



# Transforming Gender Relations through the Market:

## The Impact of Smallholder Dairy Market Participation on Women's Relative Intra-household Bargaining Position in Selale, Ethiopia



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### Abstract:

We employ a quasi-experimental design, propensity score matching and interviews to study the effect of smallholder dairy market participation on women's relative intra-household bargaining position in rural Ethiopia. Findings indicate that in market participating households milk income is twice higher and its control shifted from women to men. Men tend to return this income in part to their wives. In the game, men in market participating households proposed 19-22% more and expected to receive 16% less while women proposed 19% less and expect to receive 17-18% more from their husbands. Men argue returning income to wife is a recognition for their household maintenance responsibilities while women argue it is men's tactic for reducing intra-household conflict related to income sharing. In general, our results indicate a positive relationship between household market participation and women's intra-household bargaining position. Hence, we argue household market participation can transform the gender relations in rural area.

### Introduction:

*Bargaining within the household is often hidden, involving emotional manipulations and unspoken power games that may not be readily detectable or fundamentally threatening (Locke & Okali, 1999, p-275)*

Agarwal (1997) argue gender relations impinge on economic outcomes while Foa & Foa, (2012) argue that any trait or behavior that is valued by household members can be used to influence household decisions and intra-household gender relations.

Many studies indicated that increased income/earnings in the hands of women improves their intra-household bargaining power and household members welfare. Increased household market participation is expected to increase household income, however, formal markets also tend to shift income control from women to men.

In Ethiopia, dairy income is a women's domain and the development of dairy value chain has shifted milk from food to cash crop. Men's involvement in the dairy business is growing and this may affect women's dairy income control. This process negatively affect women's relative intra-household bargaining position. In this study, we aim to study the effect of smallholder formal dairy market participation on women's relative intra-household bargaining position in selale, rural Ethiopia.

### Methods:

**Data Collection:** We have conducted **Key-informant interview** with former livestock marketing agency bureau head, administered **Questionnaire** to 300 and **in-depth interviews** with 12 individuals who participated in survey and games.

However, this study is mainly based on **Quasi-experimental games**. In this game we invite 168 households (husband and wife) to participate in resource sharing game. The made proposals and expectation decisions that helps to measure their bargaining position in relation to their spouse (as perceived by themselves and their partner). At the end of the game each spouse expects to have at her/his disposal the sum of her/his own earning (net of transfer), plus any transfer she/he expects from her/his spouse.



How much do you propose?



My expectations from spouse?

Wife (WBI) and husband (HBI) bargaining index were calculated base on the following equation:

$$WBI = \frac{WifeEndowment - WifeProposal}{WifeEndowment + HusbandEndowment} + \frac{WifeExpectation}{WifeEndowment + HusbandEndowment} \dots\dots\dots(1)$$

$$HBI = \frac{HusbandEndowment - HusbandProposal}{WifeEndowment + HusbandEndowment} + \frac{HusbandExpectation}{WifeEndowment + HusbandEndowment} \dots\dots\dots(2)$$

and Women Relative Intra-household Bargaining Power (WRIHBP) = WBI/HBI .....(3)

We have followed a multi-level analysis. For the quantitative data we followed a two step analysis. In the first step, we ran t-test and matched households on covariates. In the second step, we determined ATT based on two algorithm and the combined the figures with qualitative information in discussion. Qualitative information were used to explain and triangulate quantitative results.

### Results:

In the T-test, we found statistically significant difference between milk market participant (treated) and non-participant (control) households on many variables.

