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How're you going to keep them down on the farm : family farms and the American agricultural crisis

Lauree Jean Garvin
Loyola University Chicago

HOW'RE YOU GOING TO KEEP THEM DOWN ON THE FARM: FAMILY FARMS AND THE AMERICAN AGRICULTURAL CRISIS

by

Lauree Jean Garvin

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PREFACE

This thesis grew out of a term paper for a Sociology of Development class. An important aspect of that class involved the study of the transformation of the agricultural sector in Europe during the 18th and 19th centuries and more recent changes taking place among peasants of developing nations.

The agricultural section intrigued me. Coming from a Canadian province where 50 percent of the population still made its living by farming I had some notion of the organization of agricultural production in North America. I also was acquainted with the agricultural settlement history of the Canadian great plains region. While the family farmers I knew certainly differed from the peasants of pre-industrial Europe and of today's developing nations they also exhibited some similarities.

Family farms were what their name implied - farms run by families, not by individuals. Like peasant enterprises family farmers relied on the help of all their immediate kin to get the work done. Like peasants, family farmers also drew on their extended kin network for help during busy times. A farmer could expect, and indeed relied on, help from his wife, his siblings and their family members, and from his parents, if they were still healthy enough to participate.

Extended kin help speeded up seeding, harvest, cattle round-ups, and building projects. During harvest, for instance, the men handled the machine work but everyone pitched in. The women cooked, brought food to the fields, and operated combines or drove grain trucks to the elevator if things got insanely busy. Children old enough to help

contributed according to their gender - boys on the machines, girls in the kitchen or running errands.

A farmer's extended kin provided invaluable help. Kin "poverty" translated to economic poverty for family farmers. Lack of extended kin help inhibited the family farmer's ability to complete crucial work like seeding or harvest in a timely fashion and hence lowered his return from his produce, e.g., frost-bitten grain gets the farmer a lower grade at the elevator which, in turn, means a lower price.

At the same time I was reading about peasants and relating them to what I knew about family farming the American family farm crisis was in the headlines. While I knew Canadian farmers were experiencing economic difficulties their woes didn't seem quite as severe as those of American family farmers. The rate of foreclosures in the American mid-west eclipsed the economic concerns of Western Canadian grain farmers which still centered mainly on freight rates, e.g., the "Crow rate", and low commodities prices.

Depending on who analyzed the increases in farm foreclosures, they were seen either as the result of poor business management on the part of farmers or the consequences of an unfair American government agricultural policy that put cheap food ahead of the well-being of family farmers. The first line of argument took the tack that farm foreclosures, if they weeded out poor managers, provided a boost to the agricultural economy since Americans would be left with the most "efficient" producers and not have to subsidize "inefficient" farmers. The alternative argument claimed that family farmers, because the American government had always relied on a "cheap food policy" to mollify consumers and increase agricultural exports, suffered under an unfair agricultural

marketing system where they did not receive a fair price for their produce. Furthermore, large corporate farmers, not family farmers, received the lion's share of government agricultural subsidy payments even though they weren't in need of such help.

The American farm crisis caught my attention since it contained elements directly related to "development". It raised questions of the place of family farmers in advanced, capitalist economies. Although I had taken their existence for granted, according to many development theoreticians, especially the neo-classical economists and the Marxists, these labour units comprised an anomaly in market economies. By any stretch of the imagination they should have disappeared years ago, replaced by larger units organized completely on for-profit or, depending on your perspective, capitalist principles.

So I decided to look more closely at American family farmers and especially at farm foreclosures. The sociological literature was sparse and speculative. Most of it remained at the theoretical level and what empirical work existed concentrated on historical developments in the country as a whole. There was little examination of existing agricultural census data and, with the exception of Patrick Mooney's research on Wisconsin farmers, no in-depth, qualitative work on the situation of American family farmers.

The paper for the development class comprised little more than a literature review and an outline of areas in need of research. I chose one of those areas, the lack of in-depth analysis of regional patterns of development in American agriculture, as the major focus of this thesis. I specifically wanted to ascertain if trends in American agriculture as a whole since 1920 have been uniform across the country of if there are significant

regional variations in the strategies and situations of American family farmers. What follows is an examination of agriculture in two American states, North Dakota and Illinois, from 1920 to 1987.

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This thesis was not written in a vacuum and I would like to acknowledge a number of people for the help they have given me. I would like to thank my advisors, Dr. Philip Nyden and Dr. Christine Fry, for their advice and suggestions about the research and writing that went into this paper. I would also like to thank Dr. David Fasenfest for his encouragement and guidance during the initial stages of my research. Dr. Fasenfest originally served as chairperson of my committee until accepting an appointment at The University of Kentucky, Louisville. Finally I would like to thank my husband Brian. I would not have completed this project without his emotional and financial support.

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INTRODUCTION

Family farmers have been much in the news of late. If one is to believe the rhetoric of some American politicians, "the family farm" is a hallowed American institution that must be preserved at all costs. However, neither the news reports or the politicians ever tell us exactly who family farmers are. Who are we trying to save? Who gets classified as a family farmer and why? We need to know what these farmers do and how this distinguishes them from other groups who are involved in agriculture, such as peasants, plantation agriculturalists, or capitalist agriculturalists.

Peasants, Family Farmers, and Capitalist Farmers: from Subsistence Production to Production for Profit

American agriculture never went through a "peasant" phase as did agriculture in Europe. Rather patterns of landholding and agricultural production have always been integrated to a large degree into a market economy (Buttell 1980; Mann and Dickinson 1980; Vogeler 1977). Three patterns of landholding and agricultural production emerged in the United States. The first was the family farm which was owned and operated by one family and was relatively small in size. This type of farm organization still characterizes the northern and midwestern states. Plantation agriculture typified the South where ownership of large tracts of land resided in the hands of a few who relied on slaves for labour power. After the abolition of slavery agriculture in the south moved towards a hired labour basis. The southwest exhibited a "capitalist" type of agriculture early on in its development. Here large land-owners have always depended on hired labour for production. Hispanics and Asians made up a large portion of this farm labour

pool. Hispanics continue to comprise the bulk of the agricultural labour force in states like California, Arizona, and Texas.

"Classic" peasant agriculturalists, such as existed in Europe during the middle ages and still exist in some of the developing nations of the 20th century, produce primarily for their own personal consumption with market production a minor concern. Peasants, like farmers, operate in a state-controlled political contexts. Although researchers often consider peasants an undifferentiated group, there are important distinctions within the peasantry centering on ownership of land and level of integration into the market (Wolf 1973:xiv). However, for the purposes of this paper it is enough to distinguish peasants from farmers.

The important distinction between peasants and farmers according to Wolf (1973) centers on goals. He argues that the major aim of peasants is, "subsistence and social status gained within a narrow range of social relationships" whereas farmers, "participate fully in the market and ... commit themselves to a status game within a wide social network" (1973:xiv). The differences between farmers and peasants blur when peasants are drawn into producing more heavily for the market. However, distinctions also need to be made when examining farmers in capitalist economies. Just as all peasants are not alike, so all farmers are not alike. In market economies like the United States there are at least two types of farmers: family farmers and capitalist farmers.[1]

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[1] Mooney (1982) makes a good argument for the existence of a third class of farmers he calls, "propertied labourers". These farmers own some of their means of production, e.g., land and machinery, but they work under contract to large agribusiness corporations who control parts of the agricultural production process such as when and what to plant, what chemicals to use on the crops, and who the farmer can sell his finished product to. He also identifies "part-time family farmers" as farm families who fulfill Buttel's requirements of owning some or all of their land and who rely on family labour to get the farm work done but who derive half or

Buttel (1980:10) defines family labour farms as those enterprises in which the agricultural producer, or family, holds formal title to most or all of the land and to the capital employed in production. The producer has entrepreneurial control over these instruments of production and can dispose of them at his/her discretion. The farm is largely, or fully commercial, exchanging commodities for goods on the market and most or all of the family's livelihood derives from farm income and farm produced commodities. Buttel (1980:10) labels family farmers in market economies "independent commodity producers". Family farming, as defined by Buttel, is an historically rooted phenomenon. It represents a form of agricultural production that appeared in Europe after feudalism and in Europe's western colonies, the United States, Canada, Australia, and New Zealand.

Capitalist farmers, like family farmers, own some or all of their land but they produce entirely for the market. Capitalist farmers differ from family labour farmers in that they rely primarily on hired labour to get their farm work done rather than family labour. In addition, capitalist farmers are much more likely to derive considerable income from sources not directly connected to the farm, e.g., agricultural service enterprises, and to be "vertically integrated" in their operations, meaning they control all phases of their production process from the input stage of fertilizer, seed, and other chemical additives to the output stage of marketing.

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more of their income from off-farm income, usually in the form of wage labour of the wife, husband or both spouses.

By the late 1980's many family farmers in the United States were in big financial trouble. The rate of farm foreclosures in the had reached proportions rivalling that of the 1930's. A 1987 journalistic report indicated in that year alone financial institutions foreclosed on U.S. farms at the rate of 2000 per week (Pugh 1987:7). The majority of these foreclosures were on family farms. At this rate (104,000 per year) family farmers are indeed an "endangered species". If the 1987 trend continues the number of family farms in the U.S. will decline from the present 1,809,324 to 769,324 by 1997.

While most see the recent spate of farm foreclosures as unequalled in American agriculture the historical record shows decreases in farm numbers are the rule rather than the exception. The movement of American farmers off the land is not a phenomena of the 1980's but rather an ongoing trend. Farm numbers have been declining ever since 1935. From 1935 to 1987 the number of farms in the United States decreased by two thirds, falling from six and one-half million farms in 1935 to about two million farms in 1987 (U.S. Census of Agriculture 1935; 1987). This represents a 300 percent decrease in 67 years.

In spite of the declining numbers of family farms, the 1987[2] agricultural census data showed individual or family farms still dominated U.S. agriculture and constituted 87 percent of all farms. Still, between 1920 and 1987 the number of farms declined by 4,360,584, a 68 percent decrease in 67 years. The rate of decrease appears most severe between 1954 and 1974 where the decreases between censuses is never less than 13 percent, and the overall decrease during this period is 52 percent.

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[2] 1987 is the most recent U.S. agricultural census data available.

Although the amount of land in farms has remained relatively constant since 1935 the average size of farms increased from 148 acres in 1920 to 462 acres in 1987 (U.S. Census of Agriculture 1920; 1987). In 1920, one in three Americans lived on farms while in 1977 this figure dropped to one in 28, or 3.6 percent of the population (Vogeler 1981:3). Between 1920 and 1977 net outmigration from farms totalled 48.7 million people.

These rural migrants represent three major groups. The first group is composed the children of farmers or small-town residents. Many children of farmers cannot stay in rural areas because they do not have enough money or land to begin farming or have no other job opportunities in the area. Some of these young people also choose to leave the farm for an urban lifestyle. The second group is comprised of retired farmers who have either sold their farms or have left them to younger sons.

The third group represents a growing number of younger farmers. Some of these farmers are the ones who are so much in the news today - the victims of farm foreclosures. Some others are undoubtedly farmers who finally gave up what they saw as a futile attempt to maintain themselves on the land. They "packed it up and moved to town", as the saying goes in rural Saskatchewan.

The current crisis of American family farmers needs to be seen in the context of the larger political economy. The growth of U.S. agribusiness since the 19th century and the various wars the U.S. has engaged in since the Civil War have had tremendous effects on the structure of the agrarian sector.

Looking initially at agribusiness, the process of agribusiness encroachment into family farming can be divided into three stages (Havens 1985). The first stage, from 1860 to 1900, consisted of gaining control of the "output" phase of agriculture - the marketing and processing of agricultural products. During this period family farmers lost control of the marketing of their products because of two developments. First, agrarian capitalists and the U.S. government worked together to open national and international markets to American agricultural commodities and tied family farmers to world prices over which they had little control. Second, the railroad companies and food processing companies such as millers, meat-packers, and canneries established themselves as the middlemen through which farmers had to market their products nationally.

The second stage, from 1900 to 1950, involved growing incursions of agribusiness into the "input" phase of agriculture. During this period family farmers grew increasingly dependent on agribusiness firms for the "raw" materials of farming such as seed, fertilizer, herbicides, pesticides and for the "tools of the trade" such as farm machinery. Farmers effectively lost control over a significant portion of their means of production. It is also during this period that the U.S. federal government most actively encouraged farmers to step up agricultural production to meet the wartime needs of Europe during WWI and WWII. Farmers responded admirably but had to mechanize to make up for increased production demands and the shortage of agricultural labour occassioned by the war.

From 1950 to the present agribusiness firms have pushed into the actual production phase of agriculture. Some firms operate their own production enterprises

such as livestock feedlots and chicken farms. Others, especially canneries, engage in product contracts in which they supply farmers with inputs like seed and pesticides while in return the farmer plants, cultivates, and harvests the crop, selling it to the company for an agreed upon price.

Each of these phases had particular consequences for family farmers. However, it is the first two that have led to what is often referred to as the "cost-price squeeze" of farming. I want to briefly present the history of this situation as a lens through which declining farm numbers should be viewed. I look first at loss of control over outputs followed by the loss of control over inputs.

Losing Control of the Output Phase: The Emergence of Markets and Agribusiness Middlemen

In their historical analyses of U.S. agriculture Havens (1985) and Howe (1982) examine farmers loss of control over the marketing of their products. Howe (1982) details the consequences of the development of national and international agricultural markets had for farmers. Beginning in 1850 the newly developed American rail transportation system created a national agricultural market, as opposed to regional markets. At the same time developments in the shipping industry allowed large capitalist farmers to open up international agricultural markets. For the first time, farmers found themselves at the mercy of a large, unpredictable market with no power to affect prices.

Havens (1985) documents the incursions of capitalist business enterprises into the agricultural sphere from the late nineteenth century to the present. In concert with the development of unpredictable markets large companies began moving into the processing

and marketing stages of agricultural production. Consequently, grain, railway, and food processing companies came to mediate between farmers and consumers. As capitalist food industries became increasingly concentrated and centralized, farmers had no choice but to deal with a few large companies that controlled the markets.

The above intrusions of capitalists into agriculture has resulted in agricultural output industries processing and marketing the vast majority of farm products produced today. Agribusiness firms buy from the farmer and significantly affect the price farmers get for their produce. The "price" industries include marketing, food processing and manufacturing, food wholesaling, and food retailing. These firms also show a high degree of centralization. In 1979, 44 companies received 68 per cent of all food processing revenues. Likewise, 44 companies received all wholesale and retail food distribution revenues (Havens 1985:30). A mere 10 companies received more than 80 percent of the revenues in cereal grains, dairy products, bakery products, meat, canned goods, beer, fruits, and nuts (Havens 1985:30).

This control of the output phase of agricultural production by "cost" industries is not unique to agriculture. Primary industries like mining, lumbering, and fishing experience the same loss of control over pricing their products. Farmers, however, have also become increasingly dependent on producers of agricultural "inputs". Because of the increasingly technical and specialized nature of modern agriculture, farmers rely heavily on production inputs such as machinery, fertilizers, pesticides, herbicides, chemical fertilizers, and seed. Farmers' greater dependence on inputs increases their vulnerability to a cost-price squeeze. Marxists present evidence suggesting that since the beginning of

the 20th century increasing capitalist control of the input phase of agriculture (e.g.) machinery, fertilizer, pesticides, etc., of farming has further exacerbated farmers' economic condition.

Losing Control of the Input Phase: Mechanization of Farming and Scientific Developments in Production

Farm input industries supply the technology for modern agriculture such as feed, fertilizers, chemicals, seeds, and farm machinery. They determine a large part of the farmer's costs of production. From the early 20th century to the present these agribusiness inputs have increased in both importance and price and adversely affected family farmers.

Key 19th century inventions in railroad and steamship transportation, and agricultural machinery fundamentally affected American agriculture as did the 20th century developments of electrical power, automobiles, and the gasoline engine. However, not all farmers adopted the new technologies equally quickly or to the same extent. Instead these inventions provided a competitive edge to the small numbers of farmers that could adopt them at the outset. The "progressive" farms pushed out smaller producers who were unable to match the increased productive capacity and cheaper prices of their larger rivals (Havens 1985:10).

Ehrensaft (1980) and Havens (1985) argue innovations affected small independent farm producers in ways similar to the effects of industrial innovations on small manufacturers. Those farmers who could afford the mechanical innovations (the agricultural capitalists and the wealthier independent farmers) adopted the new

technologies and their increased production in turn lowered prices for all. This forced poorer farmers to adopt the technology just to stay in business but to do so they had to go into debt.

Those farmers who could not obtain the credit to mechanize tried to compensate by increasing their labour time and intensity. Eventually even that was not enough and they could no longer make a living by farming. They faced the choice of leaving agriculture or falling into rural impoverishment. Many of them left, swelling the ranks of the urban labour force.

The "technological treadmill" initiated in the late 19th continues to influence U.S. agriculture. Havens (1985) feels that agricultural innovations whether in the form of machinery or chemical inputs, reward wealthier farmers since they are the first to innovate and the first to benefit from increased yields. When other farmers adopt the new technology overproduction occurs and produces falling prices. Because poorer farmers have to go into debt to adopt new technology, the price falls affect them particularly severely. They must therefore increase outputs even more to counter the debts, and that, in turn, drops prices even further. Only increases in demand, created by a new cycle of investment in the economy or a war economy, can increase agricultural commodities prices.

Ehrensaft's (1980) examination of the effect of the gasoline tractor provides a good example of the uneven development produced by technological innovations in agriculture. Specialized horse-drawn machinery (drill seeders, hinged harrows) had been developed by the 1830's but were in limited use until the 1850's. From then on until 1896

agricultural prices declined regularly and persistently as production increased and surpluses emerged

The 1880's and 1890's saw the adoption of the gasoline tractor by a small group of innovators, presumably wealthy farmers attempting to increase production. From 1896 to 1914 the demand for agricultural products expanded as a result of immigration and W.W.I. As the price upswing continued, adoption of tractors became widespread, increasing from 4,000 in 1911, to 246,000 in 1920, and to 920,000 in 1930 (Ehrensaft 1980:75). Less wealthy farmers also got tractors in order to compete with the innovators, but they missed out on the windfall profits when prices began to fall by 1920.

However, mechanization was not the only input innovation that adversely affected family farmers. The development of agricultural innovations such as pesticides, herbicides, chemical fertilizers, hybridization, and cross-breeding also played a part. Advances in these products continued throughout the 20th century. Family farmers, however, adopted them unevenly with the majority of farmers buying innovations only when general economic conditions improved. By 1920 commercial fertilizer was in general use and from 1920 to 1930 the number of tractors and combines in use increase 73 per cent and 93 per cent respectively (Havens 1982:22).

The 1930's ushered in an array of changes, including cross-breeding in hogs and hybrid seed corn. But it was not until the economy improved with W.W.II that new machinery, hybrid seeds and petrochemical inputs came into common use. All of these led to dramatic increases in production. The new production processes kept food prices low and allowed the release of surplus agricultural labour for military service and work

in the industrial and service sector (Havens 1985:23). By the 1950's, however, commodities prices had declined drastically, forcing more family farmers off the land.

Over the past four decades these "cost" industries have become highly centralized (Martinson and Campbell 1980:230,231). This centralization has reduced competition and created astronomical escalations in prices. Between 1967 and 1979 the cost of fertilizer increased by 80 percent, gasoline by 300 per cent, machinery and equipment by 120 percent, and pesticides by 250 percent (Havens 1985:28). Not surprisingly, the most highly centralized sectors - herbicides/pesticides and petroleum products - registered the greatest increases (Martinson and Campbell 1980:230).

The squeeze that "cost" industries and "price" industries place on farmers has intensified because some agribusiness companies have vertically integrated to control all phases of the agricultural production process. The Cargill grain company provides an example of vertical integration that combines both input and output phases. Cargill not only markets grain for American and Canadian farmers but sells them seed, fertilizers, pesticides, and herbicides as well (Mitchell 1972:48). Campbell's and Green Giant have united crop production, processing, and marketing activities They not only process and market vegetables but also engage in part of the crop production via contract farming. The company supplies farmers with seed, pesticides, and herbicides. In turn the farmer plants, cultivates, and harvests the crop and agrees to sell it only to that company at a specified price (Pfeffer 1985a).

Therefore, the 20th century process of technological innovation which was accelerated by two world wars and the Korean War, along with the earlier 19th century

loss of market control, due to agrarian and industrial capital accumulation, placed American farmers in a highly dependent position. Farmers became caught in a "cost-price" squeeze between suppliers of farm inputs and the marketers and processors of agricultural outputs. The increasingly monopolistic and oligopolistic character of agribusiness firms aggravated the squeeze.

Centralization and concentration in the farm output and input sectors has also affected farm incomes negatively and contributed significantly to forcing marginal farmers out of business and poorer farmers into debt (Martinson and Campbell 1980:234). A few agribusiness firms have come to dominate the farm output and input sectors. Because of this oligopolistic nature of agribusiness family farmers face a highly asymmetric interdependence with markets and are easily exploited by agribusiness.

Given the relentlessness of the cost-price squeeze it is rather surprising family farmers still exist in capitalist economies. While the common perception of the current crisis in agriculture is that it is affecting family farmers across the nation in the same way there is little data to support this notion. Economic and sociological analyses of the crisis tend to rely on gross, national statistics to generalize about farmers in all regions of the country. To date there have been no comparisons of the predicament of farmers in different regions of the country so it is unclear if some farmers are faring better than others. If some are why is this the case, and conversely, if some aren't faring better, why not.

