Portfolio decomposition and intrahousehold environments: Eevidence from Bangladesh

Bayudan, Connie

Graduate School of Economics, Kyoto University, Japan

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Abstract

Using a survey data from Bangladesh, this paper employs a simple decomposition method to investigate the possible role of inequality in husband and wife's portfolio holdings to various intrahousehold issues. Results indicate that wives' intrahousehold environments are affected more by their portfolio than by their husband's asset and income holdings. Wives who have inherited plots from their parents-in-law appear to belong to the better off group as well.

1   INTRODUCTION

Households being composed of different people with different preferences and opinions[1] have been recognized as far back as the early 1970's[2] but recent years have seen an influx of theoretical and empirical proofs that indeed unitary framework may be inadequate to model household behavior. Within the labour supply context, studies which have conveyed that household outcomes warrant a framework that recognizes preference heterogeneity among household members include Seaton (1997, 2001), Barmby and Smith (2001) and Chiappori, Fortin and Lacroix (2002). While they differ in methods, these studies make room for bargaining between couples and hence point, either directly or indirectly, to the crucial role of intrahousehold power. In the household expenditures context, Quisumbing and Maluccio (2003) have explored individually controlled resources as intrahousehold power indicator and found evidence that has validated its role and hence the collective household framework.

Based on the findings of the studies above, the present research takes as given the preference heterogeneity among household members. With this assumption, the paper attempts to contribute to the literature by investigating the extent and sources of inequality in assets and incomes, referred to as portfolio hereafter, within the context of intrahousehold issues. Consequently, this line of research attempts to enrich the household literature by 1) exploring other methods to analyze intrahousehold outcomes and 2) extending the analysis to sensitive issues such as domestic violence and wives' financial autonomy, mobility and decision making participation. This is accomplished by employing the Stark, Taylor and Yitzhaki (1986) decomposition method.

2   DATA AND DECOMPOSITION METHOD

To integrate the research objectives to the decomposition method, data and definitions are presented first. The data used has been collected by the International Food and Policy Research Institute (IFPRI) in Bangladesh from June

1996 to September 1997 in four-month intervals to evaluate the impact of agricultural dissemination programs.[3] Nevertheless, the survey has collected not only the information relevant to the program but also to the current objective. There is a module devoted to very detailed information on pre-marriage assets, gifts at marriage and current assets such as plot ownership, durable assets and nonlabor incomes. All the asset values are reported in 1996 Taka.

In its fourth round, the survey has also collected information on issues ranging from household expenditure decisions to violence, mobility and autonomy with the wives as respondents. This portion of the interview has been conducted as much as possible without the presence of other household members. There are four intrahousehold environments considered each having two groups: mobility, financial autonomy, participation in household expenditures decisions and marital abuse. Wives who belong to group one are presumed to have less favorable intrahousehold environment relative to their counterparts in group two.

Before proceeding, some definition is in order. A wife is presumed to have mobility when she has indicated that there has been no instance during the year prior to the interview when she could not visit her kin because of too much work or husband's disapproval. She has financial autonomy when she has declared that no one from the household has taken her money against her will. She is also presumed to have decision-making capacity when she has *either* bought major livestock or leased land without consulting anybody *or* her husband has done so after obtaining her opinion. Absence of marital abuse is defined as no one from among the household members has verbally *and* physically assaulted her. Following Quisumbing and de la Brière (2000), the samples analyzed are limited to monogamous households.

The decomposition method used has been applied in the decomposition of village remittances (Stark, Taylor and Yitzhaki, 1986) and household incomes (Lerman and Yitzhaki, 1985). The innovation introduced in the present research is its application to the decomposition of husbands and wives' portfolios within the context of intrahousehold issues. This, to our knowledge, has not yet been done by studies concerned with the effects of individually controlled resources to intrahousehold outcomes.

Briefly, let A_k be the individual's kth asset holding. Lerman and Yitzhaki (1985) have shown that the Gini coefficient of total portfolio for a certain group may be written as

$$G_0 = \frac{2cov[A_0, F(A_0)]}{\mu_0} \tag{1}$$

where μ_0 is the group mean portfolio and $F(A_0)$ is the cumulative distribution of total portfolios for that group. Further, equation 1 can be expressed as

$$G_0 = \sum_{k=1}^{K} \frac{2cov[A_k, F(A_k)]}{\mu_k} \frac{A_k}{A_0} \frac{cov[A_k, F(A_0)]}{cov[A_k, F(A_k)]} \tag{2}$$

$$= \sum_{k=1}^{K} G_k S_k R_k \tag{3}$$

where G_k is the Gini index of asset k, S_k is the share of asset k to the total portfolio and R_k is the Gini correlation of asset k to the total portfolio. Hence, this simple method permits the analysis of the following questions for each of the intrahousehold environments defined above: 1) For each group, which among the portfolio sources contribute to the total inequality of portfolio holdings? 2) Among the sources with substantial contribution to total inequality, which among the G, S and R are actually causing the overall inequality and 3) Are there any patterns in the G, S and R that can be observed from group one to group two?

