The Transition from Market Valuation to Income Valuation: Internal and External Shift Analyses for South Dakota

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Abstract

Agricultural land in South Dakota has traditionally been valued for property tax purposes by the market approach. Since this valuation approach relies upon comparable sales data, property values imitate trends in the agricultural land market. Interest in changing the state's market valuation approach to an income valuation approach surfaced in the late 1970's and resurfaced in the late 1990's amidst rising land values, structural changes within agriculture, and employment shifts to other industries. Agricultural land valuation pilot studies gained public attention since South Dakota, in the absence of a state income tax, relies upon sales tax, at the state level, and property tax, at the local level, to provide necessary revenue for public services. The 2002 statewide study addressed whether or not agricultural lands could be valued according to an income capitalization approach without creating any valuation shifts from the present market approach. This paper examines two types of valuation shifts identified during the study: 1) external valuation shifts between agricultural landowners and nonagricultural property owners and 2) internal valuation shifts between crop landowners and range/pasture landowners.

Key Words: valuation, agricultural land, property tax

THE TRANSITION FROM MARKET VALUATION TO INCOME VALUATION: INTERNAL AND EXTERNAL SHIFT ANALYSES FOR SOUTH DAKOTA

By Richard Shane, Tonya Hansen, Larry Janssen, and Donald Peterson

INTRODUCTION

Revenue generated by property taxes is critical to funding and maintaining government services in many states. Primary education and secondary education are services that are particularly reliant upon local property tax revenues. Additional complexity exists for agricultural states, such as South Dakota, where many landowners are engaged in production agriculture. Consequently, agricultural landowners and their operations are largely affected by property tax policies associated with agricultural lands.

The search for the most equitable system of valuing agricultural land has resulted in a discussion of whether to value agricultural land by market sales or productive capacity. One complicating factor in this matter is that agricultural lands are increasingly being purchased for hunting, recreation, retirement, investment, and development purposes. As a result of these increased consumer demands and a fixed supply of land, agricultural land prices and market-based valuations continue to rise. Increased agricultural land values and the ensuing increased property taxes have contributed to declining profitability for some lands presently in agricultural use. Income valuation methods, such as the income capitalization approach, are gaining support in many states where land values are increasing and the sustainability of agricultural operations is uncertain.

The task of balancing finance demands (i.e. education) and equitable taxation is certainly not new to policymakers. In the next section of this paper, we examine the theoretical foundation of valuing land for taxation. A section summarizing South

Dakota's property tax history is then used to describe the context of this issue. The objectives and methodology from South Dakota's statewide study are described in the next section of the paper, followed by county and statewide results. Finally, internal and external valuation shift data associated with the proposed transition from market valuation to income valuation of South Dakota agricultural lands is presented.

THEORETICAL FOUNDATION

As evidenced by the literature, early economists envisioned valuing lands according to use (agricultural, forest, mineral, residential, commercial) and timely development. In a 1927 article entitled, "Classification of Land for Taxation", J. V. Van Sickle remarked, "What we are looking for, then, is a system of taxing land, not upon its market value, nor upon its actual current income, but upon the income which, under ordinary conditions, it may be expected to earn in the use to which it may reasonably be put." (Van Sickle, 103-104) Van Sickle's argument for American land reform in the 1920's remains under discussion over 75 years later as governments consider whether to value agricultural land by market or income approaches.

The market and income approaches are both accepted methods of valuing agricultural lands. 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 willingness to pay includes both the land's productive capacity and additional factors (location, amenities, alternative uses, potential for conversion, etc.). 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.

Valuing lands according to their use is a type of differential assessment – the term given to programs that assess agricultural land according to use value in agriculture rather than market value. Three types of differential assessment include: **preferential assessment**, **deferred taxation**, and **restrictive agreements**. "**Preferential assessment** programs allow farmland to be assessed at current agricultural use value, but there is no penalty for conversion to nonagricultural use. **Deferred taxation** programs, such as Ohio's Current Agricultural Use Value (CAUV), are the same as preferential assessment programs, but there is a penalty for conversion. **Restrictive agreements** are legally enforceable contracts that prevent conversion for a specified period of time in return for the lower property tax." (Jeffers and Libby, 3-4) Based on these definitions, the income capitalization approach considered by South Dakota is a form of preferential assessment.

