Female work participation and gender differential in earning in West Bengal

Indrani Chakraborty & Achin Chakraborty

April 2009

IDSK

INSTITUTE OF DEVELOPMENT STUDIES KOLKATA

Female work participation and gender differential in earning in West Bengal

Indrani Chakraborty[1] and Achin Chakraborty[2]

ABSTRACT

Female work participation in West Bengal is one of the lowest among all the states in India. However, it varies widely across the state's 341 blocks. An analysis of some block level characteristics based on Census 2001 data show that female work participation varies inversely with the female literacy rate and percentage of Muslim population, and is positively related to the overall work opportunity as reflected by male work participation. However, there are a few blocks with very high percentage of Muslim population where female work participation is rather high. These are the blocks where women are engaged in home-based work in large numbers. We conducted surveys of households in two such areas in Murshidabad and South 24 Parganas, respectively. The field survey was motivated by the need for knowing, first, the nature of work participation in areas where apparently there is very high degree of participation by women, and second, whether there is a very large earning gap between men and women in these areas from which one could conclude that women were stuck with low-skill low-wage home-based work whereas men enjoyed better work opportunities. The results from a probit model applied to the survey data show, as one would expect, that the probability of participation increases with age but at a decreasing rate. Although in Murshidabad we find a negative relationship between the level of education and work participation, in South 24 Parganas no clear relationship is observed. Ownership of cultivable land turns out to be negatively influencing female work participation. We then estimate the earning functions separately for men and women by OLS method as well as by Heckman selectivity corrected method and find out the determinants of

1. Associate Professor of Economics at Institute of Development Studies Kolkata
2. Professor of Economics at Institute of Development Studies Kolkata

earnings. The earning differential between men and women can be thought of as the combined effect of differences in 'endowment', such as education and number of days of work they manage to get, and 'pure discrimination'. We apply the method of decomposition of these two effects (Oaxaca and Ransom) to find out the relative importance of the two effects. The overall earning differential between men and women is found to be narrower compared to the findings of earlier studies elsewhere (Kingdon and Unni, 2000), and the 'pure discrimination' component is also somewhat moderate. This leads us to conclude that even in areas where home-based work is highly predominant and women's representation in this type of work is significantly higher than that of men, it cannot be said that men enjoy much better work opportunities. Both men and women seem to be engaged in types of work that are low-skill low earning type – no matter whether it is home-based or not.

1. *Introduction*

Women's experience of the labour market in India, like in any other country, is substantially different from that of men. They are more likely than men to be unemployed, underemployed or outside the labour force altogether. They are relatively overrepresented in certain sectors and underrepresented in others, and have lower levels of human capital. It has been observed that women's labour market experience shows a lot more diversity across the world than men's, which implies that, as far as the labour market is concerned, societal norms and traditions, the country's institutions of governance etc play a much more crucial role for women than for men.

Women's participation in the labour force has long been central to research on gender inequalities. Much of this research has sought to find out how and to what extent labour force participation contributes to women's empowerment and well-being and reduction of gender inequalities. Scholars on gender inequality emphasise the importance of women's economic role in determining their position in other spheres, from household bargaining to representation in state governance. Empirical research has found that women's labour force participation is associated with less bias against the girl child within the family, reduced mortality and better health for girl children, and with more voice in some areas

of household decision making. Of course, several conditions may limit the liberating impacts of work outside the household (e.g., who controls the income from such work), and, even in the best of circumstances, outside work usually implies a dual burden for wives and mothers which forces them to balance the responsibilities as homemaker and outside work. Still, it is less often highlighted that women's labour force participation sometimes may actually restrain women's progress toward more equality. More women's labor force participation under economic stress may lead to girls being withdrawn from school and put to such work as domestic chores and sibling care; the burden of work imposed on girls early in their life may restrict their schooling, which widens the gender gap in basic education and further widens, in turn, the gap in labour market opportunities. None of these linkages is inevitable, though. Nevertheless, the general pattern across India provides a cautionary message and reminds us of the multidimensionality of gender stratification.

In this paper we make an attempt to understand participation of women in paid work and the related aspect of disparity in earnings of men and women. In the rest of this section we discuss some aspects of work force participation in West Bengal based on secondary data. Women join the labour market in India with a wide range of human capital endowments, but the majority of them are concentrated in low-skill low-paying kind of jobs. The labour force participation rate is considered to be an important indicator of women's willingness to participate in paid employment and is defined as the ratio of the labour force (i.e. employed and unemployed but seeking work) to total female population in the working-age group. There are two official sources of data on employment in India – the decennial population censuses and the quinquennial National Sample Surveys (NSS) conducted by the National Sample Survey Organisation (NSSO) of the Government of India. Figure 1 presents female labour force participation in 19 major states in India. Throughout India labour force participation by women is much higher in rural than in urban areas, and the rural-urban differences are substantial.

Figure 1: Female labour force participation rates across select Indian states
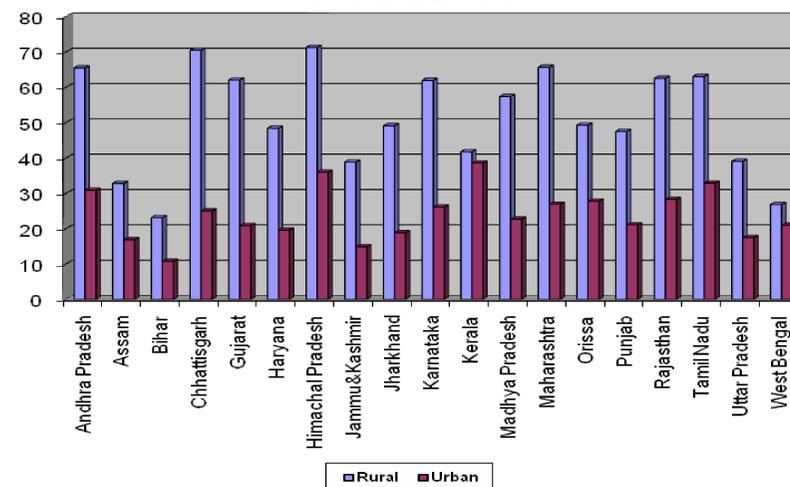
Source: NSS 61st Round (2004-05)

In this paper we focus on West Bengal, where the female labour force participation rate is one of the lowest. In rural West Bengal, women who are either working or actively seeking work constitute only 26.8 per cent of the women of age 15 years and above. In urban areas they are even fewer – only 21.0 per cent.

While the labour force participation rate gives the supply side, work participation rate is the result of interaction between the supply of and demand for labour. However, even though the labour force by definition includes both the employed and the unemployed, the size of the latter is not independent of the demand for labour. If the probability of employment is very low, the chronically unemployed would eventually withdraw herself from the labour market, which is known as the phenomenon of 'discouraged labour'. In India the rate of employment generation has always been lagging behind the rate of expansion of the population, and for the past two decades or so the rate of growth in GDP has been substantially higher than both. West Bengal's experience in this respect has been no different from the rest of the country. The female work participation rate in West Bengal is not only among the lowest in India, it has not shown much improvement in the recent past.

We first try to understand the nature of work participation by women in West Bengal on the basis of the secondary data available through the Censuses of India and analyse its variation across smaller spatial units such as districts. While the Census category 'cultivators' refers to those who work either on their own land or on the land leased in on rent, an 'agricultural worker' is a wage worker (most likely landless) working under an employer. If we combine the fact that almost 10 lakh women joined the rank of agricultural workers over a period of ten years, with the fact that the real wage for agricultural work in West Bengal has remained stagnant for quite some time, we can reasonably argue that a large number of women who are new entrants to the work force are not doing it out of choice. They are rather compelled by economic circumstances to accept the drudgery of working in the field. The other remarkable feature of the change is the growth in 'household industry' workers. The number of female workers in household industries increased three-fold from 4.1 lakh in 1991 to 12.5 lakh in 2001. Given the generally weak employment situation many women took up low-paying household industry work as a survival strategy.

