Community
Trade Analysis Handbook

A Guide to
Using and Interpreting
Information
Available to
Rural Businesses
and Communities

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FOREWORD

This report represents the latest stage in a research program spanning more than 10 years of investigations dealing with the effects of rural economic restructuring on the retail trade sector in North Dakota communities. The authors extend appreciation to Shelly Swandal for preparing the final manuscript, and to our colleagues who reviewed the manuscript.

The authors assume responsibility for any errors of omission, logic, or otherwise. Any opinions, findings, conclusions or recommendations expressed in this publication are those of the authors and do not necessarily reflect the view of the United States Department of Agriculture.

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CONTENTS

List of WORKSHEETS

List of APPENDIX TABLES

List of APPENDIX FIGURES

INTRODUCTION

This publication provides information to help individuals, businesses, and community leaders make decisions on a variety of business and retail trade problems. This handbook is not intended to provide specific answers to the many problems facing businesses and rural communities in North Dakota; instead it provides tools and information on retail trade patterns and economic trends that can assist people in making informed decisions regarding their future business activities. The information provided in this handbook is designed to help community leaders assess their current situation and plan for the future.

This handbook contains pertinent information from several sources and brief explanations of recent research findings and trends. This format brings together much of the data which was previously published on rural retail conditions in a format that is easy to use.

This handbook includes information about trade area analysis, recent patterns and trends in economic activity, population thresholds for businesses, information on major newspaper circulations, and 2000 Census population figures. This material is organized into two major sections: (1) Definitions and Explanations and (2) Use and Application.

Definitions and Explanations

This section explains commonly used economic/trade-related terms. Some terms are relatively straightforward and should not require much explanation (e.g., city and county population, taxable retail sales), while other terms require more explanation.

Trade Area Analysis

The commonly used term 'trade area analysis' refers to a variety of analyses concerning trade patterns, size of trade areas, and characteristics of those trade areas. A statewide trade area analysis of North Dakota was conducted during 1990-91 by the Department of Agricultural Economics at North Dakota State University (see Bangsund et al. [1991a] for the study results).

The 1990-91 trade area studies of North Dakota reported the size and location of many rural communities' trade areas, identified demographic profiles of those trade areas, determined services that are important and less important to area shoppers, and identified other cities that area shoppers patronize.

Commonly used trade area terms follow, and when applicable, narrative examples of what they might mean for retailers or community leaders are included. Different sized trade centers provide different ranges of retail goods and services. Larger centers are expected to provide most, if not all, of the services found in smaller centers. On the other hand, towns under 500 people usually cannot compete in offering some goods and services (e.g., computers and electronic services, advanced medical services) which cities over 10,000 people can offer. Recent trade area studies of North Dakota

used information from Borchert and Adams (1963) as a guide to develop a classification system for North Dakota trade centers. Appendix Figure 1 provides a guide (not an exhaustive list) to the range of retail goods and services that can typically be found in various trade center classifications.

Main Trade Area (MTA)

Details: An area surrounding a community where 50 percent or more of the rural residents purchase most of their items in that community. Generally speaking, this area is where a community draws most of its loyal patrons.

Examples: What does a MTA mean to retailers?

A local retailer can look on a map and see how his/her community's MTA compares with other cities and see how the trade area matches with neighboring cities' trade areas....

Also, the population of the MTA (which includes the community's population) indicates from how many people the retailer can reasonably expect to draw customers....

Additionally, the boundaries of the MTA indicate the general distance that most loyal patrons are willing to travel to shop in the community....

Greater Secondary Trade Area (GTA)

Definition: An area surrounding a community where 10 percent or more of the rural residents purchase some, but not all, of their items in that community. Generally speaking, this area is where a community still extends some retail influence, but draws only a limited number of loyal patrons.

Examples: What does a GTA mean to retailers?

Since secondary trade areas extend beyond MTAs and often overlap other MTAs and GTAs, retailers can look on a map and see with which cities they are directly (their GTA overlapping another city's MTA) and indirectly (their GTA overlapping other GTAs) competing....

The GTA boundaries also show how far patrons may be willing to travel to occasionally shop in the community....

Some communities have greater trade areas that extend into neighboring cities' MTAs. By identifying these areas, retailers can ascertain the geographic strengths and weaknesses of competing trade centers....

Note: The general size and shape of trade areas vary depending upon several factors, including the retail strength of the trade center; number, location, and strength of competing trade centers; natural boundaries, distribution of rural population; and the criteria used to determine the boundaries.

Trade Center Classification

Definition: A term applied to a city or community which identifies it according to the level of retail trade activity and/or the types of businesses it supports. Generally speaking, it is simply a method of identifying cities according to similar retail strengths.

Examples: What difference does a specific trade center classification mean to retailers? Classifying cities by their retail activity allows cities to be compared with other cities of similar retail strength....

Retailers can compare their community's trade area characteristics (e.g., trade area size, pull factors, trade area populations, and locations) with other cities having similar amounts of retail sales....

Retailers can be assured that their trade area boundaries were determined using the same criteria as other cities of similar size....

Thus, trade center classification allows for treating similarly sized trade centers uniformly (i.e., apples treated as apples and oranges treated as oranges), provides for easy identification of the relative strength of a trade center, and allows easy comparison among trade centers with similar retail sales....

Trade Center Classifications

■ **Primary Wholesale-Retail Center**

The Fargo-Moorhead-West Fargo trade center met the criteria for this classification. This trade center classification provides the widest and greatest depth of wholesale and retail activity available in the state. Generally, trade centers over $1,500 million in retail sales (2000) fall into this category.

■ **Secondary Wholesale-Retail Center**

Secondary wholesale-retail centers are the next level below that of a primary wholesale-retail center. Only Bismarck-Mandan, Grand Forks, and Minot met the criteria for this classification. Cities having retail sales (2000) between $300 million and $1,000 million were considered to be secondary wholesale-retail centers.

■ **Complete Shopping Centers**

Cities having retail sales (2000) ranging from $45 million to $300 million were considered complete shopping centers. Trade centers in this classification provide a wide range of retail services, but were not expected to provide much wholesale activity. Examples of cities in this classification include Jamestown, Dickinson, and Williston.

■ **Partial Shopping Centers**

Cities having retail sales (2000) ranging from $12 million to $45 million were generally considered partial shopping centers. Trade centers in this classification provide a good range of retail services, but somewhat less than those provided by complete shopping centers. Examples of cities in this classification include Bowman, Cavalier, and Lisbon.

■ **Full Convenience Centers**

Cities having retail sales (2000) ranging from $6 million to $12 million were generally considered full convenience centers. These trade centers provide a mixed amount of retail activity. A few specialty services could be found in these centers; however, most of these centers provide a wide range of convenience services. Examples of cities in this classification include Crosby, Cando, and Oakes.

■ **Minimum Convenience Centers**

Cities having retail sales (2000) ranging from $2 million to $6 million were generally considered minimum convenience centers. These trade centers have a modest amount of retail activity and provide mostly convenience services. Examples of cities in this classification include Edgeley, Glen Ullin, and Towner.

■ **Hamlets**

Cities having retail sales (2000) below $2 million were considered hamlets. Trade centers in this classification only provide a minimum amount of convenience items. Examples of cities in this classification include Scranton, Munich, and Streeter.

Notes: Trade center classification played an important role in defining the criteria used to determine trade area boundaries. The actual names used for the levels of trade centers are not important. Rather, the range of retail sales for those classifications is important, since it indicates the relative strength of the trade centers. For a complete listing of the trade center classifications and the North Dakota cities in each class, see Appendix Table 1. This listing allows comparison with cities and towns of similar size and function. The population in 1970, 1980, 1990, and 2000 is listed for each community along with the percentage change from 1990 to 2000. The retail sales for 2000 is also listed along with the percentage change from 1980 to 2000, adjusted for inflation.

Threshold Population Analysis

The term 'threshold population analysis' refers to determining the minimum number of customers necessary to provide an adequate sales volume for a particular type of business. Threshold population analysis is important to community leaders and retailers because it addresses the adequacy of a community's population base to support a given type of business. Threshold population analyses for North Dakota cities were recently conducted by the Department of Agribusiness and Applied Economics at North Dakota State University (see a report entitled *Threshold Population Levels for Rural Retail Businesses in North Dakota, 2000* by Coon and Leistritz [2002] for the entire research results). Threshold population estimates are provided in Appendix Table 2.

Threshold figures can help answer important questions many communities may have about adding a new retail business or why some businesses have failed. However, community leaders and business planners must realize that many factors determine the success of a particular business, such as consumer tastes and preferences, shopping patterns of rural residents, debt load of the business, management approaches, competition from existing businesses, and other factors. *It is important to recognize that threshold estimates are just one tool and are best used with other tools when planning for the future.*

Threshold Population Levels

Definition: The number of people needed on the average within a community or trade area to generate enough sales volume to sustain a particular type of business. Generally speaking, 'thresholds' are an estimate of the number of people required to support a particular business.

Examples: What does this mean to a potential retailer?

If a person wanted to start a drug store in a town that already had one drug store and the town had a population of 1,300 people, would there be enough people to support this new business? Probably not, since research has revealed that approximately 2,100 people are needed to support two drug stores....

Assume a community's trade area population decreased from 600 people to 500 people in the last 10 years, and the community lost all of its farm supply stores. Research has shown that approximately 575 people are needed to support one farm supply establishment and this community, depending upon shopping patterns of its residents, may not be capable of supporting a farm supply establishment....

Notes: Many factors can influence the success or failure of a particular business, and a threshold figure is only one general tool that can be used to predict the potential success or failure of a business. Good business decisions are based on the use of many different tools and combined with prudent judgment. Threshold estimates are provided in Appendix Table 2.

Recent Trends in Population and Retail Sales

Since population is so important in maintaining rural businesses, providing a solid tax base, and ensuring a viable rural economy, most communities are interested in identifying population changes for their area. Population changes have been mixed in North Dakota during the 1990s. Statewide, population grew by 0.5 percent or 3,400 people from 1990 to 2000. Most of the population growth, however, was accounted for by the state's largest trade centers. Of the four wholesale-retail centers, three (all except Grand Forks) had substantial population growth, ranging from 22 percent for Fargo-West Fargo to 5.9 percent for Minot (Appendix Table 1). The complete shopping centers had a less favorable experience, as all seven of these cities recorded population losses from 1990 to 2000, with the decrease averaging 2.6 percent. Among the partial shopping centers, 5 of 13 had population growth during the 1990s, and the average population change for this group was a decrease of 5.5 percent. Among the 21 full convenience centers, only three had population gains, and the average change for the group was a decrease of 6.9 percent. The experience of the minimum convenience centers was similar – only 12 of the 54 towns recorded population gains, and the average for the group was a decrease of 6 percent (Appendix Table 1).

As rural communities have experienced both gains and losses in population during the 1990s, changes in retail sales also have been mixed. Taxable sales for most North Dakota cities for 2000 are reported in Appendix Table 1, together with the change in taxable sales, adjusted for inflation, from 1980 to 2000 and 1990 to 2000. As a group, only the wholesale-retail centers experienced increases in adjusted taxable sales from 1980 to 2000. During the 1990s, however, the experience of the smaller communities was somewhat more favorable. The wholesale-retail centers all registered gains in adjusted taxable sales from 1990 to 2000, with the change for the group averaging 32 percent. Of the

seven complete shopping centers, five had increases in their adjusted sales from 1990 to 2000, and the group change averaged 8.1 percent. Of 13 partial shopping centers, five had increases in adjusted sales, and the group change averaged 1.2 percent. Among the 21 full convenience centers, 10 experienced growth in adjusted sales, and the group averaged an increase of 4.9 percent. Of the 54 minimum convenience centers, 21 had increases in adjusted taxable sales; the average change for the group was -2.3 percent.

Other economic indicators also show mixed trends. Definitions of commonly used economic measures follow, along with short discussions of general statewide patterns and trends in economic activity.

Generally, per capita income, adjusted for inflation, has increased across North Dakota during the 1990s, following decreases during the 1980s. This means the purchasing power of North Dakota residents is again increasing. Per capita income for all North Dakota counties is included in Appendix Table 3.

Per Capita Income

Definition: The average amount of income per person for a given area—usually county, region, or state. Generally speaking, it represents how much income the average person has in a given area.

Notes: Per capita income is measured both in nominal and adjusted figures. Nominal per capita income does not account for inflation, while adjusted figures correct past estimates for inflation. Thus, increases in nominal estimates of per capita income may not indicate an improvement in purchasing power, whereas increases in adjusted per capita income do represent increases in consumer purchasing power.

Average Annual Employment

Definition: An estimate of employment in an area based on labor statistics gathered by Job Service of North Dakota. Generally speaking, it is the average number of jobs in a given area.

Notes: Average annual employment is simply another measure of the 'economic health' of an area (county or region). Usually the figures for average annual employment are measured against previous estimates to determine if employment has decreased or increased in an area. Employment figures are somewhat dependent upon the economy of a region and the size of the available labor force. Of course, the more people employed, the more money that is available for spending in a particular region or area, other things being equal.

Pull Factors

Definition: A tool used to compare the amount of a community's retail sales to the amount of spending capacity of its trade area residents. If a community's retail sales are equal to the spending capacity of its trade area population, then the community's pull factor would be equal to one. A pull factor greater than 1.0 means a community has more retail sales than the purchasing capacity of its trade area population; thus, it would be drawing some retail sales from individuals outside its trade area.

Conversely, if a community has a pull factor that is less than 1.0, it would be losing some retail purchases to other trade centers—its trade area residents would be buying some items in other communities. Generally speaking, pull factors measure how effective a community's retail sector is in attracting its potential consumer purchases.

Examples: What does a pull factor mean for retailers?

Retailers in Town A would like to determine how well their community compares to competing trade centers in capturing available consumer buying power. If Town A's pull factor is 0.45 and all competing trade centers have pull factors of 0.6 or higher, then town A is not capturing as much of its consumer buying power as the competing trade centers. Basically, Town A is doing a worse job of getting its consumers to purchase items in that town which may be due to a number of factors, such as prices, selection, service, etc....

Retailers in Town B would like to compare how well their community is doing relative to other cities in their trade center classification. By looking at the pull factors they can closely estimate how well they are doing compared to cities of similar size providing similar goods and services.... (Pull factors can be found for most communities in a report titled *The State of North Dakota: Economic, Demographic, Public Service, and Fiscal Conditions,* by R. C. Coon and F. L. Leistritz [2002], available from the Department of Agricultural and Applied Economics, NDSU).

Notes: Pull factors are affected by per capita income, trade area populations, and the relative size and location of competing trade centers. Thus, a smaller town next to a much larger trade center will probably have a low pull factor. Pull factors for most cities in North Dakota indicate that they could be capturing substantially more of their potential consumer purchasing power.

Pull factors calculated for North Dakota communities measure all areas of retail activity and *not* whether some retail sectors are performing better or worse than others (like comparing clothing stores versus agricultural supplies).

Average annual employment (i.e., wage and salary employment, excluding many self-employed persons, proprietors, and unpaid family workers) has increased almost 14 percent, statewide, over the past two decades (Appendix Table 4). Over the period 1990-2000, 25 counties registered employment increases while the remaining 28 counties had employment declines. This compares to only eight counties with increased employment and 45 with decreases during the 1980s.

Pull factors measure the performance of a city's retail sector by comparing actual taxable sales with an estimate of potential sales, based on trade area population and per capita income. The pull factor formula is:

$$\text{Pull Factor} = \frac{\text{Trade Area Capture (TAC)}}{\text{Trade Area Population}}$$

$$\text{Where TAC} = \frac{LTS_j}{PCS_s \, (TAPCI_j \, / \, PCI_s)}$$

LTS_j = local taxable sales in community j
PCS_s = state per capita taxable sales
$TAPCI_j$ = per capita income in trade area j
PCI_s = state average per capita income

Pull factor values greater than 1.0 indicate that the town's actual sales exceed the trade area potential (i.e., the town is drawing customers from outside its main trader area). Conversely, pull factors less than 1.0 indicate that the town may be losing sales to other trade centers.

Pull factors for North Dakota's wholesale-retail centers increased during the 1980s while those for most of the smaller cities and towns decreased (Appendix Table 5). During the 1990s, pull factors for the wholesale-retail centers were nearly constant

(actually decreased slightly) while those for complete shopping centers and partial shopping centers decreased slightly, on average. Full convenience centers had a slight increase in their pull factors, on average, while minimum convenience centers had a slight decrease. Within each group of smaller trade centers, there were mixed results with some towns' pull factors increasing while others' decreased. For example, among the 13 partial shopping centers, six had larger pull factors in 2000 than in 1990, while the pull factors for the other seven decreased (Appendix Table 5).