Through their 2000 Technical Assistance Project, the International Association of Assessing Officers suggested that property tax assessments based on use value have gained momentum because agricultural yield and price behaviors are not consistently harmonious with land market trends. For example, agricultural yields and prices only constrain a buyer's willingness to pay when cash flow is solely reliant on agricultural production. Therefore, market values may be higher than the income-generating potential of the land. In addition, land market values are periodically unstable, rising or falling more rapidly than the income-generating capabilities of the land (Adams et al.).

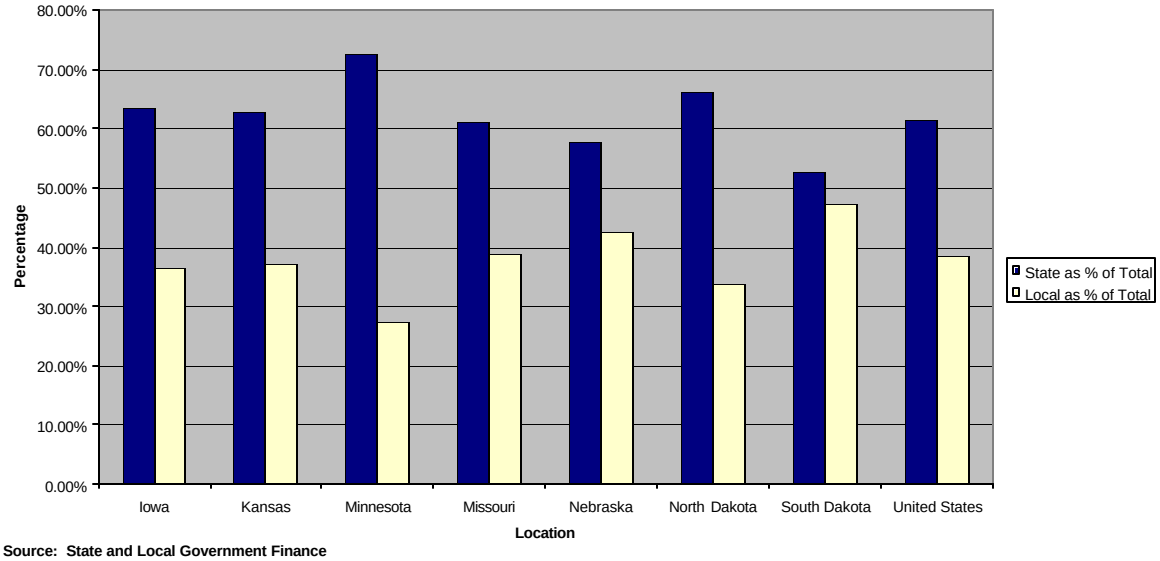
Since increases or decreases in property tax assessments under market value assessment can be dramatic from year to year, differential assessment is viewed as a means of achieving gradual annual increases or decreases in property tax assessments. In some instances, differential assessment has sustained agriculture by fostering continued agricultural use as cropland, pastureland, or rangeland. However, in regions with intense urban sprawl pressures, differential assessment has not provided enough incentive to prevent conversion (Coughlin). In reality, when a landowner considers whether or not to sell their property, the agricultural tax preference is weighed against both market conditions and personal characteristics of the landowner (age, health condition, etc.). Therefore, differential assessment programs have achieved mixed success in keeping lands in agricultural use.

OVERVIEW OF SOUTH DAKOTA'S PROPERTY TAX HISTORY

While data presented in this paper is specific to South Dakota, the broad issue of equitable property taxation for agricultural and nonagricultural interests is relevant to many other states. States that have experienced rapid population growth have weighed equitable taxation in the context of urban sprawl while states with intense recreation or retirement pressures have examined property taxation in the context of these demand factors.

A state's level of dependence on property taxes relative to other taxes is another factor shaping the political prominence of this issue across the United States. Revenue generated from state and local taxes in the upper Midwest and the United States is depicted in Figure 1.

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

States with property, sales, *and* income taxes are less reliant on the revenue contribution from local governments than states like South Dakota with no state income tax.

The broad taxation scheme in South Dakota includes sales taxes, property taxes, fuel taxes, motor vehicle licensing, and other special taxes. According to the 2000 Census, 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. On average, South Dakota schools received over 48 percent of their funding from local sources in fiscal years 1997 through 2002 (S.D. Department of Education and Cultural Affairs).

