT OF SELECTED TYPES OF LOANS BY BANKS IN EACH COUNTY, ALL COMMERCIAL BANKS, AND ALL PRODUCTION CREDIT ASSOCIATIONS: FIVE SELECTED COUNTIES OF OKLAHOMA

Loan Type	Atoka County Banks	Garvin County Banks	Texas County Banks	Wagoner County Banks	Woodward County Banks	All Banks	All PCA's
Machinery							
A[a]	2.0	1.7	2.12	2.45	0.75	1.93	3.6
B	3.0	5.0	2.67	3.5		3.3	4.25
C	1	4	1	2	2	10	1
Livestock Breeding							
A	1.5	0.9	1.25	0.85	0.75	1.15	1.6
B	2.0		2.37			2.25	4.0
C	1	5	2	5	2	14	4
Livestock Fattening							
A	1.0	1.0	0.63	0.81	0.75	0.80	0.9
B							
C	2	3	4	4	2	15	5
Livestock Stockers							
A	1.0	0.9	0.69	0.85	0.75	0.84	1.0
B							
C	2	5	4	5	2	18	5
Seed, Fertilizer, Etc.							
A	1.0	1.0	0.56	0.85	0.75	0.84	1.0
B							
C	2	4	4	5	2	17	5
Land							
A	10.0	4.9	6.44	14.38	5.5	9.25	7.0
B	10.0	7.5	12.5	14.38	10.0	11.25	7.0
C		1	1		1	5	
Buildings and Improvements							
A	1.0	2.5	1.69	10.6	0.75	5.18	2.8
B		7.0	5.0	10.6		9.29	5.5
C	2	3	3		1	9	3
Pasture Establishment							
A	1.0	1.0	1.0	0.95	0.75	0.95	1.25
B							2.0
C	2	4	2	5	2	15	3
Other Production Loans (e.g. Rental)							
A	1.0	1.0	0.83	0.69	0.75	0.90	1.0
B							
C	2	2	2	3	4	13	5

[a] A = Average of all responses, in years

B = Average of all responses excluding those by respondents who required annual or shorter term refinancing

C = Number of respondents who required annual or shorter term refinancing

The pattern of responses by Production Credit Associations was analogous to those of commercial banks with the exception of pasture establishment loans. These were granted for an average of 1.25 years prior to adjustment, and an average of 2.0 years subsequent to the exclusion of those who refinance each twelve months or less. Although longer in repayment terms than for the other short-term assets, pasture establishment loans made by Production Credit Associations were relatively shorter in length than loans made for items which characteristically exhibit longer useful lives.

Required Frequency of Payments

FLBA's and FHA offices typically require that interest and principal payments be made on an annual basis. There are, however, exceptions to this, depending upon the circumstances which surround the loan agreement. Some lenders and/or borrowers favor a payment frequency commensurate with production sales or off-farm income. This section is concerned specifically with the required payment frequencies of the primarily short and intermediate-term lenders, PCA's and commercial banks.

The respondents were asked to specify the typical payment frequency required for selected types of loans. The resulting information fell inton one of three categories: (1) a payment frequency of each six months or less, (2) a payment frequency greater than six months and up to and including twelve months, or (3) a payment frequency commensurate with actual cash flows (Table VI). A majority of the commercial banks required that payments be made eqch twelve months or more frequently, thus falling into category (2) or (3). Relatively less emphasis was placed on payments associated with cash flow income. Few relationships

TABLE VI

FREQUENCY OF PAYMENTS REQUIRED BY COMMERCIAL BANKS IN EACH COUNTY, ALL COMMERCIAL BANKS, AND ALL PRODUCTION CREDIT ASSOCIATIONS: FOR SELECTED TYPES OF LOANS, FIVE COUNTIES OF OKLAHOMA

Loans Type	Atoka County Banks	Garvin County Banks	Texas County Banks	Wagoner County Banks	Woodward County Banks	All Banks	All PCA's
Machinery							
6 Months or Less		1	3		1	5	
6 to 12 Months	2	2	1	4		9	2
Commensurate with Cash Flows		2		1	1	4	3
Livestock Breeding							
6 Months or Less		1	3	1	1	5	
6 to 12 Months	1	2		4		7	1
Commensurate with Cash Flows	1	2	1		1	5	4
Livestock Fattening							
6 Months or Less			3	1	1	5	1
6 to 12 Months	1	1		3		5	
Commensurate with Cash Flows	1	2	1		1	5	3
Livestock Stockers							
6 Months or Less		1	3	1	1	6	
6 to 12 Months	1	2		4		7	1
Commensurate with Cash Flows	1	2	1		1	4	3
Seed, Fertilizer, etc.							
6 Months or Less		1	3	1	1	6	
6 to 12 Months	1	1		4		6	1
Commensurate with Cash Flows	1	2	1		1	5	4
Land							
6 Months or Less		2	4	3	1	10	
6 to 12 Months	2	3		1		6	3
Commensurate with Cash Flows					1	1	
Buildings and Improvements							
6 Months or Less		1	4	3	1	9	
6 to 12 Months	2	3		2		7	2
Commensurate with Cash Flows					1	1	3
Pasture Establishment							
6 Months or Less			2	1	1	4	
6 to 12 Months	2	3		4		9	1
Commensurate with Cash Flows		1			1	2	3
Other Production Loans (e.g. Rental)							
6 Months or Less			3	1	1	5	
6 to 12 Months	2	2		3		7	2
Commensurate with Cash Flows					1	1	3

were evident which associated loan length with required frequency of payments. Banks typically required more frequent payments for land and farm building loans; and a variety of responses were obtained for the remaining types of loans. PCA respondents usually required that payments be made annually or commensurate with cash flows. Relative to the other payment frequency categories, cash flow payments were required more often for all types of loans made by PCA's.

Types of Information Required by Lenders

Prior to approving or denying a loan application, all lenders require certain types of information upon which their decisions are based. All institutional lenders interviewed were asked whether or not they required selected types of information (Table VII) and to include any other items they considered prerequisites for proper loan application evaluation.

As a group, less than half the respondents required some type of cash flow statement which, formally or informally projected monthly expenditures and receipts for the year ahead. A distinction was made in the questionnaire between prepared forms and other informal forms because of the different types of information required by different lending institutions. Virtually all of the lenders in each of the counties required a net worth statement in order to properly evaluate a loan application. Operating statements were required less frequently than net worth statements but more frequently than both types of cash flow statements. Twenty-eight of the thirty-three institutional respondents required operating statements, and one of the remaining five required an operating statement on an occasional basis only.

TABLE VII

NUMBER OF RESPONDENTS REQUIRING SELECTED TYPES OF INFORMATION FOR EVALUATING AND ANALYZING LOAN APPLICATIONS BY ALL LENDERS IN EACH COUNTY AND EACH LENDER IN ALL COUNTIES, FOR FIVE SELECTED COUNTIES IN OKLAHOMA

Respondents	Cash Flows (Prepared Forms)	Cash Flows (Other Forms)	Net Worth Statement	Operating Statement	Total Respondents
		(Number of Respondents)			
Atoka County (all lenders)[a]	1 (2)[c]	1	5	4	5
Garvin County (all lenders)	3 (1)	1	7	7	8
Texas County (all lenders)	2	0	7	7	7
Wagoner County (all lenders)	4	2	8	7	8
Woodward County (all lenders	1 (2)	0 (1)	5	3 (1)	5
Banks (all counties)[b]	5	4	18	15 (1)	18
FLBA's (all counties)	1 (3)	0 (1)	5	4	5
FHA's (all counties)	3	0	5	5	5
PCA's (all counties)	3 (2)	0	5	4	5

[a] Lenders consist of commercial banks, Federal Land Bank Associations, Farmers Home Administration, and Production Credit Associations.

[b] Counties include Atoka, Garvin, Texas, Wagoner, and Woodward counties

[c] Numbers in parentheses indicate number of lenders in each group who require this type of information only occasionally

The respondents were also asked to estimate the percentage of their borrowers who voluntarily supplied cash flow statements even though they were not required. Two of the respondents maintained that as many as five and ten percent of their borrowers supplied cash flow statements voluntarily, while three respondents estimated the proportion to be one to two percent. Other items which were required by the institutional lenders interviewed included income tax returns for past years, verification of off-farm employment, land appraisals, credit ratings, and personal background information.

Services Provided by Institutional Lenders

A major criticism of institutional lenders by low resource, beginning farmers is the lack of management assistance provided. Table VIII summarizes the number of respondents by all lenders in each county and each lender in all counties who provided selected services. Items such as legal advice and insurance planning related to the lender more on al informal basis because of the absence of qualified personnel in the full-time employ of any of the institutions interviewed.

Computerized record-keeping (Agrifax) was provided by two PCA's Only one of the commercial banks interviewed provided a manual record-keeping system. Eight of the eighteen banks and three of the five FHA's were the predominant suppliers of insurance planning advice. All five FHA's provided record analysis while only a modicum of all lenders extended tax guidance to their borrowers. Twenty-six of the thirty-three institutional lenders interviewed provided financial management assistance to their borrowers. The relatively high frequency of provision of the latter item can be explicated by the fact that financial

TABLE VIII

NUMBER OF RESPONDENTS PROVIDING SELECTED TYPES OF SERVICES FOR BORROWERS, AND PERCENT OF LENDERS WHO CONDUCTED ON-THE-FARM VISITS: BY COUNTY AND BY LENDER, FIVE SELECTED COUNTIES IN OKLAHOMA

Respondents	Record-Keeping		Legal Advice	Insurance Planning	Record Analysis	Tax Guidance	Financial Management	Total Respondents	Percent Conducting On-Farm Visits
	Computerized	Manual							
	-- Respondents --								
Atoka Co. (all lenders)[a]	0	0	2	1	1	2	4	5	63
Garvin Co. (all lenders)	0	1	3	4	1	2	6	8	65
Texas Co. (all lenders)	0	0	1	3	3	2	5	7	60
Wagoner Co. (all lenders)	1	0	1	2	4	1	6	8	80
Woodward Co. (all lenders)	1	0	2	3	2	1	5	5	75
Banks (all counties)[b]	0	1	1	8	3	4	14	18	56
FLBA's (all counties)	0	0	1	1	1	1	2	5	52
FHA's (all counties)	0	0	4	3	5	1	5	5	100
PCA's (all counties)	2	0	3	1	2	2	5	5	90

a/ Lenders consist of commercial banks, Federal Land Bank Associations, Farmers Home Administration, and Production Credit Associations.

b/ Counties include Atoka, Garvin, Texas, Wagoner, and Woodward counties.

management more closely relates to the structure of the institutions and the knowledge of their personnel.

The last column of Table VIII relates to criticism by many borrowers that creditors know very little about the actual production operations being financed. This judgment of arm-chair and arms-length interest by lenders was investigated by inquiring as to the percentage of borrowers for whom on-the-farm visits were conducted following approval of a loan. Many respondents contended that such a service was not necessary as long as the borrower met his repayment obligations. The empirical results obtained were averaged by county and by lender to arrive at the associated column in Table VIII. Wagoner County lenders conducted farm visits for 80 percent of their borrowers, while Texas County lenders visited only 60 percent of their borrowers. Of the respective lenders, FHA respondents visited all of their borrowers while FLBA's provided this service for slightly more than half their borrowers.

Frequency of Use of Alternative Tools to Obtain Adequate Financing

The institutional lenders interviewed were asked to specify whether or not they had used or witnessed the use of certain lending tools when making loans to low resource, beginning farmers. Due to the objectives of FHA lenders, none of them had used or witnessed the use of a co-signer. If a co-signer had been available then the borrower would not have qualified for financing from FHA. Virtually all of the other lenders, 27 of the remaining 28, had used co-signing as a means of extending adequate financing to prospective borrowers. This pattern was analogous to that underlying the responses as to the use of parents' collateral

as a tool to aid potential borrowers. Relatively few of the institutional lenders had used or witness the use of additional or conditional collateral, such as the acceptance of a second mortgage by those lenders analyzing the loan applications. Very few of the institutional lenders interviewed specified they had witnessed the use, or had used cash gifts, land gifts, or a third party's machinery in financing a farm operation for low resource, beginning farmers (Table IX).

Comparative Incidence of Loan Defaults by Borrowers Age 20-30

Thirty-two institutional lenders responded to the question concerning the extent of defaults. Of the thirty-two, four lenders cited loan defaults of the incidence of loan defaults as being lower than those of borrowers in other age groups. Seven of the thirty-two respondents claimed that the incidence of loan defaults in the 20-30 age category was higher than the incidence of loan defaults by older borrowers. The remaining twenty-three lenders cited the incidence of loan defaults as being the same as those for older borrowers. Banks constituted five of the seven responses claiming a higher default incidence for borrowers age 20 to 30. Production Credit Associations constituted three of the four institutional lenders citing loan defaults as being lower in this age category compared to older borrowers (Table X).

Hierarchy of Borrower Characteristics

One of the primary missions of the survey portion of this study was to obtain information regarding lenders' attitudes and opinions relative to low resource, beginning farmers. This was accomplished by asking

TABLE IX

NUMBER OF RESPONDENTS WHO HAVE USED OR WITNESSED THE USE OF SELECTED LENDING TOOLS WHEN MAKING LOANS TO LOW RESOURCE, BEGINNING FARMERS, BY ALL LENDERS IN EACH COUNTY AHD EACH LENDER IN ALL COUNTIES

Respondents	Co-Signer	Parent's Collateral	Additional or Conditional Collateral	Cash Gift	Land Gift	Third Party's Machinery	Total Respondents
			(Number of Respondents)				
Atoka County (all lenders)[a]	4	3	4	2	3	2	5
Garvin County (all lenders)	7	7	5	5	4	2	8
Texas County (all lenders)	6	6	6	1	2	6	7
Wagoner County (all lenders)	7	7	6	2	4	3	8
Woodward County (all lenders)	4	4	4	1	2	3	5
Banks (all counties)[b]	17	17	13	3	7	2	18
FLBA's (all counties)	5	5	4	3	3	4	5
FHA's (all counties)	0	1	3	2	2	5	5
PCA's (all counties)	5	4	5	3	3	3	5

[a] Lenders consist of commercial banks, Federal Land Bank Associations, Farmers Home Administration, and Production Credit Associations.

[b] Counties include Atoka, Garvin, Texas, Wagoner, and Woodward counties.

TABLE X

INCIDENCE OF LOAN DEFAULTS BY BORROWERS 20-30 COMPARED TO DEFAULTS BY OLDER BORROWERS, AND BY ALL LENDERS IN EACH COUNTY AND EACH LENDER IN ALL COUNTIES, FIVE SELECTED COUNTIES OF OKLAHOMA

Respondents	Default Incidence			Total Respondents
	Lower	Higher	Same	
	(Number of Respondents)			
Atoka County (all lenders)[a]	0	1	4	5
Garvin County (all lenders)	1	2	5	8
Texas County (all lenders)	1	0	5	6
Wagoner County (all lenders)	1	2	5	8
Woodward County (all lenders)	1	2	2	5
Banks (all counties)[b]	1	5	11	17
FLBA's (all counties)	0	1	4	5
FHA's (all counties)	0	1	4	5
PCA's (all counties)	3	0	2	5

[a] Lenders consist of commercial banks, Federal Land Bank Associations, Farmers Home Administration, and Production Credit Associations.

[b] Counties include Atoka, Garvin, Texas, Wagoner, and Woodward.

each respondent to rank each of nine selected borrower characteristics as to their relative importance when analyzing and evaluating loan applications by prospective entrants. The rankings were based on a scale of 0 to 100 and were required of all lenders interviewed except insurance companies.

The nine characteristics were: (1) character, (2) education, (3) farming experience, (4) net worth, (5) desire to farm, (6) credit rating, (7) personality, (8) managerial ability, and (9) the financial situation of the applicant's parents or relatives. Each of these items related solely to the applicant. Two of the characteristics deserve further exploration. Character refers to the applicant's honesty, integrity, and reliability. This distinction was pointed out to each respondent to avoid confusion with item (7), personality. Item (2), education, was defined to be the level of formal education attained by the applicant.

Means and standard deviations were computed for each of the nine characteristics and are presented in descending order by lender in Table XI. Character, credit rating, managerial ability, and desire to farm were items typically considered most important by each of the five lender groups. Conversely, personality, education, net worth, and the financial situation of parents or relatives were considered least important. The applicant's character was considered most important and the financial situation of parents or relatives considered least important by three of the five lenders.

In order to determine whether the nine characteristics differed significantly from each other as indicated by the responses, a multiple range test was performed on the means obtained for each item by lender

TABLE XI

COMPUTED MEANS AND STANDARD DEVIATIONS OF RESPONSES FOR SELECTED BORROWER CHARACTERISTICS, FIVE AGRICULTURAL LENDERS IN FIVE COUNTIES OF OKLAHOMA

Rank Order	Banks			FLBA's			FHA			PCA's			Private Lenders		
	Item[a]	Mean	Standard Deviation	Item	Mean	Standard Deviation	Item	Mean	Standard Deviation	Item	Mean	Standard Deviation	Item	Mean	Standard Deviation
1	CHAR	89	20	CHAR	93	11	DEFM	84	15	CHAR	90	17	CDRTG	88	24
2	CDRTG	84	19	MANG	93	11	CDRTG	83	21	DEFM	88	18	DEFM	88	24
3	MANG	83	16	DEFM	86	13	FMEX	74	18	FSIT	87	29	CHAR	85	20
4	FMEX	81	10	FMEX	81	21	MANG	70	27	CDRTG	67	25	MANG	80	30
5	DEFM	74	30	CDRTG	75	25	CHAR	66	42	FMEX	57	20	FMEX	67	29
6	FSIT	63	29	NWTH	60	23	PERS	60	29	EDUC	45	7	NWTH	60	24
7	NWTH	62	22	PERS	50	31	EDUC	37	24	MANG	39	34	PERS	55	31
8	EDUC	60	23	EDUC	49	23	NWTH	35	20	PERS	38	39	EDUC	46	21
9	PERS	50	34	FSIT	43	45	FSIT	28	14	NWTH	30	25	FSIT	35	31

[a] CHAR = Character, CDRTG = Credit Rating, MANG = Managerial Ability, FMEX = Farming Experience, DEFM = Desire to Farm, FSIT = Financial Situation of Parents or Relatives, NWTH = Net Worth, EDUC = Education, PERS = Personality

(Table XII). No consistent differences or relationships were noted as revealed by the overlapping interconnections of the items. Specific groups of characteristics were found to be different from other specific groups for each of the lenders. However, specific items in each of these groups were interrelated with items in other groups.[4] Application of the Duncan Multiple Range test,[5] therefore, resulted in no consistent differences across all the lender groups. This leads to the conclusion that the relative importance of these items is dependent upon each respondent and his personal subjectivity.

Private Individuals

The financial arrangements typically provided by private lenders were of utmost interest in this study of financial alternatives. Twenty-three interviews were conducted with private individuals in the five selected counties, more than for any other lender group. The sampling procedure involved personal contacts with institutional lenders and county extension directors, as well as references to county legal records, to locate private lenders within each county. This groups of creditors included those who loaned accumulated savings as well as those who financed the purchase of farm assets they were selling. Collectively, the respondents were responsible for making loans to approximately 189 borrowers. Their reactions to selected questions, as presented in Table XIII, comprise the basis for discussion in the remainder of this section.

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[4] For example, there was a significant difference in the first and last item, but concrete differences between adjacent characteristics were not recognizable.

[5] See [37]

TABLE XII

COMPUTED RELATIONSHIPS FOR SELECTED BORROWER CHARACTERISTICS, OBTAINED VIA THE MULTIPLE RANGE TEST, FIVE AGRICULTURAL LENDERS IN FIVE COUNTIES OF OKLAHOMA

Rank Order	Banks Relationships Item[a]	FLBA's Relationships Item	FHA Relationships Item	PCA's Relationships Item	Private Lenders Relationships Item
1	CHAR	CHAR	DEFM	CHAR	CDRTG
2	CDRTG	MANG	CDRTG	DEFM	DEFM
3	MANG	DEFM	FMEX	FSIT	CHAR
4	FMEX	FMEX	MANG	CDRTG	MANG
5	DEFM	CDRTG	CHAR	FMEX	FMEX
6	FSIT	NWTH	PERS	EDUC	NWTH
7	NWTH	PERS	EDUC	MANG	PERS
8	EDUC	EDUC	NWTH	PERS	EDUC
9	PERS	FSIT	FSIT	NWTH	FSIT

[a] CHAR = Character, CDRTG = Credit Rating, MANG = Managerial Ability, FMEX = Farming Experience, DEFM = Desire to Farm, FSIT = Financial Situation of Parents or Relatives, NWTH = Net Worth, EDUC = Education, PERS = Personality

TABLE XIII

SUMMARY OF RESPONSES TO SELECTED QUESTIONS REGARDING LAND LOANS GRANTED BY PRIVATE LENDERS, FIVE COUNTIES OF OKLAHOMA

Item	Atoka County	Garvin County	Texas County	Wagoner County	Woodward County	All Private Lenders
Average Percentage of Loan Volume Committed for Land	100	100	100	100	85	96
Average Interest Rate Charged (Percent)	6.6	6.5	7.0	7.5	7.4	7.07
Average Repayment Period (Years)	10.25	10.00	11.25	11.10	16.67	12.26
Average Percent Loaned on Appraised Value of Land	72.3	71.0	76.25	73.1	68.8	72.1
Average Equity Requirement (Down Payment), in Percent	27.7	29.0	23.75	26.90	31.20	27.9
Average Payment Frequency Required (Months)	8.3	12.0	12.0	12.0	7.3	10.0
Number of Respondents Who Were or Had Been Actively Engaged in Farming	4	2	3	2	5	18
Average Age of Borrowers	39	33	39	39	34	37
Average Number of Borrowers Per Lender	6.33	3.0	12.75	10.0	7.33	8.13
Type of Relationship Between Borrowers and Lenders (By Number of Borrowers)						
Business	38	6	51	50	38	183
Relative	0	0	0	0	6	6
Total Respondents	6	2	4	5	6	23

Percent of Loanable Funds Committed to Land Loans

With the notable exclusion of one respondent, virtually all of the private lenders interviewed committed 100 percent of their loaned funds or financing to farm real estate loans only. An average of 96 percent of the financing provided by all the respondents was extended for land purchases. This included only one respondent who loaned 90 percnet of his funds for items other than real estate (e.g., income taxes, operating capital, etc.). This is perhaps indicative of the relative importance of long-term lending in the private sector compared to short-term financing.

Interest Rates

The average interest rate charged by the private lenders in each county ranged from 6.5 percnet of 7.5 percent. Individual interest rates ranged from 6.0 percent to 10.0 percent with an overall mean of 7.07 percent. Retiring farmers who financed the purchase of land they formerly owned typically charged lower rates than those who loaned accumulated savings to multiple lenders.

Length of Repayment

Repayment lengths ranged from an average of 10 to slightly less than 17 years. Individual responses ranged from 3 to 25 years with an overall mean of 12.26 years. Private lenders in Woodward County provided the longest term loans and those in Garvin County arranged the shortest term loans.

Percent of Appraised Value Loaned

The average percnetage of appraised value loaned and the associated equity requirement (down payment) are shown separately in Table XIII. Private lenders financed an average of from 68.8 percent to 76.25 percent of the appraised value or purchase price, and required average down payments of from 23.75 percent to 31.2 percent. The average down payment required was 27.9 percent. Required down payments were all less than 29 percent with the exception of one lender who required a 45 percent equity margin. This reinforces the alleged fact that most private lenders (who sell farm land they have owned) prefer to take a 30 percent or less down payment to obviate the payment of capital gains taxes on the full amount of the land sale during the year of sale.[6]

Payment Frequency

Four of the respondents arranged a monthly payment frequency and one private lender required semi-annual payments. The remaining eighteen lenders arranged for payments to be made on an annual basis. The average payment frequency for all respondents was ten months.

Ages of Borrowers

To obtain information regarding the age distribution of their borrowing clientele, the respondents were asked to specify the approximate ages or range of ages to their borrowers. Individual responses ranged

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[6]For a detailed explanation of this tax law see [31] and [15].

from 18 to 75 years with an overall mean age of 37. Only two respondents loaned funds to borrowers over age 55 and only one lender provided financing to a borrower under age 22. The average age by county ranged from 33 to 39. Woodward County and Garvin County borrowers were relatively younger than those in other areas.

Numbers of Borrowers and Their Relationship to Lenders

Individual respondents provided financing for as few as one borrower and as many as forty. The average number of borrowers per lender in each county ranged from 3.0 in Garvin County to 12.75 in Texas County with an overall mean of 8.13. The twenty-three lenders interviewed were financing approximately 189 borrowers in the five counties. Only six of the 189 borrowers were relatives of the private lenders. The remaining 183 borrowers were involved in strictly business relationships with their financier. This contradicts the usual contention by many speculators that a very large proportion of private lending volume consists of intergeneration transfers of some type.

Eighteen of the 23 respondents had been or currently were actively engaged in farming. Of the remaining five respondents one had maintained absentee-ownership of farm real estate for many years.

Life Insurance Companies

Although insurance companies provided almost 20 percent of the total farm real estate debt in 1972, they are not typically considered a viable financing alternative for beginning farmers. This is due primarily to their objectives for investing loanable funds as reflected in

their lending practices.[7] Nevertheless, a questionnaire was designed for this group of lenders which contained questions similar to those asked other lenders. The resulting information is discussed in the remainder of this section.

