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Shifts in Agricultural Land Valuation in South Dakota: From Market-Based to Income Based Criteria

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Abstract

Agricultural land prices rise amidst increased demand from agricultural producers and individuals seeking land for recreational, speculative, or residential uses. Interest in changing South Dakota's method of valuing agricultural land from a market-based to an income-based approach surfaced and resurfaced in the late 1970s and 1990s, respectively. Using results from two studies, we describe differences in land market conditions between these time periods and summarize the state and county valuation shifts resulting from adopting an income valuation approach. Specifically, we report internal valuation shifts between crop and pasture landowners and external valuation shifts between agricultural landowners and nonagricultural property owners.

Introduction

Netzer identified 1960 as a turning point in the history of the property tax. Prior to 1960, public finance economists suggested this tax would be replaced by other forms of taxation as a result of inefficient administration of the property tax, decreased collections during the Great Depression, and the growing momentum behind state-collected sales and income taxes. These forecasts did not materialize and today the property tax continues to be used as an instrument of local government finance.

Property tax revenue is a funding source that is essential to the provision and maintenance of local government services. Netzer identified Australia, Canada, Ireland, the U.K., and the U.S. as locations where local government own-source property tax revenue exceeds 25 percent of total tax revenues. In general, primary education and secondary education are particularly reliant upon local property tax revenues.

Valuation of the land resource in order to assess property tax responsibility and ultimately fund local government services has caused unique issues to surface in urban and rural contexts. The impact of valuation procedures on timely development of land on the urban fringe is one topic of interest to both urban and rural residents. Modeling work completed by Shonkwiler and Reynolds and Clarke and Reed analyzed land prices and market trends for lands on the rural-urban fringe.

In terms of willingness to pay for agricultural land, rural interests generally weigh productivity factors while urban interests heavily consider the land's potential for development. Nonetheless, additional factors increase demand for agricultural land at the rural-urban fringe and beyond. In a study of agricultural land values in Texas, Pope recognized the growing popularity of small farms supplemented by increased off-farm income. In recognition that consumptive uses (rural residence, hunting, fishing, outdoor recreation, etc.) greatly impact market values, Pope credited just 25 percent of the market value of rural land to agricultural productivity. Goodwin, Mishra, and Ortalo-Magné suggested that land values in the Northern Great Plains are impacted by increased government payments (Agricultural Market Transition Act payments, loan deficiency payments, and disaster relief) to this region, compared to other regions of the U.S.

England investigated whether a revenue-neutral shift by New Hampshire state government from property taxation to land-value taxation would have a positive impact on regional economic development. He projected statewide impacts that were positive, but varied in magnitude depending on the industrial base, transportation resources, and other factors specific to individual counties. England qualified the findings as

appropriate given the revenue-neutral specification of the study within a small open economy in which property taxes account for just 14.8 percent of state and local revenues.

As a complement to the New Hampshire study completed by England, we report the findings from a study of valuing agricultural land in South Dakota according to productive capacity using the income capitalization approach. South Dakota, unlike New Hampshire, is highly dependent on local property tax revenues as a funding source, particularly for local schools. Within this article, we describe the magnitude and direction of valuation shifts occurring externally (between agricultural landowners and nonagricultural property owners) and internally (between cropland and rangeland/pastureland uses). As a result of the agricultural, recreational, and residential interests that converge in South Dakota rural land markets, shifts identified in this research offer insights for other states challenged with balancing increased rural land market demand in the context of local government finance.

South Dakota Property Valuation and Assessment in a National Context

Both market and income (productivity) approaches are used to value agricultural lands for taxation. From a theoretical perspective, however, these valuation approaches diverge. The income approach represents the expected agricultural income (net or gross returns) capitalized at the appropriate agricultural land market capitalization rate. The market approach, on the other hand, implies that a buyer's evaluation of the land's productive capacity and additional characteristics (location, amenities, potential for conversion to alternative use, etc.) are jointly captured in the selling price. Economic

theory suggests that market valuation and income valuation should be the same if agricultural use constitutes the highest and best use of the land. However, in cases where the highest and best use of the land is a different use (retirement property, commercial development, recreational development, etc.), it is expected that the market value would exceed the income value of the agricultural land in question. As market-based valuations rose in response to increased consumer demands for a fixed supply of land, income valuation methods emerged as viable alternatives for valuing agricultural land and maintaining its agricultural use. As a result, the income capitalization approach continues to gain momentum, particularly in areas dependent upon agriculturally-based economies.