Fig 2: Growth in the number of female workers in West Bengal in four broad categories (in 100,000)
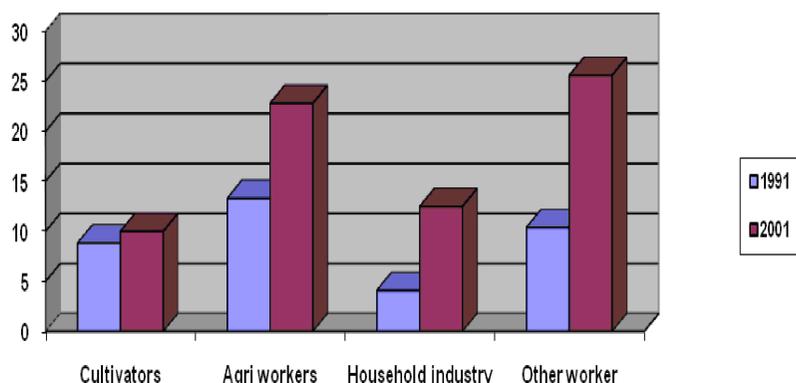

Source : Census, 1991, 2001

The rest of the paper is organised as follows. In Section 2 we specifically look at the relationship between education and women's work participation. In Section 3 we analyse the block level data on work participation by women and try to identify the correlates such as literacy, the percentage of Muslim population, and so on, the data on which are available from the Census. The analysis of the secondary data motivated us to focus on certain aspects of female work participation in West Bengal for which we conducted field survey in two districts of West Bengal. The field survey objectives, survey areas chosen, and sample characteristics are discussed in Section 4. The econometric methods that we applied are discussed in Section 5. In Section 6 we discuss the results from the estimation of a Probit model for work participation by women. In Section 7 the findings on the earning differentials between women and men are reported and interpreted. The earning differentials were then decomposed into the part that could be attributed to individual 'characteristics' and the one that could be attributed to 'pure discrimination', which are discussed in Section 8. In Section 9 we conclude.

2. Education and work participation

The relationship between women's education and labour force participation is not straightforward. In India, women are present in large numbers among the 'labouring poor' (i.e. employed according to official definition but living below the poverty line), who are mostly illiterate or have very low level of education. In agriculture, particularly in rice-growing areas, women have been engaged in a number of operations in which males do not enjoy any particular advantage or social privilege. A kind of activity-wise segregation in agriculture has thus developed that partly legitimises the wage gaps between men and women. In contrast to the vast number of working women who have little formal education, the educated women show a relatively low participation in the labour force.

Figure 3 : Work participation (usual principal status) by women with different levels of education in West Bengal, 2004-05
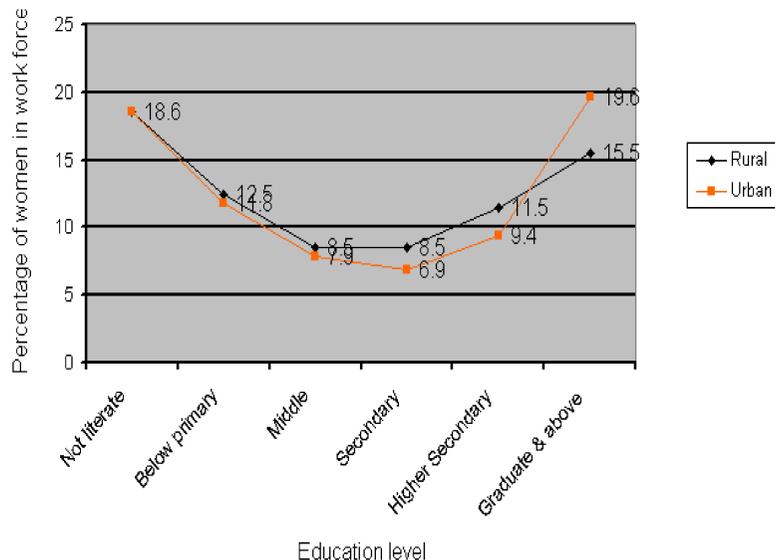
Source: NSS 61st Round (2004-05)

A general observation is that in developing countries the relationship between female work participation and the level of education often takes a U-shape. Work participation is generally high for non-literates, and then it begins to fall and reaches the lowest level at secondary/higher secondary level. It again rises for graduates and above. However, overall, work participation rates for women in both rural and urban India are much lower compared to the developed countries. The pattern that we find for West Bengal is no different from this general pattern. Work participation is highest for non-literates, and then it falls with increasing levels of education up to secondary. It rises again for those who are graduates or with higher qualifications (Figure 3). Women graduates in urban West Bengal are more likely to be employed than their counterparts in rural areas of the state. The non-literate

women aged 15 and above had either discontinued their education after a short while in school, or never gone to school. For reasons of poverty they are in labour force in large numbers.

With rising levels of education even among the rural females, and with the changing nature of the labour market in the globalising world, various factors that are believed to influence women's participation in work need to be put through rigorous scrutiny. Under-representation of women in the educated labour force in India is the outcome of a complex of factors. There have been attempts to provide explanations in terms of limited job opportunities for women in the formal sector. Many formal sector jobs, including those in government offices and organized manufacturing and services, are not considered 'suitable' for women, which makes the educated job seeker feel discouraged and withdraw from the labour force[1]. However, the preference for scarce formal sector jobs may not necessarily lead to educated women's withdrawal if new kinds of job opportunities are created in adequate numbers in the informal sector that are not of the menial kind. To what extent this has been the case in the recent years – when the nature of jobs outside the formal sector has been undergoing changes – is a matter worth investigating.

The macro-structural factors, such as the lack of employment opportunities for women, are far from adequate in explaining various processes that link women's work to their education at the micro level. It is generally believed that cultural norms and values have significant influences on women's mobility and choice of work. These norms operate at multiple levels – at the levels of castes, religion, region, and so on (Das and Desai, 2003). It has long been recognized that in South Asia the families with supposedly 'high status' discourage their women members from taking up paid employment. It has also been observed that women's withdrawal from the labour force is perceived as a means

---

1   The number of employers who cite the lack of toilet facility as the reason for not hiring women workers is remarkable. Papola (1986) in his survey of enterprises in Lucknow, India, came across this.

to improve family status. However, even this explanation is hardly generalisable given the fact that women often decide not to participate in paid employment apparently for some cost-benefit considerations. On the one hand, in the absence of well-established institutions for child care support, the responsibilities fall almost entirely on the women who are forced to make a trade-off between child rearing and work participation. On the other hand, given the limited job opportunities overall, it is obvious that the job market will not allow any space in which a woman can combine the two without facing serious disadvantage in the workplace.

3. Determinants of work participation from block level Census data

Female work participation depends on a variety of factors, but given the availability of data, we could hypothesise that it would depend on education, job market opportunities, economic condition of the household, among other things. We can test this hypothesis with Census data. We could also answer the question: does female work participation vary across religious groups? We took the development blocks as our unit of analysis. We took the data – all at the level of *Development Blocks*, which are lower units of administration than districts – on female work participation according to both main and marginal categories, female literacy, percentage of men engaged in either main or marginal work (as a proxy for general opportunity in the job market), percentage of households who possess at least one of the assets like bicycle, TV, telephone, etc., and percentage of population who are Muslim. To explain female work participation, we take as the dependant variable the percentage of women in a block who are reported to be working either as 'main' or as 'marginal' worker. For education variable we have taken the percentage of women in a block who are literate. Low work participation by women, as we discussed earlier, may be due to various constraining factors including social norms and traditions. Even if women are willing to work, the job

opportunities may be generally limited in a block – for both men and women. To capture the effect of general lack of opportunity, we have taken the percentage of men in a block who are working. Since the Census does not collect information on household/ individual income, we take the possession of certain durable goods/ assets as a proxy for the economic status of the household. Our focus on the percentage of Muslims in the block's population is justified by the fact that this particular community is believed to suffer certain disadvantages in the labour market, and with the limited set of opportunities they try to circumvent those disadvantages. We shall see that there is a high degree of correlation between concentration of Muslims in a block and the importance of 'household industries' as a means of livelihood.

There are 341 Blocks in West Bengal. We ran an OLS regression on the Census 2001 data and the following estimated coefficients were obtained. The model fits well with the data, as it is evident from the R^2 value (0.47).

$$\text{Femw} = 13.31 - 0.6 \text{ femlit} + 0.005 \text{ asset} - 0.23 \text{ muslim} + 0.85 \text{ malew} \qquad R^2 = 0.47$$

$$(1.72)^{***} \ (-13.41)^* \ (\ 0.09) \qquad (-\ 9.99)^* \qquad (5.99)^*$$

It turns out that all the variables except asset ownership have significant effect on female work participation. Females tend to have lower work participation in blocks where men too have lower participation, which is indicative of limited opportunities in general. Blocks with low female literacy have high work participation, and those with high concentration of Muslim population tend to show relatively lower work participation by women. The partial regression plots of the data are presented in Figure 4.

