The Impact of The Weyburn Inland Terminal On Rural Communities

Some Preliminary Results

A Report
Submitted to the
DEPARTMENT OF REGIONAL
ECONOMIC EXPANSION
REGINA

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MAY, 1980

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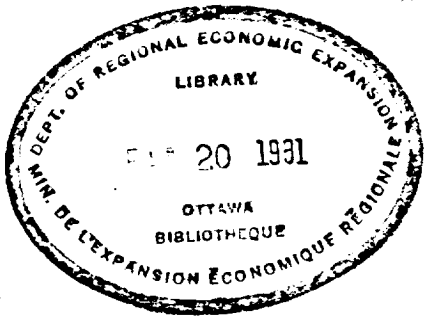

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ACKNOWLEDGEMENTS

This report is based on an earlier draft report submitted to DREE by Dr. D.G. Devine and E. Dessouki, entitled, "An Examination of Selected Socio-Economic Implications of the Weyburn Inland Grain Terminal," dated August 1, 1979. Although this report expands the presentation on the above report, the author takes full responsibility for any errors, omissions, or interpretation of facts. Many valuable suggestions were received from Professor R.C. Nicholson on earlier drafts of this report. The report also benefited from comments made by Professors George Lee and Tom Johnson.

Financial support for this report was provided by the Department of Regional Economic Expansion (DREE), Regina. This is gratefully acknowledged. Many helpful suggestions were also received from Messrs. Ken White, and Vern Wheeler of DREE.

Messrs. Don Hinz, Darrel Tochor and Ms. Shelley Thompson provided invaluable assistance in collection and analysis of data, including computer work. Computer programming help provided by Mr. Kevin Corr, and technical editorial assistance provided by Mr. Clare Fairbairn are gratefully acknowledged. Ms. Terri Kristjanson assisted in the preparation of developing the Executive Summary. Final thanks to Ms. Debbie Stefaniuk and Mrs. Lynne Sargeant for doing a meticulous job of typing various drafts of this report.

Opinions expressed in this report do not reflect those of DREE or of the University of Saskatchewan.

S.N. Kulshreshtha

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EXECUTIVE SUMMARY

The construction of a producer-owned terminal in Weyburn in the fall of 1976 signalled a significant change in the approach toward different kinds of grain handling systems. The inland terminal promised to alleviate a great deal of local Weyburn region concerns expressed in recent years about the inefficiencies of our system. The Weyburn Inland Terminal (WIT), promoted and owned by local producers, is capable of storing one million bushels of grain. Due to the magnitude of the difference in this type of system as compared to the more common country elevator system, this project has been considered a controversial milestone in the industrial and social development of rural Saskatchewan.

The terminal has stirred controversy about the effect it would have on the grain handling and transportation system and, in addition, on related institutions and other sectors of the economy. The high degree of concern is probably due to a lack of knowledge about the nature and magnitude of the terminal's impact. To partially fill this gap, the Department of Regional Economics Expansion, Regina, sponsored this study to investigate the impact of the WIT on rural communities in the Weyburn region. The study was undertaken with the primary objective of assessing the changes that have occurred since the WIT was planned and since its operations began. Changes in the grain handling system, the population of various communities, the level of economic activity--as measured by the taxable assessment--and the services provided by the trade center were identified to be of key interest.

This study examines the relevant changes in the Weyburn region for the period 1961-1978.[1/] The period prior to the construction of the terminal is studied to illustrate the regional system. In addition, with the hope that a relative comparison might lead to a better diagnosis of the impact of the terminal, events in the Kindersley region are also monitored over a similar period. The 1961-1979 period can be broadly divided as follows:

1961-1973	Pre-WIT Period
1973-1976	Planning and Construction of the WIT
1977-1978(9)	Operation of the WIT

Since the study is based on only two (or three) years of data, it should be noted that this period may not be long enough to reveal all

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[1/] Analysis was extended to 1979 where data permitted.

relevant economic effects on communities.

The impact of the Inland Terminal at Weyburn was tested by examining a control region where no terminal was planned, and a test region where the terminal was planned. Both regions were studied before and after the introduction of the stimulus--the inland terminal. The test region was defined as the City of Weyburn and an area 60 miles in radius around Weyburn. The control region was the Kindersley area. Location of these regions is shown in Figure 4.1 (see page 36).

An Historical Perspective on the Weyburn Inland Terminal

This section reviews some of the significant changes in government policy on grain handling and transportation. This review is intended as historical background to the development of the inland terminal system on the prairies.

Most of the development of the grain handling system on the prairies took place prior to 1960, at which time the number of elevators in existence peaked. Although capacity of elevators is increasing, numbers of both elevators and delivery points have tended to decline (See Figure 2.2, on page 4 of this report).

In 1961, the McPherson Royal Commission was established to examine problems relating to railway transportation, freight rates, and railway deficits. The 1967 National Transportation Act accomplished this in two ways: (1) direct subsidies were abolished, but an allowance for claims for specific branch lines was established; and (2) railways were allowed to abandon the operation of uneconomic branch lines, and (3) the statutory freight rates[1/] on grains were allowed to be maintained. However, there was a freeze on any abandonment until December, 1974. It was hoped that the problems associated with the grain handling system could be studied more closely and a systematic approach to rail line abandonment could be developed.

In 1969, a Grains Group was appointed by the Minister responsible for the Canadian Wheat Board. The Grains Group included representatives

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1/ These rates are commonly known as the Crowsnest Pass Agreement rates.

from railways, elevator companies, and other institutions involved in grain transportation. The purpose of the group was to study the system and suggest possible changes in the grain handling system at present or in the future. They concluded that a totally new system was necessary. A comparison of costs of several alternative systems indicated that an inland terminal system was the cheapest, in 1969 dollars. The cost was 38.7 cents per bushel, compared to 49.2 cents per bushel in the existing system. The inland terminal system would have a suggested 80 terminals, with a total storage capacity of 200 million bushels. The existing system, in contrast, had 5,000 elevators and a 390 million bushel storage capacity. But there were several reasons why inland terminals were not preferred: (1) hauling distance would increase to an average of 62.7 miles instead of the 7 mile average in 1969; (2) not all costs had been included in the estimation; (3) there would be a large reduction in storage capacity; and (4) the cost of designing an entirely new system was high. The findings of the Grains Group were widely discussed. This discussion led to conflict among the various groups involved.

The period during 1971 and 1979 witnessed a number of developments related to designing an alternate grain handling and transportation system in Western Canada. Between 1971 and 1976, the Canada Grains Council initiated area studies, one in the Brandon area, and the other in Area 11 of Saskatchewan and Alberta. On December 20, 1974, the federal government provided protection against abandonment for 12,413 miles of branch line, called "Basic Net Work". In April, 1975, the federal government appointed a Commission of Inquiry to be known as "Grain Handling and Transportation Commission." This Commission in May, 1977, recommended for the abandonment of 2,165 miles of branch lines. Another 1,813 miles of branch lines, during 1978 were examined by Prairie Rail Action Committee.

During the 1975-1979 period, three other inquiries into the grain handling system are noteworthy: one, the cost of transporting grain became a topic of inquiry by a Commission under the direction of Carl Snavely. Two, during 1978, the Grains Group employed the services of Booz-Allen and Hamilton, Inc. (a consulting firm) to analyze the existing and future operations of the grain handling system, and three, in the

fall of 1979, the minister-in-charge of the Canadian Wheat Board appointed a task force.

During the period between 1971 and 1979, Canada's export performance was criticized. Canada was losing sales, it was said, because of an inadequate transportation system (See bottom part of Figure 2.2, on page 14). Some of the major bottlenecks and concerns in the system included: port terminal capacity, especially that for cleaning grain; number of trains passing through the mountains; and labour trouble on the west coast. These were some of the factors which contributed to the development of the inland terminal at Weyburn. The following reasons were given in support of the inland terminal system.[1/]

(1) Grain should be cleaned inland because (a) uncleaned grain is accompanied by dockage, which reduces its possibilities for alternative uses; (b) labour costs would be lower on the prairies than at the coast; (c) labour stability would likely be better on the prairies; (d) land costs are lower inland; and (e) cleaned grain could be shipped through alternate ports.

(2) Improvements are needed in the cleaning process, in terms of both machinery and equipment, at port terminals.

(3) The plant should contain relatively few pieces of large machinery rather than many small units, as is the case in the present country elevator system.

(4) Centralized control allows operations by a relatively small staff.

(5) Operations would be more efficient with the inland terminal system than was possible in the past.

Arguments in favor also included:

(6) Cleaning grain inland would ease the burden on the cleaning facilities at the west coast, and

(7) The screenings would be available to those who could make the best use of them--the prairie livestock feeders.

In 1974, the Minister in charge of the Canadian Wheat Board authorized a feasibility study of an inland terminal at Weyburn. Based on the recommendation of this report, construction of the terminal was started in 1975 and completed in 1976.

[1/] Based on the Grains Group Study (1970).

The WIT has a storage capacity of one million bushels and a dumping capacity of 30 trucks per hour. The capacity of the receiving conveyor and shipping conveyor and leg is 45,000 bu./hr. The drying facility can handle 3,500 bu./hr. and it is possible to load 100 hopper cars per eight hour shift.

The WIT opened its doors in November, 1976. The terminal concept was sold to its shareholders on the basis of its ability to handle 20 million bushels (540,000 tonnes) of throughput during a normal year of operation. These expectations have not yet been met. Table 5.9 (on page 64) indicates the degree to which the terminal was used in each of the crop years since it opened. Throughput has increased each year since the terminal opened, but it is still not being as efficiently used as is technically possible. For example, during 1978-1979, the throughput was only 25 percent of the expected throughput. There is a lack of precise information available on the origin of the grain handled by the WIT. However, WIT officials estimate that some 95 percent of grain being shipped to the terminal originates within a radius of 75 miles around Weyburn.

The announcement of the construction of the terminal brought with it a stream of controversy. Arguments in favor of the inland terminal suggested that it would vastly improve the efficiency and capability of the grain handling system. Arguments against the terminal maintained that it would contribute to rail line abandonment, the abolition of the Crowsnest Pass Agreement rate,[1/] the depopulation of rural Saskatchewan, and other deleterious effects. The effect of the WIT on rural communities was much harder to determine, compared to other effects, because of at least two reasons: the issues related to economic effects are inter-related and somewhat complex and, therefore, devising solutions may not be easy; and recieved literature has shown conflicting conclusions regarding the relationship between the grain handling system and community viability. To this effect, a conceptual framework was designed to identify the impact of an inland terminal in a region.

[1/] These rates are as a result of an 1897 agreement between the Dominion of Canada and the Canadian Pacific railways. The producers' charge for shipping grain has been frozen at the 1899 level, for all grains moved for exports, and to Thunder Bay.

A Conceptual Framework for the Impact of a Terminal on Rural Communities

A community can be identified in several ways: (1) by geographical boundaries; (2) by the people who live there, and their round of activities; and (3) by their quality of life and their social climate. The concept of a community which is most relevant for a study of this nature can appropriately be called a "trade centre system." Centrality is the key component of this system. Consumers want a place they can visit on a regular basis and where they can conduct business with a minimum of effort. This is the basic proposition of the Central Place Theory that is most widely used to explain a community system or a trade centre system.

Changes in the system can be of two types, economic and social. This study will only consider the economic impact of a change in the system. Figure 3.1 (on page 34) indicates a conceptual basis for measuring the economic impact of an exogenous change--an inland terminal--on rural communities.

One of the most important effects of the introduction of a grain terminal is the diversion of grain from existing delivery points to the terminal. To justify its existence on economic grounds, the terminal must draw between 10 and 20 million bushels of grain in any given year. Since grain production and demand have remained relatively constant, an increased delivery to the terminal must come at the expense of reduced deliveries to existing elevators. This may have many consequences. The short run effects would be lower profits to elevators, layoffs, and a lower real income in the community. Elevator companies might consolidate elevators or close some points down. With some elevator points closed down, a branch railway might become uneconomic and eventually a target for abandonment. There are also consequences associated with the location of farm and family services. A loss of grain deliveries leads to some services being obtained elsewhere and would then result in a reduction in economic activity. The community focus would also change as a result of the introduction of an inland terminal. However, these changes may also be affected by other factors not related to grain handling.

A loss to the community would affect employment, and in turn affect the population of the community. A loss of a rail line would

mean increased transportation cost to both consumers and producers. The consumer would experience increased consumer prices, resulting in reduced purchasing power and reduced economic activity. To the producers, there would be higher costs associated with transporting goods to market. This would lead to lower real incomes and would affect local demand. Losses would also be felt by the rural and urban municipalities in the community in the form of lower taxable assessment, and, therefore, lower revenue to the community.

The Central Place Theory defines a community as a service centre from which goods and economic services are made available to people in the centre as well as in the surrounding hinterland area. The range of service is the maximum distance at which a population is still willing to purchase a service at a central place. The demand threshold is the minimum level of population or income required to support a particular service. Because of differing range and threshold requirements, there has developed an order to community systems. Examples of lower order services are grocery stores, general stores, coffee shops, post offices, and grain elevators. The higher order services include stores of various types (hardware, furniture, drug, etc.) medical offices, dry cleaners, and banks. These types of services are usually available in towns. The next higher order services are local government offices, jewellers, shoe and clothing stores, department stores, shopping malls, and hospitals.

Centres which possess higher order services would serve a broader market area including the market areas of all lower order centres within the system. If a lower order centre is located close to a higher order centre which supplies many lower order services, the lower order centres are likely to lose their business to the higher order centre. The competitiveness of a centre is based on its ability to provide the goods and services required by the community and surrounding area. Larger centres have a distinct competitive advantage because of the wide variety of services that are offered, and therefore tend to grow faster.

Measurement of Community Viability

The measurement of community viability is very difficult. An appropriate measure (index) must be found to capture the quantity of socio-economic welfare over time. Several methods were considered

and it was decided that the most appropriate measure of economic welfare was the taxable assessment of the community. This proved to be the best proxy, as it an appropriate measure of economic plus availability of data lends strength to this method of measurement. A taxable assessment index is less arbitrary than other indices which have been developed.

In order to determine the impact of the WIT on community viability, a number of data series related to the important characteristics (identified in Figure 3.1) were collected. These include: (1) Grain handling characteristics for the two regions particularly number and capacity of grain elevators, number of companies, and receipts of grain by all elevators; (2) Population of the community; (3) Economic activity in the region, particularly the number and type of services available, (4) municipal taxable assessment for various communities and (5) municipal revenues and expenditures. Other characteristics used dealt with location and physical environment.

General Characteristics of the Weyburn Region

Selected characteristics of the Weyburn region are shown in Tables 4.1 and 4.2 (on pages 35 and 38). The region is predominantly a grain producing one and has a high proportion of large farms. The urban communities (cities, towns, and hamlets) around Weyburn are shown in Figure 2.3 (on page 18).

In terms of changes in population, within a 40-mile radius of each city, Weyburn experienced almost half the relative decline that Kindersley did. The largest decline was within an 11-20 mile radius of both centres, with Kindersley experiencing the greater decline.

Growth in taxable assessment within a 40-mile radius of both centres was similar. Over the period 1961-1979, there was a significant and similar decline in the number of business establishments in each region. However, there was a slightly lower decrease in the 11-20 mile radius of Weyburn than Kindersley.

From 1961-62 to 1975-76, there was an increase in postal revenues in both regions. School enrollment declined from 1961 to 1973. This was most significant within a 20-mile radius of each centre. In the Kindersley region, the most rapid decline occurred within an 11-20 mile

radius of the centre. Weyburn had a greater decline in the 21-40 mile radius than did Kindersley.

Most communities experienced a decline in elevator capacity from 1961 to 1979. Kindersley usually experienced a smaller decline during this entire period than Weyburn in any given year. The number of elevators and number of delivery points have also declined over this period. The largest decline in elevator capacity occurred during 1973-1978 in the Weyburn region, but for the 31-40 mile radius.

The Impact of the Inland Terminal on Communities

Analysis of the impact of the Weyburn Inland Terminal on communities can be divided into four sections: (1) impact on the grain handling system; (2) impact on population; (3) impact on taxable assessment; and (4) impact on changes in business establishments. These impacts are analyzed individually and in some cases different data bases are used.

(1) Impact on the grain handling system

There are two aspect of changes in grain handling system which warrant attention: (a) How has the Weyburn Inland Terminal changed the patterns of expansion (or decline) in the grain handling capability in the surrounding area, (b) How is the throughput of grain in the region influenced by the operation of the terminal? An historical perspective on elevator closures is provided by Figure 6.1 (on page 67). The peak year for elevator closures was 1972. Based on cross-tabular and multiple regression analyses, certain observations can be made. The WIT has had an insignificant effect on elevator capacity adjustments. Along with this, it was noted that the relative change in elevator receipts has declined in the Weyburn area. The decline in receipts is negatively related to distance from Webyurn (receipts for elevators located further away from the WIT had a sharper decline than those nearby). It was decided that no clear pattern of impact can be seen.

(2) Impact on population

This study was carried out using multiple regression. During the

period from 1961 to 1976, the population was declining in all areas by approximately the same amount (See Table 6.7 on page 78). This trend was reversed during the period between 1976 and 1979, as the population in both the Weyburn and Kindersley regions increased. However, Weyburn's population increased at a slower rate than did that of Kindersley. The growth rate of the population was determined by certain factors. The growth rate was negative if the community's population was declining since 1961 and the effect of distance on the growth rate was negative but insignificant. During the 1976-1979 period (the post-WIT period), the population growth in the Weyburn region was higher than that for Kindersley region. The previous trends in population (as indicated by the type of community) were not significant determinants of annual population growth. The distance to a major centre was positively related, but it was insignificant.

(3) Impact on taxable assessment

Analysis of changes in taxable assessment was carried out using a combined cross-tabulation and a cross-section--time series regression analysis. Two types of taxable assessments were analyzed: (a) urban and non-farm assessment for some 44 centres in the two regions, and (b) taxable assessment of rural municipalities.

During the period 1973-75, communities in the 11-20 mile range around Weyburn experienced a decreased level of economic activity, which means a decreased taxable assessment (see Table 6.11 on page 86). However, during the period 1975-78, growth in the 11-20 mile radius was positive and of a similar magnitude. If one were to conclude that the WIT deterred the growth of surrounding communities during 1973-75, the evidence for the 1975-78 period does not support it beyond 1975.

Taxable assessment was hypothesized to be affected by population, distance from a major centre, and elevator capacity. Population was found to be a positive and significant variable, while distance from a major centre was found to be positive and insignificant. The elevator numbers was found to have a positive relationship. Also used were binary variables for region and time period characteristics. The time binary variables were found to be insignificant.

A separate analysis was also conducted using disaggregate taxable assessment data for each year in each region. While it was found that population was positive and significant for all time periods, in both regions other factors had a somewhat mixed effect. For example, postal revenue in Weyburn was found to be negative and significant in 1966, 1971, and 1975. In Weyburn, during 1961 and 1971, school enrollment was positive, but insignificant. The number of hospital beds had a positive and significant impact on taxable assessment in Weyburn in 1966.

Several interesting observations became apparent in examining the impact of elevator numbers and elevator capacity on taxable assessment. With respect to elevator numbers, in Weyburn this was found to be positive and insignificant. In Kindersley, the relationship was negative, except for 1961. This was only significant in 1961 and 1966. In Weyburn, the impact of elevator capacity was negative, while in Kindersley it was positive. It was occasionally significant in both regions.

The study of rural taxable assessment is limited to 1972-1977. Taxable assessment tended to increase during this period. During the 1973-77 period, the rural municipality containing the city of Weyburn showed a faster growth in taxable assessment than the one containing the city of Kindersley. This is the period in which the WIT was being planned and operated.

(4) Impact on business establishments

The period 1973-79 was used in this part of the study. During this time, 46 of the 80 service centres in the Weyburn region declined. Also during this period, 17 service centres grew and 17 service centres maintained the same number of services which existed prior to 1973. Centres more than 31 miles away from Weyburn had a greater probability of losing their services than those located closer to the city. Medium-sized centres had a higher probability of losing their services than either very small or very large centres. This would be plausible since lower order trade centres shall survive because of lack of competition from large trade centres for the services the small trade centres provide.

Evidence seems to indicate that the WIT has not limited growth of various trade centres or affected the loss of services. However, caution is advised in interpreting these results because (a) some of these data are questionable and non-verified, and (b) this is really a

long run type of change and a two-year period is not long enough. The impact of the WIT on differently sized communities in the long run is bound to be different. If a totally elevator-dependent community loses an elevator (because of a decline in receipts), the effects are going to be serious and the community may have to struggle very hard to survive. However, if there is a slight reduction in elevator handlings at a point which is not dependent upon grain, effects may be milder.

This analysis has not been successful in isolating the direct impacts of the WIT on rural communities. The grain handling system in the prairie region has not been significantly different during the post-stimulus period. Changes in elevator capacity, or those in elevator handlings during the post-WIT period, have not been significantly altered by the presence of the WIT. Major reasons for this conclusion are that (a) neither the location binary variables nor distance was found to be a significant variable in determining changes in elevator capacity, and (b) large elevators (as measured by 1975/6 elevator capacity) in the Weyburn region had reduced handlings, but the lack of a positive relationship with the distance variable makes any direct connection between reduced handlings and the WIT suspect. If, in fact, the grain delivered to the WIT originates at points located farther away from the terminal, this would then suggest that some alterations in delivery patterns have occurred since the operation of the WIT.

In terms of changes in the population, this analysis has indicated that most communities in the Weyburn region enjoyed a positive growth, compared to those in the Kindersley region, and the proximity of the centre to Weyburn appears to have no effect on the population change. This suggests that from 1976 to 1979, there is no conclusive evidence that the WIT has deterred the population growth in most surrounding communities in the Weyburn region.

The taxable assessment of a community was found to be positively related to both elevator capacity and the population of that community. The distance between the community and a larger service centre lacked significance, while the variables for the number of elevators, business establishments and hospital beds, showed a mixed and therefore inconclusive relationship in determining taxable assessment. Given the fact that no conclusive evidence exists in linking the WIT to changes in either the elevator capacity or population, one is forced to conclude

that the WIT has not yet been instrumental in changing the economic viability of various service centres in the Weyburn region. This conclusion is also supported by the analysis of loss in business services at a given centre and its lack of relationship with distance from the Weyburn Inland Terminal.