Agricultural land in South Dakota has traditionally been valued using the market approach. In both the late 1970s and the late 1990s, competitive agricultural land markets precipitated property tax valuation increases. In the late 1990s, individuals engaged in production agriculture became interested in changing the state's market valuation approach to an income (productivity) approach when an increased number of agricultural land sales exceeding the productive capacity of the land occurred in locations less suited for conversion to alternative uses.

Pilot studies of adopting the income (productivity) approach gained statewide attention because South Dakota, in the absence of a state income tax, predominantly relies upon sales tax at the state level and property tax at the local level to provide necessary revenue for public services. As pictured in figure 1, South Dakota's greater dependence upon local taxes as a percentage of total taxes stands out among individual states in the upper Midwest or when compared to the United States, in general.

The taxation structure in South Dakota consists of sales taxes, property taxes, fuel taxes, motor vehicle licensing, and other special taxes. South Dakota state and local tax revenues remained highly dependent on sales and property taxes, with sales taxes generating over 50 percent of tax revenues and property taxes generating over 36 percent of tax revenues in 1999-2000 and 2001-2002 (U.S. Department of Commerce, 2002 and 2004). On average, South Dakota school districts collectively received over 46 percent of their funding from local sources in fiscal years 1998 through 2003 (S.D. Department of Education and Cultural Affairs). In addition to year to year changes, this percentage varied depending on an individual school district's revenue needs. An increasing number of South Dakota school districts increased the local contribution by approving an opt out to exceed the statutory tax levy maximum while a minority of school districts remained below the statutory tax levy.

South Dakota Property Valuation and Assessment in a Local Context

Agricultural valuation accounted for 35.2 percent of total valuation for the state of South Dakota in 2001. This represents the agricultural real estate contribution to county governments, but the contribution to schools is somewhat overstated due to the agricultural mill levy being lower than the nonagricultural mill levy. County-level dependence on agricultural assessed valuation as a percentage of total assessed valuation under the market approach is displayed in figure 2.

Agricultural valuation comprises at least 40 percent of total valuation in each of the 51 shaded counties in figure 2. Collectively, the shaded counties represent over 75 percent of South Dakota's land area and 73 percent of its agricultural land valuation. In

contrast, nearly 66 percent of South Dakota's population is concentrated in the 15 counties that are not shaded. These 15 counties contain 27 percent of South Dakota's agricultural land valuation, 83 percent of the state's nonagricultural real estate valuation, and 63 percent of statewide valuation. This context is challenging to lawmakers charged with maintaining an equitable property tax system relative to both agricultural and nonagricultural interests.

In the early 1980s, Ring and Janssen evaluated the variability in valuation and assessment patterns in South Dakota's 66 counties. They found that neither agricultural nor nonagricultural property assessments accurately reflected their market values. As shown in table 1, no South Dakota counties exceeded an assessment-sales ratio of 90 percent for either type of property in 1980. Under assessment was most visible among agricultural properties in which the assessed value of agricultural property was less than 60 percent of the sale value in 54 of 66 (82 percent) counties. Conversely, under assessment occurred in only 18 of 66 (27 percent) counties for nonagricultural property (Ring and Janssen). Data from 1980 reported by Ring and Janssen was combined with data included in the South Dakota Department of Revenue's 2001 Annual Report to complete table 1.

By the late 1990s, underassessment was less common among agricultural and nonagricultural properties in South Dakota. In particular, 51 of the 66 (77 percent) counties reported assessment-sales ratios greater than 80 percent on agricultural properties while 65 of 66 (98 percent) counties reported assessment-sales ratios greater than 80 percent on nonagricultural properties.

Using the sales-ratio difference (nonagricultural assessment-sales ratio minus the agricultural assessment-sales ratio), Ring and Janssen confirmed that nonagricultural properties were assessed closer to market value than were agricultural properties in South Dakota's 66 counties. In particular, the nonagricultural assessment-sales ratio was at least 20 percentage points greater than the agricultural assessment-sales ratio in 46 of 66 (70 percent) South Dakota counties in 1980. Only one county had an agricultural assessment-sales ratio exceeding the nonagricultural assessment-sales ratio in the same year (Ring and Janssen). Within the South Dakota Department of Revenue's 2000 Annual Report, the agricultural assessment-sales ratio was greater than the county's nonagricultural assessment-sales ratio in twelve South Dakota counties. Furthermore, the nonagricultural assessment-sales ratio was 20 percentage points or greater than the agricultural assessment-sales ratio in only 2 of 66 (3 percent) counties. Sales-ratio differences of less than plus or minus ten percent in 51 of 66 (77 percent) South Dakota counties signaled a more level playing field between agricultural and nonagricultural property owners in the late 1990s than in 1980.

