Government Program Payments and Non-Agricultural Returns Affect Land Values

October 2011 (available at www.AgManager.info)

Kevin Dhuyvetter, K-State Ag Economics, (785) 532-3527, kcd@ksu.edu
Terry Kastens, Professor Emeritus, (785) 626-9000, tkastens@kastensinc.com

Department of Agricultural Economics, Kansas State University

Government Program Payments and Non-agricultural Returns Affect Land Values

October, 2011
Kevin Dhuyvetter, K-State Ag. Economics (785-532-3527; kcd@ksu.edu)
Terry Kastens, Professor Emeritus (785-626-9000; tkastens@kastensinc.com)

For centuries agricultural profits or rents have driven agricultural land values. Since at least the 1930s, government farm program payments have bolstered land values above what they otherwise would have been. In more recent times, it has become especially apparent that non-agricultural features of agricultural land also have substantially impacted land values in many parts of the U.S. The last several years a driving force behind agricultural land values has been high commodity prices due to strong demand resulting from interest in bio-fuels and strengthening economies around the world. Though that driving force has waned the last several years, commodity prices continue to remain considerably higher than long-run averages. A factor supporting agricultural land values in the last several years has been the influence of outside capital and the interest in buying land as a hedge against inflation. This brief paper reveals a few of the highlights of a study that examined the interaction of agricultural returns, non-agricultural returns, and government payments in driving agricultural land values in 39 states in the U.S.[1] Details behind the study are provided in *Valuing and Buying Farmland, with a Consideration of Non-ag Features*, which is available for download at the website www.agmanager.info.

Competition among farmers ensures that agricultural cash rents reflect returns to land used in agricultural production. Of course, for many crops, agricultural rents reflect both government payments and returns to the agricultural production process. If agricultural land had value only as an input to the farming business, an agricultural capitalization rate could be calculated by dividing cash rent by land value. To compute such ag cap rates by state, we considered the average rent-to-value ratios over the 1951-1972 time period, which we considered to be a period when land values were largely dominated by farming-only activities. Then, those ag cap rates can be applied to current (2011) agricultural cash rents to determine what today's land value would have been in an ag-only environment.

Using the calculations just described, Figure 1 shows the percent of 2011 agricultural crop land values that is actually due to agriculture (i.e., due to the business of farming). These calculations are referred to as the agricultural market value percentage (AMVP). According to the figure, were it not for non-ag attributes of agricultural land, North Dakota's land value would be 58.7% of what it is today. Land values in most of the Great Plains states are clearly dominated by agricultural features, as are Corn Belt states such as Iowa and Illinois. On the other hand, it is not surprising that farmers in many states regularly note that they see little connection between farming returns and land values in their areas. For example, the agricultural portion of land value in states along the eastern coast generally is below 20%.

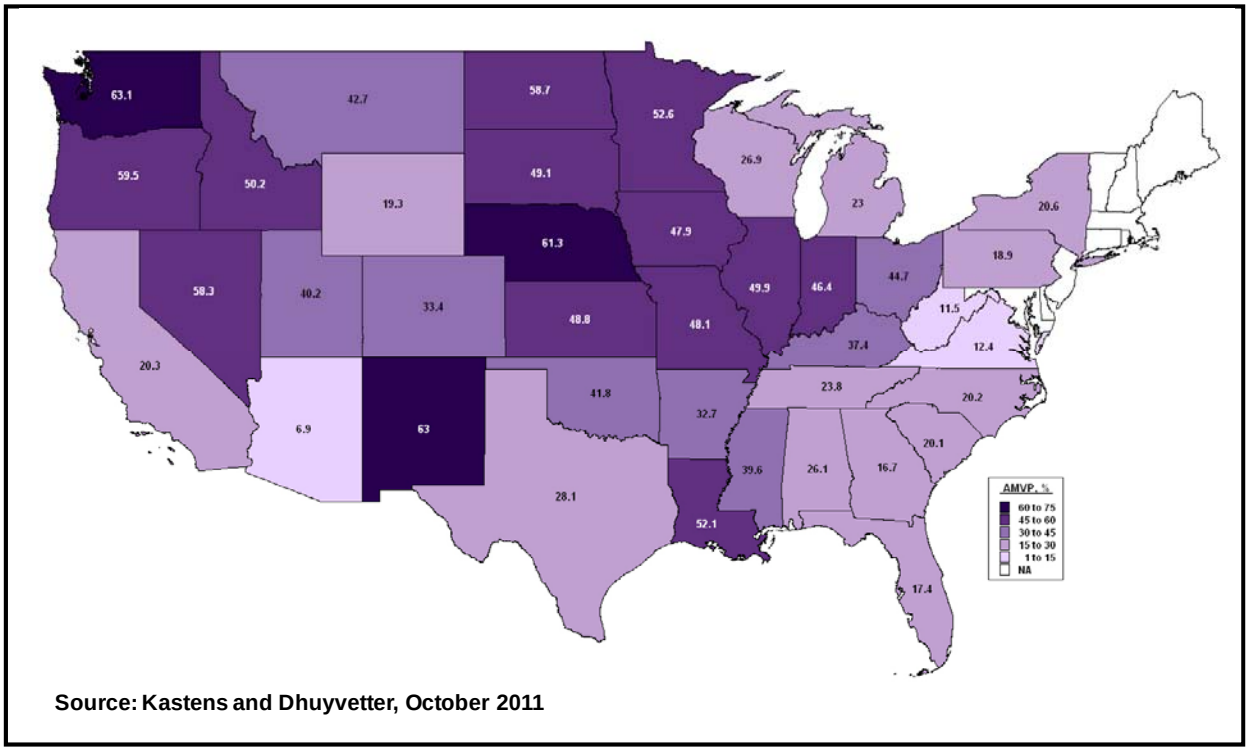
[1] While reference is made in this paper to land values and rents somewhat generically, it should be noted that the land values and cash rents analyzed for this paper were those reported for *crop* land (as opposed to pasture or all land). Additionally, in most cases the crop land values and rents analyzed were non-irrigated, with the only exception being for the few states that report only irrigated crop land.