Table 1: Covariate Comparison

Covariates	Market non-Participant		Market Participant		T-Test	
	Mean	Std Error	Mean	Std Error	t-Value	P-value
Household distance from MCC	5,7	,287	2,9	,208	-7.90	,000***
Total household size	6,6	,186	7,8	,242	4,05	,000***
Total household females size	3,1	,123	4,2	,180	5,22	,000***
Total household land Size	3,7	,159	5,1	,270	4,34	,000***
Household land used for grazing	1,3	,067	1,8	,130	3,74	,000***
Total household cows	4,0	,146	5,0	,172	3,85	,000***
Households Indigenous cows	3,0	,166	2,4	,159	-2,71	,007***
Household crossbreed cows	,94	,119	2,4	,178	6,71	,000***
Years of experience in dairying	16,5	,557	21,1	,971	3,38	,001***
Total household milk Production (per day)	5,0	,210	12,6	,875	8,51	,000***
Milk processed into Butter (per day)	4,2	,210	,47	,124	-10,7	,000***
Milk consumed at household (per day)	,74	,081	1,3	,161	2,93	,004**
Household milk income (per day)	48,8	9,11	101	7,00	4,55	,000***
Income processed milk (women's income)	34	1,68	4,0	,992	-15,3	,000***
Income from raw milk (men's income)	0,0	0,00	93	7,23	12,9	,000***

Figure 1 depicts the result of spouses decision in the game before matching. On average, women in market participating households made lower proposal and expect to receive more money from their husbands. Men in market participating households made significantly larger proposals and expect to receive lower share of their wife's endowment compared to men in non-participating households.

