Hossain, Mahabub; Bose, Manik Lal; Ahmad, Alia

Working Paper

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Working Paper, No. 2004:20

Provided in Cooperation with:
Department of Economics, School of Economics and Management, Lund University

Nature and impact of women's participation in economic activities in rural Bangladesh: insights from household surveys

Mahabub Hossain[1], Manik Lal Bose[2] and Alia Ahmad[3]

September 2004

Abstract

Based on household-level data collected in 1987 and 2000 this paper first depicts the patterns and trends in women´s work and secondly, analyses the factors that work behind gender division of labour in rural Bangladesh. An empowerment index is developed from the data on household decision-making in different spheres, and its relationship with women´s work is then explored. The persistent gender division of labour in rural Bangladesh has been found to be associated with both economic factors - wage rates, access to production factors like land, micro credit, infrastructure) and socio-cultural factors - norms and customs regarding women´s mobility and gender role in production and reproduction. Economic activities within the household have been found to have weak impact on empowerment. Two policy implications emerge from the study: 1. Promotion of female education to enable women to take part in market activities in the non-agricultural sector where gender disparity in earnings is less. 2. Investment in infrastructure that can facilitate women´s mobility outside the household as well as can reduce the burden of domestic work.

JEL classification: J16; J22
Key words: gender division of labour, empowerment.

[1] Head, Social Sciences Division, International Rice Research Institute (IRRI), Manila, Philippines. E-mail: m.hossain@cgiar.org
[2] Post-Doctoral fellow, at IRRI, Manila, Philipinnes. E-mail: Manik Bose [mbose_mlb@yahoo.com]
[3] Department of Economics, Lund University, P. O. Box 7082, S-220 07 Lund, Sweden
Phone: +46(0)462228660, fax +46(0)462224613. E-mail: Alia.Ahmad@nek.lu.se
Homepage: http://www.nek.lu.se/NEKAAH

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I. Introduction

In the past decades substantial progress has been achieved with respect to research on women´s work. This research is focused on four major areas: documentation of women´s work; evaluating the work in monetary terms; explaining the factors behind gender division of labour; and its impact on the status of women in the family. Credible documentation of women's participation in economic activities is problematic particularly for women belonging to farm households**.** Invisibility of women´s *productive* work is a problem, particularly in developing countries because women usually work within the household, and *productive* work is often overlapped with the so-called *non-productive* work. Definition of productive work also causes problems. Marxists have distinguished between *productive and reproductive labor*, economists have conceptualized the difference between market *production and subsistence production* and between *wage and non-wage labor*, and sociologists have drawn a line between *work at home* and *outside home* (Ferber 1982; Sachs 1988).

When it comes to evaluation of work, neoclassical economic tradition emphasizes the activities undertaken to meet the demand of the markets. On that count, women's work outside labor market has often been overlooked and excluded from economic analyses. In the 1960s, a series of articles known as 'New Household Economics" made a major contribution to women´s research (Becker, 1965; Michael & Becker, 1973). It focuses on the valuation of homework irrespective of whether it is spent on productive or reproductive work in terms of market wages, and on the role of comparative advantages and specialization in the allocation of labour (Gronau, 1973).

However, the neoclassical household economics is criticized for ignoring the influence of cultural and social institutions in determining tastes and preferences and gender division of labour, and for the assumption of unitary household with joint utility function based on altruism among household members (Folbre, 1986a; Elson,1995). The institutionalist approach and different bargaining models provide a more plausible explanation of gender inequality in the household (Sen, 1990; Folbre, 1986b; See Ellis, 1993 for a survey of studies).

On the empirical side, the debate on the wages of domestic labor in 1960s and the United Nations conferences during the Decade for Women (1976-1985) popularized the concept of social reproduction. The above discourse and debate contributed to the recognition of women's work in the productive and social sectors. In recent years, empirical research have tried to document the extent of women's involvement in specific tasks, and their contribution to national income, but the controversy regarding the complexity of women's work and the interconnectedness between different types of functions remains. Some important research questions are:
what are the factors that determine the allocation of women´s time among different types of activities? How are they related to the status of women within the household?

This paper deals with the case of Bangladesh. The objectives are to present some empirical evidences of recent patterns and trends in gender roles in economic activities, explain the factors that work behind the process, and to assess the impact of women's participation on their empowerment and the socioeconomic conditions of the household. The study is based on primary household-level data.

I.1 Background studies on women´s work in Bangladesh

The role of women's work for gender, development and poverty reduction continues to be an important area of investigation in Bangladesh (Arens and Beurden 1977; Farouk and Ali 1975; Farouk 1980, 1985; Khuda 1980; McCarthy 1981; Abdullah and Zeidenstein 1982; Begum 1983; Rahman 1986; Ahsan et al 1986; Chowdhury 1986; McCarthy and Feldman 1988; Rothschild and Mahmud 1989; Jahan, 1990; Shirin, 1995; Jordans and Zwatreveen, 1997; Asaduzzaman and Westergaard 1983; Amin and Pebley 1994; Shirin 1995; Hashemi et al 1996; Jordans and Zwartreveen 1997; Mahmud 2003). It is recognized that women work more hours than men particularly in low-income households, more in agricultural than in non-agricultural economic activities, and more as unpaid family laborers than as managers. Even if they do most of the work, men mostly control their decision making power and ownership of household resources. Institutional services for development target only men. Even when women are targeted such as in micro-credit program, women are often used as a font and men keep control over managing the resources. Thus, it is acknowledged that women are disadvantage group to acquire knowledge on farm and non-farm production systems and technologies from the service sectors. They are disadvantaged because of traditional culture and social norms that confer power and privilege to men. However, some recent studies have observed that women from poor households change their traditional norms and responsibilities at home and involve in post-harvest agricultural activities outside the home due to extreme poverty and food deficiency. A general critique (Westergaard 1983) of the studies is that they are based on a field work in one or a few selected villages, and hence it is difficult to get a picture for the country as a whole or for different regions. With a few exceptions, few studies have analyzed how the dynamics in rural Bangladesh have affected women.