The ag-only value of land could be computed by taking 2011 land values times the appropriate percentages in Figure 1. Then, we might ask, What percent of this ag-only value should be attributed to government payments? Figure 2 shows those results. The figure is based off the average relationship between government payments and crop land cash rents over the 1951-2011 time period. The substantial contribution of government subsidies to Southern agriculture is most apparent. But, in this regard, Great Plains agriculture is not far behind. One interpretation of this figure is that this is the percent agricultural rents would fall in the absence of government payments.

How far crop land values might fall in the absence of government payments is a function of how much agricultural rents are impacted by government payments (shown in Figure 2). But, it is also a function of how much of land's value is due to agriculture in the first place (shown in Figure 1). Figure 3 shows these results, assuming rents fully adjust to reflect differences in government payments, i.e., government payments are 100% capitalized into land values. The values in Figure 3 are simply the product of the values in Figures 1 and 2. Clearly, it is the Great Plains and Arkansas, Louisiana, and Mississippi that likely would be most impacted by a sudden elimination of government programs supporting agricultural commodities. Interestingly, states like Alabama, whose agriculture has been much more dominated by government subsidies than say Kansas, would see a much smaller reduction in land values. That is because agriculture is much less important to Alabama land values than it is to Kansas land values.

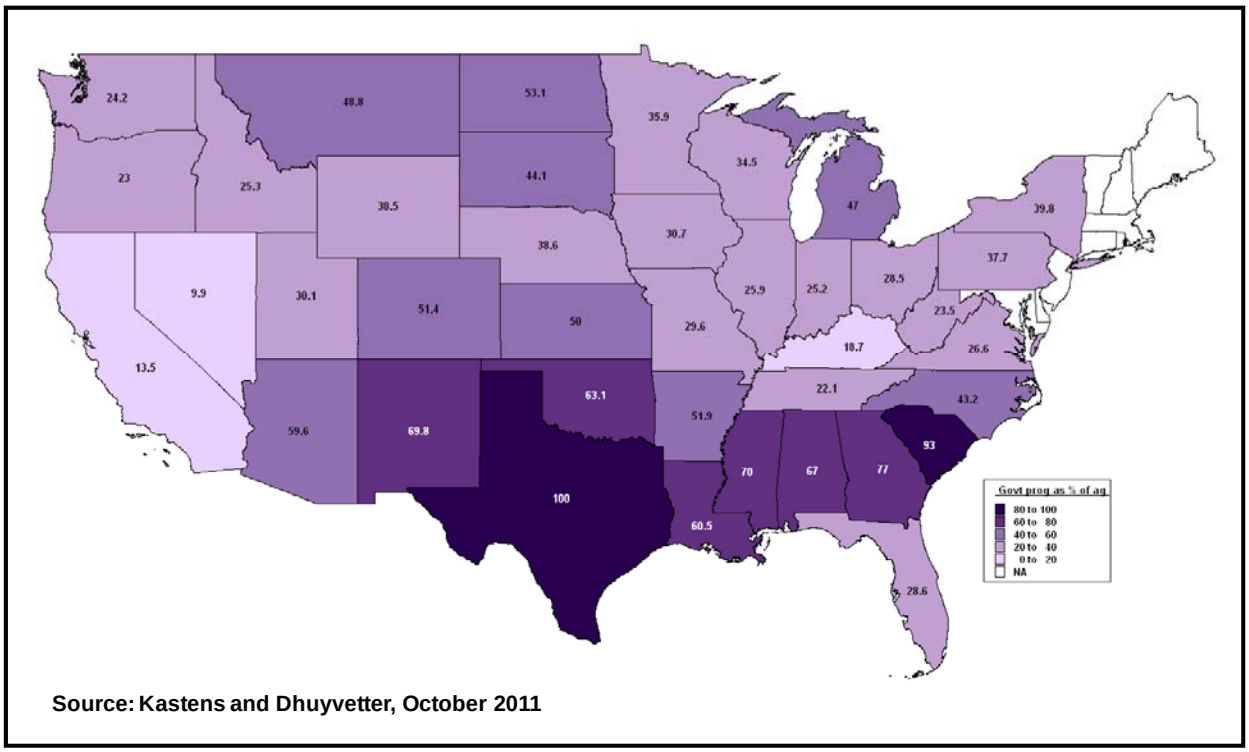