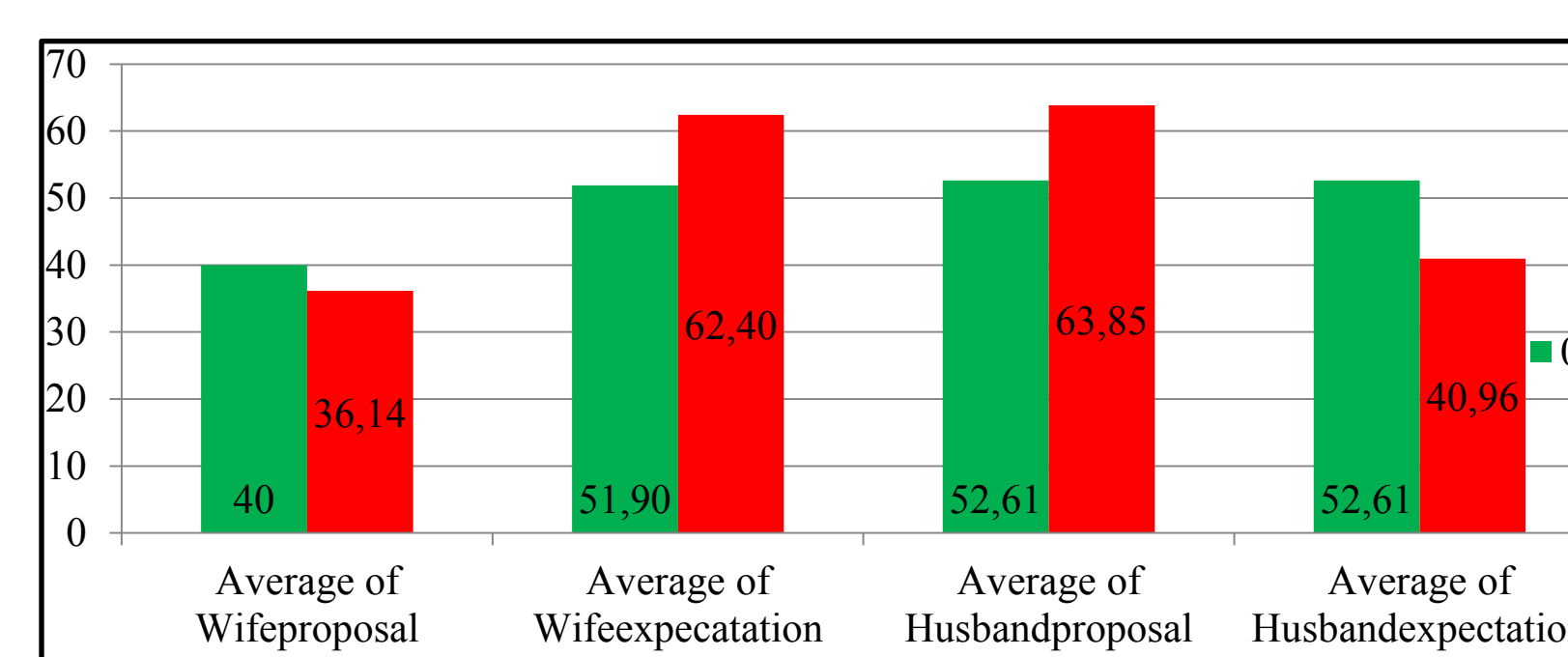


Figure 1: Mean of resource sharing in the game

In table 2, we have presented the result of the binary logistic regression and 10 out of the 15 variables included showed a significant effect on household market participation. The household's distance from the milk collection center (MCC), husband age and total household size are negatively related to household's market participation. On the other hand, household distance from weekly market, wife age, household female size, wives' education, total household land size and household cooperative membership are positively related to household market participation.

Figure 2 shows the distribution of the estimated propensity score (common support area) from the matching techniques. There are households from both treated and untreated groups on common support area. There are also households not supported by the common support assumption.

Covariates	Coef.	Std. Err.z	P>z	
Household distance from MCC	-3.09	.863	-3.58	0.000***
Household distance from Wmarket	.447	.163	2.74	0.006***
Husband age	-.179	.080	-2.23	0.026**
Wife age	.221	.086	2.59	0.010***
Husband village of Origin	-1.28	1.50	-0.86	0.392
Wife village of Origin	-1.12	.579	-1.93	0.053*
Total household size	-.511	.301	-1.69	0.090*
Total household Females size	1.38	.418	3.31	0.001***
Wife education -dummy	1.77	.669	2.65	0.008***
Total household land size	.764	.308	2.48	0.013**
Dairy cooperative membership	1.12	.635	1.76	0.078*
_cons	.645	3.63	0.18	0.859

