

**Multiple Job-holding Among U.S. Farm Women:  
Off-farm Work and On-farm Decision-making Using a Bargaining Approach**

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## **Multiple Job-holding Among U.S. Farm Women: Off-farm Work and On-Farm Decision-making Using a Bargaining Approach**

### Introduction

The majority of farms in the United States are passed down through families, i.e., there is an intergenerational exchange or transfer of the farm that takes place either through inheritance or gifting, or through purchase of the farm by children from parents. In some cases, the farm is transferred to a son, but in other instances the farm is passed on to a daughter. These gender differences in the ‘path’ of transfer may influence intrahousehold relationships on the farm, including work roles and farm decision-making. For example, if the farm is passed down through the farm woman’s family, she may be more likely to work on the farm and spend more time doing farm work. She may also be more involved in farm decision-making, e.g., deciding to buy or rent more land, to purchase farm equipment, to adopt new production practices, to produce particular enterprises, or to quit farming altogether, among other farm decisions. Under this scenario, her husband may be less attached to the farm and more willing to work off the farm. Alternatively, if the farm is passed down through her family and is facing financial difficulties, she may be more willing to work off the farm to help ‘save the farm’. A number of different scenarios can be envisioned, where the work and decision-making scenarios depend on the path of intergenerational transfer. In turn, the respective bargaining powers of the farm women and her husband may be influenced by this ‘path’.

Although there is a growing literature on intergenerational exchange in farm households in developed countries (see, for example, Kimhi 1994, Phimister 1994, Pesquin *et al.* 1999, and Kimhi and Nachlieli 2001), these studies have not examined in detail the potential differences in the effects of farm transfer differentiated by the gender of the recipient. This paper first examines in a descriptive framework changes in the work performed by U.S. farm women in the past two decades and their participation in farm decision-making. Then, the paper documents the influence of intergenerational

transfer on 1) multiple job-holding both on and off the farm and 2) the farm decision-making roles of women in U.S. farm households, based on national-level data collected in 2001. The data were collected by Penn State University in conjunction with the National Agricultural Statistics Service (NASS) and collaborators at the Economic Research Service, U.S. Department of Agriculture. The last survey to focus specifically on the roles and work of U.S. farm women was conducted in 1980 by Rosenfeld (1985). For part of the 2001 survey, questions asked in the earlier Rosenfeld study were repeated, to determine how work roles and involvement in farm decision-making have changed in the last two decades. The survey questions focus on both women and their husbands/partners.

### Methodology

Data. The Penn State Survey of U.S. Farm Women that provides the data for this paper was conducted in April, 2001 through a telephone survey of farm households using the sample frame used by the U.S. Department of Agriculture. A random sample was used and yielded a total of 2,661 observations. The farm woman was the unit of analysis. Each farm woman respondent was asked to answer questions about her: 1) role in farm decision-making, 2) involvement in specific farm tasks and use of sustainable agricultural practices, 3) off-farm work and involvement in nonfarm self-employment, 4) ownership and inheritance of assets such as farm land, and 5) involvement and leadership in farm and community organizations, in addition to 6) individual and household demographic characteristics and 7) characteristics of the farm. The data also include county of residence, allowing data on off-farm labor markets (external labor markets) to be appended to the data set. After the survey was completed, the data were matched by county of residence to the nine farm production regions differentiated by USDA: the Heartland, Prairie Gateway, Northern Crescent, Northern Great Plains, Eastern Uplands, Southern Seaboard, Fruitful Rim, Basin and Range, and the Mississippi Portal. A total of 2,444 farm households could be matched and comprise the data set used here.

Because several recent studies in the U.S. have found that decision-making relative to off-farm employment is a joint decision between ‘the farm operator and the farm spouse’ or between ‘the farm man and farm woman’ (e.g., Tokle and Huffman 1991, Oluwole 2001), data were also collected on the spouse/partner of the woman respondent. For the entire sample, data were collected on the work and tasks of the spouse/partner (if present) from the woman respondent. In addition, a separate survey of farm men was conducted on a subsample of the agricultural households. Hence, data are available on the work of farm men and women, both from the farm woman’s perspective and from the farm spouse’s/partner’s point-of-view. Since the majority of U.S. farm households have a nuclear, two-adult structure, the analysis for this paper was limited to those households with both a farm woman and spouse/partner present.