Figure 4: Partial regression plots between female work participation and literacy, asset holding, male work participation, and percentage of Muslims
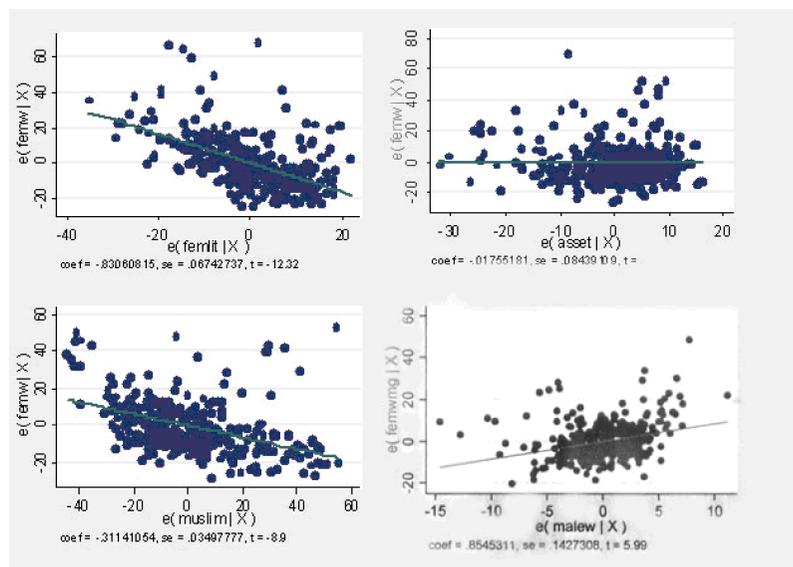
Two alternative hypotheses can be advanced to explain why female work participation rate is low in blocks with high concentration of Muslim population. One is due to socio-cultural constraints. The popular impression is that for traditions and societal norms Muslim women tend to participate less in work that requires them to go outside their home. Alternatively, an equally reasonable argument would be that the areas with high concentration of Muslims are also the areas with fewer job opportunities. However, the relative importance of the two hypotheses seems to vary across space in West Bengal. The partial regression plot not only reveals the strength of the general correlation between female work participation and concentration of Muslim population, more importantly it also throws up a number of outliers. In these blocks female work participation rates are very high despite high percentages of Muslim population. A good number of such blocks are in Murshidabad district where household-based industries, such as beedi-rolling and embroidery work are predominant.

Table 1: Work participation of Muslim women and percentage of household industry workers across districts of West Bengal, 2001

Districts	Worker/popln Muslim female		Household Industry workers as % of total workers							
			All Religion				Muslims			
	Rural	Urban	Rural		Urban		Rural		Urban	
			Male	Female	Male	Female	Male	Female	Male	Female
West Bengal	14.66	10.48	4.15	17.94	3.96	16.48	4.41	37.31	12.24	51.11
Darjeeling	11.07	7.57	2.73	3.52	1.91	3.87	2.14	2.78	4.48	2.65
Jalpaiguri	20.96	9.77	1.54	2.77	1.99	6.75	1.04	1.94	0.99	3.25
Koch Bihar	20.97	11.17	2.55	7.75	2.71	12.32	0.75	2.91	1.79	24.40
Uttar Dinajpur	21.36	7.96	1.51	8.43	2.22	10.13	0.71	11.87	0.72	4.08
Dakhin Dinajpur	14.92	9.57	2.58	8.93	4.53	18.28	0.82	6.64	2.21	13.85
Maldah	28.51	8.57	4.95	37.38	3.15	16.60	5.03	51.59	1.05	17.59
Murshidabad	14.33	42.36	5.47	59.56	21.52	75.47	5.12	69.49	41.66	91.14
Birbhum	11.94	11.11	3.27	16.34	2.26	10.79	2.55	47.15	1.52	24.43
Bardhaman	11.32	5.03	3.35	11.93	2.25	12.65	2.53	28.04	1.72	23.98
Nadia	11.58	25.01	5.54	28.46	11.33	36.78	3.82	21.48	26.88	59.88
North 24 Parganas	9.2	6.49	3.65	19.69	1.70	8.55	3.83	25.13	1.91	12.73
Hugli	12.5	6.25	3.86	13.01	1.80	10.72	3.41	30.45	2.23	21.04
Bankura	26.74	6.76	3.48	9.29	7.71	23.44	2.25	39.35	1.63	43.86
Puruliya	24.7	5.02	6.14	10.23	2.20	4.37	6.97	12.70	2.11	5.41
Mednipur	13.34	6.04	3.96	17.00	1.72	6.72	5.30	32.24	1.75	11.58
Haora	8.32	6.7	10.76	32.05	7.84	19.73	21.07	52.02	26.42	51.98
Kolkata		7.24	0.00	0.00	2.81	4.41	0.00	0.00	8.32	13.04
South 24 parganas	7.73	6.17	4.16	14.64	5.57	8.59	5.68	20.94	16.77	23.53

Source: Census of India 2001.

Table 1 shows work participation rates for Muslim women across districts of West Bengal. They are generally lower than the corresponding rates for all communities taken together. However, in districts, such as Murshidabad (urban) and Maldah (rural) they are higher than usual. Interestingly, these are the districts where very high percentages of Muslim women are engaged in household industry work. Whereas in rural Maldah 51.6 per cent of Muslim working women is engaged in household industries, in rural and

urban Murshidabad the percentages are 69.5 and 91.1, respectively.

The different roles assigned to men and women in society largely determine the type of work men and women do. For example, given their traditional role as homemakers, more females than males tend to combine economic activities with household activities, to work intermittently over the year and to work closer home, often even at home, since job flexibility in terms of hours and relatively easy entry and exit enable women to combine work and family responsibilities more easily. The analysis of the secondary data and the relevant literature in the area have brought us thus far, providing the broad contours of the issues which throw up further questions that can only be answered through a detailed inquiry into the variety of processes underlying the outcome that we have briefly indicated above. Motivated by this, we conducted detailed sample surveys in two districts of West Bengal taking two rural blocks from each district, which have high concentration of Muslims and predominantly based on household-based industries.

4. Field survey objectives, survey areas and sample characteristics

We have just noted that female work participation in West Bengal is one of the lowest among all the states in India. However, it varies widely across the state's 341 blocks. We presented an analysis of some block level characteristics based on Census 2001 data to show that female work participation varies inversely with the female literacy rate and the percentage of Muslim population, and is positively related to the overall work opportunity as reflected by male work participation. However, there are a few blocks with very high percentage of Muslim population where female work participation is rather high. These are the blocks where women are engaged in home-based work in large numbers. We conducted surveys of households in one such block – Samserganj in the district of Murshidabad. We took from the same district another block, viz. Murshidabad-Jiaganj, which showed lower female work participation with high concentration of Muslims. In order to bring in some diversity

in terms of different work participation rates and varying concentration of Muslims we selected from South 24 Parganas two blocks – Budge Budge I where female work participation is low and concentration of Muslim population is high, and Thakurpukur-Maheshtala, where female work participation is high but concentration of Muslim population is not too high. While in Murshidabad blocks our sample women overwhelmingly represent home-based activities such as beedi-rolling, in South 24 Parganas blocks too, a majority of them is in home-based activities, but the activities are slightly more diverse than in the case of Murshidabad blocks. The field survey was motivated by the need for knowing, first, the nature of work participation by comparing and contrasting areas where apparently there is very high degree of participation by women with areas where it is low. And second, we wanted to inquire if there was a very large earning gap between men and women in these areas from which one could conclude that women were stuck with low-skill low-wage home-based work whereas men enjoyed better work opportunities.

In Table 2 we present a number of basic indicators for the four blocks. Clearly, four blocks have been selected purposively to present the diversity in terms of the percentage of Muslims in the population, female work participation rate, and literacy rate. In all four blocks, the density of population is higher than the average for the state as a whole (903 per sq km), which implies that the scope for expanding opportunities in agriculture is rather limited in all these blocks despite varying degrees of urbanization in the blocks.

Table 2 : Select indicators for the four sample blocks

	Murshidabad		South 24 Parganas	
	Samserganj	Murshidabad-Jiaganj	Thakurpukur-Maheshtala	Budge Budge I
Population per square km	2516	1042	2170	3764
% of urban population	34.6	0	20.3	51.0
Female literacy (%)	29.7	46.8	67.8	64.5
% female workers in female population	49.8	14.5	12.5	6.7
% of Muslims	81.2	52.8	28.4	44.2

Source: Census 2001

The survey was conducted during December 2007 to April 2008. We selected randomly 232 households from two blocks in each district. Since one of our objectives was to focus on the connection between Muslim women and home-based work, our selection of the areas with the blocks was somewhat purposive so as to get a high representation of Muslim women in our sample. For example, within Thakurpukur-Maheshtala block our sample households were selected around the town Chatta Kalikapur. While the percentage of Muslims in the block is 28.4, in Chatta Kalikapur area it is close to 80 per cent.