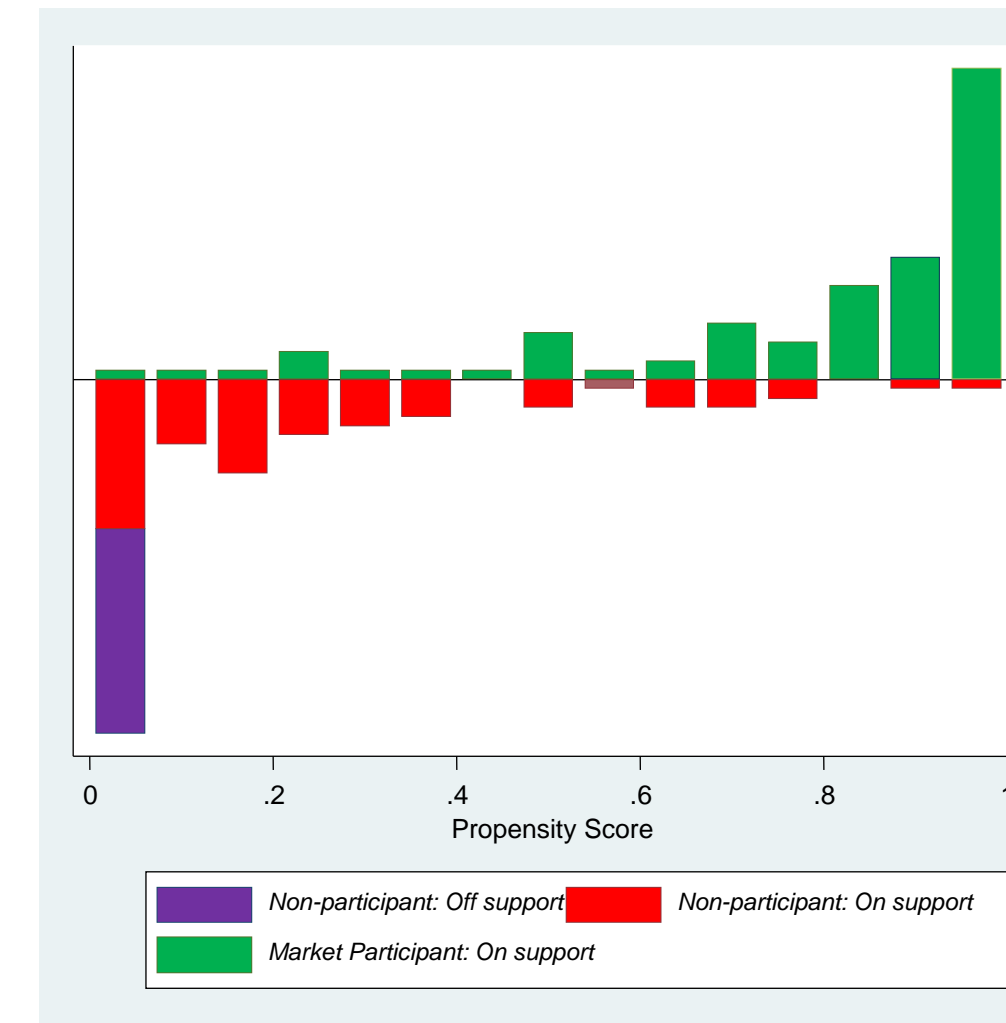


Table 2: Binary Logistic Model - probability of Milk Market participation and Figure 2. Distribution of the propensity scores from market participant and non-participant households

Women in market participating households make decisions that bring significantly larger portion of the endowment (19% lower proposal and 18% more expectation) under their control while men decided to transfer significantly larger portion of the endowments (20% more proposal and 17% lower expectation) to their wives.

Outcome variable	NN Matching			Kernel Matching		
	Mean Differ	S.E.	T-stat	Mean Differ	S.E.	T-stat
Women Proposal	-18.8	3.8	-5.0***	-18.4	4.6	-4.0***
Women Expectation	18.1	7.9	2.3**	17.4	9.2	1.9*
Men proposal	21.7	6.9	3.1***	19.3	7.0	2.8***
Men Expectation	-16.8	9.0	-1.9*	-16.2	9.2	-1.8*

Table 3: Average effect of market participation on spouse's allocation decision

Based on the above figures, women in market participating households showed 18% better bargaining position compared to women in non-participating households while men showed 18.5% lower bargaining position compared to men in non-participating households. Hence, women's relative intra-household bargaining power showed statistically significant difference between market participant and non-participant households. Women in market participating households showed 89-93% better relative intra-household bargaining position compared to women non-participating households.

Table 4: Average effect of market participation on bargaining indexes and women's relative bargaining position

Outcome variable	NN Matching			Kernel Matching		
	Mean Differ	S.E.	T-stat	Mean Differ	S.E.	T-stat
Women bargaining Index	0.18	0.09	2.0**	0.18	0.06	3.1***
Men Bargaining Index	-0.19	0.07	-2.6***	-0.18	0.07	-2.4**
Women's relative Bargaining position	0.93	0.30	3.1***	0.89	0.24	3.7***

### Qualitative Views:

.....the idea of selling raw milk was debated and challenged in the community and among household members, dairy income was the domain of women and men's involvement in this business was considered a taboo and now households have to receive milk income twice a month through a registered head of the households (mostly men) in the formal milk market and that generated intense conflict in the households....."when the household produce crops and eat from their store men used to spend the money on alcohol but now crop production is declining in the and income management is a critical matter for household maintenance and women do this at best compared to men.

### Conclusions:

In this study, we examined the effect of household market participation on women's relative intra-household bargaining position in rural Ethiopia. Our analyses show a direct relationship between women's relative intra-household bargaining position and household milk market participation. Although, milk earning shifted from women to men, men return this income in part to their wife.

Hence, the improvement in women's relative intra-household bargaining position can be the result of the changing gender relation with regard to resource sharing in the households and household provision responsibilities. Women in market participating households showed strong interest to control income and men support the same through their decision.

This result is surprising in light of the existing literature on individual earnings and their bargaining power and could urge re-considering gender relation analytical tools. The traditions tools may not capture the intra-household gender dynamics which are often emotion laden and hidden. Engaging spouses in incentivized games may help us to measure their perceived intra-household bargaining position.

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