The initial examination of data from the beginning and end of this twenty-year period would suggest that valuation and assessment converged in South Dakota. However, detailed examination of the changes that occurred in this time period offers evidence to the contrary. During this time, state government faced public pressure because the selling prices of much of the agricultural land were considered in excess of the land's productive capacity. In 1998, South Dakota's legislature initiated the

nonagricultural acreage classification, NA-Z (South Dakota Codified Law 10-6-33.14), in response to this imbalance.

When completing the annual sales ratio study, each South Dakota county determines the median sales to assessment ratio using at least fifteen sales. The NA-Z classification eliminates any agricultural sales sold for more than 150 percent of the land's agricultural income value (defined in South Dakota Codified Law 10-6-33.15 as the actual annual cash rent minus actual per acre tax on the land, capitalized at eight percent) from being used in the annual sales ratio study of a county. The intent of the NA-Z classification was to prevent a minority of disproportionately high land sales from increasing all agricultural land valuations. The NA-Z classification has been effective in counties with an adequate number of useable sales and in those counties with moderate nonagricultural land market demands. However, in counties where the demand for agricultural land remained strong and high-value sales dominated the local land market, the unexpected consequence of NA-Z classification has been the lack of non-NA-Z sales. For these counties, the fifteen agricultural land sales minimum required for completing the sales-assessment ratio study was generally unattainable, further complicating the valuation process for local governments.

Data and Methods

The unpredictability of the NA-Z classification in counties with diverse land uses combined with the continued inconsistency between agricultural land selling prices and agricultural productivity led the South Dakota Department of Revenue to sponsor a study of valuing South Dakota agricultural land using the income capitalization approach.

Results presented in the remainder of this paper are an outgrowth of data gathered in conjunction with this research. The objectives of the statewide study were: 1) determining the average agricultural income (productivity) value per acre for all South Dakota counties, 2) comparing the average agricultural income value per acre to the present market value per acre for all South Dakota counties, and 3) identifying the capitalization rate which would result in minimal valuation shifts if the income valuation system replaced the present market valuation system.

Income Capitalization Model

Agricultural valuations of South Dakota counties were calculated using Aakre, Saxowsky, and Vreugdenhil's income capitalization model and incorporating data from the following agencies: South Dakota Agricultural Statistics Service, South Dakota Farm Service Agency, South Dakota Natural Resources Conservation Service, South Dakota State University Animal Science Department, National Agricultural Statistics Service, and the USDA Farm Service Agency – Kansas City. In general, the income capitalization model is represented as:

(1) $$\textit{County agricultural land value per acre} = \textit{County agricultural income per acre} / \textit{Capitalization rate}$$

County agricultural income per acre equals the average landowner share of gross returns (LSGR) per acre earned from cropland and noncropland (rangeland and pastureland) production within a county. The capitalization rate is the expected rate of return on an owner's investment in agricultural land. Based on recommendations of the Governor's Task Force on the Study of Productivity Valuation of Agricultural Land in

South Dakota, income sources were integrated in the model at 25 percent of the landowner's share of gross returns in cropland and noncropland production. In order to be consistent with the gross income data incorporated in the model, the task force defined a gross capitalization rate of 8.5% and requested that the researchers identify a capitalization rate that minimized valuation shifts across the state. A summary of Aakre, Saxowsky, and Vreugdenhil's income capitalization model with specifications for South Dakota is depicted in table 2.

Sensitivity analysis was used to assess the influence of individual income factors on agricultural income in South Dakota counties. No individual income factor (crop prices and production characteristics, pastureland production characteristics, cattle prices, CRP payments, or other government payments) distinctly influenced the countywide income capitalization value per acre in any county. However, absolute ($/acre) changes in county agricultural land values were highly sensitive to small percentage changes in the capitalization rate.