I.2 Data for the present study

The information for this study is based on a two-period survey of a nationally representative sample of 62 villages from 57 districts. The sample villages were selected in 1987 while conducting a study on the impact of modern rice technology on income distribution and poverty (Hossain et al., 1994). The Bangladesh Institute of Development Studies (BIDS) implemented the study in collaboration with the International Rice Research Institute (IRRI). The sample was drawn through using a multi-stage (union-village-households) random sampling method. IRRI revisited the villages again in 2000 and collected data from a random sample drawn on the basis of "wealth-ranking" of households in the villages including households which were selected in the 1987 bench-mark survey by stratifying households on the basis of landownership and tenure characteristics. The representative nature of the sample can be assessed from Table 1, which compares the pattern of distribution of landownership and the educational background of the household head as obtained from the 2000 survey with respective information for Bangladesh available from the 1996 Agricultural Census and the 2001 population Census.

Table 1. Distribution of landownership and educational attainment of the household head: estimates from the sample survey and the Agricultural and Population Census

Characteristics	BIDS-IRRI Survey		BBS Agri-Census 1996	
	Percent of household	Percent of land owned	Percent of household	Percent of land owned
Land ownership group				
<=0.20 ha	50.2	4.8	56.0	5.8
0.21-0.40	15.1	8.3	12.1	7.2
0.41-1.00	19.3	23.3	18.6	25.0
1.01-2.00	10.1	26.6	8.2	24.2
>2.00 ha	5.2	37.0	5.1	37.6
Education of household head			BBS Population Census 2001	
No formal schooling	42.9	21.2	55.5[a]	*n.a*
Primary level	27.4	24.1	24.2[a]	*n.a*
Secondary drop-out	15.8	21.5	12.2[a]	*n.a*
Secondary passed & above	13.9	33.1	8.1[a]	*n.a*
Religion of household				
Non-Muslim	9.0	6.7	10.7[a]	*n.a*
Muslim	91.0	93.3	89.3[a]	*n.a*
All households	100.0	100.0	100.0	100.0

[a] Estimated by the authors from rural household data based on 5% sample of enumerated area in each Upazila/Thana, BBS Population Census 2001.

The data were collected through a structured questionnaire. Detailed member level information included indicators on age, sex, education, occupations, health status and organizational membership. The information on intra-household decision-making was collected through giving special emphasis to find out the women roles in decision making for different agricultural and non-agricultural activities. In addition, a detailed time budgeting for all working members was recorded for four days preceding-days of interview. Other data used in this paper were collected at the household level. The information presented in this paper comes mostly from an analysis of gender-specific (male and female also referred as men and women) data at two points of time - 1987 and 2000.

II. **Participation in Economic Activities**

II.1 Conceptual issues

In this paper we define **economic activitie**s as those that generate income for the households or saves household expenditure for the acquisition of the goods from the market. This includes employment in the agricultural and non-agricultural labor market, but also unpaid work for the household in crop cultivation, homestead gardening, livestock and poultry raising, fishing, cottage industry, transport operation, construction, business, and personal services. There are

many other activities done mostly by women that are quasi-economic in nature which are not valued in national income accounting. Examples are food-processing and preparation of meals for the family members; care of the child, old and sick members of the household; and tutoring of children. If the household had hired workers for doing these jobs, it would involve some expenditure. We call these activities as **domestic activities.**

II.2 Pattern and trend in participation in economic activities

According to the estimates from the response on primary occupation used in this sample survey, 85% of the male population and only 6.3% of the female population above 14 years of age were engaged in an economic activity in year 2000. The numbers were 93% and 8.8% respectively for men and women in 1987. There has been a decline in economic activity for both men and women.

It should be noted that direct questions to respondents on employment seriously underestimate women's participation in economic activities as most women devote their maximum time to domestic labor in home-based activities that identifies them as homemaker. Also, marginal involvement of both men and women in many economic activities is usually missed by surveys that ask questions regarding their primary and secondary occupation.

Time allocation

In order to get a full accounting of labor allocation, we adopted a time budget approach. The respondents were asked to report the time allocation to different activities (including rest, recreation and personal care) for 12 hours from six in the morning to six in the evening for workers above 14 years of age for four days preceding the year of the survey. We also distinguished the activities by paid and non-paid work. The survey was staggered over a period of six months, so we hope that the four-day activity report captures peak, normal and peak periods of employment when the data are aggregated for all villages under the study. It may, however under-estimate the time allocation for domestic labor particularly for women who may spend time for preparing and serving food at night.

The findings on time allocation by broad activities are presented in Table 2. The total working time for 2000 was estimated at 7.81 for women and 8.07 for men indicating men working harder than women. The situation was opposite in 1987 when women worked for 9.00 hours a day compared to 8.55 hours for men. That women spend longer hours than men was also reported by the first pioneering study on time budget by Abdullah Farouk and M. Ali based on a sample survey in seven unions in the 1970s (Farouk and Ali 1975).

Table 2. Time allocation (hrs/day) for adult population by type of activity

Type of activity	Male population		Female population	
	1987	2000	1987	2000
Economic labor	7.57	6.73	1.86	1.79
• Agriculture	5.29	3.50	1.37	1.41
• Non-agriculture	2.28	3.23	0.49	0.38
Domestic labor	0.98	1.34	7.14	6.02
Total labor (average/day)	8.55	8.07	9.00	7.81

The distribution of work time in different activities indicates a clear gender division of labour.[4] Only 23% of the total labor for women was on account of economic activities, compared to 83% for men. In 2000, women spent on average 1.79 hours per day (equivalent to 82 standard eight-hour days in a year) on economic activities compared to 6.73 hrs (307 days per year) for men.

While total work time has declined for both men and women, women experienced a larger decline. The reallocation of labour among different activities also differs a great deal. Men have reduced their labor supply to agriculture by 1.79 hours a day, which is partly compensated by an increase of 0.95 hours to non-agriculture and domestic work. The reverse is the case for women who have withdrawn some labor from non-agriculture, but increased the labor supply to agricultural activities. Most of the reduction in women's work effort is on account of domestic labor which has declined by 1.12 hours a day. Substantial reduction in labor supply by women may partly be due to the replacement of the traditional back-breaking homestead-based processing technologies by relatively advanced commercial technologies. For example, rice milling by *dhenki* and pit looms is taken over by rice huller and the semi-automated looms. An improvement in the quality of housing that requires less time for maintaining cleanliness and demographic changes reflected in smaller family size may have also contributed to reduced domestic labour. Another explanation may be that the increase in male domestic work reduces the burden for women. This is an interesting finding that needs further research.