The purpose of this paper is to make just such a comparison and to do so over time. I have chosen two states for this analysis, North Dakota and Illinois. While both

states are considered "mid-western" they are located in two different ecological zones and produce different agricultural commodities. North Dakota is part of the northern great plains. It's climate is arid with severely cold winters and dry, hot summers. Except for river valley areas the soils are light and highly susceptible to erosion by blowing or run-off. North Dakota is primarily a wheat and cattle state. In contrast, Illinois is part of the long-grass prairie zone. It has a milder climate than North Dakota, the winters are not as cold or as long, and the average rainfall is significantly higher. The soils are heavier and hence richer and not as subject to degradation by erosion. Illinois farmers concentrate their production in corn, soybeans, and hogs although the cattle industry has been growing in the state since the 1920's.

A theoretical chapter follows this introduction. It presents the major paradigms sociologists use to examine agricultural development in advanced, capitalist economies. Three models of agricultural development dominate the sociological literature: an explanation closely following the lines of neo-classical economic theory; a traditional Marxist explanation; and a "revisionist" Marxist model, a dependency interpretation that draws from Chayanovian and more recent anthropological explications of peasant agriculture.

A literature review is included as the third chapter. The fourth chapter, the data chapter, presents the regional data I have used to examine the competing explanations of the development of American agriculture. I describe the numerical agricultural patterns in these regions by looking at numbers of farms, size of farms, tenure of ownership,

amount of off-farm work, type of farm organization, and type of farm production in terms of agricultural commodities raised.

In Chapter V, the conclusion, I evaluate the explanatory power of these models. My evaluation lies primarily at the "numbers" level, relying on agricultural census data to delineate the evolution of agriculture from 1920 to 1987 in North Dakota and Illinois. However, I have also drawn on Hiram Drache's interviews with mid-western corporate farmers and personal knowledge of my "family farmer" relatives for part of my interpretation of the survival strategies of American farmers.

THEORETICAL PERSPECTIVES ON FAMILY LABOUR FARMS IN CAPITALIST ECONOMIES

In the United States farmers remaining on the land comprise three groups: individual farmers, farmers in partnerships, and corporate farmers. While one tends to think of partnerships and corporate enterprises as non-family enterprises the agricultural census data indicates most partnerships and farm corporations are family "businesses". Partnerships generally involve father/son or sibling combinations. Although legally listed as corporations, most family farm corporations have less than ten shareholders all of whom are related by blood or marriage.

Sociologists have focused increasing attention on farmers and their economic and social conditions. While much of the recent research has concerned itself with farm foreclosures there is a growing body of data on farmers who survive and their strategies for survival. Sociologists have used three theoretical models to explain why some farmers fail and some survive. Those favouring a neo-classical economic approach write off farm failures as examples of poor business management. Conversely they credit farmers who survive with superior management skills as well as greater than average initiative and foresight.

Marxist sociologists and economists portray failed farmers as victims of increasing monopoly capitalism. In capitalist economies farmers, like other small business people, are pushed out by larger enterprises who can produce more cheaply. Marxists believe some family farmers will eventually form an agricultural bourgeoisie relying on hired

labour while others will enter the ranks of the hired farm labour the new bourgeoisie will require. They will become part of the rural proletariat.

A third group of researchers takes a "bottom up" approach and attempts to explain the strategies of family farmers in the context of their particular environmental, economic, and social setting. This type of explanation, first advocated by an early 20th century Russian agricultural economist, Alexander Chayanov, was revived by anthropologists and sociologists studying peasants in developing nations in the 1960's and 1970's. More recently it has been applied by some rural sociologists to family farmers industrialized nations with capitalist economies.

In this chapter I examine each of these theoretical approaches to farming under capitalism economic structures. I begin with the neo-classical economics approach, move on to the "traditional" Marxist arguments, and end with a discussion of the more specific "Chayanovian" approach.

"Farmers Mean Business": Neo-Classical Economists' Approaches to Family Farms

Among most North American agricultural economists, viewing farms as rural businesses has dominated the study of family farm organization. All the economic categories used for business analysis, i.e., capital, rent, wages - are used in attempts to compute farm profits for different sorts of farm organization. In the 1920's agricultural economists stated that a farm could not be considered a success unless it met all the requirements of a successful business - paying its operating expenses, receiving a current

mortgage rate of interest on capital, and receiving a fair return for the farmer's labour and management.

This type of analysis has continued even though then, as now, the data on family labour farms does not conform very well to this conceptual mode. Family labour farms exhibit clear differences from capitalist farms. For instance, they rely mostly on family labour, not hired labour; family labour farmers rarely make what economists would consider an "average rate of profit" on their endeavours yet unlike businesses which must conform to this "average rate" of profit or face bankruptcy, family labour farms generally operate well below this norm or even at a loss and still manage to survive.

One researcher found that in the three Iowa counties he studied, over one half of the farms made nothing for the farmer's labour and failed to make five per cent interest on their capital in addition to operating expenses (Durrenberger 1984:6). Yet these farms continued to operate.

Researchers in agricultural colleges have never attempted to explain this phenomenon. Plunging ahead with their application of business analysis to farms they reasoned that developing and improving agriculture required the same kind of research and development as that in industry. Their ultimate goal has been the same as that for industry - increased productivity.

In achieving this goal agricultural colleges have been highly successful. Vast supplies of cheap agricultural commodities have become the hallmark of American agriculture. However, agricultural economists failed to address the questions of family farm organization as it is actually practiced. As such their research has done very little

to ensure farmers of an adequate return for their labour, or as it turns out, consumers a quality food product for their dollar.

"Farming as a business" sociologists follow their economics counterparts and argue that free enterprise in agriculture without government interference will result in the lowest cost, highest-quality products for the consumer (Drache 1976; Vogeler 1981:7). They view competition among family farmers as a necessity for fair prices, and in the long run as beneficial to farmers since it helps them move up the "agricultural ladder" from tenant to part-owner to full-owner by re-investing their "profits" in land and equipment.

Agricultural economists' and sociologists of their persuasion standard explanation of those farmers who fail in this type of economy places the blame squarely on the individual. Family farmers fail because of their own shortcomings - they are not innovative enough, they don't manage efficiently, or they don't work hard enough (c.f., Drache 1976, Chapters V, VI, and VII). Those who survive are the most efficient producers because they innovate and manage carefully. Because they are efficient they produce the most food for the least cost. Most researchers following the neo-classical approach assume the continued existence of family farmers under capitalism since free competition will supposedly prevent large-scale enterprise from dominating of the agricultural sector.

In opposition to this view of family farmers is that of Marxist economists. Like agricultural economists most Marxists categorize family farms as "small businesses" but

they predict the ultimate ruin of these small producers as capitalism progresses. It is to this explanation of the demise of family farms that I turn next.

"Depeasantization": Marxist Explanations for the Decline of Family Labour Farms

Most Marxist explanations of the demise of family farmers simply apply the classical Marxian formula for capitalist development to the agricultural sector (Davis 1980; Ehrensaft 1980; Goss et al. 1980; Lenin 1967). As capitalism progresses and takes on more of a monopoly character, they argue, it eventually forces small commodity producers, whether they be family farmers, artisans, or other petit bourgeoisie producers, into either the proletariat or the bourgeoisie and class polarization becomes complete. Again this model comes from an industrial paradigm. Classical Marxists conceive of family farmers as no different from small businessmen and therefore expect them to suffer the same fate at the hands of larger business enterprises.

Like the research of western agricultural economists the research of classical Marxists rests not on careful fieldwork - sociological, that is - documenting the actual economic and social organization of family farms, but on their interpretation of aggregate statistical data. This gross data does not reflect regional variations in the situation of family farmers, nor does it document the individual strategies farmers adopt to survive in a capitalist economy.

Most of these analyses draw heavily on the conceptual framework established by Lenin when he examined Russian agriculture in the late 19th century. A description of

Lenin's framework, therefore, subsumes many of the contemporary Marxist theoretical approaches to family labour farms in North America.

Lenin's examination of late 19th century agricultural statistics for Russian zemtsvos led him to the conclusion that the mass of the Russian peasantry, like other small commodity producers, was losing control over the means of production, i.e., land, horses, etc., and being turned into wage labourers while a small number of peasants were able to grow larger and eventually transform their family labour farms into capitalist enterprises relying primarily on wage labour.

Lenin, following Marx, argues that the development of commodity production and capitalism leads to the social division of labour in which various forms of the processing of non-agricultural materials are separated out from agricultural activities. These processing activities become independent sectors of industry which exchange their products for the products of agriculture. The industrial population begins to grow faster than the agricultural population, and many agrarian residents are pulled into the industrial sector.

In capitalist production the basis for the formation of the "home market" - the exchange of commodities between different sectors of the economy - is the process of the disintegration of small cultivators into either agricultural entrepreneurs or wage workers. This Lenin refers to as the "differentiation" of the peasantry. As commodity production penetrates further into crop cultivation the competition among agriculturalists - the struggle for land and for economic independence - becomes keener and the middle and

poor peasants are ousted from their land by the more well-to-do peasants (Lenin 1967:76).

Lenin argued that putting the Russian peasant into the situation of commodity production completely subordinated peasants to the market, making them dependent on it for personal consumption, for farming inputs (machinery, fuel, etc.), for marketing of products, and for payment of taxes. In turn, the socio-economic relations of the peasantry became subject to all the contradictions inherent in every commodity economy and every order of capitalism.

There was competition, a struggle for economic independence, grabbing of land, the concentration of production in the hands of a few and the forcing of the majority into the proletariat, and the exploitation of the majority through the medium of the middle-man (merchant's capital) and the expropriation of surplus-value from workers (hiring of farm labourers) (Lenin 1967:175). Lenin predicted "depeasantization ... the utter dissolution of the old, patriarchal peasantry and the creation of new types of rural inhabitants" (1967:176) as the end result of the economic contradictions in this capitalist agricultural economy .

For Lenin, the starting point of the differentiation process is the emergence of property inequality. Differentiation can emerge only when the peasant finds himself in a money-rent situation, as opposed to a labour-rent or rent-in-kind situation. With labour-rent the possibility of differentiation among the peasantry doesn't exist. The peasant owns his means of production, working part of the week on his own land and part of the week

on the landlord's. The peasant can't acquire much surplus from his production because the product from the lord's land goes only to the lord.

If the peasant pays rent-in-kind he produces the entire product and gives the land-owner a certain amount of the surplus. But he can acquire a certain surplus over and above the amount needed for his necessities. The peasant who acquires more produce can have a higher standard of living than his poorer counterpart but since he cannot acquire more land with his surplus, differentiation remains at the level of goods only. Although this situation holds the seeds of differentiation it can only develop fully with a money-rent situation.

Money-rent, in which the peasant substitutes money for rent-in-kind, is possible only when commerce, urban industry, and commodity production have developed. These conditions transform the traditional common-law relationship between peasant and landlord into a cash, contract-based relationship. Money-rent allows those peasants who have been able to acquire a significant amount of surplus to buy their land. These more prosperous peasants can then exploit agricultural day-labourers for their own profit. In this way they can accumulate enough wealth to transform themselves into capitalists.

Lenin believed differentiation primarily pushes middle-peasants off the land. They lose both in class and status as they were forced into urban industries. These peasants generally make most of their income in farming but in bad years resort to loans or wage work to keep solvent. Every crop failure results in masses of middle peasants seeking wage work. The middle peasants fluctuate between the wealthy, would-be-capitalist

peasants and the rural proletariat. Only a few of them are lucky enough to make it into the ranks of the new rural bourgeoisie; the rest fall into the industrial or rural proletariat.

The class of capitalist farmers that is created from the wealthy peasants requires a larger labour force than the family so they employ landless labourers. The spare cash they obtain is either put into commercial operations or usury, or invested in land purchases, farm improvements, etc. The small, allotment holding peasants either lose their allotment entirely or find it impossible to make a living off pure farming activities. They are forced into wage-work for the bulk of their livelihood and become a rural proletariat.

The differentiation of the peasantry creates a home-market for capitalism. There is growth in personal consumption among the rural proletariat because they must now purchase on the market what they once produced for themselves on their farms. The rural bourgeoisie create a market for the means of production, i.e., machinery, and other farming inputs, and for personal consumption because their affluence leads to an expansion of their personal requirements.

Although Lenin did not claim to know the rate of differentiation for the Russian peasantry or even if differentiation was progressing, he still felt that the general statistics on the rural economy at that time supported his view of an uninterrupted and rapidly increasing differentiation (Lenin 1967:185). He argued that the middle peasants were abandoning or selling their land and "fleeing" to the towns while the two extreme groups, the rural bourgeoisie and the rural proletariat, stayed in the countryside. He predicted this reaction in agriculture wherever capitalism became the dominant mode of production.

Conceptual Inappropriateness of Neo-classical Economic and Classical Marxists Approaches to Family Labour Farms

Lenin's interpretation, and the interpretations of those who use a similar framework for analyzing change in agriculture suffer from the grossness of the data used. Agriculture in any country, and especially in large countries like the U.S.S.R., Canada, and the U.S.A., is subject to regional variations that produce different economic and social strategies among family farmers. The economic conditions of the North American wheat belt, for instance, have produced different social and political reactions from farmers than have the conditions of the midwestern U.S. corn belt. Capitalism does not appear to affect these farmers in exactly the same way. At a more elementary level, different environmental conditions alone have produced unique coping strategies at both the economic and social levels in these areas.

The other problem with both the Western agricultural economists' explanations and the Marxists' explanations of family farmers is their neglect of the family nature of the enterprise. The economists classify family farmers purely as businessmen out to make a profit. Marxists, although recognizing these units as family labour farms never deal with the actual organization of the unit. They prefer, instead, to concentrate on the demise of the farmers and what happens when these people are forced out of farming, e.g,, the effect of masses of landless rural peasants flocking to urban areas.

An alternative framework for understanding family labour farms is offered by the Chayanovian approach, recently rehabilitated by anthropologists and sociologists studying peasants in developing nations. In contrast to both the "farming as a business" approach

and the Marxist predictions of the polarization of the peasantry, Chayanov and those using his theories, concentrate on the differences between family farming enterprises and capitalist farming enterprises. They also recognize the regional variations in the economic and social strategies of family labour farmers.

Chayanov's Understanding of the Family Labour Farm Under Capitalism

Alexander Chayanov was a Russian economist who, along with his students, conducted years of fieldwork with Russian peasants, studying their economic and social organization in different regions of the country during the late 19th and early 20th century. Chayanov argued that peasants cannot be understood in solely entrepreneurial terms or in terms of traditional Marxist class categories. Chayanov began an analysis of peasant agriculture from below. He was more interested in delineating the operational logic of family farms rather than looking at the national and international flow of resources, goods and demands, i.e., how peasants fit into the larger political economy (Shanin 1986:3).

Chayanov classified the peasant farm as a family labour unit. As such it differed from typical business enterprises in that it lacked an essential economic category, that of wages. In the economic theory of capitalist society the categories of price, capital, wages, interest, and rent determine one another and are functionally interdependent. But, Chayanov argued, if any one of these categories is absent from an economic unit "then all the others lose their specific character and conceptual content and cannot even

be defined quantitatively" (1986:4). If an economic structure lacks any one of these categories then none of the other categories can be applied to it in their usual meaning.

Such is the case, argued Chayanov, with the family labour farm. Since it lacks the category of wages, it becomes impossible to impose on this structure the other categories of net profit, rent, and interest on capital "as real economic categories in the capitalist meaning of the work" (Chayanov 1986:5). Rather than making a profit, or receiving a loss, from its activities the peasant or artisan family running their own "business" receives as a result of a year's work, a **gross product**, which when exchanged on the market, forms the gross product of the economic unit. They subtract outlays on materials from the gross product and are left with their **labour product**. This is, states Chayanov, the only possible category of income for family economic enterprises and it cannot be broken down either analytically or subjectively. However, family farmers suffer a further handicap from family businesses. Unlike family businesses, e.g., family stores, etc., many family farmers receive the bulk payment for their year's work annually when they sell their crops.[1]

In family enterprises the amount of labour product is mainly determined by the size and composition of the working family, the number of its members capable of working, the productivity of the labour unit, and the degree of labour effort. Chayanov defines the degree of labour effort as " the degree of self-exploitation through which the

[1] The timing and regularity of payments for farm produce differs depending, of course, on the type of product. Those farmers most disadvantaged in this respect are cash grain farmers who receive their money only after they have harvested their crop. Dairy farmers and mixed farmers have a more regular income throughout the year.

working members effect a certain quantity of labour units in the course of the year" (1986:6).

The degree of self-exploitation is determined by an equilibrium between family demand satisfaction and the "drudgery of labour". Every increase in unit of income is evaluated by the family from two viewpoints: first by its importance for consumption and second in terms of the degree of effort or "drudgery" it takes to earn the extra money.

As goods increase from the family's work the subjective evaluation of each new dollar's significance for consumption decreases, but, the drudgery of working for it increases. Therefore, the family labourers will work only to the extent that "an equilibrium is reached between the drudgery, or work, and the significance of the needs for whose satisfaction the labour is endured" (Chayanov 1986:6).

The point at which this equilibrium between drudgery and demand satisfaction is reached is changeable. It depends firstly on the conditions (environmental, topographical, etc.) under which the farm operates, its market situation, and the farm's location in relation to markets. These factors determine the degree of drudgery. It relies secondly on family size, composition, and the urgency of family demands. These determine consumption evaluation.

The farm family has to make use of its market situation and natural conditions in a way that enables it to provide an internal equilibrium for family labour and the highest possible standard of family well-being. This is only achieved by including in the farm's organizational plan the labour investments, be they specific crops, livestock, machinery, craft-work, etc., that promise the highest possible labour payment per labour unit

(Chayanov 1986:7). Therefore, acceptance of a certain course of economic action by the farm family is not determined by the calculation of the highest net profit. Rather, economic behaviour is determined by the need to meet the subjective evaluations of both demand satisfaction and drudgery of labour. Usually the objects that yield the highest labour payment per unit are roughly the same as those that guarantee the highest net profit to capitalists as well. However, the "structural peculiarities" of the family labour farm are such as to make it undertake very different conduct from capitalist units under somewhat similar circumstances (Chayanov 1986:7).

Take for instance the case of economic rent. For a capitalist farmer an increase in the quality of the land farmed or a better location of that land results in "rent", an objective economic category one can calculate by subtracting material costs of production, wages, and the interest on capital from gross income. "Rent" then becomes profit for the capitalist farmer. However, according to Chayanov, the concept of economic rent does not exist for the family farmer. The move to better land or location does not produce the same response from the family farmer as it does for the capitalist farmer, i.e., the prosperity of the family farm does not increase so markedly as does the return to a capitalist farm influenced by the same factors. Why is this?

A move to better land and/or location for the farm family will result in an increase in labour productivity. The labourers on the farm, noticing this increase, will seek to balance the internal equilibrium of the farm, which in this case will mean less self-exploitation of labour power since the family's demands can be satisfied with less expenditure of labour power (Chayanov 1986:8). So, the family farm labourers simply

stop working as hard as they did previously because they can get the same product with less effort in their improved situation.

Family farmers, according to Chayanov, also behave differently from capitalist farmers when it comes to buying and selling land. This again is related to the family farm's attempt to reach internal equilibrium and maximize net income. Tenancy or land acquisitions are only advantageous to family farmers if, through them, the farm family can reach internal equilibrium with either an increased level of living or with decreased expenditure of labour power.

Peasants will not buy or rent more land if they already have enough to employ all of their family labourers at the optimum degree of intensity of cultivation. Chayanov postulates that family farmers will only buy or lease land only if acquiring it will allow them to use unemployed family labour power (1986:9). Using labour power previously lost in forced inactivity allows them to bring the farm's "intensity nearer the optimum" (i.e., closer to internal equilibrium between drudgery and demand).

The end result of a land purchase or lease should be an increase in payment per labour unit and a rise in prosperity important enough "to enable the family unit to pay for the lease or to purchase a large part of the gross product obtained from the newly acquired plot" (Chayanov 1986:9). This produces the seeming paradox that the less land the peasant family owns, i.e., the poorer it is, the more it will be willing to pay for land.

When the peasant farm does not have enough land to employ all of its labour the only way, aside from engaging in wage labour, to counteract this "unemployment" is to somehow get more land, thereby raising productivity per labour unit and through this the

well-being of the family. Therefore, the higher the rural population density the greater the land prices since peasants with little land in these situations will pay prices well beyond that of the capitalized rent - beyond the price a capitalist farm will be willing to pay for it.

Similarly, family farmers will not indulge in other capital expenditures such as machinery unless it allows for the possibility of a higher level of family well-being. If a new capital expenditure promises increased prosperity through increasing labour productivity without unbalancing the farm's internal equilibrium the family labour farm can pay an unusually high rate of interest for the capital required to purchase the entity. However, the rate of interest cannot be so high as to completely negate the advantages of the new investment (Chayanov 1986:10).

In the family farm this "circulation of capital" does not produce an income from capital as it would on the capitalist farm. Instead it affects the net labour product of the farm and through this the critical moment of internal economic equilibrium between drudgery and demand satisfaction. In addition, if the family does not borrow money for capital expenditure then the decision on whether or not to invest will depend not only on the advantage the expenditure will provide but on whether the family can spare the amount for the investment from its labour income.