The average normal interest rate specified by the five respondents was 9.05 percent. The current interest rate charged ranged from 9.25 percent to 12.0 percent with a mean of 10.35 percent. Land loans were the only types of loans granted and were made for periods ranging from 10 to 30 years. The average loan length was 19.5 years. None of the respondents loaned more than 75 percent of the appraised value of the farm real estate. The average down payment required by the five respondents was 35 percent of the appraised value. Three of the five respondents required an annual payment frequency and one of the five required semi-annual interest payments and annual principal payments. Simple interest on the unpaid balance of principal comprised the basis for interest charge calculation. Each lender required an annual principal payment amounting to 2.5 to 3.0 percent of the total amount of the loan with a balloon payment due upon maturity of the note.

Only three of the respondents supplied information regarding the age distribution of their total agricultural loan volume. Two of the insurance companies interviewed did not grant loans to anyone under forty years of age. Another did not loan to anyone under forty years old unless a co-signature was obtained. Only 11 percent of the total agricultural loan volume of those who responded was comprised of farmers between the ages of 20 and 30 (Table XIV).

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[7] See Chapter II for specific information.

TABLE XIV

SUMMARY OF RESPONSES TO SELECTED QUESTIONS ASKED
LIFE INSURANCE COMPANIES, BY QUESTION

1. Types of Information Required, by Number of Respondents

Item	Yes	No	Total Respondents
Cash Flows			
Prepared Forms		5	5
Other Forms	2	3	5
Net Worth Statement	4	1	5
Operating Statement	4	1	5

2. Types of Services Provided, by Number of Respondents

Item	Yes	No	Total Respondents
Legal Advice	1	4	5
Insurance Planning	3	2	5
Farm Record Analysis	1	4	5
Tax Guidance		5	5
Financial Management		5	5

3. Average Age Distribution of Total Loan Volume (in Percent)

Age Group	Percent
20-25	4
26-30	7
31-35	20
36-50	38
51-60	23
over 60	8

4. Hierarchy of Borrower Characteristics (from highest to lowest)

Rank Order	Item	Average Rating
1	Managerial Ability	96
2	Desire to Farm	90
3	Character	86
4	Farming Experience	84
5	Net Worth	83
6	Credit Rating	59
7	Financial Situation of Parents	58
8	Education	55
9	Personality	29

The discussion above regarding interest rate levels, length of loans, equity requirements, and age distribution reinforce the contention that insurance companies are not viable sources of credit for beginning farmers. Some of the respondents admitted they were not capable of helping a young farmer. One representative claimed his company's interest rate was raised to such a high level that he did not expect to make any farm real estate loans whatsoever. Another company had established a loanable minimum of $250,000. Virtually all of the respondents assessed prepayment penalties for any repayment made prior to the scheduled commitments or maturity of the loan.

Special Policies for Beginning Farmers

Each of the institutional lenders (excluding insurance companies) was asked to delineate any special policies used to provide financing for low resource, beginning farmers (Appendix B, Section A). Some respondents required lower margins of collateral while others utilized the typical participation loans with other lenders. One PCA attempted to make 5 to 10 loans annually to beginning farmers. Whether or not preferential treatment was given a beginning farmer applicant largely depended upon the individual lender representative.

Suggestions to Beginning Farmers

Commercial banks, FLBA's, FHA, PCA's, and private lenders were asked to specify any suggestions they had for a prospective entrant into agriculture. A summary of the responses is presented in Appendix B, Section B however, most of the suggestions fell within four general categories:

1. Accumulate savings through off-farm employment and/or start small by gradually building equities in cattle, machinery, and other non-land capital items.
2. Keep an excellent set of records.
3. Be adequately prepared when visiting a lender to apply for agricultural loans.
4. Seek the assistance of an established operator or attempt to move into an existing operation with an older farmer who will soon retire.

Attitudes Regarding Other Lenders

Each of the five lenders referred to in the preceding section were asked to relate their opinions of other selected lenders regarding their efforts and abilities to provide financial assistance to low resource, beginning farmers. Commercial banks and FHA received more favorable responses than did the other lenders. Insurance companies and the Oklahoma School Land Commission were the subjects of more criticisms than other lenders. Nevertheless, all selected lenders received both complimentary and critical reactions. A summary of the responses is presented in Appendix B, Section C.

Additional Comments

One important aspect of these questionnaire data merits additional discussion. This survey portion of the study and its ultimate results are the reflections of a group of human individuals. Although the average empirical results tend to erase the personal philosophies and attitudes of lender representatives toward potential farmer-borrowers,

these qualities are not without deserving significance. Consistencies and inconsistencies have materialized which might induce disputing claims as to their collective logic. For example, PCA's were found to charge basically the same interest rates regardless of the loan type. In contrast, no similarly consistent relationship existed regarding the amount of equity required for the various types of loans granted by PCA's. This is due to the probable subjectivity injected by each lender representative into each encounter with a credit-seeker. It ubiquitously relates to all representatives of financial institutions as well as private lenders.

The psychological environment cannot be easily segregated from the economic environs which surround each personal interaction in the credit transaction. As a result, two potential borrowers with virtually identical economic qualifications may receive completely different financing arrangements from the same lender representative. At the extremes, one may be extended credit while the other may be denied. Such differential treatments may stem from seemingly insignificant items such as physical appearance, first impressions, religious preferences, differing values or any of an infinite number of other items which may relate to both the lending representative and the applicant.

The subjective viewpoints and individual biases cannot be removed from lender-applicant confrontations. An acknowledgement of their existence, however, does explicate the occasional disparities and inconsistencies regarding financial terms extended to all potential debtors, especially low resource, beginning farmers.

CHAPTER V

ASSUMPTIONS, DATA, AND RESULTS OF THE MINIMIZATION MODEL

The operational model used to estimate the minimum resource requirements in each area for a specified income level is presented in this chapter. Results obtained via the linear programming minimization model are applicable only if the objectives, restrictions, and technical and economic coefficients used are relevant and realistic. The major problems and procedures for specifying model attributes and securing the relevant coefficients for the model are discussed in the remainder of the chapter.

The problems inherent in the type of analysis used are:

(1) determining the resource to be minimized,

(2) defining the land resource base and its composition,

(3) determining what management level, technology level, and input-output relationships to use,

(4) specifying the non-land resource restrictions relevant to the areas of study,

(5) selecting the relevant crop and livestock production alternatives for each area,

(6) choosing input and output prices, and

(7) specifying the target income level.

Resource to be Minimized

Because this study is concerned with financial alternatives and their useful applications, capital amounts needed to attain a specified income level are of paramount importance. Total capital was selected as the resource to be minimized with the following justifications:

(1) satisfying capital requirements constitutes the major barrier to entry for potential farmers.

(2) capital requirements vary from area to area, given relevant input-output relationships, and need to be identified for each area, and

(3) determination of capital needs is requisite to selecting representative farm sizes for use in the financial analysis.

Land Resource Situations

Land is assumed to be a variable resource which can be added in completely divisible and homogeneous units. The compositions of the average or representative units of land for the five areas are presented in Table XV. Relative differences in the cropland and pastureland constituents reflect combinations considered representative of existing situations.

The percentage of each representative unit of land considered to be cropland was determined by investigating actual situations in each area as depicted in the 1969 Agricultural Census. Similar means were used in estimating the composition of an average unit with respect to native pasture, improved pasture and woodland pasture. Additional adjustments were included to reflect the type of operation for each area. For example, in the southcentral area a primarily crop

TABLE XV

LAND RESOURCE SITUATIONS ASSUMED IN THE AREAS OF STUDY

Item	Areas of Oklahoma				
	Northeastern	Southeastern	Southcentral	Northwestern	Panhandle
Cropland (percent)	50	60	80	70	60
Class A (percent of cropland)	60	33	50	43	50
Class B (percent of cropland)	40	67	50	57	50
Pastureland (percent)	50	40	20	30	40
Pastureland (AUM's/ representative acre	.21	.40	.21	.18	.24
Land Price ($ per acre)	335	235	250	230	350
Rental Rates ($ per acre)	23.58	9.88	14.00	7.46	19.92

farm was desired. Thus, the proportion of each representative unit of land devoted to cropland is much greater than for any of the other areas of study. The amounts of grazing provided by each of the types of pastureland (e.g. native and wooded) were determined by applying estimated livestock carrying capacities to the percentage compositions.

Each of the five study areas is characterized by relatively different land resource situations. The various published enterprise budgets used for each area contain yield adjustments for several soil complexes; however, two soil qualities were distinguished in this study, Class A and Class B. The relative proportions of upland and bottomland cropland, native and imporved pasture, and irrigated land relevant to the representative farm in each area were of primary concern.

Class A land was considered bottomland in four of the five areas. In the panhandle area, however, Class A refers to cropland upon which surface irrigation is practiced. In the northwest Oklahoma area Class A land denotes clayey soils. In general, the Class A land resource classification was used to account for those types of cropland which, under proper management, ahve the potential of producing relatively higher yields than Class B land.

Class B land is defined as being those tillable acreages on the uplands in the eastern and southeastern areas. In the southcentral and northwestern areas it includes those soils typically considered to be more sandy and producing relatively lower yields than Class A land. In the panhandle region, Class B land is simply dryland cropland.

Included in Table XV are the amounts of native grazing provided by each representative acre of land, expressed in terms of animal unit

months. For example, in the northwestern area the annual carrying capacity of native pastureland is assumed to be 20 acres per cow unit. Therefore, each full acre of native pasture supplies 0.6 AUM's of grazing. However, since native pasture constitutes only 30 percent of each representative unit of land, only 0.18 AUM's are provided by each incoming acre.

The land prices per acre ranged from $230 in the northwest region to $350 in the panhandle area. These values were intended to reflect the market value of each representative unit of land in the respective areas. These were based on 1969 U.S. Census data updated by adding to each the total appreciation of land values in the area for the years 1970 through 1974 [13].

The rental rates for each area are also included in Table XV. They ranged from $7.46 per acre in the northwestern area to $23.58 in the northeastern area. These rates are based on a previous study [1] and represent the landlord's net return to overhead, land, risk, and management for a representative unit of land in each area.

Management, Technology, and Input-Output Relationships

Input-output coefficients used in the enterprise budgets are based upon advanced technologies relevant to each area. The coefficients reflect the production methods and managerial techniques used by the better farmers in each area. All the input-output relationships

used are the result of crop and livestock budgets previously constructed for the area in question.[1]

Non-Land Resource Restrictions

Labor

Twenty-five hundred hours of annual operator labor were assumed available in each area. This amount was distributed to four periods of 3 months each to reflect typical variations in farm labor requirements. In the first quarter (January through March) 475 hours were assumed available, 700 hours in the second quarter, 750 hours in the third, and 575 hours in the fourth. The smaller number of hours assigned to the first and fourth periods are indicative of the shorter working days in those periods. Also, the amount of available labor for the first quarter was selected to provide for a two-week vacation by the operator. Additional labor could be hired in each period as needed for $2.00 per hour.

Capital was assumed to be a variable resource that could be borrowed without limit so long as returns to the firm were greater than or equal to its cost. The basic capital costs used in the minimum resource model were 8.5 percent for short term and intermediate term capital and 7.5 percent for long term capital. These rates were determined by averaging the normal interest charges assessed by lenders as revealed in Chapter IV.

Short term capital includes the capital charges for operating inputs

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[1] See [22], [24], [27], [18], and [47], for the published budgets for each area.

adjusted for the actual length of time and money is borrowed and is expressed in terms of annual capital. Intermediate term capital refers to capital investments for tractors, machinery, equipment, livestock, and irrigation equipment as set forth in the enterprise budgets. Long term capital charges are composed of investments in land only.

Production Alternatives

The alternative crop and livestock enterprises selected were limited to those which can be produced efficiently in each area. The enterprises excluded were considered too highly specialized within the context of this study. A summary of each of the budgets used is presented for each area in Tables XLIII through XLVII.

Crop Alternatives

The crop enterprises selected included grain sorghum, wheat, alfalfa, sudan, barley, soybeans, rye, and corn. Pasture alternatives included native and improved pastures, forage sorghums, and small grain grazing, depending upon their relevance to the specific area. Grain sorghum, wheat, and similar alternatives also produced limited amounts of grazing to the extent pasturing did not interfere with grain or hay production. Grazing production in the various enterprises was separated into three categories (1) native and improved pasture, (2) winter small grain, and (3) spring small grain.[2]

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[2]Winter small grain grazing included small grain pasture available November 15 to March 15. Spring small grain grazing included small grain pasture available March 15 to May 31.

Restraints were included to control the levels at which some of the crop alternatives could enter optimal solutions in three of the models. In the northeastern Oklahoma area the wheat and soybeans doublecrop alternative was confined to 75 percent or less of the upland cropland available. This was done because in only 3 of 4 years do weather conditions permit doublecropping.[3] Also, 0.3 of each incoming representative unit of land was assumed already devoted to some type of bermuda pasture enterprise. In the southeastern area alfalfa was limited to 50 percent or less of the Class A land (bottomland). In the southcentral area grain sorghum was restricted to a maximum of 50 percent of the Class B land (upland) and soybeans were confined to no more than 50 percent of the Class A land. No restraints were placed on crop alternatives in the northwestern and panhandle regions.

Livestock Alternatives

Livestock alternatives were limited to beef cow herds and selected stocker-feeder systems. Other livestock -- dairy, sheep, poultry, swine -- enterprises were not considered admissible alternatives. The cow-calf systems emphasized alternative calving dates, wintering programs, and selling dates. The selected stocker-feeder enterprises accentuated various buying dates, feeding systems, and selling dates commensurate with grazing provided by pasture alternatives.

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[3] Extension farm management personnel in this area contend that only 3 of 4 doublecrops are harvested due to climatic variations which effect seeding and harvesting.

Input Prices

The input prices used to revise the previously constructed enterprise budgets are shown in Table XVI. These prices were determined through contacts with Oklahoma State University extension farm management personnel, various merchants and dealers, and other researchers. The input costs approximate prices paid by farmers in the five areas of study.

Output Prices

To observe the effects of various market situations upon entry, three output price levels were selected for each of the crop and livestock enterprises that produced marketable outputs.[5]

Crops

The prices of crops produced for sale were determined by their historical relationships to the price of wheat. For example, the average price of corn during crop years 1963 to 1973 was 84 percent of the average price of wheat for the same period. Similar relationships for all crops -- excluding grain sorghum, soybeans, silage, and alfalfa hay -- were determined based on average prices for the 1963-1973 period.

The prices determined for some crops were greatly over-estimated when based on their relationships to average wheat prices during the 1963-1973 period. Because they were considered unrealistic, an

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[5]The outputs of enterprises such as small grain graze-out were used internally in the models for livestock production.

TABLE XVI

ASSUMED PRICES PAID FOR SELECTED INPUTS IN THE FIVE AREAS OF STUDY

Item	Units	Price
Plant Seed		
Soybean Seed	BU.	8.50
Barley Seed	BU.	3.30
Oats Seed	BU.	2.75
Milo Seed	LB.	.30
Wheat Seed	BU.	6.00
Ryegrass Seed	LB.	.28
Sudan Seed	LB.	.22
Alfalfa Seed	LB.	2.00
Rye Seed	CWT.	7.00
Grass Seed	LB.	.20
Lovegrass Seed	LB.	2.00
Corn Seed	LB.	.52
Silage Seed	LB.	.52
Fertilizers		
Nitrogen		
Dry	LB.	.25
Anhydrous Ammonia	LB.	.14
Phosphate	LB.	.21
Potash	LB.	.08
Lime	TON	6.00
Chemicals		
Herbicide	ACRE	6.25
Parathion	ACRE	3.00
Atrazine	ACRE	7.50
2-4-D	ACRE	1.75
Insecticide	ACRE	2.20
Insecticide - Irrigated Land	ACRE	8.00
Herbicide - Irrigated Land	ACRE	5.63
Miscellaneous - Crop budgets		
Trucking	BU.	.10
Custom Combining	ACRE	8.00
Trucking - Milo	CWT.	.17
Custom Combining - Corn	BU.	.18
Fertilizer Spreader Rental	ACRE	1.00
Sprayer Rental	ACRE	3.25
Hay Harvesting Expense	TON	14.00
Hay Hauling	TON	6.00
Hay - Miscellaneous Expense	ACRE	3.25
Miscellaneous - Livestock Budgets		
Creep Feed	LB.	.07
Starter Feed	CWT.	6.75
20% Protein Suppl.	LB.	.075
44% Protein Suppl.	CWT.	9.00
Salt and Minerals	LB.	.04
Vet. and Med.	AU.[A/]	3.00
Personal Taxes	AU.	3.00
Livestock Supplies	AU.	3.50
Replacement Bull	AU.	6.00
Hauling and Marketing	AU.	5.00
Sales Commission	HD.	3.50
Trucking	CWT.	.25

[A/] AU - Animal Unit or Cow Unit.

adjustment was imperative. Grain sorghum and soybean prices were adjusted by using average prices for crop years 1955 to 1973. Corn silage and alfalfa hay prices were selected independent of their historical relationships to wheat prices. The prices for other types of hay were based on their relationships to the average alfalfa hay price during the 1963-1973 period.

The three wheat prices used were $2.05, $3.00, and $4.75 per bushel. These were intended to reflect low, average, and high levels of market prices, respectively. Subsequent to determining each of the output prices, they were adjusted for seasonal price fluctuations by applying to each the pertinent seasonal index for the month of sale specified in each budget [8]. These adjusted prices were typically lower than the prices shown in Table XVII because of the assumption inherent in each budget that outputs are sold at the time of harvest.[6]

Livestock

The prices for the types of livestock production specified in each budget were all based on the average prices for the 1966-1973 period. Analogous to the procedure for determining crop prices, the prices for relevant weights and grades of livestock were based on historical relationships to the prices of 300-500 lb. choice steers. For example, the average annual price for 500-800 lb. choice steers in the period 1966-1973 was 88 percent of the average annual price for the 300-500 lb. choice stocker steers during the same years.

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[6]The month of sale is usually characterized by lower prices relative to the prices in other months.

TABLE XVII

ASSUMED PRICES RECEIVED IN THE STUDY AREAS

Item	Units	Percent of Base[a]	Price Level		
			Low	Average	High
Crops					
Wheat	BU.	100	2.05	3.00	4.75
Rye	BU.	66	1.35	1.98	3.13
Corn	BU.	84	1.72	2.52	3.99
Oats	BU.	47	.96	1.41	2.23
Barley	BU.	60	1.23	1.80	2.85
Milo	CWT.	112	2.30	3.36	5.32
Soybeans	BU.	150	3.08	4.50	7.13
Alfalfa	TON	N/A	32.00	45.00	65.00
Other Hay[b]	TON	82	26.14	36.77	53.12
Silage	TON	N/A	6.75	9.90	15.67
Livestock					
300-500 lb. Steers[c]	CWT.	100	25.00	32.50	42.50
300-500 lb. Heifers	CWT.	85	21.25	27.63	36.13
500-800 lb. Steers	CWT.	88	22.00	28.60	37.40
500-800 lb. Heifers	CWT.	79	19.75	25.67	33.57
800-1000 lb. Steers	CWT.	81	20.25	26.33	34.43
Cutter Cows	CWT.	52	13.00	16.90	22.10
Cutter Bulls	CWT.	64	16.00	20.80	27.20

[a] Bases are (1) wheat for the crops specified and (2) 300-500 lb. steers for the livestock budgets.

[b] The prices for other hay are 82% of the selected alfalfa price.

[c] Those prices were also used to determine the costs of purchasing stocker calves.

The three prices per hundredweight for 300-500 lb. choice steers used were $25.00, $32.50, and $42.50. Similar to the crop situations, these prices were selected to indicate low, average, and high levels of market prices, respectively. All steer and heifer prices determined were seasonally adjusted to reflect the effects of seasonal price fluctuations at the time of marketing [25]. The prices for cull (cutter) cows and cull (cutter) bulls were not seasonally adjusted, but used as shown in Table XVII. The average or middle product prices for both crops and livestock were used in the minimization models for the study areas to determine representative farm sizes. The low and high levels of product prices are used in the maximization models to be discussed in Chapter VI.

Target Income Selection

A major consideration in any minimum resource study is that of selecting an appropriate level of income to attain. Brewster contended that the most appropriate income level would be "....industrial worker earnings adjusted for differences in the purchasing power of money, cost of living, and values of non-money income items so that any given level would represent equivalent quantities of want-satisfying goods in both farm and nonfarm modes of life [11, p.97]." This precludes the selection of an income identical to that of factory workers because it would not necessarily equalize real incomes between farming and nonfarming. Therefore, the differences pointed out by Brewster in the form of items such as lower rural housing costs and farm produced foods must be accounted for.

The average annual earnings per employee in various selected industries are shown in Table XVIII for Oklahoma in 1973. The average annual earning ranged from $4,133 for the apparel products industry to $10,426 for the contract construction group. The average wage per full-time employee in manufacturing was $7,391. These earnings reflect varying skills and training required in the various industries.

It was imperative that an income level be selected which was comparable to that of the average nonfarm worker after adjustments for differences similar to those indicated above were accounted for. Thus, the level of income to operator labor, management, and risk assumed for this study was $7,000.

Unallocated Overhead Costs

Some farm costs are virtually independent of farm size and capital requirements and cannot be attributed to the production of any specific enterprises. Costs such as hay storage, fencing, building depreciation, and machinery ownership costs are included in the enterprise budgets and the total costs vary with the farm size and amounts of enterprises. Total real estate taxes also vary with the farm size. Cash outlays for insurance, bookkeeping, tax service, telephone use, and farm pick up expenses cannot be precisely allocated to specific enterprises. These unallocated overhead costs per farm were assumed to be $1,000 for this study and were added to the specified income level for each area.

TABLE XVIII

AVERAGE ANNUAL EARNINGS PER FULL-TIME EMPLOYEE FOR SELECTED INDUSTRIES IN OKLAHOMA, 1973[a]

Type of Industry	Average Annual Earnings[b]
Selected Industries	
Manufacturing	7,391
Petroleum Refining	10,263
Primary Metals	8,405
Machinery (except electrical)	7,863
Fabricated Metals	7,354
Printing and Publishing	7,900
Stone, Clay, and Glass Products	7,858
Food and Kindred Products	7,200
Apparel Products	4,133
Wholesale Trade	7,375
Oil and Gas Mining	8,750
Contract Construction	10,426
Retail Trade	5,587

a/ Average annual earnings are calculated by multiplying average weekly earnings times 50 weeks.

b/ Oklahoma Employment Security Commission, Research and Planning Division, Handbook of Oklahoma Employment Statistics, Revised Data Thru 1973, Oklahoma State Employment Service (Oklahoma City, June, 1974)

Minimum Resource Requirements for the Areas of Study

Preliminary programming with average product prices indicated that infeasible solutions would be obtained in some of the areas. That is, with the predetermined costs and returns in each model, no farm size could be obtained which yielded the specified income level. For this reason, and to determine the sensitivity of the models for each area to the level of long term borrowing costs, a programming routine was utilized which varied the long term interest rate in 0.5 percent increments, ranging from 0 to 10 percent. This permitted an analysis of the levels of long term capital costs which rendered the solutions infeasible. It also provided varying combinations of minimum capital requirements -- farm sizes for each additional increment of interest rate. The amounts of short term, intermediate term, long term, and total capital required for each long term interest rate level, as well as the associated farm sizes are presented by area in Appendix C. These various capital amounts and farm sizes are discussed by area in the remainder of this section.

Northeastern Area

The operational model for this area was one which yielded an infeasible solution with the 7.5 percent long term interest rate. When the interest rate was varied from 0 to 10 percent, feasible solutions were obtained so long as the rate did not exceed 6.5 percent. The total capital requirements and the related farm acreages are shown graphically in Figure 7. This diagram -- as well as those for the other areas-- presents the capital amounts and farm sizes required

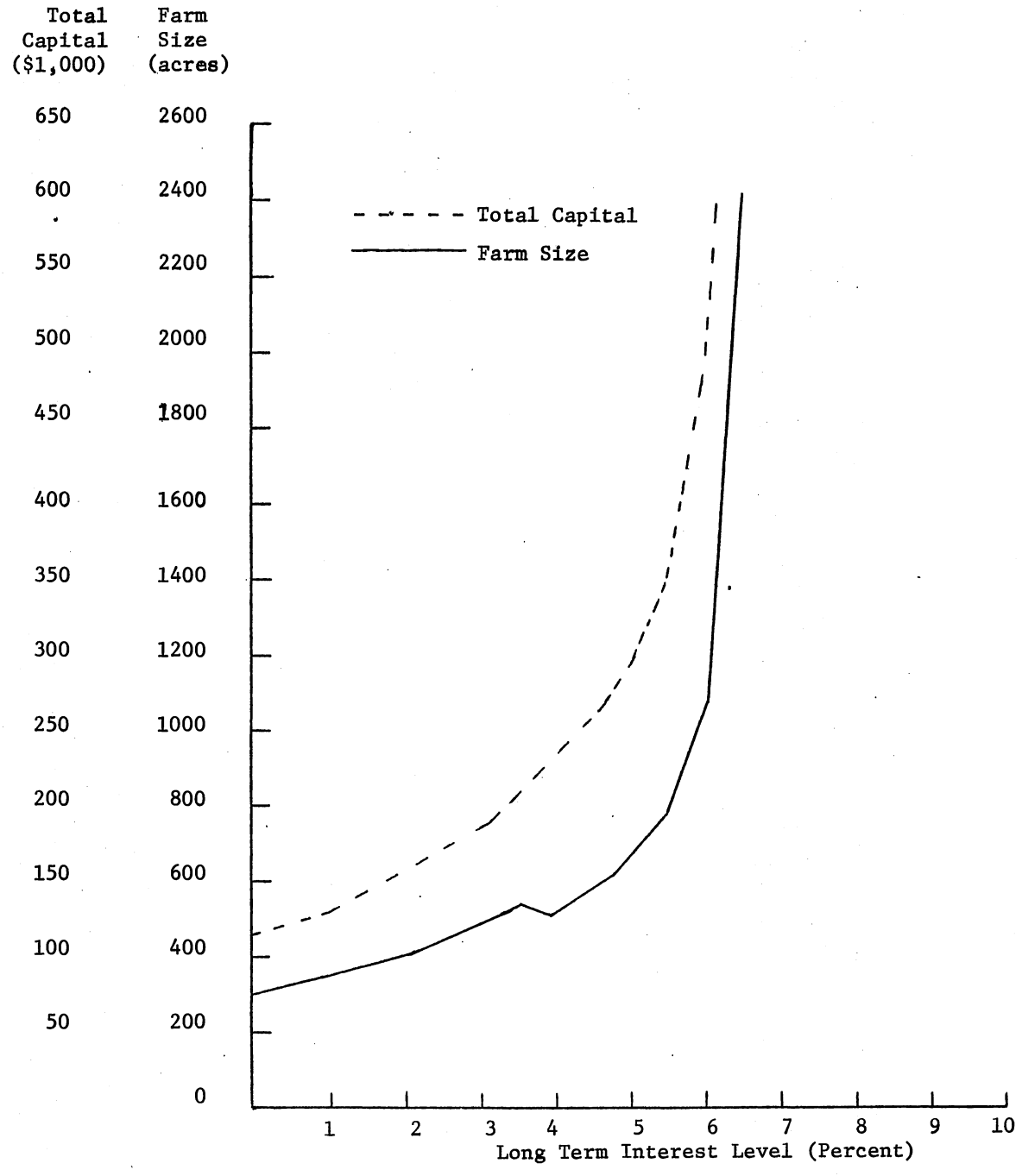

Figure 7: Minimum Capital Amounts and Farm Acreages Required to Obtain a $7,000 Return with Variable Long Term Interest Rates, Northeast, Area of Oklahoma.

for each level of borrowing cost. For example, at the 2 percent long term interest fate in Figure 7, a farm size of approximately 400 acres and total capital amounts of approximately $150,000 were required to obtain the target income level.