Labor supply by activities

Both in terms of the proportion of workers and in terms of time women are heavily involved in poultry raising, crop cultivation, animal husbandry, non-farm services and homestead gardening (Table 3). Since these are mostly homestead-based activities, it is convenient to carry them out in-between conducting domestic duties. The activities in which women are involved relatively full-time are non-farm services. Educated women are mostly engaged in these activities. In contrast, the major economic activities for men are crop cultivation, non-farm services business and shop keeping animal husbandry, and transport operation.

During 1987-2000, women have increased their labor substantially for poultry raising, homestead gardening and non-farm services, but reduced labor on crop cultivation, animal

[4] Note that the time budget study records a higher participation than the survey on primary occupation.

husbandry, and cottage industries. Men have also reduced labor supply substantially on crop cultivation, and construction work but increased it in non-farm services, business and transport operation.[5] The importance of cultivation in generating employment is on the downward trend because of the continuous reduction in farm size under population pressure. Similarly, labor is moving out from low-productive cottage industries with the expansion of rural roads and electrification. The development of infrastructure facilitates job creation in rural trade and transport activities, and expose low quality cottage industry products to competition with higher quality urban industrial products.

It should be noted that structural changes and modernization of the economy have affected men and women differently. Women continue to work in home-based farm activities while men work in non-farm activities like business and transport.

Table 3. Employment in different economic activities for adult population by gender (optional may be included in the appendix)

Activity	Percent of adult population employed in the activity				Share (%) of the activity of total economic labor			
	1987		2000		1987		2000	
	Male	Female	Male	Female	Male	Female	Male	Female
Agriculture	83.8	59.2	59.5	59.5	69.9	73.4	52.0	78.8
Crop cultivation	67.7	15.7	47.9	6.4	60.1	32.0	41.4	21.7
Animal husbandry	28.2	29.5	23.9	16.7	7.4	23.2	7.2	16.7
Poultry raising	0.8	17.2	1.0	40.6	0.2	11.6	0.4	31.3
Homestead gardening	1.5	9.9	2.6	9.1	0.3	5.9	0.7	8.1
Fisheries	5.1	1.0	5.6	0.4	1.9	0.7	2.3	1.0
Non-agriculture	36.6	14.3	45.1	8.1	30.1	26.6	48.0	21.2
Industry/processing	2.9	8.1	3.8	1.4	2.0	11.8	4.1	3.7
Transport operation	3.0	Nil	5.3	Nil	2.7	--	5.7	--
Construction work	10.0	3.8	3.7	1.1	5.8	4.5	3.0	1.7
Business/trade	12.6	0.8	16.6	0.4	10.2	1.0	17.3	1.1
Services	11.5	3.2	17.4	5.5	9.4	9.3	17.9	14.7
Employed	96.8	66.0	91.9	64.3	--	--	--	--
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Intensity of employment

In the context of women's participation in economic activities an important issue is how many of them pursue these activities on a full time basis. Table 4 provides information on the distribution of workers by duration of employment in economic activities. For the sake of brevity we assume that 6 hours a day (42 hours a week) would be considered as full time employment. In 2000, about 37% of the women did not allocate any time to economic activities compared to 14% for men. Thus a large proportion of women are economically inactive than among men.

[5] Note that the farm sector in Bangladesh is becoming more diversified with reduced importance of crop agriculture.

Table 4. Distribution of economically active population (age 15+) by daily labor hours

Duration of work (hours/day)	Male workers		Female workers	
	1987	2000	1987	2000
Economic labor				
Nil	5.9	13.5	34.4	37.2
Up to 2.0	5.1	4.5	35.7	37.6
2.0-6.0	16.1	23.5	24.2	19.4
6.0 and above	72.9	58.5	5.7	5.8
Economic + domestic labor				
Up to 2.0	6.1	9.2	1.4	4.1
2.0-6.0	10.7	15.3	11.7	21.9
6.0-8.0	24.4	24.4	21.0	29.5
8.0 and above	58.8	51.1	65.9	44.5

Women are involved in economic activities mostly part-time. Only six percent of the women allocated more than six hours a day and hence can be considered fully employed in economic pursuits. This number is almost the same as the number obtained from the answers of the respondents when asked about the primary occupation of women. It appears that women allocate time to economic activities in the spare time after providing domestic labor and hence are only marginally involved in economic activities. About 38% of the women work for up to two hours a day, and another 19%, between two to six hours. The proportion of fully employed male workers has declined during 1987-2000 from 73% to 59%. For women changes are observed only in case of domestic labour but not in economic labour. This may be due to their already limited participation in economic activity.

Participation in wage employment

Since women are mainly employed in home-based agricultural activities the proportion of hired female labour in total labour force is very small (11.6%) compared to the corresponding for men (34.6%) in 2000. In 1987, the corresponding figures were 18.6% and 42.4. This indicates that women have faced a sharper decline than men in wage employment – 38% as against 18%.

Employment by socio-economic status

Table 5 shows the estimated number of days of employment in agriculture and non-agriculture activities for households classified by four socioeconomic variables – income, farm size, education of household head and religion.[6] There is a U-shaped relationship between income and economic activity. Women from the economically depressed and the solvent households participate more in economic activities. Women from households who considered themselves as very poor worked for 161 days a year compared to 122 days for the poor, and 115 days for those who considered themselves as self-sufficient but vulnerable to economic shocks. Women from economically solvent group were engaged more in economic activities, presumably because the educated women who are employed in full-time services mostly belong to this group. No

[6] We have estimated the full-time equivalent days of employment per year by extrapolating the four-day data for the year and converting it to standard eight-hour person days of work

consistent relationship between economic activity and farm size is observed. Similar to income, U-shaped association is found between the level of education of the household head and the days of employment of women working members. Considering the social structure based on religion, non-Muslim worked more days compared to Muslim in the case of both women and men.