The survey collected information on household characteristics and on a small number of items for all the household members, besides detailed information on the woman respondent's activity status, educational level, earning, her perception on a variety of issues such as children's educational prospect etc, and a wide range of well-being indicators. We first use the detailed information on 464 women respondents from the same number of surveyed households for a descriptive-analytic account of various aspects related to the women's experience with the labour market, education and what they think about a number of things that one can associate with women's work. We then focus our attention on all those members of the households who belong to the age-group 15-59, as they constitute the sample of working age population. There are 648 such persons in the Murshidabad sample, with 50.61 per cent men and 49.38 per cent women and 679 in South 24-Parganas with 49.19 per cent men and 50.81 per cent women. From our sample, we observe that 85.98 per cent of men and 84.68 per cent of women are employed in our Murshidabad sample whereas these figures for men and women are 92.81 per cent and 65.21 per cent, respectively, in South 24-Parganas sample. In what follows we first present a descriptive-analytic account of the findings from the survey and then present the regression results. A woman in the working age-group should be classified into any of the three mutually exclusive and exhaustive categories: (i) working for wage, (ii) working for own enterprise (self-employed), and (iii) not working. However, since in our sample

areas the number of women in the self-employment category is very small we merge the first two categories into one i.e. 'working'. We have applied the regression method to analyse the respondent's 'choice' to be in one of the two groups – 'working' and 'not working'. The regression technique to estimate the earning gap and its decomposition will be described later in more detail.

Women were found to be engaged in activities which are generally low-paying. Even though there are requirements of job specific skills, these skills have very little connection with formal levels of education. The women usually enter these activities at an early age and 'learning by doing' in an informal setting is the usual mode of skill acquisition. Three such activities which are predominant in the survey areas are beedi-rolling (see Box), tailoring, *zari* work (a kind of embroidery) and production of fireworks. While beedi-rolling is the predominant activity in Murhidabad blocks, in South 24 Parganas we find the other three activities mentioned above. Even though in beedi-rolling women are over-represented, there are a large number of men in our sample who are engaged in this home-based activity. If one enters the villages in Samserganj block one is overwhelmed by the omnipresence of the activity in almost all the houses. While women usually work inside their own house, men from different households form small groups and sit together in a room or in a small terrace-like place each with a tray in his lap busy rolling tobacco while listening to the radio, apparently to get around the monotony of working alone.

Even though concentration of certain economic activities in certain areas is quite common around the globe, it is not always easy to explain why those activities are where they are. The spread of beedi-rolling in certain blocks in Murshidabad can be explained in terms of the lack of opportunity in agriculture as well as non-farm activities. Agriculture in the entire Jangipur sub-division, in which Samserganj is one of the blocks, showed signs of stress as the land adjacent to the river Padma eroded. Land erosion turned thousands homeless and these homeless population had no other option but to take up any occupation for survival. While some men

took up masonry work and various other casual works within and outside the district, women found beedi-rolling as a way to supplement family income while taking care of the family. The entrepreneurs in the beedi-industry conveniently used this home-based work organization to their advantage. The industry has so far confronted no shortage of manpower as the occupation of beedi-rolling has been transmitted through generations. Apart from beedi-rolling the other occupation that women find themselves in some areas in Murshidabad is spinning and weaving, which is also home-based. The purpose of our study is not to describe beedi-rolling and the condition of women who are engaged in this activity. A number of studies can be found which had earlier focused exclusively on the beedi industry and beedi workers[2]. We focus instead on the women with very little formal education, who find themselves engaged in a small range of income-earning activities of a similar kind in terms of earning and flexibility of hours of work.

In Chatta Kalikapur area in South 24 Parganas, tailoring as a profession has a long tradition and it is transmitted through several generations. The first group of tailors who settled here is believed to have come in the pre-British period. Earlier it was a men-only occupation. Later, with the introduction of sewing machines and with women's gradual entry into the production process, a kind of division of labour between men and women developed. Women got those tasks which are considered 'subsidiary' in nature – piercing buttonholes, removing loose threads, hand-sewing ornamental designs, and so on, while cutting cloth and stitching and interlocking by machines fall in the men's domain. The dresses produced in Chatta – *punjabi*, school uniforms, trousers, and now jeans – mostly cater to the internal market, unlike some other textile centres in India like Tirupur in Tamil Nadu which are heavily export-oriented.

Does the division of labour mean that men enjoy the benefit of an unequal distribution of the drudgery of work? It seems that women do not think so. When asked the question: "Do you think

---

2   See Bagchi, Jasodhara and Ashim Mukhopadhyay (1996), Dharmalingam (1993), among others.

that men are lucky to work on tasks that require less physical effort?" a large majority of the women in South 24 Parganas (88 per cent) said "no". It is not clear whether their perception is biased due to the hegemonic hold of patriarchal ideology.

Table 3 presents the summary statistics of some characteristics of the sample households. Some of the indicators, such as, the percentage holding BPL card, ownership of cultivable land, fuel used at home, even the average household size, are very similar between the two samples. In respect of electricity use, however, a significant difference is observed between the households in Murshidabad and South 24 Parganas. The finding that the percentage of households holding BPL card is low in both the areas compared to the state as a whole is consistent with the fact that households dependent on non-farm work of regular kind have lower probability of being in poverty compared to landless agricultural labouring households.

Table 3 Some Characteristics of Sample Households (in percentage)

Characteristics	Murshidabad	South 24 Parganas
Average household size	4.6	4.4
Hindu	21.96	28.73
Muslim	77.47	71.27
Other	0.57	0
Possession of BPL (Below Poverty Line) card	26.58	24.12
Having electricity at home	21.17	77.06
Fuel used at home		
Wood and cowdung cake	83.88	81.39
Coal	16.12	16.88
Kerosene	0	0.87
Gas	0	0.87
Ownership of cultivable land		
Nil	96.42	98.92
Less than 0.5 acres	3.58	0.78
0.5 -1 acre	0	0.29

Among the 232 women respondents in Murshidabad, only 6 per cent were not working and looking for work, and less than 2 per cent were outside the labour force. Among those who were working, 72 per cent were beedi workers. The number of days in a year for which each of them works varies from 120 to 365 [3], and the average is 245 days. However, most of them work for five hours or less in a typical day. In South 24 Parganas, on the other hand, women on average work for much longer hours. Only 6.7 per cent said they work for five hours or less. An overwhelming majority of the women (75 per cent) work for eight hours or more, and the average number of days they work is more or less the same as in Murshidabad.

Around 61 per cent working women in Murshidabad said they started working before they reached 15. In South 24 Parganas, however, it is 11 per cent. The difference between the two areas is reflective of a combination of factors such as differences in levels of education and family earnings. Table 4 presents the educational profiles of the members of the sample households belonging to the age group 15-59. Clearly, the educational levels in general are somewhat better in South 24 Parganas sample than in Murshidabad. Interestingly, there is no gender gap in education in the former, whereas in the latter there is a moderate degree of disparity. We shall see later that the average level of earning is also better in South 24 Parganas.

Table 4 : Educational profile of the sample persons

	Murshidabad		South 24 Parganas	
	Women	Men	Women	Men
Illiterate	53.6	44.2	26.7	28.1
Literate and below primary	16.6	21.9	18.9	19.3
Primary	22.3	17.1	28.7	23.6
Below secondary but above eighth standard	3.1	8.2	20.3	17.7
Secondary	2.8	4.0	3.5	3.9
Higher Secondary	1.6	3.3	1.2	3.6
Graduate and above	-	0.3	0.3	2.5

3   Although we have put the upper limit as 365, when someone says 'throughout the year' one does not literally mean 365 days

Thus, the vicious circle of low earning – low education, perpetuating with low aspiration in between, seems to be more predominant in Murshidabad than in South 24 Parganas, even though the majority of the women belong to the Muslim community in both the areas. Interestingly, our regression results reported later show that the religious community membership is not significant in explaining participation in work. It seems that even though in general there is a negative relationship between the percentage of Muslims in a block and female work participation rate, in areas where historically some economic activities have developed which women can balance with family responsibilities, women from all communities seem to join the work force in large numbers. However, the preference for home-based work cannot be taken as entirely the result of patriarchal control on women's movement outside home. We asked the question "if your workplace were away from home, would the male members of your family (husband or father-in-law) still let you work?" 64 per cent women in Murshidabad and 42 per cent in South 24 Parganas said "yes". In terms of control over the money they earn, the percentages of women who control fully their part of earnings too differ between the two areas. While in Murshidabad it is 77 per cent, in South 24 Parganas, it is only 33 per cent. About 72 per cent women in South 24 Parganas report that their earnings form less than one half of their family income, whereas in Murshidabad 63 per cent says so. In other words, a higher percentage of women in Murshidabad than in South 24 Parganas contribute the major part of their family income. There seems to be a connection between the monetary contribution to the family kitty and women's control over the money they earn.

The means and standard deviation of the sample variables are presented in Table 5. The last row of Table 5 shows log monthly earnings for men and women. Not surprisingly, mean earnings for men are generally higher than mean earnings for women. Women's monthly earnings on average are 91 per cent and 80 per cent of that of men in Murshidabad and South-24 Parganas, respectively, which is comparable to the female-male median weekly earnings

ratio during 1994-1998 in Belgium (90 per cent) but much higher than that during the same period in Austria (69 per cent), Canada (69 per cent), Japan (63 per cent), Spain (71 per cent), U.K. (74 per cent) and U.S (76 per cent) (Blau and Kahn, 2000).

