

FACTORS INFLUENCING FARM SALES DECISIONS
ON TORONTO'S URBAN FRINGE

By

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ABSTRACT:

This thesis explored the feasibility of using a decision-making approach to explain changing agricultural land-use patterns in the rural-urban fringe. The change in farm ownership to a non-farmer user was assumed to reflect a change in land use. A basic objective was to identify and describe the types of elements which composed the farmers mode of perception of the decision-making context. Variations in the modes of perception were then related to an array of socio-economic characteristics of the landowner.

The investigation confirmed the utility of the decision-making approach and confirmed the importance of the land appreciation component to the decision context. The selling price which the farmer appraised his property at was critical in determining whether the property was sold. Empirical analysis suggested a significant relationship between the selling price and the economic viability of the farm operation.

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CHAPTER I. INTRODUCTION

Southern Ontario's countryside has undergone drastic changes during the past two decades. These changes have been brought about in part by technological changes in agriculture and especially by the pressures of urbanization.

The consequences of urbanization on the surrounding countryside are both direct and indirect. On the one hand, the continuing and in many cases accelerated suburban growth of Ontario's cities is placing increasingly heavier demands on the land resources of the southern part of the province. A recent study by Van der Linde¹ underscored the point that over the period 1951 - 1966 the loss of improved land in Ontario was closely related to the degree of urbanization. On the indirect side, the growth of cities in the province is reinforcing the competition for the use of land located even at considerable distances from the urban centres. The demands of urbanites for recreational facilities, for vacation retreats and for investment properties are some of the most obvious factors contributing to the changing land-use patterns in the farmlands surrounding the major urban centres.

During the past two decades, landowners in Ontario have supplied approximately 3 million acres of land for

¹ Van der Linde, R. "Urban Rural Relationships: A Survey of Research and an Empirical Test", Research Report #16, Centre for Urban and Community Studies, University of Toronto, 1969.

urban uses. While the demand for land for urban-oriented uses will continue, the location and the time when land will become available are uncertain.

This thesis evolves from the perspective of a geographer interested in explaining the changing pattern of agricultural land uses which are developing in urban fringe areas. Within this perspective, the major interest is examining the role of the individual farmer's decision-making in the process of land-use change. The study objectives are as follows:

- 1) to conduct an exploratory investigation of the decision-making context in which farmers situated on the rural-urban fringe choose either to sell or retain their fringe farm.

Two groups of farmers were selected on the basis of whether they had sold or retained their fringe farm. Using these two groups as a base, the second objective was:

- 2) to test for differences in their mode of perception of selected aspects of the decision-making situation, and

- 3) to test for relationships between variations in the mode of perception and socio-economic characteristics of the individuals.

Inspiration for this study came from interest shown by American academics and planners for this type of approach.

For example, Chapin and Weiss, when evaluating possible refinements to their probabilistic model of the land development process, suggested individual landowner behaviour as an important source of variation between forecasted and observed patterns of land use.¹ Clawson, in discussing fringe land-use patterns states,

"Though empirical data is lacking, at least to this author, yet one cannot but suspect that personal desires, projections and preferences of present landowners must be a major factor responsible for some tracts developing where intermingled ones do not ... it seems wholly probable that owners of identical land (if one can imagine such a thing) might react quite differently to exactly the same offers for their land."²

Morrill, among others, has emphasized similar research needs.³

¹ F. Stuart Chapin, Jr. and Shirley F. Weiss, Some Input Refinements for a Residential Model, An Urban Studies Research Monograph (Chapel Hill: Institute for Research in Social Science, University of North Carolina, July, 1965, pp. 29-33.

² op. cit., Clawson p. 105.

³ Richard L. Morrill, "Expansion of the Urban Fringe: A Simulation Experiment", a paper presented at the Regional Science Association, Ann Arbor, Michigan, November, 1964.

CHAPTER II. CONCEPTUAL FRAMEWORK

In order to provide a proper background for a study of farmer decision-making, this chapter places the investigation within the framework of the land conversion process. Perception is then discussed in relation to the decision-making framework. The assumptions required to operationalize the study are presented and discussed. The contributions this investigation makes to the field of geography are then pointed out. Chapter II concludes with a review of the relevant literature.

Two alternative viewpoints on the land development process currently prevail. The first views the process as an evolution of tracts of land through a series of discrete states or stages of development over a period of time. Representative of this approach are the studies conducted by Dunn, Alonso and Muth.¹ Of interest to this study is the fact that they deal with land use at an aggregate scale and assume that all decision makers are perfectly informed, rational and capable of making infinitely sensitive judgements. Alonso assumes that the land market for fringe land is a market of perfect competition.² This assumption is normally incorporated into the second approach as well.

¹ For an overview of these studies, refer to Van der Linde, op. cit. Chapters I and II.

² (Reader is referred to following page)

The second viewpoint approaches the land conversion process from a micro level dealing with discrete parcels of land, the owners and the determinants of key decisions which, in turn, are assumed to determine land use. A fundamental underlying premise of this approach is that it is the owner of a particular parcel of land and his intentions which ultimately determine the use made of that land.

The framework of this approach is synthetic, starting first with the individual decision maker as the unit of analysis. The outcome of his decision making is seen as a function of the individual's mode of perception of the situation.

The rationale behind the use of the decision-making approach developed from the inability of the so-called "rational" approach to explain a large portion of the observed variation in individual behaviour. The measure of behaviour in this case is the individual's decision to sell or retain his fringe farm.¹ At one time this

¹ This connotation of the term "behaviour" is found quite frequently in the intra-urban migration literature in behavioural geography.

² (from previous page) In general, four conditions are necessary for a perfect market: a large number of buyers and sellers, a homogeneous product, close contact between buyers and sellers and no discrimination between buyers and sellers. It should be noted that these conditions are not the conditions for a market of pure competition where perfect knowledge on the part of both buyer and seller is assumed.

variation was attributed to "irrational" factors. These irrational factors have become the subject matter for the decision-making approach.

There are several fundamental differences between the two viewpoints. The deterministic approach makes no attempt to explain what a decision maker actually does but instead emphasizes what he should do under a prescribed set of circumstances. In some respects, it is in direct contrast to the decision-making approach. The deterministic approach makes the assumption of rational decision making. The decision-making approach focuses specifically upon the nature of the decision making and the parameters which account for the variation in it.

In order to explain variation in decision making, one is required to consider variations in individual perception. The research which relates decision making to perception remains theoretically and methodologically weak.¹ Perception studies currently available in the literature fall within one of two general research strategies.

¹ See for example the discussion given in Stea, David and Roger Downs, "From the Outside Looking In at the Inside Looking Out", Environment and Behaviour, v. 2, No. 1, pp. 3 - 11.

The first strategy is called the "holistic" approach and is concerned with overall systems identification and description. In this approach an attempt is made to isolate interactions between selected aspects of the situation, types of people and response typologies. The approach used in this investigation is an example of the holistic strategy. A major concern is establishing relationships between, for example, socioeconomic variables, the individual's perception of different aspects of the land market and his response to the sales decision.

A second strategy involves analysing the system of interactions which have been isolated in the holistic strategy. The focus is on sets of variables together with the specification of the system parameters.

The decision-making process operates at both the macro and micro scales. The macro scale process normally consists of two key supporting decisions: the decision of the urbanite to purchase land and the decision of the farmer to sell. If the urbanite is a developer, the composite of decisions made by prospective home buyers becomes a consideration.

This investigation focuses on the second of the key macro level decisions, that of the farmer to sell. It

is important however, that one is aware of the existence of a larger decision framework.

The farmer's role in the macro framework is essentially a passive one. The initiative is normally taken by the urbanite. An exception to this is when a farmer might encourage a potential investor by offering his property at below true market value. Alternatively, the farmer could provide a temporary constraint on the development of his property by refusing to sell.

Based on the findings of previous researchers, three broad sets of factors appear to influence the land conversion process at the macro level.

First are such factors as public policy and the availability of investment capital. These types of factors normally pose restrictions which tend to define the overall limits of development for an area.

A second factor is the socio-economic characteristics of the individuals concerned. Factors such as preferred lifestyles and personal values have been shown to have a direct influence on the form of development.¹

¹ See Smith, John Edward, "Toward a Theory of Landowner Behaviour on the Urban Periphery". Environmental Policies and Urban Development Thesis Series No. 6, Chapel Hill, 1967, Chapter 2.

A third factor is the macro-level variations in site characteristics. The influence of marshlands on urban development is an example of this type of influence.

All of the above factors should be taken into consideration in the selection of a study area. The area selected for this investigation is composed of five townships immediately adjacent to the current metropolitan Toronto boundary. In addition to its accessibility to the researcher, the Toronto area possesses a number of attributes which make it well suited to this type of an investigation.

Until 1970, public development policy was noticeably absent for all townships in Ontario. The publication of the Toronto-Centred Region plan in May of that year provided the first official planning guidelines for the area. During the past decade, Torontonians have exhibited a strong demand for single family dwellings. The growth of suburban communities such as Scarborough, North York, Don Mills, Etobicoke and Bramalea provide support for this trend. In addition, site variations were not considered an important deterrent to development in the fringe areas.

The fringe area is notably homogeneous with respect to climate, topography, soils and drainage. The topography is markedly even, dipping gradually towards Lake Ontario. The soils, for the most part, have a clay-loam base.

Seventy-five percent of the area falls within the first two categories of the ARDA land capability classification. The area is adequately drained with the drainage network feeding directly into the existing Toronto sewage system.

The following are the assumptions which were necessary in order to operationalize the study:

1. There exists a perfect market for farmland in the study area.
2. It is the owner of a particular parcel of land who determines the use made of that land.
3. Once the farmland becomes the property of a person having non-farm interests, there is usually a change in land use.
4. Land prices on the rural-urban fringe are inflated beyond what farmers are willing to pay for it for farming purposes.
5. The aggregate of individual decisions can be validly generalized at a group level.

The study area is assumed to be a large uniform agricultural region lying on the immediate fringe of a large and expanding metropolitan centre. The forces of urbanization operate evenly throughout the area in such a way that the farms are equal in terms of investment potential.

All the farms in the area are specialized dairy operations. There are a large number of urbanites, each operating independently, wishing to purchase farmland in the area for investment purposes.

Operating under the above assumptions, whether a particular farm is sold or retained will depend on the outcome of the farmer's decision. His decision, in turn, is dependent upon his perception of the situation.

Certain weaknesses are inherent in the above assumptions. For example, all the farms in the study area are not equally attractive from an investment standpoint. The farms vary in terms of their size, frontage, aesthetic attributes and location relative to the existing pattern of development. There is, however, some justification for this assumption. First, the study area is situated well within the zone of intense speculation. Approximately 20% of the farmland had already been acquired for urban uses prior to 1960. During the study period, the process of land development was essentially one of filling in the patchwork of holdings still owned by farmers. Every farmer interviewed in the random sample had been approached at least once during the study period with an offer to purchase. A third piece of supporting evidence is that area realtors

contend that virtually any one of the farmers in the study area could have sold for at least \$2,000 per acre during the peak speculative period (1965 - 1969).

It is hoped that this study will contribute to the discipline of geography in three ways:

- 1) The feasibility of using a decision-making approach to examine land-use changes has not been tested in a rural-urban fringe area in Canada. This exploratory research should provide some indications of the types of methodological problems one can expect to encounter with this approach.
- 2) A fundamental part of the decision-making process is the individual's perception of the situation. In the case of the fringe farmer, there is a need to identify and describe the types of elements which compose the farmer's decision-making framework. This investigation attempts to identify and described these elements.
- 3) An exploratory attempt is made to isolate interactions between selected aspects of the perceived situation, the types of individuals involved and their responses. This type of information forms a fundamental yet essential basis for future

perception studies in this area because one must first isolate the elements, before the system of interaction of the elements which combine to make up a perceptual image can be examined.

Review of the Literature

A search of the literature revealed a limited but growing interest in the role of the landowner in influencing land development. An exhaustive search uncovered only five related studies. Of these, three discussed speculator behaviour in semi-urbanized fringe areas, but were concerned primarily with some other aspect of the development process. Only two studies focused on farmer behaviour in the fringe land market.

A detailed study related to farmer behaviour was undertaken by Lessinger in a rural-urban transition area of the Santa Clara Valley in California.¹ His purpose was "to

¹ Lessinger, Jack, "The Determinants of Land Use in Rural-Urban Transition Areas: A Case Study of Santa Clara County, California". Unpublished Ph.D. dissertation, University of California, 1956.

describe and analyse the process of land use determination in a representative rural-urban land use market".

Lessinger's approach was to use major land use changes as the dependent variable and geographically distributed attributes of the market for agricultural land as the independent variables. These two variables were connected by hypotheses of economic decisions on the part of the farmer. His approach followed traditional economic lines and was limited to the collection of statistical materials related to a series of economic models.