Agricultural land in South Dakota has traditionally been valued for property tax purposes by the market approach. Since this approach relies upon comparable sales data to value property for taxation, property values imitate land market trends. As a result of rising land values, structural changes within agriculture, and employment shifts to other

industries, interest in changing the state's market valuation approach to an income valuation approach surfaced in the late 1970's and resurfaced in the late 1990's. Pilot studies in response to these interest movements gained attention because South Dakota, in the absence of a state income tax, relies predominantly upon sales tax at the state level and property tax at the local level to provide necessary revenue for public services.

In a 1980 study, Ring and Janssen evaluated the variability in valuation and assessment patterns in South Dakota's 66 counties. They found that neither agricultural nor nonagricultural properties were assessed very strongly relative to market value. As shown in Table 1, there were no counties in the state of South Dakota in 1980 which had an assessment-sales ratio greater than 90 percent for either type of property. At this time, agricultural property was under assessed to a greater extent than nonagricultural property. In fact, the assessed value of agricultural property was less than 60 percent of the sale value in 54 of 66 (82%) counties compared to 18 of 66 (27%) 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.

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	75.80%	88.00%	96.40%	99.60%
Low	24.60%	35.50%	26.90%	70.30%

Source: Ring and Janssen and S.D. Department of Revenue

By the late 1990s, the underassessment problem was minimized for both agricultural and nonagricultural property in South Dakota. For example, 51 of 66 (77%) counties reported assessment-sales ratios on agricultural properties greater than 80 percent while 65 of 66 (98%) counties reported assessment-sales ratios on nonagricultural property greater than 80 percent.

Evidence of the discrepancy between nonagricultural and agricultural assessments in 1980 was outlined by Ring and Janssen via the sales-ratio difference. The sales-ratio difference is equal to: (Nonagricultural assessment-sales ratio – Agricultural assessment-sales ratio). Results from South Dakota's 66 counties confirmed that nonagricultural properties were generally assessed closer to market value than agricultural properties. In 1980, for example, the nonagricultural assessment-sales ratio in 46 of 66 (70%) South Dakota counties was 20 percentage points or greater than the agricultural assessment-sales ratio and there was only one county in which the agricultural assessment ratio exceeded the nonagricultural assessment ratio (Ring and Janssen). By 1999, there were

twelve counties in the state of South Dakota in which the agricultural assessment-sales ratio was greater than the county's nonagricultural assessment-sales ratio. Furthermore, the nonagricultural assessment-sales ratio was 20 percentage points or greater than the agricultural assessment-sales ratio in only 2 of 66 (3%) South Dakota counties. In fact, 51 of 66 (77%) counties had sales-ratio differences of less than plus or minus ten percent, signaling a more level playing field between agricultural and nonagricultural property owners than in the late 1970s (South Dakota Department of Revenue).

Initial examination of data from the beginning and end of this twenty-year period suggests that valuation and assessment issues have been adequately addressed in South Dakota. However, detailed examination of the changes that occurred in this time period offers evidence to the contrary. During this time, many state governments faced public pressure because agricultural land selling prices were in excess of the land's productive capacity. South Dakota's legislature responded to these conditions by initiating the nonagricultural acreage classification (NA-Z) which is defined in South Dakota Statute 10-6-33.14.

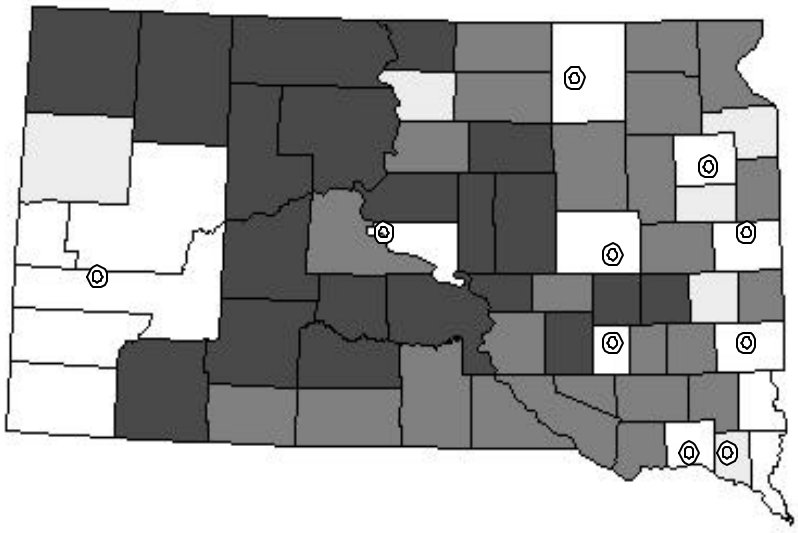
Each South Dakota county is required to complete an annual sales ratio study of at least fifteen sales to determine the median sales to assessment ratio. NA-Z classification eliminated any agricultural sales that sold for more than 150 percent of the land's agricultural income value (defined in South Dakota Statute 10-6-33.15 as actual annual cash rent minus actual per acre tax on the land, capitalized at eight percent) from being used in the sales ratio study. The intent of NA-Z was to prevent high-dollar land sales from raising all agricultural land valuations. NA-Z has been effective in counties which have maintained an adequate number of useable sales and where nonagricultural land