Impacts of Income (Productivity) Valuation in South Dakota

Agricultural, nonagricultural, and the total valuations of each county were obtained from the South Dakota Department of Revenue. Using the market approach, the value per acre in each county was calculated as the total agricultural valuation divided by the total number of acres classified as agricultural land. The average agricultural land value per acre decreased in 46 counties and increased in 20 of 66 counties using the income capitalization (8.5% capitalization rate) model. The total agricultural valuation was calculated in each county as the product of the number of acres classified as

agricultural land and the county average land value per acre for agricultural land. For analysis purposes, it was assumed that nonagricultural real estate valuation remained constant under either system. The income capitalization system resulted in a statewide total valuation of $31.406 billion while the present market system resulted in a statewide total valuation of $32.363 billion. These results indicated that adoption of the income capitalization (8.5% capitalization rate) model would result in a statewide valuation decrease of $957 million (2.96 percent of current total market valuation). The difference in total valuation by county expressed as a percentage of total market valuation is presented in figure 3. For example, counties shaded light gray experienced a 10 percent or greater decrease in total valuation when using the income valuation approach versus the current market valuation approach.

Results presented in this paper reflect South Dakota county and statewide findings relative to the theory that market valuation and income valuation should be the same if agricultural use is the highest and best use of the land. Specifically, this paper exposes valuation shifts that would alter the current property tax incidence between agricultural landowners and nonagricultural property owners in all South Dakota counties and influence state education funding. As a means of gauging whether shifts in valuation would occur when changing from the current market system and if so, how the magnitude of these shifts would impact the funding of local programs, we analyzed two types of valuation shifts: 1) shifts between agricultural landowners and nonagricultural property owners (external shifts) and 2) shifts between crop landowners and range/pasture landowners (internal shifts).

Valuation Shifts Between Agricultural Land & Nonagricultural Property Owners

In order to examine shifts between agricultural and nonagricultural landowners, we compared the distribution of valuation between agricultural landowners and nonagricultural property owners under the market and income capitalization systems. Total valuation shifts by county are depicted in figure 4.

Twenty counties exhibited valuation shifts toward agricultural landowners ranging from 0.07 percent in Lawrence county to 5.18 percent in Day county. The counties experiencing a shift toward agriculture correspond to the twenty counties in figure 3 with increased total land value per acre under the income capitalization system compared to the present market system. As pictured in figure 4, only seven of the 20 counties experienced a shift toward agricultural landowners of more than 2 percent of present total market valuation.

Forty-six counties exhibited valuation shifts toward nonagricultural property owners ranging from 0.11 percent in Davison and McPherson counties to 8.70 percent in Harding county. The counties experiencing a shift toward non-agriculture correspond to the forty-six counties in figure 3 in which total land value per acre decreased when shifting to the income capitalization system from the present market system. A total of 28 of these 46 counties displayed valuation shifts toward nonagricultural property owners of more than two percentage points. The state of South Dakota, as a whole, experienced a shift of 1.98 percent of total valuation toward nonagricultural property owners.

Valuation Shifts Between Crop and Pasture Agricultural Landowners

In order to examine shifts between crop and pasture (rangeland and tame pasture) landowners, we compared the distribution of valuation between crop and pasture landowners under both the market and income capitalization systems. The total agricultural land valuation of each county was obtained from the South Dakota Department of Revenue, but the existing market valuation process does not require separate values to be kept for cropland and pastureland uses. Almost all (95 percent) noncropland on South Dakota farms and ranches is used as pasture (USDA Census of Agriculture). Therefore, the acreage distribution for each use and the relative value of noncropland to cropland within a county as reported by the South Dakota Agricultural Statistics Service were used to quantify the average agricultural land value of each county as a cropland value per acre and a pastureland value per acre. The approximated values were multiplied by cropland and noncropland acres, respectively, to determine the cropland valuation and the noncropland valuation. By dividing each of these valuations by total agricultural valuation under the market system, we calculated the percentage of the total valuation attributed to crop and pasture landowners under the market approach. The income capitalization model, on the other hand, generated direct values per acre for cropland and pastureland uses. These values per acre were multiplied by the cropland and noncropland acres, respectively, to determine the cropland valuation and the noncropland valuation. The percentage of the total valuation attributed to crop and pasture landowners under the income capitalization approach was then established by dividing the cropland valuation and noncropland valuation by the total agricultural valuation calculated using the income capitalization model.