Because the money for the purchase comes out of the labour income it will mean a drop in the family's immediate consumption. Therefore, the decision to purchase will be made only if what the family has to give up in consumption appears, in the eyes of the family, to be less than its value for production (Chayanov 1986:11). The larger the

income of the family the easier it will be for them to find the resources for capital investment, but in hard times with smaller net incomes, the farm family will find it difficult to take money intended for consumption to use for new capital investment or even to replace circulating capital.

These peculiar characteristics of the family farm can lead to a different evolution than predicted by mainline economists or traditional Marxists. Family farmer's motives are very different from capitalist farmers - the goal of family farmers is maximizing net income via internal economic equilibrium rather than simply making a profit. Evidence from Chayanov and from contemporary developing societies shows that because family farmers operate on this "maximization of net income" rationale they will sometimes have the capacity to out-compete capitalist farms based on wage labour, to buy out large land-holders, and to offer goods at the cheapest price (Durrenberger 1984; Newby 1978).

Mainline Marxists have argued that family farmers can only out-compete capitalist farms by intense self-exploitation , i.e., "excruciating labour by underfed peasant families which damages their physical and mental well-being" (Shanin 1986:6) and in the long run will eventually lose out to capitalists. Chayanov, however, pointed out that there was more to peasant farming than this. He showed that for different agricultural regions and sub-branches of farming at any given stage of technology there are different optimum sizes.

> "For any farming system, taking account of local conditions, we may, by a series of organizational calculations,determine both the technically most expedient relationshipof its production factors and the absolute size of the farmitself to give the lowest cost for produce and consequently,the highest income" (Chayanov 1986:90).

A decrease as well as an increase from the optimum will make productivity decline. "Any excess of production means available to labour, or of land above the technically optimal level, will be an excessive burden on the undertaking" (Chayanov 1986:92). These extra means of production will not lead to an increased volume of activity since further intensity of labour beyond the level established for its self-exploitation is unacceptable to the family.

In addition to this family farmers operated in a social context of family's, kinsmen's, and neighbour's aid and unwaged labour. Therefore, family labour units were not simply an instance of the weak surviving through super-exploitation of their labour power but also reflected the utilization of some characteristics of farming and rural social life that occasionally give the edge to the family-labour farm over the capitalist farm. This, in turn, means that under capitalism the relative well-being of family farmers is still a possibility even though there may be self-exploitation and exploitation (Shanin 1986:6).

Chayanov pointed out the means of resistance that family farmers could and did use to counter exploitation, something Lenin seemed to ignore. As such his analysis parallels sociological research that examines the resources available to the working class in their resistance to capitalists. Family farmers, like urban workers, have not been completely passive victims of capitalists. They draw on particular economic and social resources to preserve their family's well-being. They have also organized on an occupational basis to further their economic demands and to better their economic and social conditions. In North America, farmers' social and political movements have often

achieved more political success than labour movements have (Lipset 1950; Russell 1975; Saloutus and Hicks 1951).

As well, Chayanov's analysis assumes the simultaneous existence of very different forms of economic systems. He argued that this empirical "pluralism" should be matched by conceptual pluralism. In other words, because a number of economic systems could exist side by side one needed a number of explanatory models for each (Chayanov 1986:27-28). He applied this to family farming, noting that family farms co-exist with other economic "systems". Although the dominant capitalist system influenced family farming, this did not cause its "peculiarities" to vanish.

Implications of Each Approach for the Future of Family Farmers

Agricultural economists are not sounding alarm bells over the high rates of foreclosure or over the persistent decline in the number of family farms over the last two decades. Instead they argue that the farm economy is actually recovering and that recent foreclosures have merely wiped out inefficient producers. Getting rid of these inefficient farmers, they argue, should mean even lower food prices because only the most productive farmers survive.

Marxists, however, point to foreclosures and the decline trend as evidence of the eventual destruction of family farming. They view them as the logical outcome of larger processes of capital concentration and integration. As capitalism grows ever nearer its highest stage of development it will inevitably squeeze out family farmers, absorbing them into either the proletariat or the agrarian bourgeoisie.

However, the third perspective interprets foreclosures and decline somewhat differently. Extending this argument to predict the future of family farms in capitalist economies produces a scenario similar to that of the core/periphery industry theory in which family farms form an integral part of the capitalist system and constitute a production segment similar to that of secondary industry.

Proponents of this third perspective point out that farmers, like smaller manufacturers in the industrial sector, produce high risk but necessary commodities. Larger firms like to concentrate their production by either directly controlling all the components needed for their end product. However, they also wish to minimize risk. Therefore if a particular production component involves a high risk of production failure larger firms may find it more profitable to contract out or to buy these items from independent firms. This allows larger corporate firms to avoid responsibility for potential production failure.

Extending this paradigm to agriculture, agribusiness firms depend on farm commodities such as plant crops and livestock. However, agricultural production, in most instances, involves substantial risk since it is subject to uncontrollable environmental and biological influences. Hence agribusiness capitalists prefer to leave the production of most foodstuffs to small producers. Capitalists will only enter the direct production of foodstuffs if such production provides at least the average rate of profit and is not high risk.

These "dependency" theorists predict that small farmers will survive because of the riskiness and low returns of agricultural production. However, they do not presume

either the economic or social vitality of the family farm. Rather they contend that capitalist penetration into agriculture will transform the class situation of family farmers (Mooney 1985; Pfeffer 1985a; Pfeffer 1985b). They argue that small farmers will fall into a contradictory class location between independent producers and the working class. This change in class location will produce a corresponding decline in family farmers' social and economic well-being. Family farmers will lose control over the labour process and their work will become increasingly subject to the direction of agribusiness and financial capitalists.

The next chapter reviews the existing sociological research on the organization of farming in the United States. I examine the literature from each of the three perspectives identified in this chapter and present the conclusions and predictions of the authors of each persuasion.

SURVEYING THE FIELD: A REVIEW OF THE RELEVANT LITERATURE

In the previous chapter I outlined the three prevailing paradigms used to explain the evolution of American agriculture. In this chapter I review the sociological research literature in each theoretical area. I begin with an examination of the sociological work that follows a neo-classical economic line of reasoning, follow with the Marxist literature, and end with an examination of the dependency research findings.

"Farming is a Business": Mechanized Mega-farms as Farms of the Future

Rural sociologists who subscribe to the view that farming is a business like any other have focused their research on those farms that are indeed businesses and operate via strict business accounting methods of profit and loss. Hiram Drache's (1976) work offers the only in-depth research on capitalist farmers and their development in the U.S. hence this section reviews only his work.

Drache, through historical research on early corporate farms in the mid-west and personal interviews with present-day mid-western corporate farmers in Montana, North Dakota, Minnesota, South Dakota, and Iowa, gives us a picture of what he believes the future of farming in America will, and should, be. Drache sees decreases in the number of farmers as a positive rather than negative achievement in American agriculture (1976:430). The trend toward smaller numbers of farmers producing ever more commodities signifies a highly efficient agricultural system. He equates efficiency with man hours per unit of production, as do the farmers he interviews. The goal of agriculture, according to these corporate farmers, is to produce food ever more cheaply

and the only way to do this is through organizing farms along strict business lines. These "progressive" farmers "look at farming as a good business ... that, if properly managed, can be just as profitable as any other business. Modern farming, like any other business, is a matter of mechanization, money, and management" (Drache 1976:430).

Agricultural efficiency, argues Drache, has come about through technological innovations in the areas of mechanization, seed hybridization, improved stock breeding and feeding practices, the use of "additives" to crops such as pesticides, herbicides, and commercial fertilizers, and the vertical integration of large farming operations. Drache argues the farmers who have been responsible for these innovations are corporate farmers and they have large and successful because of their hard work, perservance, and willingness to adopt new methods of production.

What Drache documents, but fails to emphasize, is the advantages these corporate farmers started with that enabled their hard work and perserverance to reap greater payoffs than less advantaged, but equally hard-working and dedicated farmers. In every case each of these farmers started out with more land, in some cases, vastly more land, than ordinary homesteaders. In every case except one this land was much better than average and generally located in river valleys. In addition, their families had, from the homesteading days, relied on more than just farming for income. All had business interests and their family histories describe business involvement in such enterprises as machinery dealerships, agricultural supply dealerships, banks, local stores, elevator companies, power plants, and, in one case, a machinery manufacturing plant (c.f., Drache, Chapters V, VI, and VII). In some cases farming served as the secondary

industry rather than the primary one with the family business subsidizing the family farm.

Their business interests enabled these farmers to purchase more land, afford the latest in technology, and generally improve the quality of their farming operations. They also gave these farmers an edge in selling their produce. Because they did not have to rely solely on income from their farm commodities they could hold their produce until market highs and get a greater return on their grain and livestock (Drache 1976: 183,188). Others got higher returns by direct marketing through their own elevators or livestock feedlots and shipping companies (Drache 1976: 176, 232-235).

Drache ignores the edge these farmers had on others and proceeds to argue the farming methods used by these large farmers are the way of the future since it is by these methods alone that they have become successful. He also ignores the environmental consequences of large farms. He feels the use of large four-wheel drive machinery for grain farming, the use of herbicides and pesticides, the movement towards few hybrid varieties of cash-grains, and the production of livestock in confined environments produce only good in that they result in increased production and thereby lower prices (Drache 1976: 260-261,448). Each of these practices, however, has severe environmental costs.

Mechanization saves farmers labour but it also causes soil degradation and weed infestation. It has probably caused the greatest problems in the great plains region. Four-wheel drive tractors used on large acreages both erode and compact the soil. The introduction of combines for small-grain farming, while greatly reducing labour time

needed for harvest, have also greatly increased the spread of weeds. Combining scatters weed seeds throughout the entire field during harvest (Ian Miller, personal communication, October 1989). The weed infestation problem has become so severe in some areas that farmers have resorted to the herbicide Glean, which essentially sterilizes the soil, preventing not only weed growth but greatly reducing the quality of the soil (Ian Miller, Wallace Miller, Dave Pearson; personal communication, May 1990). Threshing machines may have required more labour than combines but they had the advantage of controlling weeds since grain, and consequently weeds, were threshed in only a few spots in the field. Mechanization has also become a more expensive proposition over the years as fuel prices and machinery and parts prices spiral ever upwards.

Raising beef, hogs, and poultry in confined spaces such as beef feedlots, hog farrowing crates and "growing" barns, chicken cages, and turkey pens increases the incidence of disease and parasitic pests (Drache 1976:402). Farmers who raise livestock in this manner have increasingly relied on regular administration of antibiotics with daily feeding to control disease whether or not animals are diseased (Schell 1983: 62-65). They resort to heavy applications of pesticide to control insect problems like flies in feedlots and lice in chicken barns (Schell 1983: 155-162). The overuse of antibiotics in livestock production and the consequences of it have been well documented by Schell (1983).

As the indiscriminate prescription of penicillin to prostitutes in Vietnam produced an antibiotic resistant strain of gonorrhoea, *Neisseria gonorrheae*, so has the overuse of penicillin and tetracycline in American livestock production produced resistant strains of dysentery, streptococci, and staphylococci bacteria (Schell 1983: 24,36). The frightening

thing about these bacteria is their ability to transfer themselves to human hosts (Schell 1983: 24,32,41,118-119). The transfer has greatly alarmed biologists and medical researchers. Many feel we may be forced back into a pre-antibiotic era unless we put a stop to the overuse of antibiotics in both humans and animals (Schell 1983: 27,41,121).

The story of pesticides and herbicides parallels that of antibiotic resistant bacteria. These came into widespread use after World War II and their destructive potential was first pointed out in the 1960's by Rachel Carson in her book Silent Spring. As with antiobiotics and bacteria, herbicides and pesticides eventually produce resistant strains of weeds and insects while at the same time destroying their natural enemies. Eventually we reach the point where the herbicide or pesticide no longer is effective and the plant or insect has too few natural enemies left. Infestations result and, as noted above, some farmers have resorted to completely destroying soil fertility simply to wipe out herbicide-resistant weeds.

So Drache may laud his corporate farmers for their greatly increased production and consequent lowering of commodities prices but their methods are ecologically unsound. Highly specialized, large-scale farming techniques, as practiced by corporate farmers and those family farmers able to afford such methods, may well contain the "seeds of their own destruction". I turn now to the Marxist literature on the development of agriculture in capitalist economies.

Family Farmers as the Petit Bourgeoisie: Losing Out to Capitalist Agriculture

The major thesis of Marxists is that family farmers' present situation stems in large part from the growth of monopoly capitalism. Marxists argue that agribusiness incursions into the agricultural sector have promoted a polarization process in U.S. agriculture creating a current situation in which most of our remaining farmers comprise either large-scale, highly mechanized operators or small, marginalized agriculturalists relying heavily on off-farm income for their livelihood.

Traditional Marxists posit that corporate capitalist agribusiness will eventually destroy family farms. Independent farmers continue to exist in advanced capitalist societies, they argue, only because of capitalist inattention and risky investment problems. Farming constitutes the "last frontier" for capitalists and they have not yet turned their attention to solving the problem of high risk and slow return on investment in the production of certain agricultural commodities. But when they do agribusiness firms will move in and destroy small producers.

Marxists have concentrated on documenting declining numbers of family farms, the growing numbers of corporate farms, and the monopoly corporate farmers have over specific foodstuffs. They also devote research to the study of the rural proletariat - agricultural labourers. Goss et al. (1980) analysis of U.S. agricultural census data from 1920 to 1978 shows declining numbers of family farmers for the U.S. as a whole from. They also identify a trend towards greater numbers of days spent on off-farm work on the part of family farmers and greater reliance on off-farm income. Their examination of the data on numbers of corporate farms reveals an increase in the percentage of

corporate farms and in the amount of farmland these farms control. On the basis of these statistics they conlcude that family farmers in the U.S. are in the process of proletarianization. They predict the eventual demise of family farmers and the take-over of the agricultural sector by corporate farmers. Havens (1985) points to the expanding number of farm commodities that are now dominated by corporate farms or agribusiness firms who have moved into actual food production.

Capitalist movement into the actual production of agricultural commodities through farms owned by an individual or groups of individuals solely for the purpose of making a profit and employing wage rather than family labour to do the farm work represents one way in which capitalism undermines family farming. When looking at capitalist domination of certain commodities, however, one must keep in mind that capitalist farms are not recent developments in the U.S. Much of southern and southwestern American agriculture followed and still follows this type of arrangement (Howe 1982; Vogeler 1978). In addition, most of corporate farms are family-owned corporations although it is true that large corporations such as Tenneco and Campbell's have moved into actual food production.

The increasing numbers of corporate farms are generally interpreted as the big winning out over the small, e.g., large farmers push small farmers out of production in certain areas producers. Marxists view this as merely another step, and a predictable one, in the proletarianization of family farmers. While individual family farms, whether large or small, still predominate in grain farming, mixed farming, dairying, and hog and cattle production, corporations have gained significant control over the actual food

farmers depending upon the type of foodstuffs they are producing, e.g., northern plains wheat farmers as opposed to corn-soybean-livestock farmers of the midwest; identification of the factors that promote the growth of some family farmers; and the possibility of a non-linear developmental model for agriculture in capitalist economies. The following discussion presents research on family farmers from a perspective that draws heavily on the Chayanovian tradition - dependency theory.

Family Farmers and Independent Commodity Production

Family labour farms diverge from capitalist enterprises because they rely almost exclusively on family labour instead of wage labour and because the household is both a production and a consumption unit. Although most economists class them as small capitalists, family farmers don't operate on the same principles as capitalists. The overriding goal of capitalists is to reap the average rate of profit from their business. If an operation fails to achieve or maintain this rate capitalists abandon it.

As Chayanov pointed out family farmer's motives differ in that farmers strive to maximize their net income by getting the most out of the bundle of resources they control. To stay "in business" family farmers do not have to realize a specific rate of profit. Rather they can continue to operate as long as they make enough income to accommodate their subsistence needs and the maintenance needs of the farm. Unlike capitalists, family farmers will settle for a lower rate of profit and sometimes no profit at all.

This ability gives them a distinct advantage over capitalist farmers in certain types of agricultural production. For example, grain farming in the midwest and western states involves low return on investments. In the late 19th century wheat-producing family farmers outlasted capitalist "bonanza" wheat farmers apparently because they could survive on lower rates of return than their profit-oriented counterparts and could more fully utilized the labour power of their families than bonanza farmers could utilize the labour of their hired hands (Drache 1976: 183).

In 1987 individual or family farms still dominated U.S. agriculture and constituted 86.6 percent of all farms (U.S. Census of Agriculture 1987). In addition, the percentage of family farms in the U.S. remained steady from 1920 to 1987. In spite of predictions to the contrary family farm organization has survived as a form of agricultural production under advanced capitalism.

Of the remaining thirteen percent of all farms partnerships accounted for just over nine percent of farms; corporations comprised slightly over three percent of total farm ownership; and co-operatives, estates, or trusts made up six-tenths of one percent of all farms. The vast majority of these corporate farms (85.0%) consisted of smaller family corporations with 10 or fewer shareholders, while family corporations with more than ten shareholders accounted for 3.0 percent of all corporate farms. Non-family corporations with less than 10 shareholders made up 10.0 percent of all corporate farms and non-family corporations with 10 or more shareholders comprised the remaining 1.9 percent of corporate farm owners (Table 1). Three-fifths (59.2%) of all farmers owned

all their land while thirty percent (29.3%) were part-owners and twelve percent (11.6%) were tenants.

While family farmers make up the majority of producers this does not mean everything is well on the family farm. We still have more family farmers than other types of farmers but there are far fewer of them than in the past. Dependency theorists have been most interested in those family farmers who continue to survive in spite of low commodities prices and increasing operating expenses.

Dependency theorists want to know what it is about family farming in capitalist economies that has enabled these operators to endure such prohibitive conditions. Their interest has been two-fold: they have looked at both family farmers' survival tactics and at what they see as the inherent weaknesses in capitalist business organization that prevent capitalists from moving directly into agricultural production.

These theorists do not romanticize the survival of the family farm. Rather they view it as filling the interstices of a capitalist agribusiness sector somewhat the same way in which secondary industries fill the production gaps for large corporations in the industrial sector. Like small manufacturers, family farmers produce high risk commodities for oligopolistic buyers, e.g., agribusiness firms like Cargill, Dreyfuss, or Green Giant, and are subject to the same marginal and controlled existence this engenders in the industrial sphere, e.g., auto parts suppliers for General Motors, Ford, and Chrysler. They feel family farms continue because they provide an advantage to agribusiness just as secondary manufacturers provide an advantage to industrial capitalists - by taking all the risk and receiving only marginal returns.

Researchers utilizing dependency perspectives have argued family farms will continue to exist but in a more exploited position than in the past. The exploitation comes about through the efforts of agribusiness firms and financial institutions to control family farmers by other means than moving directly into food production. Agribusiness capitalist and financial capitalists can dominate farmers by taking over some aspects of the production process from them, such as decisions over what crops to grow, what crop production methods to use, and who to sell their crops to. This can happen through three developments: indebtedness, contract farming, and part-time farming. Each of these processes result in increasing exploitation of family farmers labour and loss of autonomy over their farming operations. In opposition to the relatively independent producer of the nineteenth and early twentieth centuries late twentieth farmers, according to dependency theorists, have moved toward the status of "propertied labourers".

Family Farmers as "Propertied Labourers"

The loss of control by family farmers' over certain parts of the agricultural production process - has provoked two explanations. Traditional Marxists see indebtedness, contract farming, and part-time farming as simply steps in the movement towards eventual proletarianization. However, dependency theorists see these processes as turning family farmers into a class of individuals who own the means of production, e.g., land, but who do not completely control the use to which these means are put.

The dependency approach to family farming explains the continued existence of family labour farms because of their advantage to capitalist development. These theorists

view family farming not as "evidence of a lack of capitalist development but as an integral part of the capitalist system within which it has been shaped and maintained through decades of dependence and exploitation" (Davis 1980:134).

In the decades since the mid-19th century the family farm has become increasingly integrated into a system of exploitative capitalist relations. Dependency theorists argue that this integration has led not only to the maintenance of the family farm but its domination by agribusiness and finance capitalists (Davis 1980:135). They argue that this capitalist domination transforms the majority of family farmers into "propertied labourers - a contradictory class location between the petty bourgeoisie and wage-labourers (Mooney 1985). They contend that family farmers will continue to occupy such a class position because they provide monopoly capital with particular advantages not obtained elsewhere.

At the theoretical level the argument takes its departure from Marx's view that possession of the means of production guarantees no absolute protection against exploitation. Indeed, even the propertied may have their surplus value expropriated. Although Marx saw individual private property as a barrier against the capitalist mode of production because the labourer can accumulate for himself, this is only the case if possessing the means of production assures autonomous production (Davis 1980:138). The presence of smaller, "independent" producers, who still own their means of production, does not automatically indicate a lack of capitalist encroachment into that sector of the economy.

Instead, increasing indebtedness, contract farming, and part-time farming (off-farm work) have promoted a loss of production autonomy and the expropriation of surplus value from farmers. As a result of these processes the farmer has moved from being part of the petty bourgeoisie to occupying a more mixed, or contradictory, class location. The farmer is transformed into a "propertied labourer" who is not completely proletarianized since he still owns part of his means of production and has some, although not complete, control over the labour process (Mooney 1985:8). It is to these three processes that I now turn, looking initially at the literature dealing with indebtedness, then at contract farming, and finally at part-time farming.

Loss of Control Through Indebtedness

The nature of agricultural credit systems exacerbates the increasing capitalist penetration into agriculture and the "cost-price" squeeze on family farmers. In order to keep up with new techniques and increase production farmers have had to borrow money from financial institutions. Costs of machinery, chemicals, fuel and land require investments and high expenditures. Large amounts of money have to be advanced just to begin each crop year. In 1975, for instance, each acre brought under cultivation required an initial output of $82 (Havens 1985:27) but farmers had to wait at least six months for a return on this investment.