Table 5. Duration of employment (days/year) by socioeconomic characteristics of the household, 2000 survey

Socioeconomic characteristics	Weight of the group	Male workers			Female workers		
		Agri-culture	Non-agric.	Total	Agri-culture	Non-agric.	Total
Economic condition							
Very poor	9.8	183	173	356	103	58	161
Poor	30.0	169	181	350	92	30	122
Vulnerable	38.5	175	154	329	99	16	115
Non-poor	21.7	175	139	314	110	26	136
Farm size (ha)							
Nil	35.9	115	242	357	97	43	140
Up to 0.4	27.2	189	138	327	102	21	123
0.4-1.0	22.9	213	109	322	95	16	111
1.0-2.0	10.9	219	92	311	110	14	124
2.0 and above	3.1	252	70	322	107	6	113
Education of HH head							
No schooling	42.9	191	143	334	97	33	130
Up to primary	28.5	179	160	339	97	20	117
Secondary drop-out	15.5	147	182	329	106	18	124
SSC passed	6.7	155	181	336	102	12	114
HSC and above	6.3	118	213	331	110	49	159
Religion of HH							
Muslim	91.4	174	156	330	98	27	125
Non-Muslim	8.6	171	200	371	117	31	148
Total	100.0	174	160	334	100	26	126

Summing up the broad patterns and trends:

- There is a clear gender division of labour - women spend more hours in domestic labour whereas men in economic labour. The proportion of women in full-time economic activity is very small.

- In recent years, total number of hours worked by both women and men has decreased but it has decreased more for women resulting in smaller working hours compared to men.

- Other changes are, men now work less on agriculture, more in non-agriculture and domestic activities whereas women work less in domestic work but more in home-based farm activities.

- The proportion of hired labour in total labour force is much smaller for women than it is for men, and it has declined at a faster rate than the male rate.

- On the whole, there have been a decline in the participation of women in market activities outside the household, a mild increase in home-based economic activities and a substantial decline in female domestic labour.

III Factors behind women's participation in economic activities

III.1 Theoretical framework

According to Becker´s household labour allocation model, there are three ways total time of each household member is spent: leisure, productive activity at home (non-market work producing utility) and productive activity outside (market work). Given a fixed time allowed for sleep and personal care, an individual allocates time between home production of goods and services and market work to acquire market goods. The labour supply decisions are assumed to be affected by productivity in market work reflected in market wage rates given the tastes and preferences for market goods versus home produced goods, technology in the production of home goods, price and availability of market goods, and income consisting of both labour and non-labour income. (See Frank Ellis, 1993 for a general description of the model).

Gender division of labour can occur when men and women have different comparative advantages. For example, men may be relatively more productive in market work and women in non-market work. Such differences may arise due to discrimination of women in the labour market. In such a case, efficient allocation of labour occurs for the household if women and men specialize according to their comparative advantages. The model implies that increased competition and reduced labour market discrimination can promote women´s participation in market activities. Economic and technological changes can lead to changes in labour allocation. For example, market wage rate may go up due to increased productivity of labour. On the other hand, improved infrastructure in household production (water supply, better stove) may reduce the time needed for homework. Both can induce more market work. Becker´s model has provided powerful explanation behind changes in labour force participation of women in many countries especially, the industrialized ones.

The application of Becker´s model is, however, problematic in traditional societies of Asia such as Bangladesh where socio-economic factors affect tastes and preferences with respect to women´s work and the valuation of market versus non-market work. Culture and social values determine tastes and preferences not only at a given point of time, but also has dynamic consequences. Social norms about the roles of men and women can create productivity differences in market versus non-market work over time through feedback effects on human capital (Ferber, Blau and Winkler, 1998). Another complication arises because labour allocation decisions are related to three types work: market work for wages, subsistence production activities within the household where production generates income or saves income.In this paper

these are defined as *economic activities*, and some activities which generate utility but not cash income are defined as *domestic activities*. Although the distinction between the latter two types is not very clear-cut as domestic activities do have a market value, (for example, the price of a nurse, teacher, or prepared food), it has some important implications in rural Bangladesh. Labour allocation between income generating activities at home and domestic activities is affected by economic as well as socio-cultural factors, and this deserves more attention because women´s participation in outside economic activities is very low in Bangladesh.

III.2 Empirical study

Starting from Becker´s model and considering the institutional factors operating in Bangladesh we hypothesize that the following variables may affect women´s participation in economic activities. We have used cross-section data for 2000.

Variables	*expected effects*
• Wage rate	indeterminate because of substitution and income effect working in the opposite direction.
• Landholding	indeterminate, it may increase the opportunities of work at home on the other hand, income effect may cause a negative impact.
• Electricity and other infrastructure	positive effects because of greater opportunities of income-generating activities.
• NGO membership	positive effect through access to microcredit
• Modern rice technology	indeterminate – on the one hand, modern technology means more production and greater opportunities for work. On the other hand, increased income of household can have negative income effects. Women will be withdrawn from production activities.
• Education of household head	education is associated with higher income of the household and may have a negative effect.
• Education of spouse	associated with higher status and may have negative effects.
• Non-agricultural source of income including remittance	since it is associated with high income it may have a negative impact

Higher wage rates and increased opportunities of income from household economic activities can have income and substitution effects. Substitution effects will lead to increased participation in economic activities at the cost of reduced time for leisure and/or domestic activities. But income effects may work in the opposite direction especially if socio-cultural factors work against

women´s participation in economic activities. For example, in rural Bangladesh, women from well-to-do families do not engage in market work, and they devote more time in childcare and domestic activities instead of economic activities. On the other hand, participation in market activities increases with education and economic status. In fact, Bangladesh exhibits a similar tendency of U-shaped labour force participation function as found in cross-country analysis (Goldin, c. 1995). Variables related to socio-economic status of the household are included in the model such as size of landholding, education, modern technology, non-agricultural income with expected impact explained above.