market demands have been moderate. However, NA-Z has had unexpected consequences in counties where demand has remained strong and high-dollar sales have dominated the local land market. The lack of non NA-Z sales in these counties has made the fifteen agricultural land sales minimum requirement unattainable.

The implications of NA-Z differ depending on individual county land market participants, influences, and history. For example, in some counties fifteen useable sales exist even though many sales are omitted as high dollar sales exceeding the 150 percent benchmark. In these locations, the land market is likely stronger than what is reflected in the county's average market value based on the fifteen useable sales. In other parts of South Dakota, nearly every sale is a high dollar sale and the county must rely upon neighboring county or previous years' data (which may represent a stronger or weaker land market) for conducting its sales ratio study. Consequently, market valuation has become a relative term depending on the history of useable sales in a particular county.

Agricultural valuation accounted for 35.17 percent of total valuation for the state of South Dakota in 2001. This percentage 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.

Figure 2: 2001 Agricultural Valuation as Percentage of Total Valuation by County using Market Valuation Approach



Agricultural Valuation/ Total Valuation (%)

80% - 100%	**Dark Gray (20 counties)**
60% - 79.99%	**Gray (25 counties)**
40% - 59.99%	**Light Gray (6 counties)**
0% - 39.99%	**No Shading (15 counties)**

denotes ten most populous cities

The shaded counties, which are at least 40 percent dependent on agricultural valuation, 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 which are not shaded. This context is challenging to lawmakers charged with maintaining an equitable property tax system relative to both agricultural and nonagricultural interests.

OBJECTIVES AND METHODOLOGY OF SOUTH DAKOTA STUDY

Results presented in the remainder of this paper are an outgrowth of data gathered in conjunction with two state-sponsored studies of valuing South Dakota agricultural lands by an income capitalization approach. In 2000, a pilot study of nine South Dakota counties representing each of the South Dakota Agricultural Statistics Service districts

was completed. This pilot study was expanded in 2002 to include all South Dakota counties. Objectives of the statewide study included: 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

The income capitalization model and methodology applied to South Dakota counties originated with Dwight G. Aakre, David M. Saxowsky, and Harvey G. Vreugdenhil in the Department of Agricultural Economics at North Dakota State University. The income capitalization model, in general, is represented by Equation 1:

Equation 1: County Agricultural Land Value Per Acre = $\frac{\text{County Agricultural Income Per Acre}}{\text{Capitalization Rate.}}$

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. A gross capitalization rate was used to be consistent with the gross income data incorporated in the model. A summary of the income capitalization model is depicted in Table 2.

Table 2: Summary of the Income Capitalization Model

County Agricultural Land Value per Acre
=County Agricultural Income per Acre / Capitalization Rate[a]

County Agricultural Income per Acre
= County Agricultural Income[b] / County Agricultural Acres[c]

County Agricultural Income[b]
= 25 % (Landowner's Share of Gross Returns)[a]
= 25 % (Total Gross Revenue from Cropland Production + Government Payments + Conservation Reserve Program Payments + Total Gross Revenue from Noncropland Production)

County Agricultural Acres[c]
= Average Cropland Acres + Average Noncropland (Rangeland and Pastureland) Acres

a The gross capitalization rate of 8.5% and the landowner's share of gross returns of 25% were defined in recommendations of the South Dakota Governor's Task Force on the Study of Productivity Valuation of Agricultural Land

b Olympic average of cropland and rangeland/pastureland production revenues from years 1994-2001
Note: Cropland and rangeland/pastureland production revenues were calculated using commodity yields, acres harvested, locally adjusted commodity prices[1], government and CRP payments, livestock prices, rangeland and pastureland carrying capacities, cow prices, calf prices, and animal science data. The high revenue and low revenue years were eliminated for cropland production and noncropland production within each county. The two years of cropland data omitted could differ from the two years of noncropland data omitted within a county. In addition, the omitted years were county specific and could therefore differ <u>between</u> counties.

c Average of cropland (production + CRP) and noncropland (rangeland + pastureland) acreage data from years 1994-2001
Note: 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.