As farm costs increase and commodity prices decrease, many farmers find that they can barely maintain interest payments on debts let alone pay off the principal. Indebtedness creates the conditions under which farmers lose control over actual farm

production because farmers enter production contracts to overcome their debt payments and because banks pressure them into particular production strategies (or processes) (Mitchell 1972:21; Mooney 1982:8).

Increased indebtedness of full-owner operators occasioned by sky-rocketing input costs means that most farmers have become enormously dependent on credit institutions for continued operation. Mooney (1985:9) argues that the interest on a loan secured by the land approximates a rent and puts farmers in the position of tenants even though they formally hold title to the land. Interest payments, like rent, constitute an appropriation of surplus value from direct producers and fulfill one criterion of the proletarianization process.

In addition, control of capital by the creditor also erodes the direct producer's power over the labour process. The more dependent a producer becomes on the creditor the more the creditor can control the producer's labour process. However, producers vary in whether they have access to alternative sources of credit and in their credit "standing" (Green 1984:570). Hence, some producers depend more on financial credit systems than others.

Mooney's (1985) interviews with Wisconsin farmers indicated that banks increasingly direct how some of the indebted farmers' produce (e.g., what to plant, methods of production, etc.). Creditors threaten with foreclosure farmers who do not follow creditors' instructions. Thus, creditors can gain the power to structure both the producer's means of production and the labour process. "The appearance of being one's

own boss is reproduced while the basis of that autonomy is undermined" (Mooney 1982:10).

Therefore, through indebtedness creditors can extract the farmer's surplus value via interest payments and control the farmer's labour process via directing production. Each process moves the family farmer toward proletarianization. This transformation, however, remains incomplete without foreclosure. Since some credit institutions choose to "manage" farmers' production rather than to foreclose, these producers fall into a contradictory class location between the petty bourgeoisie and the proletariat (Mooney 1985:10).

If banks used foreclosure more extensively, farmers would become completely proletarianized and confirm the theses of traditional Marxists. However, creditors refrain from foreclosures because they obtain a greater economic advantage when they perpetually extract interest from indebted family farmers. If the creditors acquired the land through foreclosure they would then have to sell it or hire managers for it. Instead the creditors reap the benefit of the family farmer's "willingness" and ability to work even harder and generate enough surplus value to pay the interest on his debts. In other words, creditors profit when they maintain the indebted relationship. They favour the certain gains they obtain from interest payments and direct control of the production process over the uncertain gains from foreclosures and sale of the property (Mooney 1985:11).

However, indebtedness is only one way in which farmers move into the contradictory class location of propertied labourers. Family farmers can also lose control over their labour process through contract farming.

Loss of Control Through Contract Farming

Contract farming has become increasingly common in vegetable production (Mooney 1985; Pfeffer 1985a). Davis (1980:142) equates it with industrial piece work wage agreements. Under contract farming farmers produce agricultural commodities at an agreed upon unit price. The farmer contributes his labour power and tools of production (land, machinery, etc.), while the agribusiness firm provides the inputs such as seed, fertilizer, feed, etc. Under contract farming agribusiness expropriates the surplus value and the farmer loses primary control over production decisions, the labour process, and some of the means of production (e.g., inputs). Therefore, contract farming also promotes the transformation of the independent farmer into a propertied labourer.

Although the farmer participates in many production decisions and holds full title to the contracted product, the agribusiness firm maintains direct control over how production will proceed. The agribusiness firm insists on a tight production schedule because this facilitates processing, extends the production season, and increases the number of production cycles. In addition agribusiness encourages farmers to mechanize extensively to maximize product output per man hour and to use highly "innovative" new hybrids, chemicals, and techniques. These practices supposedly allow farmers to "improve" quality, increase yields, and use their equipment, facilities and land more

effectively (Davis 1980:143; Mooney 1985:11). However, they also reduce unit costs and the agribusiness capitalist profits when the contract farmer realizes his production potential as fully as possible.

Since agribusiness firms pay farmers according to "quality" of product and time of delivery farmers will work harder and longer with no increase in pay to improve productivity. This not only reduces the unit cost of production but increases product quality and yields for the same amount of labour time.

In addition, contract farming has similar advantages for agribusiness firms that sub-contracting has for monopoly industrial firms. As in the industrial sector, agribusiness firms limit their production to low risk commodities (Pfeffer 1985a:1). Where producers cannot control market uncertainties through increases in size large firms prefer to sub-contract for inputs. In these cases monopoly capital can operate more efficiently without entering into direct production.

In fact, direct production of agricultural commodities involves a number of "risks" (Mann and Dickinson 1980). For instance, poor environmental conditions, insect plagues, disease, and natural disasters can completely wipe out crops. This leaves the direct producer with nothing to show for his investment of time and money. Agribusiness firms protect themselves from such uncertainties when they let the farmer bear the costs of failed production.

Direct production of agricultural commodities also demands high levels of initial investments and a delay of at least six months for a return on capital. Costs of land, machinery, fuel, seed, and chemicals are extremely high. The agribusiness firm that

engages in contracting can minimize these high input costs. It only supplies some of the inputs (typically seed and chemicals) while it relies on the farmer to provide the most expensive inputs (fuel, land, machinery) (Pfeffer 1985a). Furthermore, the firm can delay paying the farmer for his labour time until he delivers the product.

However, contract farming represents one way for the farmer to cut his costs (the cost of pesticides and seed for instance) and thereby increase his income. Another method family farmers are relying on to supplement farm income is wage labour. This turns them into "part-time" farmers.

Loss of Control through Part-time Farming

Increasing numbers of farmers engage in off-farm wage-work and farm only part-time. These part-time farmers may occupy two class locations: propertied farmer and wage-labourer. While farmers may avoid debt, tenancy, or contract farming through wage-work they remain "independent" in their farm work only at the price of selling their labour-power elsewhere (Mooney 1985:14). Off-farm work, therefore, also moves the farmer into the contradictory class location between the petty bourgeoisie and the proletariat.

Empirical research on the wage wrok part-time farmers engage in is sparse. From Mooney's work in Wisconsin we know that some part-time farmers engage in agricultural wage-work when they work off their own farm. They work as hired hands for larger neighbouring farmers, helping out during the busiest times of the season (Mooney 1985). Like indebtedness and contract-farming the presence of a number of part-time farmers

potentially benefits capitalists. In this case the benefits accrue to those capitalists directly involved in agricultural production -large farmers relying on wage labour (Pfeffer 1985b).

As Pfeffer (1985b:18-19) points out, part-time farmers form a likely labour pool with assets that capitalist farmers would not find elsewhere. Because part-time farmers generally live in the same area as the larger farmers that they work for they are readily available for work. Furthermore, they have other means of subsistence besides agricultural wage labour so they accept the seasonality of agricultural work. As a result, the employer does not have to compensate these workers for periods of "lay-off". Part-time farmers are also skilled workers. Their knowledge of production techniques and machinery operation matches that of their employer's. Employers don't have to train them and can trust them to do the job properly.

Based on the preceding descriptions of indebtedness, contract farming, and part-time farming dependency theorists predict the continued existence of family farmers for three reasons: companies and banks can avoid the risks of agricultural production by both indebtedness and contract farming and capitalist farmers are assured of a skilled and readily available labour force by part-time farming. Family farmers will survive but in a much altered form from the archetypal independent farmer relying completely on farm income for his livelihood and employing family labour to run the farm.

Related to the non-linear development notion is the possibility that the development of agriculture may not be uniform across a nation. Certain types of agricultural production may lend themselves better to a family farm type of organization

than to a capitalist type of organization. Newby (1978) and Buttell (1980) point to dairying and cereal production as types of production favouring family farm organization rather than capitalist organization.

The fate of family farmers in situations of debt, contract-farming, and part-time farming remains uncertain. The creditor/debtor relationship seems the most precarious one for family farmers since bank foreclosures account for most of the recent family farm liquidations. Contract farming and engaging in off-farm work can become survival strategies for family farmers. These practices allow farmers to stay on the farm, avoid increasing indebtedness, and reduce some of the risks involved in production. So instead of viewing these developments as completely inimical to family farmers researchers should also realize they provide resources for family farmers.

Although trends over the past 67 years indicate decreasing numbers of family farmers in the U.S., the proportion of family farmers has not changed much. What has changed is the size of farms and the way in which farm work is done. Looking at the U.S. as a whole farms have expanded in size by over 300 acres and farmers increasingly rely on machines to aid them in their work. However, looking at national data obscures regional differences among farmers. Farm size, tenure of farm operators, farm organization, and reliance on hired labour vary from region to region, depending on what farmers are producing. For instance, farmers in California and the southwestern states have always relied more heavily on agricultural wage workers than have northern and midwestern farmers. In addition capitalist farms are not recent developments in the west

and southwest. Capitalist farming in these areas dates back to the mid-nineteenth century (c.f., Vogeler 1978).

Before coming to the conclusion that family farmers are on the road to extinction we should instead try to discover why the greatest proportion of farms in the U.S. still remain family farms and how these farmers have adapted to changing economic conditions. To look more closely at family farmers and their strategies I have selected two states, North Dakota and Illinois, where farming began with family homesteading and has continued to be primarily organized on the lines of family labour farming.

I chose states where agriculture has been, and still is, characterized by family labour farms to better illustrate changes in farm organization over the past 67 years. If one makes the assertion that capitalist farms are coming to dominate agricultural production, as traditional Marxists fear and agricultural economists laud, one must demonstrate that this type of farm has indeed made notable inroads into areas where family labour farms had once been the hallmark of agricultural production. It is not enough to show that there are a significant number of corporate farms in California to clinch the argument of corporate farm success since California has not had a history of family labour farming as the primary mode of production in agriculture (Rasmussen 1974; Vogeler 1978). One has to show that proportions of corporate farms have grown significantly in areas where family labour farms once dominated.

An additional reason for using North Dakota and Illinois is that farmers in each area produce different types of commodities. Choosing to explore different types of production allows comparisons of farming strategies and provides a way in which to

evaluate the effect of the commodity produced on the ability of family farmers to survive under capitalist economic conditions. In North Dakota farmers predominantly grow wheat for a living and if they engage in livestock production they raise cattle. Illinois farmers produce corn and soybeans as their cash grains while hogs form the largest proportion of livestock raised in the state. By comparing these two type of production we should be able to see if one is more conducive to family labour farming than the other and then speculate on reasons as to why or why not.

WHO GROWS WHAT, AND HOW?: INTERPRETING THE NUMBERS

In order to evaluate the competing explanations for the path American agriculture has followed I examine data on farm numbers, farm size, farm ownership patterns, off-farm work, farm organization, farm labour needs, and farm production patterns over time. I begin with a description of the changes that have taken place in the numbers and size of American farms. I then present farm ownership patterns to try and come to some conclusion about how securely family farmers hold their land. Off-farm work data is examined to provide an idea of how able farmers are to maintain an adequate income on the basis of farming alone. Finally, since a key piece of each competing explanation involves the organization of farming in the U.S. I look specifically at how many farms are organized on an individual or family level, on a partnership level, and on a corporate level. This organizational analysis is followed by a closer look at farms within these categories in terms of their labour needs and the types of commodities they produce.

A Trend of Declining Numbers and Increasing Size

In terms of an overall picture of the number of farms in Illinois and North Dakota both states exhibited a marked decline in actual farm numbers over the 1920 to 1987 period. While the decreases were severe in each state Illinois lost more farms and more land in farms than North Dakota (Table 1). In 1987 Illinois had only 37 percent of the farms it had in 1920. Moreover total land area in farms had fallen to 80 percent of the 1920 land area. By 1987 North Dakota had 45 percent of the number of farms it had in 1920 while the land in farms stood at 90 percent of the land in farms in 1920.

In Illinois declines in farm numbers occurred in every period between each agricultural census except for the 1930 to 1935 period (Table 1). The same picture appeared in North Dakota with the only difference being two periods of farm number increase, the 1925 to 1930 period, and the 1930 to 1935 period. From 1920 to 1935 total land in farms remained the same in both states. Between 1940 and 1987 total land in farms exhibited an overall decrease with slight ups and downs during this interval.

Interestingly enough the rate of farm number decrease was higher in Illinois between 1950 and 1964 and higher in North Dakota between 1954 and 1964 than it was between 1974 and 1987 (Table 1), the period that is now being touted as the "farm crisis". While not denying the alarming rate of recent farm number declines these statistics may point to changes in perception of the agricultural sector among the general public and to changes in the nature of farm number decline. Perhaps in the 1950's and 1960's the reasons for number decreases stemmed more from retirement of older farmers who had no descendants willing to carry on the farming operation, for economic reasons or reasons of personal preference, whereas the crisis of the 1970's and 1980's has stemmed from foreclosures on farmers who still wish to carry on farming. The numbers decrease in the 1980's rates the label "crisis" because of the resistance, and hence visibility, it generates not because of the magnitude in the decrease of farm numbers.

Table 1. Farm Numbers for North Dakota and Illinois: 1920 to 1987

	NORTH DAKOTA		ILLINOIS	
Year	Farms	% Decrease	Farms	% Decrease
1920	77,690	**	237,181	**
1925	75,970	2.2%	225,601	4.9%
1930	77,975	2.6%	214,495	4.9%
1935	84,606	8.5%	231,312	7.8%
1940	73,963	12.6%	213,439	7.7%
1945	69,520	6.0%	204,239	4.3%
1950	65,401	5.9%	195,268	4.4%
1954	61,943	5.3%	175,543	10.1%
1959	54,928	11.3%	154,644	11.9%
1964	48,836	11.1%	132,822	14.1%
1969	46,381	5.0%	123,565	7.0%
1974	42,710	7.9%	111,049	10.1%
1978	40,357	5.5%	104,690	5.7%
1982	36,431	9.7%	98,483	5.9%
1987	35,289	3.1%	88,786	9.8%

While farm numbers decreased in both states farm size increased (Table 2). Increments in average farm size occurred between every census with only one exception in Illinois and two in North Dakota. In 1920 Illinois farms averaged 135 acres but by 1987 the average farm was 2.38 times as large with 321 acres the average size. North Dakota farms averaged 466 acres in 1920 and 1,143 acres in 1987, almost two and one-half times the size of the average 1920 farm. However, average increases in farm size do not give a picture of the distribution of acres. For that we need to examine the numbers of farms within specific size categories.

Table 2. Average Size of Farms for North Dakota and Illinois: 1920 to 1987

	NORTH DAKOTA	ILLINOIS
Year	Average Size	Average Size
1920	466 acres	135 acres
1925	452 acres	136 acres
1930	496 acres	143 acres
1935	462 acres	137 acres
1940	513 acres	145 acres
1945	590 acres	155 acres
1950	630 acres	159 acres
1954	676 acres	173 acres
1959	755 acres	196 acres
1964	875 acres	226 acres
1969	930 acres	242 acres
1974	992 acres	262 acres
1978	1,033 acres	282 acres
1982	1,104 acres	292 acres
1987	1,143 acres	321 acres

In 1920 the agricultural census divided farms in the United States into six size categories. In 1964 the census added an extra category for farms over 2,000 acres (Tables 3a, 3b). Looking first at Illinois, the modal category for farm size in Illinois in 1920, based on this six category scheme, was 50 to 179 acres (Table 3a). Fifty-six percent of all Illinois farms concentrated in this category. By 1987 the modal category had changed to 180 to 499 acres and exhibited less concentration with 30 percent of all farms falling into this category.

Table 3a. Percentage of Farms Falling Into Specified Size Categories for Illinois: 1920 to 1987

Year	Size in Acres 1-9	10-49	50-179	180-499	500-999	1,000-1,999	2,000 or more
1920	3.4%	15.0%	56.2%	24.5%	.7%	.1%	a
1925	3.7%	15.0%	55.1%	25.4%	.8%	.1%	a
1930	4.2%	13.7%	53.2%	27.9%	1.0%	.1%	a
1935	6.1%	15.9%	51.4%	25.6%	1.0%	.1%	a
1940	6.0%	15.0%	49.6%	27.9%	1.3%	.1%	a
1945	6.8%	14.9%	45.1%	31.3%	1.8%	.2%	a
1950	7.2%	14.3%	43.9%	32.4%	2.0%	.2%	a
1954	6.4%	12.5%	41.8%	36.6%	2.6%	.2%	a
1959	4.0%	12.1%	38.2%	44.5%	4.0%	.4%	a
1964	3.3%	10.9%	34.7%	43.7%	6.7%	.6%	.1%
1969	4.1%	10.9%	33.1%	41.6%	9.1%	.1%	.1%
1974	3.8%	12.1%	32.9%	37.6%	11.6%	1.9%	.2%
1978	4.7%	13.6%	29.8%	35.4%	13.4%	2.8%	.3%
1982	6.2%	15.7%	27.9%	32.2%	14.1%	3.7%	.5%
1987	6.7%	14.6%	26.8%	30.1%	16.1%	5.0%	.7%

Note: Percentages may not total 100.0 due to rounding.

The largest percentage increase within categories came for farms of 1,000 or more acres. These farms comprised less than one-tenth of one percent (0.08%) of all farms in Illinois in 1920. However, by 1987 they made up almost six percent of all farms, a percentage increase of 7,112! Farms in the 500 to 999 acre group showed the next largest increase. In 1987 these farms made up 16 percent of all farms whereas in 1920 they accounted for less than one percent of all farms (0.78%). The 50 to 179 acre category lost the greatest percentage of farms dropping from over one-half (56.2%) of

all farms in 1920 to just over one-quarter (26.8%) of all farms in 1987. While the 180 to 499 acre group became the modal size group in 1987 it exhibited an up and down pattern over the same period. By 1959 it had increased its share of all farms to 44 percent but then declined to its present thirty percent figure. The percentage of farms in the 10 to 49 acre category remained fairly stable over the 67 year period comprising 15 percent of all farms in 1920 and just over fourteen percent of all farms in 1987. Very small farms of one to nine acres also exhibited an up and down pattern but by 1987 made up about seven percent of all farms compared to their three percent share of 1920.

In North Dakota the 1920 modal category for farms was the 180 to 499 group which contained over one-half (54.2) of all farms (Table 3b). As with Illinois, farms concentrated heavily in one category. However, by 1987 this category had experienced the greatest decline in percentage of farms and now comprised only 17 percent of all farms. The modal category had changed to 1,000 or more acres, which comprised about 42 percent of all farms, and the distribution of farms became less concentrated than in 1920. Of the 42 percent of farms with 1,000 acres or more of land, 28 percent were in the 1,000 to 1,999 acres range and 14 percent were in the 2,000 or more acres group. Therefore, since 1920, North Dakota has experienced a greater trend towards large and very large farms than has Illinois.

Table 3b. Percentage of Farms Falling Into Specified Size Categories for North Dakota: 1920 to 1987

Year	Size in Acres 1-9	10-49	50-179	180-499	500-999	1,000-1,999	2,000 or more
1920	.19%	.9%	16.0%	54.2%	23.7%	5.1%	a
1925	.43%	1.2%	16.2%	53.8%	23.7%	4.7%	a
1930	.49%	1.5%	14.1%	50.0%	27.0%	7.0%	a
1935	1.49%	24.7%	18.2%	48.1%	23.5%	6.2%	a
1940	.91%	2.1%	16.0%	46.1%	26.2%	8.7%	a
1945	1.10%	1.8%	11.0%	43.0%	31.7%	11.5%	a
1950	.91%	1.7%	9.6%	40.7%	33.8%	13.4%	a
1954	1.20%	1.4%	8.5%	37.4%	35.5%	16.0%	a
1959	.49%	1.6%	7.3%	32.4%	37.6%	20.7%	a
1964	.85%	1.6%	6.3%	27.0%	37.3%	21.8%	5.3%
1969	2.80%	1.6%	7.4%	23.0%	34.0%	24.5%	6.8%
1974	2.30%	1.8%	8.0%	21.5%	31.0%	26.5%	8.9%
1978	2.60%	2.2%	8.8%	19.6%	29.2%	27.6%	10.0%
1982	3.10%	3.1%	8.7%	18.1%	26.8%	27.6%	12.7%
1987	2.50%	4.5%	8.6%	17.4%	24.5%	28.4%	14.2%

Note: Percentages may not total 100.0 due to rounding.

The trend in both states, then, has been towards fewer farms and larger farms. This indicates some farmers have found increasing size necessary for continued operation. They must either get larger or get out. The question then becomes one of which farms survive to grow larger. To shed some light on that subject I turn to an examination of the tenure of ownership of farms and all land in farms.

From Tenant to Full Owner or Full Owner to Tenant: Stairway to the Petty Bourgeoisie or Slippery Slope to the Proletariat?

The pattern of ownership of farm land provides ambiguous data on how well farmers are doing. The neo-classical economist model predicts family farmers move from tenancy, to part-ownership, and then to full ownership. Therefore, their measurement of how well farmers are doing would include a somewhat even distribution of farms between full owners, part-owners, and tenants. Classical Marxists, on the other hand, see tenancy as a precarious situation. They consider high rates of tenancy as evidence of family farmers tenuous hold on the land that eventually results in total loss of land and movement into the ranks of the rural proletariat. Marxists would view higher rates of full ownership as a better situation for family farmers. Part-ownership would indicate a condition in which family farmers found themselves in need of more land to make ends meet but unable to afford to buy the land outright.