Figure 5 displays the change occurring for agricultural landowners as a result of shifting from market valuation to an income capitalization (8.5% capitalization rate) system of valuation. Crop landowners shouldered more of the agricultural valuation in all South Dakota counties. The largest shift occurred in Butte county where the percentage of agricultural valuation attributed to crop landowners in this county changed from 24.21 to 59.27. The smallest shift occurred in Union county where the percentage of agricultural valuation attributed to crop landowners in this county changed from 96.29 to 97.81. The degree of accuracy associated with the magnitude of these shifts is not without question since the base for the relative value of noncropland to cropland under the present system was estimated. Results presented in figure 5 suggest that the strongest shifts toward crop landowners occurred in western South Dakota while shifts toward crop landowners were less pronounced in eastern South Dakota counties. This shift pattern was expected since cropland is generally higher valued than pastureland under the market and income capitalization systems. In addition, cropland is a substantially higher proportion of land use and agricultural valuation in eastern and central South Dakota compared to western South Dakota.

Overall Valuation Shifts

Results presented in the previous section suggest that a valuation shortage of nearly three percent of total market valuation would exist if the income capitalization (8.5% capitalization rate) system were adopted. This result is contrary to the intent expressed in Objective 3 to minimize valuation shifts among South Dakota counties. To correct for conflicts with the intent of moving to an income based system, the income

capitalization model results were replicated at varying capitalization rates until a shift-minimizing capitalization model was identified.

The county and statewide results indicate that under a capitalization rate assumption of 7.75%, a statewide valuation less than 0.2 percent different from current total market valuation resulted. This result is quantified as a statewide valuation increase of $51.6 million (0.16 percent of current total market valuation). Despite transparency at the macro (state) level, some extreme percentage changes (increases and decreases) in valuation were observed in individual counties even at the shift minimizing capitalization rate (7.75%). For example, eight counties had total valuation increases greater than 10 percent while 15 counties had total valuation declines of more than 10 percent.

Income capitalization model results presented in this paper are descriptive of the transition from a market valuation process to an income valuation process in South Dakota. For example, the income capitalization system can be "fit" to the market system at the macro (state) level during a transition between the systems. However, transitional stability at the macro level does not ensure valuation stability at the micro (county) level.

Summary and Implications

Agricultural land in South Dakota counties is currently valued for property tax purposes using the market approach. However, from the late 1970s to the present, the search for a fair and equitable system for valuing agricultural land in South Dakota has resulted in several changes to the market valuation process. As a result of the work of Ring and Janssen, the widespread underassessment problem common to both agricultural and nonagricultural properties in 1980 was eliminated. Further, sales-assessment ratio

differences of less than plus or minus ten percent between agricultural and nonagricultural properties became common in nearly 80 percent of the counties by the late 1990s.

The NA-Z classification system results in excluding land sales of higher per-acre value from the sales ratio in most counties. Over time this reduces the estimated average market value of agricultural land used for property taxation purposes, relative to actual market conditions. As an increasing number of land sales are omitted because they exceed the 150 percent benchmark, a growing number of South Dakota counties are unable to reach the 15 useable sales required for completing the sales ratio study. These counties must rely on sales data for a previous year or current sales data from a neighboring county. Consequently, market valuations are becoming less representative of actual agricultural land market conditions in many counties.

Inconsistencies in the application of the NA-Z classification combined with continued divergence between agricultural land values and agricultural productivity in South Dakota resulted in a statewide study to determine whether the income capitalization approach could equitably replace the market approach in valuing agricultural lands for taxation. In conjunction with the study, the average agricultural income value per acre for each South Dakota county was determined and compared to the present market value per acre. External valuation shifts between agricultural landowners and nonagricultural property owners and internal valuation shifts between crop landowners and pasture landowners were studied to gauge the severity of shifts to individual taxpayer groups.

Income capitalization model results presented in this paper imply that the income capitalization system could be "fit" to the market system at the macro (state) level during the initial transition between the systems. However, transitional stability at the macro level did not ensure valuation stability at the micro (county) level. Some extreme percentage changes (increases and decreases) in valuation were observed in individual counties even at the capitalization rate (7.75%) that minimized valuation shifts across the entire state of South Dakota. The presence of pronounced shifts in some South Dakota counties led the South Dakota Legislature to reject the income capitalization approach as a replacement of the market valuation approach.

During the 2003 Legislative Session, South Dakota's market valuation approach was revised to safeguard against having a limited number of useable sales for completing the sales ratio study. The alternative option is that the agricultural land value may be approximated by the capitalization of county cash rental data. This option is a form of the income capitalization approach with cash rent serving as a proxy for the income generating ability of the land in agricultural use.