The paper is divided into two empirical sections, following presentation of descriptive statistics of changes that have occurred between the 1980 Rosenfeld survey and the 2001 survey. In section 1 of the empirical analyses, the data are used to analyze the influence of the path of intergenerational transfer on the work participation of farm women in the United States, and the choices that they make between off-farm work, involvement in work on the farm, and multiple job-holding both on and off the farm. Given potential jointness in female-male work decisions, the estimations are conducted in a framework that allows for joint estimation. Then in section 2, the paper addresses the issue of farm decision-making, using a household bargaining approach.

*Section I: Estimation strategy.* The 2001 data are initially compared to the data for 1980, to determine changes in work over the two-decade period. Then the 2001 data are analyzed to determine the prevalence of alternative forms of work participation/involvement by gender. Multivariate models of work decisions are estimated. The estimation strategy includes two parts. First, it is necessary to determine if off-farm work decisions are correlated (‘joint’) between the farm woman and her spouse/partner. To accomplish this, bivariate probit models that consider the ‘jointness’ of off-farm

work decisions are estimated. *If jointness is not observed*, multinomial logit models are then estimated separately for farm women, with the status categories for the logit being the primary patterns of work (including multiple job-holding). Alternatively, *if jointness is demonstrated*, then multinomial logit models are estimated for farm women, given the off-farm work decision of the husband. That is, models for women are estimated, given that their spouse/partner works off-farm or not. This structure is computationally possible, since roughly half of the farm women in the survey are found to work off-farm and the same is true for her spouse/partner.

The dependent variable ‘participate in off-farm work’ is measured based on participation in off-farm work in the previous year by the farm woman or spouse. Almost all farm women spend some time working on the farm, resulting in virtually no variation in a dichotomous variable using ‘work on farm or not’ as the dependent variable. However, it is clear that some women are highly to moderately involved in working on the farm, whereas others have no direct involvement in farming and spend their time working off-farm or being engaged in home production, for example. Hence, the variable representing participation in farm work is based on the respondent’s answer to a question regarding her self-reported level of involvement in the farm operation. Women that responded that they considered themselves as ‘principal farm operators’, ‘full agricultural partners’, ‘business managers’, or ‘agricultural helpers’ were defined as participating in farm work. Those women that self-classified as ‘no direct involvement’ on the farm were considered as not being involved on the farm. Women that reported involvement in the farm and off-farm employment were classified as those having multiple jobs. It should be noted that very few women failed to fall into one of the three categories.

The independent variables in the models include 1) binary variables indicating whether the ‘path’ of farm transfer is through his or her family, 2) characteristics of the individual expected to influence work decisions (e.g., human capital endowments), 3) characteristics of the household (e.g., characteristics of the spouse, and the presence of children in different age categories that reflect their need for adult

supervision versus their ability to substitute for parent labor on the farm), and 4) farm-related variables that may affect work decisions. Farm-related variables included the percent of gross farm sales from crops, the use of contracting, and the location of the farm in the nine farm production areas delineated by the USDA.

*Section II: Estimation strategy.* Time allocated to farm work has been used in many studies as a measure of involvement on the farm, both for men and women. Another measure is the extent to which they are involved in decision-making regarding the farm or ranch operation. Section II of the paper examines women's involvement in on-farm decision-making regarding farm land, purchases of major farm equipment, adoption of new production practices and innovations on the farm and other major farm decisions.

The bargaining framework applied to households by Manser and Brown (1980) and McElroy and Horney (1981), and applied to understanding women's outcomes in developing countries (see, for example, Doss 1996, Schultz 1999), is appropriate for understanding those factors that affect women's involvement in making major decisions that affect the profitability and future of the farm itself. Involvement in decision-making can be viewed as a two-person game, with power within the household affecting threat points, consistent with a Nash-bargained equilibrium. Factors affecting the power distribution in the household (i.e., in this case between the husband/partner and the wife) should not be endogenously determined, as time allocation is (see discussion in Schultz 1999). In terms of farm decisions, it is likely that the lineage of the farm (i.e., whether passing down through the women's family or through the family of the husband/partner) may affect the power relationship, particularly as related to operation of the farm. Data on the transfer of the farm operation (through her relatives, through his relatives or purchased from others unrelated to either the wife or the husband/partner) are available on the 2001 Penn State data set. The human capital endowments of the farm woman and her spouse/partner may also affect this relationship, and will be included as exogenous variables in the estimations. If it is