The total capital requirements increased at an increasing rate with additional increments of interest. The capital amounts ranged from approximately $115,000 with zero percent interest to slightly more than $1 million at 6.5 percent. Farm size increased with additional interest increments with the notable exclusion of the acreage obtained at the 4.0 percent interest rate. At this point, a cow-calf livestock enterprise became profitable and entered the optimal solution as shown in Table XIX. Because this type of enterprise is land intensive, land requirements were reduced. That is, given this interest rate, a relatively smaller farm size was required to obtain the $7,000 income target. Total capital requirements increased at this point because of the increased intermediate capital requirements which more than offset the reduced long term capital requirement. Throughout the range of interest rates which resulted in feasible solutions, farm sizes increased from almost 300 acres to 2400 acres.

The ultimate purpose for using minimum resource models is to select representative farm sizes. The selected acreages may then be used in profit maximization models to determine the effects of selected variables upon the feasibility of accomplishing entry. The farm acreage obtained at the 5.5 percent interest rate -- 772 acres -- was selected as the representative farm size for this area. Although the selection was based on subjective analysis, it is justifiable. That is, as interest rates increased, capital and land requirements typically

TABLE XIX

ESTIMATED RESOURCE REQUIREMENTS TO OBTAIN A $7,000 RETURN TO OPERATOR LABOR, MANAGEMENT, AND RISK: SELECTED REPRESENTATIVE FARM SIZES, FIVE AREAS OF OKLAHOMA

Item	Units	Areas of Oklahoma				
		Northeast	Southeast	South Central	Northwest	Panhandle
Total Land	Acres	772	906	1,193	1,346	272
Cropland						
Soybeans - A	Acres	232	91	239		
Soybeans - B	Acres	232				
Wheat - A	Acres			130	404	
Wheat - B	Acres			227		
Wheat and Soybeans	Acres	116				
Milo - B	Acres		362	239	533	
Dryland Milo	Acres					81
Irrigated Corn	Acres					81
Bonel Rye	Acres			15		
Fescue and Bermuda	Acres	232				
Bermuda Loose Hay	Acres			11		
Sudan Hay	Acres				5	
Alfalfa Hay	Acres		91	93		
Livestock Activities						
Fall Cow-Calf	Animals	144				
October-August Steers	Animals			62		
March Steers	Animals			171	107	
May Steers	Animals	21		74		
October-October Steers	Animals				58	
Summer Steers	Animals					27
Operator Labor Required						
First Quarter	Hours	475	451	475	447	75
Second Quarter	Hours	700	700	700	511	378
Third Quarter	Hours	698	423	750	434	241
Fourth Quarter	Hours	352	96	373	229	61
Hired Labor	Hours	250	150	50		
Total Capital Requirements	Dollars	348,081	253,439	370,460	352,774	112,357
Short-term	Dollars	19,628	6,808	2,312	11,578	3,758
Intermediate-term	Dollars	69,908	33,748	48,633	31,299	13,563
Tractor Investment	Dollars	5,612	15,777	18,672	16,543	4,834
Equipment Investment	Dollars	19,634	17,971	27,846	13,744	3,268
Machinery Investment	Dollars	3,118		2,116	1,012	125
Livestock Investment	Dollars	41,544				
Irrigation Investment	Dollars					5,336
Long-term	Dollars	258,543	212,884	298,183	309,690	95,036
Returns to Operator Labor, Management, and Risk	Dollars	7,000	7,000	7,000	7,000	7,000

increased at an increasing rate. Thus, to realize the last few $1,000 of the income target -- when considering a profit maximization model -- land and capital requirements may increase by extraordinary, and often unreasonable, amounts. Therefore, subjective judgment was used in selecting farm size to make the income goals reasonably attainable.

Two eventual implications of selecting a farm size associated with a long term interest rate below that specified in the original model should be acknowledged. First, if a $7,000 target income is to be obtained, a 27 percent owner equity is implied, given the 5.5 percent interest rate, because the 5.5 percent rate is approximately 27 percent less than the 7.5 percent interest rate contained in the initial model. A lower interest rate may also be interpreted as an indication of reduced rental costs per acre.[7] Second, when this farm size is selected and eventually used in a profit maximizing model with the initial model costs and returns -- including the 7.5 percent long term interest rate -- the resulting net income will be less than $7,000. This implies an operator who is willing to accept less than an opportunity return for his owned capital, labor, management, and risk.

Southeastern Area

The minimization model for this area yielded feasible solutions for long term interest rates ranging from zero to 9.5 percent. The short, intermediate, and long term capital requirements increased as each increment of long term interest was included. As shown

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[7]This assumes (as discussed in Chapter II) that long term interest costs plus taxes on investment are comparable to land rental costs.

in Figure 8, the total capital requirements ranged from approximately $80,000 at zero percent interest to approximately $630,000 at 9.0 percent. Farm sizes ranged from almost 300 acres with no long term borrowing cost to almost 2300 acres with a land charge of 9.0 percent. The total capital requirements and farm sizes needed to obtain the target income with the 9.5 percent long term capital cost are not shown in Figure 8 because of their extraordinary amounts.

The total capital requirements and their associated farm sizes increased at comparable increasing rates as additional increments of long term interest were included. That is, at each interest level the slopes of the total capital curve and the farm size curve in Figure 8 are approximately equal. The representative farm size selected for this area -- 906 acres -- was that obtained with the 7.5 percent land capital borrowing cost. This interest rate is the same as that specified in the initial model and thus implies zero operator equity or full land rental charges. The optimal enterprise combinations are presented in Table XIX.

Southcentral Area

Feasible solutions were obtained in the minimization model for this area for long term interest rates ranging from zero to 8.5 percent. Total capital requirements and farm acreages increased at increasing rates with additional increments of long term interest as shown in Figure 9. Unlike the situation depicted in Figure 8, however, the rates of increase were not similar. This is due to changes in the optimal enterprise combinations as the long term borrowing cost was increased.

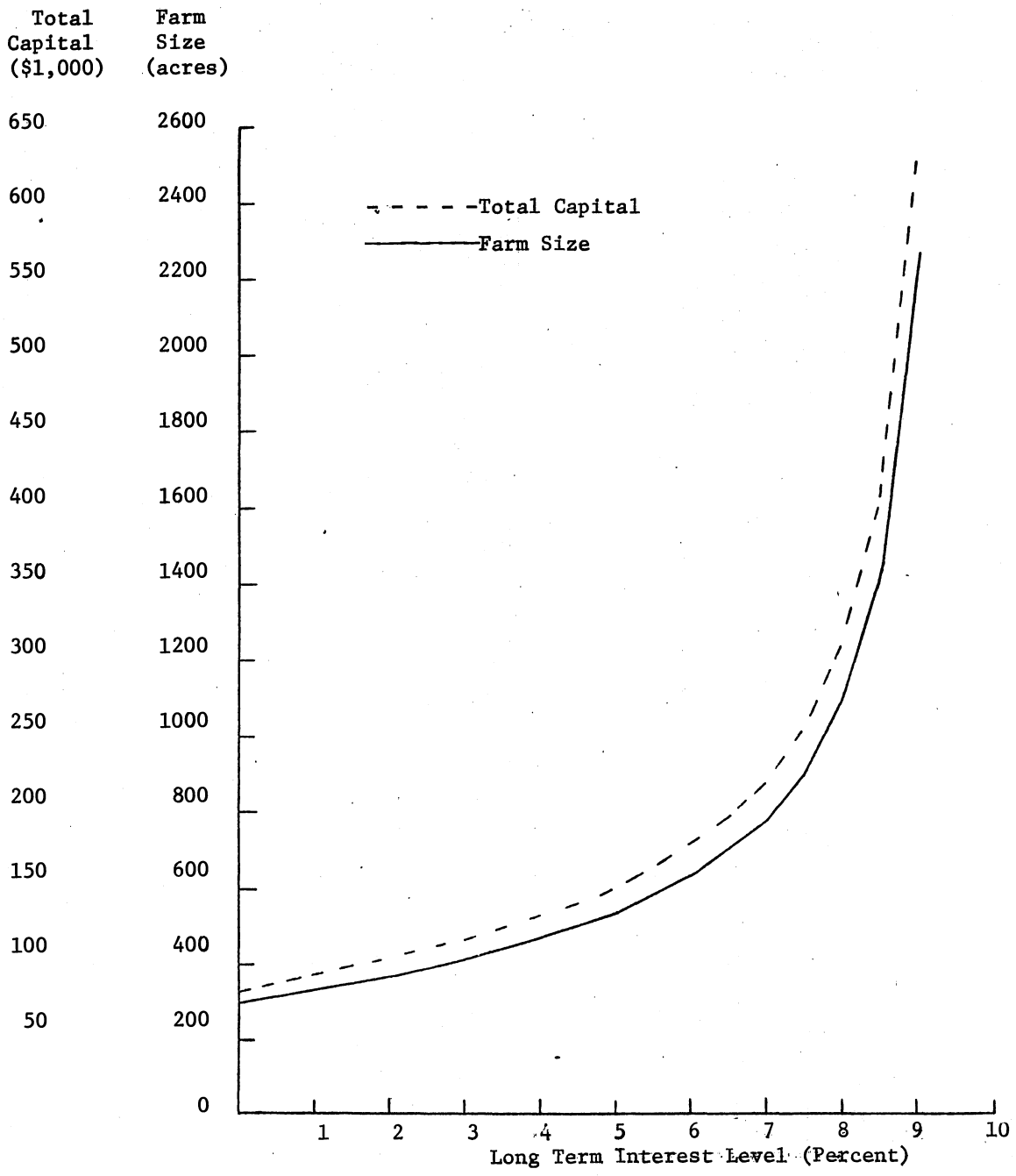

Figure 8: Minimum Capital Amounts and Farm Acreages Required to Obtain a $7,000 Return With Variable Long Term Interest Rates, Southeast Area of Oklahoma.

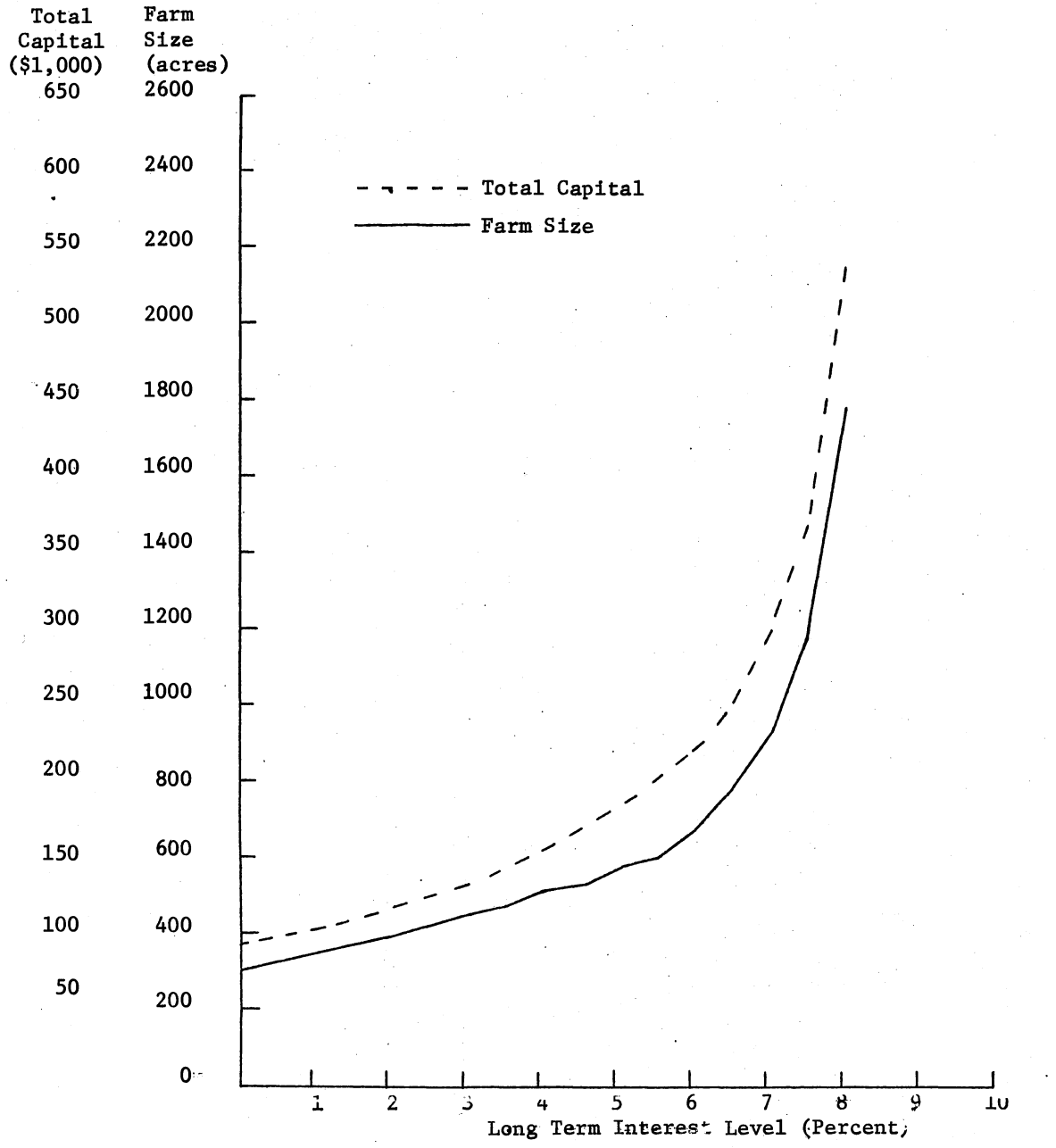

Figure 9: Minimum Capital Amounts and Farm Acreages Required to Obtain a $7,000 Return With Variable Long Term Interest Rates, South Central Area of Oklahoma.

These changes -- to relatively land intensive activities -- are reflected in the varying amounts of short and intermediate term capital required.

The representative farm size selected -- 1193 acres -- was that associated with the minimum capital requirements for a 7.5 percent long term interest rate. Higher levels of land capital borrowing costs increased total capital requirements and farm sizes by extraordinary amounts. For example, an additional 0.5 percent increment -- to 8.0 percent -- increased the total capital requirements by over $150,000, and the related farm size increased almost 600 acres. The number of acres of grain sorghum in the optimal solution for this farm size (as shown in Table XIX) required a restriction in addition to the one presented for the minimization model. This adjustment and its effects on net income will be discussed in the following chapter.

Northwestern Area

The initial model for this area yielded an infeasible solution. Feasible solutions were obtained, however, when the long term interest rate was varied from zero to 7.0 percent. The short, intermediate, and long term capital requirements increased as each additional increment of interest was included within this range. The total capital requirements and farm acreages increased at approximately equal rates as shown in Figure 10.

The representative farm size selected for this area consisted of 1346 acres. This acreage was that obtained with a 5.5 percent land capital borrowing cost -- which was approximately 27 percent less than the initial model interest rate of 7.5 percent. As in the northeastern area, this selection implies either a 27 percent operator equity in

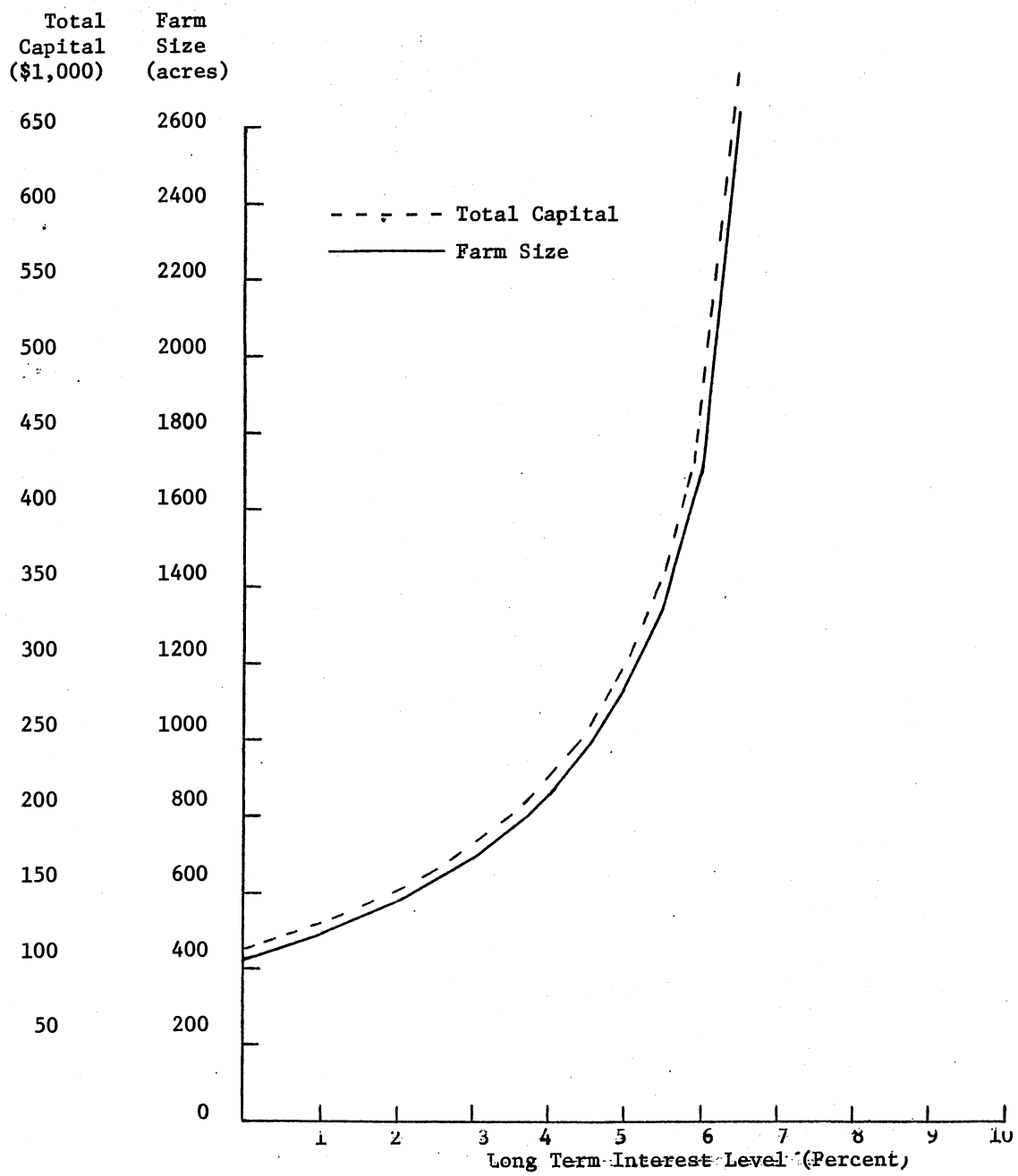

Figure 10: Minimum Capital Amounts and Farm Acreages Required to Obtain a $7,000 Return With Variable Long Term Interest Rates, Northwest Area of Oklahoma.

land or lower rental rates per unit. An increase in the long term interest rate to 6.0 percent increased the associated farm size to over 1700 acres. The 7.0 percent interest level (not shown in Figure 10) yielded a farm size of almost 36,000 acres and a total capital requirement of over nine million dollars. The minimization model for this area was significantly more sensitive to changes in the long term interest rate than the models for the other areas of study.

Panhandle Area

Feasible solutions were obtained in the initial model for this area and when the long term interest rate was varied from 0 to 9.5 percent. The short, intermdediate, and long term capital requirements are presented in Table XIX. The total capital requirements and related farm sizes are shown graphically in Figure 11.

The sensitivity of the minimization model for this area to changes in the long term interest rate was markedly less than for the other areas, as depicted in Figure 11. The total capital requirements ranged from almost $60,000 at zero percent interest to almost $150,000 at 9.5 percent. Farm sizes ranged from almost 150 acres with no long term borrowing cost to slightly more than 350 acres with a 9.5 percent borrowing cost. Although the capital requirements and farm sizes increased at increasing rates -- with additional increments in the long term interest rate -- the rate of increase was much less than for the other areas of study. The representative farm size selected -- 272 acres -- was that obtained with the 7.5 percent interest level. Again, this implies zero operator equity and full land rental rates because the level of long term interest is equal to that used in the initial model.

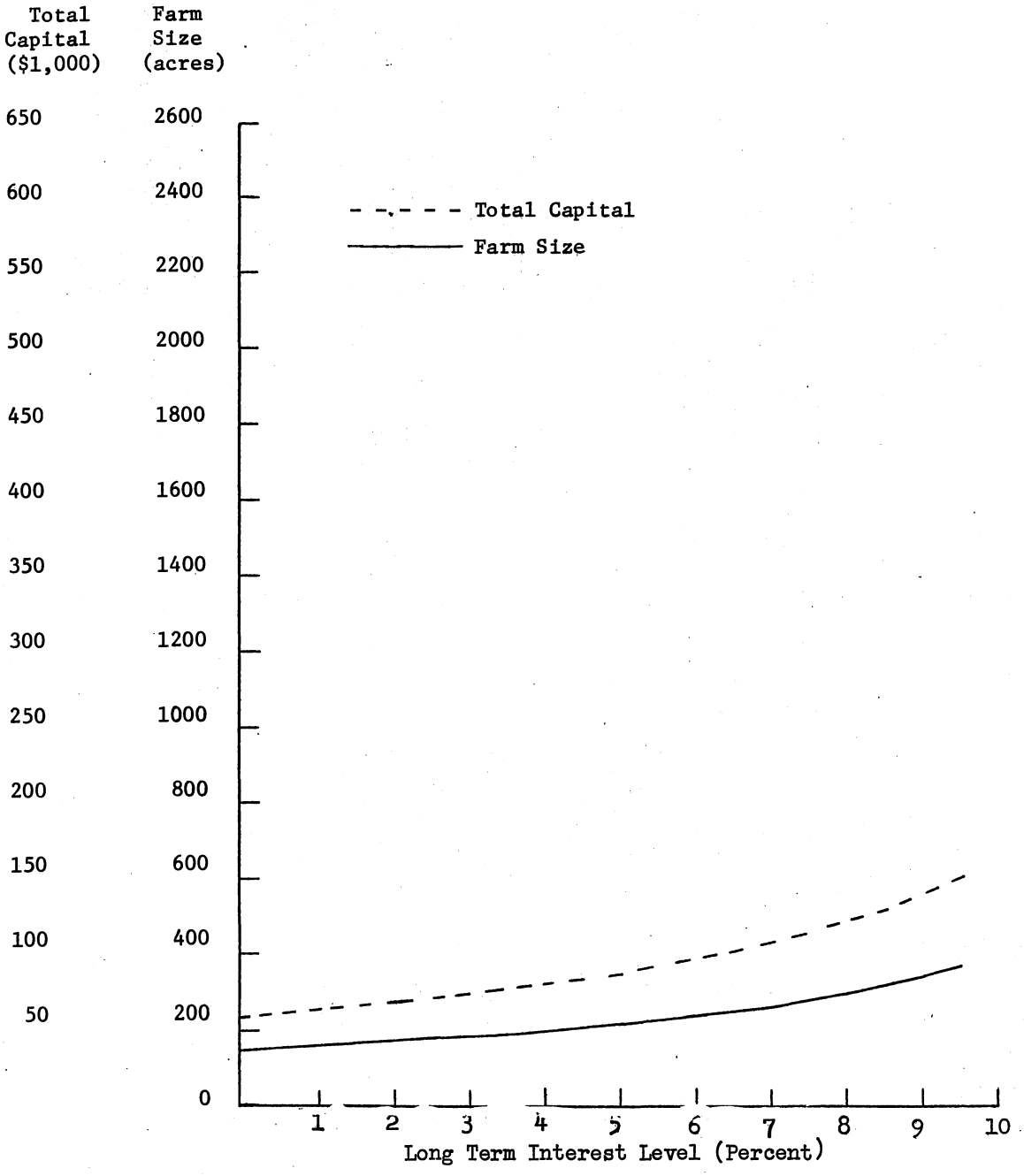

Figure 11: Minimum Capital Amounts and Farm Acreages Required to Obtain a $7,000 Return With Variable Long Term Interest Rates, Panhandle Area of Oklahoma

The estimated minimum farm sizes -- including the representative farm size -- appear to be much smaller than those typically found in the area. Concern was therefore felt as to the validity of the level of yields contained in each of the enterprise budgets, especially the crop budgets for this area. Consequently, a larger farm size was used -- in addition to that estimated via minimization -- in the profit maximization model presented in the following chapter to evaluate the effects on net returns.