1 Locally adjusted cropland prices were established by adjusting statewide prices by the difference between statewide loan rates and county loan rates. If a county level price could not be established for a particular commodity, statewide prices published by the South Dakota Agricultural Statistics Service were used.

Production and acreage data sources included 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.

Sensitivity Analysis

Sensitivity analysis was used to conclude that no individual income factor noticeably affected countywide agricultural income. Therefore, no individual income factor distinctly influenced the countywide income capitalization value per acre. However, it was determined that absolute ($/acre) changes in county agricultural land values were highly sensitive to even small percentage changes in the capitalization rate.

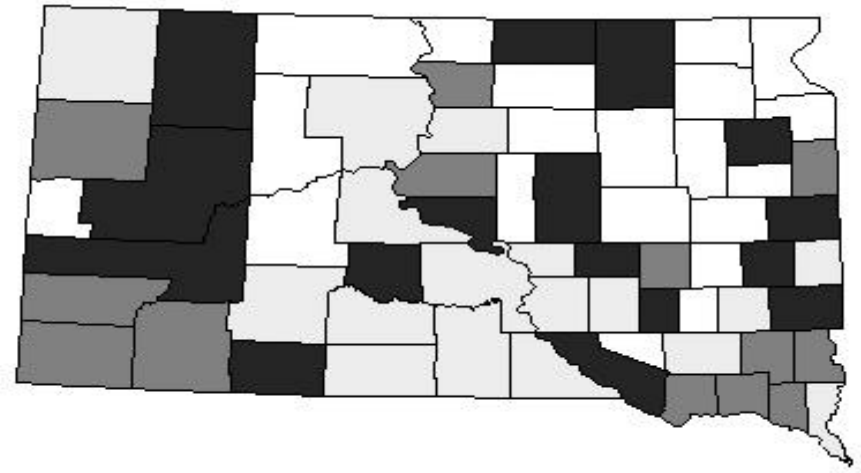
The income capitalization approach establishes a countywide value per acre that can be earned in average agricultural (farming and ranching) production. This countywide value per acre is a "best" fit relative to all of the county's agricultural acres. However, it is unlikely that this countywide value per acre is a "perfect" fit for any individual landowner. This imperfection suggests the need for localized adjustments to account for inconsistencies at the individual landowner level. Localized adjustments with respect to location, size, soil type, terrain, and topographical condition of the land (climate, accessibility, and surface obstructions) are equally important under an income capitalization valuation system or a market valuation system.

RESULTS AND ANALYSIS

Economists suggest that market valuation and income valuation should be the same if agricultural use constitutes the highest and best use of the land. Results presented in this paper reflect unique South Dakota county and statewide findings relative to this theory. Specifically, this paper exposes external, as well as internal valuation shifts, which would alter the current property tax incidence between agricultural landowners and nonagricultural property owners in all South Dakota counties and influence state education funding.

Agricultural valuation, nonagricultural valuation, and the total general valuation of each county were obtained from the South Dakota Department of Revenue. Using the market approach, county value per acre was calculated as county total agricultural valuation divided by the total acres classified as agricultural. Average agricultural land value per acre decreased in 46 and increased in 20 of 66 counties using the income capitalization (8.5% capitalization rate) model. County total agricultural valuation under the income capitalization system was calculated as the product of the number of acres classified as agricultural land in each county 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 statewide total valuation of $31,406,139,000 while the present market system resulted in statewide total valuation of $32,363,417,410. These results suggested that adoption of the income capitalization (8.5% capitalization rate) model would result in a statewide valuation decrease of $957,278,410 (2.96 percent of current total market valuation). The change 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 approach versus the current market approach to value agricultural land.

Figure 3: Difference in Total County Valuation as a Percentage of Total Market Valuation if Use Value Assessment is Adopted