assumed that farm couples in the United States engage in a cooperative ‘game’, the theoretical model can be written as follows:

$$N = [U^m(\mathbf{x}) - V_0^m(\mathbf{p}_m, I^m; \alpha^m)] * [U^f(\mathbf{x}) - V_0^f(\mathbf{p}_f, I^f; \alpha^f)] \quad [1]$$

$$s.t. p_0 x_0 + p_1 x_1 + p_2 x_2 + p_3 x_3 + p_4 x_4 = (p_3 + p_4)T + I^m + I^f$$

where  $m$  and  $f$  are two members in the household;  $\mathbf{x}$  is a vector such that  $x_0$  is the pure public good,  $x_1$  ( $x_2$ ) is the good consumed by  $m$  ( $f$ ) and  $x_3$  ( $x_4$ ) is the leisure time of  $m$  ( $f$ );  $\mathbf{p}_m = (p_0, p_1 \text{ and } p_3)$ ,  $\mathbf{p}_f = (p_0, p_2 \text{ and } p_4)$ ,  $I^m$  and  $I^f$  are non-wage income for  $m$  and  $f$ , respectively, and  $T$  is the time endowment for both. The  $V^i$  are the threat points of the individuals and represent the utility they would receive outside of the agreement. The  $\alpha$ 's, introduced by McElroy 1990, are defined as “extrahousehold environmental parameters” (EEPs) and interpreted as threat point shifters. Households solve the Nash bargaining problem by maximizing the Nash objective function subject to the full income constraint.

## Results

*Descriptive statistics.* In the 1980 survey by Rosenfeld (1985), 37 percent of U.S. farm women reported working off the farm. In 1980, the trend of more farm household members being employed in off-farm jobs was viewed as significant, since in previous decades the off-farm work participation rate of farm household members and farm women in particular was very low (Hallberg *et al.* 1991). Since the 1980 study, this upward trend has continued to the point where 52 percent of the women participating in the 2001 survey reported that they worked off the farm in the previous year. This rate is even higher if the sample is limited to women of working-age, where 62 percent of women now work off the farm. Table 1 provides relevant descriptive statistics for farm women with and without off-farm work in the United States, based on the 2001 survey results.

Table 1. Demographic Characteristics of Farm Woman by Off-farm Work Status of Husband/ Partner, 2001 Survey.

	Husband/partner works off-farm			Husband/partner does not work off-farm		
	Woman works			Woman works		
	Both farm and off-farm	Farm only	Off-farm only	Both farm and off-farm	Farm only	Off-farm only
<u>Farm woman characteristics</u>	----- % -----					
Average age (in years)	46.29	47.44	46.21	48.40	49.61	48.37
<u>Education</u>						
< High school	3.13	4.26	0.97	1.66	34.02	7.83
High school graduate	36.40	39.89	28.16	7.47	26.97	38.08
Attended vocational school	5.09	3.72	3.88		8.54	10.20
Attended < 4 years college	24.27	30.32	31.07	29.88	29.54	26.53
College graduate (4 years) or more	31.12	21.81	35.92	46.89	14.11	16.01
	45.21	40.96	32.04	32.78	46.26	22.45
<u>Grew up</u>	14.09	17.55	13.59	6.22	12.81	8.16
On a farm	34.05	33.51	44.66		30.60	53.06
In the country	6.65	7.98	9.71		10.32	16.33
In a town						
In an urban area						
<u>Household characteristics</u>						
Average household size	3.23	3.38	2.99	3.0	3.22	3.10
<u>Presence of children:</u>						
< 6 years	11.15	15.43	14.56	8.30	12.46	8.16
6-11 years	17.81	21.81	15.53	13.28	21.35	24.49
12-18 years	35.62	27.66	30.10	32.37	24.91	34.69
> 18 years	20.35	15.96	17.48	19.50	14.95	16.33
<u>USDA region</u>						
Heartland	21.33	17.55	28.16	27.39	21.71	38.78
Prairie Gateway	16.44	12.77	20.39	16.18	13.52	12.24
Northern Crescent	16.44	13.83	11.65	15.35	15.66	14.29
Northern Great Plains	3.33	2.66	4.85	8.71	7.47	2.04
Eastern Uplands	17.22	23.94	16.50	14.94	13.17	4.08
Southern Seaboard	9.00	10.11	5.83	5.81	8.90	10.20
Fruitful Rim	7.83	10.64	5.83	5.81	9.61	10.20
Basin and Range	4.31	5.32	0.97	4.56	6.76	6.12
Mississippi Portal	4.11	3.19	5.83	1.24	3.20	2.04
Number of observations	511	188	103	241	281	49



