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12-1-2008

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## Recommended Citation

Khatiwada, Saileza; McCurry, Michael; and Brooks, Trevor, "Threshold Levels for Selected Rural South Dakota Retail and Service Businesses" (2008). *Extension Extra*. Paper 373.  
[http://openprairie.sdstate.edu/extension\\_extra/373](http://openprairie.sdstate.edu/extension_extra/373)

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## Threshold Levels for Selected Rural South Dakota Retail and Service Businesses

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### INTRODUCTION

What new enterprise would be most likely to succeed in your community? Is opening a computer store in Buffalo, South Dakota, a good idea? What about a new church? Or a bar? While the goals of churches and taverns differ, the likelihood of success for either can be described in terms of population thresholds.

Retail trade is an important part of a rural county's economy (Blair, Traynor, and Duan 2004). Dehter (1987) saw shopping as a major contributor to high quality rural life. Each successful rural business improves the economic and social well-being of rural people. Both entrepreneurs and community leaders can use retail threshold calculations to identify the businesses most likely to succeed in rural areas.

Retail thresholds are usually calculated at the state level. This report focuses only on South Dakota's most rural counties. Business pattern data extracted at zip

code level allowed us to calculate rural South Dakota's retail threshold levels. The U.S. Census Bureau provides reliable business data for calculating thresholds.

### MEASURING RURALITY IN SOUTH DAKOTA

The 2003 Rural-Urban Continuum Codes are used to classify South Dakota counties. (For more details, see <http://www.ers.usda.gov/briefing/rurality/ruralurbcon/>.) Rurality is determined by population size and location. Codes range from 1 to 9, with 9 indicating the most rurality. Over half of South Dakota counties are coded with a 9.

### THRESHOLD CALCULATION

In 2005, South Dakota had 25,205 businesses serving 770,883 people (U.S. Census). Retail was one of South Dakota's largest industries (4,282 businesses). One simple method used to calculate threshold demands is to divide the total population by the number of specific

**Table 1.** Rural-Urban Continuum Codes for South Dakota counties (2003)

COUNTY TYPE	CONTINUUM CODE	COUNTY or COUNTIES	TOTAL COUNTIES
metro	3 (county in metro area with population less than 250,000)	Lincoln, McCook, Meade, Minnehaha, Pennington, Turner, and Union	7
non-metro	5 (non-metro county with urban population of 20,000 or more, not adjacent to a metro area)	Brown	1
non-metro	6 (non-metro county with urban population of 2,500 to 19,999, adjacent to a metro area)	Butte, Clay, Lake, and Lawrence	4
non-metro	7 (non-metro county with urban population of 2,500 to 19,999, not adjacent to a metro area)	Beadle, Brookings, Codington, Davison, Fall River, Grant, Hughes, Shannon, Spink, Tripp, Walworth, and Yankton	12
non-metro	8 (non-metro county completely rural or less than 2,500 urban population, adjacent to a metro area)	Custer, Haakon, Hanson, Hutchinson, Jackson, Miner, and Moody	7
non-metro	9 (non-metro county completely rural or less than 2,500 urban population, not adjacent to a metro area)	Aurora, Bennett, Bon Homme, Brule, Buffalo, Campbell, Charles Mix, Clark, Corson, Day, Deuel, Dewey, Douglas, Edmunds, Faulk, Gregory, Hamlin, Hand, Harding, Hyde, Jerauld, Jones, Kingsbury, Lyman, McPherson, Marshall, Mellette, Perkins, Potter, Roberts, Sanborn, Stanley, Sully, Todd, and Ziebach	35

businesses (McConnon 1989). This method is conservative, easily interpreted, and has been used in other states (Stone 1999).

Threshold data provides an estimate of the population needed to support a single business. Doubling the threshold population will not support two competing businesses. For example, the threshold for supporting two barbershops in a community is eight times higher than the threshold for the first shop (Deller, Ryan 1996).