3 RESULTS AND DISCUSSION

Decomposition for both husbands and wives' portfolio in each group are presented in table 1. It can be observed that for group two, the overall Gini coefficient (G_0) of wives' portfolio is higher than that of the husbands' in all of the four environments considered. The reverse can be observed for husbands and wives who belong to group one. Among the portfolio sources, plot value has substantial contributions to the overall Gini coefficient for both husbands and wives in each group. Gifts at marriage and durable assets also have discernible impact on the overall Gini coefficient concerning wives' portfolio.

Table 1 reveals that wives' plot ownership exhibits high inequality between groups with Gini index not lower than .90 while that of the husbands' is substantially lower. Results also indicate that the G, S and R of husbands' plot ownership show minimal changes from group one to group two in all the intrahousehold environments considered except for domestic violence. However results on wives' plot ownership indicate different patterns. While the G and R exhibit minimal variations in either group, wives in group two appear to have plot ownership share substantially higher than those in group one. Taken together, these observations indicate that 1) Wives' intrahousehold environment are affected more by their portfolio than by their husbands' asset and income holdings and 2) Higher plot values under the wives' control grant them better intrahousehold environments.

Decomposition of plot ownership's Gini index by source is presented in table 2. Result shows that the share of purchased plots to the total portfolio substantially accounts for wives' G_{plots}. In addition, wives in group two have purchased plot share higher than those in group one in mobility and wives' financial autonomy. This indicates that wives' financial capability translates to favorable intrahousehold environments, a result which is in line with the findings of the studies above. Government policies aimed at women empowerment can therefore look into designing ways to assist women acquire land properties.

In addition, wives in group one have less or no plots inherited from their parents-in-law in all the environments considered. While we cannot be sure that this inheritance is part of the bride price,[4] it does reflect the value attached by the husbands' families to their daughters-in-law, which is in part resonated to the wives' intrahousehold environment.

Notes

Acknowledgements

References

[1] Arrow, K (1994) Methodological Individualism and Social Knowledge. *The American Economic Review* 84(2), 1-9.

[2] Barmby T, Smith N (2001) Household Labour Supply in Britain and Denmark: Some Interpretations Using a Model of Pareto Optimal Behavior. *Applied Economics* 33, 1109-1116.

[3] Becker G (1973) A Theory of marriage, Part 1. *The Journal of Political Economy* 81(4), 813-846.

[4] Chiappori PA, Fortin B, Laroix G (2002) Marriage Market, Divorce Legislation and Household Labor Supply. *Journal of Political Economy* 110(1), 37-71.

[5] Lerman R, Yitzhaki S (1985) Income Inequality Effects by Income Source: A New Approach and Applications to the United States. *The Review of Economics and Statistics* 67(1), 151-156.

[6] Quisumbing A, de la Brière B (2000) Women's Asset and Intrahousehold Allocation in Rural Bangladesh: Measures of Bargaining Power. FCND Discussion Paper No. 86 IFPRI, Washington DC.

[7] Quisumbing A, Maluccio J (2003) Resources at Marriage and Intrahousehold Allocation: Evidence from Bangladesh, Ethiopia, Indonesia and South Africa. *Oxford Bulletin of Business and Economics* 63(3), 283-327.

[8] Stark O, Taylor E, Yitzhaki S (1986) Remittances and Inequality. *The Economic Journal* 96(383), 722-740.

[9] Seaton J (1997) Neoclassical and Collective Rationality in Household Labour Supply. *Applied Economics Letters* 4, 529-533.

[10] Seaton J (2001) Bargaining Versus Non-Cooperation: Transaction Costs Within Marriage. *Applied Economics Letters* 8, 37-41.