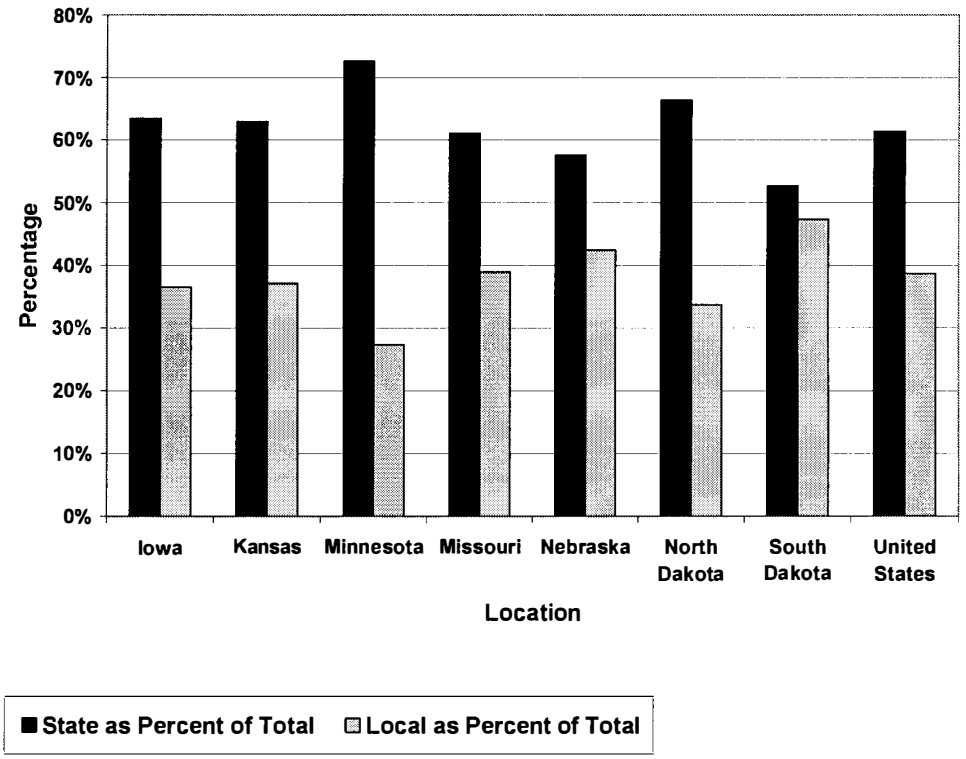
In societies where individuals own land and property, governments typically value these resources for the purpose of taxation. Within this context, different approaches have been used and exhibited varying levels of success in terms of efficiency and equity. This paper has acknowledged the fragility of valuing agricultural property for taxation in South Dakota, a state that relies upon sales tax at the state level and property tax at the local level for funding public services. The topic of efficiently and equitably valuing agricultural land for taxation influences a growing audience as additional

agricultural land is converted to other uses and an increased number of investors favor agricultural land in their investment portfolios.

Acknowledgements

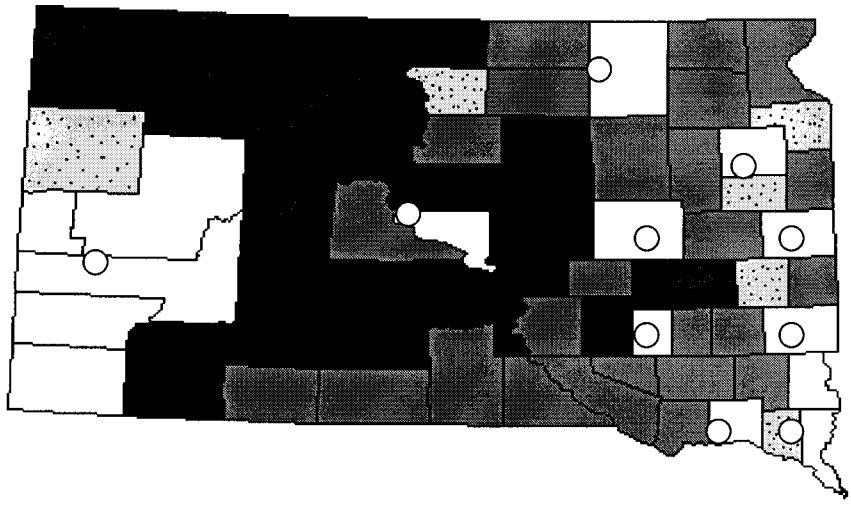
This study of valuing agricultural land was supported by the South Dakota Department of Revenue and South Dakota State University. We wish to thank county and state personnel for their cooperation throughout the study and for providing data for analysis.

