POSTER 1

An Agent Based Simulation of Farm Succession and Farmland Valuation

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The impact of widespread farm ownership by large investors is influential and uncertain. There are various reasons for buying farmland as an investment, and one of them diversification benefits for financial portfolios because many studies have found that the correlation between farmland price yield and the yields of major financial assets, such as stocks, bonds and real estates are negative. On the other hand, the prime objectives of many farm family businesses are "to maintain control and pass on a secure and sound business to the next generation" (Hay and Morris 1984, Errington 2002). Farmland is generally retained within the family by succession due to the strong emotional and economic linkage. However, very little literature has studied the interaction between these two types of farmland transitions.

Given limited data on this research topic, an agent based simulation model (ABSM) is one of the few practical solutions for the study of this area. The model in this study is built upon Anderson's (2012) model that simulates farming activities in Canadian Agricultural Region 1A in Saskatchewan in Repast©. Two modules, farm succession and institutional investors who purchase farmland as a financial asset to diversify the aggregate risk of the portfolio, are added. Further, 30-year farming and investing performances are simulated in four different scenarios to test the impacts on different activeness of institutional investments. They are assumed to lease the farmland they own back to the local farmers for the rent as their dividends. Conclusively, it is found the participation of institutional investors in farmland purchase market can push up the farmland price for 15% to 40% in different scenarios, and the farmers tend to lease slightly more. Meanwhile, the number of farms constantly decrease and more and more large farms emerge in the simulation period with or without investors. Finally, the results show that the existence of institutional investors would not negatively impact the industry health.