Pull factors for North Dakota counties, broken into six retail categories for 1980, 1990, and 2000 are shown in Appendix Table 6. The percentage change in pull factors between 1980 and 2000 is shown in Appendix Table 8. These pull factors were computed from data extracted from various issues of *Sales and Marketing Management.* The pull factors represent countywide retail sales and indicate the combined retail strength of the county. By working together, communities may be able to strengthen their combined retail offering and entice additional residents to shop locally. However, many counties only have one dominant trade center. Thus, many of the pull factors can be used as a guide in determining the strength of particular trade centers or retail sectors. The size of a trade center's pull factor does not reveal the size or amount of retail sales; rather, it refers to the amount of retail sales relative to the number of people in the trade area and their per capita income.

A report entitled *The State of North Dakota: Economic, Demographic, Public Service, and Fiscal Conditions,* by R. C. Coon and F. L. Leistritz (2002) contains a complete discussion and presentation of per capita income figures, employment estimates, pull factor numbers, and retail sales for most North Dakota cities. The report also includes discussion of recent changes in those measurements.

Use and Application

Businesses and communities should utilize several sources of information for guidance in analyzing their relative position. This handbook is only one source and should be used accordingly. The following questions provide examples of how the information discussed in this handbook can be used to help answer trade-related questions. The structure of the answers to the questions is designed to determine "what tools should I use?" and "how do I use them?"

1. How can a community determine how much its trade area has changed and how those changes have affected trade area population and purchasing power?

2. What goods/services are typically provided by different size trade centers?

3. How does our trade center compare with other trade centers?

4. What information would help determine if our community could support another grocery store?

5. Why does someone purchase an item in Bismarck when they could purchase the same item in our community?

6. How far does the larger cities' retail influence extend?

7. In which daily newspapers should I advertise?

8. What consumer behavior trends were identified in the trade analysis?

9. What are some possible contacts for individuals and/or communities interested in starting a new business?

10. What can our community do to strengthen its retail sector or improve our main street businesses?

■ How can a community determine how much its trade area has changed and how those changes have affected trade area population and purchasing power?

What information can I use?
— trends report
— trade area maps

Discussion:

Generally, two factors have affected the population of trade areas for most North Dakota communities. Decreasing rural populations have been a major factor in lowering trade area populations for most North Dakota communities. Decreases in rural population in North Dakota have been widespread. Of the 95 rural trade centers in the state (other than wholesale-retail centers and hamlets), only seven trade centers increased their trade area populations because of increased rural populations from 1980 to 1990 (Appendix Table 7). Two of these trade centers are in the energy development area, four are located close to an Indian reservation and one community serves primarily as a bedroom community for a nearby metropolitan area.

From 1990 to 2000, 14 rural trade centers increased their population. Six of these were in an area of southeastern North Dakota that has experienced substantial growth in manufacturing employment, five were located within commuting distance of one of the wholesale-retail centers, and the remaining three were located on or close to Indian reservations.

Retail activity in North Dakota has indicated a trend toward dominance by regional shopping centers (Bangsund et al. 1991a). The larger trade centers have extended their influence to encompass the entire state (Appendix Figure 2 and 3).

Use Worksheets 1 and 2 to compare your community with (1) similar communities and (2) neighboring communities. Similar communities are those communities included in the same trade center classification in Appendix Table 1. Try to compare with similar class communities that are approximately the same population, located in the same general area of the state and approximately the same distance from larger regional shopping centers. Neighboring communities are those located in close proximity to your home community.

Worksheet 1. Comparison of City and Trade Area Population, Your Community and Similar Class Communities

	City Population		Percent Change	Trade Area Population		Percent Change
	1990	2000		1990	2000	
			(%)			(%)
Your Community	_____	_____	_____	_____	_____	_____
Similar Class Communities						
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

Source: Appendix Table 1 and Appendix Table 7

How does your community compare to similar class communities?

If population in your community was substantially different between 1990 and 2000, what are the potential reasons?

Has the change been undesirable? What can be done to improve the situation?

Worksheet 2. Comparison of the Trade Area Population of Your Community and Neighboring Communities

	City Population		Percent Change	Trade Area Population		Percent Change
	1990	2000		1990	2000	
			(%)			(%)
Your Community	_____	_____	_____	_____	_____	_____
Similar Class Communities						
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

Source: Appendix Table 7

How does your community compare to neighboring communities?

If population in your community was substantially different between 1990 and 2000, what are the potential reasons?

Has the change been undesirable? What can be done to improve the situation?

■ What goods/services are typically provided by different size trade centers?

What information can I use?
— trade area analysis

Discussion:

A *summary* report on trade area analysis entitled *North Dakota Trade Areas: An Overview* by Bangsund et al. (1991b) contains information on the general types of goods and services that most communities will provide based on their size (Appendix Figure 1). Of course, large trade centers like Minot and Fargo will provide almost all retail goods and services, but the question really applies more to the smaller cities. The information in the above report is a guide and not a complete list of the only goods and services provided by various sized cities. This means that if other factors are favorable, some cities may be able to offer some items that are not typically provided by cities of their size.

■ How does our trade center compare with other trade centers?

What information can I use?
— trade area analysis
— retail sales
— pull factors
— population trends

Discussion:

Comparisons among trade centers can help determine how communities differ, what are a community's particular strengths, and better understand the status of a community's retail sector. Comparisons are usually made with competing trade centers (both smaller and larger) and with other trade centers of similar characteristics. One method of comparing trade centers is to look at the amount of retail sales. Appendix Table 1 shows the classification of most trade centers in the state. From the table, retail sales for trade centers can be compared (both actual sales and changes in sales) with other trade centers of similar retail strength. Retailers can see how their community compares with other trade centers in the state.

Use Worksheet 3 to compare your community with similar communities and Worksheet 4 to compare your community with neighboring communities. Answer the questions at the end of each worksheet to point out specific differences and suggest strategies for improvement.

A report titled *Supplement to North Dakota Trade Areas* by Bangsund et al. (1991c) has trade area maps for most trade centers in the state. By looking at the maps, a trade center's trade area can be compared to other trade areas. The maps of the trade areas only show geographic size and do not take into consideration population of the trade area, purchasing power of the trade area residents, or the strength of smaller or larger competing trade centers. Although geographic size alone does not

Worksheet 3. Comparison of Retail Sales and Percentage Change, Your Community and Similar Class Communities

	2000 Retail Sales	1990-2000 Percent Change
	(000 $)	(%)
Your Community	_____	_____
Similar Class Communities		
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Source: Appendix Table 1

How does your community compare to similar class communities?

If retail sales in your community were substantially different between 1990 and 2000, what are the potential reasons?

If differences are undesirable, how can they be corrected?

Worksheet 4. Comparison of Retail Sales and Percentage Change, Your Community and Neighboring Communities

	2000 Retail Sales	1990-2000 Percent Change
	(000 $)	(%)
Your Community	_____	_____
Similar Class Communities		
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Source: Appendix Table 1

How does your community compare to similar class communities?

If retail sales in your community were substantially different between 1990 and 2000, what are the potential reasons?

If differences are undesirable, how can they be corrected?

actually measure population or purchasing power of the trade area, the general size of a trade area is a good indication of the relative strength of the trade center compared to neighboring trade centers. Appendix Figures 4 through 6 contain the main trade area maps for Wholesale-Retail, Complete and Partial Shopping Centers, Full and Minimum Convenience Centers, and Selected Hamlets.

A report entitled *The State of North Dakota: Economic, Demographic, Public Service, and Fiscal Conditions,* by the Department of Agribusiness and Applied Economics at North Dakota State University contains information on trade area populations, pull factors, population changes, and other economic trends (Coon and Leistritz 2002). The report, available from the Department of Agribusiness and Applied Economics at North Dakota State University, can be used to compare most communities' pull factors, trade area populations, county employment, and per capita income. By examining this information, a community should be able to determine how it compares to trade centers of similar size and how it compares to their competing trade centers.

Probably the best way to determine how various retail trade sectors compare with each other and how they compare to those in neighboring communities is to examine actual taxable sales figures; however, sales figures are rarely available by individual retail merchandise categories (e.g., automotive stores). The next best alternative is to use countywide pull factors as outlined in Appendix Table 6. The countywide pull factors were divided into six broad categories, including total retail sales. The countywide pull factors include sales for all communities within a county; however, in many cases, only one dominant trade center exists in each county so this information can be specific to that center.

The retail sectors in Hettinger (Adams County) can be compared with those in Bowman (Bowman County) to better illustrate how the countywide pull factors can be used. The pull factor for total retail sales in Adams County was greater than 1.0 (1.20) in 2000. Correspondingly, the pull factor for Bowman County was also greater than 1.0 (1.17). This suggests that both communities did an excellent job of capturing available purchasing power of their residents.

The same comparisons can be made for each category. The pull factor in 2000 for *Food Sales* in Adams County was 1.46, and the corresponding pull factor in Bowman County was about 1.1. Both counties captured more purchasing power than was available (suggesting that their businesses are drawing some customers from outside the county and/or state); however, Adams County (city of Hettinger) did a little better than Bowman County.

Each county's pull factors can be examined to see if the strength of various sectors have changed. The pull factor for *Eating and Drinking Places* in Adams County in 1990 was 1.29—meaning they were capturing customers from outside the county. In 2000, the same pull factor decreased to 0.2–a substantial drop. Appendix Table 6 contains the pull factors for counties in 1980,1990, and 2000 by retail categories. This table allows retailers to compare how their county has changed and how they measure up to other counties. For example, the pull factor for total retail sales in Adams County increased from 0.80 to 1.04 from 1980 to 1990, and then to 1.2 in 2000 versus a decrease from 1.16 in 1980 to 0.87 in 1990,followed by an increase to 1.17 in 2000 for Bowman County. Similar comparisons can be made for other counties and trade centers.

Use Worksheet 5 to compare pull factors for your community with similar communities and Worksheet 6 to compare pull factors with neighboring communities. Answer the questions at the end of each worksheet to point out specific differences and suggest strategies for improvement.

Worksheet 5. Comparison of Pull Factors, Your Home County and Counties with Similar Class Communities, 1990 and 2000

	Pull Factors from Appendix Table 6 (1990/2000)		
	Total	Food	Restaurant and Bars
	1990 2000	1990 2000	1990 2000
Your County	_____/_____	_____/_____	_____/_____
Similar Counties			
_____	_____/_____	_____/_____	_____/_____
_____	_____/_____	_____/_____	_____/_____
_____	_____/_____	_____/_____	_____/_____

	Pull Factors from Appendix Table 6 (1990/2000)		
	Autos	Furniture Furnishings Appliances	General Merchandise
	1990 2000	1990 2000	1990 2000
Your County	_____/_____	_____/_____	_____/_____
Similar Counties			
_____	_____/_____	_____/_____	_____/_____
_____	_____/_____	_____/_____	_____/_____
_____	_____/_____	_____/_____	_____/_____

Source: Appendix Table 6

How does your county compare to other counties?

If your county's pull factors were substantially different from 1990 to 2000, what are the potential reasons?

If differences are undesirable, how can they be corrected?

Worksheet 6. Comparison of Pull Factors, Your County and Neighboring Counties, 1990 and 2000

	Pull Factors from Appendix Table 6 (1990/2000)		
	Total	Food	Restaurant and Bars
	1990 2000	1990 2000	1990 2000
Your County	_____/_____	_____/_____	_____/_____
Similar Counties			
_____	_____/_____	_____/_____	_____/_____
_____	_____/_____	_____/_____	_____/_____
_____	_____/_____	_____/_____	_____/_____

	Pull Factors from Appendix Table 6 (1990/2000)		
	Furniture Appliances	Autos	General Merchandise
	1990 2000	1990 2000	1990 2000
Your County	_____/_____	_____/_____	_____/_____
Similar Counties			
_____	_____/_____	_____/_____	_____/_____
_____	_____/_____	_____/_____	_____/_____
_____	_____/_____	_____/_____	_____/_____

Source: Appendix Table 6

How does your county compare to other counties?

If your county's pull factors were substantially different from 1990 to 2000, what are the potential reasons?

If differences are undesirable, how can they be corrected?

Use Worksheet 7 to compare per capita income figures for your county to similar counties and Worksheet 8 to compare per capita income with neighboring counties. Answer the questions at the end of each worksheet to point out specific differences and suggest strategies for improvement.

Use Worksheet 9 to compare average annual employment figures for your county and neighboring counties. Answer the questions at the end of the worksheet to point out specific differences and suggest strategies for improvement.

Comments:

A commonly asked question is, "How does our trade area or trade center compare to another specific trade center?" This question can be answered by looking at several trade-related measurements. Before comparing numbers on economic trends, population, etc., community leaders and business leaders must remember that each trade center is unique. In addition to characteristics such as location, size, and number and size of competing trade centers, each trade center has characteristics that rarely are described by statistics or quantifiable measurements. That is why it is important for each retailer and community to know what is unique about their business and town and, if possible, use that as a competitive advantage to draw or attract customers. Also, a good performance indicator for one community may be an inappropriate indicator for another community because the factors making up the performance indicator change with each trade area or community. The possibility of cooperating with neighboring communities may also enhance overall business opportunities.

Worksheet 7. Per Capita Income, 1990 and 2000, Your County and Counties with Similar Class Communities

	Per Capita Income		Percent Change	City Rank
---	1990	2000		
	($)	($)	(%)	
Your County	_____	_____	_____	_____
Counties with Similar Class Communities				
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Source: Appendix Table 3

How does your county compare to similar counties?

If your county's per capita income was substantially different from 1980 to 1990, what are the potential reasons?

If differences are undesirable, how can they be corrected?

Worksheet 8. Per Capita Income for Your County and Neighboring Counties, 1990 and 2000

	Per Capita Income		Percent Change	City Rank
	1990	2000		
	($)	($)	(%)	
Your County	_____	_____	_____	_____
Neighboring Counties				
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Source: Appendix Table 3

How does your county compare to neighboring counties?

If differences are undesirable, how can they be corrected?

Worksheet 9. Average Annual Employment, 1980, 1990 and 2000, for Your County and Surrounding Counties

	Average Annual Employment			1980-2000 Percent Change	1990-2000 Percent Change
	1980	1990	2000	(%)	(%)
Your County	_____	_____	_____	_____	_____
Neighboring Counties					
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Source: Appendix Table 4

How does your county compare to neighboring counties?

If your county's average employment was substantially different from 1990 to 2000, what are the potential reasons?

If differences are undesirable, how can they be corrected?

■ What information would help determine if our community could support another grocery store?

What information can I use?
— threshold populations

Discussion:

The decision to add an additional business or another competing business in a community is a complex question. Several factors should be analyzed very closely before making a decision to start a business. A short list of some of the things to be addressed include (1) business expertise of prospective owner(s) or managers; (2) location, size, and strength of competing businesses; (3) availability and cost of potential business locations; (4) availability of suitable workers to meet labor requirements; (5) financial considerations (profitability, financing, cash flow); (6) market potential and consumer behavior; and (7) others. Examination of these considerations is beyond the scope of this report; however, threshold population levels can be helpful to determine if the type of business under consideration has the potential to succeed.

Threshold population levels provide estimates of the population needed to generate enough sales volume to support particular types of businesses. For example, can a city of 2,000 people, that has two hardware stores, support a third store? Based on information in Appendix Table 2, approximately 2,160 people are needed to support three hardware stores.

Use Worksheet 10 to get a rough idea of how many selected businesses can be supported by your trade area population.

Comments:

The decision to add a new or competing business to a community is complex. Threshold population analysis will give some preliminary indications (see Appendix Table 2), which if positive, can facilitate additional in-depth analysis (potential contacts for assistance in this area are addressed on page 32).

■ Why does someone purchase an item in Bismarck when they could purchase the same item in our community?

What information can I use?
— trade area analysis

Discussion:

Several reasons exist for outshopping behavior. One reason is that people may already be out of town for some other reason (not specifically to shop) such as sporting events, weddings, business meetings, visiting friends, or some other event and may take time to shop while on these trips. Traveling out of town for these events can result in unplanned shopping or, if these events are scheduled ahead of time, many people will take the opportunity to do some planned shopping.