At the same time, many farm women actively participate in operating the farm. When asked if they were ‘a main operator or one of the main operators of the farm or ranch’, 53 percent of the women that participated in the Penn State survey answered ‘yes’ (Findeis 2002). The survey results show that about the same percentage self-classify themselves in ‘high involvement’ roles on the farm: principal farm operator (10%), full agricultural partner (31%) and business manager (7%). This involvement translates into two principal roles on the farm: as decision-makers and as providers of labor to the farm enterprise.

A comparison of the 1980 and 2001 rates of involvement of U.S. farm women in making major farm decisions shows consistently and significantly higher rates for most farm decisions since the early survey. Table 2 shows the changes that have occurred in the participation of farm women in different farm decisions. For example, in the 1980 survey, 61.3 percent of farm women reported that they were involved in making decisions (either by self or jointly with someone else) regarding whether to buy or sell farm land. In the 2001 survey, 73.1 percent reported involvement in decision-making regarding the buying or selling of farm land. Women’s involvement in buying major farm equipment also increased, from 47.8 percent to 57.8 percent. Further, trying a new production practice increased from 37.4 percent in the 1980 survey to 52.8 percent in the 2001 survey. Similar increases are observed for a range of other farm decisions (see Table 2).

*Section 1 results: Analysis of work choices* Bivariate probit models were initially estimated to establish to what extent work decisions are jointly made on U.S. farms today. An overall model using the full data set for all farm couples was initially estimated, and the correlation between the equations (i.e., rho) was found to be highly statistically significant for the 2001 data. Lundberg (1989) has argued that work decisions made by couples tend to be jointly made if children are present in the household, but are nonjoint (independent) if children are not present. These relationships were tested for farm couples in the

Table 2. Farm Woman's Involvement in Making Farm Decisions.

<u>Decisions</u>	<u>1980</u>	<u>2001</u>
Whether to buy or sell land	61.3	73.1
Whether to rent more or less land	52.2	64.6
Whether to buy major farm equipment	47.8	57.8
Whether to produce something new	42.0	52.8
When to sell farm products	40.2	48.9
Whether to try a new production practice	37.4	52.8

U.S., but there appear to be no differences in 'jointness' based on the presence of children — in both cases (with and without children present), off-farm work decisions by farm couples are found to be correlated.

Based on the bivariate results, multinomial logit models that show the effects of farm transfer as well as individual, spouse, household, farm and location-related characteristics on work decisions were estimated. Two models were estimated for farm women — one in the case where her husband works entirely on the farm (consistent with the existing concept of a 'full-time farm operator') and the other in the case where he works off-farm (and likely works on the farm as well). Further, the models were limited to those of working age (18 through 64, inclusive).

*When the farm husband is not employed off the farm:* The results for the case where the farm husband/partner is not employed off the farm are shown in Table 3. The likelihood that the farm woman is highly involved in farming and does not have an extra job off the farm increases when the size of the household increases, when her name is on the farm deed, and if the farm is located in the USDA Southern Seaboard, Fruitful Rim and Mississippi Portal regions of the U.S. The likelihood that she will work solely on the farm declines with higher levels of her education and if there are older children present in the farm household. Interestingly, if the farm is transferred through the woman's family, she is less likely to work *solely* on the farm, when her husband is already working full-time in farming.

Table 3. Work Participation by U.S. Farm Woman, Given No Off-farm Work by Spouse, 2001 Survey.