It is important to recognize that the values in Figure 3 essentially assume that 100% of government payments are capitalized into the value of land and thus this should be viewed as an upper limit as to how much land values would actually fall. Values reported in Figure 3 are directly proportional to the amount annual government payments are capitalized into land values. For example, if 67% of government payments are capitalized into land values, the estimated reduction in land values, with the elimination of government programs, would be exactly two-thirds (67%) of the values reported in Figure 3. The literature on what percent of government payments are capitalized into land values ranges from less than 25% to more than 75% and thus this value is debatable. However, it is quite safe to say that it is definitely not 100%. We would suggest that a more reasonable government payment capitalization rate might be something on the order of 50%. Figure 4 shows the amount land values might be expected to decline if government payments were eliminated based on a 50% capitalization rate. Furthermore, in light of current commodity prices, technological advancements for production, non-ag rents (e.g., lease hunting), and farm consolidation it is likely even below 50% at this time. See *Valuing and Buying Farmland, with a Consideration of Non-ag Features*, available for download at the website www.agmanager.info, for our explanation as to why we believe values would fall less than that reported in Figure 3 and possibly less than those reported in Figure 4.

Figure 1. Portion of 2011 Crop Land Value Attributed to Agriculture (AMVP).



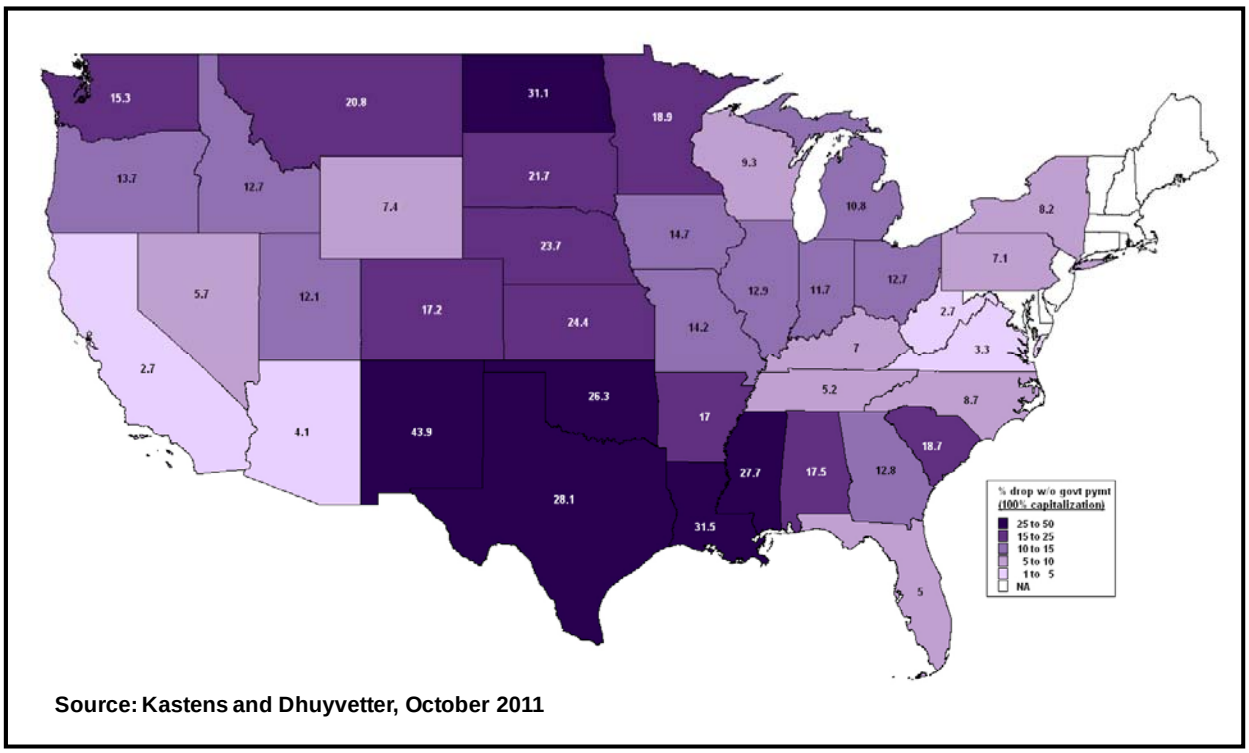
Source: Kastens and Dhuyvetter, October 2011