Lessinger's general theoretical model viewed the farmer as an investor who sought to maximize his returns from agriculture, land appreciation and intangible returns. In terms of the classical economic model, the farmer computes his combined agricultural and speculative rate of return from his investment and compares this with his opportunity rate of return, the rate of return available from an alternative investment. The model recognized that the farmer formulates subjective estimates of these rates of return, however, these could not be incorporated into the models.

From this general model, he specified four analytical models:-

- (1) economic maximization
- (2) community speculative functions
- (3) subjective biases not dependent on the community
- (4) holdout

Model 1 states that the farmer sought to maximize economic returns from the land on the basis of objective estimates. Intangible returns were considered negligible.

Model 2 states that the farmer formulates his subjective estimates through "community functions". Lessinger suggests that community action could regulate the pace and bring about higher sale values for the entire area.

Model 3 stated that farmers, through "inertia" or influences other than community functions, formulated subjective estimates of expected values which diverge from objective expected values.

Model 4 was specified in general terms and thus included a number of the above models. According to Lessinger, this model asserts:-

...the reason for agricultural operations lies primarily in the achievement of some end other than obtaining normal rates of agricultural return (rates in excess of opportunity rates). In other words, agricultural net rates of return are substantially lower than opportunity agricultural returns, a fact which may or may not be recognized subjectively. However, subjective estimates of any three rates of return,

agricultural, speculative or intangible as compared to the opportunity rates are high enough to warrant an interest in remaining.¹

Lessinger conducted his investigation in an orchard producing area of the valley, "because orchards constitute the most important land use in the area and because no other agricultural uses seemed as capable of earning agricultural income on the same scale."²

His main conclusions pointed to the holdout model. He concluded that a large proportion of the farmers had not been farming solely for agricultural returns during most of the post-war period. He notes that some "non-agricultural" motive constrains farmers to hold on to their land as long as they can get a minimum agricultural income. This is, however, far lower than that required to keep land in permanent agriculture. The model asserts that farmers are concerned with their actual costs and minimum incomes more than they are with rate of agricultural returns or rates of speculative returns. They were willing to stay temporarily just as long as their day-to-day livelihood was not disturbed by large capital outlays. As soon as large costs were involved, such as special assessments for urban schools or the like, they found their "net holders' income" reduced to the point where

¹ Ibid., pp. 61-62.

² Ibid., pp. 63

they were no longer willing to sacrifice further. The willingness to sacrifice agricultural returns could theoretically result either from expectation of speculative rates of return or from intangible returns. In Lessinger's case, the speculative interests predominated.

Lessinger's study contributed to this study in two important ways. First, the study emphasized the need to select a more representative farming area where general farming predominates. In the Ontario case, most farming is not as profitable as orchards. Presumably, the speculative function might assume an even higher proportion in a general farming area. Secondly, Lessinger's work made a number of contributions to this study's design.

Higbee¹ discusses fringe farmer behaviour in more general terms. Higbee sees fringe development as a selection process. The "genuine" farmer sells his land when values rise sufficiently to give him a sufficient capital gain which he can reinvest in equally good but cheaper land further from the city. Higbee observes those who remain become less genuine as the city approaches. Some see real estate speculation as better business than dairying. Many find them-

¹ Article by Edward Higbee in Gottman, Dean and Ross Harper eds. "Metropolis on the Move, Geographer's Look at Urban Sprawl", John Wiley, 1967.

selves willing, at least for a while, to take business losses on the farm operation in exchange for future capital gains on their property.

A number of Higbee's contentions have been tested on the Toronto area.

The remaining three related studies were primarily concerned with speculator behaviour on the fringe and as such, provide useful insight into another aspect of the interaction process.

Smith developed and tested a normative behavioural model for speculator behaviour on the fringe of Greensboro, North Carolina.¹ Smith's investment model, developed along classical economic lines, was designed to test how closely speculator behaviour followed rational economic decision-making. The results were inconclusive pointing out the need to consider personal aspirations and decision-making under conditions of uncertainty. Non-pecuniary motivations proved important even when the owner was a non-resident.

Data collected included such variables as holding costs, costs of shifting the investment and opportunity rates

¹ Smith, John Edward "Toward a Theory of Landowner Behavior on the Urban Fringe" M.A. Thesis, Chapel Hill, 1967.

of return. The empirical analysis revealed serious weaknesses in the classical investment model and suggested the highly subjective nature in which speculators make purchase and sales decisions.

Maisel conducted an empirical study of landowner behaviour in the immediate fringe of two rapidly urbanizing areas of California.¹ Maisel's analysis, while primarily descriptive, notes that capital gains had become the dominant factor influencing ownership of land upon which urban development could be expected in the next decade or two and that the question of the proper time to sell had encroached upon normal agricultural decisions. Maisel's study pointed to the need to bear in mind variations in the growth rates of regions within the study area.

Clawson, in one of the earlier papers on speculation, explored the economics of urbanization questioning why some areas develop, why intermingled ones are not and why land speculation accompanies the process.² Clawson demonstrated how the discount rate for speculation depends upon the financial situation of the landowner.

¹ Sherman J. Maisel, "Land Costs for Single-Family Housing", in California Housing Studies (Berkeley: Centre for Planning and Development Research, University of California, 1963).

² Clawson, op. cit.

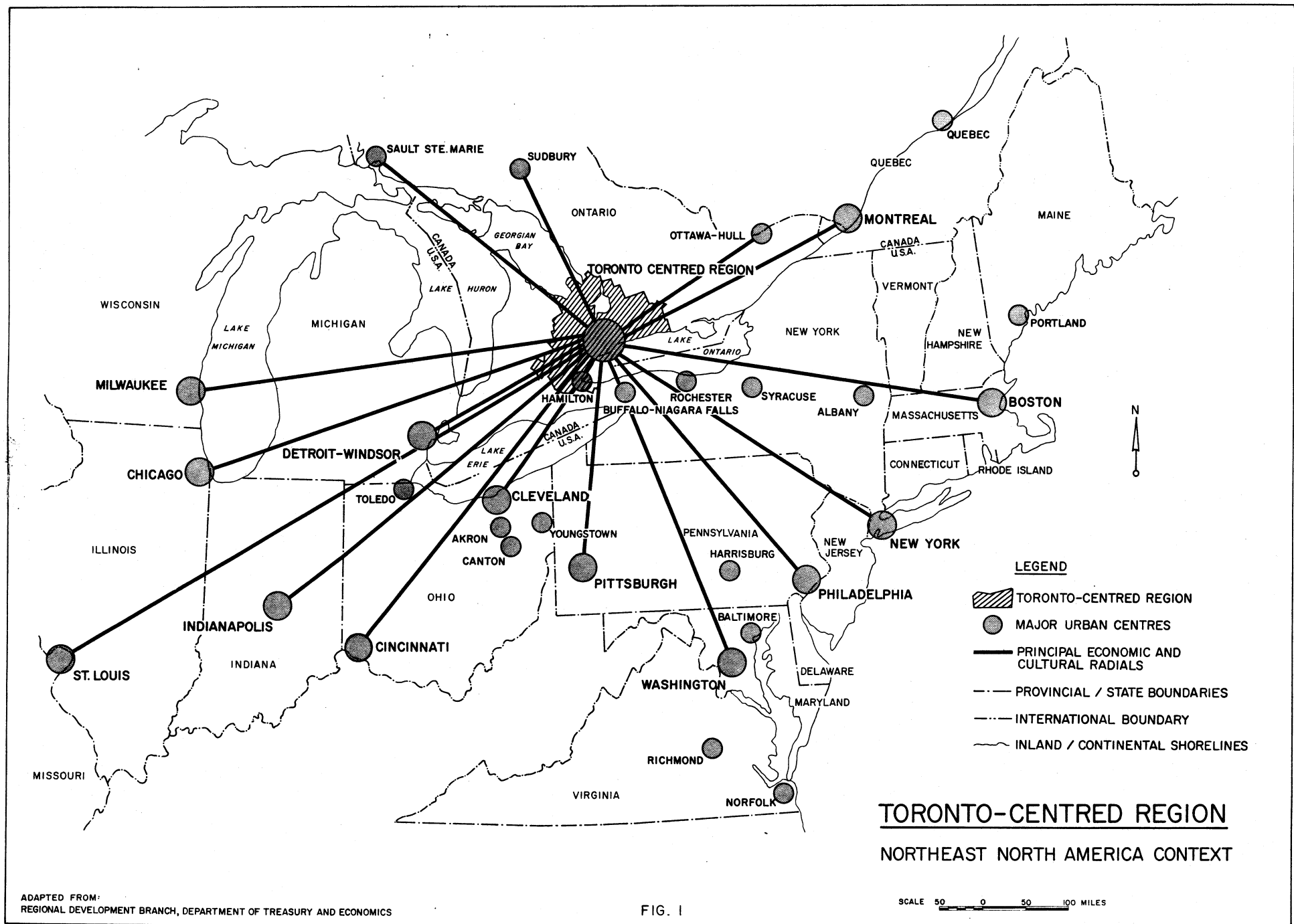
CHAPTER 111. RESEARCH DESIGN

The first section of this chapter provides the reader with background material on the study area, the land market and the agricultural sector. Section 2 discusses the rationale behind the various trade-offs necessary to establish a base and representative sample. The chapter concludes with a discussion of the questionnaire formulation and interview technique.

The Study Area

Some fundamental background information on the study area is necessary as a basis for generalizing from the research findings. This section provides an overview of the past, present and predicted growth trends and discusses how they relate to Toronto's fringe area. Attention is focused on trends occurring within the agricultural sector of the area and specifically dairying, the predominant farm type within the region.

Metropolitan Toronto, with a population of 2.1 million, is Canada's second largest and most rapidly growing urban centre. Situated within the industrial heartland of North America, the Chicago-Detroit-Toronto-Montreal megalopolis, Toronto functions as the financial, administrative, cultural



and communications centre of Canada and especially Ontario.¹

In 1951, Toronto had a population of 1.2 million inhabitants; by 1960 this figure had reached 1.8 million. Today, the central city has a population of 670,000 and the metropolitan area includes another 1,500,000. The Toronto-Centred Region, the area which comes under Toronto's direct impact, currently contains 3.5 million inhabitants. By the year 2,000, planners anticipate this population will be in excess of 8 million.²

Toronto's spatial expansion has mirrored the population growth rate. In 1935, the City of Toronto and neighbouring suburbs encompassed less than 100 square miles. When Metropolitan Toronto was formed in the mid 1950's, the administrative area was 240 square miles and the planning area 700 square miles. The Metropolitan Toronto Area Regional Transportation Study (MTARTS), undertaken in the early 1960's, took in about 3,200 square miles. The Toronto-Centred Region Study introduced in 1970 encompassed 8,600 square miles which was felt to come under "prime impact" and noted that an additional 7,000 square miles came under Toronto's interaction.

¹ For the general location, see Figure 1.

² For more detail, the reader is directed to J. W. Simmons and L. W. Bourne, "Toronto: Focus of Growth and Change", in Studies in Canadian Geography: Ontario edited by Louis Gentilcore, University of Toronto Press, 1972.

As a consequence of this rapid growth, vast areas of fringe farmland either have been taken over for development or have undergone aspects of urbanization. Farms located within 10 miles of the current metro boundary, an area roughly corresponding to the five townships of the study area, have undergone intensive speculative activity particularly over the past decade. Speculation, while historically a part of the land market, first became a concern in the rural fringe areas of Toronto in the late 1950's.¹ This activity grew and spread rapidly culminating in a frenzy of land purchasing during the period 1965-1969. By 1970, it had been effectively curtailed by a combination of rumoured zoning restrictions and the proposed introduction of a capital gains tax. A general economic recession also contributed to its decline. Legislation, however, was not introduced in time to prevent extensive damage to the agricultural sector as noted in the T.C.R. report.

"From an urban prospective, growth is "suburbanizing" in a pattern that contains aspects of unstructured sprawl. Within the commuting area surrounding Metro Toronto, quantities of land are being removed prematurely from agriculture and recreation use both for low density residential purposes and for speculation."²

¹ Ibid. p. 6.

² T.C.R., 1970, op. cit.

As a basis for understanding the present situation of fringe agriculture, a brief review of the region's agricultural development is in order.

Favoured by a long growing season, deep productive clay-loam soils and proximity to a large and expanding market, the agricultural hinterland rapidly developed as a prosperous agricultural region during the early stages of Ontario's history. A recent ARDA land capability survey reports over 75% of the lands within eight neighbouring metro municipalities fall within either the first or second class categories for general farming purposes. In general, the better agricultural lands extend westward from Toronto, however, within a 15 mile radius of Metro, only minor variations in land capabilities occur.

Until the 1940's, the agricultural region was characterized by thriving 100 acre family farms, many of which had been passed down through several generations. Numerous agricultural centres prospered throughout the area. The farming population was almost exclusively Anglo-Saxon and Protestant.

Today, the remaining farms are situated amidst a patchwork of country estates, ten-acre subdivided farms and large acreages held in speculation awaiting development. The remaining bona fide farms are, for the most part, large

specialized dairy operations. A scattering of beef and cash crop operations complete the farm picture. Speculators now hold large groups of farms, many of which are currently being farmed on a tenant basis. In addition, considerable acreage is being held by smaller investors from the Toronto area who have purchased ten-acre lots in recent years. Many of these changes in ownership do not as yet show on the landscape. Their presence, however, is reflected in the price of farmland in the area.