Table 5: Means and Standard Deviations of Sample Variables

| Variable | Murshidabad | | | | South 24-Parganas | | | |
| | Men | | Women | | Men | | Women | |
	Mean	Std. dev	Mean	Std. dev	Mean	Std. dev	Mean	Std. dev
AGE	31.67	6.93	29.34	10.79	31.22	6.75	30.35	12.20
AGE SQUARED	1158.67	485.03	977.23	692.21	1094.59	463.11	1069.83	828.99
MSTATUS	1	0	0.775	0.42	1	0	1	0
CHILD06	0.42	0.43	1	0	0.28	0.45	0.30	0.45
CHILD714	1	0	1	0	1	0	0.53	0.49
NOMALES	1	0	1	0	1	0	0.95	0.21
NOFEMALES	0.98	0.11	1	0	0.99	0.09	1	0
ELDERLY	0.01	0.12	1	0	1	0	0.11	0.32
EDU2	0.68	0.46	0.64	0..48	0.70	0.45	0.72	0.44
EDU3	0.68	0.46	0.67	0.47	0.83	0.37	0.83	0.37
EDU4	0.18	0.38	0.14	0.35	0.20	0.40	0.14	0.35
HEAD	0.98	0.14	0.97	0.14	0.98	0.11	0.99	0.09
EXP	23.37	12.72	21.45	12.01	21.47	12.59	20.22	13.86
EXP SQUARED	707.57	663.49	604.03	573.93	619.11	620.01	600.59	675.06
LHOURS	1.69	0.41	1.74	0.22	1.69	0.47	1.63	0.59
Log earnings	5.50	2.16	5.03	1.85	5.73	2.64	4.59	3.24

Note: HEAD = Head of the household, EXP= Experience, LHOURS= Logarithm of average daily hours of work, Log earnings = Logarithm of monthly earnings.

The observation that women's earnings are lower than men's is so commonplace that it hardly needs any further research support. Yet, a couple of issues could still be identified in this context which would call for a nuanced understanding of why women choose – or not – to do a particular type of work. Average female-male pay ratios in the world are roughly 60-70 per cent, based on a monthly reference period (Anker, 2001). There are several sources of male-female pay differentials:

(i) differences in human capital endowments such as education and experience;

(ii) differences in pay within the same occupation (usually attributed to direct discrimination);

(iii) differences in pay for apparently different work but of more or less 'equal value', because of high degree of feminization of certain occupations.

Before we analyse earnings differential between men and women, we first explain with econometric technique the nature of work participation by women. In the next section we discuss the econometric methodology.

5. Methodology

First, we estimate a model of female work participation based on a probit model. We assume that an individual woman has two choices: to participate in paid work or not to participate. If the individual woman participates in work then it takes the value 1 and if she does not it takes the value 0. We estimate the following specification:

L = f (FE, AGE, AGE SQUARED, HA, S, RELIGION, MSTATUS, HE, NOMALES, NOFEMALES, ELDERLY, BPL CARD) ……………(1)

In the above equation, L stands for work participation by an individual woman taking values 0 and 1. FE is a dummy variable representing the woman's level of schooling which has been categorized into four groups viz. EDU1 = illiterate (base category), EDU2 = literate but did not complete primary education, EDU3 = completed primary but below secondary, EDU4 = secondary and above. AGE is age, AGE SQUARED is age squared, HA is household assets measured by acres of land owned, S is the presence of children in the household which has been categorized into two groups viz., CHILD06 and CHILD714 where CHILD06 represents children between the age 0 to 6 and CHILD714 represents children of age greater than 6 but less than or equal to 14. RELIGION is a dummy variable representing religion, MSTATUS is a dummy variable representing marital status, HE is a dummy variable representing head of the household's educational level categorized as earlier into four groups. NOMALES is number

of males in the age-group 15 to 59 years, NOFEMALES is the number of females between ages 15 and 59, ELDERLY is the number of household members aged 60 and above. BPL CARD is a dummy variable representing the status of the household in terms of whether or not it holds the card that entitles the households members to the benefits meant for the population below poverty line.

Next we estimate separate earning functions for men and women. Since work participation is not likely to be random, the familiar problem arises of sample selection bias in the earnings equation estimates (Heckman, 1979). Following Heckman we have to control for potential selection bias in the earning functions by including an additional selectivity term (inverse Mill's ratio). In this study we apply the two-stage method developed by Lee (1983) to control for selection bias. Selectivity terms are estimated for each individual i from the estimated probabilities of work participation and included in the earnings function in the usual Mincerian form as follows:

$$\ln W_i = \beta X_i + \tau \gamma_i + \varepsilon_i \quad \ldots\ldots\ldots\ldots \text{(2)}$$

where $\ln W_i$ is the natural log of earnings of individual i, X_i is a vector of observed characteristics, γ_i is the selectivity term and ε_i is a stochastic error distributed as $N(0, \sigma^2)$. The selectivity term γ_i is equal to $\varphi(\Phi^{-1}(P_i))/P_i$, where $\varphi(.)$ and $\Phi(.)$ are the standard normal density and cumulative distribution functions and P_i is the predicted probability of individual i to be in the labour force, obtained from the probit model (Glick and Sahn, 1997). Equation (2) is estimated with OLS with and without sample selectivity bias. While controlling for selectivity bias in earnings function, an important issue is identification i.e. one or more variables should affect participation decision but not earnings. In this study, household assets (for example, acres of land owned) and some demographic characteristics of households (for example, presence of children, presence of elderly above age 59, numbers of males and females in the age-group 15-59) are used as identifying variables.

Our next concern is to decompose the earning differential between men and women into two parts i.e. the one due to the 'characteristics' and the other due to 'discrimination'. We use the methods originally developed by Oaxaca (1973) and Blinder (1973) and subsequently refined by Reimers (1983), Cotton (1988) and Oaxaca and Ransom (1994). Following Oaxaca (1973) the difference in mean earnings of men and women can be written as

$$\ln W_m - \ln W_f = X_m \beta_m - X_f \beta_f \quad \ldots\ldots\ldots\ldots\text{(3)}$$

where W_m and W_f are mean earnings for men and women, X_m and X_f are vectors containing means of the explanatory variables for men and women and β_m and β_f are the vectors of estimated coefficients for men and women. If we add and subtract the term $X_m \beta_f$ in the above equation, we get

$$\ln W_m - \ln W_f = X_m \beta_m - X_f \beta_f + X_m \beta_f - X_m \beta_f$$
$$= (X_m - X_f) \beta_f + X_m (\beta_m - \beta_f) \quad \ldots\ldots\text{(4)}$$

Alternatively, adding and subtracting $X_f \beta_m$ in equation (3) we can write

$$\ln W_m - \ln W_f = (X_m - X_f) \beta_m + X_f (\beta_m - \beta_f) \quad \ldots\ldots\text{(5)}$$

The first term, on the right-hand sides of equations (4) and (5), represents the wage differential due to differences in different characteristics of men and women and the second term represents wage differential due to discrimination.

At this point the question is which of the two equations (4) and (5) is appropriate in this context, because the estimates of discrimination from the two equations may be different. Equation (4) implies that in the absence of discrimination, women's wage structure would prevail in the market whereas equation (5) implies that men's wage structure would prevail in a non-discriminatory setting. To resolve this dilemma Oaxaca and Ransom (1994) improves upon Oaxaca (1973). In the context of semi-logarithmic wage equation estimated by OLS the following formulation is used by Oaxaca and Ransom :

$$\ln(^-W_m/^-W_f) = X_m(\beta_m - \beta^*) + X_f(\beta^* - \beta_f) + (X_f - X_m)\beta^* \ldots\ldots\ldots..(6)$$

where ^-W_m and ^-W_f represent the geometric mean wages for men and women respectively and β^* is the estimated nondiscriminatory wage structure. In equation (6) the first term refers to male advantage (i.e. the amount by which men's characteristics are overcompensated relative to their marginal product), the second term refers to female disadvantage (i.e. the amount by which women's characteristics are undercompensated) and the third term refers to productivity differential or differential due to characteristics. The sum of the first two terms represents the total differential from discrimination. Now the issue is how to determine β^*. Paternostro and Sahn (1999) suggest that we can assume

$$\beta^* = \Omega\,\beta_m + (I - \Omega)\,\beta_f \ldots\ldots\ldots..(7)$$

where Ω is a weighting matrix and I is the identity matrix. Then following Oaxaca (1973), we will have either $\Omega = I$, i.e the men's wage structure or $\Omega = 0$, i.e the women's wage structure, as $\hat{a}^*$. Reimers (1983) methodology assigns equal weight to both men and women. Hence following Reimers, $\Omega = 0.5\ I$. Cotton (1988) shows that neither the men's nor the women's wage structure would prevail in a discrimination free environment. He argues that men would be paid more than the non-discriminatory wage and women would be paid less. Following Cotton's methodology the weighting structure implies that $\Omega = I_m I$, where I_m is the fraction of men in the sample (Paternostro and Sahn, 1999).