Another reason for outshopping is simply to get a chance to 'get out of town' or do something different. People enjoy traveling to other towns to browse and window shop. These 'excursions' often result in purchasing an item out of town that could have been purchased locally.

An obvious reason for outshopping is because the local trade center does not have the variety, availability, or diversity of the items the person is seeking. Shopping for electronics may be an example. Many smaller cities have limited or no electronic stores; thus, prospective buyers are forced to travel elsewhere to find what they need.

Businesses must remember that people are very value conscious, meaning that even though the items may be available locally, people will likely travel to compare prices, selection, and value. When traveling to compare items, people often browse in other stores, which results in outshopping. Thus, outshopping can result from deliberate attempts to find the items in another town or happen because of the proximity of the merchandise when someone is shopping for other items.

An article entitled "Why Do People Leave Town To Buy Goods and Services?" by Leistritz et al. (1989) examined some relationships between

Worksheet 10. Number of Selected Business Establishments That on Average Could Be Supported by the Population of Your Community

Your Community's Population _____

Establishment	Number Your Community Could Possibly Support	Number in Your Community
Drinking Places	_____	_____
Eating Places	_____	_____
Gas Stations	_____	_____
Grocery Stores	_____	_____
Farm Machinery	_____	_____
Farm Supply	_____	_____
Hardware	_____	_____
Sporting Goods	_____	_____
Lumber Yards	_____	_____
Home Furnishings	_____	_____
Radio, TV, Electronics, Computers	_____	_____
Florists	_____	_____
Drug Stores	_____	_____
Family Clothing	_____	_____
Department Store	_____	_____
Variety Stores	_____	_____

Source: Appendix Table 2

What do the comparisons indicate?

Are there any obvious establishments that your community would like to support but cannot? What are the most likely reasons for not having the business?

examples: A neighboring community has the store
             We had a store like it but it closed
             Our community is too close to a major trade center for that type of store
             Our community has difficulty generating support for those establishments

outshopping patterns and individual and community characteristics. Some key findings were that, contrary to general belief, the level of household income was not related to the amount of outshopping. Also, age and the length of residence in the community were directly related to the amount of local shopping (older individuals and those who had resided in town longer shopped more at home). Another factor affecting outshopping was the amount of satisfaction with local shopping conditions and opportunities.

Comments:

Most communities experience some, if not a considerable amount, of outshopping. Communities should realize that they probably will not be able to suppress all outshopping trends, but they could examine the reasons why local residents leave the area for their outshopping. Communities located relatively close to larger trade centers probably will not be able to effectively compete in providing some goods and services. These communities should concentrate on the items that can best be delivered locally and/or provide a level of local service that cannot be provided by firms located in larger centers.

■ How far does the larger cities' retail influence extend?

What information can I use?

— trade area maps

Discussion:

Greater trade areas (GTAs) are a good measure of the extent of a city's retail influence. GTAs have been mapped for the 11 largest cities in the state. The GTAs for Bismarck-Mandan, Fargo-West Fargo, Grand Forks, and Minot cover almost the entire state, meaning that most cities in the state are affected by the retail influences of these four cities (Appendix Figure 2). Also, the next seven largest cities (Dickinson, Williston, Jamestown, Wahpeton, Valley City, Devils Lake, and Grafton) have extensive GTAs, and these trade centers also extend their retail influence over large portions of the state (Appendix Figure 3).

Rural retailers and businesses can determine with which larger cities they are competing by examining the GTA maps for the 11 largest cities. The amount spent or frequency of purchases by rural customers in these cities is not known; however, trade area analyses have shown their influence to affect most cities in the state. Depending upon a city's location, a community may fall within the GTA boundaries of two or more of the largest trade centers.

Comments:

The implications are that most cities, depending upon their size and location, will experience some loss of retail trade to wholesale/retail centers and to a lesser extent, the complete shopping centers. Retailers and businesses must expect this and develop strategies to minimize the loss of this outshopping. In some situations, rural trade centers will not be able to effectively compete with the

wholesale/retail centers or the complete shopping centers. When this happens, rural retailers and businesses should concentrate on what they can best provide that will meet the needs of their customers. This may include providing goods and services that the larger shopping centers either cannot economically provide or do not want to bother with.

Most rural trade centers face competition from larger trade centers in perceived increased selection and better prices for most goods and services; however, competition is generally greatest for goods and services that are more difficult to provide locally. Competition also comes from neighboring trade centers delivering roughly the same goods and services. In many cases, it may be difficult for local retailers to change consumer behavior and perceptions about shopping in the larger cities. Rather than trying to compete directly with a larger trade center, smaller trade centers need to offer a mix of goods and services that can not be easily obtained in the larger trade centers.

■ In which daily newspapers should I advertise?

What information can I use?
    — newspaper circulation maps
    — trade area maps

Discussion:

Information on the circulation patterns of the state's major newspapers was compiled when the trade area analysis was conducted. This information has been included to help businesses determine if advertising in a specific daily newspaper would expose potential consumers to their advertising. Some newspapers have circulation patterns extending into the trade areas of several communities; other newspapers cover much less area and would be more suited for individual communities.

The circulation patterns of the state's larger daily papers are included in Appendix Figures 7 and 8. Only townships where 50 percent or more of the survey respondents subscribed to a daily paper were included in the circulation patterns. This means the areas shaded in the figures are the circulation patterns of the daily newspapers where probably more than one-half of the households subscribe to the paper. The number of people exposed to the paper will likely be much higher.

Combining the circulation patterns with trade area maps (Appendix Figures 4 through 6) can provide information on the newspapers that have good circulation to residents in a particular trade area. Also, the maps may help determine if the circulation pattern of the local newspaper will reach all trade area residents.

Comments:

Although the newspaper may or may not be as effective a means of advertising for some businesses as for others, the circulation of the local newspaper does indicate the area surrounding a community where people still maintain some social activity and involvement. In today's climate of competition, realizing from where the community draws its customers can be helpful in maintaining and cultivating business-client relationships.

■ What consumer behavior trends were identified in the trade analysis?

What information can I use?

— trade area analysis

Discussion:

Two identifiable trends were noticed when comparing the trade area analyses conducted over the past 30 years. The first trend was that consumers were willing and able to travel longer distances to purchase items than 20 or 30 years ago. People are now willing to travel more than 50 miles (sometimes much more) to purchase some items such as clothing and electronics. In general, they traveled over 30 miles to purchase most items in the larger trade centers. This means that even though they could purchase the same item(s) locally, they traveled an average of 30 miles to make the purchase; these items included such things as gas, food, and other convenience type goods. The items that people traveled the least distance to purchase were agricultural items, specifically farm production inputs such as fertilizer, oil, chemicals, etc.

The other distinct trend in consumer behavior was that services requiring more personal interaction like accounting services and eye care were more likely to result in the person buying most of their consumption of the good/service in one location. On the other hand, the goods and services that require very little interaction and those that could be purchased almost anywhere like gas and food, were the items that people purchased in several places. This trend indicates less patron loyalty to a single trade center unless the service requires (based on its nature) close interaction with the provider.

If the item(s) can be purchased somewhere else, it appears people are buying the item(s) in several locations rather than in a few. Even items like clothing were purchased in a variety of trade centers, suggesting two things: (1) even though people are traveling longer distances to buy the item(s), it does not guarantee that they will purchase all of what they need in one trade center (*distance traveled does not guarantee sales*) and (2) the pattern exhibited underlines the fact that people travel great distances to buy some of the items, even possibly traveling to several places to compare features and prices.

Comments:

The report titled *North Dakota Trade Areas: An Overview* by Bangsund et al. (1991a) contains an item-by-item breakdown of the distance and frequency spending trends. The report can provide retailers with an opportunity to examine the goods and services that apply to their business. More in-depth discussion of these trends is also presented in the report.

■ What are some possible contacts for individuals and/or communities interested in starting a new business?

What information can I use?
- Small Business Development Centers (SBDC)
- North Dakota Business Information Centers
- Service Corps of Retired Executives (SCORE)
- Small Business Administration (SBA)
- Chambers of Commerce
- NDSU Institute for Business and Industry Development (IBID)
- Local Development Corporations
- Regional Planning Councils
- Department of Commerce, Division of Economic Development and Finance (ED&F)
- UND Center for Innovation and Business Development (CIBD)
- Small Business Institute Programs (at the major universities)
- North Dakota Center for Business and Technology
- NDSU Extension Service
- Others.....

Discussion:

Several organizations are available to assist individuals and groups in evaluating a variety of business decisions. Discussions of what the above organizations do and how to contact them follow.

The **North Dakota Small Business Development Centers** (SBDCs) mission is to increase the effectiveness and profitability of existing and prospective businesses by providing: free, quality, confidential, management counseling to North Dakota businesses; business education and training programs; and applied economic research and technical assistance to the business issues and challenges of our clients. The North Dakota SBDCs are located in Grand Forks (1-800-445-7232). http://www.ndsbdc.org

Business Information Centers, located in Bismarck (701-328-5850 and 1-800-544-4674), Fargo (701-239-5045), Grand Forks (701-746-5160), and Minot (701-857-8227) provide high-tech hardware, software and telecommunications to help start-up and expanding business. BICs also offer a wide array of counseling services and training opportunities. http://webhost.btinet.net/~onestop/BIC.htm

The **Service Corps of Retired Executives** (SCORE) provides small business mentors and advice on the full range of business topics. SCORE business counselors are well-versed in how to develop effective business plans and create strategies for business growth. Please refer to the phone book to find the your nearest SCORE office or see the following Web site for information on e-mail counseling. http://www.score.org/

The **Small Business Administration** (SBA) is a federal organization that works in conjunction with SCORE and provides loan programs and business counseling resources, to help make small business dreams become reality. Services available include business development assistance and training for new and existing small business owners, financial assistance for new and existing small businesses and information on business licenses and permits, taxes, employees, health and safety, plus business plans for North Dakota businesses and procurement, exporting, and financing opportunities for small businesses. The SBA District Office is located in Fargo (701-239-5131). http://www.sba.gov/nd/

Chambers of Commerce provide contacts and information for prospective and established businesses. Local Chambers of Commerce may be good starting points to get advice and direction. http://www.2chambers.com/north5.htm

The **NDSU Institute for Business and Industry Development** (IBID) helps North Dakota businesses improve their competitiveness by providing technical assistance and information, on a confidential basis, to help resolve specific technical questions or needs. We have cataloged the research interests of the research faculty and have access to over 500 researchers on the NDSU campus alone. IBID in cooperation with the faculty and staff will make every attempt to locate and provide published scientific and technical information on subjects of your choosing. IBID is an outreach arm of North Dakota State University (701-231-1002). http://www.ag.ndsu.nodak.edu/ibid/index.htm

Local development corporations are local organizations that raise funds and seek grants to encourage local and community economic development. Please refer to the phone book or local Chamber of Commerce to find the nearest local development corporation office in your area or go to: http://www.gnda.com/resource_guide/resources.asp?ID=3

Regional Planning Councils provide assistance to local units of government and businesses in such areas as economic planning, capital improvements, grantsmanship, and community infrastructure. There are eight planning councils with offices located in Williston (701-774-1358), Minot (701-852-4988), Devils Lake (701-662-8131), Grafton (701-352-3550), Fargo (701-239-5373), Jamestown (701-252-8060), Bismarck (701-255-4591), and Dickinson (701-227-1241). http://www.hud.gov/local/far/rcouncils.html

Economic Development and Finance is a division of the North Dakota Department of Commerce (701-328-5300). Its purpose is to facilitate the creation of new wealth through the start-up and retention and expansion of primary-sector businesses. http://www.growingnd.com

The **UND Center for Innovation and Business Development** is part of the University of North Dakota in Grand Forks (701-777-3132). The center provides comprehensive, hands-on assistance to businesses in the process of starting and/or developing new products. Business assistance includes feasibility studies, evaluations, business and marketing plans, financial projections, financing sources, and business consulting. Helpful publications from CIBD include *The Business Plan: A State-of-the-Art Guide* and *The Marketplan: Step-By-Step.* In addition, the center houses the UND technology incubator. http://www.innovators.net

The **Center for Technology & Business** (701-223-0707) is associated with the North Dakota Department of Commerce and is dedicated to improving technology in rural North Dakota by giving both rural and urban individuals a technical education that allows them to evaluate and utilize any/all business opportunities resulting in a network of mentors and successful businesses. http://www.techwomen.org

The **NDSU Extension Service** has numerous publications including "Reports Forms and Licenses required in the State of North Dakota," "Home-Based Business — Is It For Me" and "Starting a North Dakota Bed and Breakfast Business" available in your local county extension service office. For the office nearest you, see NDSU Extension in your local phone directory or go to: http://www.ag.ndsu.nodak.edu/ctyweb.htm

The extension service also has a formal Business Retention and Expansion Visitation program to assist community leaders in the evaluation and assistance for existing businesses. Contact number for this and other community development programs is 701-328-5134.

Comments:

The list of preceding organizations is not a complete listing of possible contacts for individuals or communities interested in establishing a new business or those with problems in an existing business. The North Dakota Rural Development Council published an online guide to resources at www.growingnd.com Click on ED&F Services then Rural Development Council and finally Resource Inventory. The inventory lists people and organizations that provide assistance to businesses and community leaders in North Dakota. The publication provides a listing of names, addresses, and phone numbers, in addition to short listings of the services and programs of the organizations and agencies. The organizations discussed in this publication should be contacted personally to find out more about their programs and the assistance they can provide.

■ What can our community do to strengthen its retail sector or improve our main street businesses?

This question is complex. Several approaches can be taken by communities to focus on this problem. Communities should examine their own situation, develop goals, and then determine the best action to take to achieve those goals. What may be a priority action for one community, may not be for another. Local businesses, concerned citizens, and community leaders will need to join together to develop a cooperative strategy that is comprehensive and consistent with community goals.

Communities can analyze and examine strategies that other communities have implemented. Examining what other communities have done can provide firsthand examples of what works and does not work. Also, this technique can help generate ideas that may or may not have surfaced in a community's attempt to improve its retail sector. Communities can implement this approach by collecting literature on documented case studies involving revitalization strategies or could directly contact business persons and community leaders who have successfully improved their main street business.

A report titled *Revitalizing the Retail Trade Sector in Rural Communities: Experiences of 13 North Dakota Towns* by Leistritz et al. (1989) explores some of the strategies and successful actions North Dakota towns have taken to improve their retail trade. The report contains an in-depth discussion of the research findings; however, a brief listing of some of the findings is presented here:

- The more successful towns appeared to have stronger community organizations and better local cooperation. A strong Chamber of Commerce was cited as an example.

- Capital restrictions were found to pose serious constraints to new business formation and business expansion. Equity financing was cited as an example.

- Transferring ownership of a business can be a problem. Examples given were inflated values and lack of qualified buyers.

- Intensive business recruitment efforts were usually used to attract businesses, with attention given to replacing lost businesses, securing noncompeting stores, and rounding out the retail sector with complementary businesses.

- Certain services are often major attraction factors for communities. Examples included a medical services complex, schools, and grain elevators.

- The most important single lesson cited was the need for cooperation between individual businesses and the community.

Comments:

A possible starting point for communities desiring to take action on improving their retail sector is to have business people and community leaders meet and determine how their trade center compares with other trade centers. Once this is determined, communities can move forward to implement strategies to improve their trade center. Before communities decide to jump into self-improvement actions, it is important for them to consider how they compare with other trade centers (those of similar size and neighboring trade centers).

Retailers must also know if they are meeting their customers' needs. The best way to determine this is to ask. Periodic formal or informal surveys either on a community-wide or individual business basis will indicate gaps or weaknesses in goods and services that could be provided. Alternatives can then be examined and implemented to meet these needs. Cooperation with neighboring communities and businesses may also be a valid alternative.

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Much of the material in this handbook (i.e., what is contained in the appendix tables) is timely in nature and requires periodic updating (e.g., population, employment, etc.). This handbook was designed so that it could be used continually as new and updated material becomes available. Thus, the authors suggest using the contacts below to obtain the most current information or to check on the availability of updated material. University reports cited in this publication can be obtained by contacting:

Department of Agribusiness & Applied Economics
P.O. Box 5636
North Dakota State University
Fargo, North Dakota 58105
Phone number 701/231-7441
Fax number 701/231-7400

Useful Web Sites

North Dakota State Data Center
http://www.ndsu.edu/sdc/
Source for U.S. Census data, including demographic profiles for counties, population trends for counties and statewide, and other demographic information.