Both theoretical considerations and previous empirical research have indicated that changes in rural communities and trade centres are influenced by a large number of interrelated variables. However, based on this analysis, no clear and definite conclusions could be reached in isolating the effect of the Weyburn Inland Terminal and the changes in the region. A number of reasons could be cited for this lack of conclusive evidence. One is that the WIT has only been in operation for about two years. Given that some of the data examined were one to two years old, it can be argued that the effects of the WIT may not be very obvious at this time. Another reason is that the WIT has not operated at its maximum throughput. During the first two years of operations, the terminal operated around 23-37 percent of its 20 million bushel throughput capability. Third, since many of the other changes in the region are occurring at the same time, data that could help isolate the effect of the terminalare needed. Some of this requires primary data collection which could not be possible during the tenure of this study.

In order to arrive at some definite conclusions regarding the impacts of the WIT in the Weyburn region communities, additional sets of information and analyses are needed. Some of these are:

(1) Information on the origin of grain being handled by the WIT. This is crucial for outlining the impact on the grain handling system--elevator closures, as well as construction of new facilities.

(2) The relationship between grain delivery and place and frequency of obtaining services should be established.

(3) A survey of those trade centres that are located in areas where a significant amount of grain is shipped to the WIT should be carried out to measure the changes in the economic viability of the trade centre. A more comprehensive measure of the economic viability of the centre should also be developed as a part of this analysis.

(4) Changes in population, business establishments, institutional establishments, grain elevators, the transportation system, etc., should be monitored over at least the next five-year period (1980-1984). Another assessment can be made of these changes, with an attempt to isolate the effect of the WIT.

In conclusion, this study did not isolate any specific detrimental effects of the Weyburn Inland Terminal on communities in the Weyburn region. There are many factors which are associated with community change and examination of these factors did not show any detailed location of the relationship with the Weyburn Inland Terminal. However, the terminal has only been in operation for two years. It is hoped that another attempt shall be made during the mid-1980's to study this controversial question once again.

CHAPTER I

INTRODUCTION

One of the most controversial milestones in the industrial and social development of rural Saskatchewan has been the establishment of the Weyburn Inland Grain Terminal a few miles outside Weyburn. Promoted and owned by local producers, the terminal has a one million bushel storage capacity.

Much of the controversy surrounding the Weyburn Inland Terminal (WIT) exists primarily because very little is known about the nature and magnitude of its impact. Of special concern is the question of the terminal's impact not only on the grain handling and transportation system, but also on related institutions and other sectors of the economy..

An analysis of the impact of the WIT on communities in the hinterland is complex. Some effects may be apparent in the short-run, but others might stem from the short-run impacts, surfacing in the more distant future. A comprehensive examination of first generation and long-run effects -- both direct and indirect -- is beyond the scope of the study. Rather, this study was designed to identify the broad range of effects an inland terminal could have on the grain handling system, and through that, the effect of the new Weyburn Inland Terminal on the rural communities and trade centers in the Weyburn region. In particular, the study was designed with the following objectives:

(1) To review the factors leading to the development of the Weyburn Inland Terminal;

(2) To develop a conceptual framework to assess the impact of

the Weyburn Terminal on the region, particularly on the rural community system and the trade centers; and

(3) To make a preliminary assessment of the nature of changes in the region that can be attributed to the presence of the inland terminal.

The basis of this study is an examination of relevant changes in the Weyburn region for the period 1961 to 1978.[1] The 1961-1976 period is monitored in order to obtain an appreciation of the regional system. Events in the Kindersley region are also monitored, with the hope that a relative comparison might lead to a better diagnosis of the impact of the Terminal. The 1977-78 (or 1977-79) period is the post-Terminal period. At the outset, it is felt that this two-year (or three-year) period may not be long enough enabling one to establish any precise conclusions.

The remainder of this report is divided into six chapters. Chapter II reviews the Saskatchewan (and western) grain handling system in order to bring forth some of the reasons for producers initiating an inland terminal grain handling system. A conceptual model of the potential impact of an inland terminal is presented in Chapter III, which is followed in Chapter IV by the research design and related methodology. Chapter V presents a review of the pre-terminal (pre-1974) period changes in Weyburn and Kindersley regions. Chapter VI analyzes the impact of the Weyburn Inland Terminal and a summary and conclusion follows in the last chapter.

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[1] Where data permitted, analysis was extended to 1979. Similarly, for certain data series, availability of data limited analysis to 1975 only.

CHAPTER II

AN HISTORICAL PERSPECTIVE ON THE WEYBURN INLAND TERMINAL

The grain handling and transportation system, since the inception of the 1967 National Transportation Act, has become a topic of a large number of public and private investigations. A complete and thorough review of all events taking place during the period until 1979 is beyond the scope of this report.[1] In this chapter, however, some significant changes in government policy affecting the grain handling and transportation system in Western Canada are reviewed. The primary purpose of this review is simply to make the reader aware of the historical background to the development of an inland terminal system on the prairies.

An historical development of the prairie grain handling system is shown in Figure 2.1. Most of the development of the system took place prior to 1930, when the numbers of elevators reached a peak. Although the capacity of elevators has been increasing, both elevators and delivery points have tended to decline in number. This points out that the average capacity of elevators is increasing. Older elevators, which tended to be small, are being replaced by newer and larger ones.

2.1 The Prairie Grain Handling and Tranportation System in the Sixties and Seventies.

The 1961 McPherson Royal Commission was established to "inquire

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[1] Interested readers may trace the developments leading to the change in the National Transportation Act by reading Volumes I and II of the Royal Commission on Transportation, 1961. The period ending 1974 has also been reviewed by Kulshreshtha (1975a).

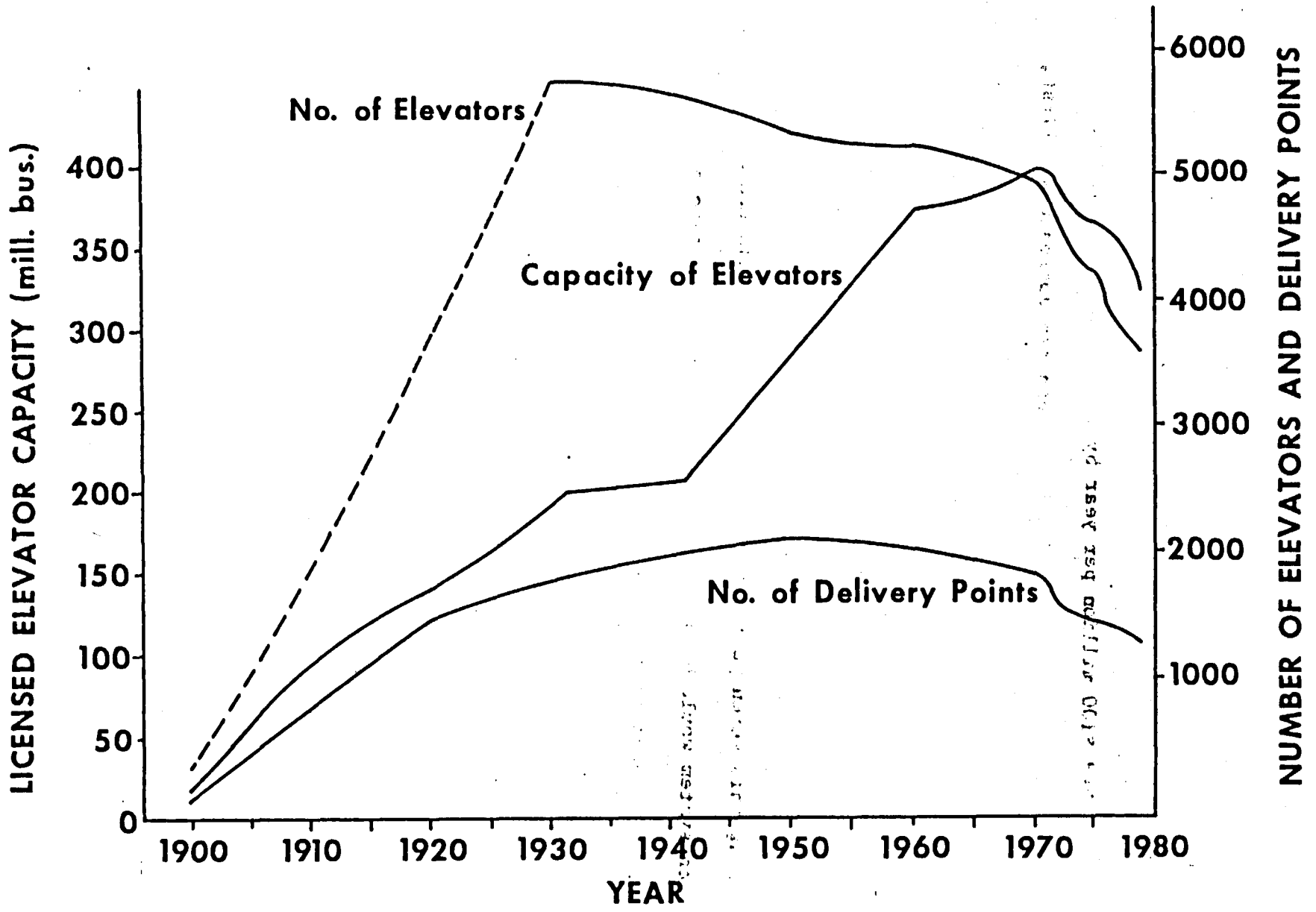

Figure 2.1 : Prairie Grain Handling System.

into and report upon the problems relating to railway transportation in Canada, and the possibility of removing or alleviating inequities in the freight rate structure." The Commission was also entrusted with the task of relieving Canadian taxpayers of the large railway deficit, which had reached $100 million per year by 1967. The National Transportation Act of 1967 accomplished this through two approaches. First, direct subsidies to railways were abolished, but in their place losses for specific branch lines could be claimed. Second, the railways were allowed to abandon the operation of uneconomic branch lines. However, there was a freeze[1] on any abandonment of lines for an initial seven year period, ending December 31, 1974. It was hoped that during this seven year period the grain handling and transportation system would be scrutinized and, furthermore, a more systematic approach to rail line abandonment would have been developed.

In December of 1969, the minister responsible for the Canadian Wheat Board appointed a Grains Group, consisting of representatives of railways, government, elevator companies, and other institutions engaged in grain transportation. The Group was entrusted with the responsibility of carrying out a series of studies of the system to determine what changes might be made in the grain handling system immediately or in the future.

Alternative configurations of the system were investigated, and their respective costs estimated. The Grains Group took the approach

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[1]The Governor in Council exercised the protection option with the issuance of Abandonment of Branch Line Prohibition Order No. 1, dated March 23, 1967. This order protected, or froze, the entire prairie branch line system with the exception of 1,839 miles until December, 1974.

that a totally new system was necessary. To this effect the existing system was compared to:

(1) A Rationalized Country Elevator System, consisting of 3600 elevators with a storage capacity of 300 million bushels, and in which 5,525 miles of rail track were abandoned.

(2) A High-throughput Elevator[1] System, consisting of 389 delivery points and with a 274 million bushel capacity.

(3) An Inland Terminal-Satellite Elevator System consisting of 22 terminals and 356 satellite points, with a system storage capacity of 213.3 million bushels. The grain would be cleaned at satellite elevators, then shipped to inland terminals where unit trains would be used to move grain to coastal points. Commercial trucks were used to transport grain between satellite elevators and the terminals.

(4) An Inland Terminal System, designed to have 80 terminals with a total capacity of 200 million. Grain would be cleaned inland and unit trains used to move grain to export points.

A relative comparison of costs of these configurations indicated that the Inland Terminal System had the lowest cost in 1969 dollars. This cost was estimated to be 38.7 cents per bushel, compared to a

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[1] A high throughput elevator is a large structure, primarily of concrete, designed to achieve a high handling-to-capacity ratio. It differs from the Inland Terminal in at least two respects: First, grain is collected from farms, but moved quickly through the system without further processing, such as cleaning. Second, use of conventional trains is made, i.e., no unit trains are used. This may suggest that the handling-to-capacity ratio for an inland terminal may be higher than that for a high throughput elevator.

cost of 49.2 cents per bushel for the existing system of 5,000 elevators with a storage capcity of 399 million bushels.

The Grains Group did not recommend any one of these configurations, but the inland terminal system was not preferred for a number of reasons, in spite of its lower cost.

First, the average producer hauling distance between a farm and the terminal was estimated at 62.7 miles. This meant some producers might have to haul in excess of 100 miles. Compared to an average of only 7 miles hauling distance in 1969, this configuration would have brought an abrupt change in the system.

Second, the costs included in comparing the various configurations were at the best partial, and not comprehensive. Questions such as the impact on highway maintenance and construction costs, on energy consumption, on communities, on land values, and on production patterns, were not examined.

Third, the system suggested a significant (50 percent) reduction in the commercially available storage capacity. Justification for this reduction was based on the improved handling-to-capacity ratio (or higher throughput) for the new system. In other words, this meant that the system would have to move at least twice as much as grain to meet domestic and foreign demand. Changes in farmers' marketings, the quota system, etc., had to be modified accordingly to avoid serious queuing problems and congestion at elevators.

Fourth, designing a new system requires a large amount of new capital investment.

After being delivered to the federal government, findings of

the Grains Group were widely debated in agricultural circles. They created an environment of uncertainty, which led to animosity among various levels of government, as well as among various participants of the system.

At the Western Economic Opportunities Conference held in Calgary in 1973, the Federal Government announced that the 1,839 miles of unprotected branch lines would also be protected. This was done by issuing Prohibition Order No. 2, which was to expire December 31, 1974.

Between 1971 and 1976 the Canada Grains Council was engaged in "area studies." Two areas were studied by the Council — the Brandon area in Manitoba and Canada Grains Council's Area Eleven in Saskatchewan and Alberta. These studies were conducted by a Special Grain Handling and Transportation Committee consisting of representatives of railways, major elevator companies, the marine association, the Canadian Wheat Board, and the Canadian Grains Commission, in addition to producers in the region. The Council's approach in designing alternative configurations was markedly different from that of the Grains Group. The Council did not design a completely new handling system, but rather a patch-up job with very little new investment needed. Furthermore, these studies made a distinction between the cost to the user and the cost to the system.

On December 20, 1974, just before Prohibition Orders No. 1 and No. 2 expired, the Governor-in-Council issued Orders No. 3 and No. 4. These orders were passed to minimize the uncertainty facing both users and providers of transportation services. Order No. 3

provided protection against abandonment for 12,413 miles of branch lines. These lines were called "Basic Net Work" and were guaranteed to the year 2,000. Order No. 4 provided protection for 6,284 miles, but only until the end of 1976. These lines were to be examined by an independent Commission. The remaining[1] 525 miles of track was primarily unused, and was designated for abandonment.

In April, 1975, the federal government appointed a Commission of Inquiry under Part I of the Inquiries Act by Order-in-Council No. PC 1975-872. This Commission was known as "Grain Handling and Transportation Commission" with Chief Commissioner The Hon. Emmett M. Hall. The Commission was to make a recommendation on the 6,284 miles of branch lines designated in Order No. 4.

In May, 1977, the Hall Commission submitted its findings in a three volume report[2]. For the 6,284 miles it recommended:

(1) that 2,165 miles of branch lines be abandoned from 1977 to 1981,

(2) that 1,813 miles of branch lines be transferred to the basic network (protected to the year 2000), and

(3) that 2,344 miles of branch lines be re-examined by another institution (to be created) known as the Prairie Rail Authority.

Through another Order-in-Council, the 2,344 miles of branch lines were protected to January 1, 1979. These lines were examined

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[1]The total railway line system consisted of 19,222 miles of rail track.

[2]See Hall Commission (1977), Grain and Rail in Western Canada, Vol. I, II and III.

by an institution known as the Prairie Rail Action Committee (PRAC). PRAC carried out its assignment and submitted a report at the end of 1978. It recommended that 958 miles of branch line be added to the basic rail network, and that 1,285 miles be abandoned.[1] However, like any other inquiry, it considered it necessary to go beyond its terms of reference and examined not only the 2344 miles of branch line as designated by the Hall Commission, but also an additional 196 miles of branch line. Details of its recommendations are shown in Table 2.1.

Table 2.1: Summary of Prairie Rail Action Committee Recommendations

Item	Basic Network		Abandon		Halt New Constr.	Total
	Existing	New	Recommend	Removal of Protection		
	miles					
PRA Lines as Designated in Hall Commission	958	8	1285	82	14	2348
Other Lines						
- Basic	---	---	117	---	---	
- To be abandoned	43	35	---	---	---	195
Total	1044		1484		14	2543

Note: Totals may not add due to rounding

Source: PRAC Report, p. 963.

A chronological review of these recommendations is shown in Table 2.2. As of now, some 4,110 miles of rail track, or 21.4 percent of the total, stand to be abandoned. One must keep in mind that, other than issuing a prohibition order for the 958 miles recommended to the Basic Network, no other PRAC recommendations have been acted upon.

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[1] See PRAC, (1978), p. 961.

Table 2.2: A Chronological Review of Branch Line Abandonment Recommendations

	Order No. 1 Dec., 1967	Order No. 2 1973	Order No. 3 Dec., 1974	Hall Comm. May, 1977	P.R.A.C. Nov., 1979	% Distribution 1967	% Distribution 1979
	Miles					Percent	
Basic (Frozen)	17,383	19,222	12,413	14,226	15,153**	90.4	78.6
Abandon	1,839	--	525	2,690	4,110***	9.6	21.4
Undecided	--	--	6,284	2,344*	--	0	0
Total of 1967 rail system	19,222	19,222	19,222	19,222	19,265[a]	100.0	100.0

* To be examined by PRAC (19,222 + 43 new construction).

** 14,266 + 1044 - 117 (Hall Comm.) = 15,153

*** 2690 - 78 (Transfer to Basic) + 1484 + 14 (Halt New Constr.) = 4110

[a] Figures do not add due to different sources of data used by Hall Commission and PRAC.

During the 1975-1979 period, three other inquiries into the grain handling system are noteworthy. First, the cost of transporting grain became a topic of another Commission of Inquiry under the direction of Carl Snavely. This commission was appointed on April 18, 1975, through Order-in-Council No. PC 1975-873. It submitted a three volume report to the Federal government in 1977 and 1978.

Second, during the summer of 1978, the Grain Group hired Booz-Allen and Hamilton, Inc. (a consultant) with IBI Group, to analyze extensively the existing and future operations of the system. This report was submitted to the Grains Group in July, 1979. Major recommendations included:

(1) improved information and planning and a control system to direct the right grain to the right terminal at the right time;

(2) operational and institutional improvements to improve car fleet utilization. It was felt that the existing car cycle of 16-18 days could be decreased by 15 percent to 13-15 days. This would be equivalent to approximately 4,000 cars saved; and

(3) an additional 1900 covered hopper cars to be ordered for delivery in each of the 1980/81, 1981/82, 1982/83, and 1983/84 crop years, with a further 1700 cars for delivery in 1984/85.

(4) Finalization of a 10 million bushel capacity terminal at Prince Rupert.

Third, in the fall of 1979, the minister in charge of the

Canadian Wheat Board announced the appointment of a task force "to assess the applications of innovative techniques designed to significantly increase grain handling and transportation capability within the 1979-80 crop year and beyond." This task force submitted its report in October, 1979.

Detailed discussion of the recommendations of these reports is beyond the scope of this chapter. One cannot help but feel that during the early seventies the performance of the entire system came under scrutiny.

2.2 The Conception of the Weyburn Inland Terminal

During the late sixties and the seventies, there has been a growing reduction in the number of primary elevators. This trend probably arose from efforts to reduce operating costs of the existing system. For instance, an increased emphasis was placed on the throughput of grain rather than on its storage, resulting in consolidation of the operations at fewer and fewer points. In other cases, the old elevators, when replaced, were replaced by larger units, capable of producing a higher throughput of grain.

During the 1975-1979 period, the grain handling and transportation system came under attack from another point of view. The export performance of the Canadian grain industry was well below expectations. In many situations, the Canadian Wheat Board blamed the inability of Canada's transportation system for lost sales. An examination of Canada's share of world exports of major grains is shown in Figure 2.2. Canadian grain exports reached a peak of 20.8 million tonnes during 1972-73 but since than have been declining.

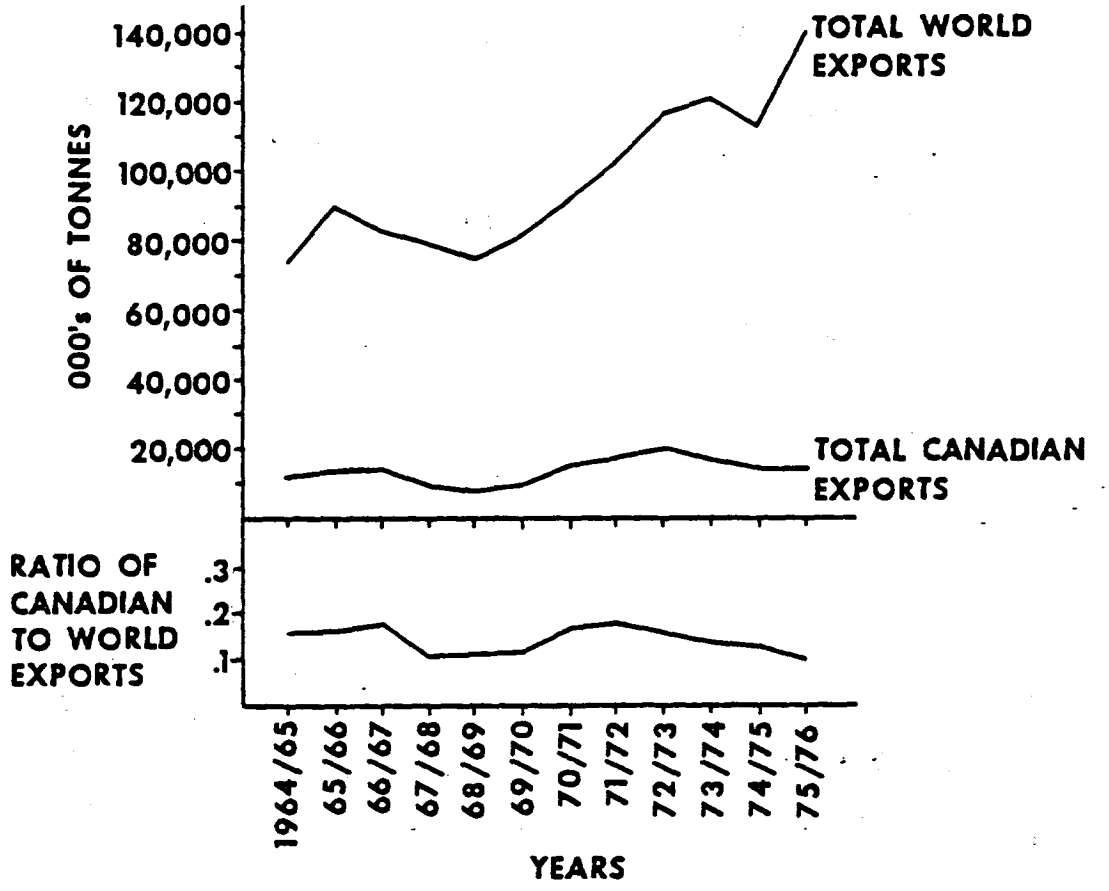

Figure 2.2 : World and Canadian Grain Exports, and Canada's Share, 1964/65 to 1975/76

Relatively, Canada's share of the world wheat market peaked in 1971/72 at 27.2, reaching a low of 16.9 during 1975/76. For all grains[1], as shown in Figure 2.2, Canada's share has declined since 1971-72.