Currently, land prices range from \$4000 to \$80,000 per acre for land immediately adjacent to Metro Toronto, dropping gradually to near agricultural worth (\$300 - \$500 per acre) at between 35 and 50 miles distance. At the time of the farm interviews, land prices had dropped considerably from a previous 1968 high. Current market value for farmland in the area was in the \$2000 to \$4000 per acre range with select parcels over \$10,000.

A number of references have been made to "speculators" as a group having distinct interests in the farmland and "farmers" as another group. In many instances, this distinction would be quite arbitrary for both groups appear to look upon their land primarily as an investment. Farming "as a way of life" and "for love of the land" is not as prevalent among fringe farmers as was initially thought. One of the initial

steps undertaken was to develop criteria for distinguishing a farmer-group from those with non-farm interests in the land. After a detailed preliminary investigation, the following criteria were selected for distinguishing "bona fide farmers". First, the owner had to reside on the land and own a minimum of 50 acres. Absentee farmers were not common in the study area. A second stipulation was that the farmer had to obtain his major source of income from farming. This criteria effectively eliminated "hobby farmers" and wealthy Torontonians with country estates. The last recorded instance where a farm had been purchased for agricultural purposes in the study area was in 1958.

The Study Design

An understanding of the structure of the study is critical to a full comprehension and evaluation of the findings. This section discusses the basic approach to the study together with the methodology employed in the sample selection and questionnaire formulation.

The basic approach to the study of fringe farmer behaviour was to interview two related samples of farmers who have reacted differently to the forces of urbanization. Five townships adjoining the current Metro Toronto boundary were selected because of the extensive period the area has been subjected to urbanization. Some time within the past ten-year

period, one group of the sample (sellers) had sold their farm to a non-farm user, in most cases either a speculator or developer. At the same time, the other group, (holders), while subjected to similar pressures, have retained their farm. A stipulation was that both groups had to be full time bona fide farmers up until the time the decision was made. The measure of their behaviour was their decision to sell or retain the property. This measure was then related to a variety of variables including site and landowner characteristics. These variables are outlined and discussed in detail in Chapter IV.

From the point of view of the land speculator, land in the study area was an attractive and logical investment. The area presents no major obstacles to land development. The topography is markedly even with a good network of drainage systems feeding directly into the existing Toronto sewage system. Until the T.C.R. report, there was no indication that development would not spread into the municipalities in a fashion similar to those closer to Toronto. The MTARTS planning proposals slated these lands for development.

The area is well serviced by road arteries into Toronto with only minor advantages in terms of accessibility. Connections leading onto the major expressways 401, 27 and 427 are frequent.

The uniformity of the area for investment purposes suggested that variations in landowner characteristics would be of prime concern in determining which tracts would be removed from agriculture.

A ten-year time period was of sufficient duration to provide a distinction between the two groups in terms of resistance to the pressures of urbanization. As well, interviewing respondents concerning decisions made more than ten years previous was felt would introduce problems of recall. There was some evidence which suggested that the 1960 base population was, in some respects, select and that the more "genuine" farmers had already migrated from the area.

Sample Selection

Interviews were conducted with a 25% random sample of both the migrant and 1972 study area farming population. The 104 farmers interviewed were composed of 42 holders and 62 sellers. Only three refusals were encountered; two sellers who exhibited extreme paranoid reactions to suspected government probing and one holder because of poor health. Every effort was made to ensure that a representative sample was selected from both groups. (See Figure 2)

As the names of the farming population were not available from documented sources, it was necessary to ascertain the most comprehensive and efficient means of

LOCATION OF SAMPLE FARMERS

x = Movers

o = Stayers

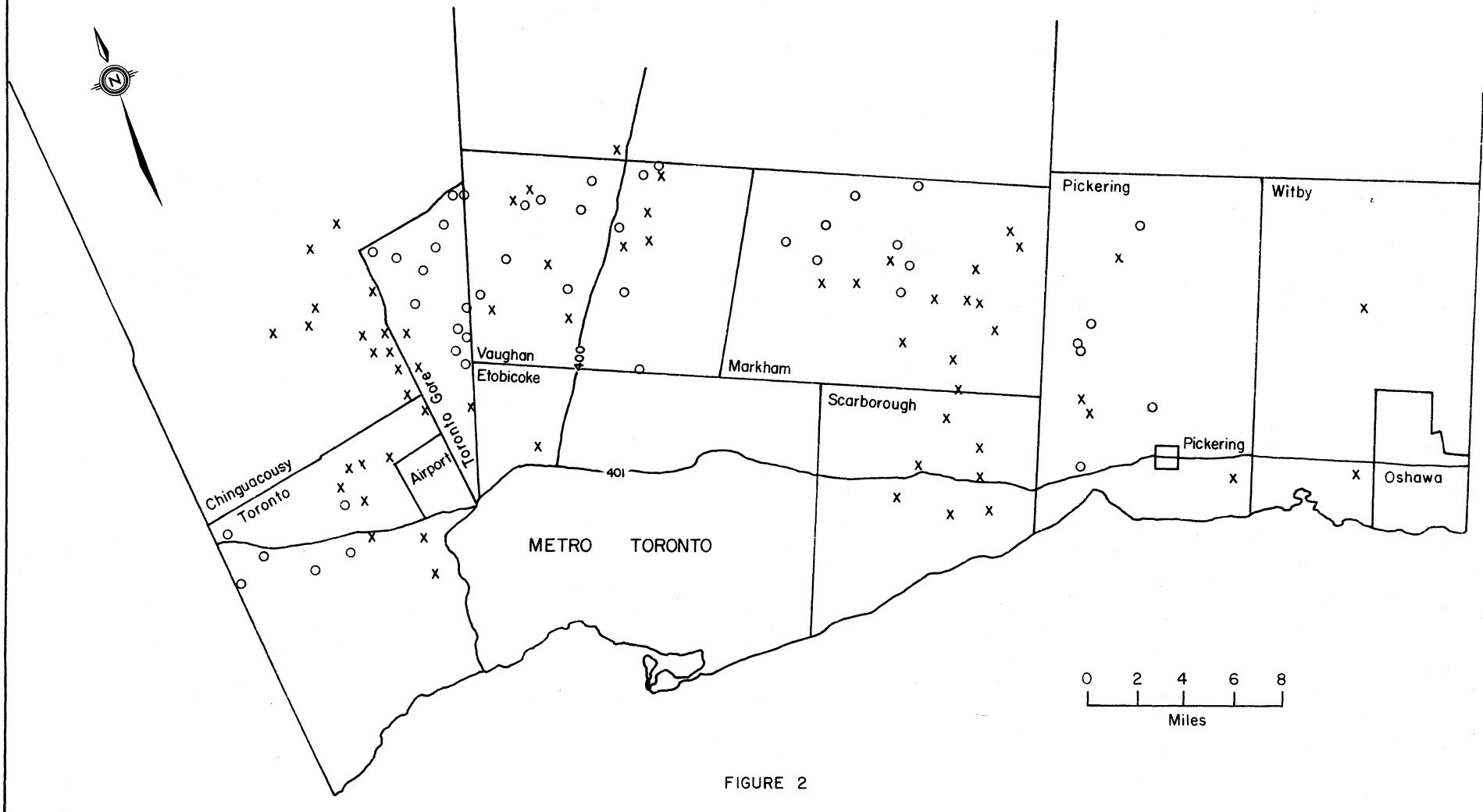


FIGURE 2

establishing them. Sellers created an especially difficult research situation as many had left the area a number of years previous to the study. Lifelong residents of each of the townships, especially those who are employed in the service sector of the agricultural industry, were found most helpful. These included assessment clerks, implement dealers, feed mill operators and area real estate agents. Ontario Milk Marketing Board records were helpful for the period since 1968.

In total, approximately 250 names were collected of former fringe farmers together with 188 holders. Only subjective estimates can be made about the total seller population as there was no way of ensuring the eligibility of a name until each farmer was personally contacted. Such an undertaking was beyond the scope of this study. It proved necessary to limit the study to farmers who had continued to farm subsequent to their sale. This prerequisite eliminated direct contact with one of every three sellers. Deaths and occasionally mental lapses during the interviews necessitated the occlusion of the retirement sub-group from the sample population. To compensate for this bias, if the original landowner had died or retired but the son currently farmed, the son was interviewed in lieu of the father. In the instances where this did occur, the son was able to provide reasonably complete information on the decision environment.

The data was collected over three separate time periods: personal interviews with the sellers were conducted during the months of June and July, 1971, a complementary mail-back questionnaire was sent to these farmers during the month of January, 1972, and personal interviews with the holders were conducted during the month of June, 1972.

Dairy

The "holder" population contained 158 dairy operations, 15 beef operators and 15 cash crop farmers. The dairy population was established from Ontario Milk Marketing Board records. The beef and cash crop population was established in consultation with municipal officials.

Selling the farm and relocating further out from the city is one distinct form of farm adjustment. However, adjustments corresponding to changes in agriculture itself are continually being imposed on the fringe farmer and must be taken into consideration.

The dairy industry, like agriculture in general, has been undergoing dramatic changes in recent years brought about in part by technological advances, recent institutional controls and changes in the accepted pattern of farm lifestyle. As a background context for the decision process, a brief overview of trends influencing farm-level decisions follows.

A most dramatic adjustment within the fluid milk industry in Southern Ontario has been the rapid turnover in membership. During the past three years 1,375 dairymen or 20% of the total have left the industry, while at the same time, another 2,437 have joined. While the net change has not been dramatic, the spatial impact on the former market-oriented milkshed has been outstanding.

A third of those who left the industry resided within the T.C.R. Of these, 383 were within the immediate fringelands. Of the 2,437 new entrants to the industry, only 15 reside within the T.C.R. None reside within the study area. Figure 3 provides a perspective of this shift out of the Toronto area.

Despite these trends, the T.C.R. still controls a substantial share of Ontario's fresh milk market. At present, the T.C.R.'s 555 dairy operators control 14.2% of the market. The study area produces 2.1%.¹ An explanation of the area's persistence would need to mention the accentuated trend among fringe farmers towards larger, specialized dairy operations. Figure 4 shows the predominance of larger operations within the T.C.R. and study area in comparison to Provincial averages. The reasons for this can be explained in part by the favourable

¹ Calculated using November, 1971, Ontario Milk Marketing Board data.

CHANGES IN FLUID MILK DELIVERIES, SEPT., 1969-'71
(000lbs)