We ran a *probit* model to analyze factors influencing women's participation in economic activities. The dependent variable was measured by a dummy variable with values zero for households where women allocated less than two hours per day in economic activities (those with marginal involvement in economic activities), and value=1 for other households (those with substantial involvement in economic activities). The explanatory variables included are the wage rate at the village level, the size of land holding and the value of non-land fixed assets, the extent of adoption of modern agricultural technology, the level of education of the head of the household and of the women member, whether non-agriculture is the major source of income of the household, and a set of dummy variables representing religion, non-government organization (NGO) membership, households with at least one migrant member and the access to electricity. The estimated parameters of the model are reported in Table 6.

Judging from the asymptotic t-values of the estimated parameters, it appears that the most significant factor influencing women's participation in economic activities is the wage rate. Thus, women's participation might increase if the labor market become tight leading to an increase in the wage rate. The next important factor is found to be the development of infrastructure measured by availability of electricity in the village. Women's participation is higher in households with migrant members. As male members leave the household, women tend to take over some of their economic functions. Supply of credit by NGOs has a positive influence on women's employment. Women participation is less in economic activities in households with better-educated members. Larger the size of land holding the higher the participation in economic activities. However, as the productivity of labor increases with the adoption of modern technology women tend to withdraw themselves from economic activities because of income effect. Religion does not significantly influence women's participation, while is an unexpected result in the context of Bangladesh society.

Table 6. Determinants of women's participation in economic activities: estimates of a Probit function

Determinants	All households		Household with own land up to 0.4 ha	
	Coefficient	Asymptotic *t*-value	Coefficient	Asymptotic *t*-value
Village level wage rate (Taka/day)	0.00326	6.16	0.00338	5.15
Size of land holding (ha)	0.03780	2.33	0.06745	1.25
Value of fixed assets (000' Taka)	0.00001	0.06	0.00030	0.78
Land covered by modern varieties (%)	-0.00062	-2.27	-0.00090	-2.39
Education of household head (years)	-0.00686	-2.31	-0.01344	-3.04
Religion (dummy; Muslim=1)	-0.05453	-1.27	-0.02697	-0.52
HH with NGO membership (dummy)	0.06273	2.41	0.07158	2.32
HH with a migrant member (dummy)	0.11023	4.01	0.14659	4.08
Major non-agric[1]. Income (dummy)	-0.07524	-2.67	-0.09208	-2.62
Villages with electricity (dummy)	0.10341	4.23	0.09731	3.21
Constant term	-3.81712	-59.23	-3.81614	-48.66
Chi-square		4844		2100
Degrees of freedom		1877		1246

HH= household.

[1] services and business/trade are the major sources of income.

III.3 Interaction of economic and institutional factors behind labor market participation and earnings

Low level of participation of women in labour market activities and their segregation to homework may be due to discrimination in the labour market. From policy point of view it is important to know how discrimination is defined and measured, and why it occurs. Labour market discrimination occurs when two workers with similar characteristics are paid differently for the same job (Blau, Ferber and Winkler 1998). Men and women may have different income due to differences in personal characteristics like, age, education, work experience and job characteristics. It is often difficult to prove discrimination against women because women do different jobs. However, segregation of women to low-paid occupations in spite of their similar characteristics like men is itself a sign of discrimination.

Labour market discrimination reflected in earnings and occupational gap between men and women has been explained in terms of neoclassical and institutional approaches. According to Becker´s theory of discrimination (Becker 1971), women may face discrimination in entering certain occupations and/or accept lower wages because the employers, co-workers and customers may have a taste for discrimination (that is, they prefer male workers instead of female workers). Human capital approach or statistical discrimination focuses on the productivity differences among male and female workers. Women, on average, are considered to be less productive, less attached to the labour market and therefore, earn less, and are segregated to low-paid occupations. The institutional approaches concentrate on the role of culture and social norms in shaping tastes and preferences of employers with feedback effects on the supply side (Ferber, Blau and Winkler, 1998). It is argued that given the discrimination in the labour market, women tend to invest less in education and career job, to specialize more in homework and less

demanding market work. In the following section, we will consider the extent and trends of labour market discrimination against women in Bangladesh and how socio-economic structures support discrimination and discourage women´s participation in market activities.

Table 7 provides information from the survey to address the above issues. As noted earlier, about 12% of the women's employment are generated in the market, compared to about 35% for men in 2000, and there has been a decline, higher for women than men. Wage employment is more important for non-agricultural activities than for agriculture, and male-female shares in total non-agricultural labour differ little – 45.3%-41.5% The labor market accounts for only about four percent of women's employment in agriculture, and about a quarter for men in 2000. Since very few women work in non-agriculture (21.2%), the total participation rate in wage employment is mainly influenced by the rate in agriculture (78.8%). An interesting change is observed with respect to male participation rate in hired non-agricultural activities which has declined from 77.2% in 1987 to 45.2% in 2000 in spite of the fact that the share of non-agriculture in total work has increased from 30.1% to 48% during the same period. This suggests a growing importance of self-employment for men. The importance of self-employment has increased for women as well but mainly within subsistence agriculture.

Table 7. Labor market and wage rate by economic activity of workers by gender

Economic activity	Hired labor as percent of total labor				Wage rate (US$/eight hours/day)			
	1987		2000		1987		2000	
	Male	Female	Male	Female	Male	Female	Male	Female
Agriculture	27.4	8.6	24.6	3.6	0.94	0.63	1.00	0.58
Crop cultivation	29.3	19.4	29.5	11.4	0.92	0.63	0.99	0.57
Animal husbandry	4.6	0.3	0.7	*Nil*	0.98	--	--	--
Poultry raising	*Nil*	*Nil*	*Nil*	*Nil*	0.98	--	--	--
Homestead gardening	9.6	0.6	8.3	0.5	1.20	--	1.15	--
Fisheries	53.8	*Nil*	17.2	30.4	1.10	--	1.15	0.63
Non-agriculture	77.2	44.5	45.3	41.5	1.36	1.06	1.62	1.23
Industry/processing	60.5	13.3	53.9	8.6	1.15	0.54	1.23	1.80
Transport operation	77.8	*Nil*	55.8	*Nil*	1.31	--	1.20	--
Construction work	75.3	46.6	72.3	30.9	0.99	0.74	1.19	0.66
Business/trade	77.8	*Nil*	6.2	*Nil*	1.54	0.88	2.37	--
Services	77.5	80.6	73.6	54.4	1.43	1.28	1.79	1.25
Total	42.4	18.1	34.6	11.6	1.17	0.91	1.39	1.07

Note: For adjusting the difference in the purchasing capacity of nominal Taka over the 1987-2000 we have expressed the wage in US dollars using the prevailing exchange rates. Incidentally the depreciation of the Bangladesh Taka vis-à-vis US dollars was almost the same as the increase in the consumer price index.