Some of the concerns frequently cited, and identified as the major bottlenecks in the grain handling and transportation area include port terminal elevator capacity, particularly that for cleaning the

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[1]All grains include wheat, barley, oats, rapeseed, and corn.

grain; the number of trains passing through the mountains; and labour trouble on the west coast (at both the grain handler's level and the dock worker's level). These and other concerns of the producers led to the development of an inland terminal at Weyburn. Some of the reasons behind the inland terminal concept were cited to be as follows:[1]

(1) Cleaning of grain should be done inland, rather than elsewhere (i.e., at ports) for the following reasons: (a) Grain shipped in the uncleaned condition is accompanied by dockage. If grain were cleaned inland, there would be an added freedom in choosing the best alternative for disposing of the by-products, (b) Labor costs would be lower on the prairies than at the ports, (c) Labor stability is likely to be better on the prairies, (d) Land costs are lower inland than at tide-water ports, and (e) Cleaned grain could be shipped through alternate water ports.

(2) The cleaning process as presently carried out in most (port terminals need improvements, both in terms of machine configurations and in the type of equipment used.

(3) The plant should contain a relatively few pieces of large equipment rather than many smaller units, as in the present system of country elevators.

(4) The use of centralized control permits operations by a relatively small staff.

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[1] Based on Grains Group Study, (1970).

(5) The inland terminal system can run a more efficient operation than has been possible in the past.

In addition, the arguments in favor of an inland terminal system included:

(6) Cleaning the grain inland will take some burden off the cleaning facilities at the west coast, and

(7) The screenings would be available close to the users. This may in future help develop a healthy livestock industry in the area. In 1974, the minister in charge of the Canadian Wheat Board authorized a feasibility study of an inland terminal at Weyburn at an expense of $37,000 to the public treasury. This study was conducted by the consulting firm Bryden Consultant Ltd., and a report was submitted in November, 1974. Based on the recommendation of this report, a decision to proceed with the construction of the terminal was taken in the latter part of 1975. The terminal started operating during November of 1976.

2.3 A Brief Description of the Weyburn Inland Terminal

The Weyburn Inland Terminal is located on a 195 acre site adjacent to the CPR and Highway No. 39, southeast of Weyburn. It is the first of its kind in Canada, constructed of concrete and steel, and has an estimated life span of 25 years. It has a storage capacity of 1 million bushels (or 27,000 T.). The 125 foot tall elevator is capable of dumping 30 trucks (farms and commercial) per hours, with a receiving conveyor capacity of 45,000 bushels per hour, a shipping conveyor and leg with the same capacity, a cleaning system with a

capacity of 400 bushels per hour and a drying facility rated at 3,500 bushels per hour. The elevator also could load 100 covered hopper cars in an eight hour shift.

The terminal is owned by producers through purchases of shares. There are an estimated 1,300 producer shareholders, most of whom are located within a 60-mile radious of the city of Weyburn.

The terminal receives the grain through semi-trailer trucks.[1] Trucks are unloaded by two platform truck dumpers. The uncleaned grain is weighed, graded, processed, elevated, and stored until loading time. For shipping, grain is withdrawn from the storage bins, elevated, weighed, and spouted to rail cars. The rail car movement and shipping spouts are controlled so that loading is virtually continuous.

Weyburn and its surrounding area are shown in Figure 2.3. The area has only two cities--Weyburn, with a population of 9,238 in 1976, and Estevan, with a population of 9,150 in 1976. In addition, there are 15 villages and 16 towns in the surrounding region. The total population in the area during 1976 was estimated to be 35,139.[2]

2.4 The Controversy Surrounding the Weyburn Inland Terminal

Since the announcement of the construction of the terminal, a controversy as to whether the terminal system is the rational way of

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[1] Recently the terminal has established a "Dial-a-Truck" program. In cooperation with local truckers, rates are set and a farmer can place a request for a truck load and receive service within 48 hours.

[2] Figures based on Statistics Canada, Population, 1976, Cat. No. 97-702.

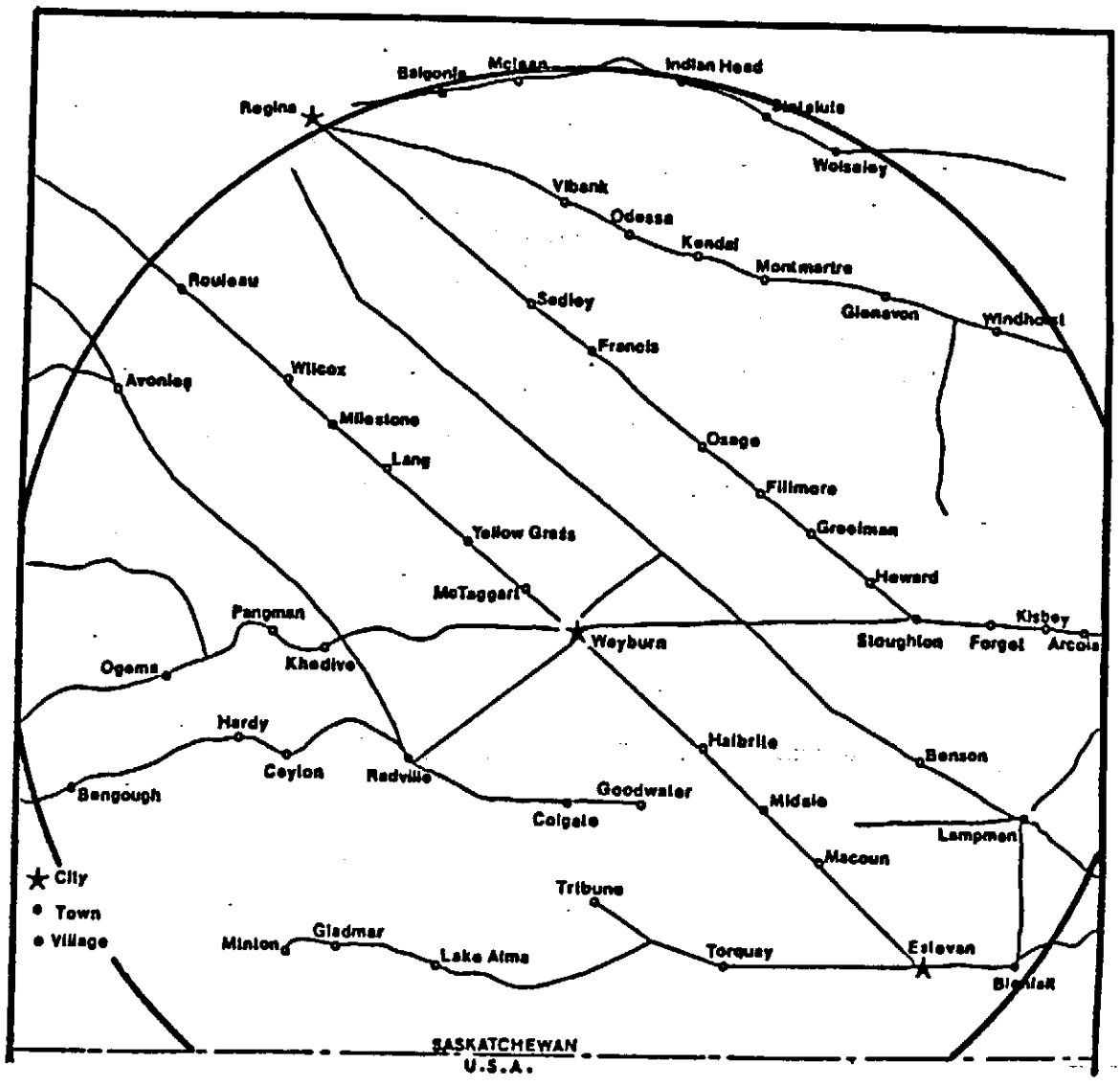

Figure 2.3: The Weyburn Region - A 60-Mile Radius

modernizing the present grain handling system has developed. Supporters of this concept have described it as not only a forward looking approach, but also one that is in the best interests of the grain industry and expecially the producers.

As an indication of the type of controversy, in 1974-75 one could almost detect two factions in the communities. One, the

"pro-terminal" group, believed that under the inland terminal system the efficiency and capability of the system would be significantly improved. The other group expressed fears that, among other effects, the terminal system might accentuate branch line abandonment, lead to the abolishment of the Crowsnest Pass rates, and accelerate the already existing depopulation trend in rural Saskatchewan.

In the spring of 1975, the University of Saskatchewan organized a seminar on the inland terminal system of grain handling.[1] Arguments were presented from both sides. Many popular folklores about the Weyburn inland terminal were examined. The system's costs were summarized as follows:

(1) There would be cost savings to producers if the proportion of designed handling capacity was high (say 75 percent or more).

(2) Railways would be in a position to reduce their operating expenses.[2]

(3) The Federal government might save a part of the branch line subsidy presently paid to the railways.

(4) Livestock producers in the area would benefit due to availability of screenings.

(5) Depending upon the weight restrictions on provincial roads and highways, the terminal could act as a boost for the commercial trucking industry.

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[1] Details of seminar are reported by Kulshreshtha, 1975 (b).

[2] This was under the assumption that unit trains would be used. However, this has not been realized and, therefore, it is not clear whether this benefit has been generated.

(6) The grain cleaning function would create employment opportunities in the province.

On the other side, the terminal would have negative benefits (or costs) of the following nature:

(1) If the proportion of designed handling capacity was low (say 50 percent or less) the cost to the producers, particularly to the shareholders, might be very high.

(2) Producer's hauling costs would increase as a result of increased distances, and the inability of many producers to use presently owned trucks.

(3) Producer's waiting cost during the months of June and July might be very high, unless the pattern of delivery were altered to even out the peaks in deliveries usually observed during this time of the year.

(4) Some producers might have to make changes in farm storage location, and in the quality of storage.

(5) A certain amount of investment in the existing grain handling facilities might be lost in the region.

(6) The cost of maintaining and upgrading provincial roads and highways would likely be high.

(7) The effect of the terminal on certain smaller communities, particularly those located nearby and heavily dependent on grain handling functions, might be detrimental.

(8) The terminal would increase the energy requirements of the grain transportation part of the transportation industry.

Many of these effects, as the report indicated, were mere

speculations on the part of the author, or other seminar participants, and a lack of precise information made any definite conclusion about the impact of the Weyburn inland terminal almost impossible.

One of the areas included in the above list is the impact of the terminal on the rural communities. Because of its capacity, the Weyburn terminal may necessarily replace many existing elevators in the Weyburn area in order to survive and consequently its potential impact on rural communities is of considerable interest. There is no argument that rural Saskatchewan is experiencing rapid change. The key question is what influences the direction of that transition and, more specifically, what influence does grain elevator capacity and location have on the future economic and social structure of rural Saskatchewan?

It is to this effect the federal department of Regional Economic Expansion (DREE) sponsored a study on the impact of the terminal on rural communities.

CHAPTER III

A CONCEPTUAL FRAMEWORK OF THE IMPACT OF A TERMINAL ON RURAL COMMUNITIES

3.1 The Concept of a Community System

A community can be viewed in a variety of ways. Marsh (p. xiii) suggests three ways of distinguishing and describing communities: (1) by geographical boundaries; (2) by the people who live there, and their round of activities; and (3) by their quality of life and their social climate. A community is difficult to define by a geographical boundary. To begin with, boundaries may not be clear. A community may be a legal entity (municipality), a school district, or an agricultural district. Physical impediments (such as rivers or railway tracks) may sometimes enforce some boundaries.

In the context of this study, the concept of a community that is relevant can be more appropriately called a "trade centre system". Centrality is the essence in the operation of such a system. Consumers who visit a market place on a frequent basis want a location that permits them to conduct their business with a minimum of efforts. In case there is a choice, a consumer will choose the one that involves the least effort. This is the basic proposition of the Central Place Theory that is most widley used to explain a community system or a trade center system.

Changes in the role played by a community (within a given system) could be varied. It could be broadly divided into two categories -- changes in the economic role, and changes in the social role played or the social characteristics of the community. If these changes are brought about by a set of exogenous variables, the former change can

be called economic impact, and the latter, social impact.

Economic effects can be felt in a number of areas: changes in a region's output, whether through a change in the region's exports or through a change in demand within the region; the resulting changes in employment; changes in the role played by the center in the hierarchy of the system; eventually, a change in the number of people living in a community. The social and psychological costs of community decline are numerous and often subtle. Noting the difference between "point of emanation" and "point of utilization" of a service, one such cost is that people may have to travel further to receive a service and this may affect the social and personal condition of the recipient. Other costs include the cost to social organizations, and the effect on the attitudes and values of local leaders and others. This study does not examine the social aspect of change[1], but only the economic changes and their subsequent effects.

3.2 The Economic Impact of a Change in the Grain Handling System

A conceptual basis for measuring the economic impact of an exogenous change in the grain handling system is shown in Figure 3.1. One of the exogenous changes would be the introduction of an inland grain terminal. A grain terminal would have a number of effects on producers and their communities. Some would be felt immediately (or in the near future), while others would be the result of other changes in related infrastructure. Some of these would be positive,

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[1]For more details on social consequences, see Wilkinson (1974).

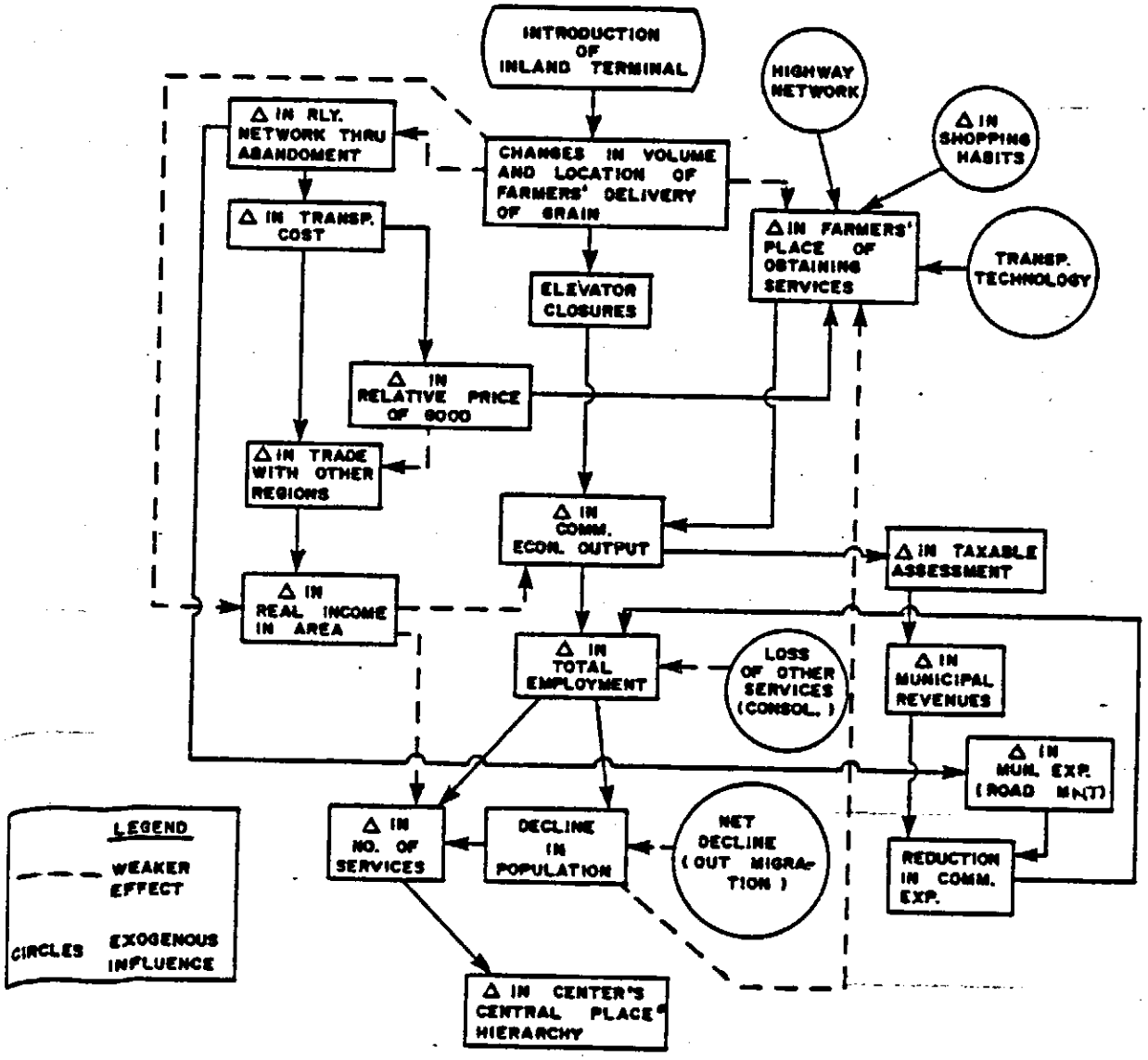

FIGURE 3.1 EFFECT OF AN EXOGENOUS CHANGE -- INLAND TERMINAL -- ON RURAL COMMUNITIES

but others possibly negative.

The first and foremost effect of an inland terminal would be a diversion of grain from existing delivery elevators to the terminal. An inland terminal, in order to be economic, must draw between 10-20 million bushels of grain during any given year. Unless grain production increases, and marketing opportunities for prairie grain are enhanced, this increase in delivery to the terminal must come at a cost of reduced deliveries to existing elevators. As shown in Table 3.1 the ten-year average grain production for the period ending 1972-73 was estimated at 35.10 million bushels for the area within a 50-mile radius of Weyburn.

A decrease in elevator receipts in the surrounding region will have a number of effects. The short-run effect would be a drop in elevator profits, resulting in some lay-offs of staff, thereby resulting in lower real incomes for people residing in the community.

In the more distant future two types of effects would be visible: one, the elevator companies may consolidate elevators, or close a few elevator points down. If grain deliveries dwindle, the branch railway line may become uneconomic (below a critical level) and eventually become a candidate for abandonment.

Associated with the delivery of grain may be the question of changes in the place of obtaining certain farm and family services. The degree of association has been a topic of investigation by many past studies and results are far from being unanimous. For example, a study by Stabler (1972) concluded that "removal of rail and/or elevator facilities does little to alter the direction in which the

Table 3.1

Grain Production in the Weyburn Region

Radius (miles)	Production in Mill. Bu. During 1972-73	10 Year Average
0-10	4.96	2.52
11-20	6.06	3.53
21-30	13.63	8.17
0-30	24.61	14.22
31-40	15.24	9.33
41-50	18.37	11.55
0 - 50	58.22	35.10

Source: Presentation at University of Saskatchewan Seminar, 1975, by W.H. Horner.

community is already moving." (Stabler, p. 49-50). The study goes on to suggest that "the centre's viability must be dependent upon functions which are not themselves closely associated with the transport or grain delivery facilities."

Hodge (1968), in identifying the relationship of grain movement and community growth, concluded that "the level of grain shipments and community structure are not closely related in most Saskatchewan centers". Furthermore, Hodge pointed out that "population growth

in most Saskatchewan centers is not a function of either level of grain shipped or of growth in the level shipped." (Hodge, 1968, p. 69). However, Hodge in an earlier study in 1965 had concluded that "the importance of the centre as a grain shipment point is also strongly related to its viability." (p. 115).

Pamela Smith, in her 1975-76 study of the community impact of rail line abandonment in Saskatchewan, reviewed both the above works and has criticized them on the basis of their methodology, both theoretical and empirical.[1] In addition, the broader economic and social context within which a community must struggle to survive was completely ignored.

Challenging these previous studies, Smith argued that the economic impact of rail line abandonment was significantly negative. In other words, this study disputed the proposition "that the ability of a community to act as a grain collection point is not related to that community's viability, or its long term prospects for stability or growth." (Smith, p. 79).

A survey of business carried out in Manitoba in 1973 similarly suggested a change in the community's economic activity as a result of branch line abandonment. In this survey, a predominant opinion expressed by the sample of rural people surveyed was that business and the community would suffer from withdrawal of elevator and rail service. They felt the service center function was closely associated with the grain handling operations. It was pointed out that

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[1]For details, see Smith, pp. 14-15.

people liked their towns and supported them. Also, they were generally optimistic about the future potential for growth and business in their towns, claiming that the railway and elevator services played a critical role in the life and functioning of the town. They felt that the small towns provide a viable alternative to city living and that a "psychological hurt" would be experienced in terms of a loss of confidence in communities, if the abandonment plans were carried out.

What then can one conclude about the effect of a change in farmer's delivery point of grain? Since changes in shopping patterns may result from other reasons as well, it is impossible to attribute all changes to the grain handling function. For example, a study by Olsen and Brown (1975) pointed out that technological developments in agriculture and transportation and the resulting urbanization had a substantial influence on the service centers. The study also concluded that the location of the community with respect to the highway, the location of hospitals, schools and government agency offices, and community desire and leadership are important contributors to a community's growth and viability.

What has been discussed so far is that a loss of grain delivered leads to certain services being obtained elsewhere and thus a reduction in economic activity. However, some of these decisions may not be directly related to grain handling. This loss would affect employment in that community, and through that the population. Changes in the primary employment industries would also result, at a later period, in a negative multiplier effect on the service sector, which would lead to further population decline.

Another possible result of the inland terminal is that, as elevators close and the traffic on the branch line diminishes, the line becomes a candidate for abandonment. This has a number of effects. First and foremost is the increase in the cost of transportation to both consumers and producers. Consumer prices in the region will increase which, given a certain fixed level of increase, will reduce the purchasing power and thereby result in reduced economic activity in the region.

To a producer, this would mean a higher cost of bringing his products to market, which would be reflected in lower real income. Lower real income would eventually affect local demand for goods, and would have the same effect as described earlier.