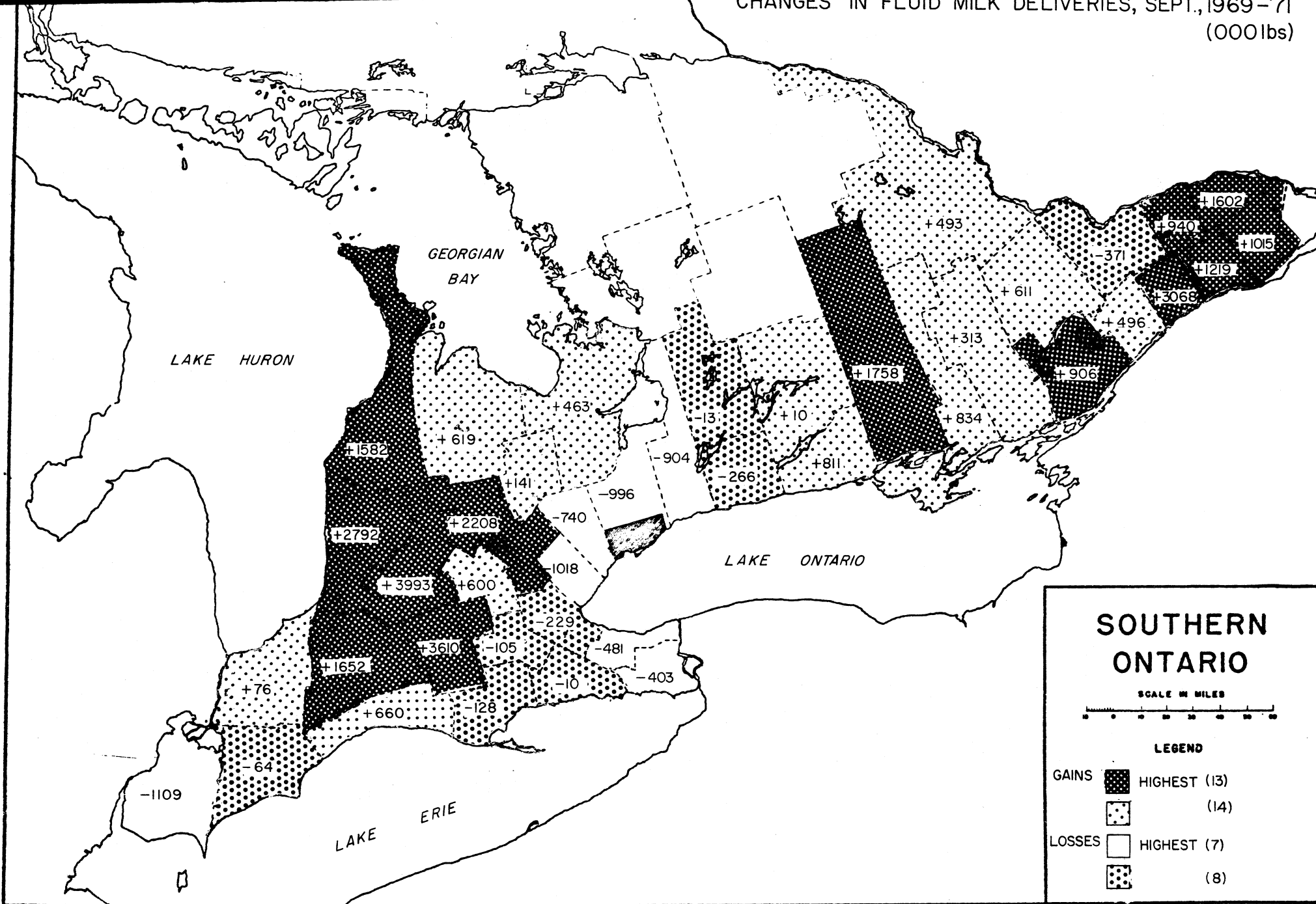
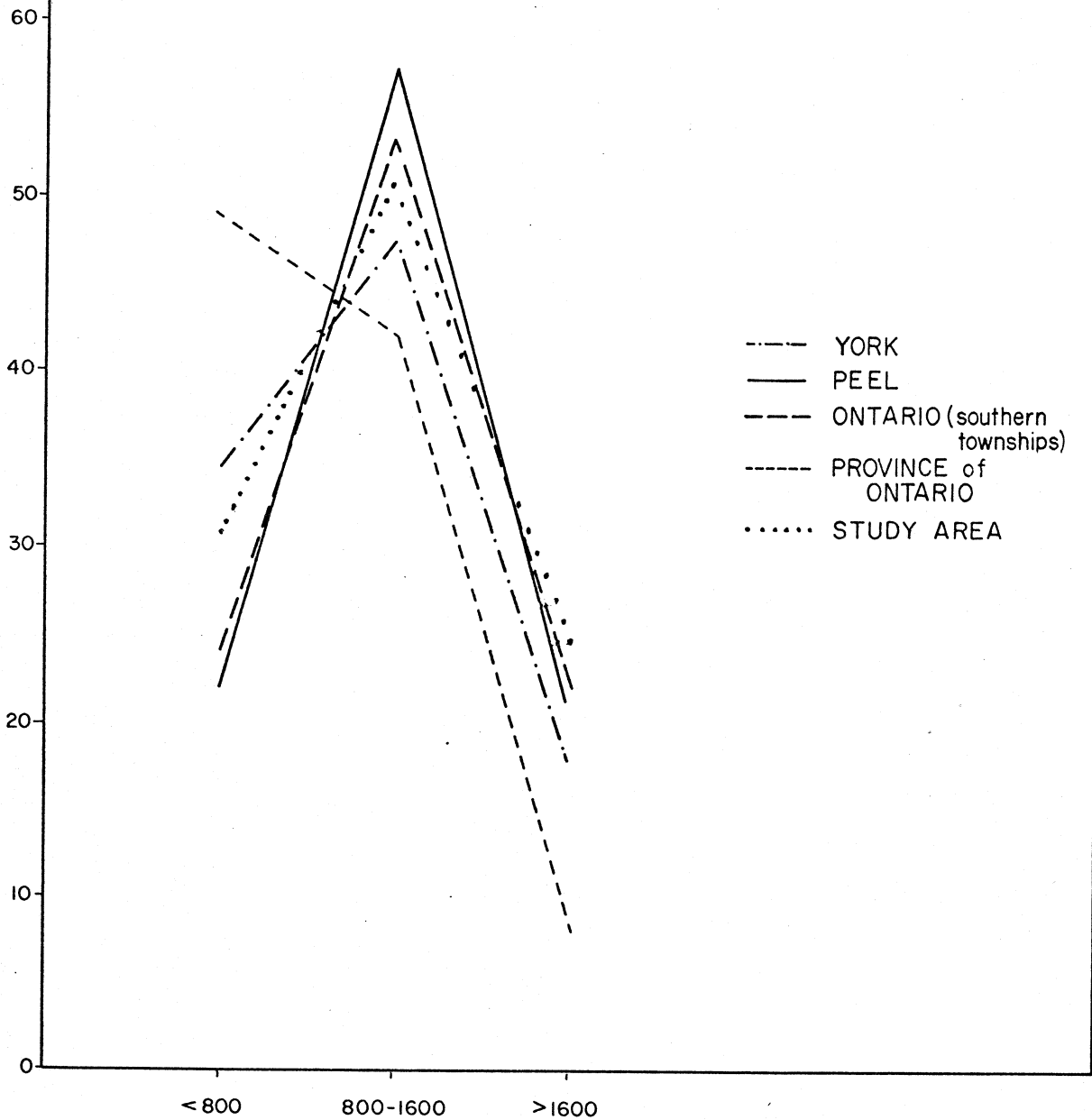


Fig. 3

COMPARISON of SIZE STRUCTURE of DAIRYING WITHIN THE TCR.
AND PROVINCE



LBS, (Daily Production averaged over the period Sept. 1970 - Sept 1971)

Fig. 4 .

physical and economic conditions in the area and in part by the tendency for dairy farmers to continue in the same line despite changing conditions. Dairying currently provides the highest returns of any form of livestock farming in the Province and, hence, there is an economic incentive to concentrate in this industry.

In recent years a counter trend has been evident. Dairymen have shown increasing intolerance with the burdensome nature of the milk business. The long hours and their inability to take vacations are manifest in the rapid exodus of older farmers out of the industry.

Questionnaire Formulation and Interview Technique

The criteria established for selecting a method of data collection were, in order of importance: accessibility to the data; expected accuracy and relevance of the information obtained; and economy of time and financial resources.

A non-scheduled interview technique was chosen for the pretest stage. This entailed a list of questions generated by the existing theory and previous studies together with questions intuitively felt to be of relevance. During the initial stage, tests were conducted to suggest an appropriate schedule. Previous research has proven this to be an effective method where the subject matter is not widely discussed or

openly talked about. By approaching the topic in an exploratory fashion and listening to the special interests and concerns of each migrant, considerable insight was gained particularly with respect to developing a logical schedule. An added benefit of this approach is that it helps establish and maintain a good rapport with the interviewee. Good rapport was important since it was not initially known how sensitive certain questions might be nor how heterogeneous the farm population was. A tape recorder was used during the initial interviews to detect questions exhibiting inferential confusion. A number were subsequently reformulated.

Special effort was required to develop the non-scheduled questionnaire in a chronological sequence for the "seller" population. A series of questions designed to elicit nostalgia were placed at the beginning of the interview and were followed by questions paralleling the sequence in which the decision process took place.

The "seller" questionnaire was condensed to ensure that it could be administered within 30 to 40 minutes. It was felt that interviews extending beyond this time period required an appointment with the farmer. The "holder" questionnaire benefitted from previous research and consequently was condensed so that it normally required only 15 to 25 minutes to administer.

Every effort was made to reduce or avoid diversions during the interviews and to ensure that the interviews were conducted in a neutral setting.

A standardized mail-back questionnaire was sent to the "sellers". Designed to complement the personal interviews, the mail-back questionnaire asked questions which arose from analysis of earlier data. Personalized, handwritten cover letters together with a stamped, self-addressed return envelope contributed to a high response rate (65%).

A more directed non-scheduled questionnaire was used during the personal interviews of the holders. A copy of each of these questionnaires is contained in the Appendix.

Sources of Error

Three major sources of error are inherent in personal interviews. These are: reaction by the farmer to the interviews, from investigator inferences and from sampling.

Despite efforts to minimize the reactive element created by interpersonal contact, it does creep in as a source of error. The interviewer is usually able to detect this type of bias and can, thus, partially compensate for it. Some farmers had difficulty arranging their thoughts and expressing themselves. Probing was sometimes required to reveal underlying variables which farmers tacitly assumed.

Others concealed whole truths in an attempt to appear "rational" in their decision making. Considering the sensitive and often personal nature of some of the questions, the farmers as a group responded remarkably well.

Investigator biases are introduced throughout the entire investigation. They appear in the initial choice of a conceptual framework and questionnaire formulation right through to the interpretation of the data. Serious bias can be introduced when integrating data concerning physical environment with information on human behaviour. Despite efforts to the contrary, a certain amount of slippage does appear between conceptual and operational specifications.

The bias introduced in establishing a sample for the farm population has already been noted.

CHAPTER IV. DATA ANALYSIS

Introduction

Chapter IV is designed in a fashion which closely approximates the sequence in which the study developed. The chapter is divided into three basic sections. Section one reconstructs the decision context as perceived by the farmer. The insight provided by the descriptive analysis in this section forms the groundwork for the more formal analysis in section two. In section two, an array of property and socio-economic characteristics are analysed for within group and between group variation. The variables selected for section two were made partly on the basis of hypotheses suggested by previous researchers and partly on the basis of intuition. Section three discusses the implications of the findings of the previous two sections in terms of the conceptual framework.

Section 1 is arranged under four general headings:

- (1) economic considerations,
- (2) variables related to the farm,
- (3) push-pull factors and
- (4) personal considerations.

- (1) Economic Considerations:

One of Ravenstein's¹ principle laws of migration states that most moves result from perceived enhanced economic opportunities by the potential migrant. The responses listed in table form below support this contention.

Factor	Very Important	A Consideration	Had No Bearing
1. an offer was made that was "too good to resist"	61	24	15
2. felt if you turned down this offer you might wait a long time for a better one	55	27	18
3. felt land prices in your area would not rise much beyond what you were offered	30	40	30
4. the offer would allow you to buy an equally good farm and still have money left over	52	27	21

On the basis of these responses, several avenues appear to open for model development. A logical extension

¹Ravenstein, "The Laws of Migration" Journal of the Royal Statistical Society, Vol. 48, June, 1885 pp. 167-227.

would be to view the farmer as an investor who seeks to maximize his returns from both agriculture and land appreciation. The farmer computes his combined agricultural and speculative return and compares this with his opportunity rate of return.

Several aspects of this model were appealing. A number of authors (Higbee, Lessinger, Smith and Clawson, among others) stressed the need to look at the speculative element associated with fringe farming. All the fringe farmers in the Toronto area, without exception, were consciously aware of the speculative element associated with their farm operation.

Despite the attractiveness of the investment model, a number of factors precluded a rigorous test of its applicability in the farming situation. A critical limitation was the farmer's inability to arrive at an estimate of his capital investment. The liquid capital component was familiar as it is used as a basis for the annual income tax calculation. However, the farmer seldom was able to arrive at a value for his fixed capital. This can be attributed in part to the land value component which constitutes a major part of it. Field experience suggested that any form of normative investment model based on rational economic decision-making was not even close to the actual farm-level decision context.

To understand the actual situation, it is necessary to provide some background on the land market. First, speculators seldom approached a farmer directly. Instead, they solicited area real estate agents, sometimes two or three different agencies at once, to get a listing on a particular farm or groups of farms.

Enticed by the economic prospects of a farm sale, these agents persevered in their attempt to get a listing. They accepted whatever price the farmer suggested no matter how ridiculous it might have been. These agents appeared frequently at the most unusual hours and under a variety of pretences. The farmer's tolerance level for these agents was usually quite low and after a few weeks, the farmer would concede to list his property. The farmer's intentions were not necessarily to sell but to get rid of the agents. With a large conspicuous sign on his gate, other agents would, hopefully, not bother him. As a deterrent to further nuisances, the farmer listed his property at what he thought was a highly inflated price. These values were formulated on the most sketchy knowledge of current real estate values and the speculative attributes of his property. What happened in many of these listings is that the speculator accepted the price the farmer set placing the farmer in a position of either paying the agent his 5% commission, which often would mean \$10,000 or more, or accepting the deal. Surprising as it may

seem, this was the actual context in which a majority of the deals developed.

The second most frequent situation was where a farmer would be approached by an agent who had "a party interested in your property". After some preliminaries, the agent would offer the farmer a price for his land. This normally involved placing a small down payment on the farm with the farmer holding the mortgage. Frequently, according to the farmers, this offer was "a price I couldn't afford to refuse". Many accepted these deals.

A second intriguing prospect which emerged from these findings is the notion of a critical land value. That is, a value above which farmers realize they simply cannot afford to farm. An average selling price for farmland in the Toronto fringe for the ten year period was \$1,780. Further probing, however, revealed a considerable temporal component and individual variation. This finding suggested further probing into the decision-making context should prove enlightening.