Dependency theorists view tenancy and part-ownership ambiguously. On the one hand, if economic times are good, part owners and tenants may have the ability to buy some of their rented land. Hence rates of tenancy should decrease in years when farmers harvest good crops. Conversely, an overall poor harvest or poor price for agricultural commodities puts part owners and tenants in a precarious position, often resulting in the inability to pay the rent and hence reduction in farm size or total movement off the land.

In both Illinois and North Dakota tenancy rates in any given census year appear to reflect the overall economic situation of the U.S. in that year. Tenancy rates start to increase in 1925 in both states (Tables 4a, 4b) and continue on the upswing through the

Great Depression and into 1940. Rates begin to fall with the economic recovery occasioned by World War II. In Illinois the decrease in tenancy continued up to 1987 (Table 4b). North Dakota showed a slightly different picture with the decline continuing only until 1974. In 1978 tenancy rates had again increased by four percentage points, from 13 to 17 percent (Table 4a). However, the rates remained fairly stable up to the 1987 census.

Table 4a. Tenure of Ownership and Average Size of Farm for North Dakota: 1920 to 1987

Year	Full Owner	Part Owner	Tenant	Manager
1920	43.8%	29.4%	25.6%	1.1%
1925	34.7%	30.5%	34.4%	.48%
1930	30.5%	33.7%	35.1%	.60%
1935	30.5%	30.0%	39.2%	.40%
1940	25.2%	29.4%	45.1%	.30%
1945	31.9%	40.0%	27.8%	.40%
1950	39.0%	39.0%	21.9%	.20%
1954	38.0%	41.2%	20.4%	.15%
1959	36.0%	44.5%	18.8%	.35%
1964	36.5%	47.0%	16.1%	NA
1969	40.5%	46.6%	14.4%	NA
1974	39.4%	47.2%	13.4%	NA
1978	34.6%	48.2%	17.2%	NA
1982	34.1%	48.8%	17.1%	NA
1987	32.4%	49.7	17.9%	NA

Note: Percentages may not total 100.0 due to rounding.

The question with tenancy, whatever the rates, is how many tenants move into part-ownership or full-ownership. If the number of farmers remained the same year after year one could argue that declines in tenancy indicated movement of tenants up the ladder to part-owners or owners. However, the number of farmers in both states for every census period except the 1925 to 1935 period has declined therefore some of these tenants must be leaving the land. It is notable that in the five years after 1935, the year of the second highest tenancy rates in North Dakota, the state experienced the highest percentage decline in number of farm operators between any of the census periods under examination (Table 1). A similar trend occurred in Illinois although it was not quite as marked.

While the proportions and numbers of tenants in each state have declined the proportions of part-owners have increased. In 1920 only thirteen percent of Illinois farm operators were part-owners but by 1987 part-owners had increased to over two-thirds (36.6%) of all farm operators (Table 4a). North Dakota also evidenced an increase in the percentage of part-owners almost as large. While North Dakota part-owners made up about thirty percent (29.4%) of farm operators in 1920, by 1987 they had expanded to form one-half (49.7%) of all operators (Table 4a).

Rates of full ownership have moved up and down between 1920 and 1987. In Illinois full-ownership rates have varied from a high of 47 percent in 1974 to a low of 38 percent in 1935. By 1987 Illinois full-owners made up almost the same proportion of farmers that they did in 1920 (Table 4b). In North Dakota full-ownership rates ranged from a high of 44 percent in 1920 to a low of 25 percent in 1940 (Table 4a). By 1987

full-owners formed a smaller segment of farm operators than they did in 1920. Over two-fifths (43.8%) of farmers were full-owners in 1920 but this portion had dropped to about one-third (32.4%) by 1987.

Table 4b. Tenure of Ownership and Average Size of Farm for Illinois: 1920 to 1987

Year	Full Owner	Part Owner	Tenant	Manager
1920	42.5%	13.4%	42.7%	1.40%
1925	42.6%	14.6%	42.0%	.80%
1930	39.7%	16.2%	43.1%	1.00%
1935	37.6%	17.2%	44.5%	.80%
1940	40.8%	15.4%	43.1%	.80%
1945	42.9%	17.3%	39.1%	.80%
1950	44.7%	20.4%	34.6%	.40%
1954	43.1%	21.8%	34.9%	.30%
1959	41.2%	25.1%	33.5%	.30%
1964	41.1%	28.2%	30.4%	NA
1969	45.8%	29.5%	25.1%	NA
1974	47.3%	31.8%	20.9%	NA
1978	43.7%	35.0%	21.5%	NA
1982	43.7%	36.7%	20.0%	NA
1987	44.0%	36.6	19.4%	NA

Note: Percentages may not total 100.0 due to rounding.

In North Dakota increases in tenancy accompany decreases in full-ownership up to 1940 (Table 4a). However, after 1940 decreases in full-ownership correlate closely with increases in part ownership while rates of tenancy continue to decrease or rise only slightly. If one examines percentage decreases in numbers of full owners and tenants

from 1945 to 1964 percentage decreases for tenants are greater than for full owners. My feeling is that tenants are most likely to disappear because they can no longer make a living off renting land. Conversely, full owners are more likely to "disappear" into the part-owner category. Full-owners have found it increasingly necessary to expand their holdings to maintain the same level of income they may have been able to attain in previous years with smaller amounts of land.

However, economic times for farmers have not been good enough to allow them to purchase additional land outright so they have resorted to renting to increase their holdings. This would make sense if one considers that the value of most agricultural commodities has remained relatively stable in constant dollars since 1920, and for some commodities has actually declined, while the price of farm input materials such as fuel, seed, fertilizer, pesticides, herbicides, and machinery spiralled ever upward in the ensuing years. Of course it is impossible to say what takes place at the individual farm level from the grouped data of the census but the severe reductions in farm operator numbers do add credence to the above interpretation.

In Illinois a somewhat different pattern of farm tenure emerges over the years. Where North Dakota exhibited a more wide-ranging level of full-ownership Illinois rates fluctuated less staying within a range of nine percent (Table 4b). The corresponding range of fluctuation in North Dakota was 19 percent. In addition, Illinois had higher rates of full-ownership than North Dakota for every census except that of 1920 (Table 4b). The level of full-ownership, however, held fairly steady moving up and down between 43 and 47 percent. Conversely, Illinois part-ownership levels have been much lower than

those in North Dakota for every census although part-ownership rates have increased more noticeably in Illinois than in North Dakota since 1920. Illinois has experienced a steady gain in proportions of part-owners from a low of 13 percent in 1920 to a high of 37 percent in 1987 (Table 4b). After 1940 increases in rates of part-ownership in Illinois correlate more closely with decreases in the incidence of tenancy. For every census after 1940 there was an increase in part-ownership along with a decrease in tenancy rates. Part-ownership levels rose 19 percent and tenancy rates fell 20 percent.

More important to look at in interpreting tenure of ownership is the proportion of total farm land each group farms rather than proportions of farm operators in the above categories. These figures provide a better idea of the size and significance of each group of farmers. For instance if full-owners comprise 44 percent of all farmers but only control 20 percent of the land in farms and part owners make up 20 percent of all farmers but control 40 percent of all land in farms this tells us something about the relative wealth and well-being of farmers of different tenure status.

Part-owners, in this instance, would probably be better off economically than full-owners (as a group, that is). In addition we could surmise part-owners may be attempting to work up to purchasing the land they now rent for their future expansion. We might also expect part-owners to have more heavily invested in machinery since they will need the aid of machines to farm their larger amounts of land. On a Chayanovian note, we might anticipate these family farmers to have a larger kin network available to help them farm their increased acres since Chayanov argues that one reason family farmers increase their total number of acres is to make use of under-employed kin.

In both North Dakota and Illinois the amount of farmland farmed by full-owners and tenants has declined between 1920 and 1987 whereas part-owners have increased their share of farmland over those years (Tables 5a and 5b). The decline in share of farmland has been most noticeable for full-owners with their share falling from 36 percent to 19 percent in both states. North Dakota tenants, while also experiencing a loss in acres farmed did not evidence such a dramatic decline (Table 5a). Their share fell from 24 percent to 14 percent. Illinois tenants showed a more severe loss than full owners declining in share from 47 percent to 20 percent of all land in farms (Table 5b). Part-owners dramatically raised their portion of acres farmed expanding from 38 percent to 67 percent of all acres farmed in North Dakota and from 15 percent to 60 percent of all acres farmed in Illinois.

Therefore, many farmers in both states have used increased size, via renting additional land, as a way of keeping up farm income. As the prices they receive for their products fail to keep up with their sky-rocketing costs of production farmers find it necessary to step up their levels of production just to stay even with costs. While many remaining farmers have increased their land holdings this has not been their only strategy for enlarging income. Working off their farms for neighbouring farmers or in a non-farm enterprise also serves as an income supplement. I turn now to patterns of off-farm work and their meaning for family farmers.

Table 5a. Percentage of Acres Farmed by Tenure of Operator for North Dakota: 1920 to 1987

Year	Full Owner	Part Owner	Tenants	Managers
1920	36.0%	38.1%	23.6%	2.20%
1925	28.1%	40.4%	30.7%	.79%
1930	22.4%	46.0%	30.9%	1.00%
1935	22.2%	44.6%	32.4%	.80%
1940	17.2%	43.7%	38.5%	.64%
1945	21.7%	54.8%	22.4%	1.10%
1950	28.8%	52.5%	18.0%	.71%
1954	27.3%	54.5%	17.4%	.83%
1959	25.4%	58.2%	15.7%	.74%
1964	24.2%	59.2%	12.4%	NA
1969	25.4%	61.7%	12.9%	NA
1974	25.2%	64.4%	10.4%	NA
1978	22.6%	65.3%	12.1%	NA
1982	23.5%	65.6%	10.8%	NA
1987	19.2%	67.3%	13.5%	NA

Note: Percentages may not total 100.0 due to rounding.

Table 5b. Percentage of Acres Farmed by Tenure of Operator for Illinois: 1920 to 1987

Year	Full Owner	Part Owner	Tenants	Managers
1920	35.6%	15.3%	46.9%	2.23%
1925	34.1%	17.3%	47.1%	1.46%
1930	29.9%	19.7%	48.7%	1.67%
1935	28.3%	21.1%	49.1%	1.49%
1940	29.4%	21.2%	47.9%	1.47%
1945	28.3%	24.9%	45.2%	1.66%
1950	28.82	28.7%	41.9%	1.17%
1954	27.35	29.7%	41.7%	1.06%
1959	25.0%	34.6%	39.5%	.99%
1964	24.3%	40.4%	35.3%	NA
1969	27.1%	44.4%	28.5%	NA
1974	26.0%	50.6%	23.4%	NA
1978	21.2%	56.5%	22.4%	NA
1982	22.0%	58.2%	19.8%	NA
1987	19.3%	60.4%	20.3%	NA

Note: Percentages may not total 100.0 due to rounding.

Working Off the Farm: Augmenting Farm Income

One indicator of the economic status of farmers, in terms of how well their farming operations are doing, is to look at how many of them make an adequate living from farming without having to rely on off-farm income. One assumes farmers will choose not to work off the farm if they don't have to. In this analysis I view off-farm work as an occupation farmers engage in because of economic necessity rather than choice. Hence in years when farmers find it difficult to make ends meet because of bad

harvests, heavy debt, or declining commodities prices, they will seek work off-farm to counter reduced farm income.

Data on off-farm work is available from 1930 to 1987 but strictly comparable information exists for only eight census periods: 1935, 1940, 1950, 1954, and 1974 through 1987. According to this information it does appear farmers in Illinois and have increasingly engaged in off-farm work (Table 6a). In 1935 about three-quarters (76.0%) of all Illinois farmers worked on-farm only and slightly less than one-quarter (24.1%) of Illinois farmers worked off-farm. Only four percent worked off-farm 200 or more days. By 1987 less than one-half (43%) of Illinois farmers worked solely on-farm whereas almost one-half (49.3%) reported off-farm work. One-fifth of all farmers had worked off-farm less than 200 days but almost thirty percent spent 200 or more days working off the farm. Considering there are approximately 252 working days in the year, 200 or more days off-farm work means these "farmers" virtually worked full-time at another job.

Patterns of off-farm work in North Dakota are not as clear-cut as those in Illinois. From 1935 to 1987 off-farm work did increase, however, the increase was not consistent and reflected ups and downs in the rates (Table 6b). Interestingly enough the 1935 data closely corresponds to the 1987 in levels of on-farm and off-farm work. The 1935 level may reflect the difficult times wheat farmers experienced during the depression and drought of the 1930's.

Table 6a. Percentage of Farmers Working Off-Farm by Numbers of Days for Illinois: 1935 to 1987

Year	Number of Days of Off-Farm Work				
	None	1 - 49	50 - 99	100 - 199	200 or more
1935	76%	11%	4%	4%	4%
1940	64%	10%	3%	5%	7%
1950	63%	12%	4%	5%	13%
1954	58%	15%	4%	5%	14%
1974	39%	7%	3%	6%	23%
1978	45%	10%	3%	7%	30%
1982	43%	9%	3%	8%	28%
1987	43%	9%	3%	8%	29%

Note: Percentages may not total 100.0 due to rounding.

Table 6b. Percentage of Farmers Working Off-Farm by Numbers of Days for North Dakota: 1935 to 1987

Year	Number of Days of Off-Farm Work				
	None	1 - 49	50 - 99	100 - 199	200 or more
1935	57%	33%	5%	3%	2%
1940	72%	13%	3%	2%	3%
1950	75%	14%	3%	3%	5%
1954	72%	14%	3%	3%	5%
1974	49%	9%	3%	5%	9%
1978	55%	14%	4%	7%	13%
1982	53%	12%	4%	7%	13%
1987	55%	11%	4%	8%	15%

Note: Percentages may not total 100.0 due to rounding.

In 1935 about three-fifths (57.0%) of North Dakota farmers devoted no time to off-farm work while just over two-fifths (43.0%) worked off-farm. Farmers working less than 200 days off-farm accounted for 41 percent of all farmers and those working 200 or more days off-farm made up only two percent of all farmers. On-farm work reached its high point in North Dakota in 1950 when three-quarters of all farmers reported no off-farm work.

In that same year about one-fifth of North Dakota farm operators worked from one to 199 days off-farm and five percent worked off-farm 200 or more days. By 1987 farmers engaged solely in farm work comprised 55 percent of all North Dakota farmers while those working off-farm made up almost 45 percent of farmers. Slightly over one-fifth (22.2%) of farmers worked less than 200 days off-farm while fifteen percent worked 200 or more days at non-farm occupations.

In comparison, Illinois has had larger proportions of farmers working off farm than has North Dakota since the 1940 census. While similar proportions of farmers fell into the categories between one and 199 days of off-farm work for the years between 1940 and 1987 the share of Illinois farmers working off-farm 200 or more days has always exceeded that of North Dakota. In 1940 only three percent of North Dakota farmers worked off-farm 200 or more days compared to seven percent in Illinois. In 1987 the comparable figures were 15 percent and 29 percent respectively. By 1987, therefore, Illinois had twice the proportion of farmers working close to full-time at another job (200 or more days off-farm work) than North Dakota had.

The total amount of off-farm work in numbers of days in both states does appear to be increasing. The proportions of farmers working 100 or more days off farm grew from 1940 to 1987. One group of farmers seems to be moving in the direction of spending from one-half a year to almost a full year on off-farm work. In 1987 farmers most likely to work off-farm were those with smaller values of agricultural sales. Smaller sales farmers were also more likely to work 100 or more days off-farm than their larger counterparts. The time spent in off-farm work correlated closely with the market value of agricultural products sold. As market value of agricultural products sold fell, days of off-farm work rose. Based on the above comparisons higher proportions of farmers in 1987 in both states find it more difficult to make a living solely through agriculture. They use off-farm work as a strategy to augment declining farm income.

The likelihood of engaging in off-farm work also relates to tenure of ownership. In 1987 part-owners were least likely to work off-farm in both states. About two-fifths (42.2%) of Illinois part-owners and about one third (31.0%) of North Dakota part-owners engaged in off-farm work. In Illinois the proportions of full owners and tenants working off farm were about equal standing at 52 percent and 55 percent respectively. Full owners in Illinois were more likely to work 200 or more days off-farm than tenants with 37 percent of all full owners falling into this category compared to 28 percent of tenants. In North Dakota the situation was reversed with higher proportions of tenants (52%) than full owners (38%) working off-farm. However, full-owners and tenants were equally likely to work 200 or more days off farm with one-fifth (21.1%) in each group falling into this category.

Therefore, the data on off-farm work also suggests, as did the previous data on acres farmed (Table 5), that part-owners are economically better off than full owners or tenants in both states. They not only control more land but also find it possible to obtain more of their income from farming than do full owners and tenants. Of course farmers may engage in off-farm work out of more than dire economic necessity. However, based on the example of my farming relatives, off-farm work is "necessary" for two reasons: to improve or expand the farm and to keep their income in the middle ranges. They could do without it but it would mean maintaining the farm at it's present level of intensification and size and forgoing things like vacations, home improvements, and entertainment.

Agricultural Modes of Production: Family Labour Farms and Farm Corporations

Classical Marxists predict a few family farmers will expand their holdings enough to form a rural bourgeoisie - a class of capitalist farmers relying primarily on wage labour. The majority of family farmers, however, will fall into a landless state and become part of an emerging rural proletariat dependent on the new capitalist farmers for agricultural jobs. Dependency models of family farming, however, predict an incomplete transformation of the agricultural sector. They argue family farmers will continue to exist as land holders but their condition will vary depending on the state of the larger economy. They see family farmers as surviving in capitalist economies but as moving into a state of "propertied labourers" in which the farmer owns his part of his means of production, e.g., land and machinery, but finds his control over what to produce and

how to produce it eroded by the purchaser of his crop, e.g., food corporations. For instance, analyzes of family farmers in Wisconsin who specialize in field crops and vegetables suggest some of these producers give up much of the autonomy of production they once had because they increasingly enter into contract farming arrangements with agribusiness firms (Mooney 1982; Pfeffer 1982).

To examine both the classical Marxist predictions and the "dependency" predictions I have analyzed data on the type of organization of farms from 1969 to 1987.[1] Organizational information collected by the agricultural census divides farms into four major categories: individual (or family) farms, partnerships, corporations, and other. In 1978 corporations were further divided into family and non-family corporations. The census then partitions each corporate division into two categories: those with ten or fewer stockholders and those with more than ten stockholders (Tables 7a, 7b).

If corporate farms and capitalist farms are synonymous, as Marxists assume, then increases in the numbers of such farms support the Marxist model of the development of farming in capitalist economies. While presuming corporate farms are necessarily capitalist farms may not be a valid assumption let us examine the data on type of farm organization in this vein for the time being to see how farm structure has changed over the past 18 years.[2]

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[1] Data on the number of corporate farms is not available before 1969.

[2]Capitalist farms, as defined by Marxists, rely on hired labour for actual production of farm commodities while the owner of the farm acts as a manager, CEO, or even as an absentee landlord. While corporate farms of this nature do exist in the U.S. those in North Dakota and Illinois deviate from this model. These corporate farms follow a "working-owner" model in which shareholders actively participate in running the enterprise at all levels, from management

Looking initially at North Dakota, family farms still make up the majority of all farms in the state (Table 7). In 1987 almost nine-tenths (88.3%) of all North Dakota farms remained under family control. This represents an increase from 1969 when the corresponding figure stood at 85 percent.[3] The share of farmland controlled by family farmers during this period held steady at slightly over four fifths of all land in farms. Partnerships, like family farms, have remained a fairly stable proportion of all farms ranging from a high of 14 percent in 1969 to a low of nine percent in 1974. In 1987 partnerships accounted for just over ten percent of all farms. The amount of land in farms held by partnerships decreased from 17 percent of all land in farms in 1969 to 13 percent in 1987.

Corporate farms have increased in number and in proportion of all farms (Table 7a). However, the increase has been neither steady nor dramatic. In 1969 corporate farms made up about two tenths of one percent of all farms and accounted for four tenths

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to production. Most North Dakota and Illinois corporate farms are family corporations. From Drache's (1976) descriptions they seem like "overgrown" family farms where two or three generations of the same family collectively own the farm, work at all levels of production. Some have expanded and intensified to an extent where they've run out of kin to fill their labour needs and have had to hire "outsiders".

[3] Data on type of organization for 1969 and 1974 are not strictly comparable with data collected from 1978 through 1987 since 1969 and 1974 information pertains to farms with sales of $2,500 or more. The 1978 to 1987 data on type of organization represents all farms, excluding only abnormal farms. Levels of family farm organization may have been higher in 1969 and 1974 since those farms selling less than $2,500 in agricultural products were more likely to be family farms than partnerships or corporations. The counts are not likely to be drastically different, however, since the number of farms excluded by the $2,500 qualification total 4,853 in 1969 and 2,049 in 1974. Assuming all these farms were family farms including them increases the proportion of family farms by two percent in 1969 and four tenths of one percent in 1974.

of all land in farms. Over the succeeding 18 years they increased to eight tenths of one percent of all farms and controlled slightly over one percent of all land in farms. Family corporations of less than ten shareholders comprised the vast majority of all corporate farms. Taken as a group North Dakota corporate farms, family and non-family, make up only three tenths of one percent of all corporate farms in the United States.

Interestingly enough the "Other" category, while not significantly changing its proportion of farms, has shown a steady increase in land in farms. This category is a catch-all and includes co-operative farms, estates, trusts, agricultural research stations, and penitentiary farms. Between 1969 and 1987 their share of North Dakota farmland increased from four tenths of one percent to almost four percent (Table 7a).