Transportation cost would also affect the interregional flow of goods, and may affect the competitive position of one center over the other. This would eventually result in lower demand, in the unavailability of a service at that center and eventually a change in the hierarchical rank of the trade center within the region.[1]

In addition to the effect on producers and residents in the communities, effects would also be felt on the rural municipalities and urban municipalities. Losses of economic activity in a given trade center would result in lower taxable assessment and therefore in lower revenues. This could lead to three types of changes: the municipal government might attempt to reduce expenses; failing this, the mill rate would increase, resulting in higher tax cost to

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[1]This is not to suggest that all trade centers shall lose. Obviously, those with a surviving transportation link will feel positive impacts.

the remaining business establishments and individuals; or some local government may request higher transfer payments from the provincial or federal governments. It is commonly believed that more frequent use of certain roads would result in higher maintenance of rural roads. This extra cost, coupled with decreased economic activity, could result in a double-barrelled effect on the surviving businesses, and may start trends leading to the decline of the community.

3.3 Concepts Underlying the Central Place Theory

In the context of the Central Place (CP) theory, a community is viewed as a service center from which goods and economic services are made available to people both in the center itself and in the surrounding hinterland area which it services. The range of the service, that is, the maximum distance at which a dispersed population will still be willing to purchase a service offered at a central place, and the demand threshold, that is, the minimum level of population or income required to support a particular service, are considered to be important aspects of CP theory. Because various goods and services have different range and threshold requirements, a hierarchy of service centers evolves. For example, centers specializing in the provision of higher order services would serve a broad market area which would include the market areas of all lower order centers in that particular environment.

Thus, the lower order centers would be spaced relatively close together and higher order centers further apart, but all centers of the same rank would be separated by a similar distance. This

conceptual design is particularly applicable to rural analysis because it stresses the functional interdependence between the service center and the region which it serves. The center provides the goods and services to the region and the region provides the source of demand enabling the services in the center to survive. An important fact is that various services (grain handling, for example) have different demand thresholds and different ranges, both in comparison to other services at any given time and over time because technology influences the effective scope of the market.

The competitive nature of individual service centers to expand their market results in several interesting phenomena. For example, if a center provides a given group of services, but is situated near a larger center that provides similar lower order services, then the businessmen in the lower order center face a distinct disadvantage over time and may be forced to close. Similarly, if a higher order service is located in a center, then investment tends to flow into the immediate area to develop and service the new activity. Jobs are created, incomes rise, immigration of labor occurs, new housing develops and a multiplicative influence on economic health occurs in the center. To the extent this higher order service and center overlaps lower order services in smaller centers, the former gains and the latter loses in long term viability.

The causes and effects of the competitive growth of communities are hard to distinguish. Initial geographical advantage, raw material supplies or similar attributes can attract other complementary higher order services that further strengthen the community. Alternatively,

lower order centers that are fortunate enough to be selected for the location of a higher order service often experience the influx of several complimentary services and in turn grow accordingly despite previous experience.

The hierarchy of central place can be now shown as follows:

Order of Function	Level of Center				
	Hamlet	Village	Town	Small City	Regional City
Lowest	*	*	*	*	*
2		*	*	*	*
3			*	*	*
4				*	*
5					*

Source: Based on Berry (p. 16)

Examples of lower order services are grain elevators, general store, gas stations, coffee shop, and post office. The higher order services include hardware store, dry cleaners, banks, and medical offices. Such services are usually present in a town. The next higher order of services includes shopping malls, local government offices, hospitals, department stores, and specialty stores. These are usually present in a major urban centre.

In summary, the competitiveness of a center is based on its ability to provide the goods and services required by people in the area. In terms of population and range of services, larger centers usually tend to grow faster than smaller centers because of competitive advantages in the provision of goods and services. Thus,

smaller centers tend to grow more rapidly if they are located further away from large centers. To the extent the above does not occur, geographic, transportation or similar structural distortions warrant consideration. Research also indicates that the presence of development of new job-creating activities in a center stimulates growth, increases employment, increases incomes, stimulates local investment and reduces out-migration.

CHAPTER IV

RESEARCH DESIGN AND RELATED METHODOLOGICAL CONSIDERATIONS

4.1 Control vs. Test Region Research Design

The impact of the Inland Terminal at Weyburn was tested by observing changes in relevant economic variables in two regions:

Control region: where no inland terminal is planned.

Test region: where the Inland Terminal is planned.

Both the regions can be monitored on pre-stimulus and post-stimulus time frameworks, where the stimulus is the presence of an inland terminal. The design, therefore, has four components:

	Time Frame	
	Pre-Stimulus	Post-Stimulus
Test Region	xx	xx
Control Region	xx	xx

In other words, the two regions were monitored over both the pre-terminal and post-terminal periods to observe any significant changes in the test region. The pre-stimulus period need not be the date prior to the operation of the terminal. In fact, as plans for the WIT were finalized by 1975, some of the effects may have begun by that time.

The test region in this study was an area within a radius of 60 miles of the city of Weyburn. This region is shown in Figure 2.3. The selection of the control region is a very critical step in interpreting the results.

4.2 Selection of the Control Region

The control area chosen for comparing the Weyburn area was the area surrounding the town of Kindersley, as shown in the Figure 4.1. There are three major reasons for the choice of the Kindersley region. First, it is a predominantly grain producing area, similar to that surrounding Weyburn. Second, other characteristics in the two regions are quite similar. For example, the average wheat production in the two regions was very similar and average size of a farm was also close, as shown in Table 4.1. Third, the community structure, in terms of distribution of hamlets, villages and towns, was very similar.

Although no two regions are absolutely identical to each other in all respects, it is the considered opinion of the author that Weyburn and Kindersley provide a common base before the inland terminal came into existence. This suggests that the post-terminal period can be compared to obtain a fair assessment of the impact on the community.

Table 4.1

Selected Characteristics of the Test and Control Regions, 1976

Characteristics	Test Region (Weyburn)	Control Region (Kindersley)
Total No. of Farms	3,832	1,976
Percent of Farms Selling over $10,000 Gross	80.1	88.7
Average Size of Farm (Improved plus unimproved) in Acres	1,073	1,274
Average Area Under Wheat per Farm	357	436
Average Area Under Grain and Oilseeds/Farm	393	503

Source: Statistics Canada, Census of Agriculture

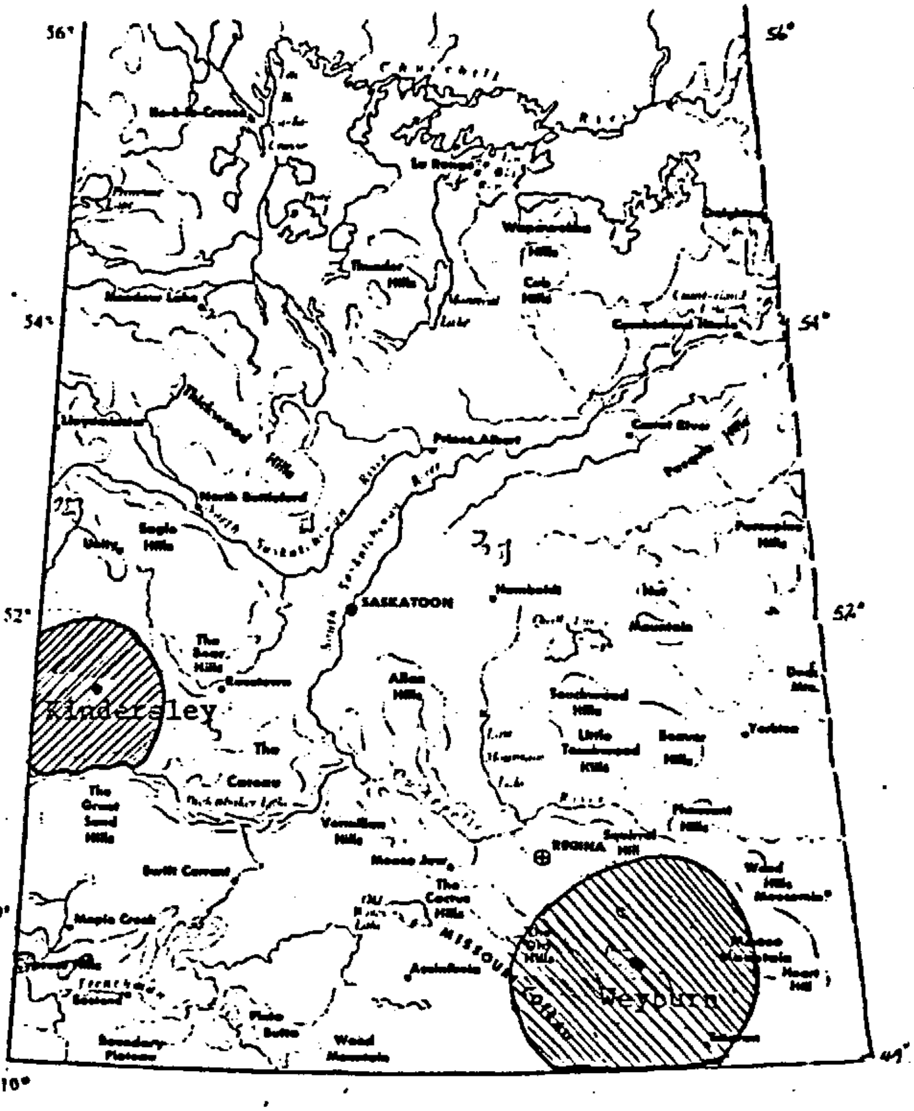

Figure 4.1: Map of Southern Saskatchewan Showing Location of Test Region and Control Region

The distribution of population - farm and nonfarm - in the two regions is shown in Table 4.2. Within a radius of 50 miles, in the Weyburn region there resided a total farm population of 12,765, as against only 5,275 in the Kindersley region. The two urban centers in the Weyburn region are also larger than Kindersley. However, the nonfarm populations in the 11-40 mile zone of the urban centers were very similar.

4.3 The Concept and Measurement of Community Viablity

A primary problem encountered in measuring the impact of an environmental stimulus on community viability is the development of a measure (index) that most appropriately and accurately captures the quantity of socio-economic welfare over time. There are three major theoretical considerations in this regard: (1) the choice of variables deemed to be important indicators of community health; (2) the specific importance or weights subsequently attached to each variable in the index; and (3) the consistency of the measure of Index of Community Viability (ICV) in a temporal setting.

Community viability can be measured by using a number of measures of economic activity in a region:

(1) Volume of economic activity: This is simply a measure of local contributions to the value of product added. One of the proxies for this is the volume of grain handled. However, this is only a partial indicator and, furthermore, there is a large leakage from the local community.

(2) Growth (or decline) in the size and number of services: This simply presents the new capital formation in the

Table 4.2

Farm and Urban Population in
Weyburn and Kindersley Regions, 1976

Particulars	Weyburn Region	Kindersley Region
Farm Population		
within 0 miles*	793	1041
1 - 25	4016	1645
26 - 50	7956	2589
50+	4963	-
Urban and Nonfarm Population		
City of Weyburn	8847	-
Estevan	8892	-
Kindersley	-	3523
11 - 20 miles	717	1507
21 - 30 miles	2520	2013
31 - 40 miles	2773	2216
11 - 40 miles	6010	5736

Source: Statistics Canada, Census of Agriculture and Population

community, and can be used as a sign of growth or decay. However, changes in number of services is a rather gross measure of economic activity.

(3) Change in the population: This measures or reflects the long-run economic viability of the community and the surrounding region through the creation of demand for services. However, a number of factors affect population change, such as technological change, nature of services available and employment opportunities.

(4) Taxable assessment of the community: Considering the availability of data, the accuracy of secondary data sources, the relative success and failure of previous research and the specific character of the environmental stimulus (a grain terminal), the Saskatchewan government's Municipal Tax Assessment index and functional ranking system can be selected as the ICV operational construct.

Employing a combination of sales data, inter-community comparisons, and rental incomes coupled with background demographic data on population, educational services, health services, professional services, shopping facilities and services to property including sewer, water, police, fire protection and natural gas supplies, a grading process is developed that ranks property in terms of overall quality. The final ranking procedures require the attention of an experienced assessor who considers such items as proximity to services, sales, recreation units, schools, churches, the character and quality of local improvements, transportation facilities, topographic features and legal zoning. A detailed method of considering factors for developing a taxable assessment is listed in Appendix A.

After a series of statistical tests were performed to confirm the strength of the procedure, the ICV, based on the province's tax assessment (TA), proved to have several unique strengths for measuring community viability. First, the TA system was the most comprehensive in constructing a value index. Both the quantity and quality of variables showed it to be consistent across communities.

Second, the continuity plus the availability of data makes the index valuable for continued temporal analysis in future appraisals of this kind. Third, the TA index is considerably less arbitrary in its development than indices developed in other studies such as those by Stabler, Hodges and Woroby. Each of the explanatory factors is weighted through comparative measures with actual land values calculated from consummated sales agreements and land income data generated for a series of units ranging from hamlets to cities. Thus, for Saskatchewan centers, taxable assessment provides a reliable proxy for a community's functional ranking over time.

One should, however, use extreme caution in interpreting results. For example, there clearly could be a lagged relationship between TA and community growth, particularly between assessment periods, or there may be inflationary pressures influencing land values that do not equally bear on community health. Thus, notwithstanding the comprehensive data base and ready availability of the tax assessment data, the best to be hoped for is a reasonable approximation of community viability.

4.4 Data Needs and Sources of Data

In order to measure community viability, a number of data series had to be obtained. It was decided tht the pre-terminal period should include the 1961-1975 period and the 1976-1979 period would be used as a post-terminal period. The data collected related to a number of important characteristics identified in Figure 3.1. These were:

A. Grain handling characteristics for the two regions, 1961-79, including:

(1) Number and capacity of grain elevators,

(2) Number of companies, and

(3) Receipts of grain by all elevators.

B. Population of the Community, 1961-1979.

C. Economic activity in the region, including:

(1) Number of services available since 1971,

(2) Type of services available since 1971,

(3) Municipal taxable assessment for various communities since 1961, and

(4) Municipal revenues and expenditures.

In addition, other characteristics, concerning the location and physical environment of the center, were also collected. The following sources of data were used:

(i) Data related to services - type and number of outlets - from the Dun and Bradstreet reference book.

(ii) Data related to grain handling system, collected from: Canadian Grain Commission, Grain Elevators in Canada, and Summary of Primary Elevator Receipts at Individual Prairie Points.

(iii) Municipal taxable assessment data, from the Department of Municipal Affairs, Regina.

(iv) Population data, from Saskatchewan Health, Statistics Canada and the Saskatchewan Department of Municipal Affairs.

4.5 Study Hypotheses

Based on the analytical framework presented in Figure 3.1, the following hypotheses are proposed for empirical testing:

(1) If the inland terminal has been successful in diverting the grain deliveries from farmers over and above those being delivered to Weyburn before WIT became operational, there would be a significant drop in deliveries to points other than Weyburn. Furthermore, this decrease in deliveries would accelerate as one approaches Weyburn.

(2) Given that the terminal has only been in operation for less than three years the effect of the terminal on elevator closures has been insignificant. However, it is hypothesized that new construction of grain handling facilities has been moderated.

(3) The population change in the region has not been related to the grain handling function.

(4) The taxable assessment of the center is hypothesized to be related positively to grain handling function and the population base. Furthermore: (a) there exists a positive relationship between community viability as expressed by Taxable Assessment and ($\dot{I}$) the number of elevators, ($\dot{I}\dot{I}$) the capacity of elevators, ($\dot{I}\dot{I}\dot{I}$) the distance a community is from a major trade center, and ($\dot{I}\dot{V}$) the smaller the major trade center; (b) elevator capacity will rank as a more important higher order service factor than several other service characteristics, such as the number of business establishments, postal revenue, school enrollment and

hospital beds, in explaining the variation in taxable assessment.

4.6 Analytical Methods for Testing Hypotheses

Each of the hypotheses presented in the previous section was tested using an appropriate statistical technique. Each, therefore, warrants a separate discussion.

The effect of the terminal on grain handling was tested by comparing changes in grain handling capacity of primary elevators and receipts by them in the test and control regions. Analysis was conducted using a multiple regression model, which took the following form:

$$(4.1)\quad Y_{1I} = f[X_1, X_{2I}, X^2_{2I}, (X_1 * X_{2I}), X_{3I}, X_{3I}^2, (X_{3I} * X_1), X_{5I}, X_{6I}, X_{7I}]$$

$$(4.2)\quad Y_{2I} = f[X_1, X_{2I}, (X_{2I})^2, (X_1 * X_{2I}), X_{4I}, (X_{4I})^2, X_{5I}, X_{6I}, X_{7I}]$$

where:

Y_{1I} = Percent change in average elevator capacity in 1978 over 1975, at the delivery point (I)

Y_{2I} = Percent change in average grain receipts at delivery point (I) during 1973-75 and 1976-78.

X_1 = Location code (= 1 if Weyburn region; 0 otherwise)

X_{2I} = Distance between Weyburn (or Kindersley) and the delivery point (I), in miles.

X_{3I} = Pre-test period capacity, in 1,000 bu. for delivery point (I).

X_{4I} = Pre-test period receipts in 1,000 bu. for delivery point (I)

X_{5I} = Quality of highway transportation code. (= 1, if the point is located at an intersection of 2 major[1/] highways; 0 otherwise)

X_{6I} = Municipal taxable assessment of the delivery point (excluding elevators)

X_{71} = Average handling to capacity ratio for point (I) during 1972-75.

Among these parameters, those of particular interest are the coefficients for X_1 and all others that involve an interaction with X_1. If these coefficients are significant, this change could tentatively be attributed to the presence of the inland terminal at Weyburn.

Population changes in the sample and the effect of the terminal on it are analyzed using a regression model as shown by equation (4.3).

$$(4.3)\quad Y_{3I} = f[X_1, X_{2I}, X_{5I}, X_{8I}, X_{9I}, (X_{9I})^2, (X_{9I} * X_1), X_{11I}, X_{12I}, X_{13I}, X_{14I}, X_{15I}, X_{16I}, X_{17I}]$$

$$Y_{4I} = f[X_1, X_{2I}, X_{5I}, X_{8I}, X_{10I}, (X_{10I})^2, (X_{10I} * X_1), X_{11I}, X_{12I}, X_{13I}, X_{14I}, X_{15I}, X_{16I}, X_{17I}]$$

where:

Y_{3I} = Percent annual change in 1976 population over 1971.

Y_{4I} = Percent annual change in 1979 population over 1976.

X_1, X_{2I}, X_{5I} = as defined above.

X_{8I} = Binary variable for elevator closure during the period of analysis.

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[1]A major highway is defined as a provincial highway or a national highway.

X_{9I} = 1971 level population for community (I).

X_{10I} = 1976 level population for community (I).

X_{11I} = Code for hospital closure (= 1 if year, 0 otherwise).

X_{12I} = Code for school closure (= 1, if yes, 0 otherwise).

X_{13I} = Code for post-office closures, (=1 if yes, 0 otherwise).

X_{14I} to X_{17I} = Codes for long-term growth prospects.

	Code for			
	X_{14I}	X_{15I}	X_{16I}	X_{17I}
Continuous decline since 1961	1	0	0	0
Declined 1961-71 Stabilized 1971-79	0	1	0	0
Increased 1961-71 Declined 1971-79	0	0	1	0
Declined 1961-71 Increased 1971-79	0	0	0	1

Analysis of taxable assessment was carried out with pooled time series cross-section data, using multiple regression as the tool. Taxable assessment was related to exogenous variables in the following fashion:

(4.4) $Y_{5It} = f[D_{t1} \text{ to } D_{t4}, X_1, X_{18tI}, X_{19tI}, (X_{19tI})^2, X_{20I}]$

where:

D_{t1} to D_{t4} = Binary variables for years, such that D_{t1} = 1, if 1961, 0 otherwise; D_{t2} = 1, if 1966, 0 otherwise; ...' D_{t4} = 1 if 1975, 0 otherwise.

X_{18I} = Distance of the community from a major center, in miles.

X_{19I} = Population of the community I in year t.

X_{20tI} = Elevator capacity in year t at community I.

As noted earlier, the major interest in this analysis is on the coefficient for X_1 (location binary variable).

A separate analysis of Weyburn and Kindersley was also carried out for selected years during 1961-1975, where taxable assessment (Y_{5It}) was hypothesized to be related to: X_{18}, X_{19}, X_{20}, X_{21},--No. of elevators; X_{22}--No. of business establishments; X_{23}--Postal Revenue; X_{24}--School enrollment; and X_{25} --No. of hospital beds.

Analysis of business services was carried out by a cross-tabulation of service centers by distance from Weyburn and size of the service centers. Growth of the center during 1973-79 was analyzed in terms of change in the number of business establishments. The probability of service center losing business was analyzed in terms of its distance from Weyburn and its size in 1973.

CHAPTER V

GENERAL CHARACTERISTICS OF THE WEYBURN AND KINDERSLEY REGIONS

Before discussing the results of analysis as outlined in Chapter IV, a review of general economic characteristics of the test and control regions is desirable. Furthermore, this review should also facilitate interpretation of the changes (or lack of changes) in the two regions.

5.1 A Review of Economic Trends Prior to 1976

Changes in the test and control regions were examined in detail to show the nature of adjustment in both communities. Several demographic, industrial and community variables were analyzed over time and across communities for an approximate 18-year period. The following general observations include: changes in population; taxable assessment; the number of business establishments; the number, capacity and receipts of elevators; postal revenue in the community; school enrollment; distance from major centres; and the relative growth or decline in villages, towns and cities.

The population residing between 11 and 40 miles of the major city in the two regions are shown in Table 5.1. In 1961, there were some 7,120 people in the Weyburn region, as against 6,794 in the Kindersley region. Both regions showed gains in population during the 1961-1966 period. Table 5.1 also contains the population changes in both markets by selected proximities to either Weyburn or Kindersley from 1961 to 1979. The magnitude and direction of change in the population of the two regions

Table 5.1

Population Changes in The Weyburn and Kindersley Regions

For Selected Years and Distances, 1961 to 1979

Radius	Region	No. of Obser-vations	Years						Percentage Change in Population 1961-79
			1961	1966	1971	1973	1976	1979	
11-20 mile	Weyburn	4	895	850	796	756	717	772	-13.74
	Kindersley	8	2046	1945	1719	1654	1507	1501	-26.64
21-30 mile	Weyburn	9	3040	3110	2881	2781	2520	2843	-6.48
	Kindersley	5	2576	2420	2211	2037	2013	2177	-15.49
31-40 mile	Weyburn	11	3185	3206	2866	2720	2773	3010	-5.33
	Kindersley	7	2172	2599	2400	2289	2216	2168	-0.18
11-40 mile	Weyburn	24	7120	7166	6543	6257	6010	6625	-6.95
	Kindersley	20	6794	6964	6330	5980	5736	5846	-13.95

Source: Statistics Canada, Ottawa
Municipal Directory, Saskatchewan Department of Municipal Affairs, Regina.

is of particular interest and importance in this study. Within the 40-mile radius, the Weyburn region experienced almost half the relative decline in population as the Kindersley area. Similarly, changes in population for communities located similar distances in the two regions were of the same relative magnitude. The largest decline in population occurred within the 11 to 20 mile radius of both centers, with Kindersley revealing a somewhat faster rate of population change: a 26.64 percent decline, compared to a 13.74 percent decline in the Weyburn region.