The declining importance of non-agricultural work and wage employment for women has to be considered with the disparity in male-female earnings shown in Table 7. In 2000, women received on average US dollar 1.07 per day's work compared to US$1.39 for men, i.e., about 30% less. During 1987-2000 both male and female wage rates, on average, have increased but disparity has increased mainly because of the agricultural sector where gender disparity in the wage rate was more pronounced. In agriculture, women received about 42% lower wage than men compared to 24% in non-agriculture. This can be partly explained in terms of the role of

education in agriculture and non-agriculture. While agriculture employs workers with little or no education and non-agriculture needs educated labour force, education tends to reduce gender disparity. A modest attempt has been made to see the disparity syndrome by taking into account the education of household heads and spouses (Table 8). The findings indicate that illiterate female received about half of the wage rate what the male counterpart gets in 2000, while it was much lower in 1987. Data indicate that the higher the level of education of household head and spouse, the lower the male-female disparity in earning. Earnings disparity in agriculture may be due to the type of job women perform (low productive) or there may be discrimination. Rahman´s study (1985) confirms prevalence of discrimination against women workers in rural labour market of Bangladesh.

Our data on occupational segregation, wage disparities in different sectors and their close association with education in Bangladesh pose some interesting questions. Why are women concentrated in home-based agricultural activities? Is it due to low wage rate in agriculture? If disparities are lower in non-agriculture and in activities requiring education, why do the parents not invest in girls´ education? It is argued below that social and cultural factors play a crucial role in Bangladesh.

Powerful social norms in Bangladesh tend to deter female mobility into public domain and confine them to low productive household activities that generally carry low returns. Setting aside the cultural constraint on mobility, female involvement in the labor market is also constrained by the "imposed" primary responsibilities for household tasks and childcare. Other two important factors that influence women's involvement in the labor market are location and proximity. These factors limit women's mobility in relation to market opportunities and help to explain why location appears to be far more important in explaining returns to women's labor than for men. Usually, women from more remote areas would be the least responsive to price signals as they have the least access to transport their goods and services to the market as well as information. In addition, there are some cultural and religious barriers in different locations that do not allow female worker to go for field work even in their own farm or to go for outside work even when the family suffer from regular food insecurity problem. Since women generally are not engaged in agricultural work their productivity is low (perceived or actual) and consequently the wage rate is also low. This works as a disincentive to market work. Social and cultural factors are interacting with economic factors.

With respect to the second set of questions, it is quite possible that if household heads are educated, there is a chance that family members, specially female members, receive proper education to vie for relatively more productive pursuits. The reasons behind the low investment in education for girls in Bangladesh *may not lie* in wage disparity but in the lack of suitable job opportunities (socially acceptable) and also constraints related to sending girls to schools. In recent years, because of targeted policies, gender gap in education is declining sharply even in rural areas (Ahmad, Hossain, 2004). One of the reasons behind this positive development may be reduced wage disparity at higher levels of education. Hence, labour market does play an important role.

On the whole, the concentration of women in home-based subsistence activities and low participation in market work is mainly due to lack of mobility, weak attachment to the labour market because of household responsibility, and non-availability of suitable jobs for women.

Table 8. Differences in male-female wage rate (weighted average[a]) by educational level

Education level	2000 survey			1987 survey		
	Male (US$)	Female (US$)	Females' wage as % of male	Male (US$)	Female (US$)	Females' wage as % of male
No formal schooling	1.01	0.47	-53.5	1.03	0.61	-40.9
Primary schooling	1.22	0.62	-49.2	1.22	0.79	-35.0
Secondary drop-out	1.20	0.69	-42.5	1.58	0.92	-41.8
Secondary level	1.52	1.67	9.9	1.36	1.02	-24.9
Higher secondary & above	2.19	2.17	-0.9	1.96	--	--
Average for all groups	1.22	0.76	-37.7	1.17	0.66	-43.6

[a] Excluding extreme outliers.

IV. Impact of work on women's empowerment

IV.1. The implications of unitary versus bargaining models

An analysis of women´s economic status and empowerment needs to be couched in a model of the household that is proper for Bangladesh. The neoclassical household model (Becker 1981) assumes that a household works as one unit in maximizing a joint utility function. Some important characteristics of such households are income pooling and common goals of the family. Arriving at common goals and making decisions to achieve the goals may be done either through a consensus or by an altruistic or dictatorial household head. Apparently, South Asian households resemble the unitary model with income pooling and common family strategies. However, the unitary model has been criticized for being gender blind. The model assumes away differences in tastes and preferences of husband and wife and hence, any conflict or power struggle that may arise (Elson, 1995). Moreover, it ignores not only the differences in tastes and preferences but also in capabilities of men and women. Policies and programmes based on the assumption of unitary household can be gender blind and can have serious consequences for the well-being of women and children. The advantage of bargaining models over the unitary model is that they focus on the unequal bargaining power of women (may be expressed as lack of empowerment) in the family and its causes and consequences (Sen, 1990). In this section, we first measure empowerment and later find out the impact of economic activity on empowerment of women in rural Bangladesh.

IV.2 Measuring empowerment

Measures of 'empowerment' particularly for women are used in different context to carry multiple meaning. In general, most of the measures point to 'power' as the root of empowerment. Kabeer (1999, 2000) defines power in terms of "ability to make choices". Sen (1985) refers to the "ability" as one chooses to live and "power to achieve chosen results". Some authors argue that power is the dominant factor of decision-making and its establishment in hierarchy with the sense of responsibility (Sen and Grown, 1985). It is clear that the women's participation, their decision-making capacity, control over resources and their own welfare practices are the major factors of women empowerment. In other words, empowerment is the ability with full

participation of people in the decisions and process for their choice of lives. Women's empowerment is to exercise their choices with full capability to contribute to social and economic growth for their welfare in overall development and to acknowledge human values of freedom of choice and human rights (Batliwala, 1994; United Nations, 1995; Oxfam, 1995).