Figure 1. Tax revenue responsibility of state and local governments, FY 1999



Source: State and Local Government Finance Estimates by State, U.S. Department of Commerce, Bureau of the Census, 2001.

Figure 2. Agricultural valuation as percentage of total valuation by county using market valuation approach, 2001



Agricultural Valuation / Total Valuation (percent)	
80 - 100%	Dark Gray (20 counties)
60 - 79.99%	Gray (25 counties)
40 - 59.99%	Dotted Gray (6 counties)
0 - 39.99%	No Shading (15 counties)
	○ denotes ten most populous cities

Source: S.D. Department of Revenue, 2002

Table 1. Frequency of South Dakota county assessment-sales ratios

Assessment-Sales Ratio	Frequency (1980)		Frequency (1998-99)	
	AG	Non-Ag	AG	Non-Ag
>90%	0	0	13	33
80-89.99%	0	7	38	32
70-79.99%	3	19	11	1
60-69.99%	9	22	3	0
50-59.99%	25	15	0	0
40-49.99%	21	2	0	0
<40%	8	1	1	0
Total	**66**	**66**	**66**	**66**
High	75.8%	88.0%	96.4%	99.6%
Median	51.6%	66.8%	85.5%	89.9%
Low	24.6%	35.5%	26.9%	70.3%

Sources: Ring and Janssen, 1983 and S.D. Department of Revenue, 2000.

Table 2: Summary of the income capitalization model

County Agricultural Land Value per Acre

=County Agricultural Income per Acre / Capitalization Rate

County Agricultural Income per Acre

= County Agricultural Income[a] / County Agricultural Acres[b]

County Agricultural Income[a]

= 25 % (Landowner's Share of Gross Returns)

= 25 % (Total Gross Revenue from Cropland Production + Government Payments + Conservation Reserve Program Payments + Total Gross Revenue from Noncropland Production)

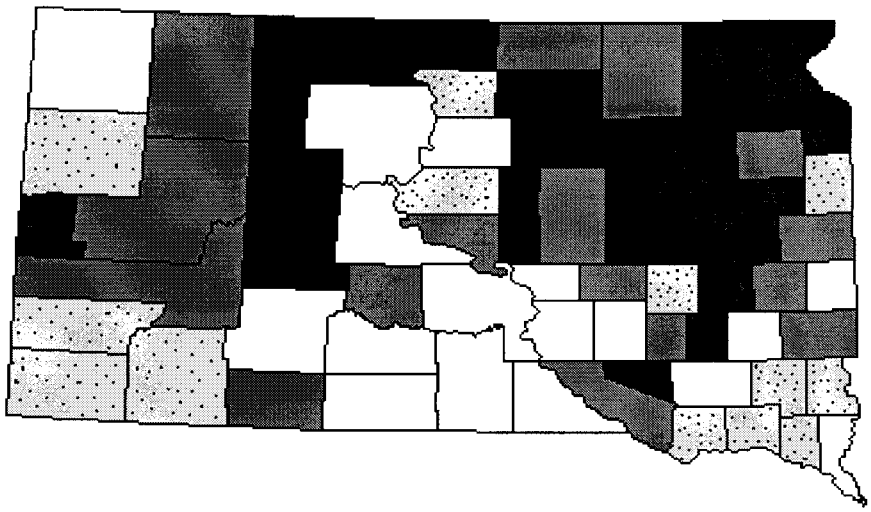
County Agricultural Acres[b]

= Average Cropland Acres + Average Noncropland (Rangeland and Pastureland) Acres

a Olympic average of cropland and rangeland/pastureland production revenues from years 1994-2001 (*Note: Olympic average means that the high revenue and low revenue years were eliminated for cropland production and noncropland production within each county before calculating the average. Cropland and rangeland/pastureland production revenues were calculated using commodity yields, acres harvested, locally adjusted commodity prices, government and CRP payments, livestock prices, rangeland and pastureland carrying capacities, cow prices, calf prices, and animal science data.)*