Finally, based on theoretical derivations, Neumark (1988) suggests the usage of the coefficients from a pooled regression over both groups as an estimate for Ω^*. In terms of notation this is equivalent to $\Omega = (X'X)^{-1}X_m'X_m$.

The methodology of Oaxaca and Ransom was applied in their study on Guinea by Glick and Sahn (1997) where $\hat{a}^*$ is estimated on the basis of a pooled sample of men and women in the three sectors viz., self-employed, private sector and public sector. Appleton, Hoddinott and Krishnan (1999) further extended the Oaxaca and Ransom methodology to account for sectoral effects while estimating the gender wage gap in three African countries.

6. Female work participation: Results from Probit model estimation

In this section we present results from the probit model estimation for determining the factors influencing the decision to participate in the labour force by women. Table 6 reports the results for Murshidabad and South 24-Parganas separately.

We can observe that the results for the variables AGE and AGE SQUARED for both Murshidabad and South 24-Parganas are the same. As age increases the probability to participate increases but increases at a decreasing rate, as the coefficient of AGE SQUARED is negatively significant. We observe that marital status (MSTATUS) has no significant effect on the decision to participate in Murshidabad. This finding contradicts the usual belief that married women, having higher reservation wage due to access to their husband's income, are less likely to join the labour force than unmarried women. However, while running the regression for South 24 Parganas, we dropped this variable as it showed multicollinearity.

As mentioned earlier, the variable RELIGION has no significant effect either in Murshidabad or in South-24 Parganas. Holding BPL CARD also has no statistical significance. Ownership of cultivable land (DLAND) has negative significant effect in Murshidabad, which implies that an alternative source of non-labour income decreases the probability of work by women. However, we find that this variable has no significant effect in South 24-Parganas.

The effect of education on the decision to work by women is evident from Table 6. We observe that EDU2 i.e, attended school but did not complete primary has positive significant effect and EDU3 i.e., completed primary has negative significant effects. Thus more education seems to reduce the probability to participate in work by women in Murshidabad even at such low level as the primary. This finding supports our earlier observation based on

the National Sample Survey (NSS) data presented in the last chapter, where we observed a U-shaped relationship between level of educational attainment and female labour force participation. The sample data from Murshidabad fits well the left part of the U-shaped curve. This is perhaps because a very low percentage of women in Murshidabad sample have educational attainments above secondary. We observe no significant relationship between the level of education and the decision to work by women in South 24 Parganas. Our findings in Murshidabad, are in contrast to the findings of Glewwe (1990) in Ghana that schooling is positively related to entry into wage employment. Our findings reveal that illiterate women are more likely to participate in wage employment in Murshidabad. This is perhaps because of the particular nature of work that the women in our sample do i.e, beedi-rolling, and spinning and weaving, which require very little formal education.

We have included the levels of education of the head of the household as explanatory variables in our model specification. Table 6 shows that the variable HEADEDU4 has a negative significant effect in South 24-Parganas. It implies that the cases where the head of the household completed secondary or above education, the probability of women's work participation decreases. This may be due to the fact that the educational level of the head of the household acts as a proxy for family income.

We included a large number of demographic variables in our estimation as well, such as CHILD06, CHILD714, NOMALES, NOFEMALES and ELDERLY. However, all these variables are dropped from our estimation in Murshidabad due to the problem of multicollinearilty. In South 24-Parganas some of these variables are included but none of them appear to be significant. Thus the presence of children or elderly people does not influence the decision to work by women in South 24-Parganas. This finding, however, contradicts the findings of Glick and Sahn (1997) and Kabubo-Mariara (2003) who observe that presence of children influences the work participation decision of women in Africa.

Table 6: Impact of explanatory variables on female work participation : Results of Probit estimation

Variables	Murshidabad		South 24-Parganas	
	Coefficients	z-value	Coefficients	z-value
Intercept	-1.92	-2.21**	-1.09	-1.55
AGE	0.22	3.35*	0.11	2.73*
AGE SQUARED	-0.003	-3.25*	-0.001	-2.48*
MSTATUS	0.19	0.68		
RELIGION	0.05	0.20	-0.02	-0.10
BPL CARD	-0.09	-0.45	0.13	0.77
DLAND	-0.83	-2.13**	0.48	0.68
EDU2	0.45	2.38*	0.04	0.21
EDU3	-0.92	-3.63*	-0.02	-0.09
EDU4	-0.02	-0.09	-0.13	-0.57
HEADEDU2			-0.22	-1.14
HEADEDU3	-0.96	-1.28	-0.24	-1.28
HEADEDU4			-0.55	-1.59***
CHILD06			0.20	1.23
CHILD714			0.13	0.86
NOMALES			-0.56	-1.43
ELDERLY			-0.03	-0.14
Log Likelihood	-115.86		-225.59	
χ^2	61.17		23.10	
Pseudo R^2	0.21		0.05	
No. of observations	318		345	

Note: *   implies significant at 1% level
        **   implies significant at 5% level
        *** implies significant at 10% level

7. Determinants of gender differential in earnings

Estimates from earnings equations for men and women in Murshidabad using OLS and selectivity correction are reported in Table 7. The dependent variable is the natural log of monthly earnings. For both men and women a large number of variables are observed to be significant. The variable DAYS is positively significant for both men and women, in both the OLS and selectivity corrected estimates. It implies that higher the number of days worked in a year higher are the monthly earnings. It explains why women have a tendency to work for as many days as they can in a year. In other words, we do not come across diverse work experiences in this area, otherwise we would have cases where some men and women worked for fewer hours but earned more than others who worked for longer hours and ended up earning less. One striking finding is that the variables RELIGION and CASTE are negatively significant, which implies that Muslims and workers belonging to the Scheduled Caste (SC) earn on average less than others in Murshidabad. Although there are very few individuals in the later category in our sample, it at least conforms to the commonly shared belief in India that certain communities are systematically disadvantaged in the labour market.

The variable LHOURS is positively significant (except in OLS for women) which implies that if average daily working hours increase monthly earnings increase as well. This is obvious given the practice of wage payment by piece rate. Hence longer the working hours per day, higher is the monthly earning. However, for women the negative significant effect of LHOURS in OLS regression is rather counter-intuitive. The estimated coefficients for LHOURS are 0.92 and 1.98 for selectivity corrected and OLS estimations which imply that with longer working hours earnings increase somewhere between the range of 150 per cent to 624 per cent per month for men. The estimated coefficient for LHOURS for women is 0.31 in selectivity corrected estimation which implies that earnings increase by 36 per cent for women[4].

---

4 The specification for the estimation of earnings function is semi-lograthimic and in this case the percentage change in earnings due to a change in an explanatory variable is $100*[exp(\beta)-1]$ where β is the estimated coefficient.

Table 7: Estimated Coefficients for Men and Women Earnings Function in Murshidabad

Variable	Men (OLS)	Men (Selectivity Corrected)	Women (OLS)	Women (Selectivity Corrected)
Intercept	0.26 (0.51)	3.89 (9.83)*	5.56 (7.22)*	5.67 (17.78)*
Days	0.01 (18.50)*	0.004 (9.82)*	0.01 (22.58)*	-0.001 (-3.67)*
Religion	-0.30 (-1.97)**	-0.36 (-3.22)*	-0.48 (-2.52)*	-0.13 (-1.45)
Caste	-0.96 (-5.24)*	-0.73 (-5.39)*	-1.02 (-4.10)*	-0.01 (-0.10)
Lhours	1.98 (12.30)*	0.92 (8.28)*	-1.46 (-5.51)*	0.31 (2.47)*
Married	0.28 (0.91)	0.44 (2.02)**	-0.21 (-0.83)	-0.28 (-2.53)*
EDU2	0.01 (0.14)	0.07 (0.98)	0.25 (1.99)**	-0.03 (-0.57)
EDU3	0.16 (1.65)***	0.25 (3.56)*	-0.05 (-0.42)	0.06 (0.99)
EDU4	-0.05 (-0.46)	0.17 (1.70)***	0.29 (1.73)***	0.07 (0.93)
Exp	0.03 (1.92)**	0.008 (0.66)	0.08 (4.31)*	0.02 (1.76)***
Expsqr	-0.0004 (-1.50)	-0.0002 (-0.75)*	-0.002 (-4.14)*	-0.0006 (-2.15)**
Head	-0.34 (-1.06)	-0.30 (-1.39)	-0.34 (-0.86)	0.03 (0.22)
Λ		-0.23 (-1.19)		0.23 (1.17)
Adj R^2	0.86		0.71	

Note : * signifies 1% level of significance
     ** signifies 5% level of significance
     *** signifies 10% level of significance

In selectivity corrected estimates the variable MSTATUS is significant for both men and women but the signs are different. This finding is expected, because married men have more responsibilities for their families to take care and therefore they are likely to work for a longer period in a year. However, for women it may be the reverse. Our finding of a negatively significant coefficient for MSTATUS for women in selectivity corrected equation further justifies our explanation for engagement of women in wage earning activities for lesser duration. Household activities are more demanding for married women and hence their monthly earnings decrease.