Characteristics	<u>Marginal Effects</u>		
	Both farm and off-farm	Farm only	Off-farm only
Constant	-0.3313	0.2729	0.0584
Women's characteristics			
Age	0.0188	-0.0177	-0.0011
Age squared	-0.0003	-0.0003	0.000009
<u>Education</u> (reference: not a high school graduate):			
High school graduate	0.2982**	-0.2949**	-0.0034
Attended vocational school	0.2496	-0.2818*	0.0322
Attended < 4 years college	0.2987**	-0.3012**	0.0025
College graduate (4 years) or more	0.5147***	-0.5525***	0.0378
<u>Grew up</u> (reference: urban area):			
On a farm	0.1978**	-0.1334	-0.0644**
In the country	0.2364**	-0.1826*	-0.0538
In a town	0.1494	-0.1497	0.0002
Household characteristics:			
Size of household	-0.1021**	0.1274***	-0.0252
<u>Presence of children:</u>			
< 6 years	0.0119	-0.0061	-0.0057
6-11 years	-0.0951	0.0376	0.0575
12-18 years	0.1992**	-0.2341***	0.0350
> 18 years	0.1424*	-0.1647**	0.0223
Farm inherited or purchased through:			
Woman's family	0.0963**	-0.0933*	-0.0029
Husband's family	0.1157*	-0.0513	-0.0644*
Farm woman's name on farm deed (1=yes)	-0.1140	0.1441*	-0.0301
Use of contracts (1=yes)	-0.0618	0.0556`	0.0062
Farm sales from crops (percent)	0.0007	-0.0009	0.0002
USDA Region (reference: Heartland):			
Prairie Gateway	0.0281	0.0167	-0.0448
Northern Crescent	0.0291	-0.0025	-0.0266
Northern Great Plains	0.0319	0.0802	-0.1121**
Eastern Uplands	0.0884	0.0054	-0.0938**
Southern Seaboard	-0.1740	0.1992**	-0.0252
Fruitful Rim	-0.1617*	0.1733*	-0.0116
Basin and Range	-0.1044*	0.1345	-0.0301
Mississippi Portal	-0.2777	0.3028*	-0.0250

\*\*\* = significant at 0.01 level or better; \*\* = significant at 0.05 level or better; \* = significant at 0.10 level or better

At the same time, some women with husbands working full-time in farming worked only off the farm, claiming to have little involvement in the farm operation. The farm woman is less likely to work solely off the farm if she grew up on a farm herself, if the household size is larger, and if her name is on the farm deed. She is also less likely to work *entirely* off the farm (with no direct involvement in the farm operation) if the farm was passed down through her husband's family, and if the farm is located in the Northern Great Plains and in the Eastern Uplands.

Finally, she is more likely to engage in multiple job-holding (both on and off the farm) if she has higher levels of education (with the exception of vocational school), if she grew up on a farm or in the country (relative to growing up in an urban area), and if older children are present in the household. She is also more likely to engage in multiple job-holding if the farm was transferred through either her family or through his family, rather than if it was purchased or gifted from someone who was not related. Multiple job-holding is less likely to be observed when the household is larger in size and when the farm is located in the Fruitful Rim and Basin and Range regions.

*When the farm husband works off the farm:* When the farm spouse/partner works off the farm, variations in education, the presence of children and the path of transfer of the farm appear to be less important in terms of her work decisions (see Table 4). Whether the farm is passed down through his or her family does not appear to be an important determinant of her work decisions. However, both work on the farm (only) and multiple job-holding are strongly affected by her age — she is more likely to engage in multiple job-holding with increasing age up to about the age of 38 years old, after which the likelihood of multiple job-holding declines with increasing age. The opposite appears to be the case in terms of involvement in farm work (only): younger women are more likely to consider themselves as being highly involved in the farm but in middle age they are less likely to be as highly involved. However, after about age 41, their likelihood of involvement increases again. It should be noted that this is quite close to the age when their involvement in multiple job-holding is declining.

Table 4. Work Participation by U.S. Farm Woman, Given Off-farm Work by Spouse, 2001 Survey.