Table 7a. Percentages of Farms by Farm Organization for North Dakota: 1969 to 1987

			Corporation Family		Corporation Non-Family		
Year	Family	Partnership	≤10 Shares	>10 Shares	≤10 Shares	>10 Shares	Other
1969 Farms	85.3%	14.0%	.21%	.020%	***	***	.47%
Acres	82.3%	16.9%	.41%	.013%	***	***	.44%
1974 Farms	90.3%	9.3%	.20%	***	***	***	.20%
Acres	82.3%	12.2%	.36%	***	***	***	.25%
1978 Farms	87.8%	11.6%	.28%	.010%	.27%	.005%	.31%
Acres	81.5%	14.4%	.51%	.040%	.04%	na	3.53%
1982 Farms	86.4%	11.9%	.45%	.008%	.05%	.003%	.46%
Acres	81.0%	14.4%	.83%	.002%	.04%	na	3.75%
1987 Farms	88.3%	10.5%	.77%	.003%	.05%	.003%	.43%
Acres	82.1%	13.0%	1.20%	na	.04%	na	3.70%

***: Corporate data for 1969 and 1974 groups family and non-family.
Note: Percentages may not total 100.0 due to rounding.

In Illinois, as in North Dakota, family farms continue to make up the greatest proportion of farms constituting 85 percent of all farms in 1987. This share has remained relatively stable since 1969 when family farms made up 84 percent of all farms (Table 7b). The portion of land in farms controlled by family farmers fluctuated slightly ranging from a high of 84 percent in 1974 to a lows of 78 percent in 1982 and 1987. Partnerships exhibited similar stability in their share of all farms ranging from 15 to 10 percent. The proportion of land in farms held by partnerships moved up and down between a high of 18 percent in 1960 to a low of 14 percent in 1974. In 1987 partnerships controlled 16 percent of all Illinois farmland.

Table 7b. Percentages of Farms by Farm Organization for Illinois: 1969 to 1987

			Corporation Family		Corporation Non-Family		
Year	Family	Partnership	≤10 Shares	>10 Shares	≤10 Shares	>10 Shares	Other
1969 Farms	83.8%	14.9%	.53%	.06%	***	***	.74%
Acres	80.0%	18.1%	1.10%	.25%	***	***	.69%
1974 Farms	88.9%	10.2%	.60%	***	***	***	.30%
Acres	84.3%	13.9%	1.50%	***	***	***	.34%
1978 Farms	86.2%	12.1%	1.00%	.04%	.15%	.04%	.46%
Acres	79.6%	16.7%	2.60%	.15%	.30%	.23%	.49%
1982 Farms	85.0%	12.4%	1.60%	.04%	.18%	.05%	.67%
Acres	78.1%	16.4%	4.20%	.15%	.28%	.19%	.65%
1987 Farms	84.9%	12.0%	2.20%	.03%	.17%	.04%	.67%
Acres	78.2%	15.9%	5.00%	na	.34%	na	.58%

***: Corporate data for 1969 and 1974 groups family and non-family.
Note: Percentages may not total 100.0 due to rounding.

Illinois does differ from the North Dakota in some aspects of farm organization. First, Illinois shows a greater share of farms held under corporate auspices and a somewhat greater ratio of farmland under corporate control (Table 7b). Three percent of all Illinois farms are organized as corporations and these farms account for slightly over five percent of all farmland in the state. Within the corporate category Illinois has higher proportions of non-family farm corporations than North Dakota. As a group, Illinois farm corporations comprise three percent of all corporate farms in the country compared to North Dakota's three tenths of one percent share. While Illinois has a slightly larger portion of "Other" farms as a percentage of all farms these farms constitute a smaller percentage of land in farms than do their North Dakota counterparts.

While the proportions of corporate farms have increased over the past 18 years in both North Dakota and Illinois they still make up a very small segment of all farms in both states. Furthermore Drache's (1976) analysis of corporate family farms in the midwest suggests some of these farms are carryovers from large estates established as early as the 1880's. Most of these early capitalist farms were established by wealthy Eastern families who received land for their stock in the Northern Pacific Railway (Drache 1976:167). They came to own huge chunks of land, much of it in the Red River valley, averaging between 60,000 and 80,000 acres.

Since the agricultural census did not collect data on corporate farm organization until 1974 there is no statistical record of trends in farm organization. Drache (1976:167) notes that 100 of these very large farms organized on a capitalist basis, e.g., operating for profit and employing primarily hired labour, existed during the late 19th and early

20th centuries in the Red River valley section of North Dakota and Minnesota. His historical analysis is confined to the valley and I have no comparable historical information on large farming enterprises in Illinois.

According to Drache these farms all employed managers and the census did collect data on the number of farm managers from 1920 until 1959 (Tables 4a, 4b). If I use managed farms as a proxy for corporate farms then the percentage of corporate farms in North Dakota has really changed very little since 1920. In 1920 managed farms comprised one percent of all farms (Table 4a). In 1987 corporate farms made up eight-tenths of one percent of all North Dakota farms. Using managed farms as a substitute for corporate farms in Illinois shows "capitalist" farms have increased by only one percent in 57 years, from slightly over one percent in 1920 (Table 4b) to just over two percent in 1987 (Tables 7a, 7b).

About the loss of actual farm numbers one cannot argue. There have been dramatic decreases in both North Dakota and Illinois since 1920. However, the decreases in both states are lower than that for the country as a whole with North Dakota evidencing the smallest decline (Tables 7a, 7b). To argue that corporations are coming to dominate farm numbers in these states, however, is not warranted by the data. Instead individual family farmers still make up the vast majority of farmers and their share of all farms has shown great stability since 1920. In addition, the data on farm size by organization for both North Dakota and Illinois show an increase in the average size of family farms and partnerships but a decrease in average size of corporate farms (Table 9).

Table 8. Decreases in Farm Numbers: 1920 to 1987

	1920 Farms	1987 Farms	Percent Decrease
United States	6,448,343	2,087,759	-67.6%
North Dakota	77,690	35,289	-54.5%
Illinois	237,181	88,786	-62.5%

Although corporate farms only make up a small proportion of farms one should not judge their importance simply on the basis of numbers. As Drache (1976), Ehrensaft (1980), and Havens (1985) point out these farms have a significance beyond their numbers in that they can influence farm labour patterns, production techniques, and marketing methods simply because of their magnitude of production and sales. Therefore, these entities deserve closer examination in order to determine how they fit into the agricultural order and what they augur for family farming. The next section examines trends in hired farm labour and production methods as they relate to farm organization.

Table 9. Average Size of Farms by Organization: 1969 to 1987

North Dakota	Family	Partnership	Corporation
1969 average size	937 acres	1,173 acres	1,776 acres
1987 average size	1,062 acres	1,423 acres	1,760 acres

Illinois	Family	Partnership	Corporation
1969 average size	270 acres	344 acres	1,128 acres
1987 average size	296 acres	425 acres	717 acres

Hired Farm Labour and Mechanization: Using Live and "Dead" Labour

Marxists predict an increase in the number of agricultural labourers (a growing rural proletariat) as capitalism moves into agricultural production. For them developments in agriculture simply mirror earlier changes in industry. If the Marxist model of agricultural development in capitalist countries is "correct" we should expect to see growing use of hired farm labourers on corporate farms.

Sociologists following the neo-classical approach to agricultural also use an industrial model in speculating about farm labour. However, they foresee a heavily mechanized agriculture, similar to the mechanization that has taken place in American industry, enabling corporate farmers to lower their labour requirements and decrease their production costs. They stipulate that corporate farmers will try to lower their production costs by decreasing their need for human labour.

The agricultural census has tracked the value of hired farm labour since 1920. However, the data are strictly comparable for only the 1954 to 1987 period because of sampling differences. A comparison of constant dollar amounts expended on farm labour over this 33 year period shows that there has been no trend for farmers as a group to use more farm labour (Table 10) in either North Dakota or Illinois.

In North Dakota there was a $200,000 increase from 1954 to 1987. This did not reflect a steady increase over the years but rather an up and down movement with its apex in 1978. Illinois farmers actually spent less on hired farm labour in 1987 than they did in 1954. As with North Dakota, the value of hired farm labour evidenced no trend

either way, falling in one census period only to rise in the next and then drop again. The overall data on hired farm labour does not support the Marxist prediction of increases in the amount of hired labour on farms as a group. However, it is impossible to tell from this grouped data if increasing and decreasing dollar amounts correspond to actual numbers of farm workers, e.g., we have no way of knowing if, for instance, an increase in total dollar amount spent on hired labour represents more labourers or more labour by those already in the agricultural labour market.

Table 10. Value of Hired Farm Labour in Thousands of Constant Dollars: 1954 to 1987 (1982-84=100)

Year	North Dakota	Illinois
1954	$94,040	$250,619
1959	$77,700	$245,757
1964	$80,552	$247,232
1969	$89,715	$247,390
1974	$96,830	$239,694
1978	$108,378	$293,917
1982	$79,554	$233,724
1987	$96,097	$242,113

Breaking down hired farm labour by type of farm organization gives some support to the Marxist contention that a group of capitalist farmers relying more and more on agricultural wage labour is developing. These breakdowns show that corporate farms, whether they be family corporations or non-family corporations, do depend on greater amounts of hired labour than do individual/family farmers or partnerships (Tables 11a, 11b). Whether capitalist farmers employ their hired help over longer periods or whether

they hire more bodies cannot be deduced from the census data but they spend a greater proportion of all money for hired farm labour than their numbers warrant.

While individual or family farms make up the largest percentage of farms using hired labour their share of the dollar amount of this labour is lower than their numbers would imply. Conversely, while corporate farms make up the smallest proportion of all farms using hired labour their share of the dollar amount of hired labour is higher than one would expect from their numbers. The surface interpretation would be that corporate farms use more hired labourers than individual family farms since these farmers spend more money on labour. However, this neglects the rate of pay for agricultural workers. One could just as easily argue that greater dollar amounts spent on hired labour by corporate farmers simply represent higher wages paid to agricultural labourers on corporate farms.

Table 11a. Value of Hired Farm Labour for North Dakota by Type of Farm Organization: 1974 and 1987

Type of Farm	1974 Farms	1974 $1,000's	1987 Farms	1987 $1,000's
Individual	89.7%	79.1%	88.3%	69.7%
Partnership	9.7%	16.6%	9.9%	19.0%
Corporation - Total Family	.35%	3.6%	1.5%	10.3%
Corporation - Family $\leq$10 Shareholders	a	a	1.5%	a
Corporation - Total Nonfamily	a	a	.05%	.31%
Corporation -Nonfamily $\leq$10 Shareholders	a	a	.05%	a

Table 11b. Value of Hired Farm Labour for Illinois by Type of Farm Organization: 1974 and 1987

Type of Farm	1974 Farms	1974 $1,000's	1987 Farms	1987 $1,000's
Individual	86.6%	63.1%	83.6%	50.7%
Partnership	11.8%	13.1%	12.5%	15.8%
Corporation - Total Family	1.3%	23.4%	3.8%	24.5%
Corporation - Family $\leq$10 Shareholders	a	a	3.7%	24.2%
Corporation - Total Nonfamily	a	a	.36%	7.3%
Corporation - Nonfamily $\leq$10 Shareholders	a	a	.30%	5.1%

Drache's (1976) description of midwest corporate farms suggests a combination of all three factors. The corporate farms he examined paid relatively good wages compared to wages offered in the community as a whole. In addition, corporate farmers did hire more workers and hired some of them for longer periods of time. This resulted not so much from land size but from the intensification of corporate farms through diversification and continuous (year-round) livestock production. Diversification meant corporate farmers had more irons in the fire and hence needed more people to manage these many enterprises. Intensification, usually through continuous livestock production meant they needed some workers year round instead of at peak periods of harvest only. Hence a 1,000 acre grain farm required less labour than a diversified, more intense 1,000 acre grain/pasture livestock farm which, in turn, required less labour than a diversified, highly intense 1,000 acre grain/pasture-feedlot livestock farm.

Although the statistical information of the census shows the agricultural "proletariat" has not increased in dollar value since 1954, by 1987 corporate farmers

were employing higher proportions of them than they were in 1954. Drache's observations suggest present day corporate farmers are also employing these workers at higher rates of pay and for longer periods of time than family farmers or farmers in partnerships.

An additional factor comes into play in considering labour requirements on family versus corporate farms. It relates to the amount of "drudgery" farm workers are willing to endure. Even Drache, with his obvious preference for corporate farm organization, admits labour costs disadvantage corporate farmers in relation to family farmers. Early capitalist farmers complained hired help did not want to work the long hours or the intense pace of harvest schedules since they didn't have a personal stake in the farming operation. Family farmers, their wives, and children willingly committed to such conditions because their fortunes rose and fell with their farm.

These same early capitalist farmers also lamented their inability to control the labour pace of hired help in unsupervised settings such as field work. Wrote one to his son at an Eastern college, "When one hires labor on a farm the owner has no way of checking up to see that they do a full day's work. It is very easy for them to shirk their work, lay down on a hay or straw stack and go to sleep. A man working for Henry Ford ... has hardly time to turn around ..." (George Baldwin, quoted in Drache 1976:187).

Later twentieth century corporate farmers have found that by diversifying into controlled environment livestock operations they can confine not only the livestock, but also their workers, to an easily supervised area. They can also offer workers year round employment rather than seasonal work. Controlled livestock environments require steady

work rather than the hectic, intense labour of grain harvests. The largest corporate farm in Iowa, Garst Farms, employs 35 full-time workers year round for their beef feedlot operation (Drache 1976:241). All the corporate farmers Drache interviewed had invested in large-scale machinery for the grain and field crop part of their operations, preferring to rely on the more easily controlled productive capacity of machines than of hired labour.

So corporate farmers are using more hired labour than they were in 1974 but probably for their livestock operations rather than their grain/field crop production. For grain and field crop work they have invested heavily in machinery or "dead labour". At the time Drache interviewed mid-western corporate farmers the investment per worker in agriculture was $56,000 (Drache 1976:473). Larger machinery has also made family farmers less dependent on hiring help. Mechanization then has enabled all farmers to cut labour needs for grain and field crop production. However, livestock/ poultry production and dairying, while also becoming less labour intensive because of mechanization, still remain more dependent on human labour than grain/field crop production.

Corporate farmers have influenced the production methods of grain and field crop farming and, through them, the use of hired labour on farms in North Dakota and Illinois. Twentieth century corporate family farmers like Tom Campbell in Montana, Roswell Garst in Iowa, Bert Hanson in North Dakota, and Frank Keine in Minnesota had access to more capital in their early years of farming. They put this capital to work in purchasing, or in one case developing, innovative machinery to cut their labour costs. They were the first to mechanize, on a large scale, wheat, corn, alfalfa, and potato

production respectively. Their increases in production both encouraged and forced other less wealthy farmers to adopt this machinery (Drache 1976). Those farmers who could not afford to keep up, at least minimally, with the mechanization innovations of these larger farms were increasingly marginalized.

Therefore, corporate farmers have not only swayed production technique decisions for all farmers but they have also come to dominate some types of production not so much in terms of numbers but in terms of value of market sales. I turn now to an description of the type of farms associated with the production of specific agricultural commodities to examine dependency predictions about the evolution of family and corporate farms.

High Risk and Low Return: Who's Raising What?

Central to the argument of dependency theorists is the assertion that capitalists avoid certain areas of agricultural production because they are too risky or offer too low a return in investment. This behaviour, they believe, provides a niche for family farmers in capitalist economies. Family farmers are willing to take the risks and accept the low return inherent in the production of certain agricultural commodities because they do not calculate their well-being via a profit perspective. Rather they are concerned with the total income they can derive from their venture. Income depends to a great degree on how well farm families can exploit their own labour. As long as the total income they receive from their farm enables them to maintain an acceptable level of subsistence

without unacceptable levels of self-exploitation farm families will keep on farming regardless of their level of "profit".

Dependency theorists have singled out grain farming, especially in the great plains region, as an example of an extremely high risk and low return enterprise. Hence they have hypothesized that this area of agricultural production would be less susceptible to capitalist incursions. They have also noted the high level of self-exploitation dairy farmers engage in and for this reason have pegged dairying as a low return production not attractive to capitalist operation. To test these hypotheses I have examined the types of commodities produced by family farmers versus corporate farmers. If, as dependency theorists predict, capitalists avoid high-risk, low-return enterprises corporate farms should concentrate in lower-risk, higher-return types of agricultural enterprises.

We should expect North Dakota, a great plains state exhibiting some of the most precarious conditions in the country for agriculture, e.g., drought, early frost, insect plagues, and a heavy reliance on wheat production, to have fewer than average corporate farms. We should also find that those corporate farms existing in the state concentrate their production in less risky types of commodities, not wheat or other uncertain cash grain crops.

Illinois has a less hazardous climate than North Dakota and hence less risk of crop failure due to weather conditions. In addition soil and climatic conditions favour a wider variety of agricultural produce than North Dakota. Hence the expectation is that Illinois will have more corporate farms than North Dakota and these farms will also concentrate on raising products whose growth is more easily controlled than cash grain crops such

as horticultural specialties, animal specialties, or poultry and egg products. However, both states should have lower proportions of corporate farms than the U.S. as a whole since neither area is ideal for corporate farming.

The Census of Agriculture divides farms among ten commodities categories based on the value of products sold. The categories are as follows: cash grains, field crops, vegetables and melons, fruits and tree nuts, horticultural specialties, livestock and animal specialties, dairy farms, poultry and eggs, animal specialties, and general farms. The method used to assign farms to a group is based on the value of agricultural products sold. For example, farms deriving 50 percent or more of their sales from one type of commodity, e.g., grain, are classed as cash grain farms. Farms not deriving 50 percent or more from one of the specific categories are classed as general farms. Seven of the major categories have subdivisions, for instance, the cash grain category is divided into five sub-categories: wheat, rice, corn, soybeans, and cash grains n.e.c. (not elsewhere classified).

As noted above, Illinois and North Dakota differ in the type of agricultural commodities they produce. In terms of grains Illinois farmers primarily produce corn and soybeans for their cash crops while North Dakota farmers rely overwhelmingly on wheat as their cash commodity with oats and barley distant seconds. In addition livestock operations constitute a significant portion of farms in both states with Illinois livestock farmers concentrating on hog raising and North Dakota farmers on cattle ranching.

There have been changes in the proportions of farms devoted to particular types of production over the time[4]. Illinois, however, exhibits more change than does North Dakota. The big change in Illinois has been the shift to more cash grain farming. In 1950 only three tenths (31%) of all Illinois farms fell into the cash-grain group. This category continued to expand its share of all farms and in 1987 over six tenths (64%) of all farms were classified as cash grain farms.

Except for a hiatus period between 1959 and 1969 livestock farms retained a stable share of all Illinois farms comprising about one-quarter of all farms in other census years. Groups showing declines were general farms, dairy farms, and poultry/egg farms. Of these general farms decreased the most falling from 13 percent of all farms in 1950 to about two percent of all farms in 1987. Dairy farms dwindled from eight percent to three percent of all farms and poultry/egg farms, never a large group in Illinois, fell from about two percent to three tenths of one percent in the same period.

In contrast, North Dakota farms showed less variation in type over the 1950 to 1987 period. Cash grain farms remained the major farm type in North Dakota making up 60 percent of all farms in 1950 and 58 percent of all farms in 1987. In 1959 the portion of these farms did drop to 51 percent but this figure may be an artifact of the sampling procedure used in that year to collect data on type of farm.[5] Cash grain farms' share of all farms rebounded by the next census when they had increased to 63 percent

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[4] Data on classification of farms covers the 1950 census to the 1987 census.

[5] The 1959 numbers for North Dakota farms by type of classification are not strictly comparable with earlier or later data because of the sampling procedure used to gather this information.

of all farms. Livestock operations increased over this 37 year period but the increase was not steady. In 1950 livestock operations comprised 16 percent of all farms but by 1987 they had expanded to a 29 percent share. Field crop farms increased from one percent of all farms in 1950 to four percent of all farms in 1987. Dairy farms retained a stable share of all farms comprising four percent of all farms in 1950 and the same proportion in 1987. General farms declined in proportion falling from 15 percent of all farms in 1950 to only three percent of all farms in 1987.

Overall then there have not been major shifts in the type of production in either state although there has been a movement away from generalized production to a more specialized kind of farming according to census categorizations of "specialized". However, changes have occurred in the type of farms that produce certain commodities. Data on commodities production by type of farm organization was first collected in 1974 and the agricultural census has continued to compile this information over the past 13 years. This data gives a picture of the kind of commodities favoured by corporate farmers, farmers in partnerships, and individual farmers.

Commodities Production of North Dakota Corporate Farms

In 1974, almost two-fifths (38.0%) of North Dakota corporate farms specialized in cash grain farming, primarily wheat farming (Table 12a). About one-fifth (20.3%) of corporate farmers were classed as field crop farms and concentrated their production in either potatoes, sugar beets, or oilseeds. One quarter (25.3%) of all corporate farmers specialized in livestock production, primarily beef cattle. Less important corporate

concerns were the categories of animal specialties, horticultural specialties, general farms, vegetable/fruit and nut farms, and dairy farms.

By 1987 things had changed somewhat (Table 12b). Cash grain farms grew to just over two-fifths (43.0%) of all corporate farms and field crops to over one-quarter (27.0%). Livestock farms fell to one-fifth of all corporate farms. Dairy farms increased their share by about two percent. Poultry and egg farms, previously non-existent in corporate terms, made up about one percent (1.5%) of corporate farms. General farms, animal specialties, horticultural specialties, and vegetable/fruit and nut farms declined.