As outlined in Chapter II, the optimal enterprise combinations obtained by minimizing total capital requirements will be biased toward enterprises which are capital extensive. Consequently, activities which could potentially furnish greater net returns may be excluded if their capital requirements are somewhat high. Assuming that the operator attempts to obtain the maximum net returns to his labor, management, and risk, it becomes necessary to estimate the capital requirements in a profit maximization framework. Thus, the representative farm sizes presented in Table XIX which were determined via the minimization models for each area will be evaluated in a profit maximizing analysis. The capital requirements and returns estimates so derived are used to determine the implications for first year cash flows in the following chapter.

CHAPTER VI

MAXIMIZATION RESULTS AND FIRST YEAR CASH FLOWS

The preceding chapter described representative farm sizes associated with minimum capital requirements for the study areas, assuming average product prices. The purpose of this chapter is to examine the implications of (1) various price levels, (2) various equity-land rental situations, and (3) relevant financing alternatives, upon the first year cash flows of prospective entrants in the study areas. First, the optimum organizations for three price levels are presented and analyzed. Second, the analytical definitions and procedures are explained. Then, the total capital assets required, interest and principal payments, and total returns are presented along with residual returns for family living in each situation. Emphasis is placed on interpretation of opportunities for entry into farming in each situation.

Maximization Results With Varying Prices

Programming solutions were obtained in each area using the low, average, and high prices presented in Chapter V. The most important aspects of these solutions include (1) the optimal enterprise combinations, (2) the amounts of operator labor required, (3) the short, intermediate, and long term capital requirements, and (4) the returns to operator labor, management, and risk. The various capital amounts required are of extreme importance because they are requisite to the ultimate determination

of cash flows. Each of the four items will be discussed for each price level and each area in the remainder of this section.

Northeastern Area

A summary of the programmed solutions obtained for the three price levels in this area is presented in Table XX. The representative farm size (total land) is that selected via the minimization model presented in Chapter V. The levels of crop activities in the solution did not change with changes in the product price levels. The fescue and bermuda enterprise constituted 30 percent of the total land as dictated by the resource restrictions. Soybeans on both Class A and Class B soils, along with the wheat and soybeans double-crop enterprise, comprised the cropland activities. The livestock enterprises included May steers for each price level along with a fall cow-calf enterprise with average prices and a spring cow-calf enterprise with high price levels.

Operator labor requirements increased with each price level. Excess operator labor could have been used in off-farm employment to supplement income with low prices. However, hired labor was required in the first and second quarters with both average and high prices.

The short, intermediate, and long term capital requirements were greater with average prices than with the low or high price levels. This was due to the various levels and combinations of livestock enterprises for each price level. For example, the fall cow-calf enterprise in the solution for average prices increased the capital requirements relative to those for low price levels. The spring cow-calf enterprise in the solution with high prices resulted in capital requirements greater than those for the low price level and lower than those for the average

TABLE XX

ESTIMATED PROFIT MAXIMIZATION ENTERPRISE COMBINATIONS, LABOR AND CAPITAL REQUIREMENTS; VARIABLE PRODUCT PRICES, NORTHEASTERN AREA OF OKLAHOMA

Item	Units	Price Level		
		Low	Average	High
Total Land	Acres	772	772	772
Cropland				
Fescue and Bermuda	Acres	232	232	232
Soybeans-A	Acres	232	232	232
Soybeans-B	Acres	39	39	39
Wheat and Soybeans	Acres	116	116	116
Livestock Activities				
Fall Cow-Calf	Animals		144	
Spring Cow-Calf	Animals		0	108
May Steers	Animals	137	21	140
Operator Labor Required				
First Quarter	Hours	402	475	475
Second Quarter	Hours	642	700	700
Third Quarter	Hours	405	698	657
Fourth Quarter	Hours	209	352	416
Hired Labor	Hours		134	329
Short Term Capital	Dollars	17,875	19,634	24,258
Intermediate Term Capital	Dollars	20,099	69,929	58,535
Tractor Investment	Dollars	5,613	5,613	5,613
Equipment Investment	Dollars	13,772	19,640	18,733
Machinery Investment	Dollars	71	3,119	3,023
Livestock Investment	Dollars		41,556	31,165
Long Term Capital	Dollars	258,620	258,620	258,620
Total Capital	Dollars	296,595	348,184	341,414
Returns to Operator Labor, Management, and Risk	Dollars	-18,491	1,829	39,134

price level. The capital requirements for average prices in the maximization model were approximately equal to those obtained in the minimization model. The returns to operator labor, management, and risk ranged from -$18,491 with low prices to $39,134 with high prices. The returns for the average product price level were 1,829. The land capital cost in the profit maximization model was 7.5 percent. The income level is therefore less than that associated with the estimation of representative farm sizes, shown in Table XIX which was determined with a land capital cost of 5.5 percent for Northeastern Oklahoma.

Southeastern Area

Grain sorghum, soybeans, and alfalfa were the major crop enterprises in the optimal solutions for the area (Table XXI). The levels of each of these enterprises changed very little as product price levels increased. A spring cow-calf enterprise entered the solution with both average and high prices. No livestock enterprises were profitable in this area with the low price level.

Operator labor requirements increased with each increase in price level in this area. Off-farm employment could have been used in the third and fourth quarters to supplement operator incomes with each price level. Hired labor was required in the second quarter for each of the three price levels, and in the first quarter for the solutions with average and high prices.

The short and intermediate term capital requirements were slightly less for high price levels than for average price levels. This resulted from a change in the optimal enterprise combinations from 2 acres of bermuda hay and 360 acres of grain sorghum to 362 acres of grain sorghum

TABLE XXI

ESTIMATED PROFIT MAXIMIZATION ENTERPRISE COMBINATIONS, LABOR AND CAPITAL REQUIREMENTS; VARIABLE PRODUCT PRICES, SOUTHEASTERN AREA OF OKLAHOMA

Item	Units	Price Level		
		Low	Average	High
Total Land	Acres	906	906	906
Cropland	Acres	544	544	544
Grain Sorghum	Acres	362	360	362
Bermuda Hay	Acres		2	
Soybeans	Acres	91	91	91
Alfalfa	Acres	91	91	91
Livestock Enterprises				
Spring Cow-Calf	Animals		27	27
Operator Labor Required				
First Quarter	Hours	451	475	475
Second Quarter	Hours	700	700	700
Third Quarter	Hours	423	489	487
Fourth Quarter	Hours	96	149	148
Hired Labor	Hours	150	241	242
Short Term Capital	Dollars	6,809	8,495	8,424
Intermediate Term Capital	Dollars	33,752	43,610	43,476
Tractor Investment	Dollars	15,779	15,803	15,779
Equipment Investment	Dollars	17,973	19,351	19,228
Machinery Investment	Dollars		583	584
Livestock Investment	Dollars		7,873	7,885
Long Term Capital	Dollars	212,910	212,910	212,910
Total Capital	Dollars	253,471	265,015	264,810
Returns to Operator Labor, Management, and Risk	Dollars	-12,221	7,058	42,444

and no bermuda hay. That is, with high product prices it became more profitable to buy hay than to produce it. The returns to operator labor, management, and risk for the representative farm size area ranged from -$12,221 with low price levels to $42,444 using high price levels. Income is $58 above that estimated by the minimizing model result (Table XXI) because of inherent differences between the two models as described in Chapter II.

Southcentral Area

The optimal enterprise combinations underwent numerous changes as the levels of product prices were increased (Table XXII). The primary crops were wheat, grain sorghum, alfalfa, and soybeans. The feasible livestock activities consisted of stocker steer enterprises only. The operator labor requirements were lowest for the fourth quarter with each price level in this area. No hired labor was required with low product prices. However, 195 hours of hired labor were required with average prices and 1,874 hours of labor were hired in the solution for high prices. The total capital requirements increased as the price level increased because of changes in the optimal enterprise combinations. For example, with high product prices, alfalfa-- a capital intensive enterprise -- became more profitable than other crop activities.

The returns to operator labor, management, and risk ranged from -$20,841 to $62,959. The returns obtained with average product prices were not equal to that realized in the minimization, although the same long term interest rate was used. The difference is due to changes in model restrictions for the maximization model to depict more realistic conditions. That is, the levels at which grain sorghum entered the

TABLE XXII

ESTIMATED PROFIT MAXIMIZATION ENTERPRISE COMBINATIONS, LABOR AND CAPITAL REQUIREMENTS; VARIABLE PRODUCT PRICES, SOUTHCENTRAL AREA OF OKLAHOMA

Items	Units	Price Level		
		Low	Average	High
Total Land	Acres	1,193	1,193	1,193
Cropland	Acres			
Milo	Acres	119	119	119
Wheat-A	Acres	197	108	
Wheat-B	Acres		346	348
Alfalfa	Acres		123	477
Bermuda Hay	Acres	7	12	10
Soybeans	Acres	239	239	
Bonel Rye	Acres	41	8	
Livestock Enterprises				
October-August Steers	Animals		48	57
March Steers	Animals		251	203
May Steers	Animals	199	37	
Operator Labor Required				
First Quarter	Hours	426	475	283
Second Quarter	Hours	499	700	700
Third Quarter	Hours	326	750	750
Fourth Quarter	Hours	303	372	243
Hired Labor	Hours		195	1,874
Short Term Capital	Dollars	14,213	23,036	25,675
Intermediate Term Capital	Dollars	22,000	54,661	101,061
Tractor Investment	Dollars	11,555	20,609	28,123
Equipment Investment	Dollars	9,409	32,091	71,181
Machinery Investment	Dollars	1,036	1,960	1,756
Long Term Capital	Dollars	298,250	298,250	298,250
Total Capital	Dollars	334,463	376,432	425,377
Returns to Operator Labor, Management, and Risk	Dollars	-21,841	3,190	62,959

maximization solutions in preliminary programming were considered unrealistically high. As a result, grain sorghum was restricted to a maximum of 25 percent of the upland cropland, compared to the 50 percent maximum used in the minimization model. Because less profitable enterprises subsequently entered the solution, returns to operator labor, management, and risk were reduced by $3810.

Northwestern Area

The optimal enterprise combinations for this area were identical for both low and average price levels. Thus, operator labor and total capital requirements were also identical. A change in both crop and livestock combinations occurred when high price levels were introduced. Fifty acres of wheat were replaced with 50 acres of alfalfa; and the number of March steers decreased from 107 to 94 (Table XXIII).

No hired labor was required with any of the three price levels. Operator labor requirements in the fourth quarter were the least, presenting the possibility of some off-farm employment in this period to supplement operator income. Capital requirements increased with high product prices because of the change in enterprise combinations. Returns to operator labor, management, and risk ranged from -$20,521 with low product prices to $39,176 with high price levels.

Panhandle Area

Two farm sizes were considered in the maximization model with average product prices for this area (Table XXIV). The representative farm size and related capital requirements determined in the previous chapter were considered unreasonably low for this area because of

TABLE XXIII

ESTIMATED PROFIT MAXIMIZATION ENTERPRISE COMBINATIONS, LABOR AND CAPITAL REQUIREMENTS; VARIABLE PRODUCT PRICES, NORTHWESTERN AREA OF OKLAHOMA

Items	Units	Price Level		
		Low	Average	High
Total Land	Acres	1,346	1,346	1,346
Cropland	Acres			
Milo	Acres	533	533	533
Wheat	Acres	404	404	354
Sudan Hay	Acres	5	5	5
Alfalfa Hay	Acres			50
Livestock Enterprises				
March Steers	Animals	107	107	94
October Steers	Animals	58	58	58
Operator Labor Required				
First Quarter	Hours	446	446	439
Second Quarter	Hours	511	511	700
Third Quarter	Hours	434	434	522
Fourth Quarter	Hours	229	229	213
Hired Labor	Hours			
Short Term Capital	Dollars	11,574	11,574	12,740
Intermediate Term	Dollars	31,288	31,288	35,779
Tractor Investment	Dollars	16,537	16,537	18,360
Equipment Investment	Dollars	13,739	13,739	16,408
Machinery Investment	Dollars	1,011	1,011	1,011
Long Term Capital	Dollars	309,580	309,580	309,580
Total Capital	Dollars	352,648	352,648	358,280
Returns to Operator Labor, Management, and Risk	Dollars	-20,521	806	39,176

TABLE XXIV

ESTIMATED PROFIT MAXIMIZATION ENTERPRISE COMBINATIONS, LABOR AND CAPITAL REQUIREMENTS; VARIABLE PRODUCT PRICES, PANHANDLE AREA OF OKLAHOMA

Items	Units	Price Level			
		Low	Average	Average	High
Total Land	Acres	272	272	640	272
Cropland	Acres	162	162	384	162
Dryland Milo	Acres	81	81	192	81
Irrigated Corn	Acres	81	81	192	81
Livestock Activities					
Summer Steers	Animals		27	65	27
Operator Labor Required					
First Quarter	Hours	75	75	177	75
Second Quarter	Hours	351	378	700	378
Third Quarter	Hours	200	241	569	241
Fourth Quarter	Hours	47	61	144	61
Hired Labor	Hours			192	
Short Term Capital	Dollars	3,712	3,757	8,858	3,757
Intermediate Term Capital	Dollars	13,415	13,560	31,967	13,560
Tractor Investment	Dollars	4,833	4,833	11,394	4,833
Equipment Investment	Dollars	3,247	3,267	7,702	3,267
Machinery Investment	Dollars		125	294	125
Irrigation Investment	Dollars	5,339	5,335	12,577	5,335
Long Term Capital	Dollars	95,015	95,015	224,000	95,015
Total Capital	Dollars	112,140	112,332	264,926	112,332
Returns to Operator Labor, Management, and Risk	Dollars	-2,976	6,998	17,472	25,479

possible yield overestimations in the crop budgets used. These overstated yields would have the effect of increasing net income per acre and thus reducing the capital requirements and farm sizes necessary to attain the target income level. A 640 acre farm was subsequently introduced into the maximization model with average product prices in addition to the 272 acre farm size.

The optimal enterprise combinations and labor and capital requirements with each price level were identical for the 272 acre farm size. Very little operator labor was required in any of the solutions with the three price levels, relative to the other areas of study. Therefore, the amount of operator labor provided a relatively greater potential for off-farm employment to supplement operator income. The 640 acre farm was approximately 2.36 times the size of the 272 acre farm. As a result, the levels of each feasible crop and livestock enterprise were approximately 2.36 times greater than those present in the solutions for the representative farm size. Total capital for the larger farm size was $264,926 compared to $112,332 for the smaller farm size. The returns to operator labor, management, and risk ranged from -$2,976 to $26,479. The returns for the 640 acre farm with average product prices were approximately 2.36 times the returns for the 272 acre farm with average product prices.

Analysis of Farm Entry Opportunities

The determination of capital requirements and returns to operator labor, management, and risk under the three price assumptions for each area permits further analysis as to the feasibility of entry under each of these conditions. The effects of various operator equity-land

rental levels and alternative financial assumptions upon first year cash flows may also be evaluated. The first year cash flows provide indications of the relative ease of accomplishing entry. Tables XXV thru XXXVI were constructed to portray cash flows for each selected equity-land rental situation under each product pricing assumption for each of the study areas. The composition of these tables is somewhat intricate and deserves preliminary explanation. Thus, the remainder of this section is devoted to

(1) defining the various levels of operator equity-land rental used,

(2) explaining the effects of alternative equity-land rental upon the amounts of debt capital required,

(3) describing the types of financial alternatives assumed,

(4) explicating the calculation of first year debt retirement payments, and

(5) transforming maximizing model incomes into actual cash receipts and residuals for family living.

Equity-Land Rental Situations

Zero Operator Equity denotes an operator who owns no capital resources and must acquire 100 percent financing to overcome capital barriers to entry.

25 Percent Operator Equity describes a prospective entrant who owns one-fourth of the capital resources required to complete entry. More specifically, it defines an operator who owns 25 percent of the short, intermediate, and long term capital requirements. This perhaps describes a low resource farmer who has accumulated savings equal to this

equity level or one who has accumulated equity capital through previous farming operations.

50 Percent Operator Equity means the operator owns one-half of the total capital assets needed and borrows the balance to accomplish entry. Although not likely to be predominant in the context of low resource, beginning farmers, a 50 percent equity situation provides a benchmark for analysis as well as implications for potential long run adjustments.

25 Percent Land Rental and Zero Equity denotes an operator who rents one-fourth of the land requirements reflected by the representative farm size. He owns no short, intermediate, or long term capital resources and must borrow to meet these requirements.

50 Percent Land Rental and Zero Equity means the operator rents one-half the total land required. That is, 50 percent of the long term capital assets needed are acquired through rental. As in the preceding situation this represents a transfer of capital requirements from long term to short term. That is, most cash rental arrangements specify annual payments which represent short term capital. Consequently, the short term and long term requirements shown in Tables XXV thru XXXV for the various rental levels are altered to reflect the substitutions.

25 Percent Land Rental-25 Percent Operator Equity refers to an operator who rents one-fourth of the land requirement in addition to owning one-fourth of the other total capital assets required.

Loans Obtained

The capital amounts actually borrowed in the zero, 25, and 50 percent equity situations reflect corresponding deductions from the total capital requirements. For example, with the 25 percent equity level,

one-fourth of the short, intermediate, and long term capital requirements were subtracted to arrive at the respective amounts borrowed. Separately included are the stock purchase requirements which constitute a portion of the total capital borrowed. Their determination will be discussed in the following section.

Some loans were not obtainable for zero equity levels due to borrowing restrictions which preclude 100 percent financing. These cases are denoted accordingly and subsequently negate the ultimate determination of cash flows as well as the feasibility of completing entry.

Actual capital amounts borrowed in the 25 and 50 percent land rental situations (with zero equity) are identical to the previously determined capital requirement because no resource ownership is involved. Stock purchase requirements are listed separately. Loans obtained in the 25 percent land rental -25 percent equity situation differ from total farm capital requirements by the amount deducted to account for owned resources as well as the stock purchases.

Financing Assumptions Used in the Models

The relevant financial intermediaries were FHA, PCA's, and FLBA's. These lenders were selected because their terms were determined most conducive to overcoming capital barriers to entry. Private lenders would have been considered an acceptable financing alternative; however, their terms of financing long term capital were not standardized well enough to permit a thorough analysis, as determined in Chapter IV. The remainder of this section explains the applicability of these lending alternatives and their financing terms to each of the equity-land rental situations as well as the subsequent calculation of interest and principal payments.

Financing Zero Equity and Variable Land Rental Situations

As outlined in the preceding section, zero equity levels are associated with three land rental levels: (1) no land rental, (2) 25 percent land rental, and (3) 50 percent land rental. Because the prospective entrant owns no capital resources he is eligible for the maximum obtainable loans from FHA. The interest on FHA operating loans -- short and intermediate term capital -- is 8.75 percent. The maximum obtainable operating loan is $50,000. Operating capital requirements in excess of $50,000 are assumed borrowed from PCA's at 9.36 percent interest. Total interest charges for this excess are determined by applying the interest rate to the amount of principal plus the 5 percent stock purchase requirement.

The short and intermediate term requirements are presented separately in the tables. In those instances where their totals exceed the maximum FHA loan obtainable, the $50,000 allowable is considered first as intermediate term capital and secondly, as short term capital. For example, if the requirements are $2,000 for short term and $49,000 for intermediate term capital, all of the latter and $1,000 of the former is assumed borrowed from FHA. The remaining $1,000 is assumed borrowed from PCA, the participating lender.

The interest rate for FHA land loans is 5.0 percent. The maximum long term loan obtainable is $100,000, providing total long term requirements do not exceed $225,000. In the zero equity situations where land capital requirements are greater than $225,000, it becomes infeasible for the prospective entrant to obtain 100 percent financing and overcome capital barriers.

Participating loans with FLBA's are assumed for long term requirements between $100,000 and $225,000. Total interest charges for FLBA loans are based on an interest rate of 8.5 percent applied to the amount of principal, plus the 5 percent stock requirement and the 1 percent closing charge. This additional 6 percent is shown simply as "long-term stock requirements" in the tables.

Financing Non-Zero Equity Situations

Operators with 25 and 50 percent equity, are not qualified to obtain low-interest loans from FHA because they own or have access to a level of resources which make them acceptable credit risks for other types of institutional leaders. That is, FHA will grant loans to only those applicants who cannot obtain credit from other sources on reasonable terms. The operators depicted in these situations are assumed capable of securing debt capital from other lenders. Borrowed capital must therefore be obtained from PCA's and FLBA's, subject to their respective interest rates and stock purchase requirements.

Calculation of First Year Principal Payments

No principal payments are necessary for short term capital amounts borrowed because this classification includes operating input costs already deducted in each of the enterprise budgets.

PCA's and FHA will grant intermediate term loans for a maximum length of seven years and typically require that equal principal payments be made annually. Because this period of time afforded the lowest annual principal payments (relative to a shorter time period) it was most conducive for a beginning operator, and was used in the determination of

principal payments and, ultimately, first year cash flows. The first year principal payments are, therefore, one-seventh of the intermediate capital requirements for each equity-land rental situation in each of the study areas.

FLBA's and FHA grant land loans for maximum lengths of 30 and 40 years, respectively. These financiers will amortize loans so that a fixed interest plus principal payment is made annually. As the loan is gradually repaid, the portion of this payment comprised of interest decreases while the portion of the fixed payment made up of principal increases. Therefore, principal payments will be lowest in the early years of repayment. Conversely, interest costs will be higher in the first few years. The first interest plus principal payment will include interest charges on the total amount of the loan and a small principal payment -- as determined by the relevant amortization factors. The factor for FLBA's was 9.125 percent of the total amount borrowed. That is, each annual payment will be equal to 9.125 percent of the face amount of the loan. The portion of the first year payment comprised by principal can be determined by subtracting the actual interest rate of 8.5 percent. Thus, the first year principal payment on a 30-year FLBA loan will be 0.625 percent of the amount borrowed. The amortization factor for a 40-year FHA loan is 5.83 percent of the amount borrowed. The first year principal payment is equal to 0.83 percent of the loan.

Cash Flows and Residuals for Family Living

As previously explained, maximum income levels were determined for three product price levels in each of the study areas. Interest rates used in the LP model were different from those actually assessed by the

three financial intermediaries assumed relevant because the specific financial needs for each situation were not incorporated into the LP model. Therefore, model interest charges were adjusted to evaluate the effects of actual interest charges on cash flows. This was done by adding back total model interest charges to the initial model income to get total returns to capital, owned land, labor, management, and risk. Thus, the total LP model incomes are identical for each of the 0 to 50 percent equity (with no land rental) situations because their total capital requirements are alike. Conversely, the total model incomes for the land rental situations differ because deductions are made for relevant rental charges.

Depreciation was deducted in each of the enterprise budgets used in the LP model. Because depreciation does not represent a direct cash outlay it, too, must be included in arriving at the total cash residual available for debt retirement and family living. Depreciation charges vary not only from area to area but also from price level to price level due to differences in the optimal enterprise combinations.

Once the total cash residual is determined, actual interest and principal payments must be deducted to determine residual cash available for family living for the first year. Cash flows are presented for each area for the different operator equity and land rental situations, using average and high product prices. Cash flows for each area with low prices are not presented for each of the equity-land rental situations because actual interest and principal payments typically exceeded the cash residuals available for family living and debt retirement. However, cash flows are shown for the 50 percent equity situation in each area with the low product price assumptions. This provides benchmarks for analyzing

the relative feasibility of completing entry under more adverse market price conditions. The remainder of this section is devoted to descriptions of the cash flows obtained in each of the study areas.

Northeastern Area

The land price for this area was high. The land price was calculated in the same manner as for the other areas, however, the effects of increasing recreational activity and a location close to the large urban center of Tulsa are reflected in the price. This fact should, therefore, be acknowledged when analyzing the empirical results.

Average Product Prices. Entry was infeasible in the zero equity situation (Table XXV). Land capital was the limiting factor. This long term requirement was $33,620 greater than the maximum $225,000 indibtedness allowed by FHA for 100 percent financing. Entry was also infeasible in the 25 percent equity, 25 percent land rental, and 50 percent land rental situations. The amounts of cash available after principal and interest payments had been made were negative in each of these cases. In the 25 percent equity-25 percent land rental situation, the cash residual for family living was slightly greater than $1,200. That is, entry could have been accomplished in this situation if the operator was willing to accept less than an opportunity return for his labor, management, and risk and/or was capable of reducing his unallocated overhead costs, as outlined in the chapter on theoretical considerations.