TABLE 1: Portfolio Decomposition

	Husbands				Wives			
	G	S	R	G*S*R	G	S	R	G*S*R
Mobility								
Group 1: Less Mobile								
Pre-Marriage Assets	0.86	0.00	0.30	0.00	0.80	0.06	0.63	0.03
Gifts at Marriage	0.73	0.01	-0.11	0.00	0.59	0.43	0.82	0.21
Durable Assets	0.88	0.03	0.70	0.02	0.77	0.13	0.66	0.07
Plot Ownership	0.66	0.95	1.00	0.63	0.98	0.30	1.00	0.29
Proceeds from Livestock Sale	0.86	0.00	0.26	0.00	0.75	0.06	0.28	0.01
Nonlabor Incomes	0.90	0.01	0.29	0.00	0.92	0.01	0.48	0.01
G_0				0.64				0.62
Number of Observations	306							
Group 2: More Mobile								
Pre-Marriage Assets	0.84	0.00	-0.05	0.00	0.77	0.03	0.57	0.01
Gifts at Marriage	0.76	0.01	-0.06	0.00	0.58	0.16	0.70	0.06
Durable Assets	0.76	0.03	0.57	0.01	0.71	0.12	0.76	0.06
Plot Ownership	0.63	0.95	1.00	0.59	0.99	0.65	1.00	0.64
Proceeds from Livestock Sale	0.79	0.01	0.39	0.00	0.76	0.03	0.34	0.01
Nonlabor Incomes	0.89	0.01	0.47	0.00	0.96	0.02	0.74	0.01
G_0				0.61				0.80
Number of Observations	405							
Financial Autonomy								
Group 1: Money Taken Against Her Will								
Pre-Marriage Assets	0.82	0.00	0.42	0.00	0.81	0.07	0.60	0.03
Gifts at Marriage	0.76	0.00	-0.07	0.00	0.67	0.41	0.81	0.22
Durable Assets	0.90	0.02	0.57	0.01	0.72	0.21	0.70	0.11
Plot Ownership	0.64	0.96	1.00	0.61	0.98	0.19	0.98	0.18
Proceeds from Livestock Sale	0.91	0.00	0.30	0.00	0.71	0.10	0.23	0.02
Nonlabor Incomes	0.91	0.01	0.69	0.00	0.96	0.02	0.66	0.01
G_0				0.63				0.57
Number of Observations	145							
Group 2: Money Not Taken Against Her Will								
Pre-Marriage Assets	0.86	0.00	0.04	0.00	0.79	0.05	0.57	0.02
Gifts at Marriage	0.73	0.01	-0.12	0.00	0.58	0.33	0.76	0.15
Durable Assets	0.80	0.03	0.62	0.01	0.75	0.16	0.72	0.09
Plot Ownership	0.63	0.95	1.00	0.60	0.97	0.38	0.99	0.36
Proceeds from Livestock Sale	0.81	0.00	0.38	0.00	0.75	0.05	0.33	0.01
Nonlabor Incomes	0.89	0.01	0.35	0.00	0.95	0.02	0.68	0.02
G_0				0.61				0.65
Number of Observations	574							
Domestic Violence								
Group 1: Abusive Marital Relations								
Pre-Marriage Assets	0.83	0.01	0.24	0.00	0.78	0.06	0.54	0.02
Gifts at Marriage	0.72	0.01	0.00	0.00	0.58	0.40	0.80	0.19
Durable Assets	0.86	0.03	0.71	0.02	0.75	0.14	0.71	0.08
Plot Ownership	0.70	0.94	1.00	0.66	0.98	0.33	0.99	0.32
Proceeds from Livestock Sale	0.88	0.00	0.33	0.00	0.76	0.05	0.29	0.01
Nonlabor Incomes	0.94	0.01	0.37	0.00	0.93	0.02	0.46	0.01
G_0				0.68				0.63
Number of Observations	234							

Group 2: Non-Abusive Marital Relations

Pre-Marriage Assets	0.88	0.00	-0.10	0.00	0.82	0.05	0.62	0.02
Gifts at Marriage	0.78	0.01	-0.19	0.00	0.62	0.27	0.72	0.12
Durable Assets	0.77	0.03	0.60	0.01	0.74	0.19	0.73	0.10
Plot Ownership	0.63	0.95	1.00	0.60	0.96	0.43	0.99	0.40
Proceeds from Livestock Sale	0.80	0.00	0.38	0.00	0.77	0.05	0.36	0.01
Nonlabor Incomes	0.85	0.01	0.32	0.00	0.94	0.02	0.60	0.01
G_0				0.62				0.68
Number of Observations	247							