Table 12a. Specialty Types of 1974 North Dakota Farms Expressed as a Proportion of All Farms in their Organizational Category

Farm Specialty	Family	Partnership	Corporation	Other
Grain Farms	71.3%	67.2%	38.0%	67.1%
Field Crops	4.2%	5.8%	20.3%	7.6%
Livestock	14.9%	16.7%	25.3%	15.2%
Dairy Farms	3.5%	3.8%	1.3%	1.3%
Poultry/Egg Farms	.15%	.05%	--	--
General Farms	5.6%	6.0%	1.3%	3.8%
Animal Specialties	.21%	.08%	7.6%	1.3%
Horticultural Specialties	.07%	.34%	5.1%	2.5%
Vegetable, Fruit and Nut	.01%	.03%	1.3%	--

Table 12b. Specialty Types of 1987 North Dakota Farms Expressed as a Proportion of all Farms in their Organizational Category

Farm Specialty	Family	Partnership	Family Corporation	Non-Family Corporation	Other
Grain Farms	58.0%	59.0%	43.6%	35.0%	41.7%
Field Crops	3.8%	5.5%	27.8%	15.0%	10.6%
Livestock	29.0%	26.7%	18.0%	25.0%	34.4%
Dairy Farms	3.8%	4.5%	2.2%	10.0%	2.0%
Poultry/Egg Farms	.3%	.3%	.7%	5.0%	.7%
General Farms	3.3%	2.7%	2.6%	--	9.3%
Animal Specialties	1.6%	1.0%	3.7%	5.0%	--
Horticultural Specialties	.2%	.1%	3.7%	--	1.3%
Vegetable, Fruit and Nut	.1%	.2%	.4%	--	--

However, if we look at corporate farms as a proportion of all farms in a particular specialty a somewhat different picture emerges. Although two-fifths of corporate farms in 1974 were cash grain farms these corporate enterprises made up only one-tenth of one percent of all cash grain farms in North Dakota (Table 13a). Corporate farms made up a slightly greater proportion of field crop specialty farms comprising about eight tenths of one percent of these farms. Their share of livestock farms, dairy farms, and general farms were all under one percent. Corporate farms only had significant shares of farms in the categories of animal specialties (6.8%), horticultural specialties (9.3%), and vegetable/fruit and nut farms (14.3%).

By 1987 corporate farms had increased in proportion in all classes except animal specialties and vegetable/fruit and nut farms. The biggest increase came in the area of horticultural specialty farms where corporate farms rose from a nine percent share to a

16 percent one (Table 13b). Their share of field crop farms rose from about one percent to five percent, poultry and egg farms from zero to four percent, and cash grain farms from one tenth of one percent to just under two percent. Shares of livestock, dairy, and general farms also rose but the increases were less than one percent in each category. Animal specialties *fell from a share of about seven percent in 1974 to a two percent share in 1987. Vegetable/fruit and nut farms fell from a fourteen percent share in 1974 to a two percent share in 1987.

Table 13a. Proportions of Types of North Dakota Farms by Production Specialty - 1974

Farm Specialty	Family	Partnership	Corporation	Other
Grain Farms	90.9%	8.8%	.10%	.18%
Field Crops	86.6%	12.2%	.88%	.33%
Livestock	89.2%	10.3%	.33%	.20%
Dairy Farms	89.8%	10.0%	.07%	.07%
Poultry/Egg Farms	96.5%	3.5%	--	--
General Farms	90.0%	9.8%	.04%	.13%
Animal Specialties	88.6%	3.4%	6.8%	1.1%
Horticultural Specialties	55.8%	30.2%	9.3%	4.7%
Vegetable, Fruit and Nut	71.0%	14.3%	14.3%	--

The data on corporate farms in North Dakota conform in some respects to dependency theorists predictions about the nature of corporate farming. Greater proportions of these farms, as a percentage of all farms, fall into more controllable production categories, e.g., horticultural specialties, poultry and eggs, and field crops. While field crops such as potatoes, sugar beets, and oilseed crops would seem to be high

risk crops in a climate like that of North Dakota it appears that most of these crops are raised in the Red River Valley area. The valley has three advantages for those lucky enough to have farmland there: rich alluvial soils, higher amounts of rainfall than the rest of the state, and access to irrigation - a technique farmers on the high plains find difficult to engage in. All three factors take uncertainty out of production.

Table 13b. Proportions of Types of North Dakota Farms by Production Specialty - 1987

Farm Speciality	Family	Partnership	Family Corporation	Non-Family Corporation	Other
Grain Farms	88.4%	10.7%	1.6%	.03%	.31%
Field Crops	79.7%	13.7%	5.1%	.20%	1.1%
Livestock	89.2%	9.7%	.48%	.05%	.51%
Dairy Farms	87.0%	12.2%	.44%	.15%	.22%
Poultry/Egg Farms	83.2%	11.6%	2.1%	2.1%	1.1%
General Farms	89.5%	8.7%	.62%	--	1.2%
Animal Specialties	91.2%	6.8%	1.8%	.18%	--
Horticultural Specialties	75.0%	6.3%	15.6%	--	3.1%
Vegetable, Fruit and Nut	85.7%	12.2%	2.0%	--	--

Commodities Production of Corporate Farms in Illinois

Corporate farm production patterns in Illinois differ from those of North Dakota. In 1974 corporate farms' production specialties as a percentage of all corporate farms showed that the most important categories were cash grains, livestock, and horticultural specialties. Two fifths (39.8%) of all corporate farms fell into the cash grain category,

almost one-quarter (23.0%) were classed as livestock operations, and about one-fifth (19.3%) were listed as horticultural specialty farms (Table 14a).

By 1987 there had been a large increase in the proportion of corporate farms classed as cash grain (Table 14b). They now made up almost three fifths (59.3%) of all corporate farms while livestock operations fell to one fifth (19.6%) and horticultural specialties to one tenth (9.3%) of all corporate farms. Corporate cash grain farms concentrated their production in corn and soybeans while corporate livestock farms primarily raised hogs.

Table 14a. Specialty Types of 1974 Illinois Farms Expressed as a Proportion of All Farms in their Organizational Category

Farm Specialty	Family	Partnership	Corporation	Other
Grain Farms	70.2%	60.5%	39.8%	78.8%
Field Crops	.52%	.26%	.74%	.69%
Livestock	21.7%	28.1%	23.0%	16.1%
Dairy Farms	4.2%	7.3%	2.8%	2.1%
Poultry/Egg Farms	.47%	.54%	7.6%	1.0%
General Farms	1.4%	1.4%	1.1%	.69%
Animal Specialties	.31%	.15%	1.7%	--
Horticultural Specialties	.46%	.86%	19.3%	.34%
Vegetable, Fruit and Nut	.55%	.56%	3.9%	.34%

Table 14b. Specialty Types of 1987 Illinois Farms Expressed as a Proportion of all Farms in their Organizational Category

Farm Specialty	Family	Partnership	Family Corporation	Non-Family Corporation	Other
Grain Farms	64.2%	61.1%	60.4%	48.1%	72.6%
Field Crops	1.9%	1.0%	1.4%	1.1%	2.0%
Livestock	25.3%	27.3%	19.3%	22.5%	16.8%
Dairy Farms	2.6%	5.9%	3.1%	2.1%	3.4%
Poultry/Egg Farms	.3%	.4%	.6%	3.7%	.3%
General Farms	1.8%	1.4%	1.3%	1.6%	1.4%
Animal Specialties	2.4%	1.3%	2.8%	4.3%	1.4%
Horticultural Specialties	.5%	.7%	9.3%	14.4%	1.5%
Vegetable, Fruit and Nut	1.0%	.9%	1.8%	2.1%	.7%

A different view of corporate farms emerges if we look at corporate farms by specialty as a percentage of all farms in that specialty (Tables 15a, 15b). This vantage point puts corporate farms into perspective since it describes them as a part of all farms in the state. In 1974 corporate farms had their greatest shares in horticultural specialties, where they accounted for almost one-fifth (17.6%) of all farms in that category, and poultry and egg farms where they comprised just under one tenth (8.1%) of all farms (Table 15a). Their next largest shares of all farms were in vegetable/fruit and nut farms and animal specialty farms where they comprised four percent and three percent respectively.

Table 15a. Proportions of Types of Illinois Farms by Production Specialty - 1974

Farm Specialty	Family	Partnership	Corporation	Other
Grain Farms	90.4%	8.9%	.32%	.34%
Field Crops	93.4%	5.4%	.82%	.17%
Livestock	86.3%	12.9%	.57%	.22%
Dairy Farms	82.8%	16.7%	.34%	.14%
Poultry/Egg Farms	80.6%	10.7%	8.1%	.60%
General Farms	89.3%	10.1%	.43%	.15%
Animal Specialties	91.9%	5.0%	3.0%	--
Horticultural Specialties	67.7%	14.5%	17.6%	.17%
Vegetable, Fruit and Nut	86.0%	10.1%	3.8%	1.8%

Table 15b. Proportions of Types of Illinois Farms by Production Specialty - 1987

Farm Specialty	Family	Partnership	Family Corporation	Non-Family Corporation	Other
Grain Farms	85.5%	11.5%	2.1%	.16%	.76%
Field Crops	90.4%	7.0%	1.8%	.13%	.75%
Livestock	84.8%	12.9%	1.7%	.19%	.44%
Dairy Farms	73.7%	23.2%	2.2%	.15%	.74%
Poultry/Egg Farms	81.1%	12.3%	3.6%	2.3%	.66%
General Farms	87.6%	10.0%	1.7%	.20%	.53%
Animal Specialties	89.6%	6.9%	2.7%	.40%	.40%
Horticultural Specialties	57.8%	11.3%	25.8%	3.9%	1.3%
Vegetable, Fruit and Nut	84.7%	10.7%	3.8%	.43%	.43%

By 1987 Illinois corporate farms had increased their share of all horticultural specialty farms to three tenths (29.7%) of these farms (Table 15b). Their share of poultry and egg farms decreased to six percent while shares of vegetable/fruit and nut farms and

animal specialty farms remained the same. Corporate farms slightly increased their share of all other category by two percent or less.

Comparison of Corporate Farms in North Dakota and Illinois

As in North Dakota, Illinois corporate farms largest shares of all farms comprised less risky agricultural production such as horticultural specialties, poultry and egg farms, vegetable/fruit and nut farms. However, North Dakota and Illinois corporate farmers also differ in their production patterns. Although cash grain farms form the highest proportion of all corporate farms in both North Dakota and Illinois, four fifths of Illinois corporate farms compared to only two fifths of North Dakota corporate farms are classed as cash grain farms. North Dakota farmers have signifant shares of field crop production, e.g., potatoes, sugar beets, sunflower seeds, etc., while very few Illinois coporate farmers raise field crops. In addition North Dakota corporate farmers are more likely to engage primarily in livestock farming than Illinois corporate farmers.

While the relatively high proportions of corporate farms concentrating on cash grain farming seemingly contradicts dependency predictions one has to remember that classification as "cash grain" means 50 percent or more of sales comes from cash grain. This leaves up to 50 percent of remaining sales to other agricultural commodities. Drache's descriptions of corporate farmers who engage in cash grain farming indicates these farmers have significant sales in at least one other commodity, usually livestock. As pointed out earlier, many of these farmers hold some of the best land in the midwest hence taking some of the risk out of cash grain farming. One could argue higher

proportions of Illinois corporate farmers engage in cash grain farming because Illinois climatic conditions make corn and soybean farming less risky than North Dakota wheat farming.

A more important consideration in both states, however, concerns the income corporate farmers derive from other sources besides sale of agricultural goods. These sources are many and varied. Drache's (1976) corporate farmers received non-commodities income through agricultural supply enterprises, e.g., agricultural feed/seed/chemical dealerships or machinery dealerships; through agricultural service provision, e.g., grain drying operations, custom combining enterprises; and through cash income from renting out some of their vast land holdings to neighbouring farmers.

Drache's corporate farmers had also moved to increase their income from cash grain by regaining control over the marketing of it. As pointed out previously, some of them have their own elevators, rail sidings, and even grain agents. In addition, their larger volume of production and alternate sources of income mean they can hold their grain until market highs thereby selling for the best price. Smaller farmers don't have this advantage. Generally they are so financially stretched over the production period they must sell most or all of their crop at harvest to pay accumulated bills.

Therefore, dependency theorists predictions about capitalist farmers avoiding high-risk commodities would apply only if family farmers and corporate farmers produced under equal natural and market conditions. From what Drache has described the circumstances of corporate farmers differ markedly from family farmers. In terms of natural conditions many midwestern farmers have better land and better climatic

conditions than the average family farmer. In addition the nature of marketing agricultural commodities in the United States, a system without any marketing boards, gives the advantage to farmers who can control, somewhat, the marketing of their produce. In the midwest it is corporate farmers who have greater marketing control since they have enough capital to invest in direct marketing and enough alternate income to wait for the best price before selling grain.

Smaller farmers have attempted to control grain marketing through co-operative grain buying and marketing organizations. The most successful of these co-operative endeavours came about in North Dakota in the late teens and early twenties when the Non-Partisan League established producer owned elevators and lake-head grain terminals along with a farmers' grain marketing company. The Non-Partisan League arrangements prospered until the combined opposition of the major grain companies and the federal government, through the efforts of its newly established Farm Bureau, finally undermined the co-operative through boycotting its products on the Minneapolis grain exchanges and outright Farm Bureau threats to farmers involved with the League (Russell 1975; Saloutus and Hicks 1951).

Because of a somewhat friendlier political environment, a tradition of co-operation on the part of farmers, and a weaker grain merchant establishment western Canadian grain producer co-operatives, established about the same time as the Non-Partisan League enterprises, established a firm and lasting base. They still exist today and their early members were instrumental in founding the Canadian Wheat Board.

The Wheat Board, through its quota system and price averaging, gives smaller grain farmers better prices than they would ever get in an uncontrolled market economy. All farmers are subject to Wheat Board quotas - at any one time no farmer, no matter what his/her volume, can sell more than the established quota for that period. All farmers receive the same price per bushel. The Board determines the price by averaging the prices it has received for wheat sales (on a national level) during the year. This takes away any advantage of holding grain until market highs since the farmers would receive the average price for it no matter when it was sold. Hence every farmer makes the same amount per bushel. By averaging market highs and lows the Wheat Board negates the disadvantage of being forced to sell at market lows, which many smaller farmers have to do because they are cash poor by the end of harvest. The Wheat Board then acts as an equalizer between all sizes of farmers at the marketing level. Although I have no data on Canadian farm numbers and organization it's my guess that there would be less reason to produce on the scale of corporate farms in the U.S. midwest since the Wheat Board takes away the marketing advantages of large scale production.

Summing Up: The Overall Picture

The overall picture of agriculture in North Dakota and Illinois based on the previous descriptions of segments of farming in both states from 1920 to 1987 is one of change in some areas but of stability in others. Looking at changes first, today each state has far fewer farmers than it did in 1920 and those farmers still in business operate farms over twice as large as the average 1920 farm. While the decreases in farm numbers in

both states have been substantial since 1974 each state experienced higher percentage declines in farm numbers during the 1950's and 1960's.

In terms of ownership of farms, by 1987 farmers in both states were more likely to be part owners than they were in 1920. One-half of North Dakota farmers and one-third of Illinois farmers were part owners, representing a 20 percent increase in part-ownership levels in each state over the 67 year period. Tenancy rates decreased in each state but more noticeably in Illinois than in North Dakota.

The amount of off-farm work increased in both states. Today's farmers are more likely to work off-farm and are also more likely to be employed virtually full-time in off-farm work than their 1920 counterparts. However, Illinois farmers showed higher rates of off-farm work than North Dakota farmers. Not surprisingly, farmers with smaller values of agricultural sales show higher levels of off-farm work. In addition, full-owners and tenants work off-farm more than part-owners.

In 1987, as in 1920, farms in both states remain predominantly organized along family lines. Over four-fifths of all farms in each state are family farms. Corporate farms make up only a tiny proportion of all farms in each state although Illinois has higher proportions of these farms than North Dakota. Furthermore, most corporate farms in North Dakota and Illinois are family corporations with less than ten shareholders. Non-family corporate farms form a miniscule segment of all farms in both states. While the percentage of Illinois corporate farms closely approximates that of the United States as a whole, North Dakota's proportions fall under the national level.

Corporate farms differ from family farms in the amount of hired labour they use and in the commodities they produce. Corporate farmers use higher proportions of hired labour than family farmers. Dollar amounts of hired labour have remained stable since 1950. However, from 1974 to 1987 the distribution of labour changed. In 1987 corporate farmers hired a much larger share of agricultural labour than they had in 1974. Shares for family farmers and partnerships dropped.

In terms of commodities production corporate farmers concentrate their production more heavily in "controllable" commodities than family farmers. For instance, corporate farmers are more likely to produce poultry and eggs, horticultural specialties, vegetables, or fruit and/or nuts than family farmers. In North Dakota corporate farmers also show a greater propensity than family farmers to raise field crops like potatoes and sugar beets and to concentrate on livestock production.

CAN WE KEEP THEM DOWN ON THE FARM? FUTURE PROSPECTS FOR AMERICAN FAMILY FARMERS

Of the three models used to explain agricultural development in capitalist economies, the Chayanovian/dependency model best accounts for the changes in agriculture in the two states I have examined. However, even this model fails to illuminate some aspects of farming in North Dakota. In this concluding chapter I outline the strengths of the dependency model as it applies to my data and point out some of its deficiencies. I also examine future prospects for American farmers in light of the current state of American agriculture.

Who's Still Out There?: Numbers, Organization, and Specialization

From the data on farm numbers it's abundantly clear that both North Dakota and Illinois, like the United States as a whole, have lost tremendous numbers of farmers since 1920. All three models predict this so in this respect neither of them lose credibility. However, decline has been differential. Neither North Dakota or Illinois have suffered as high a loss as the nation. Of the two states North Dakota evidenced the smallest decrease in farm numbers. The dependency model is the only one that hints of differential decline. Chayanov argued different ecological and conditions, e.g., climate, soils, crops produced, and organizational conditions, e.g., labour power based on family units as opposed to labour power based on hired labour, lead to different rates of change in peasant and capitalist farm numbers. I turn now to possible explanations of lower farm number decline in North Dakota.

Farm Tenacity and Lifestyle: Willingness to Engage in Drudgery?

It is somewhat surprising, based on the statistics for farm production expenses and market value of farm sales, that North Dakota had a lower rate of farm loss than Illinois. From 1969 to 1987 North Dakota farmers had lower average values of sales and higher average production costs than Illinois farmers. Given these statistics I would have expected a higher rate of farm loss in Illinois. However, these statistics are averages and necessarily obscure any variations among farms. It may be that the majority of North Dakota farms have lower production costs than Illinois farms but a significant minority have very high production costs and hence skew the average.

Other explanations besides statistical ones, however, come to mind. With the industrial base in Illinois, farmers may have more opportunity for alternative employment. Hence they may be less willing to stick with a relatively low paying farm when they can get a higher paying industrial job. North Dakota has far fewer non-farm employment opportunities. Approaching this apparent contradiction from a Chayanovian perspective leads to a consideration of the farm family itself in terms of how it regulates its consumption levels and allocates its labour power. It may be that North Dakota farm families are more frugal than Illinois farmers in their personal consumption habits thereby balancing lower sales and higher production costs with reduced personal consumption.

Still another factor involves the work of other family members besides the farmer since we are after all examining a family, rather than an individual, labour unit. I refer specifically to the work of farm wives. It would help to know what percentages of farm

wives in each state work off-farm not only to discover proportional differences in this work, if any, but also to compare tenure of employment and rate of pay. I know my cousins would have to reduce their personal consumption levels if their wives quit working in town. All work full-time at lower middle-income, white-collar jobs. In the area where my cousins live only one farm wife out of ten families does not work full-time off the farm. Yet I know of no wives of the previous generation in that area who worked off the farm.

On the other hand, perhaps North Dakota farmers have other sources of farm-related income Illinois farmers don't rely on. The 1987 statistics on other farm-related income show higher percentages of North Dakota farmers receiving income from gross cash rent or share payments and other (non-specified) farm-related income sources. Similar proportions of Illinois and North Dakota farmers received money from custom-work and other agricultural services (twelve percent and eleven percent respectively).

State Support for Agriculture: Government Payments

The biggest difference in other farm-related income between Illinois and North Dakota farmers was in government payments. In North Dakota 36 percent of all farmers received government payments while in Illinois the corresponding proportion was 24 percent. North Dakota farmers also received higher average payments than Illinois farmers. Of all those farmers eligible for government payments in North Dakota, the average payment was $17,900 while in Illinois it was $15,688. If all government payments are averaged over all farmers in each state North Dakota still comes out ahead

with an average payment of $13,730 compared to an Illinois figure of $9,927. Of course some of this difference may be due simply to the production levels of farms. For instance, if North Dakota farmers, on average, produce more than Illinois farmers, then they would be eligible for more subsidy payments, if, as I understand it, U.S. agricultural subsidies are basically price supports and guarantee farmers a specific price per unit of a specific commodity.

