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Effect of Groundwater Availability on Land Values

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ABSTRACT

The Ogallala Aquifer provides 90% of the water used for irrigated agriculture in the Texas Panhandle. Due to this reliance on groundwater, pumping for irrigation purposes has had a significant impact on the amount of water available for agriculture over the years. While the adoption of new technology has resulted in an efficient use of groundwater, the region still is faced with declining groundwater availability. This is due primarily to the slow or non-existent recharge rate of the aquifer in the High Plains and the increased levels of irrigation by producers. Land valuation by both taxing entities and purchasers or sellers of property should reflect the amount of water available under the land being valued, but often times the valuation does not fully or accurately reflect the availability of groundwater. Adding to the problem more recently is the purchasing of "water rights" in the region, which has raised further issues concerning how the value of the available water should be considered, both for tax purposes (regionally in the form of property tax and nationally in the form of capital gains and losses taxes). The purpose of this study is to estimate the land values as affected by factors such as availability of groundwater in terms of saturated thickness, pumping lift, soil type and quality. This hedonic pricing model will then be incorporated into a regression analysis in association with the actual sales prices of parcels sold in the last five years as reported by regional groundwater development offices in order to determine the effect each component in the pricing model has on the dollar value per acre of agricultural land in the Texas High Plains. Average prices paid for irrigated and dry land acres in each county will also be compared in order to determine the dollar value placed on irrigated land by purchasers. The study results will help the landowners, tax authorities and credit institutions better understand the effect that water availability currently has on land values. The results will also provide a basis for water buyout programs for management and planning purposes.

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