Characteristics	<u>Marginal Effects</u>		
	Both farm and off-farm	Farm only	Off-farm only
Constant	-0.5825	0.4865	0.0960
Women's characteristics			
Age	0.0381*	-0.0324*	-0.0057
Age squared	-0.0005***	0.0004**	0.00006
<u>Education</u> (reference: not a high school graduate):			
High school graduate	-0.0320	-0.0567	0.0887
Attended vocational school	0.0159	-0.1083	0.0924
Attended < 4 years college	-0.0991	-0.0426	0.1417
College graduate (4 years) or more	-0.0031	-0.1366	0.1398
<u>Grew up</u> (reference: urban area):			
On a farm	0.1138*	-0.0474	-0.0664*
In the country	0.0281	0.0045	-0.0326
In a town	0.0379	-0.0342	-0.0037
Household characteristics:			
Size of household	0.0201	0.0259**	-0.0461**
<u>Presence of children</u> :			
< 6 years	-0.1002	0.0237	0.0765*
6-11 years	-0.0596	0.0397	0.0199
12-18 years	0.0018	-0.0562	0.0544
> 18 years	0.0193	-0.0570	0.0377
Farm inherited or purchased through:			
Woman's family	-0.0093	-0.0267	0.0360
Husband's family	-0.0182	0.0028	0.0154
Farm woman's name on farm deed (1=yes)	0.0430	0.0160	-0.0590*
Use of contracts (1=yes)	0.0099	0.0221	-0.0321
Farm sales from crops (percent)	0.0009**	-0.0008**	-0.00008
USDA Region (reference: Heartland):			
Prairie Gateway	0.0676	-0.0407	-0.0269
Northern Crescent	0.0314	0.0241	-0.0554
Northern Great Plains	0.0134	0.0150	-0.0015
Eastern Uplands	0.0330	0.0743	-0.0412
Southern Seaboard	0.0502	0.0494	-0.0997**
Fruitful Rim	0.0164	0.0736	-0.0901*
Basin and Range	0.0874	0.1056	-0.1930**
Mississippi Portal	0.0400	-0.0199	-0.0201

\*\*\* = significant at 0.01 level or better; \*\* = significant at 0.05 level or better; \* = significant at 0.10 level or better

Growing up on a farm also tends to influence the work choices made by women whose husbands work off the farm. Compared to women from urban areas, women that have grown up on a farm are more likely to respond that they are engaged in multiple job-holding whereas they are less likely to view themselves solely as off-farm employees. Women with larger households are more likely to work entirely on the farm and less likely to work off the farm. Women with their names on the farm deed are less likely to work solely off the farm, whereas women on farms more heavily concentrated in crop production are more likely to engage in multiple job-holding and are less likely to work solely on the farm. Finally, when the farm husband/partner works off the farm, the farm woman is less likely to work solely off the farm in the Southern Seaboard, Fruitful Rim and the Basin and Range regions.

Analysis of the results shows that when the husband is not employed off the farm and is engaged entirely in farming, the farm woman's engagement in multiple job-holding (as opposed to working solely on the farm) is positively affected by her level of human capital (in this case, formal education) but not her age. That is, the educational attainment of women on farms typically considered as full-time farms (based on definitions of the husband's work) serves to differentiate women that are able to contribute off-farm earnings to the farm household from those that do not. This does not appear to be the case when the farm husband works off the farm, in which case the age variable is more important for differentiating the work patterns of farm women. Variations in education appear to be less important.

Intergenerational transfer of the farm through the farm woman's family or even through the husband's family appears to affect work decisions by the farm woman, if the farm is what is typically defined as a 'full-time' farm. The estimated coefficients for the intergenerational transfer variables suggest that when the husband allocates all of his time to farming, she is more likely to engage in multiple job-holding, regardless of the path of transfer of the farm through his or her family. She views her work roles as both contributing off-farm work and being highly involved on the farm.

The regional location variables that reflect the type of farm production appear to influence the work choices that farm women make. Relative to the Heartland region, women in the Southern Seaboard, Fruitful Rim and Mississippi Portal regions (i.e., in much of the South and the coastal West) are more likely to be involved solely in farming (with no off-farm work) if their husbands work on the farm full-time. These women are less likely to work multiple jobs.

Finally, larger households generally mean a lower likelihood of work for farm women regardless of whether the husband works off-farm or not. Further, the ages of farm children appear to be important in influencing the work decisions principally of women on farms where the husband works entirely on the farm, with older children meaning a greater involvement of farm women in multiple job-holding on and off the farm. Since it is not the case that older children appear to encourage multiple job-holding among farm women on farms where the husband contributes off-farm income and yet the opposite is true on farms where he is engaged only in farming, the study results may suggest that farm women on the latter farms are trying to earn cash income to finance their children's college educations.