The coefficient for the variable 'primary education incomplete but attended school' appears to be positively significant for women only. The estimated coefficient for EDU2 for women is 0.25 which implies that monthly earnings for women who attended school but did not complete primary education is 28.40 per cent higher than illiterate women i.e. relative to EDU1 base. Similarly we observe EDU3 is positively significant for men only in both OLS and selectivity corrected estimates. The estimated coefficients for EDU3 imply that men who have completed primary earn at least 17.35 per cent higher than illiterate men. We further observe that EDU4 is positively significant for men in selectivity corrected estimates and for women in OLS. The estimated coefficients for EDU4 is 0.17 and 0.29 for men and women respectively, implying that monthly earnings for secondary or above qualified men would be 18.53 per cent higher than the base category and for women it would be 33.64 per cent higher. So our results indicate that there are some incentive for schooling for both men and women in Murshidabad.

The variables EXP and EXPSQR are significant for both men and women and imply that the relationship between experience and earnings follows a quadratic functional form. The estimated coefficients for EXP are 0.03 for men in OLS and 0.02 and 0.08

for women in selectivity corrected and OLS estimates, which imply that experience raises monthly earnings by 3.04 per cent for men and 2.02 per cent to 8.33 per cent for women. From our sample observations we further observe that benefits from experience peak at the age of 39 years for men and at 32 years for women in Murshidabad.

Table 8 reports results for estimation of earnings function for South 24 Parganas. In case of women we observe that a large number of variables are insignificant. Lack of statistical significance of some normally important variables such as EDUCATION and EXP needs explanation. The activities carried out by women in this sample of South 24 Parganas are tailoring and zari work and fireworks, as discussed earlier, and these require very little education and hence the insignificance of the variables relating to education. Insignificance of EXP is probably due to their part-time engagement in wage earning activities. The hours of work are adjusted by women in between the household activities, which perhaps reduce their speed of work in wage earning activities. So no clear relationship between EXP and earnings are found. The only variables which have positive significant effects on women in South 24 Parganas are DAYS and LHOURS.

The variable DAYS appear to be positively significant for men too. The work in South 24 Parganas involves contractual arrangement between the 'mahajans' and the worker, like we find in Murshidabad. Thus our finding indicates that the 'mahajans' may be less interested to hire those who take these jobs as part-time activities. This is also corroborated by our understanding of the production process in Chatta Kalikapur area. In tailoring business, small amount of capital with a very fast turnover rate is the key to profit. A number of tasks are performed in quick succession and the gestation period between procuring the raw material and delivering the finished product in the weekly wholesale market is usually a week. The pressure

of delivering the finished product every week without delay forces the mahajan to maintain a strict schedule. In this kind of production process the longer one works at a stretch, more valuable is her work to the mahajan. LHOURS is positively significant for men too. LHOURS is expected to have positive significant effect since here too the payments are made on the basis of piece rate, like in Murshidabad. So, longer the working hours per day, higher would be the monthly earnings. The estimated coefficients of LHOURS for men are 1.37 and 1.95 in selectivity corrected and OLS estimates and for women this figure is 2.04. These imply that LHOURS increases monthly earnings by 293.5 per cent to 602.8 per cent for men, and for women it increases monthly earnings by 669 per cent. The variable MSTATUS is negatively significant for men in South 24 Parganas, which is difficult to explain.

For men in South 24 Parganas we get three other variables as significant viz., EDU2, EDU3 and EXP (significant at 10 per cent level). EDU2 and EDU3 are negatively significant for men in OLS. Hence schooling has negative effect on earnings for men in South 24 Parganas which is rather unusual. The estimated coefficients for EDU2 and EDU3 imply that schooling decreases monthly earnings by 20 per cent to 22 per cent for men than the base category of illiterates. Thus education has no effect on the activity of men in South 24 Parganas. EXP is positively significant in selectivity corrected estimation for men and the estimated coefficient is 0.04 which implies that benefits from experience is 4.08 per cent increase in monthly earnings for men in South 24 Parganas. It is to be noted that EXPSQR is negative and significant for both men and women in selectivity corrected estimation in South 24 Parganas. From our sample observations we find that monthly earnings peak at the age of 20 years and 25 years for men and women, respectively, in South 24 Parganas.

Table 8: Estimated Coefficients for Men and Women Earnings Function in South 24 Parganas

Variable	Men (OLS)	Men (Selectivity Corrected)	Women (OLS)	Women (Selectivity Corrected)
Intercept	0.40 (0.58)	1.97 (2.85)**	-1.25 (-2.25)**	3.46 (4.16)*
Days	0.01 (17.30)*	0.009 (12.33)*	0.01 (21.81)*	0.007 (9.81)*
Religion	-0.38 (-1.08)	0.68 (1.26)	0.06 (0.20)	0.50 (0.98)
Caste	-0.23 (-0.65)	0.68 (1.31)	0.03 (0.10)	0.46 (0.91)
Lhours	1.95 (10.76)*	1.37 (8.32)*	2.04 (13.07)*	0.59 (3.23)*
Married	0.32 (1.45)	-0.71 (-1.68)***	0.15 (1.09)	0.04 (0.23)
EDU2	-0.23 (-1.93)**	-0.17 (-1.34)	0.07 (0.81)	0.009 (0.08)
EDU3	-0.25 (-1.75)***	-0.02 (-0.11)	0.13 (1.32)	0.16 (1.26)
EDU4	0.11 (0.75)	-0.10 (-0.67)	0.13 (1.32)	0.02 (0.10)
Exp	0.02 (0.73)	0.04 (1.60)***	0.01 (0.93)	0.02 (0.91)
Expsqr	-0.0003 (-0.80)	-0.0007 (-1.77)***	-0.0004 (-1.58)	-0.0006 (-1.73)***
Head	-0.43 (-0.84)	0.13 (0.35)	0.02 (0.05)	-0.05 (-0.10)
Λ		-0.85 (-1.52)		-0.10 (-0.24)
Adj R^2	0.86		0.95	

Note: Same as in Table 5.

An important finding from Tables 7 and 8 is that the selectivity variable (ë) is not significant for men and women both in Murshidabad and South 24-Parganas. Hence there were no problems of selectivity bias.

8. Decomposition of earnings differential

Earning differentials between men and women in Murshidabad and South 24-Parganas are reported in Table 9. For estimation of earning differentials we used the program *decomp* by Ian Watson which could be run on STATA. Log of earning differential appears to be 0.472 in Murshidabad and 1.140 in South 24-Parganas. These imply that the average monthly earning of women is 91 percent of that of men in Murshidabad and 80 percent in South 24-Parganas. As discussed in the section on methodology, we applied five alternative methods to decompose the earning differential between men and women. Some of the methods show that the earning differential attributable to the productivity difference is smaller than the difference due to discrimination both in Murshidabad and South 24-Parganas. Following the basic Oaxaca method it is observed that the composition of earning differential differs depending on whether the male or the female wage structure prevails. For example, in Murshidabad, assuming that men's wage structure prevails, we observe that 70.6 percent of the earning differential arises as a result of discrimination and only 29.4 percent is due to differential characteristics across gender. We have also estimated the contribution of some important variables separately. From Table 7 we observe that the contribution of education is negligible in explaining productivity differential. Contribution of LHOURS appears to be negative in four of the five methodologies, which implies that the number of hours worked per day by women is higher than that by men in Murshidabad and it serves to reduce the overall gap to a large extent.