Bureau of Economic Analysis, U.S. Department of Commerce   http://www.bea.doc.gov/
Provides data on earnings and personal income for states and counties, employment by occupation, and gross domestic product.

Job Service, North Dakota
http://www.state.nd.us/jsnd/
Provides data on employment, labor force, unemployment, and wages, for the state and counties.

Bureau of Labor Statistics, U.S. Department of Labor   http://stats.bls.gov/
Provides information on wages by area and occupation, consumer price index, earnings, and related data for states and counties.

Appendix Tables

Appendix Table 1. Trade Center Classification, Population, and Average Retail Sales of Selected North Dakota Cities

Trade Center Classification and Name of City[a]	Population					Retail Sales (Adjusted)		
	1970	1980	1990	2000	Percent Change 1990-2000	2000	Percent 1980-2000	Change 1990-2000
						dollars (000s)		
Primary Wholesale-Retail Center								
Fargo-West Fargo	58,526	71,482	86,398	105,539	22.15	1,680,242	70.3	51.3
Secondary Wholesale-Retail Center								
Bismarck-Mandan	45,796	59,998	64,433	72,250	12.13	959,691	19.7	27.4
Grand Forks	39,008	43,765	49,425	49,321	-0.21	688,302	43.3	14.1
Minot	32,290	32,843	34,544	36,567	5.86	529,579	9.3	16.1
Group Average	39,031	45,535	49,467	52,713	6.56	725,857	23.3	32.0
Group Total	117,094	136,606	148,402	158,138	*****	2,177,572	*****	
Complete Shopping Center								
Devils Lake	7,078	7,442	7,782	7,436	-4.45	117,324	1.9	20.5
Dickinson	12,405	15,924	16,097	16,010	-0.54	206,967	-32.2	13.0
Grafton	5,946	5,293	4,840	4,516	-6.69	49,814	-26.9	-8.9
Jamestown	15,385	16,280	15,571	15,527	-0.28	163,707	-14.3	10.8
Valley City	7,843	7,774	7,163	6,826	-4.70	53,117	-40.8	-11.2
Wahpeton	7,076	9,064	8,751	8,586	-1.89	76,715	-3.6	3.1
Williston	11,280	13,336	13,131	12,512	-4.71	169,947	-48.8	8.0
Group Average	9,573	10,730	10,476	10,202	-2.62	119,656	-29.0	8.1
Group Total	67,013	75,113	73,335	71,413	*****	837,591	*****	
Partial Shopping Center								
Beulah	1,344	2,908	3,363	3,152	-6.27	22,910	-21.8	1.3
Bottineau	2,760	2,829	2,598	2,336	-10.08	28,393	-42.8	17.7
Bowman	1,762	2,071	1,741	1,600	-8.10	18,311	-40.3	-1.8
Carrington	2,491	2,641	2,267	2,268	0.04	31,496	-27.5	14.6
Cavalier	1,381	1,505	1,508	1,537	1.92	29,449	8.9	33.9
Harvey	2,361	2,527	2,263	1,989	-12.11	20,534	-43.9	-4.2
Hettinger	1,655	1,739	1,574	1,307	-16.96	12,165	-43.1	-14.9
Langdon	2,182	2,335	2,241	2,101	-6.25	21,451	-41.4	-6.5
Lisbon	2,090	2,283	2,177	2,292	5.28	38,747	40.7	35.4
Rolla	1,458	1,538	1,286	1,417	10.19	16,312	-34.8	-7.4
Rugby	2,889	3,335	2,909	2,939	1.03	30,198	-28.3	-5.5
Tioga	1,667	1,597	1,278	1,125	-11.97	14,277	-88.6	-29.0
Watford City	1,768	2,119	1,784	1,435	-19.56	16,622	-57.8	-34.8
Group Average	1,985	2,264	2,076	1,961	-5.54	23,143	-43.7	1.2
Group Total	25,808	29,427	26,989	25,498	*****	300,864	*****	

Trade Center Classification and Name of City[a]	Population					Retail Sales (Adjusted)		
	1970	1980	1990	2000	Percent Change 1990-2000	2000	Percent 1980-2000	Change 1990-2000
						dollars (000s)		
Full Convenience Center								
Beach	1,408	1,381	1,205	1,116	-7.39	15,949	-1.3	63.0
Cando	1,512	1,496	1,564	1,342	-14.19	7,271	-65.2	-13.1
Casselton	1,485	1,661	1,601	1,885	15.87	15,331	-20.3	36.0
Cooperstown	1,485	1,308	1,247	1,053	-15.56	12,586	-38.6	-5.1
Crosby	1,545	1,469	1,312	1,089	-17.00	6,438	-63.2	-11.1
Garrison	1,614	1,830	1,530	1,318	-13.86	9,616	-54.5	-7.3
Hazen	1,240	2,365	2,818	2,457	-12.81	11,542	-47.2	-12.6
Hillsboro	1,309	1,600	1,488	1,563	5.04	10,705	-12.4	2.4
Kenmare	1,515	1,456	1,214	1,081	-10.96	15,001	-40.8	42.3
Killdeer	615	790	722	713	-1.25	8,099	-54.8	-8.7
LaMoure	951	1,077	970	944	-2.68	7,326	-50.3	-37.2
Linton	1,695	1,561	1,410	1,321	-6.31	8,206	51.7	-16.4
Mayville	2,554	2,255	2,092	1,953	-6.64	15,370	-32.8	9.0
Michigan	478	502	413	345	-16.46	8,057	-51.0	-1.1
Mohall	950	1,049	931	812	-12.78	9,366	-47.1	-11.3
Northwood	1,189	1,240	1,166	959	-17.75	14,703	-34.5	10.4
Oakes	1,742	2,112	1,775	1,979	11.49	15,084	-48.4	-7.4
Park River	1,680	1,844	1,725	1,535	-11.01	10,267	-42.3	6.9
Stanley	1,581	1,631	1,371	1,279	-6.71	13,280	-33.3	19.7
Washburn	804	1,767	1,506	1,389	-7.77	13,189	-23.6	21.6
Wisheck	1,275	1,345	1,171	1,122	-4.18	12,109	-15.3	26.6
Group Average	1,363	1,511	1,392	1,296	-6.90	11,404	-40.5	4.9
Group Total	28,627	31,739	29,231	27,225	*****	239,493	*****	
Minimum Convenience Center								
Arthur	412	445	400	402	0.50	2,440	-36.4	-17.6
Ashley	1,236	1,192	1,052	882	-16.16	6,050	-26.1	17.1
Belfield	1,130	1,274	887	866	-2.37	8,914	-43.8	17.4
Berthold	398	485	409	466	13.94	2,287	-58.3	-26.8
Drayton	1,095	1,082	961	913	-4.99	6,063	-15.4	1.6
Dunseith	811	625	723	739	2.21	3,716	-15.5	-21.5
Edgeley	888	843	680	637	-6.32	10,466	-1.6	55.2
Edinburg	315	300	284	252	-11.27	1,721	-545.0	-43.3
Elgin	839	930	765	659	-13.86	5,909	-14.7	24.5
Ellendale	1,517	1,967	1,798	1,559	-13.29	5,636	-66.0	-17.7
Emerado	515	596	483	510	5.59	3,874	49.2	14.1
Enderlin	1,343	1,140	997	942	-5.52	3,123	-63.6	-28.3
Fessenden	815	761	655	625	-4.58	5,180	-40.3	18.4
Finley	809	718	543	515	-5.16	3,511	-38.1	8.2
Flasher	467	410	317	285	-10.09	1,089	-78.6	-57.0
Forman	596	629	586	506	-13.65	2,706	-49.6	-12.7

– Continued –

Trade Center Classification and Name of City[a]	Population					Retail Sales (Adjusted)		
	1970	1980	1990	2000	Percent Change 1990-2000	2000	Percent 1980-2000	Change 1990-2000
Minimum Convenience Center (Cont.)						dollars (000s)		
Glen Ullin	1,070	1,125	927	865	-6.69	4,577	-38.1	8.4
Gwinner[b]	623	725	585	717	22.56	15,558	50.5	-4.8
Hankinson	1,125	1,158	1,038	1,058	1.93	4,911	-45.7	-18.1
Hebron	1,103	1,078	888	803	-9.57	2,408	-63.2	-12.7
Hoople	330	350	310	292	5.81	2,655	-52.9	12.6
Hunter	362	369	341	326	-4.40	7,050	3.1	54.6
Kindred	495	568	569	614	7.91	9,526	-35.5	59.7
Kulm	625	570	514	422	-17.90	2,121	-63.4	-31.5
Lakota	964	963	898	781	-13.03	2,251	-72.7	-50.6
Larimore	1,469	1,524	1,464	1,433	-2.12	4,612	-53.0	-15.7
Leeds	626	678	542	464	-14.39	2,067	-71.0	-26.8
Lidgerwood	1,000	971	799	738	-7.63	5,532	-45.1	-22.9
Maddock	708	677	559	498	-10.91	3,739	-64.7	24.8
McVille	583	626	559	470	-15.92	1,701	-71.9	-55.8
Milnor	645	716	651	711	9.22	6,106	-37.0	-2.9
Minto	636	592	560	657	17.32	2,563	4.9	-26.0
Mott	1,368	1,315	1,019	808	-20.71	3,674	-73.2	-24.7
Napoleon	1,036	1,103	930	857	-7.85	7,144	-43.8	-10.0
New England	906	825	663	555	-16.29	2,544	-78.2	-25.0
New Rockford	1,969	1,791	1,604	1,463	-8.79	6,747	-64.2	-1.2
New Salem	943	1,081	909	938	3.19	5,243	-53.5	-10.4
New Town	1,428	1,335	1,388	1,367	-1.51	3,768	-34.6	11.3
Page	367	329	266	225	-15.41	1,755	-64.1	-35.8
Pembina	741	673	642	642	- -	5,003	88.5	38.3
Powers Lake	523	466	408	309	-24.26	2,536	-46.3	-5.3
Ray	776	766	603	534	-11.44	2,629	-71.9	-16.0
Richardton	799	699	625	619	-0.96	2,132	-74.9	-53.5
Rolette	579	667	623	538	-13.64	3,071	-61.0	14.0
Steele	696	796	762	761	-0.13	8,310	50.7	104.0
Strasburg	642	623	553	549	-0.72	3,091	-23.3	13.1
Towner	870	867	669	574	-14.20	4,488	-25.8	29.9
Turtle Lake	712	802	681	580	-14.83	2,491	-57.3	-14.0
Underwood	781	1,329	976	812	-16.80	6,691	-39.1	85.0
Velva	1,241	1,101	968	1,049	8.37	7,480	-17.6	33.3
Walhalla	1,471	1,429	1,131	1,057	-6.54	5,018	-42.0	-30.5
Westhope	705	741	578	533	-7.79	2,527	-66.4	-1.3
Wimbleton	337	330	275	237	-13.82	3,734	-54.3	-37.8
Wyndmere	516	550	501	533	6.39	3,027	-58.7	-40.0
Group Average	833	846	732	688	-6.01	4,503	-44.0	-2.3
Group Total	44,956	45,705	39,501	37,147	*****	243,168	*****	

Hamlets
    Cities in this classification were not included.

aCities were classified based on average retail sales (1987, 1988, and 1989 adjusted to 1989 dollars). The range of retail sales required for each level was over $700 million for Primary Wholesale-Retail Centers, $150 million to $700 million for Secondary Wholesale-Retail Centers, $40 million to $150 million for Complete Shopping Centers, $12 million to $40 million for Partial Shopping Centers, $6 million to $12 million for Full Convenience Centers, $2 million to $6 million for Minimum Convenience Centers, and under $2 million for Hamlets.
bDue to the influence of the Melroe Manufacturing Plant, average retail sales for Gwinner did not accurately indicate the true retail activity of the town. As a result, the size classification of a Minimum Convenience Center was more appropriate than a Full Convenience Center.
Source: Bangsund et al. (1991a); U.S. Bureau of the Census (various years); Leistritz and Wanzek (1993).

Appendix Table 2. Estimates of City Population Required to Support an Indicated Number of Establishments of Selected Business Types, North Dakota, 2000.

| | Number of Establishments | | | |
Business Type	1	2	3	4
Drinking Places (Alcohol)	224	431	649	878
Eating Places	212	344	483	890
Gasoline Service Stations	605	773	1,097	1,575
Grocery Stores	702	a	a	a
Farm and Garden Machinery and Equipment	579	a	612	706
Farm Supply Stores	575	623	819	1,089
Hardware Stores	1,167	1,774	2,161	2,329
Sporting Good Stores and Bicycle Shops	836	1,207	1,668	2,222
Lumber and Other Building Material Stores	1,020	1,167	2,140	3,929
Home Furniture	1,640	2,589	4,647	7,815
Radio, Television, and Consumer Electric Stores	1602	4,712	7,823	10,933
Florists	1,287	a	3,373	4,171
Drug Stores	1,022	2,141	3,763	5,886
Family Clothing Stores	1,928	a	a	a
Department Stores	2,606	a	7,436	18,258
Variety Stores	2,324	5,061	a	a

[a] Not estimated because the data set contained insufficient numbers to support reliable estimates in these categories.
SOURCE: Coon and Leistritz (2002).

Appendix Table 3. Per Capita Income for North Dakota Counties, 1979, 1990 and 2000.

County	Per Capita Income			Percent Change Per		Rank Based on 2000 per Capita Income
	2000	**1990**	**1979****	**1990-2000***	**1990-2000****	
Adams	$20,404	$13,613	17,935	49.9	13.8	35
Barnes	21,102	15,807	20,826	33.5	1.3	32
Benson	14,883	12,725	16,765	17.0	-11.2	50
Billings	15,227	11,236	14,803	35.5	2.9	49
Botteneau	18,554	15,663	20,636	18.5	-10.1	42
Bowman	23,679	15,679	20,657	51.0	14.6	16
Burke	23,727	16,055	21,152	47.8	12.2	15
Burleigh	27,940	17,234	22,706	62.1	23.1	5
Cass	30,205	17,640	23,241	71.2	30.0	3
Cavalier	29,336	14,576	19,204	101.3	52.8	4
Dickey	21,095	14,880	19,604	41.8	7.6	33
Divide	23,518	14,026	18,479	67.7	27.3	17
Dunn	15,526	9,935	13,089	56.3	18.6	48
Eddy	19,462	15,874	20,914	22.6	-6.9	39
Emmons	18,919	10,523	13,864	79.8	36.5	41
Foster	24,134	16,440	21,660	46.8	11.4	12
Golden Valley	17,294	13,460	17,734	28.5	-2.5	44
Grand Forks	25,910	14,718	19,391	76.0	33.6	6
Grant	14,806	8,711	11,477	70.0	29.0	51
Griggs	22,902	16,660	21,950	37.5	4.3	22
Hettinger	22,457	12,702	16,735	76.8	34.2	26
Kidder	16,085	12,560	16,548	28.1	-2.8	46
LaMoure	19,825	14,565	19,189	36.1	3.3	37
Logan	21,465	15,146	19,955	41.7	7.6	30
McHenry	16,569	12,998	17,125	27.5	-3.2	45
McIntosh	22,775	13,178	17,362	72.8	31.2	23
McKenzie	21,450	12,759	16,810	68.1	27.6	31
McLean	21,744	14,950	19,697	45.4	10.4	28
Mercer	24,745	16,431	21,648	50.6	14.3	10
Morton	22,577	13,178	17,362	71.3	30.0	25
Mountrail	21,647	13,946	18,374	55.2	17.8	29
Nelson	22,636	18,055	23,787	25.4	-4.8	24
Oliver	19,110	10,945	14,420	74.6	32.5	40
Pembina	31,536	18,163	23,930	73.6	31.8	1
Pierce	20,728	16,515	21,759	25.5	-4.7	34
Ramsey	24,592	15,931	20,989	54.4	17.2	11
Ransom	24,076	15,152	19,963	58.9	20.6	13
Renville	17,771	15,074	19,860	17.9	-10.5	43
Richland	24,821	14,480	19,077	71.4	30.1	9
Rolette	16,033	9,737	12,828	64.7	25.0	47
Sargent	30,565	16,954	22,337	80.3	36.8	2
Sheridan	19,645	12,698	16,730	54.7	17.4	38
Sioux	11,849	7,332	9,660	61.6	22.7	53
Slope	13,003	9,460	12,464	37.5	4.3	52
Stark	23,005	13,671	18,012	68.3	27.7	21
Steele	21,971	17,821	23,479	23.3	-6.4	27
Stutsman	25,189	16,381	21,582	53.8	16.7	8
Towner	19,995	13,592	17,907	47.1	11.7	36
Traill	23,750	15,926	20,983	49.1	13.2	14
Walsh	23,108	15,377	20,259	50.3	14.1	20
Ward	25,786	15,061	19,843	71.2	30.0	7
Wells	23,396	16,932	22,308	38.2	4.9	18
Williams	23,364	14,707	19,376	58.9	20.6	19
NORTH DAKOTA	24,780	15,321	20,185	61.7	22.8	—