The changes in taxable assessment (non-exempt)[1] in the two regions are summarized in table 5.2.[2] The growth in taxable assessment (TA) for both regions was similar within the 40-mile radius, from 1961 to 1978. Weyburn communities experienced a 63.2 percent increase in TA and the corresponding figure for Kindersley was 65.5 percent. The smallest growth in TA occurred within the 11-20 mile radius of Weyburn: the TA increased 32.8 percent in the Weyburn region in contrast to an increase of 62.2 percent during the same period in the Kindersley region. In the Kindersley region, however, the growth in TA for centers located 31-40 miles was relatively slower than that in the Weyburn region.

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[1] This figure does not include assessment that is exempt from paying municipal taxes.

[2] One general observation may be worth noting: while population, school enrollment, number of elevators and the number of business establishments declined, taxes and postal revenues increased in both markets. Clearly fewer and fewer people are bearing an increasing burden of tax in rural communities.

Table 5.2

Taxable Assessment (Non-Exempt) Changes, for the Weyburn and Kindersley Regions for Selected Years and Distances, 1961-1978

Radius	Region	No. of Observations	Years						Percent Change During 1961-78
			1961	1966	1971	1973	1975	1978	
11-20 miles	Weyburn	4	825.5	936.7	1,015.6	1,007.1	1,003.6	1,096.1	32.8
	Kindersley	8	1,810.5	2,531.4	2,672.8	2,640.8	2,659.2	2,936.6	62.2
21-30 miles	Weyburn	9	2,978.8	3,591.9	4,240.8	4,257.0	4,368.2	4,986.0	67.4
	Kinderlsey	5	2,312.8	3,332.2	3,672.8	3,704.7	3,771.7	4,421.8	91.2
31-40 miles	Weyburn	11	2,864.4	3,419.9	4,142.6	4,104.1	4,309.8	4,798.5	67.5
	Kindersley	7	2,302.8	2,652.2	3,058.8	2,982.3	3,057.4	3,274.7	42.2
11-40 miles	Weyburn	24	6,668.7	7,948.5	9,399.0	9,368.2	9,681.6	10,880.6	63.2
Total	Kindersley	20	6,426.1	8,515.8	9,404.4	9,327.8	9,488.3	10,633.1	65.5

The number of business establishments in the Weyburn and Kindersley regions are presented in table 5.3. Over the period extending from 1961 to 1979, there was a significant and similar decline in businesses within the 40-mile radius of both Weyburn and Kindersley. The drop in the number of businesses within the 11 to 20 mile radius of Weyburn was slightly lower than the corresponding decrease for the region surrounding Kindersley.

Information on postal revenues generated by each region is summarized in table 5.4. Over the 14-year period 1961-62 to 1975-76, the increase in revenues approached 100 percent in the Weyburn region, and 90 percent in the Kindersley region within the 40-mile radius. There were dramatic increases in revenues from 1961 to 1973 in both regions and then corresponding declines in revenue from 1973 to 1975 in each region. The smallest increases and largest declines tended to occur within the 20-mile radius for both regions and particularly in those communities close to Weyburn.

Declines in school enrollment from 1961 to 1973 are presented in table 5.5. Again, the most significant changes were evident within the 20-mile radius in both regions. Kindersley experienced the most rapid decline in the 11-20 mile radius, but revealed smaller declines and even increases in communities more removed from the major center. Surrounding Weyburn, the decline in school number averaged about 15 percent within the 40-mile radius.

The structure and capacity of the grain elevator industry revealed several interesting changes from 1961-62 to 1978-79.

Table 5.3

Changes in Business Establishments in the Weyburn and Kindersley Regions for Selected Years and Distances, 1961 to 1973

Radius	Area	Years				Percentage Change in Bus. Est. 1961-1973
		1961	1966	1971	1973	
11-20 mile	Weyburn	38	33	24	25	-34.2
	Kindersley	112	100	85	73	-34.8
21-30 mile	Weyburn	155	140	125	134	-13.5
	Kindersley	113	104	104	98	-13.3
31-40 mile	Weyburn	164	147	128	119	-27.4
	Kindersley	102	107	93	91	-10.8
11-40 mile	Weyburn	357	320	277	278	-22.1
	Kindersley	327	311	282	262	-19.9

Source: Dun and Bradstreet reference books.

Table 5.4

Postal Revenue Changes in the Weyburn and Kindersley Regions for Selected Years and Distances, 1961 to 1975

Radius	Region	Years					Percentage Change in Postal Revenue		
		1961	1966	1971	1973	1975	1961-73	1973-75	1961-75
11-20 Miles	Weyburn	73	79	126	127	112	73.97	-11.81	53.42
	Kindersley	160	201	314	328	297	105.00	- 9.45	85.63
21-30 Miles	Weyburn	295	365	583	609	577	106.44	- 5.25	95.59
	Kindersley	249	306	472	500	464	100.80	-.7.20	86.35
31-40 Miles	Weyburn	275	353	562	604	603	119.64	- 0.17	119.27
	Kindersley	210	280	426	476	417	126.67	-12.39	98.57
11-40 Miles	Weyburn	643	797	1271	1340	1292	108.40	- 3.58	100.93
	Kindersley	619	787	1212	1304	1178	110.66	- 9.66	90.31

Source: Canada Post Office Department, Saskatoon.

Table 5.5

School Enrollment Changes in the Weyburn and Kindersley Regions for Selected Years and Distances, 1961 to 1973

Radius	Region	1961	1971	1973	Percentage Change in School Enrollment 1961-73
11-20 Miles	Weyburn	604	669	419	-30.63
	Kindersley	971	798	561	-42.46
21-30 Miles	Weyburn	1369	1690	1171	-14.46
	Kindersley	1339	1727	1404	-4.85
31-40 Miles	Weyburn	2125	2195	1748	-17.74
	Kindersley	884	1105	891	0.79
11-40 Miles	Weyburn	4098	4554	3338	-18.55
	Kindersley	3194	3630	2856	-10.58

Source: Saskatchewan Department of Education, Saskatoon

The data are summarized in tables 5.6 and 5.7. Most communities experienced a decrease in elevator storage capacity from 1961 to 1979 (table 5.7). The most noticeable exception was within the 21-30 mile radius of Kindersley, where the capacity increased by 16.6 percent.

Similarly, the number of elevators and the number of delivery points declined over the same 17-year period (table 5.6). The reduction in elevators and the number of delivery points was more rapid in the Weyburn region and particularly in those centers near Weyburn. In the 11-20 mile radius of Weyburn, for example, the number of elevators declined 57.6 percent from 1961 to 1978. The corresponding decline for the same period in the Kindersley region was 24.3 percent. Within the total 40-mile radius, the decline in the number of elevators surrounding Weyburn was 37.1 percent, compared to 23.8 percent in the Kindersley region for the period 1961 to 1978. The decline in the number of delivery points within the 40-mile radius was similar for both areas with the slightly larger reduction occurring during a time of industrial mergers from 1961 to 1975.

A summary examination of villages, towns and cities is presented in table 5.8, including the number and taxable assessments[1] of communities in both regions from 1961 to 1977. The community classification breakdown is based on the Saskatchewan Government's Taxable Assessment procedure and associated characteristics.

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[1]This assessment excludes any exempt taxable assessment in any of the centers.

Table 5.6

Elevators in the Weyburn and Kindersley Regions, Selected Periods

Radius	Region	No. of Delivery Points			Number of Elevators Surviving During				Change during 1961-62 to 1978-79	
		1961-62	1975-76	1978-79	1961-62	1973-74	1975-76	1978-79	No. of Del. Pts.	No. of Elevators
1-10	Weyburn	2	1	1	6	4	4	4	-50.0	-33.3
	Kindersley	3	2	2	6	4	4	4	-33.3	-33.3
11-20	Weyburn	15	10	9	33	25	21	14	-40.0	-57.6
	Kindersley	13	13	10	37	35	33	28	-23.1	-24.3
21-30	Weyburn	19	14	13	54	43	42	39	-31.6	-27.8
	Kindersley	15	13	12	35	37	37	35	-20.0	0
31-40	Weyburn	26	19	17	66	52	45	43	-34.6	-34.8
	Kindersley	24	15	13	52	39	36	32	-45.8	-38.5
41-50	Weyburn	27	23	21	68	61	52	47	-22.2	-30.9
	Kindersley	0	0	0	--	--	--	--	---	---
51+	Weyburn	33	22	21	74	60	54	51	-36.4	-31.1
	Kindersley	0	0	0	--	--	--	--	---	---
1-40 Total	Weyburn	62	44	40	159	124	112	100	-35.5	-37.1
	Kindersley	55	43	37	130	115	110	99	-32.7	-23.8
	Weyburn Total	122	89	82	--	--	--	--	-32.8	---

Table 5.7

Elevator Capacity in the Weyburn and Kindersley Regions, Selected Periods

Radius (Miles)	Region	Elevator Capacity (1000 bu) during 1961-62	1973-74	1975-76	1978-79	Percent Change 1961/62 - 1978/79
1-10	Weyburn	282	207	207	188	-41.1
	Kindersley	384	253	250	228	-40.6
11-20	Weyburn	1,879	1,722	1,659	1,554	-17.3
	Kindersley	2,866	2,778	2,485	2,279	-20.5
21-30	Weyburn	3,487	3,602	3,529	3,320	-4.8
	Kindersley	2,893	2,765	3,374	3,374	+16.6
31-40	Weyburn	3,782	3,717	3,376	3,097	-18.1
	Kindersley	2,994	3,068	2,921	2,752	-8.1
1-40	Weyburn	9,430	9,248	8,771	8,159	-13.5
	Kindersley	9,138	8,864	9,032	8,632	-5.5

Table 5.8

Average Taxable Assessment and Number of Villages, Towns and Cities for the Weyburn and Kindersley Regions, for Selected Years 1961 to 1977

Center	Regions	Years								Percentage Change During		
		1961		1973		1975		1977		1961-73	1973-77	1961-77
		Average Taxable Assessment	Number of Centers	Average Taxable Assessment	Number of Centers	Average Taxable Assessment	Number of Centers	Average Taxable Assessment	Number of Centers	Average Taxable Assessment	Average Taxable Assessment	Average Taxable Assessment
Villages	Weyburn	171.56	18	229.61	18	238.78	18	253.00	18	33.84	10.19	47.47
	Kindersley	172.12	17	233.29	17	235.18	17	238.27	17	35.54	2.13	38.43
Towns	Weyburn	597.50	6	856.33	6	897.17	6	968.50	6	43.32	13.10	62.09
	Kindersley	1166.00	3	1778.00	3	1830.67	3	2091.67	3	52.49	17.64	79.39
Cities	Weyburn	6347.00	1	16163.00	1	17300.00	1	35450.00	1	154.66	119.33	458.53
	Kindersley	2966.00	1	7082.00	1	7690.00	1	8690.00	1	138.77	22.71	192.99

Source: Saskatchewan Department of Municipal Affairs, Regina.

The number of villages, towns, and cities did not change from 1961 to 1977.[1] The growth in TA was most rapid in the cities, namely Weyburn and Kindersley. Weyburn, for example, experienced a 458.53 percent increase in TA from 1961 to 1977 and a more than 119 percent increase in the four years from 1973 to 1977. This compares to a growth in Kindersley of 198 percent from 1961 to 1977 and a 22 percent growth in TA from 1973 to 1977. The rapid growth in the city of Weyburn itself since 1975 corresponds with the physical operation of the inland grain terminal. A statistical analysis of possible cause-effect relationships is examined in subsequent chapters.

Corresponding to the rapid growth in the city of Weyburn is a decline in the growth of TA of towns surrounding the Weyburn area. Note, for example, that the TA of towns in the Weyburn area grew 43 percent from 1961 to 1973 but only grew approximately 13 percent from 1973 to 1977. In the Kindersley area, on the other hand, the growth of TA in towns was more than 52 percent prior to 1973 and subsequently increased 17.6 percent from 1973 to 1977.

The growth in villages was comparable for the two markets from 1961 to 1978. The Kindersley market, however, revealed a much slower growth in these particular communities after 1973. The most dramatic difference between the two markets occurred within the major trade centers themselves. Weyburn TA grew over

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[1] Centers smaller than the village classification may have experienced a more rapid decline in number but the scarcity of data on very small communities prohibited meaningful analysis.

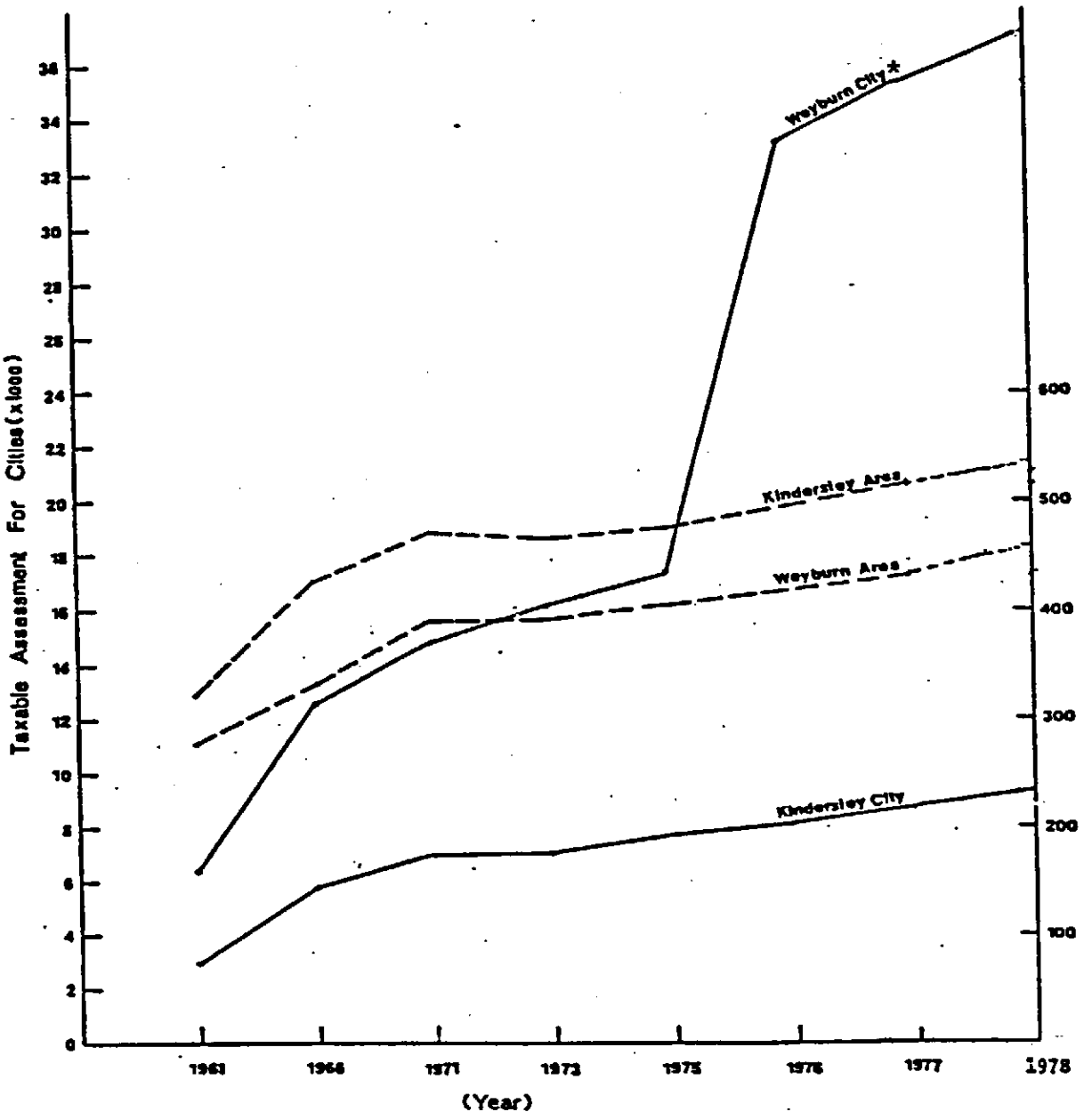
100 percent from 1973 to 1977 and 458 percent from 1961 to 1977. The corresponding figures for Kindersley were 20 and 192. A chart showing the change in TA in the two areas and in Weyburn and Kindersley is presented in Figure 5.1. Also the change in the average taxable assessment in both markets by radius is presented in Figure 5.2.

5.2 A Review of the Weyburn Inland Terminal Operations

As mentioned earlier, the Weyburn Inland Terminal (WIT) started operations in November, 1976. At that time, the terminal concept was sold to the shareholder on the merits of its capabilities: 20 million bushels (or 540,000 tonnes) of throughput during a normal year of operation. During the first crop year, ending July 31, 1977, these expectations of throughput were not met. In fact, the annually adjusted throughput was less than one-quarter of the target (see Table 5.9). During the next two crop years, although throughput increased somewhat, the 20 million bushel target was missed by some 62 percent in 1977-78, and by 75 percent the following year. Since the start of the current year (July 1, 1979), for the period ending September 31, 1979, the WIT received some 54,000 tonnes of grain and shipped 60,000 tonnes, making an annual adjusted throughtput of 228,000 tonnes—or only 58 percent short of its capability.

An analysis of reasons why the WIT was not able to attract larger volumes of grain is beyond the scope of this report. It would, however, be of interest to determine from what distances the grain is being shipped to the terminal. Data on the origin

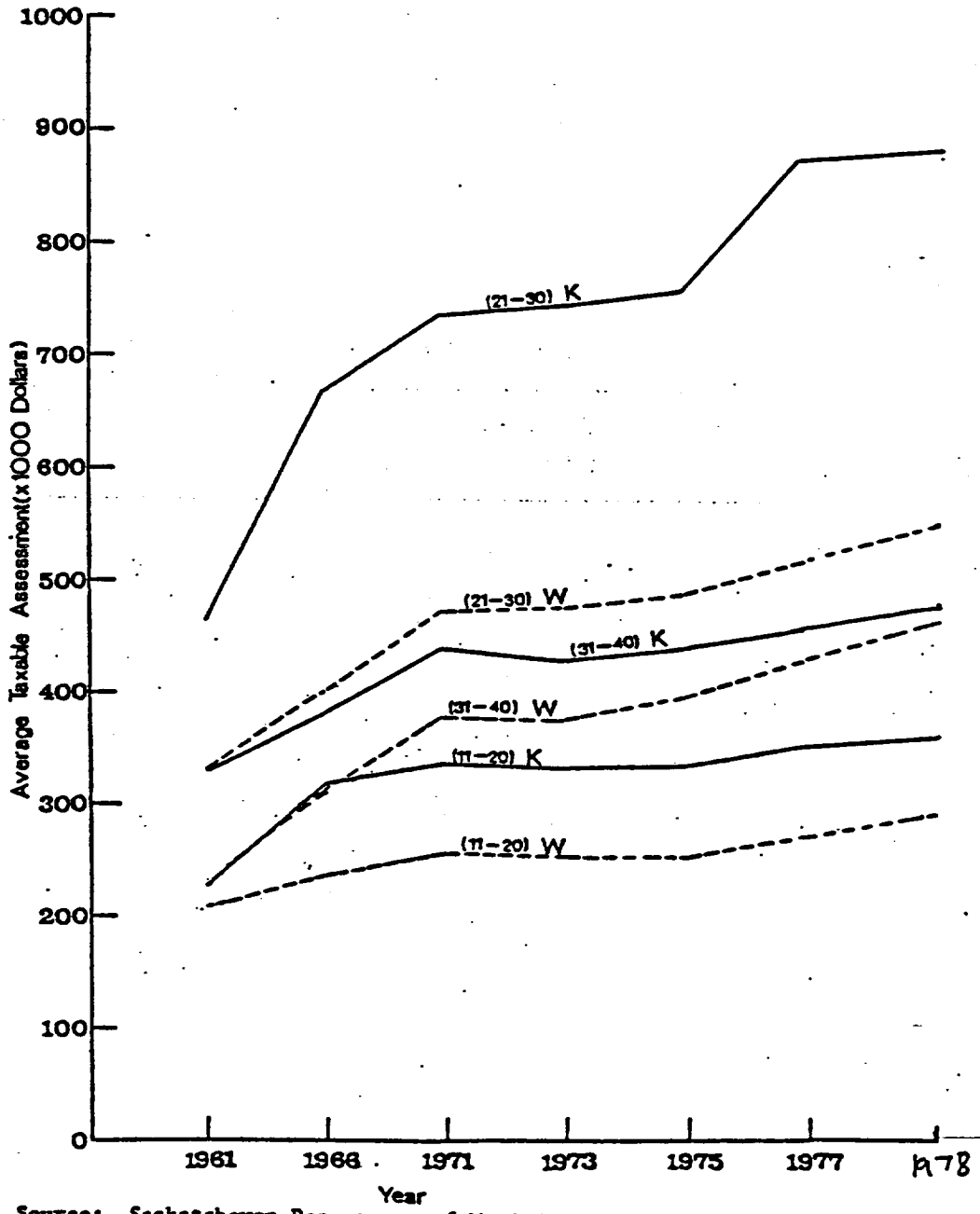
Figure 5.1
Change in Taxable Assessment in the Weyburn and Kindersley Regions, 1961 to 1978



* Includes the Weyburn Inland Terminal

Source: Saskatchewan Department of Municipal Affairs, Regina.

Figure 5.2
Change in the Average Taxable Assessment
by Radius in Weyburn and Kindersley Regions, 1961 to 1978



Source: Saskatchewan Department of Municipal Affairs, Regina

of WIT-handled grain are not available. Conversations with WIT officials disclosed that some 95 percent of grain originates within a radius of 100 miles and some 80 percent from an area within a radius of 75 miles around Weyburn. A survey of producers conducted by the University of Saskatchewan indicated that one-third of the producers hauled their grain from 31 to 40 miles to the terminal,[1] as shown in Table 5.10.