In this paper we have considered the ´female participation' in decision making as the proxy of 'empowerment' in the field of agricultural and non-agricultural sector in rural areas. Few variables are selected to develop a women empowerment index (WEI). We have picked up the impact on absence of the household male head in the household on women's empowerment, agriculture activities and livelihood. Here, the absence of male household head is considered mainly as male out-migration from the household. The reason for emphasizing absence of male head in connection with empowerment should be clear. It is being hypothesized that absence of male head impinges a larger burden on females in terms of household responsibilities and in the absence of males, females gain relatively more empowerment than in their presence.

The empowerment index

One of our hypotheses is that with male migration, there is a shifting of women's roles from being an unpaid family worker to a manager. Here, we can assess women's decision-making authority, relative to her husband and other family members, in case of joint families. Within joint families, the male head of the family often makes decisions. However, in nuclear families, it is not clear whether the wives make decisions with or without their husbands. The pertinent questions are: (a) who makes the decisions in the household? (b) are decisions jointly made? (c) who makes the decisions in the presence of the husband?

Since there are many decision-making variables, it is difficult to make sense out of them. So we have developed empowerment index with the criteria often used by sociologists. We assigned the lowest value (=1) when, in the absence of the husband, the decision is taken by other members (rather than by the wife), i.e., this is case of women being least "empowered". At the other extreme, the highest value was assigned (=5) where females make decisions even in the presence of their husband, i.e., in this case the women are most "empowered". In a lighter vein, they can be called "super women"- dubbed as the most empowered of all.

We considered nine intra-household decision-making indicators where five indicators related to agricultural domain and four indicators were related to non-agricultural domain. In case of agriculture, we wanted to know about the decision makers pertaining to the types of crops grown, management of crops, purchase of inputs, raising livestock and poultry and post harvest operations. Similarly, another four questions were asked for non-agricultural functions.

The rating values of the decision-makers have been assigned according to the weight in favor of wife. For example, higher value (***K***) of an indicator (***X***) goes to indicate higher empowerment level of a woman shown below, where ***K*** is (1…5):

1= decision is made by other members in the absence of the husband,
2= by husband, when he is present without consultation of the wife,
3= by wife in the absence of the husband,
4= jointly by husband and wife, or jointly with others in absence of the husband,
5= by wife, even when husband is present,

The above statement can be measured through rating of each decision indicator (X) as below:

X_i = decision making indicators	K = any rating value of each indicator				
	Low				High
X_1	1	2	3	4	5
:	1	2	3	4	5
:	1	2	3	4	5
X_n	1	2	3	4	5

Therefore, the average scoring value of X_i (i.e., ***i***th indicator) for all households would be the average of the value K_i denoted by the following matrix:

$$X_i = \overline{K_i} \qquad \text{……..(1)}$$

We used the given value of nine indicators for each household to construct the women's empowerment index. Five indicators have been used for agricultural index ($WEIag_i$), and four for non-agricultural index ($WEIng_i$) are shown in equations 2 and 3:

$$WEIag_i = \sum_{i=1}^{5} X_i \Big/ 5 \qquad \text{……..(2)}$$

Where, $WEIag_i$ representing the following indicators of an ***i***th household

x_1 = Choice of crops
x_2 = Crop/field management
x_3 = Purchasing inputs
x_4 = Livestock/poultry farming
x_5 = Post-harvest operations

$$WEIng_i = \sum_{i=1}^{4} X_i \Big/ 4 \qquad \text{……..(3)}$$

Where, $WEIng_i$ representing the following indicators of an ***i***th household

x_1 = Cash management
x_2 = Travel and recreations
x_3 = Children's education
x_4 = Voting in election

Therefore, the overall women empowerment index (WEI_i) stand for an ***i***th household is shown in equation 4:

$$WEI_i = (WEIag_i + WEIng_i)/2 \qquad \text{……..(4)}$$

IV.3 Results on intra-household decision-making and women's empowerment

The males' dominating role in decision-making is in evidence in the case of when the head is present (Table 9). For crop agricultural decision except post-harvest work, about 23 to 34% male head took sole decision, otherwise mentioned that decision made after joint discussions with other members. An exception is with regard to cash management where about 84% of women take decisions by themselves in absence of husbands. Presumably, other male or female agents

dominating the leadership of the households, and obviously the presence of adult male usually dominate decision making in most of the household and it's economic activities in the Bengali culture. It is quite interesting note that that there are few women in all categories of households who are reported to take decision and leadership even in the presence of husband. Feeble though as proportion (3% or so), the husbands of these households do not seem to be "empowered" in the conventional sense of the term.

Table 9. Intra-household decision-making of household head and wife by selected activity

[Percent of household]

Decision making indicator	Head present and takes decision	Wife takes decision when:	
		Head present	Head absent
Choice of crops	22.7	0.6	41.9
Crop management	33.9	0.9	34.8
Purchasing inputs	27.3	1.0	48.4
Post-harvest operations	2.7	0.9	92.2
Livestock/poultry farming	5.1	0.8	38.2
Cash management	3.8	0.6	84.1
Children's education	1.7	0.6	71.3
Voting in elections	4.7	1.5	73.3
Travels and recreation	2.5	0.6	69.8

IV 4 Factors determining empowerment

The role of labour force participation in female empowerment has been studied extensively (Sen 1990; Agarwal 1997; Murthy, Guio and Dréze, 1995). The channels may be explained in terms of cash income, external contacts and access to information that affect the fall-back position, self confidence and perception of family members about women´s worth (See Sen´s extended entitlement approach, 1990). In subsistence households, where home production pre-dominates these channels may not work as strongly. Other factors - education, wealth brought from parental home, access to non-labour income, age, structure of the family can have significant impact (Klasen, 1999).