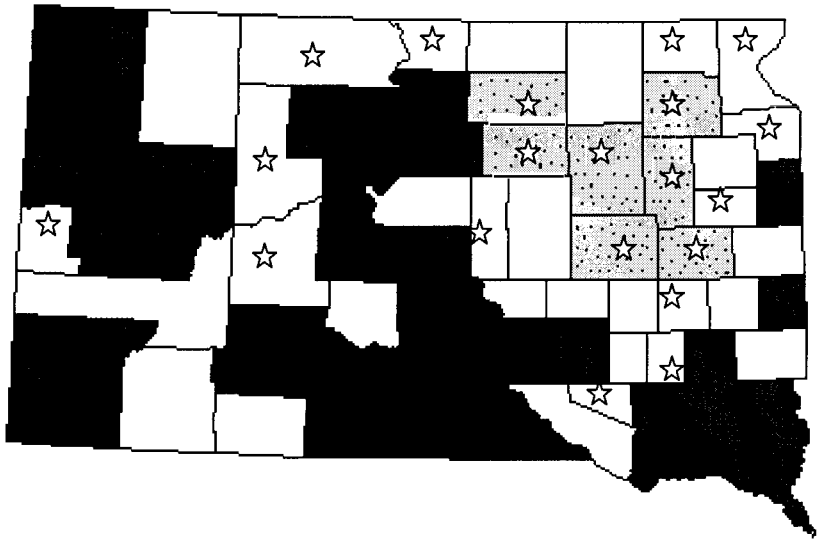
b Olympic average of cropland (production + CRP) and noncropland (rangeland + pastureland) acreage data from years 1994-2001 (*Note: Olympic average means that the cropland or noncropland acreage data associated with high revenue cropland, low revenue cropland, high revenue noncropland, and low revenue noncropland for each county were eliminated before the average was calculated.)*

Figure 3. Difference in total county valuation as a percentage of total market valuation if use value assessment is adopted



Valuation Decrease of 10% or greater	**No Shading (17 counties)**
Valuation Decrease of 5 – 9.99%	**Dotted Gray (13 counties)**
Valuation Decrease of 0.01% - 4.99%	**Gray (16 counties)**
Valuation Increase	**Dark Gray (20 counties)**

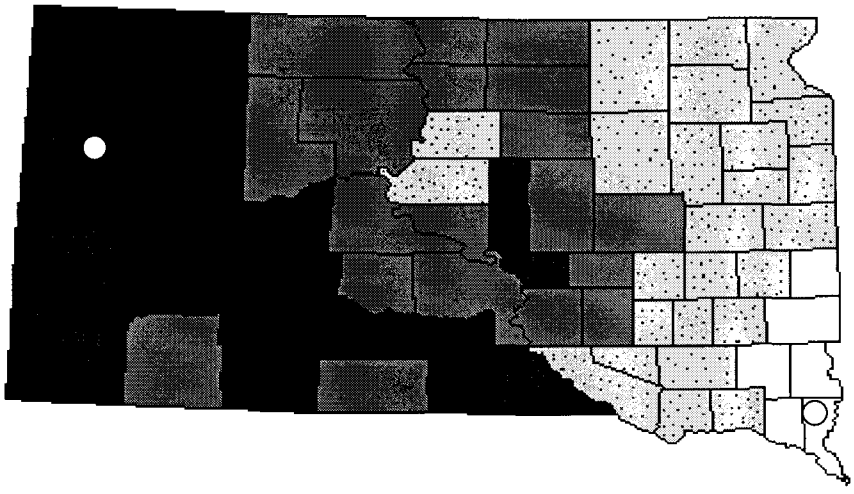
Figure 4. County valuation shift comparison of income valuation to present market valuation of South Dakota agricultural land



Shift toward NA > 2%	**Dark Gray (28 counties)**
Shift toward AG☆ > 2%	**Dotted Gray (7 counties)**
Shift toward AG☆ or NA < 2%	**No Shading (31 counties)**

☆ *denotes twenty counties that exhibited valuation shifts toward agricultural landowners*

Figure 5. Magnitude of valuation shifts toward South Dakota crop landowners by county



Shift of 0.01 – 4.99%	**White (6 counties)**
Shift of 5 – 14.99%	**Dotted Gray (25 counties)**
Shift of 15 – 24.99%	**Gray (19 counties)**
Shift of 25 – 35.06%	**Dark Gray (16 counties)**
	○ denotes extreme shift counties

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