SOURCE: U.S. Bureau of the Census (2000).
*Actual dollars, not corrected for inflation
**Real dollars; that is 1990 dollars were inflated to equal their value in 2000 dollars using the Consumer Price Index Inflation (U.S. Bureau of Economic Analysis)

Appendix Table 4. Average Annual Employment in North Dakota by County and Region, 1980 to 2000

	1980	1990	1999	2000	Percent Change		
					1999-2000	1990-2000	1980-2000
Divide	1,541	1,154	1,114	1,036	-7.0	-10.2	-32.8
McKenzie	3,738	2,747	2,876	3,131	8.9	14.0	-16.2
Williams	12,322	9,935	8,669	8,845	2.0	-11.0	-28.2
REGION 1	17,601	13,836	12,659	13,012	2.8	-6.0	-26.1
Bottineau	3,788	3,354	3,073	3,141	2.2	-6.4	-17.1
Burke	1,847	1,193	959	939	-2.1	-21.3	-49.2
McHenry	2,901	2,559	2,615	2,661	1.8	4.0	-8.3
Mountrail	3,363	2,842	2,823	2,934	3.9	3.2	-12.8
Pierce	2,847	2,267	2,404	2,680	11.5	18.2	-5.9
Renville	1,516	1,323	1,295	1,339	3.4	1.2	-11.7
Ward	22,350	24,625	27,337	28,196	3.1	14.5	26.2
REGION 2	38,612	38,163	40,506	41,898	3.4	9.8	8.5
Benson	2,879	2,354	2,648	2,511	-5.2	6.7	-12.8
Cavalier	3,505	2,432	2,436	2,401	-1.4	-1.3	-31.5
Eddy	1,508	1,304	1,330	1,135	-14.7	-13.0	-24.7
Ramsey	6,180	5,970	6,286	5,930	-5.7	-0.7	-4.0
Rolette	4,090	3,541	4,981	4,958	-0.5	40.0	21.2
Towner	1,968	1,496	1,242	1,320	6.3	-11.8	-32.9
REGION 3	19,930	17,097	18,923	18,255	-3.5	6.8	-8.4
Grand Forks	24,911	39,741	34,454	34,673	0.6	-12.8	39.2
Nelson	2,534	1,702	1,532	1,438	-6.1	-15.5	-43.3
Pembina	5,333	4,294	4,622	4,258	-7.9	-0.8	-20.2
Walsh	7,444	6,738	6,068	5,937	-2.2	-11.9	-20.2
REGION 4	40,222	52,475	46,676	46,306	-0.8	-11.8	15.1
Cass	42,369	57,729	70,125	71,523	2.0	23.9	68.8
Ransom	2,766	2,597	2,585	2,744	6.2	5.7	-0.8
Richland	7,999	8,026	8,885	8,971	1.0	11.8	12.2
Sargent	2,528	2,155	2,357	2,658	12.8	23.3	5.1
Steele	1,361	1,006	1,032	1,137	10.2	13.0	-16.5
Traill	4,338	3,609	3,593	3,549	-1.2	-1.7	-18.2
REGION 5	61,361	75,122	88,577	90,582	2.3	20.6	47.6
Barnes	5,961	5,416	5,302	5,526	4.2	2.0	-7.3
Dickey	3,290	2,854	2,798	2,896	3.5	1.5	-12.0
Foster	2,075	1,876	2,123	2,181	2.7	16.3	5.1
Griggs	1,642	1,468	1,523	1,523	–	3.7	-7.2
LaMoure	2,516	2,245	2,183	2,180	-0.1	-2.9	-13.4
Logan	1,449	1,309	1,109	1,117	0.7	-14.7	-22.9
McIntosh	2,242	1,796	1,667	1,621	-2.8	-9.7	-27.7
Stutsman	10,772	10,599	11,388	11,100	-2.5	4.7	3.0
Wells	3,146	2,408	2,400	2,462	2.6	2.2	-21.7
REGION 6	33,093	29,971	30,493	30,606	0.4	2.1	-7.5
Burleigh	24,935	32,483	38,336	38,929	1.5	19.8	56.1
Emmons	2,302	1,928	1,939	1,943	0.2	0.8	-15.6
Grant	1,635	1,527	1,466	1,440	-1.8	-5.7	-11.9
Kidder	1,431	1,425	1,354	1,358	0.3	-4.7	-5.1
McLean	5,035	4,433	4,176	4,018	-3.8	-9.4	-20.2
Mercer	5,393	4,737	4,265	4,357	2.2	-8.0	-19.2
Morton	11,357	11,768	13,016	13,115	0.8	11.4	15.5
Oliver	1,134	1,166	963	971	0.8	-16.7	-14.4
Sheridan	1,186	732	624	651	4.3	-11.1	-45.1
Sioux	1,256	933	1,552	1,531	-1.4	64.1	21.9
REGION 7	55,664	61,132	67,691	68,313	0.9	11.7	22.7
Adams	1,921	1,560	1,331	1,345	1.1	-13.8	-30.0
Billings	1,157	672	494	483	-2.2	-28.1	-58.3
Bowman	2,038	1,890	1,736	1,781	2.6	-5.8	-12.6
Dunn	2,087	1,839	1,804	1,951	8.1	6.1	-6.5
Golden Valley	1,224	1,002	862	819	-5.0	-18.3	-33.1
Hettinger	1,810	1,493	1,248	1,245	-0.2	-16.6	-31.2
Slope	566	457	386	379	-1.8	-17.1	-33.0
Stark	10,716	11,293	11,983	11,742	-2.0	4.0	9.6
REGION 8	21,519	20,206	19,844	19,745	-0.5	-2.3	-8.2
NORTH DAKOTA	288,002	308,000	325,366	328,176	1.0	6.6	13.9

SOURCE: Job Service North Dakota (various years).

Appendix Table 5. Pull Factors for North Dakota Cities by Trade Center Classifications, 1980-2000

	Pull Factors				Percentage Change	
					1980 to 2000	2000 to 2000
City	1980	1990	1999	2000		
					--------percent-------	
WHOLESALE-RETAIL						
BISMARCK	0.83	1.05	1.01	1.02	22.9	1.0
FARGO	1.01	1.23	1.22	1.17	15.9	-4.6
GRAND FORKS	0.81	1.18	1.19	1.15	41.8	-3.3
MINOT	0.73	0.92	0.89	0.89	21.0	0.2
AVERAGE	0.85	1.10	1.08	1.06	24.9	-1.9
COMPLETE SHOPPING						
DEVILS LAKE	0.75	0.75	0.82	0.80	6.8	-1.7
DICKINSON	1.16	1.11	0.99	1.02	-11.9	3.7
GRAFTON	0.90	0.95	0.73	0.81	-9.8	10.7
JAMESTOWN	0.87	0.77	0.81	0.77	-11.1	-4.5
VALLEY CITY	0.94	0.65	0.64	0.61	-35.1	-4.8
WAHPETON	0.79	0.82	0.69	0.66	-16.4	4.6
WILLISTON	1.40	1.17	0.96	1.14	-18.3	18.9
AVERAGE	0.97	0.89	0.80	0.83	-14.5	3.3
PARTIAL SHOPPING						
BEULAH	0.56	0.62	0.63	0.61	9.0	-3.6
BOTTINEAU	1.10	0.58	0.84	0.85	-23.0	1.4
BOWMAN	0.73	0.64	0.59	0.61	-16.2	4.6
CARRINGTON	0.91	0.74	0.84	0.83	-8.8	-1.1
CAVALIER	0.69	0.65	0.74	0.71	3.2	-4.0
HARVEY	0.79	0.49	0.59	0.54	-31.6	-7.6
HETTINGER	0.84	0.80	0.69	0.71	-15.8	3.1
LANGDON	0.78	0.66	0.44	0.50	-35.5	15.0
LISBON	0.81	0.83	0.81	0.90	11.6	10.9
ROLLA	0.44	0.40	0.28	0.28	-35.5	1.0
RUGBY	0.98	0.76	0.76	0.82	-16.5	7.8
TIOGA	3.81	1.25	0.56	0.88	-76.8	58.7
WATFORD CITY	1.10	1.40	0.64	0.70	-36.4	8.4
AVERAGE	1.04	0.75	0.65	0.69	-33.9	6.5
FULL CONVENIENCE						
BEACH	0.74	0.66	1.16	1.27	72.9	9.5
CANDO	2.07	0.99	0.95	1.10	-46.6	16.7
CASSELTON	0.60	0.48	0.39	0.48	-20.9	22.8
COOPERSTOWN	1.07	0.55	0.56	0.60	-43.5	7.3
CROSBY	0.67	0.41	0.34	0.35	-47.5	2.7
GARRISON	0.83	0.48	0.42	0.42	-49.1	-0.1
HAZEN	0.45	0.36	0.34	0.32	-28.1	-6.8
HILLSBORO	0.47	0.50	0.54	0.47	-0.8	-13.7
KENMARE	0.74	0.49	0.54	0.70	-4.7	29.2

- Continued -

| City | Pull Factors | | | | Percentage Change | |
	1980	1990	1999	2000	1980 to 2000	2000 to 2000
FULL CONVENIENCE Cont.						
KILLDEER	1.05	1.01	0.71	0.84	-20.2	18.4
LAMOURE	1.12	0.60	0.42	0.41	-63.5	-3.2
LINTON	0.74	0.54	0.36	0.37	-50.1	2.7
MAYVILLE	0.60	0.44	0.43	0.45	-24.7	4.8
MICHIGAN	3.15	1.46	2.12	1.86	-40.8	-11.9
MOHALL	1.69	0.91	0.89	1.12	-33.4	26.5
NORTHWOOD	1.11	0.91	0.85	0.98	-11.5	15.5
OAKES	1.18	0.74	0.69	0.63	-46.4	-9.3
PARK RIVER	0.52	0.38	0.36	0.40	-22.2	13.5
STANLEY	0.89	0.66	0.70	0.76	-15.2	8.5
WASHBURN	1.04	0.78	0.75	0.95	-8.8	26.0
WISHEK	1.04	0.74	0.72	0.83	-20.4	15.5
AVERAGE	1.04	0.67	0.68	0.73	-29.6	7.6
MINIMUM CONVENIENCE						
ARTHUR	0.57	0.66	0.34	0.43	-25.1	27.0
ASHLEY	0.69	0.46	0.48	0.50	-27.5	4.7
BELFIELD	0.73	0.65	0.47	0.68	-6.9	44.7
BERTHOLD	0.73	0.64	0.48	0.39	-46.5	-18.5
DRAYTON	0.47	0.50	0.46	0.44	-5.8	-3.5
DUNSEITH	0.18	0.24	0.15	0.14	-21.5	-4.9
EDGELEY	1.40	0.63	1.01	1.10	-21.5	9.2
EDINBURG	0.39	0.47	0.29	0.29	-25.3	1.0
ELGIN	1.29	1.16	0.97	1.05	-18.8	7.7
ELLENDALE	0.82	0.35	0.37	0.31	-62.8	-16.6
ENDERLIN	0.89	0.43	0.16	0.17	-81.2	7.8
FESSENDEN	0.82	0.44	0.57	0.57	-31.0	-0.1
FINLEY	1.08	0.35	0.41	0.42	-60.8	1.8
FLASHER	0.45	0.37	0.15	0.14	-69.4	-6.4
FORMAN	0.33	0.19	0.15	0.14	-56.2	-5.0
GLEN ULLIN	0.51	0.48	0.39	0.44	-14.5	12.6
GWINNER	1.80	2.96	1.87	1.78	-1.2	-4.6
HANKINSON	0.57	0.44	0.28	0.28	-51.3	-0.2
HEBRON	0.43	0.30	0.19	0.23	-47.3	15.8
HUNTER	1.03	0.97	1.19	1.29	25.6	8.7
KINDRED	0.77	0.38	0.44	0.44	-43.2	-0.4
KULM	1.50	0.55	0.43	0.48	-68.3	10.1
LAKOTA	0.73	0.34	0.14	0.21	-70.9	50.4
LARIMORE	0.37	0.28	0.22	0.19	-47.1	-10.6
LEEDS	1.16	0.53	0.46	0.51	-55.7	12.5
LIDGERWOOD	0.66	0.61	0.40	0.43	-35.4	7.1

- Continued -

City	Pull Factors				Percentage Change	
					1980 to 2000	2000 to 2000
	1980	1990	1999	2000		
MINIMUM CONVENIENCE cont.						
MADDOCK	1.22	0.39	0.54	0.64	-47.6	19.4
MCVILLE	0.83	0.45	0.31	0.26	-69.4	-18.8
MILNOR	0.96	0.55	0.37	0.38	-59.9	3.5
MINTO	0.32	0.58	0.38	0.34	5.8	-10.1
MOTT	1.34	0.48	0.30	0.34	-74.9	10.5
NAPOLEON	1.35	0.63	0.51	0.64	-53.0	24.9
NEW ENGLAND	1.30	0.37	0.24	0.25	-80.8	2.0
NEW ROCKFORD	0.88	0.33	0.34	0.39	-56.1	13.8
NEW SALEM	0.54	0.44	0.33	0.31	-41.9	-4.5
NEW TOWN	0.26	0.16	0.19	0.16	-37.7	-14.1
PAGE	0.71	0.64	0.34	0.34	-51.8	1.3
PEMBINA	0.36	0.58	0.68	0.61	71.1	-9.7
POWERS LAKE	0.54	0.37	0.43	0.40	-26.7	-7.2
RAY	0.77	0.54	0.37	0.42	-45.1	15.2
RICHARDTON	0.75	0.72	0.68	0.30	-59.3	-55.2
ROLETTE	0.66	0.30	0.23	0.31	-53.0	34.5
STEELE	0.96	0.46	0.96	0.89	-7.4	-8.0
STRASBURG	0.54	0.47	0.47	0.44	-19.5	-6.5
TOWNER	0.43	0.30	0.48	0.50	15.2	4.5
TURTLE LAKE	0.42	0.26	0.19	0.24	-42.1	27.5
UNDERWOOD	0.65	0.29	0.51	0.69	5.4	36.2
VELVA	0.68	0.49	0.59	0.69	1.3	15.9
WALHALLA	0.43	0.48	0.28	0.28	-34.8	0.6
WESTHOPE	0.78	0.33	0.38	0.43	-45.4	12.2
WIMBLEDON	1.29	1.07	0.50	0.76	-40.9	54.1
WYNDMERE	1.17	0.88	0.42	0.41	-64.9	-2.2
AVERAGE	0.78	0.54	0.45	0.47	-39.7	4.3
HAMLETS						
ADAMS	0.32	0.20	0.18	0.21	-34.0	18.7
ANETTA	0.41	0.27	0.26	0.30	-27.1	16.9
BISBEE	0.48	0.30	0.21	0.21	-56.1	1.2
BOWBELLS	0.47	0.26	0.24	0.23	-51.4	-4.0
CARSON	0.49	0.39	0.28	0.27	-45.6	-3.9
CENTER	0.36	0.33	0.25	0.28	-22.8	10.9
COLUMBUS	0.92	0.40	0.18	0.20	-77.8	14.8
DRAKE	0.56	0.17	0.28	0.26	-53.9	-8.7
EDMORE	0.43	0.23	0.11	0.13	-70.5	20.4
FAIRMOUNT	0.37	0.32	0.32	0.38	2.6	16.8
FORDVILLE	0.65	0.37	0.18	0.17	-73.4	-2.7
GACKLE	0.82	0.23	0.19	0.20	-75.8	4.1
HALLIDAY	0.35	0.23	0.18	0.17	-52.2	-7.5

- Continued -

Appendix Table 5. continued

City	Pull Factors				Percentage Change	
	1980	1990	1999	2000	1980 to 2000	2000 to 2000
HAMLETS Cont.						
HATTON	0.42	0.27	0.26	0.23	-45.4	-10.1
HAZELTON	0.30	0.29	0.43	0.46	55.1	6.8
HOPE	1.55	0.26	0.28	0.30	-80.6	7.8
LIGNITE	0.57	0.40	0.56	0.50	-11.0	-9.2
MAX	0.23	0.18	0.10	0.11	-51.2	17.6
MCCLUSKY	1.28	0.51	0.61	0.62	-51.5	1.2
MEDINA	0.32	0.14	0.14	0.10	-68.5	-30.7
MUNICH	0.90	0.36	0.19	0.22	-75.7	13.9
NECHE	0.25	0.36	0.23	0.23	-6.7	-0.5
NEW LEIPZIG	1.37	0.65	0.55	0.54	-60.7	-2.0
PARSHALL	0.30	0.15	0.13	0.13	-57.9	-0.7
PETERSBURG	0.68	0.17	0.16	0.12	-82.3	-25.5
REGENT	1.22	0.60	0.30	0.33	-72.6	9.9
RUTLAND	0.33	0.20	0.19	0.15	-53.6	-20.6
SCRANTON	0.37	0.33	0.35	0.40	9.0	15.3
SHERWOOD	0.88	0.50	0.60	0.62	-29.2	3.7
SHEYENNE	1.05	0.40	0.23	0.27	-74.6	17.1
TOLNA	0.38	0.22	0.15	0.16	-58.5	8.6
WILTON	0.18	0.11	0.19	0.19	10.6	1.2
AVERAGE	0.60	0.31	0.27	0.27	-54.7	2.3

Source: Leistritz and Wanzek. 1993. North Dakota 1993: Patterns and Trends in Economic Activity. Fargo: Department of Agricultural Economics, NDSU; Coon and Leistritz. 2002. Updated Pull Factors For North Dakota, unpublished data, Fargo: Department of Agribusiness and Applied Economics, NDSU.