The 50 percent equity situation, with average prices, yielded a residual income for family living of over $10,000. Although entry would be easily accomplished in this situation, the assumptions

TABLE XXV

ESTIMATED CAPITAL REQUIREMENTS AND FIRST YEAR CASH FLOW FOR BEGINNING FARMERS, FOR SELECTED EQUITY - LAND RENTAL SITUATIONS AND AVERAGE PRODUCT PRICES, NORTHEASTERN OKLAHOMA

Equity or Rental (Percent)	0% Equity	25% Equity	50% Equity	25% Land Rental 0% Equity	50% Land Rental 0% Equity	25% Land Rental 25% Equity
Total Capital Assets (Excluding Rented Lands)						
A. Short Term	19,633.72	19,633.72	19,633.72	23,702.16	27,770.60	23,702.16
B. Intermediate Term	69,929.03	69,929.03	69,929.03	69,929.03	69,929.03	69,929.03
C. Long Term	258,620.00	258,620.00	258,620.00	193,965.00	129,310.00	193,965.00
Total	348,182.75	348,182.75	348,182.75	287,596.19	227,009.63	287,596.19
Capital Borrowed						
A. Short Term Capital	N/A	14,725.29	9,816.86	23,702.16	27,770.60	18,793.73
B. Short Term Stock Requirements	N/A	736.26	490.84	1,185.11	1,388.53	939.69
C. Intermediate Term Capital	N/A	52,446.77	34,964.52	69,929.03	69,929.03	52,446.77
D. Intermediate Term Stock Requirements	N/A	2,622.34	1,748.23	996.45	996.45	2,622.34
E. Long Term Capital	N/A	193,965.00	129,310.00	193,965.00	129,310.00	129,310.00
F. Long Term Stock Requirements	N/A	11,637.90	7,758.60	5,637.90	1,758.60	7,758.60
Total	N/A	276,133.56	184,089.05	295,415.65	231,153.21	211,871.13
Interest Charges						
A. Short Term	N/A	1,447.20	964.80	2,329.45	2,729.29	1,847.05
B. Intermediate Term	N/A	5,154.47	3,436.31	6,333.63	6,333.63	5,154.47
C. Long Term	N/A	17,467.25	11,650.83	13,466.25	7,640.83	11,640.83
Total	N/A	24,068.92	16,051.94	22,129.33	16,703.75	18,652.35
Principal Payments						
A. Intermediate Term	N/A	7,867.02	5,244.68	10,132.21	10,132.21	7,867,02
B. Long Term	N/A	1,285.02	856.68	1,452.52	1,024.18	856.68
Total	N/A	9,152.04	6,101.36	11,584.73	11,156.39	8,723.70
Cash Residual For Owned Land, Labor, Management, Depreciation, Capital and Risk						
A. LP Model Income	N/A	28,838.62	28,838.62	24,770.18	20,701.74	24,770.18
B. Depreciation	N/A	3,818.54	3,818.54	3,818.54	3,818.54	3,818.54
Total	N/A	32,657.16	32,657.16	28,588.72	24,520.28	28,588.72
Interest and Principal Payment	N/A	33,220.96	22,153.30	33,714.06	27,860.14	27,376.05
Cash Available for Family Living	N/A	- 563.80	10,503.86	-5,125.34	-3,339.86	1,212.67

involved provide more of a benchmark for analysis than a probable environment for a beginning farmer.

High Product Prices. Total capital requirements with high price levels are almost $7,000 less than those for average prices (Table XXVI). Principal and interest charges are also less. Two relationships explain this difference. First, the changing crop-livestock price ratios make some livestock enterprises more profitable at higher prices. Second, the optimal livestock enterprises selected increased short term requirements and decreased intermediate term capital needs.

The zero equity situation was infeasible with high prices because of the excessive long term capital requirements and subsequent lack of financing. However, private financing is likely to step in with such a favorable economic setting. Entry was feasible in all other equity-land rental situations. The amounts of cash available for family living ranged from $34,076.04 to $48,498.04. This range is comparable to that for the average prices, however, the absolute levels are much greater.

Low Product Prices. Total capital requirements for the low price levels were almost $45,000 less than those for average prices. Most of the difference reflected in the reduced intermediate capital requirements were due to the absence of livestock alternatives.

The 50 percent equity situation is the only one presented for the low price level (Talbe XXVII). The cash available for family living was a significant negative amount. Because this situation would typically provide the easiest entry, it may be assumed that the other equity-land rental arrangements would similarly render entry infeasible.

TABLE XXVI

ESTIMATED CAPITAL REQUIREMENTS AND FIRST YEAR CASH FLOW FOR BEGINNING FARMERS, FOR SELECTED EQUITY - LAND RENTAL SITUATIONS AND HIGH PRODUCT PRICES, NORTHEASTERN OKLAHOMA

Equity or Rental (Percent)	0% Equity	25% Equity	50% Equity	25% Land Rental 0% Equity	50% Land Rental 0% Equity	25% Land Rental 25% Equity
Total Capital Assets (Excluding Rented Lands)						
A. Short Term	24,257.51	24,257.51	24,257.51	28,325.95	32,394.39	28,325.95
B. Intermediate Term	58,535.44	58,535.44	58,535.44	58,535.44	58,535.44	58,535.44
C. Intermediate Term	258,620.00	258,620.00	258,620.00	193,965.00	129,310.00	193,965.00
Total	341,412.95	341,412.95	341,412.95	280,820.39	220,239.83	280,826.39
Capital Borrowed						
A. Short Term Capital	N/A	18,193.13	12,128.75	28,325.95	32,394.39	22,261.57
B. Short Term Stock Requirements	N/A	909.66	606.44	1,416.30	1,619.72	1,113.08
C. Intermediate Term Capital	N/A	43,901.58	29,267.72	58,535.44	58,535.44	43,901.58
D. Intermediate Term Stock Requirements	N/A	2,195.08	1,463.39	426.77	426.77	2,195.08
E. Long Term Capital	N/A	193,965.00	129,310.00	193,965.00	129,310.00	129,310.00
F. Long Term Stock Requirements	N/A	11,637.90	7,758.60	5,637.90	1,758.60	7,758.60
Total	N/A	270,802.35	180,534.90	288,307.36	224,044.92	206,539.91
Interest Charges						
A. Short Term	N/A	1,788.02	1,192.01	2,783.87	3,183.72	2,187.87
B. Intermediate Term	N/A	4,314.65	2,876.43	5,213.86	5,213.86	4,314.65
C. Long Term	N/A	17,467.25	11,650.83	13,466.25	7,640.83	11,650.83
Total	N/A	23,569.92	15,719.27	21,443.98	16,038.41	18,153.35
Principal Payments						
A. Intermediate Term	N/A	6,585.24	4,390.16	8,423.17	8,423.17	6,585.24
B. Long Term	N/A	1,285.02	856.68	1,452.52	1,024.18	856.68
Total	N/A	7,870.26	5,246.84	9,875.69	9,447.35	7,441.92
Cash Residual For Owned Land, Labor, Management, Depreciation, Capital and Risk						
A. LP Model Income	N/A	65,567.79	65,567.79	61,499.35	57,430.91	61,499.35
B. Depreciation	N/A	3,896.36	3,896.36	3,896.36	3,896.36	3,896.36
Total	N/A	69,464.15	69,464.15	65,395.71	61,327.27	65,395.71
Interest and Principal Payment	N/A	31,440.18	20,966.11	31,319.67	25,485.76	25,595.27
Cash Available for Family Living	N/A	38,023.97	48,498.04	34,076.04	35,841.51	39,800.44

TABLE XVII

ESTIMATED CAPITAL REQUIREMENTS AND FIRST YEAR CASH FLOW FOR BEGINNING FARMERS, FOR FIFTY PERCENT EQUITY SITUATIONS AND LOW PRODUCT PRICES, FIVE AREAS OF OKLAHOMA

	50% Equity Low Prices				
Area	Northeastern	Southeastern	SouthCentral	Northwestern	Panhandle
Total Capital Assets (Excluding Rented Lands)					
A. Short Term	17,875.01	6,808.77	14,213.48	11,780.38	3,711.84
B. Intermediate Term	20,099.13	33,751.76	21,999.52	31,287.57	13,414.55
C. Long Term	258,620.00	212,910.00	298.250.00	309,580.00	95,014.50
Total	296,594.14	253,470.53	334,463.00	352,647.95	112,140.89
Capital Borrowed					
A. Short Term Capital	8,937.51	3,404.39	7,106.74	5,890.19	1,855.92
B. Short Term Stock Requirements	446.88	170.22	355.34	294.51	92.80
C. Intermediate Term Capital	10,049.57	16,875.88	10,999.76	15,643.79	6,707.27
D. Intermediate Term Stock Requirements	502.48	843.79	549.99	782.19	335.36
E. Long Term Capital	129,310.00	106,455.00	149,125.00	154,790.00	47,507.25
F. Long Term Stock Requirements	7,758.60	6,387.30	8,947.50	9,287,40	2,850.43
Total	157,005.04	134,136.58	177,084.33	186,688.08	59,349.03
Interest Charges					
A. Short Term	878.38	334.58	698.45	578.89	182.39
B. Intermediate Term	987.67	1,658.56	1,081.06	1,537.47	659.19
C. Long Term	11,650.83	9,591.60	13,436.16	13,946.58	4,280.40
Total	13,516.88	11,584.74	15,215.67	16,062.94	5,121.98
Principal Payments					
A. Intermediate Term	1,507.44	2,531.38	1,649.96	2,346.57	1,006.98
B. Long Term	808.19	705,26	987.95	1,025.48	314.74
Total	2,315.63	3,236.64	2,637.91	3,372.05	1,320.83
Cash Residual for Owned Land, Labor, Management, Depreciaiton, Capital and Risk					
A. LP Model Income	4,133.14	8,195.00	3,605.63	6,357.51	5,606.23
B. Depreciation	3,337.65	3,548.72	2,403.95	3,733.14	1,037.51
Total	7,470.79	11,743.72	6,009.58	10,090.65	6,643.74
Interest and Principal Payment	15,832.51	14,821.38	17,853.58	19,434.99	6,442.81
Cash Available for Family Living	-8,361.72	-3,077.66	-11,844.00	-9,344.34	200.93

Southeastern Area

Average Product Prices. The capital barriers to entry were relatively easier to overcome in this area than in the northeastern area (Table XXVIII). The zero equity situation provided slightly more than $3,500 for family living. The 25 percent equity level and the 25 percent land rental situation yielded almost $7,000 in cash residual. The cash available for family living for all the equity-land rental situations ranged form $3,524.15 to $14,958.89.

High Product Prices. The capital requirements, interest charges, principal payments, and depreciation charges with high prices were almost identical to those for average prices (Table XXIX). Only a slight change occurred in the optimal enterprise combinations. All the equity-land rental situations provided a means of entry under these price assumptions. The amounts of cash available for family living ranged from almost $39,000 with zero equity to over $50,000 with 50 percent equity.

Low Product Prices. With low prices and 50 percent equity the cash available for family living was -$3,077.66 (Table XXVII). Again, this benchmark indicates that other situations are even less feasible. Although required loans could have been obtained, actual operation would yield substantial deficits.

The short and intermediate term capital requirements were less for low product prices than for average prices. This change can be attributed to the unprofitability of livestock activities under low product price assumptions.

XXVIII

ESTIMATED CAPITAL REQUIREMENTS AND FIRST YEAR CASH FLOW FOR BEGINNING FARMERS, FOR SELECTED EQUITY - LAND RENTAL SITUATIONS AND AVERAGE PRODUCT PRICES, SOUTHEASTERN OKLAHOMA

Equity or Rental (Percent)	0% Equity	25% Equity	50% Equity	25% Land Rental 0% Equity	50% Land Rental 0% Equity	25% Land Rental 25% Equity
Total Capital Assets (Excluding Rented Lands)						
A. Short Term	8,494.70	8,494.70	8,494.70	10,166.27	11,837.84	10,166.27
B. Intermediate Term	43,610.10	43,610.10	43,610.10	43,610.10	43,610.10	43,610.10
C. Long Term	212,910.00	212,910.00	212,910.00	159,682.50	106,455.00	159,682.50
Total	265,014.80	265,014.80	265,014.80	213,458.87	161,902.92	213,458.87
Capital Borrowed						
A. Short Term Capital	8,494.70	6,371.03	4,247.35	10,166.27	11,837.84	8,042.60
B. Short Term Stock Requirements	105.24	318.55	212.37	188.82	272.40	402.13
C. Intermediate Term Capital	43,610.10	32,707.58	21,805.05	43,610.10	43,610.10	32,707.58
D. Intermediate Term Stock Requirements	0.00	1,635.38	1,090.25	0.00	0.00	1,635.38
E. Long Term Capital	212,910.00	159,682.50	106,455.00	159,682.50	106,455.00	106,455.00
F. Long Term Stock Requirements	6,774.60	9,580.95	6,387.30	3,580.95	387.30	6,387.30
Total	271,894.64	210,295.99	140,197.32	217,228.64	162,562.64	155,629.99
Interest Charges						
A. Short Term	765.98	626.14	417.43	930.26	1,094.54	790.43
B. Intermediate Term	3,815.88	3,215.50	2,143.00	3,815.88	3,815.88	3,215.50
C. Long Term	15,173.19	14,387.39	9,591.60	10,377.39	5,581.60	9,591.60
Total	19,755.05	18,229.03	12,152.33	15,123.53	10,492.02	13,597.53
Principal Payments						
A. Intermediate Term	6,230.01	4,906.14	3,270.76	6,230.01	6,230.01	4,906.14
B. Long Term	1,578.03	1,057.90	705.26	1,225.40	872.76	705.26
Total	7,808.04	5,964.04	3,976.02	7,455.41	7,102.77	5,611.40
Cash Residual For Owned Land, Labor, Management, Depreciation, Capital and Risk						
A. LP Model Income	27,397.16	27,397.16	27,397.16	25,725.59	24,054.02	25,725.59
B. Depreciation	3,690.08	3,690.08	3,690.08	3,690.08	3,690.08	3,690.08
Total	31,087.24	31,087.24	31,087.24	29,415.67	27,744.10	29,415.67
Interest and Principal Payment	27,563.04	24,193.07	16,128.35	22,578.94	17,594.79	19,208.93
Cash Available for Family Living	3,524.15	6,894.17	14,958.89	6,836.73	10,149.31	10,206.74

TABLE XXIX

ESTIMATED CAPITAL REQUIREMENTS AND FIRST YEAR CASH FLOW FOR BEGINNING FARMERS, FOR SELECTED EQUITY - LAND RENTAL SITUATIONS AND HIGH PRODUCT PRICES, SOUTHEASTERN OKLAHOMA

Equity or Rental (Percent)	0% Equity	25% Equity	50% Equity	25% Land Rental 0% Equity	50% Land Rental 0% Equity	25% Land Rental 25% Equity
Total Capital Assets (Excluding Rented Lands)						
A. Short Term	8,423.61	8,423.61	8,423.61	10,095.18	11,766.75	10,095.18
B. Intermediate Term	43,476.53	43,476.53	43,476.53	43,476.53	43,476.53	43,476.53
C. Long Term	212,910.00	212,910.00	212,910.00	159.682.50	106,455.00	159,682.50
Total	264,810.14	264,810.14	264,810.14	213,254.21	161,698.28	213,254.21
Capital Borrowed						
A. Short Term Capital	8,423.61	6,317.71	4,211.81	10,095.18	11,766.75	7,989.28
B. Short Term Stock Requirements	95.01	315.88	210.59	178.59	262.16	399.46
C. Intermediate Term Capital	43,476.53	32,607.40	21,738.27	43,476.53	43,476.53	32,607.40
D. Intermediate Term Stock Requirements	0.00	1,630.37	1,086.91	0.00	0.00	1,630.37
E. Long Term Capital	212,910.00	159,682.50	106,455.00	159,682.50	106,455.00	106,455.00
F. Long Term Stock Requirements	6,774.60	9,580.95	6,387.30	3,580.95	387.30	6,387.30
Total	271,679.75	210,134.81	140,089.88	217,013.75	162,347.74	155,468.81
Interest Charges						
A. Short Term	757.55	620.91	413.94	921.83	1,086.02	785.19
B. Intermediate Term	3,804.20	3,204.65	2,136.44	3,804.20	3,804.20	3,204.65
C. Long Term	15,173.19	14,387.39	9,591.60	10,377.39	5,581.60	9,591.60
Total	19,734.94	18,212.95	12,141.98	15,103.42	10,471.82	13,581.44
Principal Payments						
A. Intermediate Term	6,210.93	4,891.11	3,260.74	6,210.93	6,210.93	4,891.11
B. Long Term	1,578.03	998.02	705.26	1,225.40	872.76	705.26
Total	7,788.96	5,889.13	3,966.00	7,436.33	7,083.69	5,596.37
Cash Residual For Owned Land, Labor, Management, Depreciation Capital and Risk						
A. LP Model Income	62,823.31	62,823.31	62,823.31	61,151.74	59,480.17	61,151.74
B. Depreciation	3,670.08	3,670.08	3,670.08	3,670.08	3,670.08	3,670.08
Total	66,493.39	66,493.39	66,493.39	64,821.82	63,150.25	64,821.82
Interest and Principal Payment	27,523.910	24,102.08	16,107.98	22,539.75	17,555.51	19,177.81
Cash Available for Family Living	38,969.49	42,391.31	50,385.41	42,282.07	45,594.74	45,644.01

Southcentral Area

Average Product Prices. Like the northeastern area, entry in this region was infeasible with zerio equity (Table XXX). This also pertains to the other price levels and was due to the excessive long term capital requirements which precluded 100 percent financing.

The 25 percent equity situation provided less than $1,000 for family living. The 50 percent land rental arrangement yielded slightly more than $4,000 and the 25 percent equity-25 percent land rental situation furnished slightly less than $4,000. Adjustments similar to those previously mentioned would be necessary to successfully complete entry.

High Product Prices. The total capital requirements under these price assumptions were approximately $50,000 greater than for average product prices (Table XXXI). Most of this increase was due to changes in the intermediate capital needs. At higher product prices, alfalfa (which requires relatively large amounts of intermediate capital) replaced soybeans and wheat on bottomland soils in the optimal solution.

Zero equity remained infeasible because of the excessive land capital requirement. All the equity-land rental situations provided cash residuals for family living which were sufficient to afford comfortable entry.

Low Product Prices. The cash available for family living with 50 percent operator equity was less in this area than for other areas (Table XXVII). Consequently, it may be assumed that the other equity-land rental situations would also prove unprofitable. This also

TABLE XXX

ESTIMATED CAPITAL REQUIREMENTS AND FIRST YEAR CASH FLOW FOR BEGINNING FARMERS, FOR SELECTED EQUITY - LAND RENTAL SITUATIONS AND AVERAGE PRODUCT PRICES, SOUTHCENTRAL OKLAHOMA

Equity or Rental (Percent)	0% Equity	25% Equity	50% Equity	25% Land Rental 0% Equity	50% Land Rental 0% Equity	25% Land Rental 25% Equity
Total Capital Assets (Excluding Rented Lands)						
A. Short Term	23,520.77	23,520.77	23,520.77	26,950.64	30,380.52	26,950.64
B. Intermediate Term	54,661.36	54,661.36	54,661.36	54,661.36	54,661.36	54,661.36
C. Long Term	298,250.00	298,250.00	298,250.00	223,687.50	149,125.00	223,687.50
Total	376,432.13	376,432.13	376,432.13	305.299.50	234.166.88	305,299.50
Capital Borrowed						
A. Short Term Capital	N/A	17,640.58	11,760.39	26,950.64	30,380.52	21,070.45
B. Short Term Stock Requirement	N/A	882.03	588.02	1,347.53	1,519.03	1,053.52
C. Intermediate Term Capital	N/A	40,996.02	27,330.68	54,661.36	54,661.36	40,996.02
D. Intermediate Term Stock Requirements	N/A	2,049.80	1,366.53	233.07	233.07	2,049.80
E. Long Term Capital	N/A	223,687.50	149,125.00	223,687.50	149,125.00	149,125.00
F. Long Term Stock Requirements	N/A	13,421.25	8,947.50	7,421.25	2,947.50	8,947.50
Total	N/A	298,677.18	199,118.12	314.301.35	238,866.48	223,242.29
Interest Charges						
A. Short Term	N/A	1,733.72	1,155.81	2,648.71	2,985.80	2,070.80
B. Intermediate Term	N/A	4,029.08	2,686.06	4,833.02	4,833.02	4,029.08
C. Long Term	N/A	20,154.24	13,436.16	16,144.24	9,426.16	13,436.16
Total	N/A	25,917.04	17,278.03	23,625.97	17,244.98	19,536.04
Principal Payments						
A. Intermediate Term	N/A	6,149.40	4,099.60	7,842.06	7,842.06	6,149.40
B. Long Term	N/A	1,481.93	987.95	1,649.43	1,155.45	987.95
Total	N/A	7,631.33	5,087.55	9,491.49	8,997,51	7,137.35
Cash Residual For Owned Land, Labor, Management, Depreciation Capital and Risk						
A. LP Model Income	N/A	32,204.24	32.204.24	28,774.37	25,344.49	28,774.37
B. Depreciation	N/A	5,308.30	5,308.30	5,308.30	5,308.30	5,308.30
Total	N/A	37,512.54	37,512.54	34,082.67	30,652.79	34,082.67
Interest and Principal Payment	N/A	33,548.37	22,365.58	33,117.46	26,242.49	26,673.39
Cash Available for Family Living	N/A	3,964.17	15,146.96	956.21	4,410.30	7,409.28

TABLE XXXI

ESTIMATED CAPITAL REQUIREMENTS AND FIRST YEAR CASH FLOW FOR BEGINNING FARMERS, FOR SELECTED E. UITY - LAND RENTAL SITUATIONS AND HIGH PRODUCT PRICES, SOUTHCENTRAL OKLAHOMA

Equity or Rental (Percent)	0% Equity	25% Equity	50% Equity	25% Land Rental 0% Equity	50% Land Rental 0% Equity	25% Land Rental 25% Equity
Total Capital Assets (Excluding Rented Lands)						
A. Short Term	26,066.55	26,066.55	26,066.55	29,496.42	32,926.29	29,496.42
B. Intermediate Term	101,060.93	101,060.93	101,060.93	101,060.93	101,060.93	101,060.93
C. Long Term	298,250.00	298,250.00	298,250.00	223,687.50	149,125.00	223,687.50
Total	425,377.48	425,377.48	425,377.48	354.244.85	283.112.22	354.244.85
Capital Borrowed						
A. Short Term Capital	N/A	19,459.91	13,033.27	29,496.42	32,926.29	22,889.78
B. Short Term Stock Requirements	N/A	973.00	651.66	1,474.82	1,646.31	1,144.49
C. Intermediate Term Capital	N/A	75,795.70	50,530.47	101,060.93	101,060.93	75,795.70
D. Intermediate Term Stock Requirements	N/A	3,789.79	2,526.52	2,553.05	2,553.05	3,789.79
E. Long Term Capital	N/A	223,687.50	149,125.00	223,687.50	149,125.00	149,125.00
F. Long Term Stock Requirements	N/A	13,421.25	8,947.50	7,421.25	2,947.50	8,947.50
Total	N/A	337,127.15	224,814.47	365,693.97	290,259.08	261,692.26
Interest Charges						
A. Short Term	N/A	1,912.52	1,280.91	2,898.91	3,236.00	2,249.61
B. Intermediate Term	N/A	7,449.20	4,966.13	9,393.27	9,393.27	7,449.20
C. Long Term	N/A	20,154.24	13,436.16	16,144.24	9,426.16	13,436.16
Total	N/A	29,515.96	19,683.20	28,436.42	22,055.43	23,134.97
Principal Payments						
A. Intermediate Term	N/A	11,369.36	7,579.57	14,802.00	14,802.00	11,369.36
B. Long Term	N/A	1,481.93	987.95	1,649.43	1,155.45	987.95
Total	N/A	12,851.29	8,567.52	16,451.43	15,957.45	12,375.31
Cash Residual For Owned Land, Labor, Management Depreciation Capital and Risk						
A. LP Model Income	N/A	96,133.92	96,133.92	92,704.05	89,274.18	92,704.05
B. Depreciation	N/A	8,840.80	8,840.80	8,840.80	8,840.80	8,840.80
Total	N/A	104,974.72	104,974.72	101,544.85	98,114.98	101,544.85
Interest and Principal Payment	N/A	42,367.25	28,250.72	44,887.85	38,012.88	35,492.28
Cash Available for Family Living	N/A	62,607.47	76,724.00	56,657.00	60,102.10	66,052.57

indicates the southcentral area has the most formidable capital barriers to entry of any of the study areas.

The total capital requirements under these price assumptions were over $40,000 less than those for average prices. However, this reduction is attributable to the fact that over 350 acres of cropland were unused in the operational model.

Northwestern Area

Average Product Prices. Entry was infeasible in this area if the entrant required 100 percent financing (Table XXXII). The long term capital requirement constituted $310,000 of the $350,000 total capital needed. The 25 percent equity level and the 25 percent land rental situation provided the lowest cash residuals for family living greater than $7,000. Overall, the amounts ranged from almost $12,000 with 50 percent equity to slightly more than $2,000 with 25 percent equity.

High Product Prices. The introduction of these price assumptions into the operational model for this area resulted in a partial shift in optimal enterprises from wheat to alfalfa. However, less than 50 acres constituted the transition and total capital requirements increased $6,000 relative to those for average prices.