This report includes threshold patterns for South Dakota's 35 most rural counties (i.e., Continuum Code 9 counties). There were 1,605 businesses serving the 138,161 people living in these counties (U.S. Census 2008). McConnon's method shows that there are 30.6 South Dakota residents for every business in the state; using the same method of calculation for these 35 most rural counties shows one business for every 86 rural South Dakotans.

While lower population density in rural South Dakota increases population threshold, it is also important to remember that rural counties have less disposable income. The 2002 Index of Income for South Dakota Counties (table 6) converts income into a percentage of the state average. As a general rule, less disposable income tends to increase threshold levels. An index above 100 implies that the county income average is above the state mean, while an index of less than 100 means the county mean is below the state average. For example, Union County has a mean per capita income of \$37,416, indexing at 138.7, or 38.7 percent above the state average. Ziebach County, at \$10,303, indexes at 38.2, or 61.8% below the state average. All consumers are not equal, and that also affects retail success.

The threshold population for religious organizations (usually churches) was obtained by dividing 138,161 by 182 (table 3). The same process was used to derive threshold levels for all businesses that had at least three establishments. Less common businesses, like art dealers and baked goods stores, were not assigned threshold levels because their rarity prevented valid score computations (table 2).

**Table 2.** Businesses with uncalculated threshold levels

BUSINESSES TYPE	ESTABLISHMENTS
Specialty food store	1
Art dealer	1
Baked goods store	1
Cosmetics, beauty supplies, and perfumes	1
Electronic shopping	1
Jewelry store	1
Hobby, toy, and game store	1
Optical goods store	1
Shoe store	1
Vending machine operator	1
Women's clothing store	2
Miscellaneous retail store	2
Mail-order house	2

**Table 3.** Business threshold levels for Continuum Code 9 South Dakota counties (based on a 2005 pop. of 138,161)

BUSINESS TYPE	ESTABLISHMENTS (in counties with a Continuum Code of 9)	THRESHOLD (based on 2005 pop. estimate)
Religious organization (churches)	182	759
Full-service restaurant	145	953
Insurance agency	127	1,088
Gas station (w/conv. store component)	95	1,454
Supermarket/other grocery store (except convenience)	89	1,552
Bar/tavern	79	1,749
Hotel/motel/B&B	78	1,771
Fast-food restaurant	53	2,607
Gas station (no conv. store component)	65	2,126
Lawyer	59	2,342
Automotive repair	58	2,382
Nursery/garden center/ farm supply store	51	2,709
Electrical contractor	49	2,820
Plumbing/heating/ven- tilation/air conditioning contractor	49	2,820
Building supply	48	2,878
Residential remodeler	45	3,070
Child day care service	44	3,140
Hardware store	38	3,636
Liquor store	35	3,947
Auto body repair shop	35	3,947
Pharmacy/drug store	32	4,318
Newspaper publisher	31	4,457
Beauty salon	26	5,314
New car dealer	26	5,314
Auto parts store	26	5,314
Florist	26	5,314
Telecommunications carrier (wired)	19	7,272
General merchandise store	17	8,127
Liquefied petroleum gas	16	8,635
Clothing store	16	8,635
Outdoor power equipment store	11	12,560
Meat market	11	12,560
Tax preparation service	10	13,816
Tire dealer	10	13,816
Furniture store	9	15,351
Convenience store	9	15,351
Radio/television/other electronics store	8	17,270

Table 3 cont. on page 3

**Table 3 cont.** Business threshold levels for Continuum Code 9 South Dakota counties (based on a 2005 pop. of 138,161)

BUSINESS TYPE	ESTABLISHMENTS (in counties with a Continuum Code of 9)	THRESHOLD (based on 2005 pop. estimate)
Heating oil dealer	8	17,270
Ready-mix concrete manufacturer	7	19,737
Used car dealer	7	19,737
Gift/novelty/souvenir store	7	19,737
Boat dealer	6	23,027
Household appliance store	6	23,027
Sporting goods store	6	23,027
Commercial lithographic printing	5	27,632
Floor covering store	5	27,632
Home center	5	27,632
Motorcycle dealer	4	34,540
Used-merchandise store	4	34,540
Pet/pet supply store	3	46,054

The population required to support different businesses varies greatly. Full-service restaurants and insurance agencies have relatively low thresholds, while businesses like home centers, floor covering stores, and household appliance stores have high population thresholds. Threshold levels help identify the businesses most likely to flourish, or at least survive, in rural towns. For example, a sporting goods store, with a threshold level of 23,027, will probably be more successful if it is located along a highly traveled interstate highway. On the other hand, a full-service restaurant, with a threshold of 953, can succeed in a town with a population below 1,000.