While family farmers in both states made up the highest proportion of farmers receiving government payments, partnerships and corporations, relative to their percentage of all farms receiving payments, got a higher share of transfer dollars than their numbers warrant. For instance, in North Dakota corporations made up only eight-tenths of one percent of all farms receiving government payments but they received almost two percent of government payment dollars. Partnerships accounted for 11 percent of all farms receiving government payments but garnered almost 15 percent of all payments. This translates into an average government payment of $37,542 to each corporate farm, $23,806 to each partnership, but only $17,014 to each family farm collecting payments. The situation is similar in Illinois with the corresponding figures at $35,818, $20,332, and $14,385. Again, the grouped census data obscures whether or not government payments are fairly evenly distributed within these three farm classes or if their distribution is irregular. Vogeler (1978) and Hightower (1978) argue the richest U.S. farmers (those with highest sales) receive the lion's share of government payments to agriculture. Hard Tomatoes, Hard Times (1978) researchers assigned about 80 percent

of all government payments to the top 20 percent of income-recipients in agriculture in the United States.

The data on agricultural subsidies points out a major deficiency in all three models I have examined. Each neglects the role of the state in the development of agriculture. While I can understand why Chayanov, Lenin, and early 19th century economists failed to see the state as a major player in the agricultural arena, subsequent researchers, especially those discussing the development of agriculture after WWII, must necessarily take account of state "incursions" into the agricultural arena. Hightower (1978) is one of the few recent researchers to undertake a detailed study of one aspect of state intervention in American agriculture. He examines the role of agricultural land grant colleges in promoting "big business" approaches to farming in the U.S. He convincingly shows how these institutions, originally established to aid family farmers and improve rural living conditions, became the tools of agribusiness rather than resource centres for small, independent farmers.

Rural sociologists need to conduct analyses of state agricultural policy in terms of the effects of government price supports, government credit schemes for farmers, and agricultural export policy on the structure of agriculture. We need to know who benefits the most from such state policy and whether or not such policies promote or discourage specific types of farm organization, e.g., corporate as opposed to family organization.

Who's Minding the Farm?

The prevailing perception of the farm crisis in the mid-west portrays family farmers as the chief victims of foreclosures. While this is true at a numbers level it is also slightly misleading. The data for North Dakota and Illinois suggest that other types of farm organizations, e.g., corporations, may be as susceptible to business failure as family farms. The proportion of family farmers has remained stable in both states since 1920. If managed farms can be legitimately used as proxies for corporate farms then "corporate farms" share of all farms has also remained stable. This suggests that family and corporate farmers may be equally likely to "fail" in these states. Drache (1976) gives a number of examples of capitalist farm failures in the late 19th and early 20th centuries in North Dakota, Minnesota, and Iowa.

If family farms and capitalist farms go out of business at much the same rate then this calls into question both Marxist and neo-classical models of the development of agriculture in capitalist societies. Marxist arguments about the inability of the agricultural petty bourgeoisie to survive advanced capitalism need rethinking since the "petty bourgeoisie" still command by far the largest share of all farms in both North Dakota and Illinois. However, the Marxist argument of monopolistic tendencies with advanced capitalism is supported by drastically declining numbers of producers.

Neo-classical economists who argue corporate, capitalist organization is the most "efficient" way to produce agricultural commodities also appear to be in error since their corporate enterprises fare no better than family farm organizations in terms of proportional survival. Even though Drache's corporate farmers have many advantages

family farmers don't have, e.g., lower costs of input because of bulk buying, higher prices for goods because of more market control, and in many cases, more fertile land and better climatic conditions, they seem to be subject to rates of failure approximating that of family farmers.

What has happened to both types of farms is a reduction in their numbers and, at least with family farms, a major increase in size. There are monopolistic trends at work here and they closely parallel traditional Marxist explanations for monopoly developments in the industrial sector. Increases in the size of family farms have been made possible by mechanization of much farm labour. So farmers, like businessmen, have replaced live labour with dead. One Illinois or North Dakota farm family, with the aid of machines, can now manage a farm two and one-half times as large as the farm one family could work in 1920.

Rationale for Mechanization

While farm machinery has greatly reduced the labour intensive nature of agriculture in the United States it has greatly increased it's capital intensive character. However the reasons for such mechanization are slightly more complicated than the Marxist argument of competition through mechanization. It may be that capitalist farmers initially provided the market for much of this machinery and family farmers adopted the technology as quickly as their pocketbooks would let them so compete effectively with other mechanized farmers. However, the two world wars and heavy European immigration to large American cities also promoted mechanization. World War I and

World War II occasioned agricultural labour shortages and increased demand for agricultural commodities abroad. At the same time massive immigration to the United States swelled the urban population and increased the demand for food within the country. Farmers had expanding markets and few helpers so they turned to machines to increase their production levels.

Mechanization then initially enabled family farmers to produce as much or more on their farms without the amount of hired labour they previously had to rely on during busy seasons. In the long run it also made it possible for a single farm family to handle larger and larger numbers of acres on their own. Additional farm input materials such as pesticides, herbicides, commercial fertilizers, and hybrid seeds also increased production levels after World War II. The tremendous increase in acreage for the average farm in both North Dakota and Illinois is in part a result of these technological changes.

However, mechanization began a "technological treadmill" for farmers. By tremendously increasing productive levels it kept prices for agricultural commodities low both during and after World War II. At the same time farm input prices kept rising. Machinery, and fuel, and later pesticides, herbicides, fertilizer, and seeds all escalated in price after farmers began using them and have continued to do so since WW II. Hence farmers also got larger just to keep their income levels stable.

Hightower (1978) also documents land grant college "advice" to farmers to mechanize. U.S. land grant colleges have encouraged family farmers to "over-equip" their operations but unfortunately have done little to create machinery suitable for small and medium scale farming (Hightower 1978:37). Land grant colleges have instead busily

designing machinery modelled for very large acreages. At the time Hightower gathered his data (the early 1970's) he estimated the mechanization research of land grant colleges served only the largest-scale producers and was actually harmful to the majority of independent producers, even those producers who had sales over $100,000 (Hightower 1978:36). Yet land grant colleges pushed this type of mechanization as a necessity and developed no alternative technology for smaller farms.

Therefore American farmers' current reliance on agricultural machinery is contingent upon a unique set of historical circumstances: agricultural labour shortages occasioned by two world wars, the development of a class of large-scale producers, continuing low commodities prices, and state supported research institutions which encouraged all farmers to equip their operations with as much machinery as possible. The result has been far fewer farms than in the past and far larger farms. While Marxist and neo-classical economic theories correctly identify the move toward fewer and larger farms they ignore the historical contingencies making this development possible. For instance, if the Civil War, two world wars, and the Korean War would not have occurred agriculture may have taken a completely different course of development. Similarly, if agribusiness did not have the ear of land-grant colleges farmers may have not have been encouraged to adopt mechanical and chemical inputs to the extent they now have.

Both Marxists and neo-classical economists posit "laws" of agricultural development given a capitalist economy and ignore other impinging systems such as the political situations within countries and throughout the world at any given time. Hence their discussions of agriculture and its development generally ignore the effects of

national and international political events on the agricultural sector. Some research in the dependency vein, most notably that of Mann and Dickinson (1980), documents the unique history of American agriculture. They attempt to show the inter-relationships between U.S. internal military security (subduing American Indian tribes and securing the Spanish southwest) and agricultural policy and expansion. The history of mechanization again illustrates the crucial role the state plays in agricultural development either indirectly, through its political alliances, or directly through its pressure on farmers to contribute to national development by adopting specific production methods, e.g., mechanized to increase the food supply.

Characteristics of the Mechanized Farmer

While Marxists and neo-classical economists predict a size polarization among farmers this has not, as yet, occurred in either state. Rather most farmers remaining in production have grown larger. The modal size category for farmers in both states is now three size categories larger than it was in 1920. However, there is now less concentration in particular size categories than in 1920. For instance, the 1987 modal size category for Illinois contains 30 percent of all farmers compared to 56 percent in 1920. The 1987 modal size category for North Dakota accounts for 28 percent of all farmers but in 1920 the modal category contained 54 percent of all farms. So this "spreading out" of farmers among size categories may indicate a polarization trend.

In addition there are growth differentials between family farms, partnerships, and corporate farms. While family farms and partnerships have increased in size since 1969

corporate farms, as a group, have actually become smaller on average. The fact that corporate farms have lost acres since 1969 suggests two things: corporations are relying on vertical integration to maintain profitability and/or corporations are concentrating in commodities using less land, e.g., poultry and egg production. According to Drache's data both things are happening. Hightower documents the highest levels of vertical integration in agriculture in the poultry broiler industry and adds that agribusiness companies such as Ralston Purina are pushing for vertical integration of the hog industry (1978:43).

What seems to be happening is that corporate producers are coming to dominate the production of commodities that lend themselves well to vertical integration and that actual physical size of farms is not a good indicator of the importance of a farm. These "dominated" commodities tend to fall into the "low risk" category of agricultural produce. This finding supports the contentions of dependency theorists who argue high risk sectors will be left to independent producers and low risk sectors will increasingly come under the purview of corporate producers.

This leaves high-risk commodities production primarily to family farmers. High-risk commodities also tend to bring lower returns in the market place, e.g, wheat as opposed to potatoes, and hence farmers relying on production of such products probably are under more pressure to increase their volume to keep up with rising costs. This may account for much of the size increase in family farms. Rather than vertically integrating, family farmers are relying on increased production through larger size to keep up their farm income.

Dependency theorists, however, do not go far enough in their analysis of lower risk commodities. They argue low-risk commodities fall under the sway of corporate producers because of the nature of the commodity, e.g., the commodity has inherent qualities that make it easy to raise. They ignore the active efforts of corporate farmers and agribusiness firms to create less-risky commodities or less risky environments for producing commodities. For assistance in this endeavour corporate agriculturalists have turned to researchers at land grant colleges. The researchers have obliged their requests and concocted harder varieties of fruits and vegetables that incur less damage from mechanical harvesting; come up with Ethylene, a chemical used to artificially ripen fruit and vegetables picked "green" by these same mechanical harvesters; and pioneered the use of the growth hormone DES (diethylstilbestrol) for cattle to speed up the "maturation" rate of feedlot animals (Hightower 1978:47-50).

Even though land grant college research is primarily funded by tax dollars most of it benefits neither the consumer nor the independent family farmer. In general most land grant college research results in poorer quality products in terms of taste and nutrition. In the case of DES it may actually create serious health risks for the public. The primary beneficiaries are agribusiness interests who get their research done for nothing and market the "innovations" at profitable prices. Therefore, land grant colleges have speeded-up, and in some cases made possible, corporate production of agricultural commodities. None of the models I examine take account of the political power structure that makes possible such use of public funds raised by government taxation for the

primary benefit of one small segment of the agricultural sector at the expense of family farmers and consumers.

Part-Time Farmers

Both the Marxist and dependency models predict increases in farmers' off-farm work levels with advanced capitalism but for different reasons. Marxist view these increases as evidence farmers' loosening grip on their land. The result is inevitable - off-farm work eventually leads to total absorption into the industrial or rural proletariat as the farmer finds he can no longer afford to keep his land.

Dependency theorists see off-farm work in two ways: as a survival strategy that farmers use to get through tough economic times and then abandon when times get better; and as a way of fully utilizing all the labour power available on the farm, e.g., if the farm does not require all one's attention then labour power is expended in another area that brings in income.

Given the lack of data on who works off-farm and why an evaluation of the Marxist and dependency evaluations is not possible. Some speculation, however, is in order.

If off-farm work patterns are any indication of "commitment" to farm labour then North Dakota farmers, whether out of choice or lack of alternative, do spend less time working away from the farm than Illinois farmers. Obviously, Illinois farmers, if they need or want to work off-farm, have more opportunity to find alternative employment because of Illinois' industrial base. North Dakota farmers don't have the same

opportunities. This may mean they are cash poor and hence have shied away from agricultural "consumerism" in the form of machinery, vehicles, and other farm inputs. Less heavy reliance on inputs in turn means farmers would be less affected by the cost-price squeeze of escalating input prices and stagnant commodities prices.

The 1987 data on farm production expenses, however, shows North Dakota farmers, on average, spent more on fertilizer, fuel, herbicides, and pesticides than Illinois farmers. They also had higher interest payments. While I have no data that breaks down expenses by size or sales of farm such analysis on inputs for both states is clearly needed if we hope to understand farming strategies and differential rates of farm loss[1].

Whatever the reasons for the difference 30 percent of Illinois farmers today are really farming in their spare time, whereas only 15 percent of North Dakota farmers spend this much time in off-farm work. These farmers generally have lower than average agricultural sales and spend 200 or more days in the year working off the farm. Unfortunately we're not sure who these farmers are in terms of other characteristics. It would help to know their ages, the number of years they had farmed, their marital status, and their production specialties.

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[1] These farm production expenses include: commercial fertilizer, petroleum products, agricultural chemicals, interest expense, hired farm labour, feed for livestock and poultry, and livestock and poultry purchased. The largest categories of expenditures for North Dakota are in order of size: interest (12%), fertilizer (10%), petroleum products (10%), agricultural chemicals (8%), livestock and poultry purchased (7%), hired farm labour (5%), and feed for livestock and poultry (4%) [totals 56% of all farm production expenses]. The largest categories of expenditures for Illinois are in order of size: fertilizer (12%), livestock and poultry purchased (10%), feed for livestock and poultry (10%), interest (10%), agricultural chemicals (7%), petroleum products (7%), and hired farm labour (6%) [totals 62% of all farm production expenses].

would help to know their ages, the number of years they had farmed, their marital status, and their production specialties.

For instance, if these farmers are young and just starting out one would interpret the off-farm work in a more positive light, e.g., working to get established. However, if these farmers have been in business for some years and are now resorting to off-farm work the prognosis would be less rosy. One might surmise they worked off-farm to meet more basic needs rather then to build-up the farm. A more neutral interpretation is that farmers work-off farm do so to increase their income, not out of necessity to keep the farm going, but because of a desire for money for extras.

Future Prospects for American Farmers

Given the historical record and the information on the current situation of American farmers what can one say about the future prospects for family farmers in the U.S.? I think they will continue to exist albeit in a different way than the family farmers of the past. Although dependency farmers are pessimistic about the ability of family farmers to resist the control of agribusiness through contract farming, and the control of banks, through indebtedness there may be light at the end of the tunnel. There are historical precedents and other recent, although non-American, research that indicates somewhat different prospects for family farmers than that of either "semi-proletarianization" or "propertied labourers".

Recent trends in the structure of agricultural production and the numbers of farm foreclosures certainly present a gloomy picture of family farming although dependency

theorists do present sound reasons for the continued existence of small, marginalized farmers. The "cost-price" squeeze and recurring overproduction crises in agriculture have pushed "less competitive farmers", for want of better terms, out of business. However, a number of questions about agricultural development need to be examined before researchers write family farmers off as destined for extinction or for significantly degraded socio-economic status.

In the first place, researchers haven't analyzed which farmers are getting bigger or how they are getting bigger and which farmers are getting smaller. Both traditional Marxists and dependency theorists assume the bigger farmers are necessarily capitalist farmers, meaning they primarily rely on wage workers to do most of the farm work. If, as they claim, the increasing number of larger farmers rely more and more on wage labour then one might expect to see an increasing number of agricultural wage workers in areas where family farming once prevailed. But this has not been empirically demonstrated. No researcher has yet looked closely at agricultural wage work on the national level let alone at the regional level.

Although Pfeffer (1985a) argues that many part-time farmers engage in agricultural wage labour for neighbouring farmers this is not so very different from the "hired hands" of homesteading days who worked for more established (older) farmers while at the same time farming their own land. This practice enabled them to put money away to eventually buy more land. Therefore, part-time farming can also be viewed as the road to full-ownership and full-time farming rather than a downward movement towards the status of "propertied" labourer.

The process by which larger farmers have consolidated their holdings and continue to maintain viable operations also remains poorly understood. In terms of those farmers who get larger, Marsden's (1982) data on British family farmers in North Humberside indicates a "cannabilization" process in action. Wealthier farmers buy out their less well-off neighbours in two situations: when they go out of business because of foreclosures or when neighbouring farmers who have no heirs put their farm up for sale so they can retire. However, Marsden's data also indicates the importance of kin networks in farming and shows that in North Humberside the farmers who are most successful, at least in terms of size, are not corporate farmers but those family farmers who have extensive kin resources to help them farm.

The kin-network farming operation in North Humberside functioned with a "collective" ethic in which family members committed themselves to maintain the predominance of the family by continuing and expanding the farming enterprise. These farming endeavours succeeded because the "collective" attitude of families promotes the sharing of capital resources, technical skills, and managerial abilities (Marsden 1984:218). Sharing resources allowed such kin-based enterprises to increase their superiority on the "treadmill of increasing farm size and capital investment" (Marsden 1984:218). They gained an advantage not only over small, "kin-isolated", farmers but also over non-farm capitalists who try to enter the farming business without the collective ethic and kin-based resources.

In North Humberside, then, strong family and kinship ties were the most important factor in maintaining farm success. Kin networks provided the mechanism by

which a class of large-scale, "family" farmers emerge. Lack of supporting kin-networks explained the "marginalized" status of small farmers and the absence of capitalist farms owned by non-family corporations. The extent to which this process may be occurring in the U.S. is a subject for future research. Farm ownership data for the U.S. does show that individuals and family corporations own the majority of large farms in the U.S., not non-family corporations (U.S. Agricultural Census 1987). This suggests that a similar process could be occurring here.

The family farms Marsden identifies may be no more in the best interests of consumers or the farm community than non-family corporate farms. Such developments, however, must lead us to ask new questions about increasing farm size and the types of organization associated with it.

In addition to the lack of knowledge about which farmers get bigger, neo-classical economics and Marxist models assume agriculture in capitalist economies follows a linear developmental course. The movement is from small farms to large ones, from many individually-owned farms to only a few, corporate-owned farms, and from unmechanized farms to highly mechanized farms. Historical analyzes of agricultural development suggest a non-linear pattern. Newby's (1978) historical examination of British agriculture shows suggests that agriculture can move from family farming to capitalist farming, and then back to family farming again, depending on the price of land, the return on investment in land, and the price of agricultural commodities, to mention only a few factors. Similarly, high levels of mechanization are not only associated with capitalist farms. In some cases capitalist farms are less mechanized than family farms.

Mechanization may promote the maintenance of family farms in that machines enable individual farmers to do all their farm labour on their own without hiring help.

A further factor operating in the agrarian sector is the movement towards an energy-efficient, environmentally sound agriculture. "Sustainable agriculture" has become a buzz-word for environmentalists, concerned farmers, and green consumers. The extent to which the demand for organically grown foodstuffs will influence the structure of agriculture remains to be seen. Given that such produce requires intensive rather than large-scale production a demand for it could give family farmers a shot in the arm.

It could lessen their dependence on agribusiness input industries for chemicals, machinery, and fuel. Chemical inputs for farming such as herbicides, pesticides and chemical fertilizer would no longer be used. Instead farmers would concentrate on cover crops to control weed growth, lessen soil erosion, and provide green manure for their fields. In turn, this type of farming would promote smaller-scale farming operations thereby getting rid of the need for large-scale machinery and fossil fuels. Farmers could instead concentrate on quality products and increasing production through soil improvement. However, I don't believe green demand alone will be enough to totally restructure agriculture in America. This is where the state could play a role through environmental legislation to promote "environmentally friendly agriculture".

Whatever the agricultural result of green demand I would argue that agriculture, as it is now practiced in this country, is in danger of environmental collapse. We use too much energy to produce too little food. We have compromised our seed bases by too great a reliance on too few hybrids. Soil degradation is a continuing problem. Large

machinery like four-wheel drive tractors compacts soil, irrigation causes soil salinity and depletes groundwater resources, and chemical fertilizers in no way make up for the more complex nutrients provided by cover crops and animal manure.

Family farmers seem the most likely to switch to sustainable agriculture simply because they have the most to gain from it. It would alleviate their input-cost pressures and might allow them greater control over marketing if they dealt through green consumer networks like food co-ops and sustainable agriculture networks. The extent to which family farmers can take advantage of the increasing organic produce demand and organize themselves as sustainable agriculturalists may be a key factor in their survival in the American economy.

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VITA

The author, Lauree Jean Garvin, is the daughter of Pearl Caroline (Miller) Garvin and John Samuel Garvin. She was born in Bemidji, Minnesota on August 7, 1956.

She obtained her elementary and secondary education at Rockglen School, Rockglen, Saskatchewan, Canada. In 1974 she entered the University of Regina, Canada. She graduated with a B.A. in History in 1977. and returned in 1979 to complete her honours degree and graduated in 1981 with honours in anthropology.

In August, 1984 she was granted a graduate assistantship to study sociology at Loyola University. Her future plans include earning a doctorate in sociology, concentrating on the study of food and society.

APPROVAL SHEET

The thesis submitted by Lauree Jean Garvin has been read and approved by the following committee:

Dr. Philip W. Nyden, Chair
Professor, Sociology/Anthropolgy, Loyola

Dr. Christine Fry
Professor, Sociology/Anthropology, Loyola

The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the thesis is now given final approval by the Committee with reference to content and form.

The thesis is therefore accepted in partial fulfillment of the requirements for the degree of Master of Arts.

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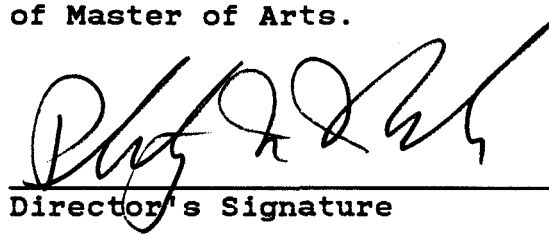
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