Appendix Table 6. Pull Factors for North Dakota Counties by Various Retail Trade Sectors. 1980, 1990, and 2000

County	Total Retail Sales			Food			Eating and Drinking Places			General Merchandise			Furniture Finishing Appliances			Automotive		
	1980	1990	2000	1980	1990	2000	1980	1990	2000	1980	1990	2000	1980	1990	2000	1980	1990	2000
Adams	0.80	1.04	1.20	1.27	1.32	1.46	0.36	1.29	0.20	0.09	0.21	1.03	0.00	0.50	0.210.	1.02	0.54	1.47
Barnes	1.00	0.96	0.68	0.98	1.35	1.02	1.09	1.23	0.67	0.51	0.58	0.17	0.88	0.63	35	1.06	0.99	1.02
Benson	0.34	0.28	0.43	0.49	0.65	0.77	0.57	0.18	0.03	0.11	0.05	0.05	0.03	0.16	0.00	0.01	0.02	0.24
Billings	0.20	0.14	0.67	0.41	0.00	0.67	0.41	0.82	4.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.29
Bottineau	0.85	0.83	1.01	0.87	0.90	1.55	0.74	0.92	1.09	0.43	0.22	0.38	0.66	0.59	0.23	0.67	0.80	1.09
Bowman	1.16	0.87	1.17	1.38	1.07	1.08	2.14	1.19	0.81	0.10	0.23	0.06	0.56	0.42	0.21	1.24	0.90	2.54
Burke	0.60	0.43	0.56	0.97	0.86	2.47	0.95	1.08	0.23	0.03	0.09	0.06	0.12	0.15	0.12	0.38	0.34	0.42
Burleigh	1.09	1.10	1.05	1.17	0.90	0.78	1.01	1.05	1.17	2.13	1.77	1.39	1.35	1.32	1.63	0.88	1.05	1.11
Cass	1.25	1.20	1.82	1.00	1.11	0.95	1.37	1.32	1.26	2.14	1.53	1.24	1.39	1.10	1.59	1.23	1.17	0.95
Cavalier	0.75	0.80	0.62	0.96	1.03	1.11	0.65	0.78	0.47	0.15	0.17	0.72	1.00	1.02	0.40	0.44	0.85	0.60
Dickey	0.75	0.78	1.05	1.25	0.89	0.86	0.94	1.08	0.69	0.32	0.72	0.18	0.90	1.51	0.13	0.71	0.86	0.60
Divide	0.80	0.53	0.37	2.13	0.53	0.48	0.65	0.78	0.07	0.17	0.18	0.00	0.27	0.19	0.16	0.62	0.65	0.16
Dunn	0.46	0.67	0.92	0.34	0.91	1.84	0.45	0.18	0.10	0.00	0.16	0.00	0.00	0.14	0.30	1.06	1.21	1.91
Eddy	0.80	0.48	0.52	0.68	0.76	0.49	0.71	0.38	0.56	0.07	0.07	0.00	0.28	0.11	0.00	0.58	0.57	0.20
Emmons	0.72	0.62	1.29	0.82	0.80	1.41	0.62	0.44	0.23	0.18	0.13	0.05	0.18	0.23	0.00	0.68	0.36	0.80
Foster	1.14	1.02	0.94	1.70	1.19	0.98	0.54	0.65	0.43	0.31	0.03	0.64	0.34	0.10	0.37	1.60	0.96	1.70
Golden Valley	1.29	1.09	1.41	1.78	0.57	0.82	0.58	1.38	0.90	0.00	0.10	0.04	0.90	0.56	0.03	1.46	2.02	0.72
Grand Forks	1.11	1.26	1.26	0.79	1.05	1.19	1.17	1.12	1.46	1.09	1.80	1.72	1.51	1.34	1.12	1.08	1.32	0.99
Grant	0.89	0.57	0.91	1.53	0.88	1.13	0.79	0.45	0.40	0.06	0.00	0.00	0.00	0.42	0.00	0.91	0.19	1.80
Griggs	0.40	0.58	0.71	0.59	0.92	2.45	0.73	0.62	0.36	0.18	0.05	0.11	0.04	0.08	0.00	0.23	0.80	0.12
Hettinger	0.73	0.55	0.57	0.60	0.96	0.83	0.67	0.48	0.31	0.03	0.00	0.00	0.13	0..12	0.00	1.06	0.75	0.83
Kidder	0.36	0.39	0.74	0.47	0.70	1.06	0.30	0.22	0.14	0.00	0.11	0.00	0.05	0.47	0.17	0.14	0.05	1.34
LaMoure	0.60	0.42	0.42	0.70	0.84	0.25	0.56	0.43	0.41	0.03	0.05	0.00	0.36	0.11	0.00	0.55	0.07	0.43
Logan	0.83	0.72	0.51	1.40	1.08	0.91	1.09	0.55	0.53	0.00	0.00	0.00	0.05	0.09	0.00	0.94	0.61	0.76
McHenry	0.62	0.47	0.35	0.52	0.72	0.89	0.720.	0.57	0.17	0.31	0.00	0.00	0.02	0.08	0.06	0.43	0.26	0.10
McIntosh	0.82	0.84	0.94	1.43	0.45	1.78	71	0.84	0.26	0.00	0.03	0.14	0.23	0.27	0.18	0.70	1.48	1.83
McKenzie	0.39	0.39	0.43	0.49	0.67	0.58	0.65	0.45	0.29	0.01	0.00	0.00	0.17	0.14	0.00	0.21	0.27	0.35
McLean	0.50	0.50	0.52	0.72	0.79	1.10	0.64	0.48	0.29	0.36	0.07	0.03	0.24	0.33	0.00	0.28	0.20	0.14
Mercer	0.47	0.65	0.55	0.68	1.57	0.88	0.50	0.38	0.67	0.06	0.12	0.16	0.26	0.04	0.42	0.49	0.41	0.50
Morton	0.98	0.95	0.72	1.00	1.11	0.69	1.02	0.84	0.89	0.11	0.07	0.05	0.85	0.55	0.39	1.42	1.54	1.52
Mountrail	0.92	0.88	0.80	1.35	1.14	1.57	0.94	0.67	0.73	0.17	0.04	0.19	0.40	1.24	0.28	0.77	0.55	0.87
Nelson	1.04	0.81	0.30	0.55	0.88	0.44	1.33	0.45	0.05	0.58	0.04	0.00	0.09	0.17	0.16	0.64	0.47	0.32
Oliver	0.19	0.13	0.18	0.25	0.08	0.21	0.24	0.63	0.27	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pembina	0.95	0.92	0.83	1.69	0.61	0.74	1.03	1.06	0.45	0.16	0.10	0.28	0.15	0.29	0.41	1.00	1.09	0.93
Pierce	1.29	0.90	0.82	1.45	0.90	0.55	0.82	0.59	0.66	0.61	0.29	1.07	0.74	0.13	0.10	1.99	1.31	1.29
Ramsey	1.45	1.30	0.91	1.34	1.17	0.56	0.92	1.46	1.04	0.40	1.09	1.34	1.43	1.80	1.37	1.19	1.41	1.15
Ransom	0.78	0.59	0.66	1.14	0.88	0.64	1.25	1.39	0.74	0.07	0.27	0.28	0.20	1.05	0.16	0.53	0.17	0.94
Renville	0.56	0.78	1.16	0.50	0.58	1.11	0.56	0.69	1.02	0.00	0.00	0.00	0.10	0.14	0.00	0.32	1.22	2.21
Richland	0.84	0.79	0.64	0.72	1.02	1.06	0.61	0.63	0.71	0.48	0.31	0.20	1.43	1.26	0.73	0.94	0.98	1.00
Rolette	0.93	0.71	0.69	1.20	1.09	1.98	0.75	0.63	0.38	0.39	0.11	0.29	0.30	0.40	0.05	0.59	0.56	0.36
Sargent	0.44	0.40	0.45	0.75	0.79	0.75	0.78	0.45	0.49	0.02	0.00	0.00	0.00	0.09	0.00	0.13	0.11	0.07
Sheridan	0.50	0.26	0.36	0.53	0.33	0.35	0.49	0.53	1.01	0.00	0.00	0.00	0.84	0.00	0.00	0.38	0.43	0.51
Sioux	0.26	0.38	0.78	0.47	0.21	0.30	0.72	0.62	0.37	0.10	0.08	0.00	0.07	0.00	0.00	0.00	0.00	1.06
Slope	0.07	0.11	0.67	0.13	0.12	–	0.31	0.64	8.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00
Starke	1.05	1.21	1.16	1.18	1.07	1.12	0.89	1.15	0.85	0.75	1.07	1.45	1.96	1.62	1.21	0.95	1.32	1.23
Steele	0.54	0.29	0.66	0.09	0.21	0.46	0.20	0.50	0.47	0.80	0.04	0.00	0.00	0.00	0.20	0.96	0.33	1.38
Stutsman	1.06	1.10	0.90	1.12	0.89	1.49	1.04	0.99	1.06	0.61	0.67	0.86	0.78	1.13	0.90	1.06	1.12	1.06
Towner	0.56	0.43	0.48	0.56	0.66	0.78	0.77	0.61	0.66	0.09	0.04	0.00	0.88	0.39	0.34	0.40	0.34	0.37
Traill	0.85	0.76	0.47	1.11	0.67	0.51	0.88	1.06	0.82	0.05	0.06	0.28	0.34	0.81	0.03	0.90	0.79	0.32
Walsh	1.13	0.95	0.81	1.36	1.26	1.28	1.01	0.82	0.54	0.89	0.85	0.35	0.49	0.73	0.20	1.26	0.88	0.75
Ward	1.23	1.22	1.10	1.14	1.17	0.76	1.15	1.20	0.95	1.48	1.60	1.43	1.01	1.70	1.03	1.55	1.19	1.21
Wells	0.82	0.98	0.77	1.22	1.32	1.06	0.93	0.76	0.60	0.17	0.22	0.22	1.55	0.21	0.85	0.40	0.68	0.92
Williams	0.90	0.78	1.17	0.74	0.79	1.74	0.85	0.78	1.06	0.89	0.56	1.86	1.48	0.89	1.05	1.02	0.61	1.25

Appendix Table 7. Trade Area Classification and Population of Selected North Dakota Trade Areas, 1980, 1990, and 2000

City	County	Trade Area Boundaries			
		1980 Population	1990 Population	2000 Population	Percent Change 1980-2000
Wholesale-Retail Centers					
Bismarck	Burleigh	71,640	75,024	82,861	15.66
Fargo	Cass	89,218	103,744	123,707	38.66
Grand Forks	Grand Forks	65,713	70,275	65,933	0.33
Mandan[a]	Morton	*****	*****	*****	****
Minot	Ward	59,604	65,728	65,787	-2.69
West Fargo[b]	Cass	*****	*****	*****	****
GROUP TOTAL		286,175	314,771	338,288	15.00
Complete Shopping Centers					
Devils Lake	Ramsey	17,743	17,335	16,898	-4.76
Dickinson	Stark	27,034	25,619	25,064	-7.29
Grafton	Walsh	9,107	8,255	7,583	-16.73
Jamestown	Stutsman	27,757	25,011	24,081	-13.24
Valley City	Barnes	13,810	12,463	11,716	-15.16
Wahpeton	Richland	14,126	13,518	13,365	-5.39
Williston	Williams	20,057	19,300	18,124	-9.64
GROUP TOTAL		129,634	121,501	116,831	-9.88
Partial Shopping Centers					
Beulah	Mercer	4,714	4,761	4,315	-8.46
Bottineau	Bottineau	6,338	5,660	5,127	-19.11
Bowman	Bowman	4,714	3,997	3,595	-23.74
Carrington	Foster	5,653	4,874	4,482	-20.71
Cavalier	Pembina	4,313	4,063	3,741	-13.26
Harvey	Wells	6,516	5,384	4,598	-29.44
Hettinger	Adams	3,264	2,919	2,390	-26.78
Langdon	Cavalier	6,477	5,202	4,164	-35.71
Lisbon	Ransom	5,726	4,935	5,079	-11.30
Rolla	Rolette	8,953	9,312	10,304	15.09
Rugby	Pierce	6,710	5,520	5,059	-24.61
Tioga	Williams	2,792	2,318	1,971	-29.41
Watford City	McKenzie	3,843	3,118	3,161	-17.75
GROUP TOTAL		70,013	62,063	57,986	-17.18
Full Convenience Centers					
Beach	Golden Valley	2,597	2,299	2,066	-20.45
Cando	Towner	1,651	1,344	938	-43.19
Casselton	Cass	3,031	2,834	3,023	-0.26
Cooperstown	Griggs	3,515	3,123	2,594	-26.20
Crosby	Divide	3,292	2,796	2,202	-33.11
Garrison	McLean	3,483	3,057	2,982	-14.38
Hazen	Mercer	4,421	4,820	4,146	-6.22
Hillsboro	Traill	3,205	2,827	2,736	-14.63
Kenmare	Ward	3,534	2,859	2,365	-33.08

City	County	Trade Area Boundaries			
		1980 Population	1990 Population	2000 Population	Percent Change 1980-2000

Full Convenience Centers (cont.)