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

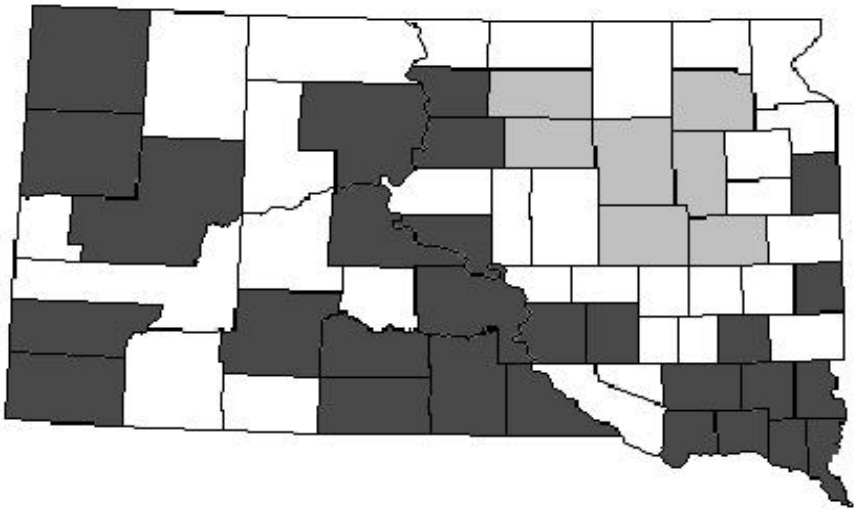
A primary issue associated with adopting the income capitalization model in South Dakota was whether shifts in valuation would occur when changing from the current market system and if so, how the magnitude of these shifts would impact the funding of local programs. In response to this concern, valuation shifts that may impact agricultural (cropland and rangeland/pastureland) and nonagricultural interests were considered. Two types of valuation shifts were examined: 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, it was necessary to compare the distribution of valuation between agricultural landowners

and nonagricultural property owners under the two systems. Total valuation shifts by county are depicted in Figure 4.

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%	**Light Gray (7 counties)**
Shift toward AG or NA < 2%	**No Shading (31 counties)**

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 which had 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 which had decreased total

land value per acre 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.

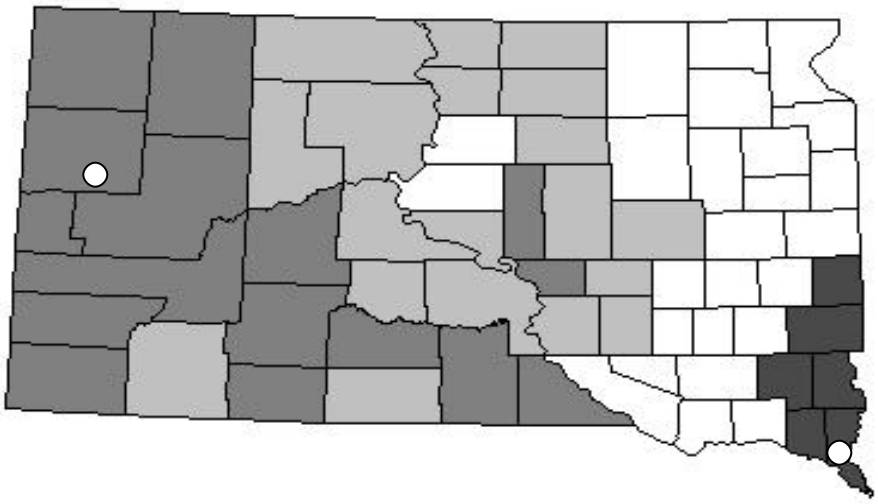
Valuation Shifts Between Crop and Range/Pasture Agricultural Landowners

In order to examine shifts between crop and range/pasture landowners, it was necessary to compare the distribution of valuation between crop and range/pasture landowners relative to 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 noncropland (rangeland/pastureland) uses. 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 rangeland/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, the percentage of valuation attributed to crop and range/pasture landowners under the market approach was determined. The income capitalization model, on the other hand, generated direct values per acre for cropland and rangeland/pastureland uses. These values per acre could be multiplied by the cropland and noncropland acres, respectively, to determine the cropland valuation and

the noncropland valuation. The percentage of valuation attributed to crop and range/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 shifts occurring between agricultural landowners if the income capitalization (8.5% capitalization rate) system were adopted.

Figure 5: Magnitude of Valuation Shifts toward South Dakota Crop Landowners by County



Shift of 0.01% - 4.99% — **Dark Gray (6 counties)**
Shift of 5.00% - 14.99% — **No Shading (25 counties)**
Shift of 15.00% - 24.99% — **Light Gray (19 counties)**
Shift of 25.00% - 35.06% — **Gray (16 counties)**

○ **denotes extreme shift counties**

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 rangeland/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 within this section suggested 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 was contrary to the intent expressed in Objective 3 to minimize valuation shifts among South Dakota counties. Consequently, income capitalization model results were replicated at varying capitalization rates. A capitalization rate of 8.0% resulted in a statewide valuation decrease of $305,708,661 (0.94 percent of current total market valuation) while a capitalization rate of 7.5% signaled a statewide valuation increase of $432,731,238 (1.34 percent of current total market valuation). 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 $51,600,968 (0.16 percent of current total market valuation). Appendix A displays county and statewide results from the shift-minimizing income capitalization (7.75%) model.