The cash residuals for family living ranged form approximately $41,000 to almost $51,000 (Table XXXIII). Entry was not feasible at the zero equity level because of lending restraints. The various equity-land rental situations in order of their relative effectiveness in accomplishing entry in this area for each of the price assumptions

TABLE XXXII

ESTIMATED CAPITAL REQUIREMENTS AND FIRST YEAR CASH FLOW FOR BEGINNING FARMERS, FOR SELECTED EQUITY - LAND RENTAL SITUATIONS AND AVERAGE PRODUCT PRICES, NORTHEASTERN OKLAHOMA

Equity or Rental (Percent)	0% Equity	25% Equity	50% Equity	25% Land Rental 0% Equity	50% Land Rental 0% Equity	25% Land Rental 25% Equity
Total Capital Assets (Excluding Rented Land)						
A. Short Term	11,780.38	11,780.38	11,780.38	13,449.42	15,118.46	13,449.42
B. Intermediate Term	31,287.57	31,287.57	31,287.57	31,287.57	31,287.57	31,287.57
C. Long Term	309,580.00	309,580.00	309,580.00	232,185.00	154,790.00	232,185.00
Total	352,647.95	352,647.95	352,647.00	276,921.99	201,196.03	276,921.99
Capital Borrowed						
A. Short Term Capital	N/A	8,835.29	5,890.19	13,449.42	15,118.46	10,504.33
B. Short Term Stock Requirements	N/A	441.76	294.51	0.00	0.00	525.22
C. Intermediate Term Capital	N/A	23,465.68	15,643.79	31,287.57	31,287.57	23,465.68
D. Intermediate Term Stock Requirements	N/A	1,173.28	782.19	0.00	0.00	1,173.28
E. Long Term Capital	N/A	232,185.00	154,790.00	232,185.00	154,790.00	154,790.00
F. Long Term Stock Requirements	N/A	13,931.10	9,287.40	7,931.10	3,287.40	9,287.40
Total	N/A	280,032.11	186,688.08	284,852.99	204,483.43	199,745.91
Interest Charges						
A. Short Term	N/A	868.33	578.89	1,176.82	1,322.87	1,032.37
B. Intermediate Term	N/A	2,306.21	1,537.47	2,737.66	2,737.66	2,306.21
C. Long Term	N/A	20,919.87	13,946.57	16,909.87	9,936.58	13,946.57
Total	N/A	24,094.41	16,062.94	20,824.35	13,997.11	17,285.15
Principal Payments						
A. Intermediate Term	N/A	3,519.85	2,346.57	4,469.65	4,469.65	3,519.85
B. Long Term	N/A	1,538.23	1,025.48	1,656.16	1,192.98	1,025.48
Total	N/A	5,058.08	3,372.05	6,125.81	5,662.63	4,545.33
Cash Residual For Owned Land, Labor, Management, Depreciation Capital and Risk						
A. LP Model Income	N/A	27,684.82	27,684.82	26,015.78	24,346.74	26,013.78
B. Depreciation	N/A	3,733.17	3,733.17	3,733.17	3,733.17	3,733.17
Total	N/A	31,417.99	31,417.99	29,748.95	28,079.91	29,748.95
Interest and Principal Payment	N/A	29,152.49	19,434.99	26,950.16	19,659.74	21,830.48
Cash Available for Family Living	N/A	2,265.50	11,983.00	2,798.79	8,420.17	7,918.47

TABLE XXXIII

ESTIMATED CAPITAL REQUIREMENTS AND FIRST YEAR CASH FLOW FOR BEGINNING FARMERS, FOR SELECTED EQUITY - LAND RENTAL SITUATIONS AND HIGH PRODUCT PRICES, NORTHWESTERN OKLAHOMA

Equity or Rental (Percent)	0% Equity	25% Equity	50% Equity	25% Land Rental 0% Equity	50% Land Rental 0% Equity	25% Land Rental 25% Equity
Total Capital Assets (Excluding Rented Land)						
A. Short Term	12,920.88	12,920.88	12,920.88	14,589.92	16,258.96	14,589.92
B. Intermediate Term	35,779.22	35,779.22	35,779.22	35,779.22	35,779.22	35,779.22
C. Long Term	309,580.00	309,580.00	309.580.00	232,185.00	154,790.00	232,185.00
Total	358,280.10	358,280.10	358,280.10	282,554.14	206,828.18	282,554.14
Capital Borrowed						
A. Short Term Capital	N/A	9,690.66	6,460.44	14,589.92	16,258.96	11,359.70
B. Short Term Stock Requirements	N/A	484.53	323.02	18.46	101.91	567.99
C. Intermediate Term Capital	N/A	26,834.42	17,889.61	35,779.22	35,779.22	26,834.42
D. Intermediate Term Stock Requirements	N/A	1,341.72	894.48	0.00	0.00	1,341.72
E. Long Term Capital	N/A	232,185.00	154,790.00	232.185.00	154.790.00	154,790.00
F. Long Term Stock Requirements	N/A	13,931.10	4,287.40	7,931.10	3,287.40	9,287.40
Total	N/A	284,467.43	184,644.95	290,485.24	210,217.49	204,181.23
Interest Charges						
A. Short Term	N/A	952.39	634.93	1,280.60	1,444.63	1,116.43
B. Intermediate Term	N/A	2,637.29	1,758.19	3,130.68	3,130.68	2,637.29
C. Long Term	N/A	20,919.87	13,946.47	16,909.87	9,936.58	13,946.57
Total	N/A	24,509.55	16,339.69	21,321.15	14,511.89	17,700.29
Principal Payments						
A. Intermediate Term	N/A	4,025.16	2,683.44	5,111.32	5,111.32	4,025.16
B. Long Term	N/A	1,538.23	1,025.48	1,656.16	1,192.98	1,025.48
Total	N/A	5,563.39	3,708.92	6,767.48	6,304.30	5,050.64
Cash Residual for Owned Land, Labor, Management, Depreciation, Capital and Risk						
A. LP Model Income	N/A	66,533.66	66,533.66	64,864.62	63,195.58	64,864.62
B. Depreciation	N/A	4,472.03	4,472.03	4,472.03	4,472.03	4,472.03
Total	N/A	71,005.69	71,005.69	69,336.65	67,667.61	69,336.65
Interest and Principal Payment	N/A	30,072.94	20,048.61	28,088.63	20,816.19	22,750.93
Cash Available for Family Living	N/A	40,932.75	50,957.08	41,248.02	46,851.42	46,585.72

were (1) 50 percent equity, (2) 50 percent land rental, (3) 25 percent equity-25 percent land rental, (4) 25 percent land rental, and (5) 25 percent equity.

Low Product Prices. The 50 percent equity benchmark yielded -$9,344.34 available for family living (Table XXVII). Assuming that other situations provide lesser returns, no profitable means of completing entry were available under these price assumptions. The optimal enterprise combinations as well as each of the capital requirements were identical to those for average prices.

Panhandle Area

As explained previously, a 640 acre farm was used in the maximization model in addition to the 272 acre farm. Maximization techniques were applied to this additional farm size under average price assumptions only.

Average Product Prices, 272 Acre Farm. All the equity-land rental situations yielded residuals available for family consumption which were conducive to completing entry (Table XXXIV). The 25 percent equity level provided slightly less than $7,000 for family living. The five remaining situations furnished cash residuals greater than $7,000. The total capital requirements were slightly greater than $112,000.

Average Produce Prices, 640 Acre Farm. This farm size is approximately 2.36 times the size of the 272 acre farm. Consequently, the levels of optimum enterprises and the capital requirements are approximately 2.36 times those respective amounts for the previous farm size. However, because of the effects of the financial assumptions

TABLE XXXIV

ESTIMATED CAPITAL REQUIREMENTS AND FIRST YEAR CASH FLOW FOR BEGINNING FARMERS, FOR SELECTED EQUITY - LAND RENTAL SITUATIONS AND AVERAGE PRODUCT PRICES, PANHANDLE AREA OF OKLAHOMA

Equity or Rental (Percent)	0% Equity	25% Equity	50% Equity	25% Land Rental 0% Equity	50% Land Rental 0% Equity	25% Land Rental 25% Equity
Total Capital Assets (Excluding Rented Lands)						
A. Short Term	3,757.50	3,757.50	3,757.50	4,939.80	6,122.27	4,939.80
B. Intermediate Term	13,559.67	13,559.67	13,559.67	13,559.67	13,559.67	13,559.67
C. Long Term	95,014.50	95,014.50	95,014.50	71,260.87	47,507.25	71,260.87
Total	112,331.67	112,331.67	112,331.67	89,760.34	67,189.19	89,760.34
Capital Borrowed						
A. Short Term Capital	3,757.50	2,818.13	1,878.75	4,939.80	6,122.27	4,000.43
B. Short Term Stock Requirements	0.00	140.91	93.94	0.00	0.00	200.02
C. Intermediate Term Capital	13,559.67	10,169.75	6,779.83	13,559.67	13,559.67	10,169.75
D. Intermediate Term Stock Requirements	0.00	508.49	338.99	0.00	0.00	508.49
E. Long Term Capital	95,014.50	71,260.87	47,507.25	71,260.87	47,507.25	47,507.25
F. Long Term Stock Requirements	0.00	4,275.65	2,850.43	0.00	0.00	2,850.43
Total	112,331.67	89,173.80	59,499.19	89,760.34	67,189.19	65,236.37
Interest Charges						
A. Short Term	328.78	276.97	184.64	432.23	535.70	393.16
B. Intermediate Term	1,186.47	999.48	666.32	1,186.47	1,186.47	999.48
C. Long Term	4,750.73	6,420.60	4,280.40	3,563.04	2,375.36	4,280.40
Total	6,265.98	7,697.05	5,131.36	5,181.74	4,097.53	5,673.04
Principal Payments						
A. Intermediate Term	1,937.10	1,525.46	1,016.97	1,937.10	1,937.10	1,525.46
B. Long Term	788.62	472.10	314.74	591.47	394.31	314.74
Total	2,725.72	1,997.56	1,331.71	2,528.57	2,331.41	1,840.20
Cash Residual For Owned Land, Labor, Management, Depreciation, Capital and Risk						
A. LP Model Income	15,598.05	15,598.05	15,598.05	14,415.75	13,233.28	14,415.75
B. Depreciation	1,064.89	1,064.89	1,064.89	1,064.89	1,064.89	1,064.89
Total	16,662.94	16,662.94	16,662.94	15,480.64	14,298.17	15,480.64
Interest and Principle Payment	8,991.70	9,694.61	6,463.07	7,710.31	6,428.94	7,513.24
Cash Available for Family Living	7,671.24	6,968.33	10,199.87	7,770.33	7,869.23	7,967.40

involved in determining cash flows, the residuals for family living are not directly related.

Entry was easily accomplished in each of the equity-land rental situations. The cash residuals for family living provided by each of them were greater than $14,000 (Table XXXV).

High Product Prices. The optimal enterprise combination, capital requirements, principal and interest payments, and depreciation under these price assumptions were identical to those for average prices. The range in cash residuals was also comparable (Table XXXVI). The 25 percent equity situation yielded $26,150 for family living, and the 50 percent equity level furnished almost $29,000. The remaining four situations were all within $1,000 greater than the residuals provided by the 25 percent equity level.

Low Product Prices. No livestock enterprises entered the optimal solution under this price assumption. However, total capital requirements were reduced by less than $200. The 50 percent equity situation provided the only positive cash residual for family living relative to the other areas of study -- $200.93 (Table XXVII). However, this is neither sufficient to promote entry nor is it an indication of the relatively greater feasibility of other situations. Considering typical relationships, the other equity-land rental arrangements would result in negative residuals for family consumption. The relatively greater residual return in the 50 percent equity situation does indicate that this area provides the economic environment to most conducive entry of all the study areas.

TABLE XXXV

ESTIMATED CAPITAL REQUIREMENTS AND FIRST YEAR CASH FLOW FOR BEGINNING FARMERS, FOR SELECTED EQUITY - LAND RENTAL SITUATIONS AND AVERAGE PRODUCT PRICES, PANHANDLE AREA OF OKLAHOMA, 640 ACRE FARM

Equity or Rental (Percent)	0% Equity	25% Equity	50% Equity	25% Land Rental 0% Equity	50% Land Rental 0% Equity	25% Land Rental 25% Equity
Total Capital Assets (Excluding Rented Land)						
A. Short Term	8,858.43	8,858.43	8,858.43	11,645.63	14,432.83	11,645.63
B. Intermediate Term	31,967.39	31,967.39	31,967.39	31,967.39	31,967.39	31,967.39
C. Long Term	224.000.00	224,000.00	224,000.00	168.000.00	112,000.00	168.000.00
Total	264,825.82	264,825.82	264,825.82	211,613.02	158,400.22	211,613.02
Capital Borrowed						
A. Short Term Capital	8,858.43	6,643.82	4,429.22	11,645.63	14,432.83	9,431.02
B. Short Term Stock Requirements	0.00	332.19	221.46	0.00	0.00	471.55
C. Intermediate Term Capital	31,967.39	23,975.54	15,983.70	31,967.39	31,967.39	23,975.54
D. Intermediate Term Stock Requirements	0.00	1,198.78	799.19	0.00	0.00	1,198.78
E. Long Term Capital	224,000.00	168.000.00	112,000.00	168,000.00	112,000.00	112,000.00
F. Long Term Stock Requirements	7,440.00	10,080.00	6,720.00	4,080.00	720.00	6,720.00
Total	272,265.82	210,950.33	140,153.57	215,693.02	159,120.22	153,796.89
Interest Charges						
A. Short Term	775.11	652.94	435.30	1,018.99	1,262.87	926.88
B. Intermediate Term	2,797.15	2,356.32	1,570.88	3,142.39	2,797.15	2,356.32
C. Long Term	16,172.40	15,136.80	10,091.20	11,126.80	6,081.20	10,091.20
Total	19,744.66	18,146.06	12,097.38	15,288.18	10,141.22	13,374.40
Principal Payments						
A. Intermediate Term	4,566.77	3,596.33	2,397.56	4,566.77	4,566.77	3,596.33
B. Long Term	1,651.50	1,050.00	700.00	1,280.50	909.50	700.00
Total	6,218.27	4,646.33	3,097.55	5,847.27	5,476.27	4,296.33
Cash Residual for Owned Land, Labor, Management, Depreciation, Capital and Risk						
A. LP Model Income	37,742.13	37,742.13	37,742.13	34,954.93	32,167.62	34,954.93
B. Depreciation	2,510.52	2,510.52	2,510.52	2,510.52	2,510.52	2,510.52
C. Total	40,252.65	40,252.65	40,252.65	37,465.45	34,678.14	37,465.45
Interest and Principal Payment	25,962.93	22,792.39	15,194.93	21,135.45	15,617.49	17,670.73
Cash Available for Family Living	14,289.72	17,460.26	25,057.72	16,330.00	19,060.65	19,794.72

TABLE XXXVI

ESTIMATED CAPITAL REQUIREMENTS AND FIRST YEAR CASH FLOW FOR BEGINNING FARMERS, FOR SELECTED EQUITY - LAND RENTAL SITUATIONS AND HIGH PRODUCT PRICES, PANHANDLE AREA OF OKLAHOMA

Equity or Rental (Percent)	0% Equity	25% Equity	50% Equity	25% Land Rental 0% Equity	50% Land Rental 0% Equity	25% Land Rental 25% Equity
Total Capital Assets (Excluding Rented Lands)						
A. Short Term	3,757.50	3,757.50	3,757.50	4,939.80	6,122.27	4,939.80
B. Intermediate Term	13,559.67	13,559.67	13,559.67	13,559.67	13,559.67	13,559.67
C. Long Term	95,014.50	95,014.50	95,014.50	71,260.87	47,507.25	71,260.87
Total	112,331.67	112,331.67	112,331.67	89,760.34	67,189.19	89,760.34
Capital Borrowed						
A. Short Term Capital	3,757.50	2,818.13	1,878.75	4,939.80	6,122.27	4,000.43
B. Short Term Stock Requirements	0.00	140.91	93.94	0.00	0.00	200.02
C. Intermediate Term Capital	13,559.67	10,169.75	6,779.83	13,559.67	13,559.67	10,169.75
D. Intermediate Term Stock Requirements	0.00	508.49	338.99	0.00	0.00	508.49
E. Long Term Capital	95,014.50	71,260.87	47,507.25	71,260.87	47,507.25	47,507.25
F. Long Term Stock Requirements	0.00	4,275.65	2,850.43	0.00	0.00	2,850.43
Total	112,331.67	89,173.80	59,499.19	89,760.34	67,189.19	65,236.37
Interest Charges						
A. Short Term	328.78	276.97	184.64	432.23	535.70	393.16
B. Intermediate Term	1,186.47	999.48	666.32	1,186.47	1,186.47	999.48
C. Long Term	4,750.73	6,420.66	4,280.40	3,563.04	2,375.36	4,280.40
Total	6,265.98	7,697.05	5,131.36	5,181.74	4,097.53	5,673.04
Principal Payments						
A. Intermediate Term	1,937.10	1,525.46	1,016.97	1,937.10	1,937.10	1,525.46
B. Long Term	788.62	472.10	314.74	591.47	394.31	314.74
Total	2,725.72	1,997.56	1,331.71	2,528.57	2,331.41	1,840.20
Cash Residual For Owned Land, Labor, Management, Depreciation, Capital and Risk						
A. LP Model Income	34,077.15	34,077.15	34,077.15	32,894.85	31,712.38	32,894.85
B. Depreciation	1,064.89	1,064.89	1,064.89	1,064.89	1,064.89	1,064.89
Total	35,142.04	35,142.04	35,142.04	33,959.74	32,777.27	33,959.74
Interest and Principal Payment	8,991.70	9,694.61	6,463.07	7,710.31	6,428.94	7,513.24
Cash Available for Family Living	26,150.34	25,447.43	28,687.97	26,249.43	26,348.33	26,446.50

Overview

The cash flows summarized in Table XXXVII are assumed to be indicative of the relative feasibility of overcoming the financial barriers to entry with respect the the restrictions and existing conditions found in each area of study. The zero equity situation -- in those cases where capital requirements permitted 100 percent financing -- provided the least cash available for family living. Regardless of the accessibility to low-interest financing, this situation proved to be less effective than any of the other equity-land rental situations in providing sufficient cash residuals to maintain an adequate standard of living.

One question which arises when referring to an "adequate standard of living" is: What absolute level of farm income can be labeled as "acceptable" for a beginning farmer? Of course, it will depend upon (1) what the individual -- and his family -- can subsist on without creating undue hardships and (2) what level of opportunity returns to his labor, management, and risk, the operator is willing to accept. With efficient household budgeting and wise money management, an income level of $4-5,000 might be considered acceptable by some families for a few years. Alsok if the prospective entrant was (1) single and living with his parents, (2) able to obtain some family financial assistance, or (3) able to obtain off-farm employment, the level of farm income considered "acceptable" would be reduced.

The 50 percent equity level yielded the greatest cash residual for family living under each of the pricing assumptions for each area.

TABLE XXXVII

CASH RESIDUALS FOR FAMILY LIVING AND CHANGES IN NET WORTH AT THE END OF YEAR I, AVERAGE PRODUCT PRICES, SIX EQUITY-LAND RENTAL SITUATIONS, FIVE AREAS OF OKLAHOMA

	0% Equity	25% Equity	50% Equity	25% Land Rental 0% Equity	50% Land Rental 0% Equity	25% Land Rental 25% Equity
Northeast						
Cash Available for Family Living	N/A	-563.80	10,503.86	-5,125.34	-3,339.86	1,212.67
Change in Net Worth, Year 1	N/A	5,333.50	2,282.82	7,766.19	7,337.85	4,905.16
Southeast						
Cash Available for Family Living	3,524.15	6,894.17	14,958.89	6,836.73	10,149.31	10,206.74
Change in Net Worth, Year 1	4,117.96	2,273.97	285.94	3,765.33	3,412.69	1,921.32
Southcentral						
Cash Available for Family Living	N/A	3,964.17	15,146.96	956.17	4,410.30	7,409.28
Change in Net Worth, Year 1	N/A	2,323.03	-220.75	4,183.19	3,689.21	1,829.05
Northwest						
Cash Available for Family Living	N/A	2,265.50	11,983.00	2,798.79	8,420.17	7,918.47
Change in Net Worth, Year 1	N/A	1,324.91	-361.12	2,392.64	1,929.46	812.16
Panhandle						
Cash Available for Family Living	7,671.24	6,968.33	10,199.87	7,770.33	7,869.23	7,967.40
Change in Net Worth, Year 1	1,660.83	932.67	266.82	1,463.68	775.31	775.31

This provided a benchmark for analysis, however, rather than a typical situation for a beginning farmer. The 25 percent land rental-25 percent equity, 50 percent land rental, 25 percent equity, and 25 percent land rental situations yielded progressively lesser cash residuals for each of the price assumptions. This ordering of the various situations also indicate their relative effectiveness in accomplishing entry.

The introduction of high price levels significantly increased the possibilities for easily accomplishing entry in each of the study areas. The implications of higher product prices may be viewed from two aspects. First, they can be evaluated in the context of the operational model. That is, given a specific farm size, relatively higher prices will yield significant cash amounts for family consumption -- and perhaps cash surpluses. Second, they can be considered from the standpoint of permitting smaller farm sizes to obtain an acceptable income level. They may also reflect "what could be" with enterprise combinations and resource restrictions which differ from those outlined in the operational models.

Although this study is intended to be a static analysis of the critical first year of a farm firm's life, and analysis of possible changes in the firm financial structure in subsequent periods is appropriate. Table XXXVII presents the opportunities for changes in the net worth of a beginning farmer in each of the study areas under the average product price assumptions. In addition, some of the cash residuals for family living and apply these savings to his existing debt, his financial position will become even more attractive.

The relative effectiveness of the various equity-land rental levels in providing increases in net worth is reversed, compared to the abilities of these situations to provide adequate cash residuals for accomplishing entry. For example, the 50 percent equity -- with low principal

payments relative to depreciation -- in each area furnishes the smallest increase in net worth, whereas it provided the easiest means of overcoming entry barriers in the cash flow analysis. In addition, the areas which formerly provided the most formidable obstacles to entry, provide the greatest opportunities for increasing net worth after the first year. These areas were characterized by comparatively higher capital requirements. Therefore their related principal payments were greater relative to depreciation charges. Subsequent years of operation will yield greater increases in net worth, as principal payments increase and depreciation charges remain stable. This would not be true if equal principal payments were being made on all capital requirements. In this instance, principal payments would remain constant from year to year and would not gain on depreciation charges, resulting in equal changes in net worth in each year.

The attributes of this type of analysis lie in its implications for obtaining more favorable financing terms. For example, with a rapidly increasing net worth, the operator might be able to refinance a portion of his debt capital based on this increase, rather than on repayment capacity alone. Refinancing could free money for family living. The increased net worth would also afford the operator more risk-bearing ability in poor production periods or temporarily adverse market price conditions. Also, after seven years (as depicted in the financing assumptions used in this chapter) the intermediate capital requirements would be totally repaid, allowing the operator to obtain 100 percent financing for other production items -- such as stocker cattle. However, it is likely that some of the gains in net worth in this manner would be offset by the necessity to furnish capital

to replace some intermediate capital items -- such as machinery.

Favorable changes in net worths should not be confused with favorable entry environs, which are determined by cash flows. That is, these changes in net worth can only be realized if entry is accomplished. Therefore, areas which provide conditions for rapidly increasing net worth are not conducive to beginning farmers if the prospective entrant finds it impossible to gain control of the necessary resource requirements. This aspect, as well as the actual cash flows presented in this chapter reinforces the suggestion by one of the private lenders interviewed that a prospective entrant should "get in a good producing county". The lender may have perceived that opportunities to enter farming with few resources are more favorable in some areas than in others. Results of the study support this idea.

CHAPTER VII

SUMMARY AND CONCLUSIONS

The major purpose of this study was to identify specific financial obstacles to entry into farming in five Oklahoma areas and provide information concerning alternative solutions. The specific objectives of this study were to gather information regarding agricultural lender practices and attitudes toward prospective farmers; to determine relevant financial alternatives available to beginning farmers; to estimate minimum capital requirements for a specified income level in the areas of study; to identify specific capital barriers to entry for the farm situations in the areas of study; and to analyze alternative financial strategies available and pertinent to beginning farmers in the study areas.

A questionnaire survey was conducted in the central county of each of the study areas to collect data regarding the specific practices of the agricultural lenders -- institutional and private -- which served therein. A primary concern in this portion of the study was the attitudes of the lenders toward low resource, beginning farmer applicants. Each of these items were determined and evaluated based on the responses obtained from sixty-one respondents interviewed.

Linear programming minimization techniques were used to determine minimum resource requirements for a specified level of income

in each area. Land resource restrictions were selected to represent existing situations in each area as well as to depict the type of farm desired -- such as a primarily crop farm in the Southcentral area. The hours of annual operator labor available, cost of hired labor, and cost of borrowing short, intermediate, and long term capital were also specified for the operational models. Crop and livestock production alternatives were selected to represent the types of activities typical to each area and to depict the enterprises which could be produced most efficiently. Specialized activities such as dairying, truck cropping, and swine systems, were not considered admissible alternatives. Previously constructed, published budgets were used for the selected production alternatives. Each of the budgets was revised to include current operating input costs and three selected levels of output prices. The target income level of $7,000 approximated the earnings of factory workers, adjusted for differences in the non-money incomes of farmers.

Because capital barriers to entry proffer the most difficult obstacles for prospective farmers, total capital was the objective function minimized. Minimization procedures were conducted for the costs, returns, and restrictions for each study area using average product price levels only. Preliminary programming indicated that solutions in some of the areas were going to be infeasible, therefore, a routine was used to vary the long term interest rate. The resulting combinations of capital requirements and farm sizes provided a basis for determining the representative farm size for each area.

Maximization techniques were used to estimate the capital requirements and returns to operator labor, management, and risk, for the

representative farm sizes with the three product price levels for each area. The resulting information was used to develop an analysis of the effects of various operator equity - land rental situations and selected financial alternatives upon the first year cash flows of prospective entrants.

Six equity-land rental situations were chosen: (1) zero equity, (2) 25 percent equity, (3) 50 percent equity, (4) 25 percent land rental, (5) 50 percent land rental, and (6) 25 percent equity - 25 percent land rental. These situations were used to determine the amounts of debt capital required to gain control of the capital resources needed for operation. Three credit sources considered relevant to each of the equity-land rental situations were introduced to determine the first year costs of borrowing the required amounts of debt capital. The resulting interest plus principal payments, when compared to the total model returns available for family living and debt retirement, provided for the ultimate determination of cash residual for family living. These cash residuals were presented as indicators of the relative feasibility of entry with the various product price assumptions and equity-land rental levels for each of the study areas.