The association between women's participation in economic activities and women's empowerment can be seen from Table 10. We considered value "1" as very weak empowerment, value "2" as weak, value '3" as normal and value "4" and "5" as strong empowerment. The association seems to be fairly weak. A smaller percent of households with no participation in economic activities have strong empowerment but the same is the case with households in which women are employed full time in economic activities. Indeed, women who are marginally or moderately involved in economic activities seem to be most empowered. Thus, there appears to be an inverse "U" shaped relation of women's empowerment with the extent of women's participation in economic activities.

Table 10. Association of women's empowerment with Women's participation in economic activities, 2000

Indicators and empowerment level	Percent of household by economic working hours of women			
	Zero hrs	<=2 hrs	2-6 hrs	>6 hrs
Agricultural domain				(60.7***)
Very weak	53.0	36.7	40.1	64.0
Weak	15.4	16.2	15.3	8.0
Normal	15.1	17.6	18.3	4.0
Strong	16.6	29.5	26.3	24.0
Non-agricultural domain				(57.6***)
Very weak	7.4	3.8	4.6	22.0
Weak	22.0	17.5	18.8	22.0
Normal	36.5	48.9	48.9	36.0
Strong	34.0	29.8	27.7	20.0
All indicators				(80.1***)
Very weak	30.1	14.1	19.1	42.0
Weak	39.3	40.0	39.5	30.0
Normal	11.0	15.8	13.7	6.0
Strong	19.6	30.2	27.7	22.0
All in each indicator	100.0	100.0	100.0	100.0

Note: Figures in parentheses are Pearson χ^2 value significance at <1%*** and 5%** levels.

We ran a multiple regression model to analyze factors of women's empowerment. The estimated parameters of the regression model are reported in Table 11. It may be noted that the most important factors influencing women's empowerment is the size of landownership and the tenure status of the household. The higher the size of owned land the more empowered the women are. The women belonging to the tenant households appeared to be more empowered compared to that of women in the owner-operated farms. Also, the older women are more empowered than the younger women, as indicated by the positive coefficient of the age of the spouse. The higher the levels of education of the household members the more empowered are the women members of the households. After controlling for the effect of these other variable influencing empowerment, women's economic involvement seem to be significantly impact women's empowerment. The influence is however weak, as indicated by the lower t-value of the regression coefficient of this variables, compared to some other variables. The impact is positive for agricultural decision-making but negative for non-agricultural decision making.

Table 11. Factors influencing women's empowerment: estimates of multivariate regression

Factors	Mean value	Empowerment in decision making					
		Agricultural aspects		Non-agricultural aspects		All aspects	
		Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
Size of land owned (ha)	0.52	0.15296	7.02	0.02243	1.56	0.09495	6.28
Non-land fixed assets ('000 Taka)	19.8	0.00033	0.75	0.00076	2.59	0.00052	1.69
Avg education of earners (years of schooling)	4.3	0.01906	3.69	0.00691	2.03	0.01366	3.81
Whether a tenant HH (%)	31.6	1.03133	26.40	0.13342	5.18	0.63226	23.33
Whether business/service as major income (%)	31.1	-0.33464	-7.65	0.01618	0.56	-0.17872	-5.89
Whether HH earn from labor sources (%)	43.1	-0.30544	-7.07	0.09740	3.42	-0.12640	-4.22
Age of the household head (years)	45.4	-0.00757	-4.13	-0.01423	-11.77	-0.01053	-8.28
Age of the spouse (years)	35.4	0.01626	8.16	0.02383	18.14	0.01963	14.20
Whether a joint family (%)	37.6	0.02165	0.56	-0.05792	-2.26	-0.01371	-0.51
Whether have an NGO member (%)	29.7	-0.01881	-0.48	0.05023	1.96	0.01188	0.44
Whether have an migrant member (%)	25.5	-0.21771	-4.91	-0.04272	-1.46	-0.13994	-4.54
Whether non-Muslim HH (%)	9.0	0.03481	0.56	0.01919	0.47	0.02787	0.65
Women's labor in economic activity (hrs/day)	1.91	0.02215	2.76	-0.01095	-2.07	0.00744	1.33
Constant term	--	1.86121	23.76	2.62865	50.89	2.20229	40.52
R^2			0.39		0.19		0.37
F-value			91.55		34.25		84.08

HH= households.

V. Conclusions and policy implications

Based on household-level data collected in 1987 and 2000 this paper first depicts the patterns and trends in women´s work and secondly, analyses the factors that work behind gender division of labour in rural Bangladesh. An empowerment index is developed from the data on household decision-making in different spheres, and its relationship with women´s work is then explored.

The study confirms earlier findings that women are segregated to home-based activities consisting of mainly domestic labour and less economic labour. In recent years, several changes are observed that have interesting policy implications. First of all, total burden of work for women has decreased mainly due to a reduction in domestic work. Secondly, women´s participation in non-agricultural activities and in wage employment has declined with a corresponding increase in home-based activities. With the declining importance of crop agriculture, occupational structure in Bangladesh has become more diversified. However, economic development has affected men and women differently. While men leave agriculture and engage in non-farm activities women remain within the farm sector. Thirdly, there is substantial disparity in earnings of men and women in the labour market that may be explained by occupational segregation and low education of women. Male/female earnings gap is higher in agriculture than in non-agriculture, and is negatively related to education. Women earn less because they are mainly engaged in agricultural activities that require no education. Our data could not explore why earnings gap is higher in agriculture – is it due to low productive activities

of women or social norms discriminate against female workers? One positive feature in Bangladesh is that education is associated with lower earnings gap.

The persistent gender division of labour in rural Bangladesh has been found to be associated with both economic factors (wage rates, access to production factors like land, micro credit, infrastructure) and socio-cultural factors (norms and customs regarding women´s mobility and gender role in production and reproduction). One of the main reasons behind low empowerment of women is the gender division of labour that keeps them segregated to home. Economic activities within the household have been found to have a weak impact on empowerment.

Two policy implications emerge from our study: 1. Promotion of female education to enable women to take part in market activities in the non-agricultural sector where gender disparity in earnings is less. 2. Investment in infrastructure that can facilitate women´s mobility outside the household as well as can reduce the burden of domestic work. We have also observed in our study that men allocate more time in domestic work. Policy-oriented research is needed on this particular issue.

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