Table 5.9

Throughput of the Weyburn Inland Terminal since November, 1976

Period	Amount Handled in Tonnes	Adjusted Annual Throughput (Tonnes)	% of Exp. Throughput
Nov.76-July 77	94,000	125,333	23.2
Aug.77-July 78	201,400	201,400	37.3
Aug.78-July 79	138,800	138,000	25.5
July 79-Sept.79	57,000[a]	228,000[a]	42.2

[a]Average of volume received and shipped.
Source: Discussion with Mr. Roy Leeve, WIT.

[1]The objective of this survey was not to identify the source of grain for the Weyburn inland terminal. The sample was limited to a radius of 40 miles around Weyburn. The catchment area of the WIT extends far beyond the 40-mile radius. These figures, therefore, may not be representative.

Table 5.10

Distribution of Farmers

Delivering to the WIT, by Distance,

1978

Distance from Weyburn (Miles)	No. of Producers	Percent of the Total
<10	3	13.6
11-20	6	27.2
21-30	6	27.2
31-40	7	32.0
Total	22	100.0

Source: Grain Elevator Performance Survey, Weyburn Area, 1978, University of Saskatchewan

A lack of precise information on the origin of the grain presently handled by the WIT is a serious data gap. This information would have established from what areas the grain is being diverted and where one can in the future expect some adverse effects, if any, due to the WIT.

CHAPTER VI

THE IMPACT OF THE INLAND TERMINAL ON COMMUNITIES

This analysis of the impact of the Weyburn Inland Terminal is divided into four sections:

(1) Changes in the region's grain handling system;

(2) Changes in population;

(3) Changes in taxable assessment; and

(4) Changes in the center's services.

The analyses are carried out separately, and in some cases with a different data base. A lack of comparability may, therefore, hinder the derivation of comparable conclusions. Both Weyburn and Kindersley regions are analyzed for the periods before and after the Weyburn Inland Terminal became operational. Conclusions are then derived on the basis of this comparative analysis.

6.1 The Impact on the Grain Handling System

Two facets of the grain handling system are obviously of interest in this analysis. First, how has the Weyburn Inland Terminal changed the pattern of expansion (or decline) in the handling capability for grain in the surrounding area? And, second, how is the throughput of grain in the region influenced by the operation of the terminal? Both of these questions shall be analyzed separately.

Let us divided the period 1961-1979 as follows:

1961-1972	Normal period.
1973-1976	Period when concept of terminal was conceived.
(Nov., 1976	Terminal began operation.)
1977-1979	Period after the operations of the terminal commenced.

An historical perspective on the elevator closures (merely in terms of numbers) can be obtained by looking at Figure 6.1. The number of elevators closed during 1961 to 1978 are shown in both the Weyburn and Kindersley region. The largest number of elevator closures in the Weyburn region occurred during 1972, although during the 1974 to 1976 period, there were also a relatively large number of elevator closures. In the Kindersley region, the years with peak closure numbers seem to be 1968 and 1976. Similarly, some 22 delivery points closed during the same period within 40-mile radius of Weyburn and some 14 points within the Kindersley region. A larger number of delivery point closures happened in 1963, 1969, and 1976 for Weyburn and 1976 for Kindersley.

Distribution of pre-1975/76 delivery point closures by distance to the major center is shown in Table 6.1. Prior to the 1976/76 period, some 18 points in the Weyburn region[1] and some 11 points in the Kindersley region were closed. Average capacity per point was 36-37 thousand bushels. This loss accounted for 7.7 percent of the total capacity for Weyburn and 4.5 percent of the total for the Kindersley region. In both regions, the region bounded by 31-40 miles had the largest number of delivery point closures, by virtue of the fact that this area is about seven times as large as the area bound by a 10-mile radius.[2]

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[1]This region is being defined as an area within a 40-mile radius of Weyburn.

[2]The 31-40 mile radius area is about 2,200 sq. miles as against only 314 sq. miles for 0-10 mile radius area.

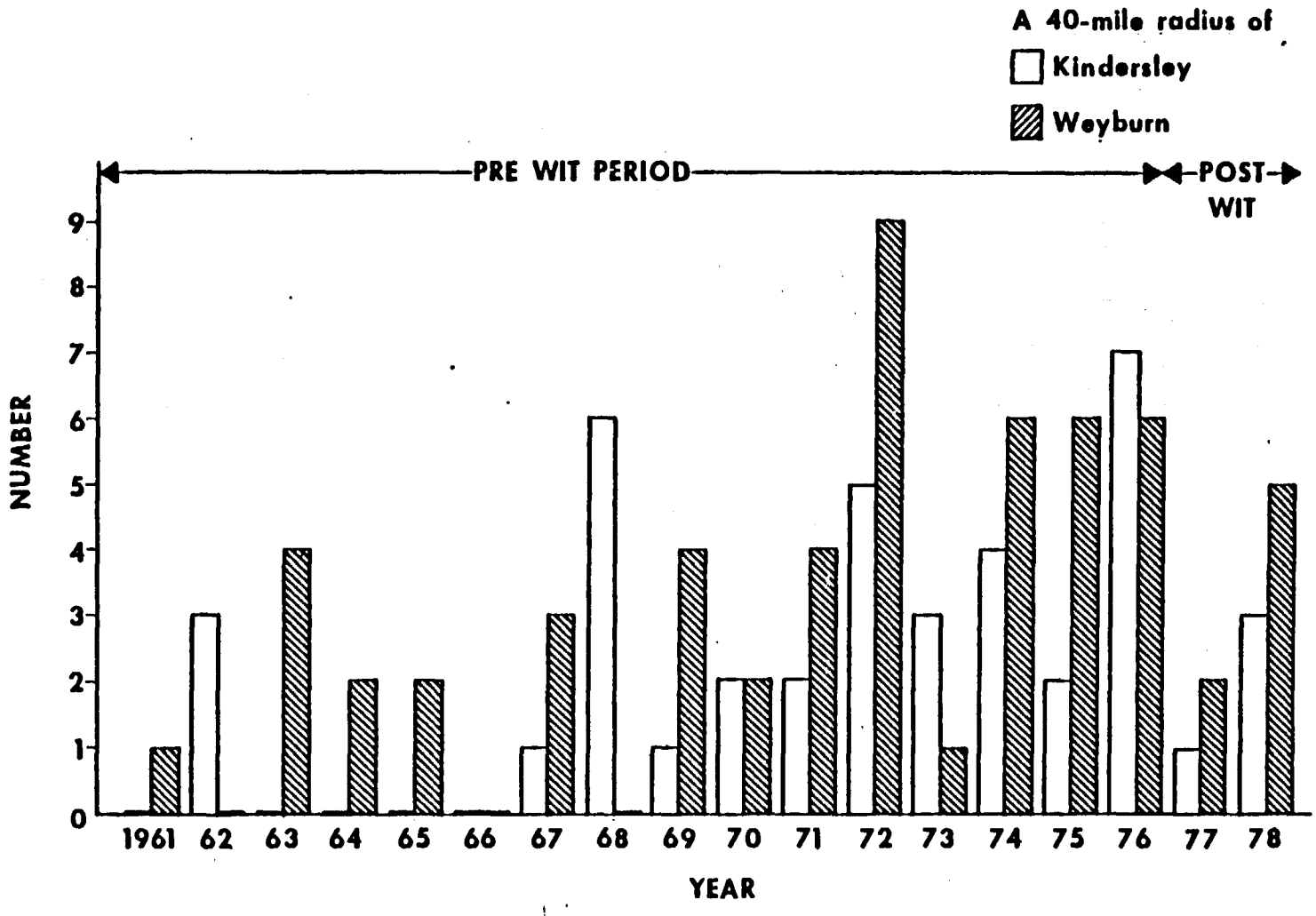

Figure 6.1 : An Historical Perspective on Elevator Closures During 1961-1978, Weyburn and Kindersley Regions.

Table 6.1

Pre-1975/76 Delivery Point Closures

Radius (Miles From Major Center)	Region	No. of Pts.	Average Capacity (1000 bu.)	% of Region's Total Capacity Within a Particular Distance Range
1-10	Weyburn	1	26	12.6
	Kindersley	1	45	18.0
11-20	Weyburn	5	32.6	9.8
	Kindersley	0	--	--
21-30	Weyburn	5	46	6.5
	Kindersley	2	47	2.8
31-40	Weyburn	7	36.6	7.6
	Kindersley	9	30.1	7.2
1-40	Weyburn	18	37.5	7.7
Total Radius	Kindersley	12	36.5	4.5

Elevator closures for selected periods are shown in Table 6.2. One is most interested in looking at the relative change during the 1973/74 to 1978/79 period, a period when the concept of the Weyburn Inland Terminal was developed and realized. During this period, one notices that between 11 and 20 miles, more elevators were closed down in the Weyburn region than in the Kindersley region. The same experience was shown by the area surrounded by the 21-30 mile radius, where only 5.4 percent of all elevators closed in the Kindersley region, compared to 9.3 percent for the Weyburn region.

Elevator closures, however, are only a partial indicator of change in the system's capabilities. A better measure of the grain handling system capability would be to look at not only the declines (through closures) but at the net position at various points in time. This is shown in Table 6.3. Here one obtains a different comparison of the two regions. Elevator capacity in the Weyburn district, within 20 miles, declined slower than that in the Kindersley region during 1973-78 period. However, during the 1973-78 period, some 11.8 percent of the capacity was lost in the Weyburn region as against only 2.6 percent in the Kindersley region.

Some of the losses in elevator capacity may have been a result of the natural demise of an elevator, a drop in receipts - and, therefore, profitability - or an increased competition from the WIT. Changes in the elevator receipts are analyzed in Table 6.4 During the 1973-79 period, in contrast to pre-terminal period, a number of observations can be made. First, in the Weyburn region, receipts of all grains rose during the 1961/62 to 1973/74 period by almost an

Table 6.2

Percentage Change in Number of Elevators in the Weyburn and Kindersley Regions, by Distance

Radius	Region	Percentage Change During 1961-62 to 1973-74	1973-74 to 1978-79	1975-76 to 1978-79
1-10	Weyburn	-33.3	0.0	0.0
	Kindersley	-33.3	0.0	0.0
11-20	Weyburn	-24.2	-44.0	-33.3
	Kindersley	-5.4	-20.0	-15.2
21-30	Weyburn	-20.4	-9.3	-7.1
	Kindersley	+5.7	-5.4	-5.4
31-40	Weyburn	-21.2	-17.3	-4.4
	Kindersley	-25.0	-17.9	-11.1
41-50	Weyburn	-10.3	-23.0	-9.6
	Kindersley			
51+	Weyburn	-18.9	-15.0	-5.6
	Kindersley			
1-40 Total	Weyburn	-22.0	-19.4	-10.7
	Kindersley	-11.5	-13.9	-10.0

Table 6.3

Changes in Elevator Capacity in the Weyburn and Kindersley Regions, Selected Periods.

Radius	Regions	Percentage Change in Capacity			
		61/2-73/4	61/2-75/6	73/4-78/9	75/6-78/9
1-10 miles	Weyburn	-26.6	-26.6	-9.2	-9.2
	Kindersley	-34.2	-35.0	-10.0	-8.9
11-20 miles	Weyburn	-8.4	-11.7	-9.7	-6.3
	Kindersley	-3.1	-13.3	-18.0	-8.3
21-30 miles	Weyburn	3.3	1.2	-7.8	-5.9
	Kindersley	-4.4	16.7	22.0	-0.1
31-40 miles	Weyburn	-1.7	-10.7	-16.7	-8.3
	Kindersley	2.4	-2.4	-10.3	-5.8
1-40 miles Total	Weyburn	-1.9	-7.0	-11.8	-7.0
	Kindersley	-3.0	-1.2	-2.6	-4.4

Table 6.4

Elevator Receipts in the Weyburn and Kindersley Regions, Selected Periods

Radius	Region	Elevator Capacity in 1000 bus. during				Percentage Change in Capacity			
		1961-62	1973-74	1975-76	1978-79	61/2-73/4	61/2-75/6	73/4-78/9	75/6-78/9
1-10 miles	Weyburn	417.3	476.1	312	237	14.1	-25.2	-50.2	-24.0
	Kindersley	634.2	945.3	873.5	818.4	49.1	37.7	-13.4	-6.3
11-20 miles	Weyburn	2,640.9	5,471.3	3,861	4,186	107.2	46.2	-23.5	8.4
	Kindersley	3,843.4	7,482	7,710.7	6,573	94.7	100.6	-12.1	-14.8
21-30 miles	Weyburn	4,694.5	11,462.1	8,023	9,851	144.2	70.9	-14.1	22.8
	Kindersley	3,412.6	8,312.2	9,554.9	8,830	143.6	180.0	6.2	-7.6
31-40 miles	Weyburn	5,263.7	11,725.5	8,470.5	9,079.6	122.8	60.9	-22.6	7.2
	Kindersley	3,831.7	8,583.1	8,565.8	6,319.7	124.0	123.6	-26.4	-26.2
1-40 miles Total	Weyburn	13,016.4	29,135	20,666.5	23,353.6	123.8	58.8	-19.8	13.0
	Kindersley	11,721.9	25,322.6	26,704.9	22,541.1	116.0	127.8	-11.0	-15.6

equal amount as in the Kindersley region. Second, during the 1973/74 to 1978/79 period, both regions showed a decline, although the decline in the Weyburn region was almost double that in the Kindersley region. Third, the drop in receipts in the Weyburn region during the 1973/74 to 1978/79 period was observed for all distance ranges.

To what extent can these changes in the elevator capacity and receipts be attributed to the operations of the WIT? To answer this question, two analyses were carried out: a cross-tabular analysis, and a multiple regression analysis.

In the cross-tabular analysis, delivery points were classified by relative change in handling during 1975-76 and 1978-79. A number of characteristics were examined. Results are shown in Table 6.5. Elevator receipt changes varied between increases or decreases of up to three times the 1975/76 receipts. Relatively speaking, elevators in the Weyburn region had shown increased handlings, while more elevators in the Kindersley region showed declines. No particular relationship to distance from a major center was obvious. Similar observations apply to capacity and handlings in the past. A lack of any clear cut relationship can be attributed to the fact that this analysis is based on two isolated points. Perhaps a longer-run trend might be more appropriate.

In the multiple regression, some 65 delivery points listed in Appendix B, in the two areas were analyzed. Empirical results are shown in Table 6.6. Major explanations of an increase in the elevator storage capacity at a given center include a negative relationship

Table 6.5

Relative Change in Elevator Receipts From 1975/76 to 1978/79

Range of +Increase or -Decrease in Receipts '000 bus.	Region	Average Change in Receipts	No. of Delivery Points	Average Distance	Average 1976 Capacity	Average 1976 Receipts	Average 1976 H/C Ratio
				(Miles)	——('000 bus.)——		
+ ≥ 300	Weyburn	+442.7	3	28.7	266.7	543.2	2.0
	Kindersley	528.0	1	18.0	300.9	1134	3.8
+ 201-300	Weyburn	+244.3	3	31.0	373.1	762.1	2.0
	Kindersley	—	0	—	—	—	—
+ 151-200	Weyburn	+184.8	5	24.0	367.7	673.1	1.8
	Kindersley	—	0	—	—	—	—
+ 101-150	Weyburn	+111.0	4	26.0	134.0	353.2	2.6
	Kindersley	106.0	1	30.0	168.8	528.5	3.1
+ 51-100	Weyburn	+75.6	5	30.4	146.8	396.4	2.7
	Kindersley	72.3	3	26.3	215.3	488.1	2.3
+ 1-50	Weyburn	+22.0	7	32.6	137.7	343.9	2.5
	Kindersley	+32.7	6	25.3	138.8	426.3	3.1
- 1-50	Weyburn	-36.5	6	25.7	202.5	478.3	2.4
	Kindersley	-48.0	1	17.0	499.1	701.0	1.4
- 51-100	Weyburn	-71.3	4	21.8	126.6	325.7	2.6
	Kindersley	-87.2	6	28.8	173.1	582.3	3.4
- 101-150	Weyburn	-122.2	5	28.4	193.5	629.0	3.3
	Kindersley	-122.7	11	22.3	135.8	484.4	3.6
- 151-200	Weyburn	-159.0	1	37.0	51.4	157.8	3.1
	Kindersley	-169.0	6	33.3	230.6	645.1	2.8
- 201-300	Weyburn	—	0	—	—	—	—
	Kindersley	-251.8	5	25.6	307.5	908.7	3.0
- ≤ 301	Weyburn	—	0	—	—	—	—
	Kindersley	-336.0	2	21.5	484.4	1319.4	2.7

Table 6.6

Regression Results for Change in Elevator Capacity and Elevator Receipts

Independent Variable	Dep. Variable: Percent Change in Elevator Capacity During 1976-78 Period over 1973-75		Dep. Variable: Percent Change in Elevator Receipts During 1976-78 Period Over 1973-75	
	β	t-value	β	t-value
Intercept	6.000	.140	-13.908	-.533
Location (Weyburn=1)	32.318	.808	54.057	2.247
Distance	-.444	-.341	.263	.224
$(\text{Distance})^2$	.0133	.623	.007	.399
Distance * Location Code	-.881	-.838	-1.241	-1.574
1975-76 Elev. Capacity	-7.426	-1.611	.0005[a]	.053
$(\text{1975-76 Elev. Capacity})^2$	.408	1.852	.000001[b]	.716
1975-76 Elev. Cap. * Loc. Code	-.204	-.094	-11.655	-1.386
Code for Hwy. Transportation	-2.319	-.226	.0028	1.903
Municipal Taxable Assessment	.0015	.763	5.572	.599
Average Bd/Cap. Ratio (1972-75)	1.630	1.191	-3.528	-.943
R^2	.232		.399	
S_y^*	32.33		25.23	
Mean of Dependent Variable	4.81		9.67	

a 1975-76 Average handlings.

b Above in a square form.

with its own capacity[1] and a positive relationship with its average handling/capacity ratio. In practice one would expect these factors to play an important role in deciding where more elevators should be built. The interesting observation is that the distance from a major center (Weyburn or Kindersley) had no influence on these decisions, nor did the presence of the WIT, as shown by an insignificant coefficient for the location binary variable.

Changes in elevator receipts were found to be related to:

(1) The Weyburn region having relatively higher receipts than the Kindersley region.

(2) The distance coefficient for the Weyburn region being negative, signifying that the WIT may have been successful in diverting the grain deliveries from conventional points to the WIT. However, the negative coefficient implies that points located further from Weyburn had lower receipts in the 1976-78 period.

(3) The quality of transportation. Towns located at intersections of major highways improved their receipts.

Based on this analysis, it does not appear that the WIT has attributed to elevator capacity adjustments in the region. However, relative change in elevator receipts have declined in the Weyburn region, but these declines are negatively related to distance from Weyburn. In other words, receipts for elevators located further from the WIT showed sharper declines than those nearby. It is not

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[1]This relationship showed that change in elevator capacity at a point declined at a decreasing rate for points with large capacity.

very clear whether this kind of pattern could be a result of the WIT, unless most of the patronage of the WIT is from these outlying regions. This question needs further investigation, particularly with respect to the origin of grain being delivered to the WIT.

6.2 The Impact on Changes in Population

Population changes are a result of a vast number of events that are at play in any socio-economic changes. A comprehensive analysis of population changes, population composition and reasons behind such changes is beyond the scope of the present report. Nonetheless, an attempt is made in this section to review key features of population in the Weyburn region and compare them with those in the Kindersley region.

Relative changes in population over a selected period of time are shown in Table 6.7. The 11-40 mile radius area around the two major centers showed a consistent decline during the 1961-1976 period. Both regions had the same overall decline in the number of people living in urban and nonfarm centers.[1] The largest decline was noted around the proximity to a larger center, whereas centers located farther away from Kindersley, in fact, showed a positive growth in population. During 1973 to 1979, a somewhat mixed pattern of population growth developed. During 1973-76, both regions showed a decline but during 1976-79 showed an increase. In the latter period, the Weyburn region showed a gain of some 10 percent of its 1976

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[1] These centers include villages and towns, and exclude the cities and anything too small to be classified as a village.

Table 6.7

Population Changes in the Weyburn and Kindersley Regions, Selected Periods

Radius (Miles)	Region	No. of Centers	Percent Change in Population 1961-73	1961-76	1973-76	1976-79
11-20	Weyburn	4	-15.53	-19.89	-5.16	7.12
	Kindersley	8	-19.16	-26.34	-8.89	-0.40
21-30	Weyburn	9	-8.55	-17.11	-9.39	11.36
	Kindersley	5	-20.92	-21.86	-1.18	8.15
31-40	Weyburn	11	-14.60	-12.94	1.95	8.03
	Kindersley	4	5.39	+2.03	-3.19	-2.17
11-40	Weyburn	24	-12.12	-15.59	-3.95	10.23
	Kindersley	20	-11.89	-15.57	-4.08	1.92

Source: Derived from Table 5.1

population level, with all surrounding areas showing the same trend. Growth in the 11 to 20 mile radius was about 7.12 percent, lower than that the for entire region. However, no definitive changes could be attributed to the presence of the WIT during this period.

Age structure of urban (Weyburn and Kindersley) population is shown in Table 6.8. Both cities enjoyed a 20 to 30 percent growth in population during the 15-year period. Weyburn, although it grew in absolute size faster than Kindersley, had slower relative growth. Relative age structure of the two cities is shown in Figure 6.2. Two noteworthy conclusions can be reached. First, the increase in the number of older (65+ years) people in Weyburn was larger than in Kindersley. Second, the drop in the number of younger people (0-19 years) has been basically of similar magnitude in the two cities.

The age structure of the nonfarm population is presented in Table 6.9. During the 1971-79 period, the Weyburn region population remained virtually unchanged. However, there were some changes within distance ranges. For instance, the subregion within 20 miles of Weyburn showed an increase. In all other distance ranges there was a net decline in the population. In all distance ranges a tendency for the younger aged (under 19) group to decline was noticed. Similarly, in all cases, people in 65+ age bracket increased both absolutely as well as relatively.