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 level during a transition between the systems. However, transitional stability at the macro level does 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 shift minimizing capitalization rate (7.75%).

CONCLUSIONS AND IMPLICATIONS

South Dakota is one of many states that has seen increasing demand for agricultural land inflate selling prices beyond the land's productive capacity. South Dakota's legislative response to these pressures came in the form of the nonagricultural acreage classification (NA-Z). NA-Z eliminated any agricultural sales that sold for more than 150 percent of the land's agricultural income value (defined in South Dakota Statute 10-6-33.15 as actual annual cash rent minus actual per acre tax on the land, capitalized at eight percent) from being used in the sales ratio study to determine county market valuations. This solution proved short-term, however, as the agricultural land market remained strong in South Dakota and an increasing number of sales were classified as NA-Z. As more counties failed to reach the fifteen sales benchmark, momentum grew for valuing agricultural lands by another approach.

In response to this concern, a statewide study in South Dakota was used 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 range/pasture landowners were studied to gauge the severity of shifts to individual taxpayer groups.

Income capitalization model results presented in this paper implied that the income capitalization system could be "fit" to the market system at the macro level during a transition between the systems. However, transitional stability at the macro (statewide) 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 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.

Valuing agricultural land for taxation is typically required of governments that allow individuals to own property. Historically, different approaches have been used and exhibited varying levels of success. This paper has identified the fragility of this issue in the context of South Dakota, which relies upon sales tax at the state level and property

tax at the local level for funding public services. The topic of valuing agricultural land for taxation influences a growing audience as further agricultural land is converted to other uses and additional investors favor land in their investment portfolios.