(2) Variables associated with the farm property:

Other economic considerations, specific to the farm operation, appear to have had a significant, yet considerably less important role at the group level. It is of interest

to note that in many individual instances some of these variables were very important. A number of these variables are outlined in the following table.

Factor	Very Important	A Consideration	Had No Bearing
1. farm would require major repairs if you were to stay much longer	15	25	60
2. farm unsuited to the type of operation you desired	12	23	65
3. suffered from a lack of working capital	12	18	70
4. selling appeared the only way you could get ahead	12	27	61
5. taxes were far too high for farming	22	40	38
6. felt moving would solve the estate tax problem	3	30	67
7. farm was not large enough to make a living on	24	24	52
8. change in family structure made the operation no longer suitable (e.g. son marries)	6	15	79

These responses suggest that production factors related to the farm operation play a relatively insignificant role in the decision environment. In the case of the sellers, the smaller size and inadaptability of the fringe farm to modern production methods appears to have provided at least some incentive to sell in 40% of the cases. No attempt was made at this exploratory stage to test for interrelationships in their responses at the level of the individual. It appears likely that further probing along these lines could provide some "index of dissatisfaction" with the fringe farm.

(3) "Push-Pull" Factors

The next series of questions was adapted from recent behaviour research in intra-urban migration. The "push-pull" model contends that with every location there are incentives to remain and to leave. In the case of the fringe farmer, the following attributes were tested.

Factor	Very Important	A Consideration	Had No Bearing
1. became aware of an attractive farm selling at a reasonable price	12	21	67
2. crisis in family made it desirable to move away	3	3	94
3. wanted the children to grow up in a 'more rural' environment	15	21	64

Factor	Very Important	A Consideration	Had No Bearing
4. wanted to move to where you wouldn't be disturbed again in your lifetime	21	35	44
5. pressured by other family members to move	0	3	97
6. area was too congested for your liking (traffic etc.)	9	46	45

Although the results show these factors are relatively unimportant, they do provide sufficient evidence for the inclusion of some form of reactive element in an aggregate decision model.

(4) Personal Considerations

It was anticipated that a segment of the farm population would decide on the basis of highly personal reasons. The following factors were presented to the migrant farmers:-

Factor	Very Important	A Consideration	Had No Bearing
1. wanted the challenge of building up your own operation	28	12	60
2. life was too routine, wanted a change and new experience	6	12	82
3. felt if you waited any longer you would be too old to start another operation	9	22	69
4. selling was the only way the son could get a start	15	12	73

Factor	Very Important	A Consideration	Had No Bearing
5. desired more leisure time	3	26	71
6. wanted to get out on your own	6	20	74

It is difficult to interpret these statistics. However, most likely, the highly personal reasons did not fall within any of these categories. A weakness of the standardized questionnaire is that one is never sure all the possibilities are included. If they don't appear on the questionnaire as a stimulus, often they are overlooked by the respondent. Intuition would suggest that factors associated with personal goals, lifestyles and aspirations would constitute a significant portion of the observed variation and should be taken into consideration.

Using the insight gleaned from the preliminary field work and the standardized mail-back questionnaire, the next step was to generate a number of hypotheses which could be tested on the fringe farmer. The variables selected represent an array of production variables, physical property characteristics and socio-economic characteristics. The array of 24 variables discussed in this section represents a cross-section of the types of variables farmers suggested were important. They were selected primarily on the basis of their suitability for a number of hypotheses and secondly because reasonably complete information was available for the entire sample. When reference is made to a correlation analysis conducted on them "r" values in excess of .30 are significant at the 1% level. The variables are as follows:-

(1) Age:

Age is a variable frequently collected in behavioural research. Age is frequently used as a surrogate for such variables as 'aspiration level', motivation and lifestyle preference among others. Certain problems were anticipated in adapting an age variable to this study. First, the age distribution of a farming population is characteristically bimodal with a "son" group normally under 35 years and a "father" group over 55 years. As it turned out, there was a normal distribution about the mean of 44.2 years for the study population. This ranged from 67 years to 25 years. Another problem with using age is that, in the case where a partnership is involved, it is difficult to say just who makes the decision. In all likelihood, it is a compromise in which case one must ask just how meaningful an average is.

An hypothesis was formulated on the basis of urban migration research. It states that mobility would be highest among the "under 35" group and in the "over 50" group. The basis of this hypothesis relates to fundamental changes in the family composition associated with these age groups. The "under 35" group would be highly mobile having either no family or a young family and high economic aspirations. As well, if they had been farming with a parent, the son would have a strong desire to be on his own. A fundamental weakness

with adapting this urban model to the rural context is that few farmers would own their own farm at 35 years of age or under. Under the traditional farm inheritance scheme, the son inherits the family farm when his father is ready to retire. This is normally around 65 years of age. By this time the son would be in his late thirties.

The "over 50" group would be highly mobile as the family would be mature and likely out of the household. The son, normally in his mid to late 20's would realize there was no future on the fringe farm and would encourage his father to sell and help get reestablished on a farm further from the city.

As predicted, the urban model was not substantiated by the data. The mean age of the "stayer" group was 47.0 years with a standard deviation of 10.5 years. The mean age of the "mover" group was 42.3 years with a standard deviation of 9.5 years. While the mover group (their ages discounted to the time of the sales) were somewhat younger, there was no evidence of clustering at either end of the age continuum. There was some evidence, however, which suggested that farmers over 50 years of age felt they were too old to re-establish.

(2) Number of Generations the Farm
Had Been in the Family Name:

It was hypothesized that because of sentimental attachments and family pride, there would be an inverse relationship between this variable and propensity to move. The statistics did not reveal any significant differences between the two groups. The mean number of generations for the stayer group was 2.7 generations and 2.6 for the movers. The standard deviation in each case was 1.4 with a range between 6 and zero. The questionnaire further substantiated this notion. Only three percent mentioned family resentment associated with the decision to sell.

(3) Number of Years the Farmer Has
Owned the Farm:

This variable correlates quite significantly with the age variable ($r=39$) and inversely with the percent owned by the senior partner. It was then hypothesized that there would be an inverse relationship between this variable and propensity to move. The mean number of years was 13.1; 12.3 for the stayers and 13.8 for the movers. The standard deviation was 9.4 years ranging from 32 years to less than a year in the case of a recent father to son transaction.

(4) Purchase Price Paid For The Farm:

This variable was initially collected with the intention of incorporating it into some form of investment model. A problem was that many of the farms were passed from generation to generation without any cash transaction. The son worked for the father for a small wage with the understanding that when the father retired, the son would be given the farm. In recent years, legislation has required that the son purchase the farm. However, these transaction values seldom reflected true market value. For the thirty per cent that were transacted in a cash deal, the mean was \$381. The range was from \$40 per acre to \$900 per acre.

(5) Ownership Type:

Based on Smith's¹ findings, it was hypothesized that the types of operations with the greatest inertia would be those having a single owner. Partnerships, by their very nature, tend to be unstable. In the case of fringe farms, the predominant type was the single owner-operator. Twenty-five per cent were in some form of partnership, normally a father/son arrangement. There was no significant difference between the two groups on this variable. The average stayer

¹ Smith, p. 55, op. cit.

owned 90.3 per cent of his operation and the mover owned 92.4. The standard deviation was 14.4 per cent. The statistic used to represent this variable was the per cent owned by the senior partner.

(6) Acreage Owned:

It was hypothesized that farm size would correlate with inertia or resistance to selling out. The mean size of the fringe farms was 120.4 acres with a standard deviation of 60.9 acres. The farms ranged in size from 50 to 400 acres. The stayer farms, at 127.3 acres, were on the average 12 acres larger than the movers' farms. The stayers' farms ranged from 72 acres to 400 acres, the movers' ranged from 50 to 250 acres.

(7) Acreage Workable
on the Base Farm:

This variable was collected as a basis for classifying fringe farms. The basis of the classification was the per cent of usable land compared to the total. The mean was 111.0 acres for a 120.5 acre farm, suggesting the farms on the average were very intensively utilized. Manipulation of this statistic did not provide any meaningful relationships, consequently, it was later discarded.

(8) Acreage Rented

Acreage owned was not a good estimate of the size of operation for most of the farmers owning smaller acreages rented large acreages off land speculators. Each farmer rented an average of 111 acres in addition to his home farm. The average size of the "stayers" farm including the acreage rented was 290.7 acres. The movers' total acreage averaged 230.4 acres, significantly less. These statistics suggested a relationship between farm size, in terms of total acreage operated and resistance to selling. The results of further probing are discussed in section two of this chapter.

(9) Quota:

A quota system currently applies for all milk producers in the Province. The quota, expressed in pounds per day, represents that portion of the total milk which the farmer receives premium prices for. Most producers over-produce by about 20%, therefore, annual milk production data is a more reliable indicator of farm size. In general, the quota represents a handy 'rule-of-thumb' predictor of the size of operation. Unfortunately, the quota system has only been in operation for the past four years. Consequently, this information applies mainly to the stayer population. An added weakness is that it does not reflect the dynamics of change occurring on the fringe operation. The mean was 905 lbs. with a standard deviation of 693 lbs. The largest

producer in the sample had a daily quota of 3,241 lbs.

(10) Percent Income Derived from Dairying:

This statistic was collected on the premise that the more specialized dairy operations were more resistant to urbanization. The statistics rejected this contention. The mean degree of specialization of the stayers was 74.8% as opposed to 76.8% for the movers.

(11) Fixed Capital:

This was defined as the capital invested in such assets as buildings, silos and tile drainage. Land is normally included in this definition, however, because of the uncertainty surrounding true market value, it was decided that land should not be included.

The fixed assets varied considerably for the two groups. The stayers' fixed assets averaged \$56,200 as opposed to only \$33,300 for the movers. Mover estimates were discounted to 1972 dollars at 8% per annum.

(12) Liquid Capital Investment:

This variable was defined as the estimated 'auction value' of their livestock and machinery. The sellers were asked to estimate this at the time of their sale. This value was then discounted to 1972 dollars. The stayers estimated

this value for June, 1972. This statistic was reasonably reliable as most farmers are required to calculate this figure in the spring of each year for income tax purposes. The differences between the groups was significant. The stayers' liquid assets averaged \$61,000 while the sellers' average was only \$28,800, less than half that of the stayers'. The range within the groups was also quite large. The standard deviation for the stayers was \$53,625 ranging from \$10,000 to over \$300,000. For the movers, the liquid capital investment ranged from \$2,000 to \$80,000 with a standard deviation about the mean of \$21,320.

(13) Cost to Modernize the Operation:

The purpose of collecting information on this variable was to test the hypothesis that movers, as a group, reacted to the prevailing uncertainty in the land market by not reinvesting capital back into their operation. It was expected that this feature would be reflected in the cost of updating their equipment. In essence, this question was double-barrelled for it not only reflected the real costs of modernizing the operation but also the farmer's perception of what constituted a modern operation. The stayers' mean estimate was \$18,400 while the sellers' estimate was \$13,800, a difference of \$4,600. Twenty-three percent stated that their operation was fully modern.

(14) Gross Income:

This figure represents the total annual revenue received before expenses. For the stayers, the mean gross income was \$36,970. For the sellers, it was only \$17,913. The range for both groups was relatively large with a minimum of \$3,500 and a maximum of \$200,000. The standard deviation was \$35,755 for the stayers and \$10,036 for the movers.

(15) Net Income:

Net income refers to income after expenses but not the farmer's labour. It varied from a mean of \$11,350 for the stayers to \$5,054 for the movers (discounted to 1972 dollars where necessary). The range was from \$50,000 to nil.

(16) Estimated Value of Land for Agricultural Purposes:

It was anticipated that this value would vary directly with the viability of the farm operation. That is, the more viable operators would place higher values on this estimate than would the marginal operators. It was hoped this would be yet another indicator of economic viability. The results were significant. The mean value of agricultural worth was \$361 per acre ranging from a high of \$900 to a low of \$40. This variable correlated quite strongly with variable 22, when to move, ($r=.36$) which was significant at the 1% level, with % dairy specialist ($r=.34$) and with annual milk

production ($r=45$) which was significant at the 0.1% level. These results supported the earlier contention of a positive relationship between estimated agricultural worth of farmland and size of operation.

(17) Number of Years Land Values Have Exceeded Agricultural Worth

In the case of the seller, the number of years land values exceeded agricultural worth was measured prior to his decision to sell. It was hypothesized that propensity to sell would be directly related to this value. The mean for the population was 10.1 years with a standard deviation of 5.9 years. For the seller population, 14% said land values had been inflated for less than one year; 40% stated between one and five years; 32% stated between five and ten years and 14% stated over ten years. This represents a reasonably good breakdown of the attrition rate for fringe farmers. For the sellers, the mean value was 7.9 years, while for the stayers it was 13.4 and is rising since they haven't as yet sold. This finding is significant in that it suggests the present stayer group is, to some extent, selected. They have resisted the pressures of urbanization on the average 5.65 years longer than the seller group.