The Kindersley region showed a somewhat contrasting trend. The region as a whole showed a decline in population but that within a 30-mile radius gained in population. Decline in the ≤ 19 years of age bracket people was noted for all distance ranges. However, the

Table 6.8

Age Composition of the Urban Population at Weyburn and Kindersley: 1964, 1971, and 1979

Age Group (Years)	No. of People Living in Weyburn			No. of People Living in Kindersley			Percent Change 1964-1979	
	1964	1971	1979	1964	1971	1979	Weyburn	Kindersley
0-14	2608	2390	2040	1021	977	834	-21.8	-18.3
15-19	606	826	912	225	295	395	+50.5	+75.5
20-24	645	687	889	211	252	440	+37.8	+108.5
25-29	531	465	724	212	211	316	+36.3	+49.0
30-34	492	421	507	177	186	238	+3.0	+34.5
35-39	476	458	459	170	162	175	-3.6	+2.9
40-49	859	871	876	268	299	349	+2.0	+30.2
50-64	908	1211	1506	302	372	513	+65.8	+69.9
65 +	742	950	1555	299	327	524	+109.6	+75.2
All Ages	7867	8279	9468	2885	3081	3784	+20.3	+31.2

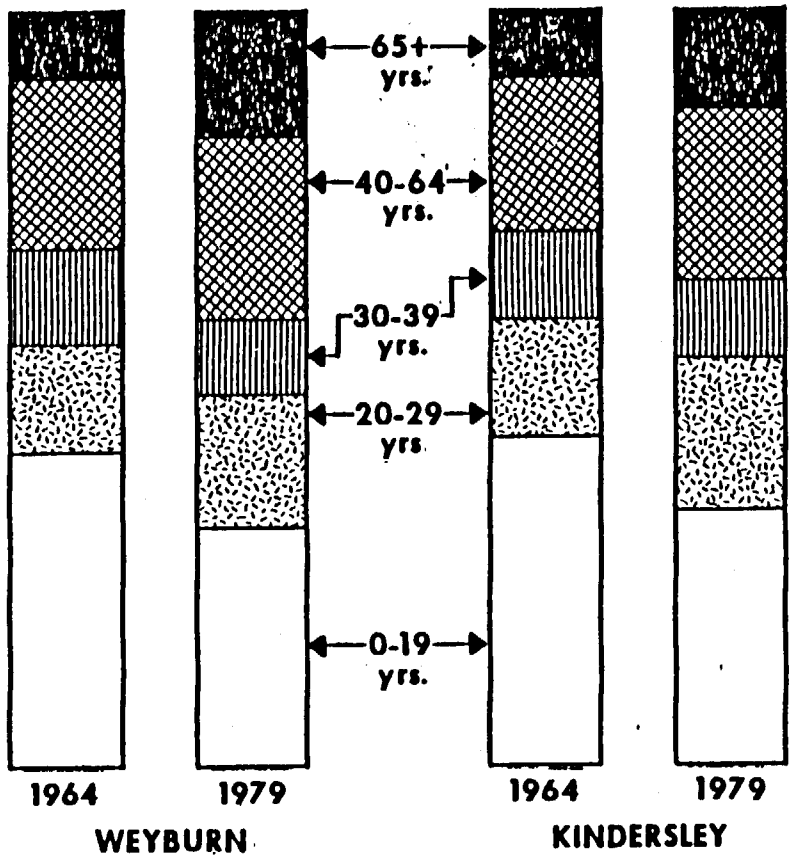

Figure 6.2 : Changes in the Age Structure of the Populations of Weyburn and Kindersley.

Table 6.9

Age Structure of Population for Weyburn and Kindersley, By Distance, 1971 to 1979

Distance Miles	Region	Year	No. of People in Age Group ≤ 19 yrs.	20-29 yrs.	30-39 yrs.	40-49 yrs.	50-64 yrs.	65+ yrs.	Total	Region	Year	No. of People in Age Group ≤ 19 yrs.	20-29 yrs.	30-39 yrs.	40-49 yrs.	50-64 yrs.	65+ yrs.	Total
1-20	Weyburn	1971	321	96	59	79	125	131	823	Kindersley	1971	734	198	197	168	238	233	767
		1979	275	154	86	64	155	147	883		1979	480	219	149	133	226	197	1404
21-30		1971	845	253	216	224	364	401	2303		1971	742	231	170	219	270	309	1941
		1979	644	357	211	158	374	522	2266		1979	649	365	223	172	388	380	2177
31-40		1971	1154	329	231	284	542	495	3035		1971	1231	263	287	253	305	265	2604
		1979	882	524	289	184	540	591	3016		1979	807	355	203	192	316	295	2168
1-40		1971	2320	678	508	597	1031	1027	6161		1971	2706	1692	654	640	813	807	6312
		1979	1801	1035	586	406	1069	1260	6159		1979	1936	939	575	497	930	872	5749

1-20 mile radius centers in this case showed a net decline in the number of people 65 years or older.

The effect of the Weyburn Inland Terminal on the communities' population growth was examined by multiple regression. Results are shown in Table 6.10. The population growth rate for any community during 1971-1976 was determined by the following factors: the growth rate was negative if the community's population was declining since 1961 and the effect of distance on the growth rate was negative but insignificant. During the 1976-1979 period (the post-WIT period), the population growth in the Weyburn region was higher than that for the Kindersley region. The previous trends in population (as indicated by community type) were not significant determinants of annual population growth. The distance to a major center was positively related, but it was insignificant. This suggests that most communities during this period enjoyed a positive population growth and the proximity to a larger center did not deter their growth rate. This would tend to suggest that no conclusive evidence with respect to the effect of the WIT on the population growth could be inferred.

6.3 The Impact on Changes in Taxable Assessment

Taxable assessment analysis in the two regions was conducted with the help of a combined cross tabulation and a cross-section -- time series regression analysis. Two types of taxable assessments were analyzed: urban and nonfarm assessment for some 44 centers in the two regions; and taxable assessment of rural municipalities.

Table 6.10

Regression Estimates for Selected Variables Determining Population Change

Variable	Dep. Var.: Percent Annual Growth During 1976-1979		Dep. Var.: Percent Annual Growth During 1971- 1976	
	β	t	β	t
Intercept	-3.371	-1.11	5.989	2.31
Location (=1, Weyburn)	3.777	2.18	-1.509	-.98
Distance	.0423	.75	-.061	-1.35
Quality Highway Transportation	.264	.15	1.207	.81
Elevator Closure	-2.182	-1.27	-1.231	-.84
1976 Population	.00113	.55	-.00035[a]	-.19
(1976 Population)^2	.26 D-6	.75	-.19 D-6[a]	-.61
1976 Population * Location	-.0038	-1.52	.00168	.71
Comm. Type I[b]	-1.538	-.73	-6.976	-4.09
Comm. Type II	-1.991	-.36	-2.102	-.45
Comm. Type III	-2.731	-1.05	-4.308	-2.01
Comm. Type IV	1.683	.79	.075	.04
R^2 ($\bar{R}^2$)	.246	(.089)	.443	(.327)
$S_{\hat{y}}$	4.961		4.253	
Mean	-0.717		-.452	

[a] 1971 Population.

[b] Type I: Population Trend 1961-79 Decline.
Type II: Population Trend 1961-71 Decline, stable thereafter.
Type III: Population Trend 1961-71 Increase, decline thereafter.
Type IV: Population Trend 1961-71 Decline, increase thereafter.

6.3.1 Urban and Nonfarm Taxable Assessment[1]

A summary of trends in the taxable assessment of 44 centers[2] in the Weyburn and Kindersley regions is presented in Table 6.11. Changes in taxable assessment during the 1961-73 period for the 11-40 mile radius area were of similar magnitude in the two regions. However, centers located from 11 to 20 miles of Weyburn increased slower than those in a similar distance group in the Kindersley region. This difference in growth may be explained by the differences in the size of the two cities. Weyburn, being larger and at a certain level of city development, would attract different types of services, thereby affecting the surrounding hinterland differently. During the 1973-75 period, those Weyburn region communities located 11 to 20 miles away decreased in the level of economic activity, as shown by a -0.35 percent change in taxable assessment. During this period the area between 11 and 40 miles of Weyburn grew faster than Kindersley. It is conceivable that some of these centers, particularly in the 11-20 mile area, did not develop on account of the anticipated grain terminal. During the 1975-78 period, after the completion of the terminal, growth in the 11-20 mile area was positive, and magnitudes were similar. If one were to conclude that the WIT deterred the growth of surrounding communities during 1973-75, the effect did not last beyond 1975. Paricularly during the 1975-78 period.

A combined time series cross-section analysis of taxable assessment was carried out using data for 1961, 1966, 1971, 1973, and

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[1] This seciton draws heavily from Dessouki, (1979).

[2] A list of these centers is presented in Appendix B.

Table 6.11

Relative Changes in Taxable Assessment in the Weyburn and Kindersley Regions

Radius (Miles)	Region	No. of Centers	Percent Change During 1961-73	1973-75	1975-78
11-20	Weyburn	4	22.00	-.35	9.2
	Kindersley	8	45.86	.70	10.4
21-30	Weyburn	9	42.91	2.61	14.1
	Kindersley	5	60.18	1.81	17.2
31-40	Weyburn	11	43.28	5.01	11.3
	Kindersley	7	29.51	2.52	7.1
11-40	Weyburn	24	40.48	3.35	12.4
	Kindersley	20	45.15	1.72	12.1

Source: Obtained from Table 5.2

1975. Taxable assessment was hypothesized to be affected by population, distance from a major center, and elevator capacity. In addition, the two regions were separated by a location binary variable. As well, four time period binaries were used: one each for 1961, 1966, 1971 and 1975 - to disaggregate the time period. Results are shown in Equation (6.1).

$$TA = -220.08 + \underset{(4.83)}{.7396}\ X_{19} + \underset{(5.89)}{.000103}\ (X_{19})^2 + \underset{(1.14)}{3.557}\ X_{18} + \underset{(3.79)}{1.062}\ X_{20}$$
$$- \underset{(1.34)}{234.91}\ X_1 - \underset{(.50)}{86.21}\ D_{t61} - \underset{(.89)}{113.40}\ D_{t66} + \underset{(.27)}{33.35}\ D_{t71} + \underset{(1.21)}{149.86}\ D_{t75}$$
$$R^2 = .941 \qquad \bar{R}^2 = .937 \qquad S_e = 480.08 \qquad (6.1)$$

Equation (6.1) suggests that population (X_{19}) determines the economic activity of a center in a nonlinear fashion. This is to be expected, based on the central place theory, since as demand increases over the threshold level, many businesses are attracted. The multiplier effect in terms of secondary and tertiary industries is even higher. Positive coefficients for distance (X_{18}) and elevator capacity (X_{20}) are also plausible a priori. Since elevator capacity is positively related to elevator taxable assessment, such is to be expected. The coefficient for the distance variable was not significant, which suggests that after one adjusts for population differences, centers located closer to a large city grow at a rate similar to those located farther away. Binary variables for various years were not significant, which indicates that, relative to the year 1973 (when plans to construct the WIT were set into motion), taxable assessment was not significantly different before or after

that period.

For the above five years, a separate analysis was also conducted using disaggreagate data for each year in each region. Results are presented in Table 6.12. In terms of goodness of fit (R^2), results can be considered satisfactory since, with the exception of 1961 in the Weyburn area, R^2's exceeding 0.985 were obtained.

Tax assessment and community population were very highly correlated. There was a positive and significant relationship between the two variables for all time periods and both regions. The results were consistent with a priori expectations, due primarily to the tax assessment formula developed by the province.

Regarding the influence of community proximity to a major trade center, the relationship between distance and TA was generally negative but insignificant for both regions after 1961.[1] Distance was significant in the Kindersley region in 1971.

The number of business establishments had a significant but mixed impact on TA on both regions. In 1973, both regions experienced negative and significant relationships between TA and the number of business establishments. In the Weyburn region, the signs were primarily positive and significant from 1961 to 1973. In the Kindersley region the opposite occurred: the signs were negative and significant.

Similarly, with respect to the influence of postal revenue, the two regions revealed opposite and significant relationships. In the Weyburn region there was a negative relationship between TA and

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[1] A negative relationship suggests that TA decreases as the distance from the major trade center increases.

Table 6.12

Regression Estimates for Factors Affecting Taxable Assessment in the Weyburn and Kindersley Regions, Selected Years

Variables	Weyburn Region (50 centers)					Kindersley Region (21 centers)				
	1961	1966	1971	1973	1975	1961	1966	1971	1973	1975
Intercept	-1353.76	-128.64	-83.67	-15.29	-67.711	-168.55	169.45	178.28	115.55	47.5
Distance	13.041	-.553	-.998	-2.615	0.611	1.732	-6.158	-9.13	-8.72	-8.57
	(1.805)	(-.36)	(-.56)	(-1.05)	(.21)	(1.61)	(-1.29)	(-1.81)	(-1.16)	(-1.11)
Population	.694	1.441	1.718	1.853	1.967	.984	1.395	1.948	2.21	1.92
	(7.853)	(106.86)	(107.55)	(82.84)	(70.10)	(54.56)	(17.93)	(21.73)	(19.71)	(19.33)
No. of Elevators	580.243	25.698	37.052	17.917	29.47	28.30	-106.77	-11.23	-5.96	-36.51
	(4.703)	(.88)	(.99)	(.31)	(.46)	(2.13)	(-1.85)	(-.15)	(-.08)	(-.26)
Elevator Capacity	-4.541	-.247	-.317	.109	-.384	.085	1.11	-.08	.19	.746
	(-3.769)	(-1.03)	(-1.08)	(.26)	(-.75)	(.75)	(2.66)	(-.14)	(.44)	(.81)
No. of Business Establishments	54.990	25.955	12.17	-22.60	--	-23.58	-30.62	-210.76	-228.39	--
	(1.423)	(2.96)	(.95)	(-2.39)		(-2.99)	(-1.99)	(-4.49)	(-3.94)	
Postal Revenue	-26.323	-12.368	-5.18	4.34	-3.98	8.55	10.87	15.77	23.45	-.587
	(-1.426)	(-3.58)	(-1.91)	(1.51)	(-2.88)	(1.99)	(1.77)	(4.06)	(3.76)	(-.44)
School Enrolment	0.917	--	.293	-.768	--	.613	--	2.89	8.07	--
	(.513)		(.59)	(-1.01)		(1.51)		(2.78)	(3.46)	
Hospital Beds	-34.439	6.509	-3.78	24.09	--	8.196	-8.59	108.74	-97.13	--
	(-1.221)	(2.76)	(-.21)	(1.17)		(.86)	(-.67)	(2.68)	(-2.77)	
R^2	0.671	0.997	0.998	.995	.994	.998	.990	.992	.987	.985

postal revenue, and the relationship was significant in 1965, 1971, and 1975. Alternatively, for the Kindersley region the results were positive and significant in 1961, 1971 and 1973.

School enrollment had a postive but insignificant impact on TA in the Weyburn region in 1961 and 1971. The variable proved significant and positive in the Kindersley region in 1961, 1971 and 1973. Similarly, with the number of hospital beds, the relationship to TA was positive and significant in Weyburn in 1966 and in Kindersley in 1971. Most of the remaining equations regarding hospital beds tended to be insignificant, except in the Kindersley region in 1973, where it was negative and significant.

Several interesting observations became apparent in examining the impact of elevator numbers and elevator capacity on TA. Regarding elevator numbers, the results in the Weyburn region generally revealed a positive but insignificant relationship between TA and elevator numbers. In the Kindersley region, however, all signs were negative except for 1961. The relationships were statistically significant in 1961 and 1966. With respect to elevator capacity, the results were largely negative for Weyburn, positive for Kindersley, and occasionally significant in both regions.

6.3.2 Rural Taxable Assessment

Economic viability of rural municipalities can be, in a manner similar to the urban centers, measured by levels and changes in the levels of nonexempt taxable assessment. An analysis of changes in rural taxable assessment is presented in Table 6.13. This analysis

Table 6.13

Rural Taxable Assessment, by Regions, Selected Years

Distance in Miles	Region	T.A. in 1,000 $			Percent Annual Change in T.A.	
		1972	1973	1977	1972-73	1973-77
0	Weyburn	3492	3489	3918	0	3.07
	Kindersley	7807	7902	7998	1.22	0.03
1-25	Weyburn	3730	3456	3740	-7.34	2.05
	Kindersley	2862	2910	3111	1.70	1.72
26-50	Weyburn	3379	3406	3579	0.82	1.26
	Kindersley	4583	4037	4636	1.17	0
0-50	Weyburn	3501	3426	3647	-2.10	1.61
	Kindersley	4217	4373	4362	1.32	.52
50 +	Weyburn	3438	3380	3534	-1.69	1.14

was restricted to the period from 1972 to 1977 because of the non-availability of data.[1] During this period, rural municipalities' taxable assessment[2] showed a tendency to increase. The exception to this was the Weyburn area during 1972-1973, when a decline of 2.1 percent was observed. However, in the period following 1973 taxable assessment of all rural municipalities grew at an average 1.61 percent per annum, about three times as fast as in the Kindersley region. Most of the negative growth in the taxable assessment in the Weyburn region was attributed to those rural municipalities (RM's) that

[1] This nonavailability refers to the University of Saskatchewan library. Presumably, the data can be obtained from the Department of Municipal Affairs, Regina.

[2] A list of rural municipalities is presented in Appendix B.

were located within 25 miles of Weyburn.[1] During 1972-73, these RM's taxable assessment declined by 7.34 percent. No particular conclusion can be drawn for the Weyburn region that may have any significance with respect to the WIT. The RM containing the Weyburn city showed a faster growth in TA during 1973-77 than the RM containing Kindersley during the period when WIT was being planned and operated.

Related to the question of taxable assessment is the issue of the rural municipalities' revenues and expenditures. An analysis of revenues and expenditures for the two regions from 1961 to 1975[2] is shown in Table 6.14. In 1961, average expenditures (or revenues) for an RM in the Weyburn region were $172,200 which increased to $386,700 by 1975. The average growth rate in TA from 1961 to 1971 was higher for the Kindersley region than for Weyburn. This continued from 1971 to 1973. However, from 1973 to 1975, the situation reversed: growth in TA in the Weyburn region was 27 percent, about three percent higher than that in the Kindersley region. A large proportion of this increase from 1973 to 1975 was due to the RM in which Weyburn is located, where the TA increased some 51 percent, compared to only 15.5 percent in the Kindersley region. A perusal of figures presented in Table 6.14 does not indicate that the growth in revenues of RM's in the Weyburn area was deterred since the plans for the construction of the WIT were contemplated.

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[1]Distance was measured between the city of Weyburn and the center of the rural municipality.

[2]Data after 1975 were not available at the University of Saskatchewan library, but could be obtained from the Department of Municipal Affairs, Regina.

Table 6.14

Rural Municipalities' Revenues and Expenditures, Selected Periods

Distance (Miles)	Area	1961 Rev./Exp.	1971 Rev./Exp.	1973 Rev./Exp.	1975 Rev./Exp.	Percent Change 1961-71	Percent Change 1971-73	Percent Change 1973-75
		Average in 1000 $						
0	Weyburn	188.9	273.0	259.1	391.8	44.5	-5.1	51.2
	Kindersley	297.7	686.7	769.0	887.9	130.7	12.0	15.5
1-24	Weyburn	184.8	305.6	317.5	421.6	65.4	3.9	32.8
	Kindersley	161.5	263.0	265.7	349.2	62.8	1.0	31.4
25-50	Weyburn	164.4	291.7	300.5	367.7	77.4	3.0	22.4
	Kindersley	211.8	398.3	440.9	545.0	88.0	10.7	23.6
0-50	Weyburn	172.2	295.6	304.4	386.7	71.7	3.0	27.0
	Kindersley	200.3	373.0	403.7	501.0	86.2	8.2	24.1
50+	Weyburn	188.5	301.3	306.6	377.1	59.8	1.7	23.0

6.4 The Impact on Change in Business Establishments

Among various types of changes occurring in rural communities, that in the number of business services and that in the role played by a center in a region's hierarchy, are difficult to analyze at this point. There are a number of reasons for this: (1) data for 1974 to 1979 was sketchy and information on smaller communities could not be obtained in as much details as for the pre-1974 period; (2) changes in the number of establishments is a somewhat inadequate measure of change in economic activity by the center or by the hinterland; and (3) the effect on the business services of the operation of the WIT could only be felt after a certain lag.

The 1979 data were obtained from the same source as the pre-1974 period. However, a number of adjsutments had to be made. Since the 1979 list of services was incomplete, those not reported in 1979 were assumed to be at the same level as 1973.[1] After adjusting the 1979 data, change in the number of services present during 1979 and 1973 was estimated.

Some 46 out of 80 service centers in the Weyburn region[2] declined during this period, as shown in Table 6.15. At the same time, some 17 centers grew and the other 17 maintained the number of services. Based on mere number of services, centers located farther away (31 miles or more) from Weyburn had a greater probability of losing services, as shown by data in Table 6.16. This phenomenon was

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[1]The following services were included in these categories: banks, credit unions, pool halls, bowling alleys, and offices of physicians, lawyers and veterinarians.

[2]A list of these services is presented in Appendix B.

Table 6.15

The Relationship between Change in the Number of Services, Distance and Size of the Service Center; Weyburn Area (excluding the cities of Weyburn and Estevan)

Size of Center (No. of Services in 1973)	Change During 1973-79	Distance from Weyburn (Miles) 1-10	11-20	21-30	31-40	41+	All Distances
1-10	+	1	3	3	3	2	12
	0	0	3	2	3	9	17
	-	0	1	2	8	12	23
11-30	+	0	0	0	1	3	4
	0		0	0	0	0	0
	-		1	2	3	8	14
31-50	+	0	0	0	0	0	0
	0		0	0	0	0	0
	-		1	2	1	5	9
51+	+	0	0	0	0	1	1
	0					0	0
	-					0	0
All Centers	+	1	3	3	4	6	17
	0	0	3	2	3	9	17
	-	0	2	6	12	25	46

Table 6.16

Estimated Probabilities of a Service Center Losing Services in the Weyburn Region during 1973-79, as Related to Size and Distance

Size	Distance 1-10	11-20	21-30	31-40	41+	All
1-10	0.00 (1)	.143 (7)	.286 (7)	.571 (14)	.522 (23)	.442 (52)
11-30	—	1.000 (1)	1.000 (2)	.750 (4)	.727 (11)	.777 (18)
31-50	—	1.000 (1)	1.000 (2)	1.000 (1)	1.000 (5)	1.000 (9)
51+					0.00 (1)	0.00 (1)
All	0.00 (1)	.286 (7)	.545 (11)	.631 (19)	.625 (40)	.575 (80)

Source: Estimated from Table 6.15

confirmed by all sizes of service centers in the Weyburn region. In terms of size of a service center and decline in services, it appears that medium sized centers have a higher probability of losing services than either very small or very large ones. This would, again, be plausible since lower order trade centers survive because of lack of competition for those services from large trade centers.[1] Larger trade centers grow because of relative urbanization, in which more people move into cities and thereby create more demand for services.