Table 9: Earnings Differentials Between Men and Women in Murshidabad and South 24-Parganas

	Murshidabad	Ln $(^{-}W_m / ^{-}W_f) = 0.472$		South 24 Parganas	$ln(^{-}W_m /^{-}W_f) =1.140$	
	Discrimination	Percentage due to discrimination	Productivity Differential	Discrimination	Percentage due to discrimination	Productivity Differential
$\Omega = I$	0.0.333	70.6%	0.139	0.932	81.7%	0.209
EDU			0.001			-0.011
EXP			0.063			0.024
DAYS			0.186			0.080
LHOURS			-0.095			0.120
$\Omega = 0$	0.154	32.7%	0.318	0.922	80.9%	0.218
EDU			0.019			0.002
EXP			0.167			0.018
DAYS			0.230			0.072
LHOURS			0.070			0.125
$\Omega = 0.5 I$	0.244	51.6%	0.228	0.927	81.3%	0.213
EDU			0.011			-0.005
EXP			0.115			0.021
DAYS			0.208			0.076
LHOURS			-0.012			0.123
$\Omega =I_m I$	0.245	51.9%	0.227	0.927	81.3%	0.213
EDU			0.011			-0.004
EXP			0.114			0.021
DAYS			0.208			0.076
LHOURS			-0.013			0.123
$\Omega=(X'X)^{-1}$	0.209	44.3%	0.263	0.886	77.7%	0.254
EDU			0.012			0.004
EXP			0.104			0.064
DAYS			0.238			0.073
LHOURS			-0.034			0.130

Assuming that the women's wage structure prevails in Murshidabad, it appears from Table 9 that the contribution of productivity differential to gender differential in earnings is 67.3 percent, which is much higher than what we obtained by applying the earlier method. Following Reimer's and Cotton's and Neumark's methodology discrimination was found to be less than that

estimated by the Oaxaca methodology based on the assumption that men's earning structure prevails (the discrimination component of earnings differential is 51.6 percent, 51.9 percent and 44.3 percent following Reimer's, Cotton's and Neumark's methodology, respectively).

From Table 9 it further appears that, compared to Murshidabad the discrimination component in South 24-Parganas is more, following all the five methods. Contribution of DAYS and LHOURS constitutes the major portion of the component of productivity differential. Thus men's longer working hours per day and larger number of days worked in a year together account for more than two-thirds of the characteristics portion of the differential. However, the interpretation of discrimination in South 24-Parganas should be done with caution. Here discrimination is not due to wage discrimination but largely due to occupational segregation within tailoring. But in Murshidabad, the nature of job within bidi-rolling is similar for men and women. Hence discrimination is not due to occupational segregation.

9. Conclusion

This paper had three objectives: first, to explain the behaviour of female work participation in specific areas in West Bengal where limited opportunities in agriculture force women to seek non-farm work of a kind that suits their very little formal education and the demands of household chores; second, to identify the variables explaining differential in earnings by men and women; and third, analyzing whether any gender discrimination in earnings is present. An analysis of the block level data from the Census of India reveals that in West Bengal higher the percentage of Muslims in the population lower is the female work participation. However, a few outliers are observed which are characterized by very high incidence of home-based work. Keeping in mind this fact we have drawn samples from four blocks of two districts of West Bengal viz., Murshidabad and South 24-Parganas, which have high percentages of Muslim population and major occupations are categorized into the class of household-based industries.

To explain the behavoiur of work participation, we have estimated a probit model. Findings from the estimated model show that as age increases the probability to participate in work by women increases but at a decreasing rate both in Murshidabad and South 24-Parganas. Ownership of cultivable land reduces the probability of participation by women in Murshidabad, and higher the level of education lower is the probability to participate in work by women. Education and decision to work are, however, not related in South 24 Parganas. In South 24 Parganas we observe that the higher level of education i.e., completed secondary or above, by head of the household reduces the probability of women's work participation which is probably due to the fact that the head of the household's educational level proxy for family income.

In order to identify the variables explaining differences in earnings between men and women we have estimated the earnings functions by both the OLS method and the Heckman selectivity corrected method. For both Murshidabad and South 24-Parganas we find that higher the number of days worked higher is the monthly earning for men and women. On the other hand, longer the working hour per day higher are the monthly earnings for men in Murshidabad and both for men and women in South 24-Parganas. In Murshidabad we find that average monthly earnings for men and women belonging to the Muslim and backward caste community are less, which implies a kind of discrimination in labour market. In Murshidabad married men earn more than unmarried men, which is expected. But this relationship for married women is reverse in Murshidabad only. Education appears to have a positive significant effect on monthly earnings for both men and women in Murshidabad. But this relationship is reverse for men in South 24-Parganas. Finally, experience is found to have a quadratic relationship with earnings for both men and women in Murshidabad and for men only in South 24-Parganas.

Earnings differential between men and women is decomposed following Oaxaca and Oaxaca and Ransom methodologies to derive estimates of gender discrimination in earnings. Results suggest that very low percentage of men and women earnings

differentials is attributable to productivity differential or differentials due to characteristics in both Murshidabad and South 24-Parganas and the gap is largely due to discrimination. However, the discriminatory component of earnings gap appears to be considerably greater in Murshidabad than in South 24 Parganas. However the decomposition exercise should not mislead us to ignore the fact that the earning differential itself is not large enough either in Murshidabad or in South 24 Parganas. The overall earning differential between men and women in the two areas is found to be relatively narrower compared to the findings of earlier studies elsewhere (Kingdon and Unni, 2000), and as such the 'pure discrimination' component is also somewhat moderate. This leads us to conclude that even in areas where home-based work is highly predominant and women's representation in this type of work is significantly higher than that of men, it cannot be said that men enjoy much better work opportunities. Both men and women seem to be engaged in types of work that are low-skill low earning type – no matter whether it is home-based or not.

References

Anker, R. (2001) "Theories of Occupational Segregation by Sex: An Overview". In: M.F. Loutfi (ed.) *Women, Gender and Work: What is equality, and how do we get there?* Geneva: ILO: 129-155.

Appleton, Simon, John Hoddinot and Pamela Krishnan (1999) 'The Gender Wage Gap in Three African Countries', *Economic Development and Cultural Change*, 47(2).289-312.

Bagchi, J. and A. Mukhopadhyay (1996) *Child Labour in* Beeri *Industry: Murshidabad District in West Bengal.* Unpubd. Report. Sponsored by Ministry of Labour, Govt. of India. School of Women's Studies, Jadavpur University, Kolkata.

Blau, Francine D. and Lawrence M. Kahn (2000) 'Gender Differences in Pay' *Journal of Economic Perspectives*, Fall, 75-99.

Blinder, Alan.(1973) Wage Discrimination: Reduced Form and Structural Estimates, *Journal of Human Resources*, 8(4), 436-455, Autumn.

Cotton, Jeremiah (1988) 'On the Decomposition of Wage Differentials', *Review of Economics and Statistics*, 70(2), 236-243.

Das, Maitreyi Bordia and Sonalde Desai (2003) 'Why are Educated Women Less Likely to be Employed in India? Testing Competing Hypotheses', Social Protection Discussion Paper, World Bank, Washington D.C.

Dharmalingam, A. (1993) 'Female Beedi Workers in a South Indian Village', *Economic and Political Weekly*, XXVIII (27 & 28), July 3-10: 1461-1468.

Glewwe, P (1990) 'Schooling, Skills and the Returns to Education: An Econometric Exploration using Data from Ghana', Living Standard Measurement Working Paper no. 76, World Bank, Washington, D.C.

Glick, Peter and David E. Sahn (1997) 'Gender and Education Impacts on Employment and Earnings in West Africa: Evidence from Guinea', *Economic Development and Cultural Change*, 45(4), July, 793-823.

Heckman, James J. (1979) 'Sample Selection Bias as a Specification Error', *Econometrica*, 47(1), Jan., 153-161.

Kabubo-Mariara, Jane (2003) 'Wage Determination and the Gender Wage Gap in Kenya: Any Evidence of Gender Discrimination?', AERC Research Paper no. 132, African Economic Research Consortium, Nairobi.

Kingdon, G.G. and J. Unni (2001) 'Education and Women's Labour Market Outcomes in India' *Education Economics*, 9(2); 173-195.

Lee L.F. (1983) 'Generalized Econometric Models with Selectivity', *Econometrica,* 51, 507-512.

Oaxaca, Ronald (1973) 'Male-Female Wage Differentials in Urban Labour Markets', *International Economic Review*, 14(3), October, 693-709.

Oaxaca, Ronald and Michael Ransom (1994) 'On the Discrimination and Decomposition of Wage Differentials, *Journal of Econometrics*, 61(1), 5-21, March.

Papola, T.S. (1986) "Women Workers in the Formal Sector in Lucknow, India". In: R. Anker and C. Heine (ed.) *Sex Inequalities in Urban Employment in the Third World*, Macmillan, London: 171-212.

Paternostro, Stefano and David E. Sahn (1999) 'Wage Determination and Gender Discrimination in a Transition Economy: The Case of Romania', World Bank Policy Research Working Paper No. 2113, World Bank, Washington, D.C.

Reimers, Cordelia (1983) 'Labor Market Discrimination against Hispanic and Black Men', *Review of Economics and Statistics*, 65(4), 570-579, November.