Figure 2. Portion of 2011 Agricultural Crop Land Value Attributed to Government Payments.



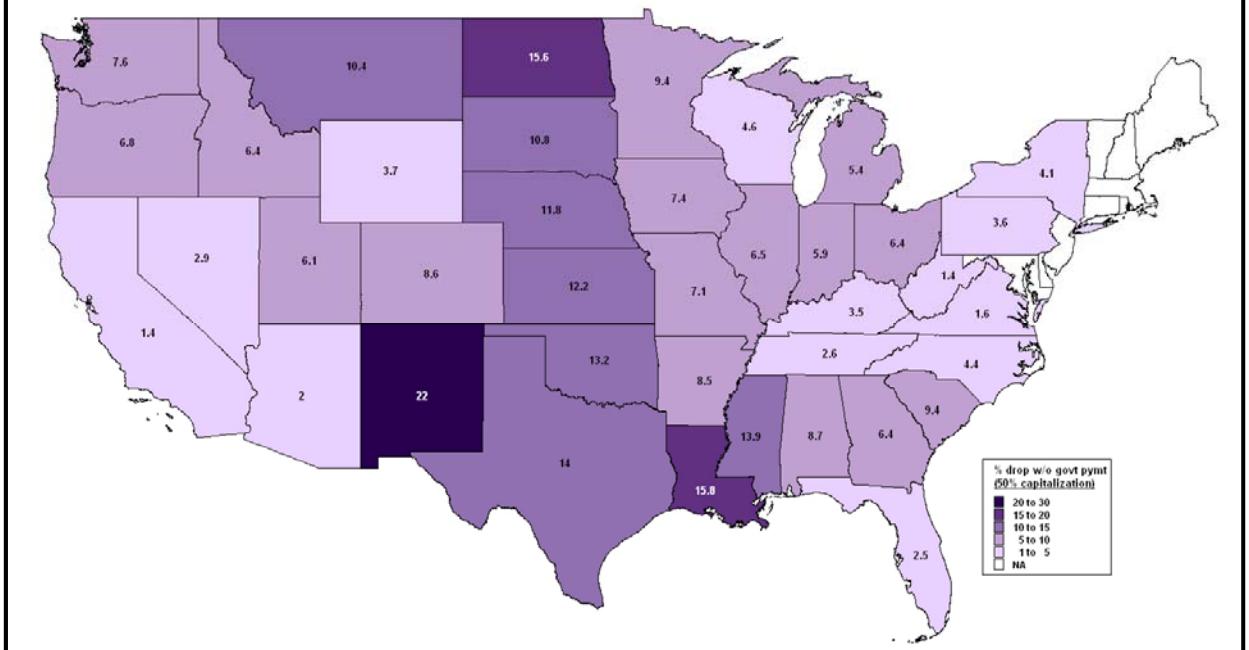
Source: Kastens and Dhuyvetter, October 2011

Figure 3. Estimated Maximum Reduction in 2011 Crop Land Values with the Elimination of Government Programs (100% capitalization rate).



Source: Kastens and Dhuyvetter, October 2011

Figure 4. Estimated Reduction in 2011 Crop Land Values with the Elimination of Government Programs (50% capitalization rate).



Source: Kastens and Dhuyvetter, October 2011