(18) Estimated Current Market Value:

It was hypothesized that one of the main reasons why

the stayer group were still living on the fringe was because they placed a very high price on their property. The data substantiated this notion. First, in terms of price per acre, the mean for the entire population was \$2,364 with a range of between \$1,000 and \$25,000. Translated to a more meaningful figure that takes into account total acreage owned, the mean for the stayer group was \$586,551, while for the movers it was \$182,413, a difference of \$404,038!

The reader must keep in mind that an average of five years of inflation are also embodied in the stayer figures. There was no way of discounting speculation rates for the area as they had dropped after a 1968 high. The few transactions since that time were not sufficient to provide a representative cross section of the changes in the market.

The ramifications of these findings are discussed in greater detail later in this chapter.

(19) Had the Farmer Established a Selling Price?

To the author's surprise, three of four fringe farmers had subjectively established a selling price. The components of this price are discussed in detail in section three.

(20) Dollar Value Established:

This variable's mean was \$2,363 per acre with a standard deviation of \$4,104. This is the variable which was

later incorporated with the acreage (see variable 18).

(21) Was this Farmer Willing to Move?

Ninety-two percent of the total farmer population replied that they would move given the right circumstances. What is interesting about this variable is that over 85% of the "stayers" replied that they too were potential "movers". It should be noted that this variable was in a binary form. It correlated negatively with acreage owned, acreage rented, milk quota, percent specialized in dairying, fixed capital, liquid capital and annual milk production. (See correlation table Table 1). The conceptual implications of this finding are discussed further in the final section of this chapter.

(22) When To Move (measured in years, relative to the time the farmer perceived land values were inflated beyond agricultural worth)

This variable, as it turned out, was not particularly enlightening. It was designed to provide an indication of the farmer's inertia. However, it contained a highly speculative component for the stayer group. The mean was 7.6 years with a standard deviation of 5.9 years. It ranged from 27 years (and still rising for some stayers) to nil for some movers. The stayer group estimated the length of time it would be till they sold, however, these estimates, as noted, were highly speculative. Nevertheless, it does provide some indication of variation in perception.

(23) Number of Years Realized that he would Eventually Have to Move:

(measured relative to the time of sale for the seller group and relative to field interview for the stayer group)

The mean for the mover group was 2.6 years and 6.6 for the stayers. Twenty percent of the stayer group noted that they felt they would never have to move. Of the movers, 26% moved within one year and 40% within ten years. Three percent stated that they had always known and 31% felt they would never have had to move in their lifetime.

(24) Annual Milk Production:

This statistic was used only to calculate some form of production function for the stayer group. This information was not available on some movers as many moves were made prior to the establishment of the Ontario Milk Marketing Board. This statistic has been discussed in Chapter 3.

Two correlation matrices were produced, first using all 24 original variables introduced in the previous section and secondly, using a refined set of 15 variables composed mainly of the original variables, but with some modifications.

The 24 by 24 matrix is presented in Table 1. With a sample size the r levels for significance are quite low: r values exceeding .30 are significant at the 1% level and r values exceeding .38 are significant at the 0.1% level. In essence, this means that the chance element of such a correlation occurring is one in one hundred and one in one thousand respectively.

Correlation analysis, as opposed to regression analysis, assumes no functional interdependence between the variables. It simply is a measure of the extent to which the two values vary together around their respective means and in the direction of this covariation. Positive signs indicate the two variables increase or decrease together; negative signs indicate one set increases while the other set decreases. All the data was standardized before being analysed. These tables are usually quite helpful as a basis for formulating hypotheses.

The significant correlations are discussed in the following paragraphs:-

- Variable 1: age, correlates with number of years the farmer owned the farm $r=.39$.
correlates with percent dairy specialist $r=30$.
- Variable 2: Number of generations the farm has been in the family correlates with fixed capital $r=.30$.
- Variable 3: Number of years the farmer has owned the farm. Correlates inversely with the percent owned by the senior partner $r=.34$. This suggests a trend toward more partnerships with sons as the farmer gets older. This trend was evident in the study area.
- Variable 4: Purchase price for farm correlated with the size of milk quota $r=35$ suggesting that the size of quota which currently carries the cash value of approximately \$22 per pound was reflected in recent transactions. This variable was also correlated with the estimated sale price the farmer valued his farm at ($r=.42$).
- Variable 5: Did not correlate with any of the other variables.
- Variable 6: Acreage owned. Correlated highly with acreage workable $r=.98$ suggesting either variable can be used interchangeably. Acreage also correlated inversely with the number of years before the farmer thought he would move ($r=-.31$)

Variable 7: Acreage workable also correlated inversely with the number of years before the farmer would move ($r = -.31$).

Variable 8: Acreage rented correlated with the size of milk quota ($r = .30$) and with the annual milk production ($r = .32$) suggesting a positive relationship between the acreage rented and the size of operation.

Variable 9: Milk quota, was strongly correlated with a number of production variables.

Quota correlated with % dairy specialist $r = .78$

Quota correlated with fixed capital $r = .53$

Quota correlated with liquid capital $r = .64$

Quota correlated with gross income $r = .77$

Quota correlated with net income $r = .81$, and

Quota correlated with annual milk production $r = .96$

As well, the quota variable correlated with some other interesting variables. For example, variable 16, farmland value ($r = .30$) and variable 17, years exceeded agricultural worth ($r = .44$). This suggests that farmers with large quotas were closer to the more developed areas. Quota correlated with market value per acre, variable 18, $r = .41$ indicating that larger dairy men placed higher sale prices on their farms. As expected, quota size correlated with a higher

price range, variable 20, ($r=.42$) and was inversely related to whether or not he would move ($r=.44$). It correlated significantly with the farmer's perception of when to move ($r=.46$) and the length of time the farmer has been aware that he would eventually have to move ($r=.30$).

These results show a strong relationship between the size of dairy operation, as measured by the farmer's quota and the farmer's resistance to sell or inertia. The implications of this finding are discussed in section 3 of this chapter. The reader is reminded that these quota statistics were available for only two-thirds of the population.

Variable 10: Percent dairy specialist, showed a strong positive correlation with production variables. For example, liquid capital ($r=.47$), gross income ($r=.41$), net income ($r=.49$), and annual production ($r=.82$). As well, it correlated strongly with the same variables as did variable 9. These are: farmland agricultural worth ($r=.34$), years exceeded agricultural worth ($r=.38$), current market value ($r=.47$), would he move ($r= -.38$) and when to move ($r=.62$).

Variable 11: Fixed capital correlated with number of generations ($r=.30$), milk quota .53, liquid capital ($r=.58$), gross income ($r=.49$), net

income ($r=.53$), would he move ($r= -.37$) and annual milk production ($r=.50$).

Variable 12: Liquid capital, correlated with gross income ($r=.54$), net income ($r=.63$), would he move ($r= -.40$), when to move ($r=.42$) and annual production ($r=.64$).

Variable 13: Cost of modernization was independent of covariation with any of the other variables.

Variable 14: Gross income, correlated strongly with net income ($r=.95$), with years exceeded agricultural worth ($r=.30$), with price range ($r=.48$) and with annual milk production ($r=.66$).

Variable 15: Net income, correlated with the same variables as gross income as well as when to move ($r=.37$).

Variable 16: Estimated agricultural value, correlated with current market value ($r=.38$). That is, the higher the agricultural worth the farmer placed on his land, the higher the current market worth. As pointed out earlier, the more viable operations tended to place higher agricultural worth on their land. These same operators tend to place higher market values on their land as well which probably is one of the main reasons why they haven't sold.

Variable 17: Number of years land values have exceeded agricultural worth correlates with the price range in dollars per acre ($r=.39$), with the number of years before he will move ($r=.32$) with the period of time he has known he would have to move ($r=.56$) and with annual production ($r=.40$). This last variable suggests some spatial relationships whereby the larger operators are located in areas closer to development. This notion is pursued in section three.

Variable 18: Current market value, correlates with when to move ($r=.36$). This can be interpreted as the higher the estimate the farmer placed, the longer is the time span before he anticipates moving. Variable 18 also correlates with annual production again suggesting the larger operators placed higher sales values on their property.

Variable 19: whether the farmer had set a price on his farm correlated with the dollar value per acre, Variable 20.

Variable 20: the dollar value per acre, correlated with annual production.

Variable 21: "would he move", correlated inversely with annual production ($r=.49$). That is, the larger operator stated it would be a longer time before he would move.

Variable 22: years before he anticipated moving, correlated with size of operation ($r=.49$).

Variable 23 & The correlations of these variables are
Variable 24: incorporated in the above variables.

Discussion:

The most striking finding to come out of the above correlation matrix is the strong intercorrelation between the size of operation, production variables and resistance to move as measured by the price placed on their land and estimated time before selling. Perception variables correlated strongly with production variables.

Hierarchical Grouping Pattern:

The 24 original variables represented something less than half the total number of variables collected. These 24 were selected first as components for testing a number of first order hypotheses. Secondly, with the exception of variable 21, the variables are all continuous, discrete statistics. The 24 variables were later reduced again to form 15 variables.

A test was undertaken to see how the farms are located relative to each other in a total 15 variable dimensional space. Each farm is described by fifteen factor scores and treated as a point in space. Quantitative measures of the distances between pairs of points are determined and a matrix between all combinations of farms in space is constructed.

The two closest farms constitute the first grouping. A new reduced matrix of distances is then calculated by replacing row and column elements of the two points grouped, with a single row and column of distances measured from the centroid of the two-member group to all other farms.

At each stage in the analysis, all possible unions are identified and the 'best' union is selected. A point is assigned to a group if it is closer to that group centroid than to the centroid of any other group in the matrix.

The programme starts out with 15 groupings and ends with a single group. The problem arises as to the proper cut-off point. Error values are computed with each cycle. These characteristically fall with each successive cycle then quickly climb again. The step at which this minimum occurs is a convenient cut-off point. The minimum error value occurred at 5 groupings.

Farm size appeared to be a critical determinant of inertia, however, at this stage there was no accurate criteria for distinguishing farm size in terms of production variables or capitalization costs. As a result, a multi-dimensional grouping test was designed to obtain an accurate approximation of the number of farm size dimensions which could be distinguished in the study area. The fifteen variables used were essentially production variables and were frequently interrelated. The test results indicate that five production-level types of farms are present in the study area. This offers an important refinement to the previous size terms "large" and "small" operations. Unfortunately, the output from this statistical programme permits neither a more detailed analysis using this refined size classification nor a list of the components of the size classification. A multiple regression analysis could have been undertaken to model the various sizes of fringe farms, however, such an undertaking was essentially a duplication of the discriminant analysis test.

One of the most concise methods of integrating the findings from the descriptive analysis section is to present a description of the model fringe farmer and his decision context.

The Model Fringe Farmer

The model farmer on Toronto's fringe is a 44 year old man operating a 120-acre dairy farm. He inherited the farm from his father 13 years ago, making him the third generation to farm this land.

During the past twenty years, the operation has gradually specialized from mixed livestock to dairy. At present, the operation produces 904 pounds of fluid milk daily, considerably above the Provincial average. The operation is about as large as one man can handle.

The trend towards specialization and mechanization has resulted in the need for more land for expansion. However, it is no longer possible to purchase land for farming purposes as farmland is selling for between \$2,000 and \$4,000 per acre. As a result, he rents 136 acres from speculators in the area. The one year leases are not satisfactory, for it takes several years to get the land into proper tilth. The operation is highly capital intensive. He has an estimated \$43,700 in fixed assets that would go with the farm in the event of a sale and an estimated \$41,750 in livestock and machinery. Although the operation is not as modern as he would like, nevertheless, it does yield a satisfactory income. Last year the operation's gross income was \$25,000, which yielded a net¹ income of \$7,500.

¹ The term "net" is synonymous with taxable income.

One of the major considerations facing the farmer in recent years has been the rapid rate of land appreciation in the area. He has been aware that land prices have exceeded agricultural worth for 10.1 years. Judging by the way the City has been expanding, he has resolved that he will eventually have to relocate. He made that decision 4.4 years ago. The question foremost in his mind at present is "When is the proper time to sell out?" The model farmer's son is too young to be certain about continuing in farming as a career. On the other hand, if he waits much longer, he will be too old to start fixing up another operation. A major impediment to moving is that he has grown up in this community and has come to know his neighbours well. Forty-four is too young to retire and if he did decide to retire he wouldn't know how to occupy his time. He has never done any type of work other than farming.

The above description outlines a model decision context for a fringe farmer. Figure 5 presented the author's conceptualization of the systematic way the various alternatives are resolved.