City	County	1980	1990	2000	Percent Change
Killdeer	Dunn	2,188	1,906	1,778	-18.74
LaMoure	LaMoure	3,251	2,795	2,571	-20.92
Linton	Emmons	4,368	3,671	3,329	-23.79
Mayville	Traill	4,742	4,311	4,086	-13.83
Michigan	Nelson	874	667	544	-37.76
Mohall	Renville	1,827	1,608	1,338	-26.77
Northwood	Grand Forks	2,244	2,014	1,648	-26.56
Oakes	Dickey	3,943	3,151	3,233	-18.01
Park River	Walsh	4,099	3,654	3,126	-23.74
Stanley	Mountrail	3,005	2,587	2,305	-23.29
Washburn	McLean	2,265	1,986	1,818	-19.74
Wishek	McIntosh	2,531	2,097	1,824	-27.93
GROUP TOTAL[c]		64,066	56,406	50,652	-20.94

Medium Convenience Centers

City	County	1980	1990	2000	Percent Change
Arthur	Cass	641	543	539	-15.91
Ashley	McIntosh	2,175	1,835	1,501	-30.99
Belfield	Stark	2,239	1,800	1,625	-27.42
Fort Berthold	Ward	774	645	650	-16.02
Drayton	Pembina	1,678	1,419	1,238	-26.22
Dunseith	Rolette	3,851	4,287	4,722	22.62
Edgeley	LaMoure	1,880	1,550	1,367	-27.29
Edinburg	Walsh	1,177	932	729	-38.06
Elgin	Grant	1,277	1,036	1,087	-14.88
Ellendale	Dickey	3,203	2,816	2,490	-22.26
Enderlin	Ransom	1,613	1,443	2,196	36.14
Fessenden	Wells	1,492	1,229	1,110	-25.60
Finley	Steele	1,548	1,162	1,078	-30.36
Flasher	Morton	1,288	1,089	988	-23.29
Forman	Sargent	2,363	2,001	1,747	-26.07
Glen Ullin	Morton	1,665	1,409	1,325	-20.42
Gwinner	Sargent	878	682	815	-7.18
Hankinson	Richland	2,236	2,020	2,046	-8.50
Hebron	Morton	1,759	1,485	1,350	-23.25
Hunter	Cass	635	564	516	-18.74
Kindred	Cass	1,819	1,880	2,046	12.48
Kulm	LaMoure	952	818	639	-32.88
Lakota	Nelson	1,893	1,609	1,331	-29.69
Larimore	Grand Forks	2,950	2,745	2,604	-11.73
Leeds	Benson	1,150	897	770	-33.04
Lidgerwood	Richland	2,128	1,742	1,485	-30.22
Maddock	Benson	1,625	1,297	1,119	-31.14
McVille	Nelson	1,214	1,019	839	-30.89
Milner	Sargent	1,552	1,411	1,486	-4.25

| City | County | Trade Area Boundaries | | | |
		1980 Population	1990 Population	2000 Population	Percent Change 1980-2000
Minimum Convenience Centers (cont.)					
Minto	Walsh	909	851	925	1.76
Mott	Hettinger	2,269	1,758	1,389	-38.78
Napoleon	Logan	2,300	1,799	1,492	-35.13
New England	Hettinger	1,985	1,601	1,292	-34.91
New Rockford	Eddy	3,314	2,805	2,551	-23.02
New Salem	Morton	2,398	2,107	2,112	-11.93
New Town	Mountrail	2,997	3,341	3,073	2.54
Page	Cass	653	511	481	-26.34
Pembina	Pembina	818	744	741	-9.41
Powers Lake	Burke	1,201	946	766	-36.22
Ray	Williams	1,030	836	760	-26.21
Richardton	Stark	1,173	986	870	-25.83
Rolette	Rolette	1,852	1,892	1,752	-5.40
Steele	Kidder	1,656	1,532	1,434	-13.41
Strasburg	Emmons	1,424	1,182	1,069	-24.93
Towner	McHenry	2,259	1,877	1,549	-31.43
Turtle Lake	McLean	1,906	1,581	1,345	-29.43
Underwood	McLean	2,300	1,813	1,272	-44.70
Velva	McHenry	2,160	1,860	1,872	-13.33
Walhalla	Pembina	2,201	1,797	1,609	-26.90
Westhope	Bottineau	1,353	1,065	905	-33.11
Wimbledon	Barnes	916	756	659	-28.06
Wyndmere	Richland	876	846	844	-3.68
GROUP TOTAL		89,605	77,851	72,200	-19.42
Hamlets					
Adams	Walsh	689	517	406	-41.07
Aneta	Nelson	521	472	444	-14.78
Bisbee	Towner	440	379	297	-32.50
Bowbells	Burke	1,183	928	710	-39.98
Carson	Grant	1,194	995	815	-31.74
Center	Oliver	1,304	1,237	1,044	-19.94
Columbus	Burke	399	288	188	-52.88
Drake	McHenry	1,019	727	620	-39.16
Edmore	Ramsey	752	614	469	-37.63
Fairmount	Richland	657	557	517	-21.31
Fordville	Walsh	525	473	414	-21.14
Gackle	Logan	1,015	873	664	-34.58
Halliday	Dunn	1,261	1,015	954	-24.35
Hatton	Traill	1,246	1,197	1,166	-6.42
Hazelton	Emmons	1,042	844	721	-30.81
Hope	Steele	965	727	707	-26.74
Lignite	Burke	486	365	252	-48.15
Max	McLean	869	756	577	-33.60
McClusky	Sheridan	669	545	414	-38.12
Medina	Stutsman	939	729	680	-27.58

Appendix Table 7. (continued)

		Trade Area Boundaries			
City	County	1980 Population	1990 Population	2000 Population	Percent Change 1980-2000
Hamlets (cont.)					
Munich	Cavalier	701	570	453	-35.38
Neche	Pembina	558	500	510	-8.60
New Leipzig	Grant	705	635	508	-27.94
Parshall	Mountrail	2,177	2,035	1,947	-10.56
Petersburg	Nelson	373	348	292	-21.72
Regent	Hettinger	644	559	443	-31.21
Rutland	Sargent	522	455	430	-17.62
Scranton	Bowman	943	763	654	-30.65
Sherwood	Renville	530	490	421	-20.57
Sheyenne	Eddy	583	524	504	-13.55
Tolna	Nelson	959	759	656	-31.60
Wilton	McLean	1,514	1,220	1,265	-16.45
GROUP TOTAL		27,122	23,096	20,142	-26.45

[a]Mandan was combined with Bismarck to create the Bismarck-Mandan trade center.
[b]West Fargo was combined with Fargo to create the Fargo-West Fargo trade center.

Appendix Table 8. Percent Change in County Pull Factors by Various Retail Trade Sectors, 1980 to 2000

County	Total Retail Sales			Food			Eat & Drinking Places			General Mdse			Furniture			Automotive		
	1980	2000	% change	1980	2000	% change	1980	2000	% change	1980	2000	% change	1980	2000	% change	1980	2000	% change
Adams	0.80	1.20	50.00	1.27	1.46	14.96	0.36	0.20	-44.44	0.09	1.03	1044.44	0.00	0.21		1.02	1.47	44.12
Barnes	1.00	0.68	-32.00	0.98	1.02	4.08	1.09	0.67	-38.53	0.51	0.17	-66.67	0.88	0.35	-60.23	1.06	1.02	-3.77
Benson	0.34	0.43	26.47	0.49	0.77	57.14	0.57	0.03	-94.74	0.11	0.05	-54.55	0.03	0.00		0.01	0.24	2300.00
Billings	0.20	0.67	235.00	0.41	0.67	63.41	0.41	4.91	1097.56	0.00	0.00		0.00	0.00		0.00	0.29	
Bottineau	0.85	1.01	18.82	0.87	1.55	78.16	0.74	1.09	47.30	0.43	0.38	-11.63	0.66	0.23	-65.15	0.67	1.09	62.69
Bowman	1.16	1.17	0.86	1.38	1.08	-21.74	2.14	0.81	-62.15	0.10	0.06	-40.00	0.56	0.21	-62.50	1.24	2.54	104.84
Burke	0.60	0.56	-6.67	0.97	2.47	154.64	0.95	0.23	-75.79	0.03	0.06	100.00	0.12	0.12	0.00	0.38	0.42	10.53
Burleigh	1.09	1.05	-3.67	1.17	0.78	-33.33	1.01	1.17	15.84	2.13	1.39	-34.74	1.35	1.63	20.74	0.88	1.11	26.14
Cass	1.25	1.82	45.60	1.00	0.95	-5.00	1.37	1.26	-8.03	2.14	1.24	-42.06	1.39	1.59	14.39	1.23	0.95	-22.76
Cavalier	0.75	0.62	-17.33	0.96	1.11	15.63	0.65	0.47	-27.69	0.15	0.72	380.00	1.00	0.40	-60.00	0.44	0.60	36.36
Dickey	0.75	1.05	40.00	1.25	0.86	-31.20	0.94	0.69	-26.60	0.32	0.18	-43.75	0.90	0.13	-85.56	0.71	0.60	-15.49
Divide	0.80	0.37	-53.75	2.13	0.48	-77.46	0.65	0.07	-89.23	0.17	0.00		0.27	0.16	-40.74	0.62	0.16	-74.19
Dunn	0.46	0.92	100.00	0.34	1.84	441.18	0.45	0.10	-77.78	0.00	0.00		0.00	0.30		1.06	1.91	80.19
Eddy	0.80	0.52	-35.00	0.68	0.49	-27.94	0.71	0.56	-21.13	0.07	0.00		0.28	0.00		0.58	0.20	-65.52
Emmons	0.72	1.29	79.17	0.82	1.41	71.95	0.62	0.23	-62.90	0.18	0.05	-72.22	0.18	0.00		0.68	0.80	17.65
Foster	1.14	0.94	-17.54	1.70	0.98	-42.35	0.54	0.43	-20.37	0.31	0.64	106.45	0.34	0.37	8.82	1.60	1.70	6.25
G Valley	1.29	1.41	9.30	1.78	0.82	-53.93	0.58	0.90	55.17	0.00	0.04		0.90	0.03	-96.67	1.46	0.72	-50.68
G Forks	1.11	1.26	13.51	0.79	1.19	50.63	1.17	1.46	24.79	1.09	1.72	57.80	1.51	1.12	-25.83	1.08	0.99	-8.33
Grant	0.89	0.91	2.25	1.53	1.13	-26.14	0.79	0.40	-49.37	0.06	0.00		0.00	0.00		0.91	1.80	97.80
Griggs	0.40	0.71	77.50	0.59	2.45	315.25	0.73	0.36	-50.68	0.18	0.11	-38.89	0.04	0.00		0.23	0.12	-47.83
Hettinger	0.73	0.57	-21.92	0.60	0.83	38.33	0.67	0.31	-53.73	0.03	0.00		0.13	0.00		1.06	0.83	-21.70
Kidder	0.36	0.74	105.56	0.47	1.06	125.53	0.30	0.14	-53.33	0.00	0.00		0.05	0.17	240.00	0.14	1.34	857.14
laMoure	0.60	0.42	-30.00	0.70	0.25	-64.29	0.56	0.41	-26.79	0.03	0.00		0.36	0.00		0.55	0.43	-21.82
Logan	0.83	0.51	-38.55	1.40	0.91	-35.00	1.09	0.53	-51.38	0.00	0.00		0.05	0.00		0.94	0.76	-19.15
McHenry	0.62	0.35	-43.55	0.52	0.89	71.15	0.72	0.17	-76.39	0.31	0.00		0.02	0.06	200.00	0.43	0.10	-76.74
McIntosh	0.82	0.94	14.63	1.43	1.78	24.48	0.71	0.26	-63.38	0.00	0.14		0.23	0.18	-21.74	0.70	1.83	161.43
McKenzie	0.39	0.43	10.26	0.49	0.58	18.37	0.65	0.29	-55.38	0.01	0.00		0.17	0.00		0.21	0.35	66.67
McLean	0.50	0.52	4.00	0.72	1.10	52.78	0.64	0.29	-54.69	0.36	0.03	-91.67	0.24	0.00		0.28	0.14	-50.00
Mercer	0.47	0.55	17.02	0.68	0.88	29.41	0.50	0.67	34.00	0.06	0.16	166.67	0.26	0.42	61.54	0.49	0.50	2.04
Morton	0.98	0.72	-26.53	1.00	0.69	-31.00	1.02	0.89	-12.75	0.11	0.05	-54.55	0.85	0.39	-54.12	1.42	1.52	7.04
Mountrail	0.92	0.80	-13.04	1.35	1.57	16.30	0.94	0.73	-22.34	0.17	0.19	11.76	0.40	0.28	-30.00	0.77	0.87	12.99
Nelson	1.04	0.30	-71.15	0.55	0.44	-20.00	1.33	0.05	-96.24	0.58	0.00		0.09	0.16	77.78	0.64	0.32	-50.00
Oliver	0.19	0.18	-5.26	0.25	0.21	-16.00	0.24	0.27	12.50	0.08	0.00		0.00	0.00		0.00	0.00	
Pembina	0.95	0.83	-12.63	1.69	0.74	-56.21	1.03	0.45	-56.31	0.16	0.28	75.00	0.15	0.41	173.33	1.00	0.93	-7.00
Pierce	1.29	0.82	-36.43	1.45	0.55	-62.07	0.82	0.66	-19.51	0.61	1.07	75.41	0.74	0.10	-86.49	1.99	1.29	-35.18

-- Continued --

Appendix Table 8 continued

County	Total Retail Sales			Food			Eat & Drinking Places			General Mdse			Furniture			Automotive		
	1980	2000	% change	1980	2000	% change	1980	2000	% change	1980	2000	% change	1980	2000	% change	1980	2000	% change
Ramsey	1.45	0.91	-37.24	1.34	0.56	-58.21	0.92	1.04	13.04	0.40	1.34	235.00	1.43	1.37	-4.20	1.19	1.15	-3.36
Ransom	0.78	0.66	-15.38	1.14	0.64	-43.86	1.25	0.74	-40.80	0.07	0.28	300.00	0.20	0.16	-20.00	0.53	0.94	77.36
Renville	0.56	1.16	107.14	0.50	1.11	122.00	0.56	1.02	82.14	0.00	0.00		0.10	0.00		0.32	2.21	590.62
Richland	0.84	0.64	-23.81	0.72	1.06	47.22	0.61	0.71	16.39	0.48	0.20	-58.33	1.43	0.73	-48.95	0.94	1.00	6.38
Rolette	0.93	0.69	-25.81	1.20	1.98	65.00	0.75	0.38	-49.33	0.39	0.29	-25.64	0.30	0.05	-83.33	0.59	0.36	-38.98
Sargent	0.44	0.45	2.27	0.75	0.75	0.00	0.78	0.49	-37.18	0.02	0.00		0.00	0.00		0.13	0.07	-46.15
Sheridan	0.50	1.36	172.00	0.53	0.35	-33.96	0.49	1.01	106.12	0.00	0.00		0.84	0.00		0.38	0.51	34.21
Sioux	0.26	0.78	200.00	0.47	0.30	-36.17	0.72	0.37	-48.61	0.10	0.00		0.07	0.00		0.00	0.00	
Slope	0.07	0.67	857.14	0.13		-100.00	0.31	8.79	2735.48	0.00	0.00		0.00	0.00		0.00	0.00	
Stark	1.05	1.16	10.48	1.18	1.12	-5.08	0.89	0.85	-4.49	0.75	1.45	93.33	1.96	1.21	-38.27	0.95	1.23	29.47
Steele	0.54	0.66	22.22	0.09	0.46	411.11	0.20	0.47	135.00	0.80	0.00		0.00	0.20		0.96	1.38	43.75
Stutsman	1.06	0.90	-15.09	1.12	1.49	33.04	1.04	1.06	1.92	0.61	0.86	40.98	0.78	0.90	15.38	1.06	1.06	0.00
Towner	0.56	0.48	-14.29	0.56	0.78	39.29	0.77	0.66	-14.29	0.09	0.00		0.88	0.34	-61.36	0.40	0.37	-7.50
Traill	0.85	0.47	-44.71	1.11	0.51	-54.05	0.88	0.82	-6.82	0.05	0.28	460.00	0.34	0.03	-91.18	0.90	0.32	-64.44
Walsh	1.13	0.81	-28.32	1.36	1.28	-5.88	1.01	0.54	-46.53	0.89	0.35	-60.67	0.49	0.20	-59.18	1.26	0.75	-40.48
Ward	1.23	1.10	-10.57	1.14	0.76	-33.33	1.15	0.95	-17.39	1.48	1.43	-3.38	1.01	1.03	1.98	1.55	1.21	-21.94
Wells	0.82	0.77	-6.10	1.22	1.06	-13.11	0.93	0.60	-35.48	0.17	0.22	29.41	1.55	0.85	-45.16	0.40	0.92	130.00
Williams	0.90	1.17	30.00	0.74	1.74	135.14	0.85	1.06	24.71	0.89	1.86	108.99	1.48	1.05	-29.05	1.02	1.25	22.55

Appendix Figures

Figure 1. Trade Center Classification for North Dakota Cities as Defined by Selected Business Functions
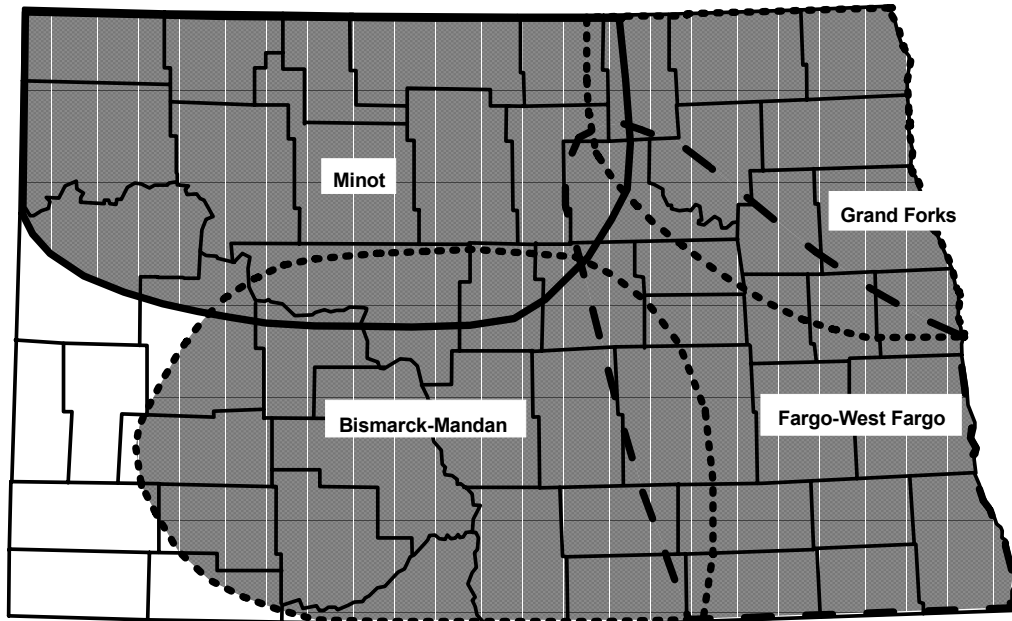Source: Reproduced from Borchert and Adams (1963).