Results

Financial Lender Survey

A wide variety of information was provided by the sixty-one respondents interviewed. A few observations are highlighted here. FHA had more total agricultural loan volume devoted to borrowers

ages 20 to 30 than any other agricultural lender. Banks and PCA's believed that interest rates in effect at the time of the study were 1.5 to 2.3 percent above normal interest rates. Cash flows were not widely used for loan application evaluation by any of the institutional lenders, however, virtually all of them required net worth and operating statements. Financial management services were provided by more lenders than were services such as legal advice, insurance planning, and tax guidance. Commercial banks and FLBA's conducted on-the-farm visits for slightly more than half of their borrowers while FHA and PCA's conducted these visits for 100 and 90 percent of their borrowers, respectively.

Private lenders committed most of their loaned funds to land loans. The interest rates charged by private individuals averaged slightly greater than seven percent. The 23 private lenders interviewed granted loans to more than 180 borrowers. Less than four percent of these borrowers were relatives of the private financiers. Life insurance companies proved to be poor sources of capital for beginning farmers and FHA provided the most favorable loan terms for a prospective entrant.

Minimum Resource Model

The representative farm sizes obtained via minimization techniques were (1) 772 acres in northeastern Oklahoma, (2) 906 acres in the Southeast, (3) 1,193 acres in the southcentral area, (4) 1,346 acres in northwest Oklahoma, and (5) 272 acres for an irrigated farm in the panhandle area of Oklahoma. Increasing the long term interest rate resulted in total capital requirements and farm sizes increasing at

increasing rates in each of the areas. The representative farm sizes in the northeast area and the northwest area were associated with long term interest rates lower than that specified in the initial model. This type of selection may be justified in that the amounts of capital required to earn the last few $1,000 of income were extraordinarily high with the initial model interest rate for land capital.

Maximization and Cash Flow Analysis - Northeastern Area

Loans to finance capital requirements could not be obtained for the zero equity level in this area. Loans were limited by the maximum indebtedness allowed by FHA, the only source of 100 percent financing available. Therefore, entry was infeasible under each price level assumption. With average prices the cash residuals for family living were negative in the 25 percent equity, 25 percent land rental, and 50 percent rental situations. Only if the prospective entrant owned 50 percent of the capital requirements -- which is unlikely -- could entry be accomplished with average product prices. With high prices, cash residuals provided comparable entry in each of the equity-land rental situations. Entry was not feasible in any of the situations with low product price assumptions.

Southeastern Area

With average prices, the cash residuals for family living were all greater than $3500. The zero equity situations for each price level provided the lowest cash residuals of all the situations. With high prices, entry was easily accomplished in each of the equity-land rental situations. Conversely, with low product price levels entry was feasible

in all the equity-land rental situations. This study area provided one of the most favorable economic envoronments for entry into farming.

Southcentral Area

Capital requirements in the zero equity situation precluded the acquisition of 100 percent financing. The 25 percent rental situation provided the least returns for family living with both high and average price assumptions. Entry could be accomplished in the 25 percent equity situation if supplementary income could be obtained. The 50 percent equity, 50 percent land rental and 25 percent equity-25 percent land rental situations could easily afford comfortable means of entry with average prices. With high prices, the cash residuals for family living in each equity-land rental situation--excluding the zero equity level--were greater than for any other area of study. Conversely, low price levels rendered entry infeasible for each of the situations.

Northwestern Area

Entry was infeasible with zero equity under each of the product price assumptions in this area. The excessive long term capital requirements precluded 100 percent financing from FHA, the only source of long-term credit available. Entry was difficult with 25 percent equity or 25 percent land rental under average product price assumptions. The 50 percent land rental and 25 percent land rental-25 percent equity situations, along with the 50 percent equity level, provided comfortable means of entry. Entry was made extremely easy in each of the equity-land rental situations--excluding zero equity--with high product price levels. Low product prices rendered entry infeasible.

Panhandle Area

Cash residuals for family living provided by each equity-land rental situation with average prices, provided easy entry. Entry was likewise easily accomplished in each of the equity-land rental levels with average prices for the 640 acre farm-size. Entry was relatively easier when high prices were introduced. Although cash residuals for family living with low price levels were higher in this area than the other areas of study, their negative amounts precluded entry.

Overview

Entry was infeasible in each area of study for all equity-land rental situations under low product price assumptions. Conversely, high product prices provided significant amounts of cash available for family living, thereby encouraging entry procedures. A characteristic pattern emerged regarding the relative amounts of cash residuals provided by each of the equity-land rental situations. For example, the 50 percent equity situation furnished the highest residual in each area, under each product price assumption. The 25 percent equity-25 percent land rental situation provided the second largest residuals, followed by the 50 percent land rental, 25 percent land rental, and 25 percent equity situations, respectively.

The zero equity situation in three of the five study areas did not permit entry because of the excessive long term capital requirements. Although it was apparent that sufficient cash residuals would be obtained -- for example, with high prices -- entry could not be accomplished because of the maximum indebtedness limit placed on land loans by FHA, the only source of 100 percent financing. It is evident,

therefore that this $225,000 maximum should be reviewed, and perhaps revised. Because of varying land prices and other economic and technological factors in different areas, this maximum indebtedness limit should be allowed to vary.

Need for Further Research

Additional research might include a dynamic analysis considering strategies for survival during the early years of farming. These types of analyses, or other static research endeavors, should consider additional variations in the crop and livestock production prices. For example high crop prices might be used with low livestock prices, and vice versa. Further study is also needed for other types of farms and for other areas of the state. Additional financial arrangements, changes, and innovations need to be researched to evaluate their effects on entry and farm survival. For example, father-son arrangements should be included as to their relative effectiveness in accomplishing entry.

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APPENDIX A

THE QUESTIONNAIRES

EXHIBIT A

DEPARTMENT OF AGRICULTURAL ECONOMICS

OKLAHOMA STATE UNIVERSITY

ANALYSIS OF FINANCIAL ALTERNATIVES FOR BEGINNING FARMERS

PRODUCTION CREDIT ASSOCIATIONS

CONFIDENTIAL QUESTIONNAIRE

Association Name:_____ County:_____

Respondent's Name:_____ Interviewer:_____

Respondent's Title:_____ Date:_____

I. In order to collect reliable data for beginning farmers we need your help in compiling accurate information regarding the cost and availability of borrowed funds.

A. In the table on the next page each column of blanks pertains to one of the following questions. If you have any additional comments to make, please feel free to do so.

1. Which of the following types of loans do you make?

2. What interest rates (or perhaps range of interest rates) would you normally charge for each type of loan (Simple Interest)?

3. What are your current interest rates for each type of loan (Simple Interest)?

4. What period of time do you normally allow for repayment of each type of loan?

5. How much do you normally loan on the appraised value of the purchase (for example 70% on stockers, 90% on land, etc.)?

6. What type of payments (e.g. monthly, annual, or commensurate with cash flows, etc.) do you normally arrange for each type of loan?

7. How do you figure in interest charges for each type of loan (add-on, discounted, etc.)?

8. What type of repayment do you usually arrange for each of the following types of loans (e.g. amortized, equal payments, etc.)?

Loan Type	1	2	3	4	5	6	7	8
Machinery								
Livestock Breeding								
Livestock Fattening								
Livestock Stockers								
Seed, Fert. Loans								
Land								
Buildings and other land imprv.								
Other production loans (e.g. rental)								
Pasture established								
Other loans								

II. We are interested in the types of devices your association employs to analyze loan applications and the operations of you.

A. What types of information do you require when analyzing and evaluating a loan application?

1. Cash flows
   a. Prepared forms Yes_____ No_____
   b. Other forms Yes_____ No_____
2. Net worth Statement Yes_____ No_____
3. Operating Statement Yes_____ No_____
4. Other_____

_____

_____

_____

_____

B. If you do not require cash flows, what percentage of your borrowers supply them anyway?

C. Do you offer record keeping services?

1. Computerized Yes_____ No_____
2. Manual Yes_____ No_____
3. Other_____

_____

_____

_____

_____

D. For what percentage of your borrowers do you actively conduct on-the-farm visits after the loan has been made?

E. Indicate which of the following services your bank offers to its borrowers.

1. Legal advice on farm matters _____
2. Insurance planning
3. Record analysis
4. Tax guidance
5. Financial Management
6. Other _____

_____

_____

_____

III. The specific purpose of this questionnaire and the intent of the research which will follow is to assist the young or beginning farmer. The following questions are designed to collect information which will aid these potential farmers in their search for financial assistance.

A. Approximately what percentage of your total loan volume falls within each of the following borrower age categories?

20-25 _____ 36-50 _____

26-30 _____ 51-60 _____

31-35 _____ Over 60 _____

B. How do your borrowers 20-30 years of age compare with those in other age groups with respect to actual defaulted loans?

C. Which of the following items have you used or witnessed whe making loans to low equity applicants or beginning farmers?

1. Co-signor
2. Use of parent's collateral
3. Additional or conditional collateral
4. Cash gift
5. Land gift
6. Use of third party's machinery
7. Other _____

_____

_____

D. Do you have any special policies or practices tailored specifically for the needs of the low equity, low resource, or beginning farmer? If so, please describe as fully as possible.

E. Assign a value to each of the following items which you believe indicates its importance when evaluating a loan to a beginning farm. (Use a scale of 0-100, where 0 means the item is not considered at all and 100 means it is given extremely heavy emphasis.)

1. Applicant's character _____
2. Applicant's education _____
3. Applicant's farming experience _____
4. Applicant's net worth _____
5. Applicant's desire to farm _____
6. Applicant's credit rating _____
7. Applicant's personality _____
8. Financial situation of parents or relatives _____
9. Applicant's managerial ability _____

F. What are your attitudes and opinions, regarding other lending agencies and their efforts and abilities to give assistance to the low-equity, low resource, or beginning farmer?

1. Commercial Banks

2. FHA

3. FLB

4. Insurance Companies

5. Okla. School Land Comm.

6. Private Lenders

G. What suggestions do you have for a young man who desires to or is attempting to overcome the financial barriers of entry into farming?

1.

2.

3.

4.

EXHIBIT B

DEPARTMENT OF AGRICULTURAL ECONOMICS

OKLAHOMA STATE UNIVERSITY

ANALYSIS OF FINANCIAL ALTERNATIVES FOR BEGINNING FARMERS

PRIVATE LENDERS

CONFIDENTIAL QUESTIONNAIRE

Name: _____ Interviewer: _____

Mailing Address: _____ Date: _____

County: _____

Studies have been conducted which show that 40 percent of all agricultural loans are made by private lenders. This includes retiring farmers as well as those who loan accumulated funds in arrangements similar to those of commercial banks and other lending agencies. This interview is being conducted in order that information may be collected about this very important yet little known source of credit.

I. In the table on the next page each column of blanks pertains to one of the following questions. If you have any additonal comments to make, please feel free to do so.

A. Which of the following types of loans do you make.

B. What percentage of the money you lend goes for the types of loans which apply.

C. What interest rates do you normally charge for each type of loan which applies.

D. What period of time do you allow for repayment of each type of loan which applies.

E. How much do you normally loan on the appraised value of the purchase (for example 70% on stockers, 90% on land, etc.).

F. What type of payments (for example monthly, annual, etc.) do you arrange for each type of loan which applies.

G. If you are financing the purchase of one of the following items of which you are the seller, what percentage of the total value did you require as down payment.

Loan Type	1	2	3	4	5	6	7	8
Machinery								
Livestock Breeding								
Livestock Fattening								
Livestock Stockers								
Seed, Fert. Loans								
Land								
Buildings and other land imprv.								
Other production loans (e.g. rental)								
Pasture established								
Other Loans								

II. Assign a value to each of the following items which you believe indicates its importance when evaluating a loan to a beginning farmer. (Use a scale of 0-100, where 0 means the item is not considered at all and 100 means it is given extremely heavy emphasis).

1. Applicant's character _____
2. Applicant's education _____
3. Applicant's farming experience _____
4. Applicant's net worth _____
5. Applicant's desire to farm _____
6. Applicant's credit rating _____
7. Applicant's personality _____
8. Applicant's managerial ability _____
9. Financial situation of parents or relatives _____

III. What are your attitudes and opinions regarding other lending agencies and their efforts and abilities to give assistance to the low-equity, low resource, or beginning farmers?

1. Commercial Banks

2. FHA

3. Production Credit Ass'ns.

4. Federal Land Bank Ass'ns.

5. Insurance Companies

6. Okla. School Land Comm.

IV. What suggestions do you have for a young man who desires to or is attempting to overcome the financial barriers of entry into agriculture.

1.

2.

3.

4.

V. Have you ever been or are you now actively engaged in farming?

Yes_____ No_____

VI. What is the approximate age(s) of the person(s) to whom you loan money?

VII. How many borrowers presently use your financial assistance?

VIII. What is your relationship to the person(s) to whom you lend financial assistance?

APPENDIX B

SUMMARY OF RESPONSES REGARDING SPECIAL POLICIES PROVIDED FOR BEGINNING FARMERS BY INSTITUTIONAL LENDERS, SUGGESTIONS FOR BEGINNING FARMERS, AND CRITICISMS OF OTHER LENDERS BY EACH AGRICULTURAL LENDER

SUMMARY OF RESPONSES REGARDING SPECIAL POLICIES PROVIDED FOR BEGINNING FARMERS BY INSTITUTIONAL LENDERS

Commercial Banks

1. None - 10 respondents.
2. Require less margin of collateral.
3. Treat as anyone else unless his father is a good customer.
4. Refer to FHA - 3 respondents.
5. Take a security interest on growing crops which includes a pledge of sales proceeds.
6. Keep closer contact with them and work closer with them.
7. Young lenders in the bank will usually go a little farther than normal.
8. Initially require a co-signature on the first loan. After a time of activity with adequate repayment capacity, a more liberal loan is made.

Federal Land Bank Associatons

1. No - 2 respondents.
2. Participate with FHA and other lenders, especially private lenders.
3. Will go farther with a young promising farmer.

Farmers Home Administration

1. No - 2 respondents.
2. Participate with other lenders.
3. Guaranteed loan program, if banks would cooperate.

4. Will assume a second mortgage on land to cover 100% operating loan.
5. Visit beginning farmers regularly and provide close supervision.

Production Credit Associations

1. No - 3 respondents.
2. Require less equity with a beginning farmer.
3. We try to make 5 to 10 loans annually to beginning farmers.
4. Make complete budgets for beginning farmers and adhere to them as nearly as possible. Visit them 2 or 3 times per year and make quarterly dispersals for proper control.

SUMMARY OF RESPONSES REGARDING SUGGESTIONS FOR BEGINNING FARMERS WHO ARE ATTEMPTING TO OVERCOME FINANCIAL BARRIERS TO ENTRY BY ALL LENDERS

Commercial Banks

1. Get lined-up with FHA because banks are under such strict regulations.
2. Acquire adequate financing through local banker or from your family.
3. Must possess large amounts of patience, a strong desire and an intense devotion to tillage of the land.
4. Establish long pay-off periods to avoid becoming over-extended on financial obligations.
5. Expect long hours and short compensation.
6. Lease land and equipment to cut down capital needs.
7. If you are purchasing land strive for long-term land loans from FHA or FLBA.
8. Show lender you are not going overboard. Be conservative and of strong character.
9. Express an earnest desire to engage in agriculture.
10. Get with older farmer, do most of the work, and set up the deal with the land-owner. Move in gradually as the older man moves out.
11. Work with county extension director.
12. Get to know local bankers.
13. Prepare a detailed plan of operation both for the present and future, including cash flows.

14. Be prepared with an explanation of your experience before visiting with lender.
15. Have a detailed credit application prepared.
16. Prepare a list of references.
17. Need parents or relatives backing.
18. Young man needs established farmer to help him be competitive in land-leasing.
19. Use another's farm machinery if possible.
20. Do not tie up all operating money in capital such as fancy corrals, new machinery, and other unnecessary items.
21. Realize that the perfect set-up will require several years to build. Add something each year--as many as allowable. Realize the better things are several years in coming.

Farmers Home Administration

1. Build equity in cattle.
2. Build equity through off-farm employment and saving.
3. Use long-term loans and low interest rates to begin farming.
4. Be cautious about over-investment.
5. Use services of SCS and CES in order to attain the maximum land production capable.
6. Needs backing from dad or needs equipment.
7. Needs credit from other places besides FHA (e.g., feed, seed, fuel credit lines).
8. Needs off-farm income
9. Be honest, trustworthy, and be a good worker.
10. Use as few credit sources as possible. Don't get too spread out.

11. Keep a good set of records.
12. Visit with a successful farmer. Watch him closely to find out how he made his operation work.
13. Try to become associated with a successful farmer.
14. Need guidance from a financial institution.
15. Use minimum five-year leases and renewal options. For example, one-third share rent.

Federal Land Bank Associations

1. Borrow money and establish credit rating.
2. Build cattle and machinery equity before buying land.
3. Get your parents to help you get started.
4. Seed participation loans with FHA. You need to be loaned 100%.
5. Get with an older man who is retiring.
6. Get some experience in farming.
7. Maintain good record-keeping.
8. Get with a reputable lender.
9. Avoid getting in debt too quick.
10. When visiting lenders, prepare financial records and a plan as to proposed operations.
11. Be able to differentiate between the long-term and the short-term and try to keep both under one lender.
12. Attempt to establish a good track record.

Production Credit Associations

1. Start at bottom and grow -- don't start too big.
2. Acquire outside employment, save, and start small.

3. Must be able to sacrifice.
4. Must have patience and determination.
5. Must have an absolute desire to farm.
6. Must go to a lender with a definite plan (e.g., cash flows, etc.).
7. Know what you want, what it will cost, where you are going to get it, how you plan to finance it, and how you plan to repay the loan.
8. Prepare a written plan of goals and objectives.
9. Attempt to lease or farm an economic unit that has the potential to recover the funds required.
10. If possible, convince a financially responsible co-signer that your plan is sound and have his support in person, when making original applications.
11. Have completed credit information available as to past doings, regardless of how insignificant they may seem to you.
12. Have a list of references of people who know your experience and qualifications.
13. Must be married to a woman who will sacrifice as necessary.
14. Must keep excellent records.
15. Frequently consult lender about important or semi-important decisions.
16. Work hard and spend little.

Private Individuals

1. Get in a good producing county.
2. Need to live within your means.
3. Need to work off-farm and save.
4. Build up equity to get adequate financial backing.

5. Keep up with new technical information and changes with the times.
6. Look for cheap land--unimproved.
7. Do not over-step financial budgets.
8. Gradually work up--buy small piece of property and improve it.
9. Build a relationship with a lending agency.
10. Accept advice from agriculturally oriented agencies.
11. Keep good records.
12. Seek financial assistance of FHA.
13. Never buy anything on credit you can do without.
14. Work out a partnership with parents with the understanding of complete take-over after five years if you have proven yourself.
15. Begin by leasing and renting land.
16. Use professional assistance to set up a sound operation.
17. Use a good real estate attorney to set up contracts and land purchases.
18. Must have necessary background, ability, and character.
19. Seek the experiences of other farmers.
20. Be able to sacrifice in early years.
21. Work with father or relative. Move slowly and cautiously. Rent as much equipment and land as you can rather than buying.
22. Must have a strong desire to farm.
23. Stay with one lender and don't over-extend credit.
24. Prove ability and sincerity to private owner and work out a long-term incentive farmer-employee relationship following a period of 3 to 10 years.
25. Be able to communicate progress to your creditors.
26. Set goals and objectives.

27. Demonstrate to the lender you can operate with a minimum of expense, place more importance on efficiency, and remain well-informed.
28. Start with a small operation.
29. Have a good job so you don't have to depend completely on the farm for your income.
30. Find a good job, try to save and invest toward this end.
31. Seek the support of an experienced man with faith in your abilities and one who has machinery and cattle.

SUMMARY OF RESPONSES REGARDING CRITICISMS OF EACH OF SEVEN AGRICULTURAL LENDERS BY THE OTHER AGRICULTURAL LENDERS

Commercial Banks

1. Depends on the individual loan officer. They tend to loan on who the borrower is, try to push them off on FHA and FLBA.
2. Banks definitely do a good job in this area.
3. Federal regulation limits their abilities, but they go as far as they can.
4. Local banks do not have the lending authority tools needed to start young farmers.
5. They have tried to help and do thebest they can under regulations.
6. Work well with young farmers.
7. Banks are not set up for this type loan, they do not have time to work with farmers, are not knowledgeable in agriculture, and cannot give a farmer all the money he needs.

Farmers Home Administration

1. They make some bad loans and are not helping in a lot of cases.
2. Best source of credit for low equity borrower.
3. One of the best sources of entry. Their participation loans are good, but they are too slow.
4. FHA does a good job with young farmers.
5. Good source, but it takes them a long time to help.
6. FHA is trying to cooperate and help young farmers.
7. They are geared to work with people but can help more than they do.

8. They help more than the average agricultural lender.
9. They help people whereas banks can't.
10. They'll loan money to sorry individuals and won't loan to people who will work. They have too much control over borrower.
11. FHA red tape gets bad.
12. FHA does an excellent job.
13. Best source of credit for beginning farmers.
14. FHA is best for a young farmer because they can provide long-term, low interest loans.
15. Good place to finance land or a house.

Production Credit Associations

1. I think more of them than FHA because they are cautious.
2. PCA's won't make low equity loans.
3. Have to have some equity before they will help. They loan more on who the applicant is. They won't stick with you and they try to run your business.
4. Fair, they are not doing the job they were set up for.
5. PCA's are trying to cooperate and help young farmers.
6. PCA's charge high interest rates and require too much equity.
7. Not available to young farmers unless parents will stand behind him.
8. They have not done as commercial banks and will not take the financial risk of banks.
9. They work well with young farmers.
10. Good for larger farmers only.
11. Best source of operating after farmer passes beginning stages.
12. Can't get a loan without some equity.

Federal Land Bank Associations

1. FLBA's have no special programs, they loan on an appraisal basis.
2. Does a good job in this area.
3. FLBA's are faster than FHA.
4. Conservative in amount of loans advanced on a given security and their interest rate is too high.
5. Not very good for beginning farmer.
6. They charge high interest rates and appraise land too low.
7. FLBA's work well with young farmers.
8. They follow a formula for lending, applicant must have equity to obtain loan.
9. FLBA's take the gravy while FHA takes the risk.

Life Insurance Companies

1. Insurance companies won't help young farmers. Their prepayment penalties are detrimental.
2. Insurance companies do a good job.
3. No help to a low income, low asset applicant.
4. Insurance company money is seasonal.
5. They have not done anything.
6. They assess pay-off penalties. They are in it for the money, not to help the farmer.
7. Won't provide loans without equity.

Oklahoma School Land Commission

1. Irrelevant for a beginning farmer.
2. No help from them. Their lending is too political.

3. They help in terms of participating with other lenders but will not go alone with a new farmer.
4. They have not done anything because they are not local enough to service borrowers properly.
5. They are a low interest lender, but they can't loan enough money.
6. The best source of land credit if you qualify.
7. No loans are granted by them unless you have some equity.

Private Individuals

1. They help young farmers out a lot and their terms are usually good.
2. Best source of borrowed funds, lower interest rates.
3. They are no help except to relatives or close friends.
4. They are not used too much, limited for young farmers.
5. Depends on contract, sometimes they are the only way in individual can get started.
6. They have helped a lot of people get started with favorable terms and interest rates.
7. They are good if financing land but not so good for operating loans.
8. They will do anything and are sometimes the best way to get started.