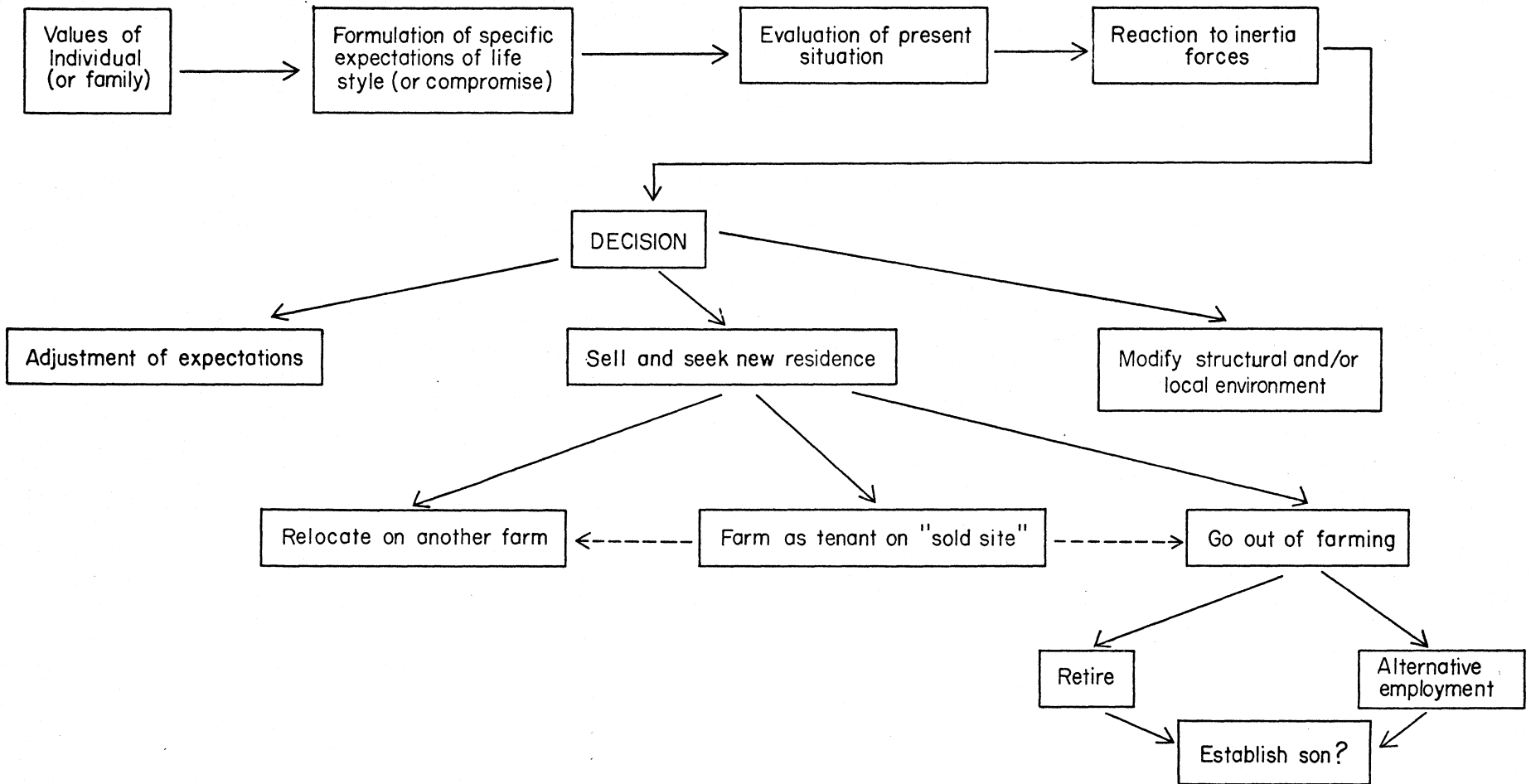


Fig. 5.

Discriminant analysis was conducted using the 15 variables outlined in Table 3. Discriminant analysis computes a linear function using all 15 variables. Observations are placed on the linear function in relation to their computed mean distance from the line.¹ The results show quite markedly the distinction between the "mover" and "stayer" groups. (See Table 2.) The reader will note that with the exception of a few "stayers" who are more like the "movers" than the "stayers" the distinction is quite clear. As further evidence, the sub-group of "stayers" who would not sell "at any price" were near the polar extreme of their grouping.

"t" tests were conducted on the 15 variables used in the discriminant analysis programme. Basically "t" tests are a measure of the variation of the means of the two groups; in this case, the "movers" and "stayers" from the overall computed mean for the two groups combined.² Statistical tables provide a means of determining whether or not the variations were significant.

¹ For a more detailed discussion of the strengths and weaknesses of this type of analysis, the reader is directed to an article by Les King, "Discriminant Analysis: A review of Recent Theoretical Contributions and Applications" Economic Geographer v. 46, 1970.

² For a detailed description of the assumptions and limitations of the "t" test the reader is referred to David Huntsberger, Elements of Statistical Inference, Allyn and Bacon Inc. Boston 1961, pp. 148-156.

RANK	Stayers	Movers	Stayer ITEM NO.	Mover ITEM NO.
1	.19689		22	
2	.18092		29	
3	.17863		31	
4	.17631		27	
5	.17137		1	
6	.16322		25	
7	.14906		30	
8	.14712		16	
9	.14316		21	
10	.13942		15	
11	.12178		18	
12	.11999		14	
13	.11854		19	
14	.11611		9	
15	.11423		3	
16	.10940		6	
17	.10937		12	
18	.10432		7	
19				
20	.10116	.10232	2	46
21	.10085		26	
22	.09967		28	
23		.09947		10
24	.09939		20	
25		.09758		15
26	.09578		10	
27	.09544		5	
28		.08966		3
29	.08894		17	
30		.08795		42
31		.08513		34
32	.08442		13	
33		.08295		45
34	.08181		23	
35	.07995		11	
36		.07171		4
37	.07151		24	
38		.07073		5
39		.06732		21
40	.06696		8	
41		.06595		8
42		.06588		41
43		.06549		38
44		.06294		23
45	.06277		4	
46		.06084		17
47		.06018		32
48		.05998		33
49		.05531		19
50		.05411		26
51		.05262		2
52		.04989		14
53		.04484		11
54		.04268		22
55		.04239		44
56		.04205		43
57		.04174		27
58		.04155		35
59		.04137		16
60		.04094		37
61		.03965		20
62		.03914		30
63		.03912		28
64		.03777		12
65		.03701		31
66		.03592		7
67		.03497		40
68		.03215		1
69		.02864		24
70		.02447		13
71		.02358		18
72		.01670		6
73		.01510		39
74		.01488		36
75		.01122		25
76		.01119		9
77		.01146		29

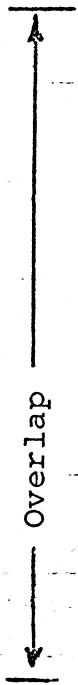


TABLE 3

Variable	t value	Level of Significance
1. Age	t = 9.74	(.005)
2. # Generations	t = 1.99	(.025)
3. # Years Owned	t = 4.52	(.005)
4. % senior partner	t = 2.76	(.005)
5. Acreage owned	t = 8.68	(.005)
6. Total Acreage	t = 44.19	(.005)
7. % dairy specialty	t = 3.12	(.005)
8. Fixed Capital	t = 51.0	(.005)
9. Liquid Capital	t = 6.59	(.005)
10. Cost to Modernize	t = 14.32	(.005)
11. Gross Income	t = 6.11	(.005)
12. Net Income	t = 6.32	(.005)
13. Price Range	t = 16.85	(.005)
14. Years known he would have to move	t = 10.71	(.005)
15. Sale Price obtained/asked	t = 23.9	(.005)

The results of the empirical analysis sections must be considered within the context in which they developed. Several aspects of the Toronto land market during the 1960's were unique to Southern Ontario. First, the investment

"climate" was optimistic. Canada's economy was in an inflationary period and encouraged investment in land. The presence of foreign investment agencies contributed further to the air of optimism. Toronto was undergoing a dramatic population growth due partly to immigration and the migration of young people from smaller centres in Canada and especially Ontario. Capital gains taxes did not apply to land deals; consequently excess corporate profits were invested in the fringe area. The fringe area presented logical and attractive investment opportunities for a variety of types of speculators. The farm population, aware of their proximity to Toronto, were nevertheless unprepared psychologically for rapid urbanization. With the current legislation and development policies, it is unlikely that such a large scale speculative climate will ever again develop. The rapid and widespread nature of the urbanization process in the Toronto area no doubt should be considered when interpreting the study findings. For example, perception of stress or nuisance elements associated with urbanization could not be adequately tested because of the short time duration. No doubt this factor also contributed to the farmer's lack of understanding of the mechanics of the land market and the high degree of uncertainty surrounding land values.

CHAPTER 5. SUMMARY AND CONCLUSIONS

This investigation explores the feasibility of using a decision-making approach to explain changing agricultural land-use patterns in the rural-urban fringe.

A search of the literature uncovered two studies of direct interest to this investigation. Lessinger's test of a classical investment model on orchard growers in California revealed several critical weaknesses in this approach. He felt that reformulation of the investment model into a "hold-out" model based on irrational behaviour was much closer to the real world situation. While Lessinger was unable to analyse the hold-out model, he did observe two factors which he felt contributed to the observed variation. First, he observed that farmers remained only as long as their day-to-day production costs were not excessive. Secondly, he noted a spatial dimension to farm sales prices which he associated with communities of interest among the farmers. He implied a relationship between sales value and propensity to sell but did not expand on this point.

Maisel's descriptive study of a rural-urban fringe area of Los Angeles suggested a similar relationship

existed between land appreciation rates and a farmer's propensity to remain on the farm.

Both studies implied the need to consider variations in individual decision-making as it relates to the land market. Neither researcher, however, explored this approach.

In order to operationalize this study, it was necessary to assume a perfect market for farmland. In this market the main reason why one farm is sold while another isn't, is due to variations in the outcome of individual decisions. The outcome of individual decisions in turn was seen as a function of variations in the mode of perception of the decision context.

The only previous analytic study was conducted in an intensive farming area. Consequently, it was necessary to conduct an exploratory investigation to identify and describe the most important elements which the farmers perceived as influencing their decision. The findings of this study confirmed Lessinger's and Maisel's earlier findings of the importance of the land appreciation component. Farm-level production factors, nuisance elements and intrinsic attachments to the property were perceived as relatively unimportant at the group level.

Further probing along this line revealed a definite temporal dimension to the decision-making process. On the average, this period extended over 4.4 years. The first stage of this sequence was the realization that they would eventually have to relocate. Figure 5 provides an approximation of the components of this stage. It appears that it is related to some combination of their perception of the rate of urbanization and the rate of land appreciation. It was discovered that all those who had sold as well as 85% of those who still own their farms have reached this initial "realization" stage. Sometime between this initial stage and the final "decision-to-sell" stage, the individual arrives at a selling price. A critical determinant in the decision to sell was the farmer's appraisal of the selling price of his property.

An investigation of the decision context revealed that, in the majority of cases where the farmer sold, his appraisal of market value was not based on familiarity with the land market. Frequently, the sales value was hastily formulated as a deception strategy for discouraging interruptions from realtors. The research revealed that 75% of the non-sellers had also formulated selling prices. These prices, however, appear much closer to actual market worth. On the average, these prices are 300% higher than

those formulated by the seller group. One is tempted to infer from these findings that many of the seller group unknowingly encouraged land speculation by listing their farms at attractive investment prices. Undoubtedly, error in their judgement can be attributed in part to the high degree of uncertainty which prevails in the fringe land market.

An exploratory investigation was undertaken to see to what extent variations in socio-economic characteristics of the individual and his operation could account for the observed variation in response. A correlation analysis revealed a positive relationship between the price at which the individual sold or said he would sell and his gross income $r = .48$, his net income $r = .43$ and his milk quota $r = .42$. All are significant at the .01 level. Table 1 provides a summary of these and other correlations.

A t-test and discriminant analysis test provided support for the hypothesis that there were significant variations between the seller and non-sellers for the variables tested at a group level. (See Tables 2 and 3)

CONCLUSIONS

In conclusion, this investigation provides support for the utility of the decision-making approach as a means of explaining changing agricultural land-use patterns in urban fringe areas. The study confirmed the importance of the land appreciation element in the farmer's decision context.

Future researchers should consider the elements which are used to formulate this value. The findings of this study suggest a strong relationship between this price and the economic viability of the operation as measured by gross and net income and size of milk quota.

This study has contributed to behavioural geography by identifying and describing important elements in the farmer's decision-making context. In so doing, it has provided a focus for future perception studies in this area. This study has also provided the essential background for the development of a more accurate land-use change model.

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APPENDIX

PERSONAL INTERVIEW QUESTIONNAIRE

NAME _____ AGE _____ TELEPHONE _____

MAILING ADDRESS _____

1. How many generations has your family farmed? _____

2. When did you first become a farm owner? _____

Specify questions related to each of the farms this farmer operated.

Location	<u>FIRST FARM</u>		<u>SECOND FARM</u>		<u>THIRD FARM</u>	
	Lot__	Con__	Lot__	Con__	Lot__	Con__
	Twp__	Cty__	Twp__	Cty__	Twp__	Cty__
How did you acquire the farm?						
Type of operation						
Acreage workable/total Ac.						
Acreage rented workable (Aver.)						
No. of years on farm						
Intended use of farm by purchaser						

4. How would you compare your standard of living now with what it was on your previous farm?

5. What would you say was your general feeling towards farming as a profession before the offer to purchase your former farm?
 Excellent Good Indifferent Fair Poor

6. What were the main reasons why you decided to stay in farming?

7. The following are some of the reasons why a farmer who sold his farm might decide to relocate and continue in farming. Please indicate what importance these reasons had on your decision.