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APPENDIX A:	INCREASE OR DECREASE IN TOTAL COUNTY VALUATION AS PERCENTAGE OF CURRENT TOTAL MARKET VALUATION USING THE MARKET & INCOME CAPITALIZATION (7.75%) VALUATION METHODS				
COUNTY	TOTAL MARKET VALUATION	TOTAL INCOME VALUATION	INCOME VALUATION minus MARKET VALUATION	DECREASE (-) or INCREASE (+)	DIFFERENCE AS % OF MARKET VALUATION
HARDING	$188,358,210	$122,225,204	-$66,133,006	Decrease	-35.11%
TODD	$82,238,774	$62,760,648	-$19,478,126	Decrease	-23.68%
DEWEY	$91,280,587	$69,900,188	-$21,380,399	Decrease	-23.42%
LYMAN	$270,783,533	$225,119,907	-$45,663,626	Decrease	-16.86%
GREGORY	$254,103,549	$212,976,219	-$41,127,330	Decrease	-16.19%
MELLETTE	$97,217,578	$83,334,909	-$13,882,669	Decrease	-14.28%
AURORA	$219,904,690	$193,334,355	-$26,570,335	Decrease	-12.08%
JACKSON	$110,478,451	$99,358,551	-$11,119,900	Decrease	-10.07%
HUTCHINSON	$454,040,195	$410,138,536	-$43,901,659	Decrease	-9.67%
UNION	$784,207,225	$710,615,654	-$73,591,571	Decrease	-9.38%
BUFFALO	$44,340,361	$40,289,320	-$4,051,041	Decrease	-9.14%
MOODY	$341,674,030	$310,701,208	-$30,972,822	Decrease	-9.07%
MC COOK	$368,223,974	$337,825,364	-$30,398,610	Decrease	-8.26%
STANLEY	$201,464,291	$186,370,096	-$15,094,195	Decrease	-7.49%
LINCOLN	$1,284,494,609	$1,195,400,448	-$89,094,161	Decrease	-6.94%
BRULE	$269,886,603	$251,892,096	-$17,994,507	Decrease	-6.67%
CUSTER	$354,785,988	$332,199,964	-$22,586,024	Decrease	-6.37%
WALWORTH	$232,385,926	$220,704,000	-$11,681,926	Decrease	-5.03%
CLAY	$446,404,056	$424,387,018	-$22,017,038	Decrease	-4.93%
POTTER	$230,592,084	$220,564,788	-$10,027,296	Decrease	-4.35%
FALL RIVER	$263,382,862	$252,036,328	-$11,346,534	Decrease	-4.31%
TRIPP	$341,836,592	$328,245,203	-$13,591,389	Decrease	-3.98%
BUTTE	$297,848,269	$286,414,067	-$11,434,202	Decrease	-3.84%
YANKTON	$798,358,046	$772,210,582	-$26,147,464	Decrease	-3.28%
TURNER	$404,499,776	$395,345,678	-$9,154,098	Decrease	-2.26%
BON HOMME	$266,621,280	$261,565,070	-$5,056,210	Decrease	-1.90%
SULLY	$257,411,881	$253,257,832	-$4,154,049	Decrease	-1.61%
MINNEHAHA	$6,498,318,422	$6,395,359,134	-$102,959,288	Decrease	-1.58%
MEADE	$824,287,559	$813,571,902	-$10,715,657	Decrease	-1.30%
HUGHES	$647,332,332	$641,789,915	-$5,542,417	Decrease	-0.86%
PENNINGTON	$3,425,460,313	$3,412,786,638	-$12,673,675	Decrease	-0.37%
STATE	$32,363,417,410	$32,415,018,378	$51,600,968	Increase	0.16%
LAWRENCE	$878,868,380	$881,521,628	$2,653,248	Increase	0.30%
DEUEL	$267,704,817	$268,547,831	$843,014	Increase	0.31%
SANBORN	$146,310,451	$147,655,395	$1,344,944	Increase	0.92%
BROWN	$1,475,424,569	$1,489,443,309	$14,018,740	Increase	0.95%
SHANNON	$18,744,184	$18,967,947	$223,763	Increase	1.19%
CODINGTON	$988,028,107	$1,001,115,803	$13,087,696	Increase	1.32%
BROOKINGS	$946,492,407	$959,504,737	$13,012,330	Increase	1.37%
DAVISON	$604,124,231	$614,328,612	$10,204,381	Increase	1.69%
LAKE	$488,312,333	$496,957,129	$8,644,796	Increase	1.77%
JERAULD	$117,162,221	$122,034,960	$4,872,739	Increase	4.16%
CHARLES MIX	$395,017,388	$412,188,415	$17,171,027	Increase	4.35%
PERKINS	$226,731,564	$237,472,187	$10,740,623	Increase	4.74%
BENNETT	$97,341,456	$103,449,676	$6,108,220	Increase	6.28%
JONES	$108,978,576	$116,096,872	$7,118,296	Increase	6.53%
MC PHERSON	$207,759,365	$221,630,618	$13,871,253	Increase	6.68%
HAND	$299,403,834	$319,520,790	$20,116,956	Increase	6.72%
HAMLIN	$267,870,585	$287,633,041	$19,762,456	Increase	7.38%
GRANT	$419,774,924	$450,981,580	$31,206,656	Increase	7.43%
DOUGLAS	$163,405,211	$175,725,520	$12,320,309	Increase	7.54%
BEADLE	$680,921,848	$737,846,674	$56,924,826	Increase	8.36%
ROBERTS	$377,437,128	$415,725,326	$38,288,198	Increase	10.14%
CAMPBELL	$117,124,276	$130,060,524	$12,936,248	Increase	11.04%
HAAKON	$175,340,363	$195,107,223	$19,766,860	Increase	11.27%
HANSON	$163,052,141	$181,655,683	$18,603,542	Increase	11.41%
MINER	$168,346,741	$187,680,389	$19,333,648	Increase	11.48%
HYDE	$115,729,832	$129,100,536	$13,370,704	Increase	11.55%
MARSHALL	$244,576,582	$276,293,066	$31,716,484	Increase	12.97%
CORSON	$113,391,752	$128,153,859	$14,762,107	Increase	13.02%
EDMUNDS	$269,529,982	$319,559,222	$50,029,240	Increase	18.56%
ZIEBACH	$63,012,230	$75,256,849	$12,244,619	Increase	19.43%
CLARK	$267,673,337	$322,527,278	$54,853,941	Increase	20.49%
KINGSBURY	$282,527,459	$354,041,073	$71,513,614	Increase	25.31%
DAY	$278,588,836	$349,783,779	$71,194,943	Increase	25.56%
SPINK	$418,666,220	$545,833,900	$127,167,680	Increase	30.37%
FAULK	$157,822,034	$218,936,127	$61,114,093	Increase	38.72%

Source: South Dakota Department of Revenue and Income Capitalization (7.75%) Model