Decision Making Participation
Group 1: Non-Participant Wives

Pre-Marriage Assets	0.79	0.01	-0.45	0.00	0.78	0.07	0.57	0.03
Gifts at Marriage	0.79	0.01	-0.24	0.00	0.55	0.35	0.71	0.14
Durable Assets	0.70	0.03	0.38	0.01	0.63	0.23	0.66	0.09
Plot Ownership	0.57	0.95	1.00	0.53	0.94	0.30	0.99	0.28
Proceeds from Livestock Sale	0.72	0.01	0.43	0.00	0.76	0.05	0.55	0.02
Nonlabor Incomes	0.85	0.01	0.28	0.00	0.78	0.00	0.24	0.00
G_0				0.54				0.56
Number of Observations	64							

Group 2: Participant Wives

Pre-Marriage Assets	0.83	0.00	0.05	0.00	0.75	0.04	0.44	0.01
Gifts at Marriage	0.64	0.01	-0.01	0.00	0.58	0.19	0.53	0.06
Durable Assets	0.86	0.02	0.57	0.01	0.64	0.16	0.55	0.06
Plot Ownership	0.58	0.96	1.00	0.56	0.97	0.53	0.99	0.50
Proceeds from Livestock Sale	0.76	0.00	0.22	0.00	0.71	0.05	0.07	0.00
Nonlabor Incomes	0.88	0.01	0.64	0.01	0.96	0.03	0.76	0.02
G_0				0.57				0.66
Number of Observations	75							

	Husbands				Wives			
	G	S	R	G*S*R	G	S	R	G*S*R
Mobility								
Group 1: Less Mobile								
Purchased	0.82	0.38	0.85	0.27	0.98	0.77	1.00	0.76
Inherited from Parents-In-Law	0.99	0.00	0.27	0.00	0.99	0.14	0.97	0.13
Inherited from Parents	0.71	0.61	0.91	0.40	0.99	0.09	0.95	0.08
G_{plots}				0.66				0.98
Group 2: More Mobile								
Purchased	0.78	0.36	0.82	0.23	0.99	0.79	1.00	0.78
Inherited from Parents-In-Law	0.99	0.01	0.79	0.01	1.00	0.05	0.98	0.05
Inherited from Parents	0.68	0.63	0.91	0.39	0.99	0.16	0.98	0.16
G_{plots}				0.63				0.99
Wives' Financial Autonomy								
Group 1: Money Taken Against Her Will								
Purchased	0.79	0.39	0.83	0.26	0.99	0.46	0.99	0.45
Inherited from Parents-In-Law	0.99	0.01	0.79	0.01				
Inherited from Parents	0.70	0.59	0.88	0.37	0.99	0.54	1.00	0.54
G_{plots}				0.64				0.99
Group 2: Money Not Taken Against Her Will								
Purchased	0.79	0.37	0.83	0.24	0.98	0.53	0.99	0.51
Inherited from Parents-In-Law	0.99	0.01	0.67	0.01	0.99	0.13	0.96	0.12
Inherited from Parents	0.68	0.62	0.90	0.38	0.99	0.34	0.99	0.33
G_{plots}				0.63				0.97
Domestic Violence								
Group 1: Abusive Marital Relations								
Purchased	0.84	0.39	0.87	0.28	0.98	0.80	1.00	0.78
Inherited from Parents-In-Law	0.99	0.00	0.52	0.00				
Inherited from Parents	0.74	0.61	0.92	0.42	0.99	0.20	0.96	0.19
G_{plots}				0.70				0.98
Group 2: Non-Abusive Marital Relations								
Purchased	0.78	0.37	0.83	0.24	0.97	0.63	0.98	0.61
Inherited from Parents-In-Law	0.99	0.01	0.77	0.01	0.99	0.08	0.95	0.08
Inherited from Parents	0.68	0.62	0.91	0.39	0.99	0.28	0.98	0.27
G_{plots}				0.63				0.96
Decision Making Participation								
Group 1: Non-Participant Wives								
Purchased	0.68	0.44	0.85	0.25	0.94	1.00	1.00	0.94
Inherited from Parents	0.62	0.56	0.91	0.31				
G_{plots}				0.57				0.94
Group 2: Participant Wives								
Purchased	0.75	0.40	0.81	0.24	0.98	0.40	0.97	0.38
Inherited from Parents-In-Law					0.99	0.04	0.92	0.04
Inherited from Parents	0.66	0.60	0.85	0.34	0.99	0.56	1.00	0.55
G_{plots}				0.58				0.97