Figure 2. Greater Trade Areas for the Wholesale-Retail Centers in North Dakota, 1990
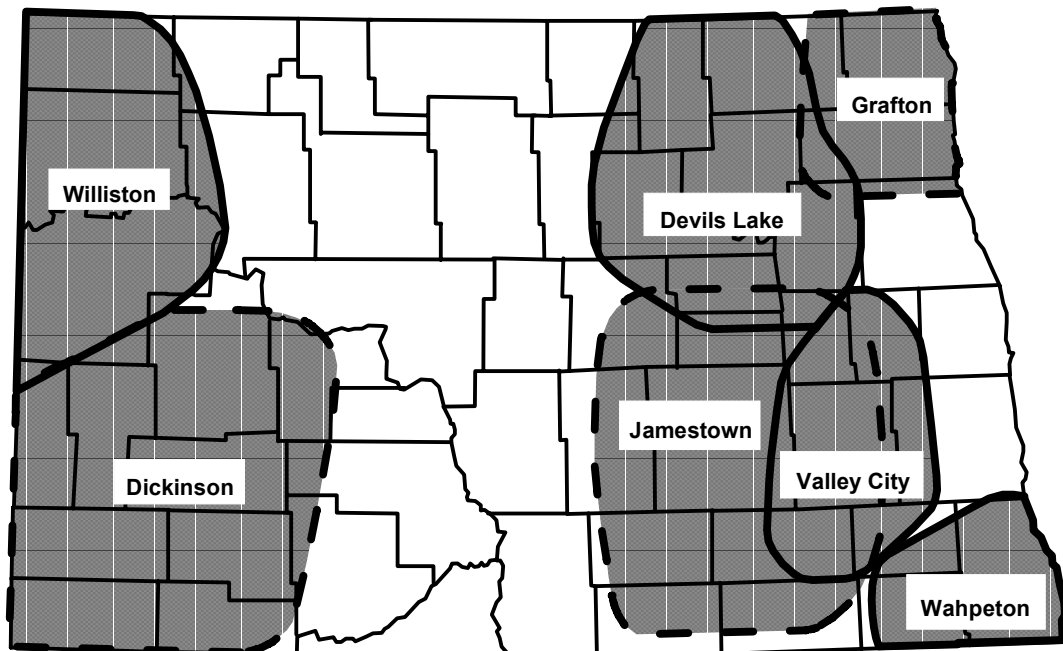

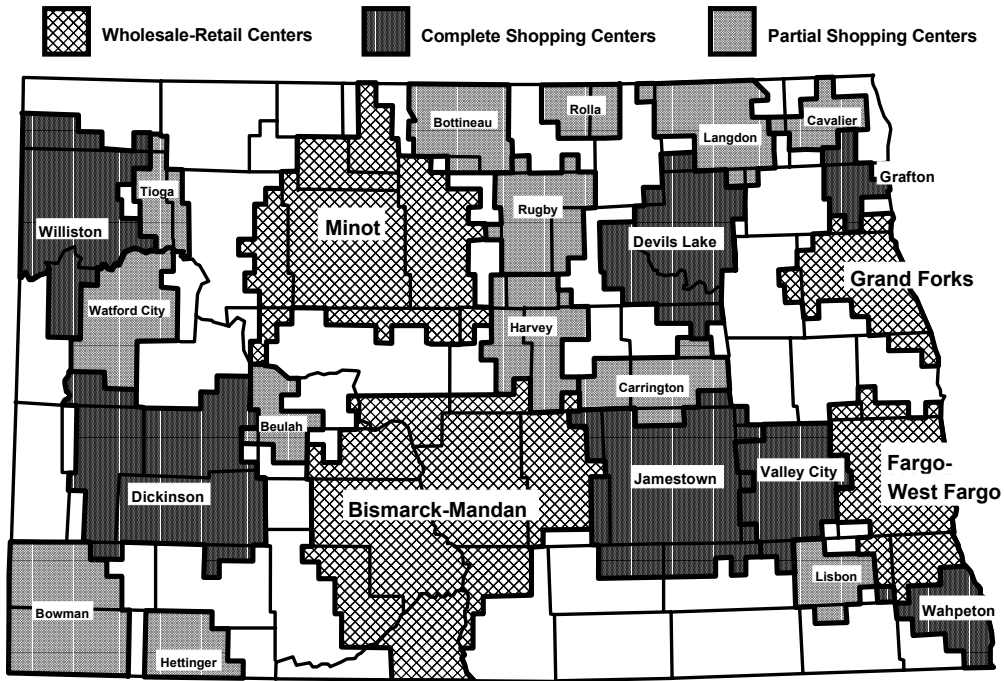**Figure 3. Greater Trade Areas for the Complete Shopping Centers in North Dakota, 1990**

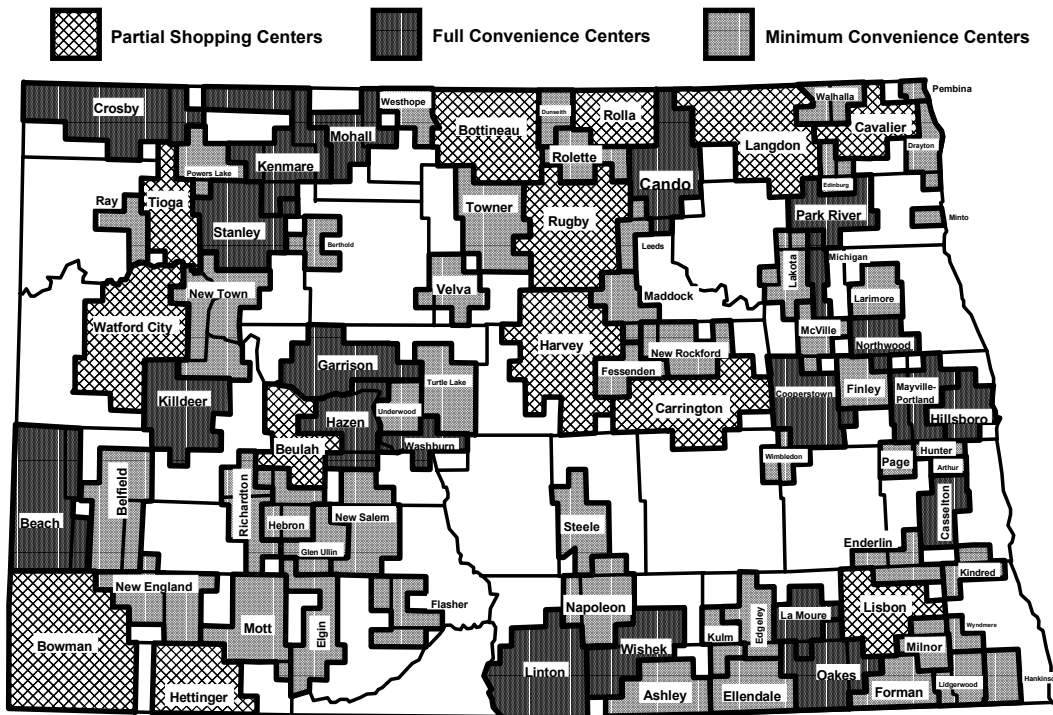**Figure 4. Main Trade Areas for Wholesale-Retail, Complete Shopping, and Partial Shopping Centers in North Dakota, 1990**

Figure 5. Main Trade Areas for Partial Shopping, Full Convenience Centers, and Minimum Convenience Centers in North Dakota, 1990
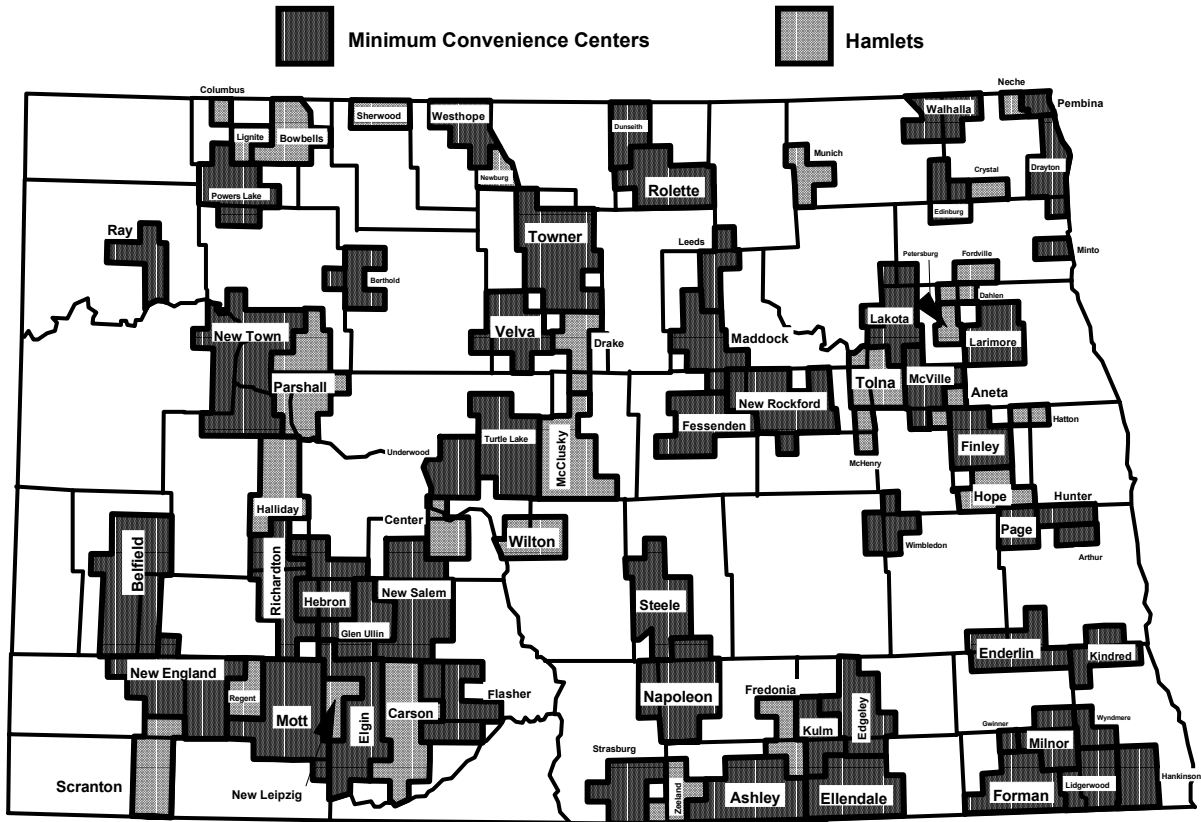
Figure 6. Main Trade Areas for Minimum Convenience Centers and Hamlets in North Dakota, 1990
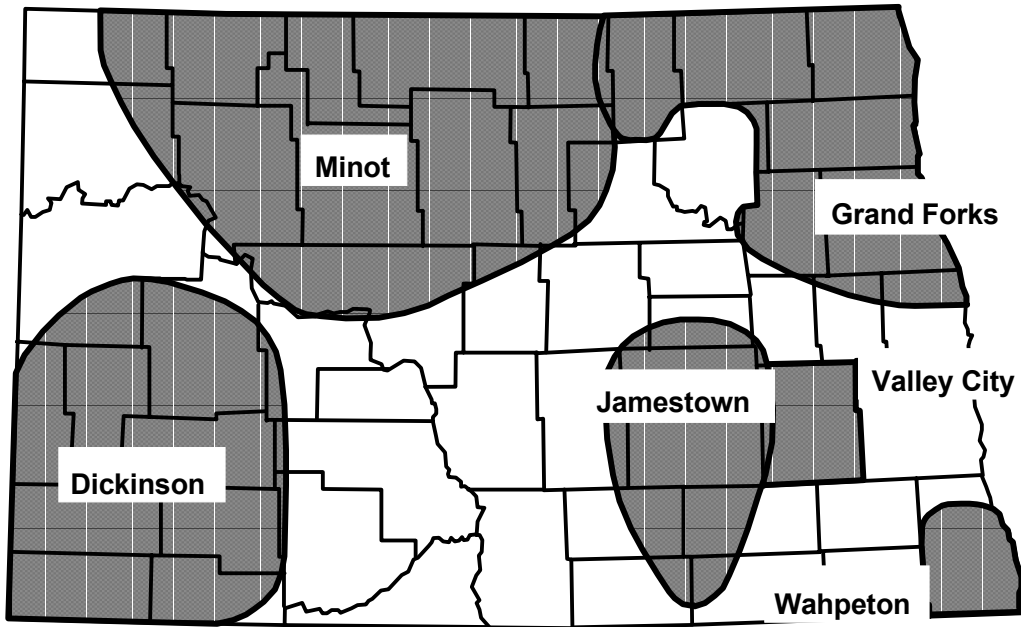
Figure 7. Circulation Patterns for Daily Newspapers in Dickinson, Grand Forks, Minot, Wahpeton, Jamestown, and Valley City, North Dakota, 1990
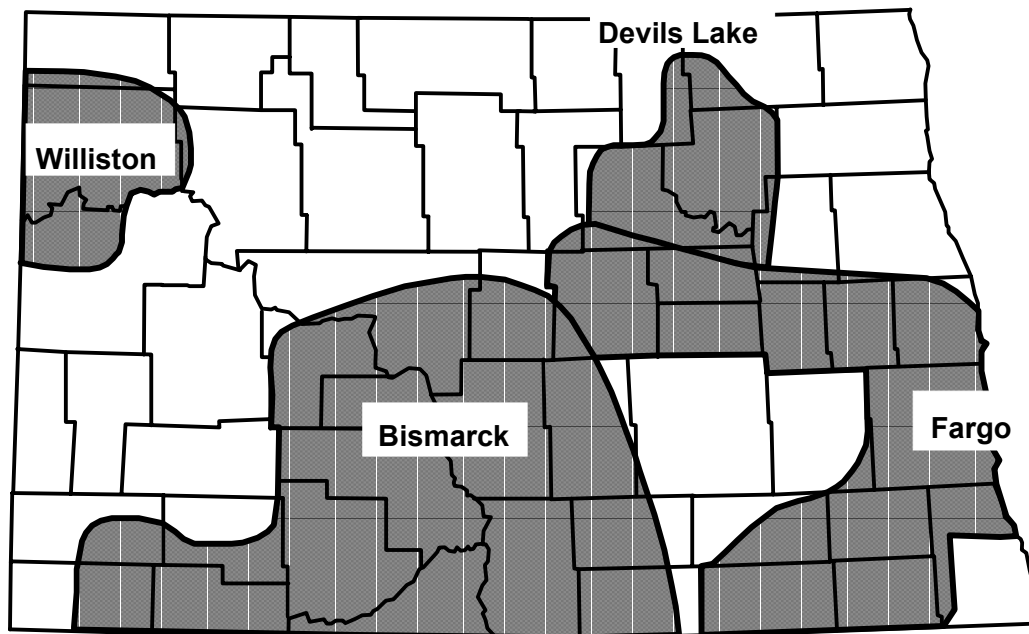
Figure 8. Circulation Patterns for Daily Newspapers in Fargo, Bismarck, Devils Lake, and Williston, North Dakota, 1990

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