APPENDIX C

MINIMUM CAPITAL REQUIREMENTS AND FARM SIZES TO EARN A $7,000 RETURN TO OPERATOR LABOR, MANAGEMENT AND RISK: VARIABLE LONG TERM INTEREST RATES, FOR THE AREAS OF STUDY

TABLE XXXVIII

ESTIMATED MINIMUM CAPITAL REQUIREMENTS AND FARM SIZES TO EARN A $7,000 RETURN TO OPERATOR LABOR, MANAGEMENT AND RISK; VARIABLE LONG TERM INTEREST RATES, NORTHEASTERN OKLAHOMA

Long Term Interest Rate	Farm Size	Capital Requirements			
		Total Capital	Short Term	Intermediate Term	Long Term
(Percent)	(Acres)	(Dollars)	(Dollars)	(Dollars)	(Dollars)
0.0	298	114,696	6,912	7,772	100,010
0.5	318	122,343	7,373	8,290	106,678
1.0	341	131,083	7,900	8,883	114,299
1.5	367	141,168	8,507	9,566	123,093
2.0	398	152,933	9,216	10,363	133,352
2.5	434	166,838	10,054	11,306	145,477
3.0	478	183,525	11,060	12,436	160,027
3.5	530	203,921	12,289	13,818	177,811
4.0	503	229,268	12,928	46,046	170,293
4.5	568	256,576	14,468	51,530	190,577
5.0	645	291,270	16,424	58,498	216,346
5.5	771	348,080	19,627	69,908	258,543
6.0	1,081	487,838	27,508	97,977	362,351
6.5	2,400	1,082,683	61,051	217,445	804,182

TABLE XL

ESTIMATED MINIMUM CAPITAL REQUIREMENTS AND FARM SIZES TO EARN A $7,000 RETURN TO OPERATOR LABOR, MANAGEMENT AND RISK: VARIABLE LONG TERM INTEREST RATES, SOUTHCENTRAL OKLAHOMA

Long Term Interest rate	Farm Size	Capital Requirements			
		Total Capital	Short Term	Intermediate Term	Long Term
(Percent)	(Acres)	(Dollars)	(Dollars)	(Dollars)	(Dollars)
0.0	316	94,380	6,474	8,745	79,160
0.5	333	99,293	6,811	9,200	83,280
1.0	351	104,744	7,185	9,705	87,853
1.5	371	110,830	7,602	10,269	92,957
2.0	395	117,666	8,071	10,903	98,691
2.5	421	125,401	8,602	11,620	105,178
3.0	450	134,224	9,207	12,437	112,579
3.5	476	144,376	10,369	14,756	119,248
4.0	515	156,003	11,205	15,946	123,851
4.5	522	168,971	10,774	27,756	130,442
5.0	568	183,970	11,729	30,220	142,021
5.5	600	201,784	13,023	38,809	149.952
6.0	675	223,119	14,321	40,056	168,742
6.5	772	250,566	15,990	41,660	192,915
7.0	925	293,542	19,426	42,755	231,360
7.5	1,192	370,459	23,312	48,633	298,183
8.0	1,784	537,555	33,646	57,040	446,049
8.5	4,180	1,336,350	71,710	218,489	1,045,227

Table XL

ESTIMATED MINIMUM CAPITAL REQUIREMENTS AND FARM SIZES TO EARN A $7,000 RETURN TO OPERATOR LABOR, MANAGEMENT AND RISK; VARIABLE LONG TERM INTEREST RATES, SOUTHCENTRAL OKLAHOMA

Long Term Interest rate	Farm Size	Capital Requirements			
		Total Capital	Short Term	Intermediate Term	Long Term
(Percent)	(Acres)	(Dollars)	(Dollars)	(Dollars)	(Dollars)
0.0	316	94,380	6,474	8,745	79,160
0.5	333	99,293	6,811	9,200	83,280
1.0	351	104,744	7,185	9,705	87,853
1.5	371	110,830	7,602	10,269	92,957
2.0	395	117,666	8,071	10,903	98,691
2.5	421	125,401	8,602	11,620	105,178
3.0	450	134,224	9,207	12,437	112,579
3.5	476	144,376	10,369	14,756	119,248
4.0	515	156,003	11,205	15,946	128,851
4.5	522	168,971	10,774	27,756	130,442
5.0	568	183,970	11,729	30,220	142,021
5.5	600	201,784	13,023	38,809	149.952
6.0	675	223,119	14,321	40,056	168,742
6.5	772	250,566	15,990	41,660	192,915
7.0	925	293,542	19,426	42,755	231,360
7.5	1,192	370,459	23,312	48,633	298,183
8.0	1,784	537,555	33,646	57,040	446,049
8.5	4,180	1,336,350	71,710	218,489	1,045,227

TABLE XLI

ESTIMATED MINIMUM CAPITAL REQUIREMENTS AND FARM SIZES TO EARN A $7,000 RETURN TO OPERATOR LABOR, MANAGEMENT AND RISK; VARIABLE LONG TERM INTEREST RATES, NORTHWESTERN OKLAHOMA

Long Term Interest rate	Farm Size	Capital Requirements			
		Total Capital	Short Term	Intermediate Term	Long Term
(Percent)	(Acres)	(Dollars)	(Dollars)	(Dollars)	(Dollars)
0.0	430	112,739	3,700	10,002	98,970
0.5	459	120,172	3,944	10,662	105,498
1.0	491	128,655	4,222	11,414	112,942
1.5	528	138,427	4,543	12,281	121,520
2.0	571	149,804	4,916	13,290	131,509
2.5	623	103,220	5,356	14,481	143,280
3.0	684	179,274	5,884	15,095	147,380
3.5	750	198,832	6,525	17,640	174,549
4.0	852	223,180	7,324	19,800	195,923
4.5	971	254,322	8,347	22,563	223,262
5.0	1,128	295,565	9k700	26,223	259,468
5.5	1,346	352,773	11,577	31,298	209,690
6.0	1,707	447,451	14,685	39,698	392,805
6.5	2,637	690,888	22,674	61,296	606,510
7.0	35,988	9,428,810	309,450	836,541	8,277,295

TABLE XLII

ESTIMATED MINIMUM CAPITAL REQUIREMENTS AND FARM SIZES TO EARN A $7,000 RETURN TC OPERATOR LABOR, MANAGEMENT AND RISK; VARIABLE I ONG TERM INTEREST RATES, PANHANDLE AREA OF OKLAHOMA

Long Term Interest rate	Farm Size	Capital Requirements			
		Total Capital	Short Term	Intermediate Term	Long Term
(Percent)	(Acres)	(Dollars)	(Dollars)	(Dollars)	(Dollars)
0.0	144	59,417	1,987	7,172	50,257
0.5	148	61,344	2,051	7,404	51,887
1.0	153	63,400	2,120	7,653	53,626
1.5	159	65,600	2,194	7,918	55,486
2.0	164	67,956	2,273	8,203	57,480
2.5	170	70,488	2,357	8,508	59,621
3.0	176	73,216	2,449	8,838	61,929
3.5	184	76,164	2,547	9,193	64,423
4.0	191	79,360	2,654	9,579	67,126
4.5	200	82,835	2,770	9,999	70,065
5.0	209	86,629	2,897	10,457	73,274
5.5	219	90,786	3,036	10,958	76,791
6.0	230	95,363	3,189	11,511	80,662
6.5	242	100,426	3,359	12,122	84,944
7.0	256	106,057	3,547	12,802	89,707
7.5	272	112,356	3,758	13,562	95,035
8.0	289	119,451	3,995	14,419	101,037
8.5	308	127,503	4,264	15,391	107,847
9.0	330	136,719	4,573	16,503	115,642
9.5	350	147,370	4,929	17,789	124,651

APPENDIX D

SUMMARY CROP AND LIVESTOCK BUDGETS USED IN THE OPERATIONAL MODELS, FOR THE AREAS OF STUDY

TABLE XLIII

SUMMARY CROP AND LIVESTOCK BUDGETS USED IN THE OPERATIONAL MODEL, NORTHEASTERN AREA OF OKLAHOMA

Northeast	Grain Sorghum Upland	Wheat Upland	Alfalfa Hay Bottomland	Bermuda Pasture	Fescue Pasture	Nov.-May Steers	Nov.-Mar. Steers	Wheat Bottomland	Wheat Soybean Double-crop Upland	Small Grain Graze-out Upland
Production										
Total Returns										
Low Prices	61.88	48.25	108.00	0.0	0.0	146.58	122.60	86.85	114.69	0.0
Average Prices	90.44	70.75	151.87	0.0	0.0	190.53	159.39	127.39	167.76	0.0
High Prices	143.08	112.00	219.37	0.0	0.0	249.13	208.41	201.60	265.65	0.0
Yields										
Bushels Per Acre		25.00						45.00	27.0W 21.0S	
Cwt. Per Acre	28.00									
Tons Per Acre			3.75							
AUM's Per Acre	.40	.70	1.00	7.37	4.50			.80	.70	2.75
Steers (CWT.)						6.57	5.54			
Heifers (CWT.)										
Cull Cows (CWT.)										
Cull Bulls (CWT.)										
Inputs										
Operating Input Costs	51.16	48.28	107.74	66.43	64.89	21.38	19.91	47.34	87.23	43.76
Annual Operating Capital	6.95	24.25	40.72	20.55	36.24	6.01	2.70	24.42	57.26	23.53
Intermediate Term Capital	47.23	43.28	.96	1.93	2.45	9.67	8.18	32.02	41.93	43.74
Tractor Investment	11.54	8.33	.49	.99	1.51			12.32	16.36	28.53
Equipment Investment	35.69	34.95	.47	.94	.94	4.46	4.46	19.69	25.57	15.21
Machinery Investment						5.21	3.72			
Livestock Investment										
Total Capital	54.18	67.54	41.69	22.48	38.69	15.68	12.82	56.44	99.19	67.27
Labor (Hours)										
First Quarter	.78	.12	.11		.11	1.53	1.56	.12	.11	.34
Second Quarter	1.00	1.71		.11		1.02		1.79	.90	.42
Third Quarter	.74	1.37		.11				1.37	2.24	1.65
Fourth Quarter					.11	1.22	1.24		.36	

TABLE XLIII (CONTINUED)

Northeast	Soybeans Upland	Soybeans Bottomland	Fescue-Bermuda Combination	Cow-Calf Fall Calving	Cow-Calf Spring Calving Winter Steers	Cow-Calf Spring Calving	Cow-Calf Fall Calving Cool Season Pasture	Barley Upland	Oats Upland
Production									
Total Returns									
Low Prices	87.60	70.08	12.09	103.05	123.37	94.36	100.78	36.16	43.20
Average Prices	128.10	102.48	17.06	133.96	160.40	122.65	131.03	53.12	63.84
High Prices	202.80	102.24	24.65	175.18	209.73	160.39	171.34	83.84	100.80
Yields									
Bushels Per Acre	30.0	24.0						32.0	48.0
Cwt. Per Acre									
Tons Per Acre			.5						
AUM's Per Acre			7.9					.9	.8
Steers (CWT.)				2.14	3.47	1.96	2.07		
Heifers (CWT.)				1.47	1.37	1.37	1.45		
Cull Cows (CWT.)				.95	.95	.95	.95		
Cull Bulls (CWT.)				.16	.16	.16	.16		
Inputs									
Operating Input Costs	41.84	41.84	66.49	90.88	193.41	89.44	50.38	44.55	51.59
Annual Operating Capital	14.39	14.39	28.21	33.04	59.17	38.16	17.07	21.34	23.66
Intermediate Term Capital	61.70	61.70	4.91	358.68	356.36	359.27	354.27	43.99	43.38
Tractor Investment	11.18	11.18	3.02					8.58	9.21
Equipment Investment	36.13	36.13	1.89	44.40	46.00	62.40	44.40	35.40	34.17
Machinery Investment				19.33	21.41	26.42	20.93		
Livestock Investment				294.95	288.95	270.45	288.95		
Total Capital	61.70	61.70	33.12	391.73	415.53	397.43	371.35	65.33	67.04
Labor (Hours)									
First Quarter	.57	.57	.11	2.13	2.10	2.10	1.86	.12	.11
Second Quarter	1.38	1.38	.11	2.07	2.16	1.62	2.04	.83	.35
Third Quarter	.35	.35	.22	2.07	2.34	2.34	2.04	1.37	1.24
Fourth Quarter				2.07	1.92	1.92	1.98		.25

TABLE XLIV

SUMMARY CROP AND LIVESTOCK BUDGETS USED IN THE OPERATIONAL MODEL, SOUTHEAST AREA OF OKLAHOMA

	Cow-Calf Fall Calving Cool Season Pasture	Cow-Calf Fall Calving	Nov.-May Steers	Grain Sorghum Upland	Oats Hay Upland	Bermuda loose Stacked Hay	Bermuda-Fescue Combination Bottomland	Bermuda-Small Grain
Production								
Total Returns								
Low Prices	100.78	101.21	146.58	72.00	46.54	106.38	23.53	0.0
Average Prices	131.03	131.58	190.53	105.28	65.60	150.07	33.20	0.0
High Prices	171.34	172.08	249.13	166.72	94.76	216.81	47.97	0.0
Yields								
Bushels Per Acre								
Cwt. Per Acre				32.00				
Tons Per Acre (Hay)					2.00	4.5	1.00	
AUM's Per Acre				.30	.87		10.50	8.50
Steers (CWT.)	2.07	2.07	6.57					
Heifers (CWT.)	1.45	1.20						
Cull Cows (CWT.)	.95	1.56						
Cull Bulls (CWT.)	.16	.16						
Inputs								
Operating Input Costs	50.38	89.36	21.38	58.90	75.69	91.05	112.55	83.69
Annual Operating Capital	17.07	29.29	6.01	12.13	31.60	41.94	50.08	32.68
Intermediate Term Capital	354.28	319.47	9.67	40.16	75.37	100.42	75.07	13.84
Tractor Investment				24.03	33.89	33.89	29.55	8.54
Equipment Investment	44.40	45.00	4.46	16.14	41.48	66.53	45.52	5.30
Machinery Investment	20.93	20.63	5.21					
Livestock Investment	288.95	253.84						
Total Capital	371.35	348.76	15.68	52.29	106.97	142.36	125.15	46.52
Labor (Hours)								
First Quarter	1.86	1.20	1.53	.81	.30	.6	.48	.30
Second Quarter	2.04	.61	1.02	1.05	1.7[illegible]	.72	1.79	.30
Third Quarter	2.04	1.5[illegible]		.29	3.19	1.14	2.03	.30
Fourth Quarter	1.98	1.32	1.22	.02		.48		.72

TABLE XLIV (CONTINUED)

	Bermuda Pasture	Average Bermuda-Fescue Combination	Sudan Pasture Upland	Sudan Hay Upland	Soybeans Bottomland	Alfalfa Maintenance Bottomland	Small Grain Graze-out Upland	Cow-Calf Spring Calving	Cow-Calf Spring Calving Winter Steers
Production									
Total Returns									
Low Prices	0.0	0.0	0.0	99.79	70.08	114.80	0.0	94.36	123.37
Average Prices	0.0	0.0	0.0	140.80	120.48	161.44	0.0	122.65	160.40
High Prices	0.0	0.0	0.0	203.41	162.24	233.24	0.0	160.39	209.73
Yields									
Bushels Per Acre					24.00				
CWt. Per Acre									
Tons Per Acre				4.25		4.00			
AUM's Per Acre	9.75	8.0	7.0				2.75		
Steers (CWT.)								1.96	3.47
Heifers (CWT.)								1.37	1.37
Cull Cows (CWT.)								.95	.95
Cull Bulls (CWT.)								.16	.16
Inputs									
Operating Input Costs	77.92	66.83	39.76	132.26	44.72	73.80	43.76	89.44	103.00
Annual Operating Capital	34.05	36.10	2.29	80.62	4.71	21.92	23.53	59.17	59.17
Intermediate Term Capital	22.91	8.25	33.83	33.83	73.08	138.81	43.74	359.27	356.36
Tractor Investment	21.28	6.80	18.53	18.53	29.97	48.07	28.52		
Equipment Investment	1.63	1.45	15.29	15.29	43.09	90.74	15.21	62.40	46.00
Machinery Invesment								26.42	21.41
Livestock Investment								270.45	288.95
Total Capital	56.96	44.34	36.11	114.45	77.79	160.72	67.27	397.43	415.53
Labor (Hours)									
First Quarter	.30	.48	.96	.96	1.39	.35	.34	2.10	2.10
Second Quarter	.90	.24	1.28	1.28	2.08	3.10	.47	1.62	2.16
Third Quarter	.60	.48	.11	.11	.41	3.10	1.65	2.34	2.34
Fourth Quarter	.30		.02	.02	.98			1.92	1.92

TABLE XLV

SUMMARY CROP AND LIVESTOCK BUDGETS USED IN THE OPERATIONAL MODEL, SOUTHCENTRAL AREA OF OKLAHOMA

	Barley Bottomland	Grain Sorghum Upland	Wheat Bottomland	Wheat Upland	Alfalfa Hay Bottomland	Oats Hay Upland	Bermuda Overseeded with Rye	Bermuda Pasture
Production								
Total Returns								
Low Prices	50.85	58.50	61.76	46.32	130.32	46.50	0.0	0.0
Average Prices	72.00	85.54	90.56	67.92	183.29	65.60	0.0	0.0
High Prices	117.90	135.46	143.36	107.52	264.73	94.76	0.0	0.0
Yield								
Bushels Per Acre	45.00		32.00	24.00				
Cwt. Per Acre		26.00						
Tons Per Acre (hay)					4.50	2.00		
AUM's Per Acre	1.10	.30	1.30	1.10		.87	8.75	5.50
Steers (CWT.)								
Heifers (CWT.)								
Cull Cows (CWT.)								
Cull Bulls (CWT.)								
Inputs								
Operating Input Costs	54.34	39.97	58.62	58.62	120.51	74.84	85.26	49.89
Annual Operating Capital	21.95	21.03	24.11	24.11	25.32	30.88	50.07	17.91
Intermediate Term Capital	29.33	9.44	32.92	32.92	170.75	70.27	20.36	10.65
Tractor Investment	17.94	7.06	17.37	17.37	43.81	35.90	13.90	8.55
Equipment Investment	11.39	2.38	15.55	15.55	126.94	34.37	6.46	2.10
Machinery Investment								
Livestock Investment								
Total Capital	51.28	30.47	57.03	57.03	196.07	101.14	70.44	28.57
Labor (Hours)								
First Quarter	.01		.06	.06		.30	.12	
Second Quarter	.22	.33	.22	.22	2.28	1.37	1.55	1.55
Third Quarter	1.07	.10	.78	.78	3.63	1.82	.12	.12
Fourth Quarter							1.30	

TABLE XLV (CONTINUED)

	Bermuda Loose Stacked Hay	Forage Sorghum Hay Upland	Soybeans Bottomland	Cow-Calf Fall Calving	Oct.-Aug. Steers	Nov.-March Steers	Bonel Rye Bottomland	Nov.-May Steers	Small Grain Graze-out Upland
Production									
Total Returns									
Low Prices	106.38	51.18	64.24	101.21	159.41	122.60	0.0	146.58	0.0
Average Prices	150.07	72.20	93.94	131.58	207.19	159.39	0.0	190.53	0.0
High Prices	216.81	104.31	148.72	172.08	270.96	208.41	0.0	249.13	0.0
Yield									
Bushels Per Acre			22.00						
Cwt. Per Acre									
Tons Per Acre (hay)	4.5	2.10							
AUM's Per Acre		.20					8.50		2.75
Steers (CWT.)				2.07	7.11	5.54		6.57	
Heifers (CWT.)				1.20					
Cull Cows (CWT.)				1.56					
Cull Bulls (CWT.)				.16					
Inputs									
Operating Input Costs	90.12	82.66	48.74	89.36	73.28	19.91	93.24	21.38	41.31
Annual Operating Capital	40.77	16.84	13.44	29.29	30.54	2.70	55.23	6.01	21.59
Intermediate Term Capital	100.42	100.85	42.24	319.47	76.38	8.18	41.51	9.67	43.74
Tractor Investment	33.89	37.78	24.65				28.64		28.53
Equipment Investment	66.53	63.08	17.59	45.00	58.80	4.46	12.87	4.46	15.21
Machinery Investment				20.63	17.58	3.72		5.21	
Livestock Investment				253.84					
Total Capital	141.19	117.69	55.67	348.76	106.92	12.82	96.74	15.68	65.33
Labor (Hours)									
First Quarter	.6	.18	.40	1.20	1.29	.90	.25	1.53	.34
Second Quarter	1.11	.80	.82	.61	.69		.25	1.02	.52
Third Quarter	1.17	2.10	.29	1.52	.74		2.03		1.81
Fourth Quarter	.48	.17	.24	1.32	1.34	.80		1.22	

TABLE XLVI

SUMMARY CROP AND LIVESTOCK BUDGETS USED IN THE OPERATIONAL MODEL, NORTHWEST AREA IN OKLAHOMA

	Grain Sorghum Sandy Soil	Nov.-May Steers	Summer Stockers	Barley Clayey Soil	Wheat Clayey Soil	Wheat Sandy Soil	Alfalfa Hay Clay Soil
Production							
Total Returns							
Low Prices	46.41	146.58	144.26	25.99	42.46	30.88	87.06
Average Prices	67.83	190.53	187.52	38.18	62.26	45.28	122.42
High Prices	107.31	249.13	245.25	60.26	98.56	71.68	176.85
Yields							
Bushels Per Acre				23.00	22.0	16.0	
Cwt. Per Acre	21.00						
Tons Per Acre							3.00
AUM's Per Acre	.75			.50	.50	.45	.20
Steers (CWT.)		6.57	6.76				
Heifers (CWT.)							
Cull Cows (CWT.)							
Cull Bulls (CWT.)							
Inputs							
Operating Input Costs	33.34	21.38	11.42	32.65	36.34	36.34	98.01
Annual Operating Capital	6.93	6.01	1.67	14.08	16.10	16.10	40.60
Intermediate Term Capital	35.98	9.67	5.30	18.97	18.97	111.93	44.53
Tractor Investment	21.70			8.92	8.92	8.92	46.97
Equipment Investment	14.27	4.46	.75	10.05	10.05	10.05	64.96
Machinery Investment		5.21	4.55				
Livestock Investment							
Total Capital	42.91	15.68	6.97	33.05	35.07	35.07	152.53
Labor (Hours)							
First Quarter	.36	1.53					.26
Second Quarter	.71	1.02	1.00	.12	.12		
Third Quarter	.29		1.50	.46	.40	.46	2.24
Fourth Quarter		1.22	.50				

TABLE XLVI (CONTINUED)

	Lovegrass Pasture	Sudan Hay Sandy Soil	Sudan Pasture Sandy Soil	Small Grain Graze-out Clay Soil	Range Cow-Calf	Nov.-Mar. Steers	Oct.-Oct. Steers
Production							
Total Returns							
Low Prices	0.0	97.48	0.0	0.0	106.27	122.60	163.10
Average Prices	0.0	137.52	0.0	0.0	138.18	159.39	211.98
High Prices	0.0	198.68	0.0	0.0	182.77	208.41	277.90
Yields							
Bushels Per Acre							
Cwt. Per Acre							
Tons Per Acre		4.00	6.50				
AUM's Per Acre	8.00			2.40			
Steers (CWT.)					2.40	5.54	7.91
Heifers (CWT.)					1.66		
Cull Cows (CWT.)					.95		
Cull Bulls (CWT.)							
Inputs							
Operating Input Costs	48.43	80.99	24.99	27.49	83.19	19.91	44.18
Annual Operating Capital	8.52	27.42	5.25	18.79	27.05	2.70	16.36
Intermediate Term Capital	44.53	29.14	29.14	24.20	547.96	8.18	59.30
Tractor Investment	44.53	20.48	20.46	14.75	29.83	4.46	13.54
Equipment Investment		8.69	8.69	9.45	198.75	3.72	28.23
Machinery Investment					20.78		17.53
Livestock Investment					298.60		
Total Capital	53.05	56.56	34.40	42.99	575.02	12.82	75.66
Labor (Hours)							
First Quarter	1.21				4.05	1.56	1.53
Second Quarter	1.21	1.42	1.42	.22	2.39		1.33
Third Quarter				.84	2.13		1.63
Fourth Quarter					2.17	1.24	1.67

TABLE XLVII

SUMMARY CROP AND LIVESTCCK BUDGETS USED IN THE OPERATIONAL MODEL, PANHANDLE AREA OF OKLAHOMA

	Nov.-May Steers	Nov.-Mar. Steers	Summer Steers	Grain Sorghum Dryland	Wheat Dryland	Coin Surface Irrigation	Grain Sorghum Surface Irrigation	Wheat Surface Irrigation	Silage Surface Irrigation	Small Grain Graze-out Dryland
Production										
Total Returns										
Low Prices	146.58	122.60	136.82	47.25	31.85	214.50	139.50	106.15	135.0	0.0
Average Prices	190.53	159.39	184.14	69.09	46.69	313.30	203.98	155.65	198.0	0.0
High Prices	249.13	208.41	245.25	109.41	73.92	496.60	323.02	246.40	313.40	0.0
Yields										
Bushels Per Acre					16.50	130.00		55.0		
Cwt. Per Acre				21.00			62.0			
Tons Per Acre									20.0	
AUM's Per Acre				.75	.35	1.4	1.4	1.0		2.0
Steers (CWT.)	6.57	5.54	6.76							
Heifers (CWT.)										
Cull Cows (CWT.)										
Cull Bulls (CWT.)										
Inputs										
Operating Input Costs	21.38	19.91	11.42	33.43	35.34	138.96	86.57	72.87	107.38	12.61
Annual Operating Capital	6.01	2.70	1.668	6.93	17.22	38.65	22.90	25.61	28.72	6.45
Intermediate Term Capital	9.67	8.18	5.30	35.97	22.56	128.74	128.74	111.93	123.04	23.80
Tractor Investment				21.70	11.89	37.64	37.64	25.53	33.35	14.99
Equipment Investment	4.46	4.46	.75	14.27	10.67	25.59	25.59	20.97	23.98	8.81
Machinery Investment	5.21	3.72	4.55							
Livestock Investment										
Irrigation Investment						65.51	65.51	65.43	65.51	
Total Capital	15.68	12.82	6.97	47.91	39.78	167.39	151.64	137.54	151.76	30.25
Labor (Hours)										
First Quarter	1.53	1.56		.36		.56	.42			
Second Quarter	1.02		1.00	.71	.12	3.60	3.02	1.94	2.96	.22
Third Quarter			1.50	.29	.50	2.17	2.90	2.36	3.37	.60
Fourth Quarter	1.22	1.24	.50			.58	.58	.80	.36	

VITA

Dale Lee Minnick

Candidate for the Degree of

Master of Science

Thesis: FINANCIAL ALTERNATIVES AND MINIMUM RESOURCE REQUIREMENTS FOR LOW RESOURCE, BEGINNING FARMERS IN OKLAHOMA

Major Field: Agricultural Economics

Biographical:

Personal Data: Born in Shattuck, Oklahoma, August 26, 1951, the son of Leslie L. and Coralee Minnick.

Education: Graduated from Fargo High School, Fargo, Oklahoma, May, 1969; received Bachelor of Science degree in Agricultural Economics from Oklahoma State University, Stillwater, Oklahoma, May, 1973; completed requirements for the Master of Science degree in July, 1975, at Oklahoma State University, Stillwater, Oklahoma.

Professional Experience: Oklahoma Bankers Association Intern with Bank of Beaver City, Beaver, Oklahoma, 1972; Research Assistant, Oklahoma State University, Stillwater, Oklahoma, from September, 1973, to August, 1974; Instructor, Oklahoma State University, Stillwater, Oklahoma, from September, 1974, to January, 1975.

Professional Organizations: American Agricultural Economics Association, Western Agricultural Economics Association, and Phi Kappa Phi.