Section II results: Analyzing farm decision-making. Decision-making on the farm may also potentially be affected by the path of transfer of the farm, as well as by the individual, household and farm characteristics considered in the models estimated above. Probit models of participation in farm decision-making were estimated for seven different farm decisions assessed on the 2001 survey: 1) whether to buy or sell land, 2) whether to rent more or less land, 3) whether to buy major farm equipment, 4) whether to produce something new or try a new production practice, 5) when to sell farm products, 6) hiring decisions relative to farm workers, and 7) whether to borrow money. A separate model was estimated for the farm woman's involvement in making each of these farm decisions.

Table 5 summarizes the results for the coefficients for the gender-specific intergenerational farm transfer variables. *The results show a very consistent pattern of influence.* When the farm transfer is through the woman's family, she is engaged in making the majority of decisions about the farm as shown

by the positive and statistically significant estimated coefficients in Table 5. Her involvement in decision-making is found to be positively influenced by farm transfer through her family for 1) whether to rent more or less land, 2) produce something new or try a new production practice, 3) whether to purchase major farm equipment, or 4) whether to hire farm workers. Transfer of the farm through her family does not appear

Table 5. Estimated Coefficients for Effects of Intergenerational Transfer Variables on Farm Decision-making, 2001 Survey.

<u>Decisions</u>	<u>Wife</u>	<u>Husband</u>
Whether to buy or sell land	ns	-**
Whether to rent more or less land	+**	-**
Whether to buy major farm equipment	+*	-***
Whether to produce something new or try a new production practice	+*	-***
When to sell farm products	ns	-***
Hiring of farm workers	+**	-*
Whether to borrow money	ns	-***

ns = not (statistically) significant; \*\*\* = significant at 0.01 level or better; \*\* = significant at 0.05 level or better; \* = significant at 0.10 level or better

to influence her involvement in the decision whether to buy or sell land, but this result may reflect the inclusion of the (her name on the) deed variable in the model.

While transfer of the farm through the farm woman's family tends to enhance her involvement in farm decision-making, the opposite is true if the farm is inherited or purchased through the husband's family. The model results show a strongly consistent negative influence on the involvement of the farm woman in farm decision-making (see Table 5). This result is observed across all of the farm decisions that are considered. Thus, decisions on farms that have passed through her family are more likely to reflect her preferences, whereas those that have passed through his are less likely to include her influence.

### Conclusions

The gender-specific path of intergenerational transfer of the farm operation appears to make a difference in intrahousehold decisions of labor allocation and decision-making, at least as related to the farm operation. Decisions related to the farm appear to be influenced by the 'path', with the involvement



of farm women in farm decision-making being enhanced by farm transfer through her family, and being negatively affected by the farm transfer through her spouse's/partner's family. Greater involvement in decision-making is expected to influence the outcomes of farm decisions, thus reflecting preferences that may vary within the household.

The path of farm transfer is also found to influence the work decisions of farm women on farms where the husband/partner works solely on the farm. Unlike the decision-making models that showed significant and consistent effects of gender-specific transfers on farm women's involvement in making farm decisions, the labor models suggest that what may be more important than 'his farm' versus 'her farm' is the issue of whether the farm household inherited or purchased the farm from a relative or from someone else. On farms that are transferred from parents or other relatives, the farm women appears to view herself as being more involved in operating the farm. Thus, even if she works off the farm, she is more likely to engage in multiple job-holding.

There are also interesting differences in the work engagement of women based on whether the farm husband/partner works off-farm or not. When the husband/partner allocates all work time to the farm, the farm woman's human capital endowment appears to strongly influence whether she works entirely on the farm or engages in multiple job-holding. Alternatively, when the husband/partner allocates time to off-farm work, the woman's age appears more important, with multiple job-holding following a typical life-cycle effect and working solely on the farm increasing when the participation in multiple job-holding declines. This appears to occur at about the age of 41.

And finally, children continue to make a difference in the work of women. Larger households that reflect the presence of children and perhaps of parents that continue to live on the farm as part of an intergenerational exchange of the farm mean that farm women are less likely to work off the farm, although a large proportion of these women report that they are highly involved on the farm. Further, the presence of children of different ages likely influences women's work off the farm. While it may be the

case that the labor provided by older children substitutes for the farm women's labor and reduces her labor involvement in the farm operation, it may also be the case that the presence of older children emphasizes the near-term need for cash income to finance college educations. When the farm husband/partner is engaged entirely in farm work, this job appears to be up to the farm woman.

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