Can one conclude that the WIT has affected the growth in the services at any given community? The answer to this question is not clear, based on the evidence in Table 6.16. However, if the WIT was successful in limiting the growth of various trade centers, those nearby would have a higher probability of losing services. Apparently data in Table 6.16 do not support this conclusion. Readers must, however, be cautioned of two things. First, the above analysis is based on somewhat questionable and nonverified data. Second, the effect of the WIT on the trade center's place in the hierarchical order within the region would only change in the long-run. A period of two years is not considered long. Third, elevator closures in certain smaller centers would have a negative multiplier effect, which has not been examined in the above data. Fourth, the counting of services at a given center does not necessarily prove that a center is not suffering economically on account of grain diverted to the WIT. Many services may continue at a center, although the volume of business may decrease.

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[1]This would not apply to those centers which are predominantly dependent on an elevator, however.

CHAPTER VII

SUMMARY AND CONCLUSIONS

The primary objective of this study was to identify the pattern of changes that have occurred in the Weyburn region prior to, and since, the beginning of operations of the Weyburn Inland Terminal. The study was based on socio-economic data for several trade centers in Weyburn, and in a control area--Kindersley. The analytical design employed was a pre-test/post-test control group design and the standard statistical techniques--multiple regression, cross-tabulations--were employed. The datawere collected on the following characteristics: grain delivery system, population, taxable assessment, and services provided by various trade centers. The taxable assessment was used as a proxy for the trade center's economic viability.

Let us examine the conclusions reached in Chapter VI for various hypotheses as stated in Section 4.5. With respect to the hypothesis related to the effect on grain handling system in the Weyburn region, one cannot conclude that changes in elevator capacity or in the grain received by primary elevators (at points other than the Weyburn delivery point) have been significantly altered by the presence of the WIT. Major reasons for this conclusion are: (1) neither the location binary variable nor distance was a significant variable in determining changes in elevator capacity; (2) large elevators (as measured by 1975/6 elevator capacity) in the Weyburn region had reduced handlings but the lack of a positive relationship with the distance variable makes any direct connection between reduced handlings

and the WIT suspect. If, in fact, the grain delivered at WIT originates at points located farther away from WIT, this would then suggest that some alterations in delivery patterns have been felt as a result of the WIT operations.

The hypothesis with respect to population changes during 1976-79 and the changes in the grain handling function of the community was accepted. Analysis indicated that most communities in the Weyburn region enjoyed a positive growth, relative to those in the Kindersley region, and the proximity of the center to Weyburn had no effect on the population change. This suggests that from 1976 to 1979, there seems to be no conclusive evidence that the WIT has deterred the population growth in most surrounding communities in the Weyburn region.

With respect to hypotheses about taxable assessment, one can infer that a community's taxable assessment:

(1) is positively related to elevator capacity and the population at that center;

(2) is not significantly determined by the distance between the community and a larger service center; and

(3) is determined by number of elevators, number of business establishments and hospital beds variables, but in a mixed fashion. For some years, these had positive coefficients while for others a negative one.

Given the fact that inconclusive evidence exists in linking the WIT to changes in either the elevator capacity or in population, one is forced to conclude that the WIT has not yet been instrumental

in changing the economic viability of various service centers in the Weyburn region. This conclusion is also supported by the analysis of loss in business services at a given center and its lack of relationship with distance from the Weyburn Inland Terminal.

Both theoretical considerations and previous empirical research have indicated that changes in rural communities and trade centers are influenced by a large number of interrelated variables. However, based on this analysis, no clear, definite conclusions could be reached in isolating the effect of the Weyburn Inland Terminal and the changes in the region. A number of reasons could be cited for this lack of conclusive evidence. One is that the WIT has only been in operation for about two years. Given that some of the data examined were 1-2 years old, it can be argued that the effects of the WIT may not be very obvious at this time. Another reason is that the WIT has not operated at its maximum throughput. During the first two years of operations, the terminal operated around 23-37 percent of its 20 million bushel throughput capabilities. Third, since many of the other changes in the region are occurring at the same time, one needs data that could help isolate the effect of the terminal. Some of this requires primary data collection which could not be possible during the tenure of this study.

In order to arrive at some definite conclusions regarding the impacts of WIT in the Weyburn region communities, additional sets of information and analyses are needed. The following list, although not exhaustive, is a starting point outlining critical

data gaps: (1) There is no information available on the origin of grain being handled by the WIT. A survey of producers hauling with their own truck and by commercial trucks is important. This survey would suggest the most likely region that would be affected as a result of grain diverted from the conventional system to the WIT. Establishment of this is crucial for outlining the impact on the grain handling system--elevator closures, as well as construction of new facilities.

(2) The indirect effect on farmer's delivery of grain on the services provided by local communities assumes a certain plausible relationship between grain delivery and place and frequency of obtaining services. Since many producers would likely have made changes recently (if a change were to be made), a survey of those delivering to the WIT and the changes in their shopping pattern should be carried out. If, and only if, such a relationship can be demonstrated, can one hope to associate the WIT with effects on local rural communities and trade centers in the region.

(3) A survey of those trade centers located in areas where a significant amount of grain is shipped to the WIT should be carried out. The primary objective of this survey would be to measure the changes in the economic viability of the trade center. A more comprehensive measure of the economic viability of the center should also be developed as a part of this analysis.

(4) Changes in population, business establishments, institutional establishments, grain elevators, the transportation system, etc., should be monitored over at least the next five-

year period (1980-1984). Another assessment can be made of these changes, with an attempt to isolate the effect of the WIT.

(5) An analysis of distributive effects should also be carried out. If certain centers have lost, certain others may have gained. There may be a positive response in livestock production which may have stabilized the regional economy.

In conclusion, this study did not isolate any specific detrimental effects of the Weyburn Inland Terminal on communities in the Weyburn region. There are many factors which are associated with community change and examination of these factors did not show any detailed location of the relationship with the Weyburn Inland Terminal. However, the terminal has only been in operation for two years. It is hoped that another attempt shall be made during the mid-1980's to study this controversial question once again.

LIST OF REFERENCES

Allen, B.J., "The Economic Effects of Rail Abandonment on Communities: A Case Study", Transportation Journal, Fall 1975.

Berry, B.J.L. and G.L. Garrison, Geography of Market Centers and Retail Distribution, Prentice-Hall, 1967.

Booz-Allen and Hamilton, Inc., Grain Transportation and Handling in Western Canada, A Study prepared for the Grains Group, Ottawa, July, 1979.

Canada Grains Council, Grain Handling and Transportation in the Brandon Area, Winnipeg, 1974.

_____, Interim Report of the Area 11 Sub-Committee, Winnipeg, 1975.

Dessouki, E.A.A., An Evaluation of Selected Socio-Economic Implications of the Weyburn Inland Grain Terminal, Unpublished M. Sc. Thesis, University of Saskatchewan, November, 1979.

Government of Canada, Royal Commission on Transportation, Volumes I and II, March, 1961.

Grains Group, Grain Handling and Transportation Costs in Canada, August, 1971.

_____, Inland Terminal Study: Transportation and Handling Section, November, 1970.

Hall Commission, The Report of the Grain Handling and Transportation Commission, Government of Canada, Ottawa, 1977.

Hamilton, J.R., D.V. Peterson and R. Reid, Small Towns in a Rural Area: A Study of the Problems of Small Towns in Idaho, University of Idaho Res. Bull. No. 91, April 1976.

Hodge, G.J.F., "Do Villages Grow? - Some Perspective and Predictions", Rural Sociology, Vol. 31, pp. 183-196, 1966.

_____, "Branch Line Abandonment: Death Knell for Prairie Towns?" Canadian Journal of Agricultural Economics, Vol. 16, No. 1, February, 1968.

_____, "The Prediction of Trade Center Viability in the Great Plains", in Geographic Approaches to Canadian Problems, Ed. by R. Louis Gentilcore, Scarborough, Prentice-Hall, pp. 176-197, 1971.

Kulshreshtha, S.N., A Current Perspective on the Prairie Grain Handling and Transportation System. Saskatoon: University of Saskatchewan Transportation Center and Extension Division. Pub. No. 269, September, 1975.

Kulshreshtha, S.N., An Examination of the Inland Terminals Approach in Rationalizing the Prairie Grain Handling and Transportation System. Saskatoon: Extension Division, University of Saskatchewan Publ. No. 266, April, 1975.

Manitoba Department of Agriculture, Survey on Rural Attitudes to Rail Abandonment, Winnipeg, December 1973.

Marsh, L., Communities in Canada — Selected Sources, McClelland and Stewart Ltd., Toronto, 1970.

Murta, J., Wm. McKnight, S. Schellenberger, Final Report — Emergency Grain Movement Task Force, Department of Industry, Trade and Commerce, Ottawa, 1979.

Mozersky, K.A., "The Structural Determinants of Individual Perceptions to Social Change in Western Canadian Communities." Canadian Journal of Agricultural Economics, Vol. 21, pp. 27-40, February, 1973.

Olsen, H.D., and Brown, J.A., A Study of the Growth of Selected Service Centers in Saskatchewan. Saskatoon: Department of Agricultural Economics, University of Saskatchewan, January 1975.

Prairie Rail Action Committee Report, F.W. Anderson, Chairman, Department of Supply and Services, Ottawa, December 1978.

Richardson, H.W. Regional Economics, Weidenfeld and Nicolson, 1969.

Smith, P.J., The Community Impact of Grain Handling and Tranportation Rationalization. A report prepared for the Central Office of Grain Handling and Transportation, Government of Saskatchewan, Regina, 1975.

Snavely Commission, The Costs of Tranporting Grain by Rail, Government of Canada, Ottawa 1977.

Stabler, J.C., Economic Effect of Rationalization of the Grain Handling and Transportation Systems of Prairie Communities, Underwood McLellan and Associates Limited, March, 1972.

Wilkinson, K.P., Consequences of Decline and Social Adjustment to it. Edited by L.R. Whiting, Communities Left Behind, Iowa State University Press, Ames, 1974.

Woroby, P., Saskatchewan Community Study, a report prepared for the Saskatchewan Housing Corporation, 1973.

APPENDICES

APPENDIX A

PROCEDURE FOR DEVELOPING

TAXABLE ASSESSMENT INDEX

FOR THE PROVINCE OF SASKATCHEWAN

Population Rating Schedule

Range	Weighting	Rating
0 - 500	1 point each 10	0 - 50
520 - 1,500	1 point each 20	51 - 100
1,540 - 3,500	1 point each 40	101 - 150
3,580 - 7,500	1 point each 80	151 - 200
7,660 - 15,500	1 point each 160	201 - 250
15,820 - 31,500	1 point each 320	251 - 300
32,140 - 63,500	1 point each 640	301 - 350
64,780 - 127,500	1 point each 1,280	351 - 400

Population Serviced Rating Schedule

Range	Weighting	Rating
0 - 500	1 point each 25	0 - 20
550 - 1,500	1 point each 50	21 - 40
1,600 - 3,500	1 point each 100	41 - 60
3,700 - 7,500	1 point each 200	61 - 80
7,900 - 15,500	1 point each 400	81 - 100
16,300 - 31,500	1 point each 800	101 - 120
33,100 - 63,500	1 point each 1,600	121 - 140
66,700 - 127,500	1 point each 3,200	141 - 160
130,700 - 255,500	1 point each 6,400	161 - 180

Rural Land Index Based on Soil Index

Soil Index	Rating
40 +	100
38 - 39	99
36 - 37	98
34 - 35	97
32 - 33	96
30 - 31	95
28 - 29	94
26 - 27	93
24 - 25	92
22 - 23	91
20 - 21	90
18 - 19	89
16 - 17	88
up to 15	87

Factor	Type	Rating Per Unit
Retail Sales and Service		
	Accountant Office	1 point each
	Auction Market	2 points first, 1 other
	Auto Body Shop	1 point
	Auto Wrecking	1 point
	Bakery and Assoc. Bus.	2 points first 1 other
	Bank	4 points first 1 other
	Barber Shop	1 point each
	Barber Shop and Billiards	2 points first 1 other
	Barrister	1 point each
	Beauty Parlour	1 point each
	Billiard Hall	1 point each
	Blacksmith	1 point each
	Bowling Alley	2 points first 1 other
	Butcher Shop	2 points first 1 other
	Carpenter Shop	1 point each
	Cleaners and Pressers	1 point each
	Clothing and Dry Goods	2 points first 1 other
	Contractor	up to 3 points each
	Sub-Contractor	½ to 1 point each
	Credit Union	2 points if no bank, 1 point if bank in unit
	Department Store	5 to 10 points each for units over 5,000 pop., 2 to 5 points each for units under 5,000 population
	Drug Store	2 points first 1 other
	Electrical Appl. Store	1 point each
	Electrical Appl. Service	½ point each
	Food, Seed, Flour, Etc.	1 point each
	Five and ten Stores	2 to 5 points each
	Florist Shop	1 point each
	Fuel Deal, Coal and Wood	1 point each
	Furniture Store	2 points first 1 other
	Furrier, Sales and Repair	1 point each
	Garage-Sales and Service	2 points first 1 other

Factor	Type	Rating Per Unit
	Garage and Implements	2 points first 1 other
	General Store	2 points first 1 other
	Grocery Store	1 point each
	Grocery and Meat	2 points first 1 other
	Grain Elevator	1 point each
	Hardware Store	2 points first 1 other
	Implement Dealer	2 points first 1 other
	Insuracce Sales	½ point each
	Jewellery Store	1 point each
	Laundry	1 point each
	Liquour Board Store	3 points each
	Locker Plant	2 points first 1 other
	Lumber Yard	2 points first 1 other
	Machine and Wood Shops	1 point each
	Mail Order Office	2 points each
	Monumental Stores	1 point each
	Motor Supplies	1 point each
	Music and Instrument	1 point each
	Oil and Gas (Bulk)	1 point each
	Oil Field Service and Supply	1 point each
	Paint Store and Decorators	1 point each
	Photographer Studio and Sales	1 point each
	Plumbing and Heating	2 points first 1 other
	Publisher and Printer	2 points first 1 other
	Radio and TV Stations	2 points each
	Real Estate and Insurance	1 point each
	Second Hand and Junk	1 point each
	Seed Cleaning Plant	2 points each
	Service Station	1 point each
	Sawing Machines	1 point each
	Shoe Store	2 points first 1 other
	Shoe and Harness Repair	1 point each
	Sign Printer	1 point each
	Specialty Store	2 points fisst 1 other
	Stationary and Book Store	1 point each
	Stock Yards (Sales Ring)	1 to 3 points each

Factor	Type	Rating Per Unit
	Tailor Shop	1 point each
	Tinsmith Shop	1 point each
	Tire and Radiator Shop	1 point each
	Transfer and Storage	1 point each
	Upholstering Shop	1 point each
	Undertaker and Funeral Home	1 point each
	Misc. (Specify)	----------
Wholesale Outlets		
	Automobile Parts	2 points each
	Dry Goods	2 points each
	Drugs	2 points each
	Groceries, Fruits and Produce	2 to 3 points each
	Hardware	2 points each
	Implements	2 points each
	Others (Specify)	----------
Industrial Concerns		
	Abbatoir	2 points each
	Brewery	2 to 5 points each(size)
	Creamery	2 points each
	Flour Mill	2 points each
	Hatchery	1 points
	Refinery	2 to 5 points each(size)
	Others (Specify)	----------
Accommodation		
	Hotels with Licence	3 to 5 points each(size)
	Hotel without Licence	1 to 3 points each(size)
	Motel, Trailer and Tourist Camps	2 points each
	Restaurant, Dining Room and Lounges with Licence	2 points each
	Restaurant, Dining Room and Lounges without Licence	1 point each
Health and Welfare		
	Doctor	3 points first 1 other
	Dentist	3 points first 1 other
	Chiropractor	1 point each
	Optometrist	1 point each
	Clinic	1 to 3 points each(size)
	Hospital	1 to 5 points each(size)
	Health Region Centre	2 point each

Factor	Type	Rating Per Unit
	Old Folks Homes	1 to 2 points each(size)
	Nursing Home	1 to 2 points each(size)
Recreation		
	Theatre	1 to 3 points each(size)
	Halls (Public and Club)	2 points first 1 other
	Curling Rink	1 point per sheet(Max 5)
	Ball Park	1 to 2 points on Spectator Capacity
	Skating Rink	1 to 3 points on Spectator Capacity
	Golf Course	1 to 2 points on number of holes and general course adeq.
	Swimming Pool	1 to points each(size)
Government Offices	(Specify)	1 to 5 points each based on type and Patronage
Education		
	Public School Grade 1-8	3 points
	High School Grades 9-10	2 points
	High School Grade 11	2 points
	High School Grade 12	2 points
	Conveyance up to 49% of pupils	2 points
	50% and over of pupils	4 points
	Technical School	2 points
	Technical with High School	1 point
	Business School	2 points
	Other Education Facilities (Specify)	----------
Contributing Industries and Institutions (Not Rated under Industrial Concerns)		
	Railroad and Divisional Point	
	Mining	
	Oil and Gas	
	Factories	
	Power Corporation Plants	

Factor	Type	Rating Per Unit
	Gov't Institutions Sanatoria, Jail, Etc. Armed Services Training Centres	Rate as a proportion of the Population factor
	Railway-Trains 2 way daily	3 points
	Trains 1 way daily	2 points
	Trains less than 1 way daily	1 point
	Airport-Commercial	2 to 3 points(size and service)
	Casual	1 point
	Truck Express Service	2 points
	Highway within ½ mile of unit	
	Good with bus service	3 points
	Good no bus service	2 points
	Secondary	1 point
Community Services		
	Water Supply (Wells, Dugouts, Streams, Etc.)	1 to 5 points
	Water Facilities (available)	1 to 3 points
	Sewer Facilities (available)	1 to 3 points
	Electrical Facilities (Supply, Street Lighting, Etc.)	1 to 5 points
	Natural Gas Facilities	2 points
	Telephone Facilities	1 to 2 points
	Library Facilities	1 to 2 points
	Inner Transportation	1 to 2 points
Unit Planning		
	Units up to 500 pop. Adequacy of overall plan	1 to 5 points
	Units over 500 pop. Zoning	0 to 3 points
	Streets and Sidewalks	Up to 6 points
	Parks and Playgrounds	1 to 2 points

Factor	Type	Rating Per Unit
	Business and Residential Expansion Possibility, Parking Facilities, Etc.	Up to 5 points
	All Units	
	Area Utilization	
	Few Vacant Lots	4 to 5 points
	Moderate Vacant Lots	1 to 3 points
	Excessive Vacant Lots	0 points
Hazards (Soil Type, Alkali, Topography Etc.)		
	Hazard (Specify)	Up to 10 points
Insurance Rating		
	1st, 2nd, 3rd, 4th, or 5th class	6,4,3,2, or 0 points
Special Factor Adjustments (Modification of rating for specific factors listed above, and for rating of factors omitted above)		
	Specify	----------

Source: Department of Municipal Affairs, Regina

APPENDIX B

LIST OF DELIVERY POINTS

USED IN THE REGRESSION ANALYSIS

List of Grain Handling Points

Used in Regression Analysis[1]

Distance (miles)	Weyburn Region	Kindersley Region
	Name	Name
0	Weyburn	Kindersley
1-10	McTaggart*	-
11-20	Yellow Grass*	Brock
	Halbrite*	Coleville
	Goodwater*	Flaxcombe
	Colgate*	Eatonia
		Glidden
		Madison
		Netherhill
21-30	Radville*	Dodsland
	Khedive*	Eston
	Lang*	Mantario
	Francis*	Marengo
	Osage*	Plenty
	Fillmore*	
	Creelman*	
	Tribune*	
31-40	Ceylon*	Alsask
	Hardy*	Herschel
	Pangman*	Kelfield
	Milestone*	Kerrobert
	Sedley*	Loverna
	Heward	Major
	Stoughton*	Plato
	Benson*	
	Macoon*	
	Torquay*	
	Lake Alma*	
41-50	Minton*	
	Ogema*	
	Wilcox*	
	Vibank*	
	Odessa*	
	Kendel*	
	Montmarte*	
	Glenavon*	
	Forget	

Continued

Distance (miles)	Weyburn Region	Kindersley Region
50+	Bengough*	
	Avonlea*	
	Rouleau*	
	Balgonie*	
	Indian Head*	
	Sintaluta*	
	Wolseley*	
	Kisbey*	
	Arcolla*	
	Estevan	
	Bienfat*	

[1]These points were used in the following analyses:
Changes in elevator capacity
Changes in elevator receipts
Changes in population
Those marked * were used in the analysis of business establishments, along with Trossachs, Cedoux, Griffin, Colfax, Lewvan, Tyvan, Midale, Maxim, Amulat, Parry, Bechard, Riceton, Bromhead, Ongre, Beaubier, and Gladmar, Dummer, Corinne, Gray, Lajord, Koronau, Candine, Bemersyde, Corning, Forget, Woodley, Outram, Glasnevin, Dahinda, Kayville, Tydrax, Rowatt, Richardson, Darin, Jameson, McLean, Pebbles, Windhorst, Bronning and Lampman

List of Trade Centers Used in the Taxable Assessment Analysis

Kindersley Region

VILLAGES	TOWNS
Alsask	Eston
Brock	Eatonia
Coleville	Kerrobert
Dodsland	Kindersley
Flaxcombe	
Glidden	
Herschel	
Kelfiled	
Loverna	
Maidson	
Major	
Mantario	
Marengo	
Netherhill	
Plato	
Plenty	
Smiley	

Weyburn Region

VILLAGES		TOWNS	CITIES
Avonlea	Odessa	Arcola	Estevan
Benson	Osage	Balgonie	Weyburn
Ceylon	Pangman	Bengough	
Colgate	Sedley	Bienfait	
Creelman	Torquay	Francis	
Fillmore	Tribune	Indian Head	
Forget	Vibank	Lampman	
Gladmar	Wilcox	Midale	
Glenavon	Windhorst	Milestone	
Goodwater		Ogema	
Halbrite		Radville	
Hardy		Rouleau	
Heward		Sintaluta	
Kendal		Stoughton	
Khedive		Woseley	
Kisbey		Yellow Grass	
Lake Alma			
Lang			
Macoun			
McLean			
McTaggart			
Minton			
Montonartre			

List of Rural Municipalities

Distance	Weyburn Region Number	Kindersley Region Number
0	67	290
1-25	36	260
	37	320
	38	321
	66	322
	68	
	96	
	97	
	98	
26-50	5	259
	6	261
	7	288
	8	292
	9	319
	35	
	39	
	65	
	69	
	95	
	99	
	126	
	127	
	128	
	129	
50+	34	
	40	
	64	
	70	
	94	
	100	
	124	
	125	
	130	