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Subsidy Incidence in Farmland Rents: An Application of Ricardian Rent Theory with Uncertainty and Transaction Costs

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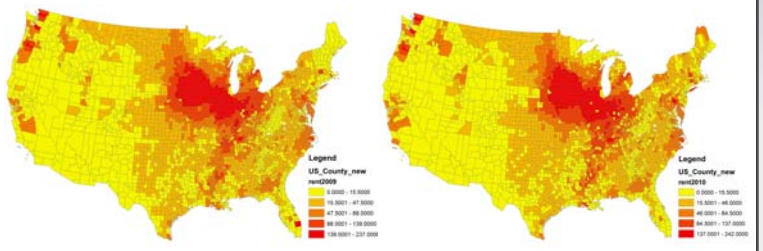
BACKGROUND

- The United States has a long history of providing generous support for the agricultural sector. The primary goals of these farm programs are to increase farm incomes and reduce income volatility for farmers.
- Farmland renting is a common practice in the U.S. with about 40% of the farmland in operation rented from others. Contrary to conventional wisdom, most agricultural landlords are non-operator individuals that work in or are retired from non-farm-related activities.
- Farmland rental rates, land values, and land-use decisions are influenced by these farm programs. The basic economic theory of rent tells us these subsidies will be largely, if not completely, capitalized into land values and rents, as they represent increases in the net returns to land use. Consequently, programs that aim to help poor farmers may actually benefit those relatively wealthy and non-farming landowners.
- How landlords and tenant operators share program benefits is an important and essential issue. The more benefits passed through to landowners, the less effective these programs are as a tool to help farmers. Furthermore, a large proportion in capitalization of program benefits into farmland rents can also have significant impact on land-use decisions, which can result in other policy spillovers like reducing incentives for conservation and exacerbating deforestation.
- Given this background, literature on examining the impacts of government subsidies on farmland rental rates has recently begun to emerge (e.g., Lence and Mishra 2003; Patton, et al. 2008; Kirwan 2009; Goodwin, et al. 2009; Qiu, et al. 2011).
- The existing studies have neglected two important issues related to rent determinants: spatial externalities and regional heterogeneity.

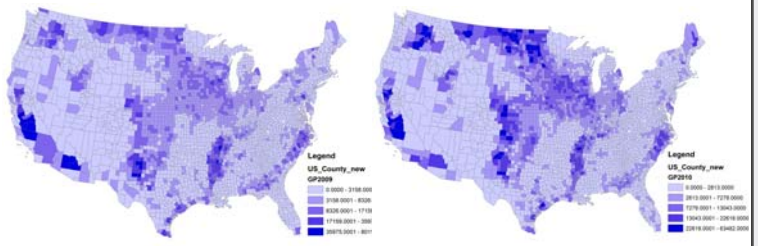
CONCEPTUAL FRAMEWORK AND DATA

- The conceptual framework builds upon the earlier efforts of Chavas (2001).
- We expand his work by introducing the spatial externalities and neighbor impacts which allow the farmland rents as well as government subsidies and other unobservable factors to exhibit spatial autocorrelation to the rent determinant models.
- County-level 2008-2011non-irrigated cropland cash rent data are obtained from USDA
- County-level 2008-2011 crop farm net cash return and government payments data are obtained from Bureau of Economic Analysis

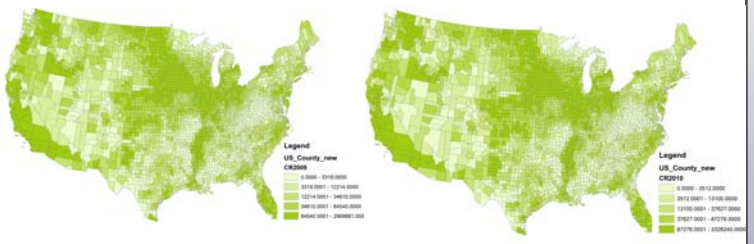
MATERIALS AND METHODS



Farmland Cash Rent 2009 and 2010



Government Payments 2009 and 2010



Net Farm Returns 2009 and 2010

RESULTS

SUMMARY OF OUTPUT: SPATIAL ERROR MODEL

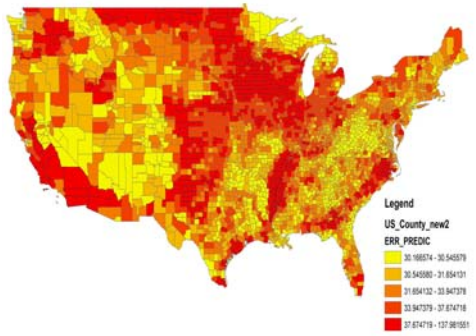
Variable	Coefficient	Std.Error	z-value	Probability
CONSTANT	30.16657	3.60272	8.373277	0.0000000
GOVNPAY	0.9893091	0.1035537	9.553583	0.0000000
NET RETURN	0.01374596	0.003748829	3.666735	0.0002457
SPATIAL LAG	0.9133657	0.007664284	119.1717	0.0000000

R-squared: 0.852669

Log likelihood:13910.930908

SOME HIGHLIGHTS

- Spatial autocorrelation is significant
- Landlords capture 99% of the government subsidies
- Only 1.3% net return from markets been shared by landlords



Predicted Cash Rent from the Spatial Model

CONCLUSIONS

- Our study incorporates spatial externalities into the Ricardian rent theory and shall provide new insights on the rent determination and subsidy incidence literature.
- Empirical results provide value information regarding evaluations of these farm programs. In particular, our results indicate that commodity programs are both ineffective (does not reach the poor farmers) and inefficient (imposes large cost for re-contracting and for government administrations).
- The paper's main recommendation is therefore to terminate the commodity subsidies or at least improve the way to target and support these in need more effectively and efficiently.