Churches and full-service restaurants, with relatively low thresholds, are most resistant to population decline. On average, it takes 953 residents to support a full-service restaurant in rural South Dakota. While our calculated thresholds for a religious organization suggest a precise threshold of 759 rural South Dakotans per church, we suspect that the figure is influenced by the around 6,000 rural Hutterites who attend over 60 Hutterite churches. It likely takes over 759 people to sustain a rural church.

The retail threshold for new car dealers is about eight percent lower than the statewide threshold. On the other hand, rural South Dakota is less appealing to used car dealers. The retail threshold in the 35 most rural counties was 19,737 (2.75 times higher than the state average). Businesses with retail thresholds around 20,000 have difficulties attracting customers across the long distances common in rural South Dakota.

**Table 4.** South Dakota businesses with lowest population threshold levels

RANK	BUSINESS TYPE	ESTABLISHMENTS (in counties with a Continuum Code of 9)	THRESHOLD (based on 2005 pop. estimate)
1	Religious organization (churches)	182	759
2	Full-service restaurants	145	953
3	Insurance agency	127	1,088
4	Gas station (w/conv. store component)	95	1,454
5	Supermarket/other grocery store (except convenience)	89	1,552
6	Bar/tavern	79	1,749
7	Hotel/motel/B&B	78	1,771
8	Gas station (no conv. store component)	65	2,126
9	Lawyer	59	2,342
10	Automotive repair	58	2,382

Retail businesses and services with threshold levels below 3,000 are (in general) more easily supported by rural communities. Threshold levels show that insurance agencies and brokerages, gasoline station/convenience stores, and grocery stores are some of the businesses that are most likely to succeed in rural South Dakota (table 4).

#### LIMITATIONS AND CONCLUSION

Several problems may occur in using business threshold data. One problem is not acknowledging the other factors that contribute to the success and failure of businesses. Calculated retail threshold levels do not consider outside factors such as business size differences, access to a highway, demographic differences, and economic variety. We noted several successful mail-order businesses in these rural counties, but mail-order businesses are dependent on postal proximity rather than population. A community's age structure and disposable income also affect the likelihood of business success. We lack the information to predict if a toy store is more likely to succeed in a county with more children (lower median age) or with more grandparents (higher median age). Both part-time businesses operated by the self-employed and new businesses tend to be underrepresented in the data. Retailers without a direct local customer base, such as Internet and mail-order sales, can't be analyzed. For businesses that depend on location and traffic, threshold data isn't particularly relevant.

In rural South Dakota, retail threshold levels can be useful in determining which businesses are likely to survive, and which should be merged to maintain services in towns and counties with long-term population decline. Threshold levels can also be useful for deciding if a new enterprise has a good chance by itself, or if it might be beneficial to include a secondary enterprise.

**Table 5.** Per capita income and indexes for South Dakota counties (2000 U.S. Census) (Continuum Code 9 counties in gray)