1. Very important 2. Important 3. Undecided 4. Not very important
 5. Had no bearing

- a) To establish a son in farming _____
- b) You were too young to retire _____
- c) Other jobs were available but none which you liked _____
- d) Lacked the training in some other line of work to provide you with the same standard of living which you enjoyed in the past _____
- e) Have a sincere love for the land and love farming as a way of life _____

g) Prefer to invest your capital in land rather than in stocks and securities _____

8. Did the conditions of sale of your previous farm force you to relocate immediately? _____

If not, how long did you anticipate you would have been able to remain on the former farm? _____ months.

9. What time elapsed between the initial offer to purchase and your acceptance of the offer? _____ months.

10. What period of time elapsed between your acceptance of the offer and the finalization of the deal? _____ months.

11. When did you make the decision to purchase another farm? (relative to the time of the initial offer to purchase the former farm) _____ months.

12. When did you make the offer to purchase this farm (with respect to the decision to accept the offer on your former farm)?

13. At the time of sale, did you have any sons who showed an interest or were engaged in farming as a profession? _____ Number _____

	Would you still have relocated	If yes, where?	If no, what would you have done?	Size of farm	Type of operation
For farmers who have no sons (or no interested sons)-if you had sons: a) interested in farming b) active in farming.					
For farmers who had interested sons- a) if you had no sons.					

14. Listed below are some of the means that you might have employed to search for a new farm. (show to farmer)

Means to find a new farm	Rank in time sequence	Rank in order of usefulness	How was this farm found	Remarks
Real estate				
Advertisements				
Friends				
Drive around countryside				
Other (specify)				

15. If you employed a real estate agent(s) how did you select him? _____
Name? _____

16. Listed below are a number of farming regions corresponding to areas indicated on the map (present road map). Indicate whether you would classify them as: 1. Attractive 2. Indifferent 3. Unattractive for your type of farming (Col. 1)

Indicate whether you had considered farms in that area. (Col. 2)

Name of area	Col. 1	Col. 2	Comments
Sarnia/Chatham/Windsor			
London/Woodstock			
Niagara Peninsula			
Stratford to Goderich			
Guelph/Kitchener/Waterloo			
Grey & Bruce Counties			
Palmerston to Orangeville			
Simcoe County			
South of Lake Simcoe			
Lake Simcoe to Peterborough			
Oshawa to Belleville			
East of Belleville			

17. Why did you choose this area? _____
18. If farm land prices had been uniform throughout the province after your sale, in what area would you have preferred to relocate assuming a suitable farm was available there? _____
Why? _____
19. If you had been in one of the other types of farming listed below indicate in which area you would have preferred to relocate.

Farm type	Same area	Undecided	Different area (specify)
Mixed			
Hogs			
Dairy			
Beef			
Grain			

20. What was the minimum workable acreage that you had in mind when searching for a new farm? _____ The maximum _____
21. At what age would you not consider relocating? _____
22. At what age would you like to retire? _____
23. Had you been 40 where might you have relocated? _____
24. Had you been 50 where might you have relocated? _____
25. Had you been 60 where might you have relocated? _____
26. In choosing a farm what were the most important requirements that the farm had to satisfy? _____

27. The following are considerations which a farmer might take into account when searching for a new farm. Please indicate how important each is to you.
 1. - very important; 2 - important; 3-undecided; 4 - not very important; 5 - no bearing.

	1, 2, 3, 4, 5	Rank
a) Land prices between \$300-\$400 per acre.		
b) Layout of farm buildings		
c) Location near a main highway		
d) Well-drained soils		
e) Familiar soil type		
f) Nearness of a town		
g) Located on a school bus route		
h) Highly productive soils		
i) Distance children have to travel to school		
j) Farm well suited for modern equipment		
k) Length of laneway		
l) Located within easy driving distance of former community		
m) Won't be pressured to move again before retirement		
n) The presence of friends or relatives in the new area		
o) Availability of off-farm work for yourself		
p) Availability of off-farm work for your wife		
q) Good potential for speculation		
r) Very few improvements required on new farm		
s) House has all the modern conveniences		
t) Buildings well suited to your type of operation		
u) Farm has potential for intensification		
v) Surrounding area has potential for farm expansion		

Of those which you indicated as being very important which two do you consider the most important and how would you rank them? (Column #2)

28. Was your first impression of this farm _____

1. Very important; 2. Important; 3. Not very important; 4. No importance.

29. How would you rate the strength of your community ties with the former community at the time you relocated? _____

1. Very strong; 2. Strong; 3. Moderate; 4. Weak; 5. Very weak.

30. How many farms did you consider seriously before choosing this one? _____
31. What were the main characteristics of this farm that attracted you to it? _____
_____.
32. Did you sacrifice any of the requirements that you felt a new farm should fulfill? _____ Explain _____
_____.
33. What influence did your wife have on your decision to relocate here? _____
_____.
34. Looking back, how do you feel about having purchased this farm? _____
_____.
35. Following are some things which have been said by farmers who have relocated within farming. Would you:
1. strongly agree; 2. agree; 3. disagree; 4. strongly disagree
a) When purchasing a farm, the farmer should attempt to make as small a down payment as possible _____
b) Farmers should have more leisure time _____
c) If a farmer has the capital he should take advantage of all the latest labour-saving machinery. _____
d) A farmer should maintain a large working capital _____
e) If a farmer has sufficient capital he shouldn't work as hard _____

36. Do you anticipate moving again within the farming profession? _____
37. From the experience gained from your first move, what things would you do differently if you relocate again? _____

Why? _____

38. Other comments _____

Dear

During the past summer, I visited you at your farm to ask questions concerning the circumstances surrounding your move to your present farm. After analysing the information collected, I find that I require additional information to clarify a number of points. I could make better use of the information you have provided if you would answer the questions contained in the enclosed questionnaire.

I detected among some farmers the feeling that their experiences were insignificant and therefore of little value to our research project. Let me assure you that such is not the case. It is only by the inclusion of all possible types of experiences that our report can be accurate. If when filling in your answers you feel some questions are too personal, merely mark these questions "personal", and complete the remaining parts. As before, I assure you that your reply will be kept strictly confidential.

Thank you for your cooperation and for the assistance you have already provided. I hope you will take a few minutes to complete the questionnaire and return it in the self-addressed, stamped envelope which is enclosed.

If you are interested in receiving information about the findings of this study, please indicate on the questionnaire and we will be happy to send you a summary of the results.

Yours Sincerely,

David Maas,
Graduate Student
McMaster University.

MAIL- BACK QUESTIONNAIRE

Name _____

The following are factors which may have influenced your family's decision to move off the former farm. Check (✓) the response category which best describes how you felt at the time of the decision.

- | | Very
Important
Consideration | a
Consid-
eration | Had no
Bearing |
|--|------------------------------------|-------------------------|-------------------|
| 1. you wanted the challenge of building up your own operation | | | |
| 2. crisis in family made it desirable to move away from that farm | | | |
| 3. change in family structure made the operation no longer suitable (example, son marries) | | | |
| 4. felt moving would partially solve estate tax problem | | | |
| 5. strong disagreement between partners as to how the operation should be run | | | |
| 6. wanted your children to grow up in a 'more rural' environment | | | |
| 7. became aware of an attractive farm selling at a reasonable price | | | |
| 8. wanted to move to where you wouldn't be disturbed again in your lifetime | | | |
| 9. an offer was made on your farm that was 'just too good to resist' | | | |
| 10. felt if you turned down this offer you might wait a long time for a better one | | | |
| 11. farm was not large enough to make a living on | | | |
| 12. felt land prices in your area would not rise much beyond what you were offered | | | |
| 13. the offer would allow you to buy an equally good farm and still have money left over | | | |
| 14. taxes were far too high for farming | | | |
| 15. pressured by other family members to move | | | |
| 16. the area was too congested for your liking (traffic etc.) | | | |
| 17. realized you would have to move some day anyway | | | |

Very Important Consideration	a Consid- eration	Had no Bearing
------------------------------------	-------------------------	-------------------

18. relatives would resent the farm going out of
the family name
19. life was too routine, wanted a change and
new experiences
20. moving was too great an inconvenience
21. strong pressure from within family to
'stay put'
22. farm would require major repairs if you
were to stay much longer
23. farm unsuited to the type of operation you
wanted to have
24. suffered from a lack of adequate working
capital
25. were you forced to sell to settle the estate Yes No
26. selling appeared the only way you could get
ahead
27. wanted to get out on your own
28. desired more leisure time
29. selling was the only way the son could get a
start
30. felt if you waited any longer you would be
too old to start another operation
31. other reasons (specify on the back)

Looking back, are there any of the above factors which were key to making the decision to move...circle them if so.

1. What would you estimate your fixed capital was on the farm to the south?
(house, barns, silos etc.)\$ _____
2. If you had had an auction and sold all your livestock and equipment what
would you have expected to get? \$ _____
3. What would you estimate that farmland was worth strictly for agriculture?
\$ _____ per acre
4. How long prior to the sale had land values exceeded the above figure? _____
5. Had you established a price in your mind and decided you would sell if
an offer was made that met this figure? Yes No

3.

6. If so, what was this figure in your case? \$ _____ per acre
7. Suppose you were guaranteed that your farm would have been worth \$500 more per acre than you got, would you have stayed until now? Yes No
8. What was the purchase price of your present operation? _____ per acre
9. How would you rate the productivity of your present farm with that of your previous one? Better Similar Poorer
10. How much capital would have been required to adequately modernize the former farm? \$ _____
11. What was the sale value of your previous farm? \$ _____ per acre
12. How long had you realized that you would eventually have to move?
_____ years prior to the sale
13. What was the approximate gross income that the farm returned on the year prior to the sale? \$ _____
14. What would you estimate the net return was during that year? \$ _____
15. What percent of the operation did you own? _____%
16. If you had been operating at a financial loss prior to the sale, for how long? _____
17. What would you say is a reasonable net income for yourself for a year?
\$ _____
18. If the farm to the south had been zoned permanently for agriculture uses only prior to your sale what would your reaction have been?
Strong resentment Uncertain Happy
19. Following the sale were you placed in a financial position where you could have retired? Yes No

Thank you very much for completing this form. Please return it in the enclosed stamped envelop.

"STAYER"

PERSONAL INTERVIEW QUESTIONNAIRE

Section A: Name _____ Age _____

Telephone _____

1. How many generations has your family farmed this farm?
_____/____ years.
2. Years you have owned this farm _____ How was it
acquired? _____
3. What was the purchase price you paid for this farm?
(same acreage?) _____
4. Ownership type: Full Partnership Father-son Brothers
Other _____
Part time _____ Other type of employment _____
Tenant _____ Did he own this farm previously? _____
5. Acreage: Total/workable Acreage rented on the average year
_____/____
%/ac. _____/ac.
6. What % of your total income is derived from dairying?

7. What are other sources of farm income? _____

8. What are your future plans with respect to farming? Do
you expect to be making changes in the near future?

9. What adjustments have you made to your farm operation in
the past 10 years? eg. consolidation, sold some land,
large capital investments, purchased additional land,
not invested any capital in improvements. _____

Section B: Economic Considerations

10. What would you estimate your fixed capital to be on this farm (or your farms if he owns more than one)? \$ _____
Fixed is defined as buildings, silos, drainage systems i.e. things that must be sold with the property.
11. If you had an auction sale and sold all your livestock and machinery what would you expect to get? \$ _____
12. What is your annual holding cost for this farm?
i.e. taxes/year \$ _____
insurances _____
13. How much capital do you estimate it would require to fully modernize your operation? \$ _____
14. What would you estimate this operation grosses on an average year? \$ _____
15. What does it net? \$ _____
16. Have the above figures changed significantly in recent years? Yes No
Why? _____

17. What would you estimate this land is worth strictly for farming purposes? \$ _____/ac.
How long has this value been exceeded? _____ years.
18. What would you estimate the current market value is per acre? \$ _____
19. Have you sold any land in recent years? _____
If so, how much and price _____
20. Why haven't you sold your farm yet? _____

- Have you had any offers to purchase? _____ If so, when?
_____ For how much? \$ _____/ac.
21. Have you set a price in your mind and decided to sell if someone meets this price? _____
If so, what is this value per acre? \$ _____
22. If you sold what would you likely do? _____

Where would you move to? _____

23. If searching for a farm, where would you look first?

Preferred distance to move _____

Why there? _____

Preferred type _____ Size _____ Price per acre \$ _____

24. What features does this farm lack that you would like to have? _____

25. How would you feel if this area was zoned permanently for agricultural uses only? _____

26. Do you think you will eventually have to move? If so approximately when _____ years.

How long have you felt this way? _____ years.

27. What things would you miss most if you moved out of this area? _____
