# Effects of Financial Resources and Family Environment on Farmers' Exit Decisions

**Kuo-Liang Chang, South Dakota State University**[1]
**Soo Hyun Cho, South Dakota State University**[2]

From 1997 to 2000, the number of U.S. farms and the farm population declined by approximately five million (U.S. Department of Agriculture, 2003). The number of operators aged 75 years and older increased by 20% but the number of operators under 25 years of age decreased 30% from 2002 to 2007 (U.S. Department of Agriculture, 2010). The constant loss of younger population to urban areas has made farmers' managerial decisions and the inter-generational transitions of farm business difficult. The struggle to maintain daily farm operations with limited labor inputs during the busy seasons has also continued to challenge the survival of the farm business. This study aims to examine intra-household factors affecting farmers' exit decisions, with an emphasis on the influences of family financial resources, emotional support, and family-to-work arrangement.

Family Decision Making Theory (Rettig, 1993) hypothesizes that a family member's perceived resources (both financial and emotional) from the other family member influence one's decision involvement. Sustainable Family Business Research Model (Stafford, Duncan, Dane, & Winter, 1999) posits the importance of both business success and family functionality. Drawn from both theories, our study will examine the role of financial assets and spousal factors, as well as the owners' demographic characteristics, socio-economic status, and health-related variables on the exit decision from farming.

Research Question 1. Financial assets will have significant effects on exit decision among farmers.
Research Question 2. The household environment will have effects on exit decision among farmers.
Research Question 3. Demographic, socio-economic, and health factors will affect exit decision among farmers.

Data used for this study were collected from 2001 panel of Survey of Income and Program Participation (SIPP). The SIPP is a continuous series of national panels that provides rich information of program participants' income, labor force information, program participation and eligibility data, and general demographic characteristics (SIPP 2011). The 2001 SIPP contained 9 waves of interviews during the total two and a half years survey period. For each wave, the 2001 SIPP recorded each survey participants' monthly information. Therefore, there were 36 observations for each person who participated in every interview for this panel. We pooled all available observations from sample participations identified as farmers at any time of the 9 waves. After deleting observations with missing values, this study contained 2737 observations (140 farmers' records). The theoretical model was defined as:

*Exit Tendency= F (financial resources, family environment, health-related variables, socio-economic and demographic background)*

The dependent variable, exit tendency, was coded from 0 to 4 based on the frequency of exiting behavior during the survey period. For example, if a farmer was reported as a farmer and never left farming after joining the survey, we gave the value of exit tendency is 0. On the other hand, if any of the farmers left the farm industry and never returned during the survey period, we assigned the value 4. Family finance resources variables included total family income, total earned income, total family interest income, saving account holding, mutual fund holding, rent income, mortgage, home equity value, and government support payment.

We included several index to reflect farmers' family environment in the model: Family support, overall satisfaction for the home, husband and wife's working hours, gender of household heads, and family food supply, marital status, the number of children under 18 at home, and home location (rural or not). The health-related variables included in this study were health condition, payment for medical service, and insurance coverage. An ordered probit decision-making model was applied with the random effects to emphasize the impacts of within-person differences at different points of time. The model structure and SAS coding were constructed as suggested by Allison (2005).

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[1]Assistant Professor, Department of Economics, Box 504/Scobey Hall 109, South Dakota State University, Brookings, SD 57007, Phone: (605) 688-5322. Email: Kuo-Liang.Chang@sdstate.edu
[2]Assistant Professor, Department of Consumer Sciences, Wagner Hall 307/ Box 2275A, South Dakota State University, Brookings, SD 57007, Phone: (605) 688-5835. Email: SooHyun.Cho@sdstate.edu

Overall, the farm families with higher tendency to exit had lower income and fewer financial assets. The Likelihood Ratio and Wald tests validated the study's empirical model. Only variables with significant estimate coefficients were reported.

Financial assets that enabled farmers to generate additional income encouraged farmers to stay in farming. Mean rental income from farmers' own rental property had a positive effect on farmers' exit decision (i.e., the estimated parameter value is 0.007). However, the total family income generated from owned properties reduced the odds to leave (i.e., -0.004). To our surprise, the ownership of common-considered financial assets, including savings account, mutual funds, government securities, and pension funds, did not play significant roles. The home equity and business equity value also did not have significant roles, after controlling the rental income (if any) generated from those equities. Interestingly, while mean family total income has a positive effect on exiting (i.e., 0.005), higher mean family earned income showed an opposite effect (i.e., -0.001). We also found that government public payment/support had a significant effect on farmers' exiting decision (i.e., 0.103). Most importantly, a higher income from additional jobs other than farming actually reduced the odds for farmers to quite farming (-1.168).

Female-head farm families showed a larger tendency to exit (2.001). Compared to single or widowers, married farmers also tend to exit (i.e., 1.22). Race also played an important role—being white significantly reduced the odds to exit (i.e., -1.88). Moreover, older farmers were less inclined to exit, after controlling health condition, income, and other variables. On the other hand, gender, education level, and health condition seemed not to play any significant role on the exiting decision.

Feeling supported by family members had a significant role in reducing the odds to exit farming (-0.528). The health condition was not significant in the exiting decision-making process. In addition, the overall satisfaction of the home and living environment did not affect farmers' exit decision. However, a longer working hour (0.046), which implied more physical effort and less family time, significantly encouraged exiting.

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