COUNTY	PER CAPITA INCOME	COUNTY INDEX (percent of SD income per capita)
Aurora	\$22,115	82.0
Beadle	\$27,501	102.0
Bennett	\$16,208	60.1
Bon Homme	\$21,955	81.4
Brookings	\$24,094	89.3
Brown	\$30,925	114.7
Brule	\$22,179	82.2
Buffalo	\$12,159	45.1
Butte	\$21,344	79.1
Campbell	\$21,467	79.6
Charles Mix	\$22,674	84.1
Clark	\$25,753	95.5
Clay	\$27,901	103.5
Codington	\$27,091	100.5
Corson	\$24,279	90.0
Custer	\$29,101	107.9
Davison	\$25,528	94.7
Day	\$26,196	97.1
Deuel	\$26,196	97.1
Dewey	\$16,928	62.8
Douglas	\$21,343	79.1
Edmunds	\$28,035	104.0
Fall River	\$22,200	82.3
Faulk	\$25,302	93.8
Grant	\$27,341	101.4
Gregory	\$22,913	85.0
Haakon	\$20,843	77.3
Hamlin	\$22,801	84.6
Hand	\$22,447	83.2
Hanson	\$20,070	74.4
Harding	\$18,107	67.1
Hughes	\$28,646	106.2
Hutchinson	\$24,596	91.2

COUNTY	PER CAPITA INCOME	COUNTY INDEX (percent of SD income per capita)
Hyde	\$16,783	62.2
Jackson	\$14,128	52.4
Jerauld	\$24,926	92.4
Jones	\$23,009	85.3
Kingsbury	\$26,102	96.8
Lake	\$25,825	95.8
Lawrence	\$26,252	97.3
Lincoln	\$29,428	109.1
Lyman	\$18,628	69.1
McCook	\$27,916	103.5
McPherson	\$19,908	73.8
Marshall	\$26,599	98.6
Meade	\$26,210	97.2
Mellette	\$16,357	60.7
Miner	\$20,638	76.5
Minnehaha	\$32,776	121.5
Moody	\$27,639	102.5
Pennington	\$27,759	102.9
Perkins	\$20,686	76.7
Potter	\$26,145	97.0
Roberts	\$22,487	83.4
Sanborn	\$29,647	109.9
Shannon	\$13,874	51.4
Spink	\$26,939	99.9
Stanley	\$26,459	98.1
Sully	\$16,955	62.9
Todd	\$13,243	49.1
Tripp	\$22,404	83.1
Turner	\$28,109	104.2
Union	\$37,416	138.7
Walworth	\$22,257	82.5
Yankton	\$25,147	93.3
Ziebach	\$10,303	38.2
ALL	\$26,967	100

This publication originated with a question by Tanya Fiddler and was made possible through a grant from Four Bands Community Fund, Inc., of Eagle Butte, South Dakota. The question was, “Can you calculate retail thresholds specifically for rural South Dakota?” The grant made a “yes” answer possible by funding the extraction of the specific rural data from the U.S. Census at zip code level.

For more information about threshold levels for business enterprises not included in this document, contact Mike McCurry or Trevor Brooks at (605) 688-4899 or at [sdsudata@sdstate.edu](mailto:sdsudata@sdstate.edu). The Rural Life Data Center website is found at <http://sdrurallife.sdstate.edu>.

#### REFERENCES

- Blair, John. P, Thomas Traynor, and Manjiang Duan. 2004. Retail development in rural counties: evidence from the upper Midwest. *The Journal of Regional Analysis and Policy* 34: 69-84.
- Dehter, A.1987. *Social service delivery in sparsely populated regions: Israel, and rural development planning*. Boulder, Colorado, Westview Press.
- Deller, S., Ryan, W. Retail and service demand thresholds for Wisconsin, staff paper 96.1, University of Wisconsin Extension, Madison, WI, 1996
- McConnon, J., Market potential for retail businesses in Maine, University of Maine Cooperative Extension Bulletin #3006, Orono, Maine, 1989
- Stone, K., Artz, G., Threshold levels for selected retail & services businesses in Iowa 1998-1999, Iowa State University, Ames, Iowa, 1999
- U.S Census Bureau. 2008. <http://www.census.gov/>. Retrieved Oct. 30, 2008.
- United States Department of Agriculture. 2004. Rurality: Rural-Urban Continuum Codes. <http://www.ers.usda.gov/briefing/rurality/ruralurbcon/>. Retrieved Oct. 30, 2008.



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**EXEX9003 December 2008. Access at <http://agbiopubs.sdstate.edu/articles/ExEx9003.pdf>.**