

SOCIAL DEVELOPMENT PAPERS

SOUTH ASIA SERIES



Paper No. 97/ June 2006

Do Traditional Axes of Exclusion Affect Labor Market Outcomes in India?

Part I: Female Labor Force Participation
And the Effects of Gender

Part II: Caste, Ethnicity and the Indian Labor Market

Maitreyi Bordia Das

Originally written as a background paper for the India Labor and Employment Study. The author is grateful to Sergiy Biletsky for superb research assistance and to early comments from Ahmad Ahsan and Carmen Pages and to members of the authors group who attended the videoconference on September 19, 2005.

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Summary Findings

In India, caste and gender have historically been the two axes of stratification responsible for the major inequalities in access - in as diverse areas as education, health, technology, and jobs. Both axes of stratification are supported by a ritual ideology and a complex set of social norms. The aim of this chapter is to understand to what extent these axes have a bearing on employment. It is divided into two parts – Part I addresses why women's labor force participation rates have been falling in an era of rapid economic and educational growth. Part II addresses the issue of exclusion in the labor market based on traditional caste and tribal status and assesses the changes that have taken place over almost two decades. The two papers draw on the sociological literature on caste and the demographic, economic and feminist literature on women's employment. Data for the empirical analysis comes from four thick rounds of the employment modules of the National Sample Surveys from 1983 to 1999-2000. Using varied sociometric methods, the papers attempt to build a conceptual and analytical framework which adds to the existing body of labor market analysis on gender and caste in India.

Results from the analysis in Part I indicate that for women, low opportunity structures are responsible for low labor force participations rates - consistently under 40 percent. In a pattern peculiar to India and Pakistan, education lowers the likelihood of participating in the labor force for women, and entry into the labor market is the critical marker of Indian women's employment trajectories. Not surprisingly, for wage workers, higher education is associated with higher wages. Marriage is near-universal and depresses labor force participation, with husband's income having a significant negative effect on married women's labor force participation. When this income effect is not offset by the possibility of high status jobs and wage equality for educated women, they remain out of the labor force. Casual female workers earn about half the wages that men do, and only a little over one-fourth of this gap is explained by differences in endowments, indicating that wage discrimination is probably an important factor discouraging entry into the casual labor market. Women that do enter this market thus have very low bargaining power.

Analysis in Part II suggests that the effects of caste alone, controlling for a number of household, individual and regional characteristics, really plays out in the form of an increased likelihood of SC/STs being in casual labor and their reduced chances of being in off-farm self-employment. In regular salaried work – which is still predominantly in the public sector and where reservation policy operates - there is an advantage to SC/ST status in urban areas. However, interaction terms denoting the multiplied effects of caste and education, indicate that SC men suffer a disadvantage in regular salaried jobs if they have post-primary education. This is a corollary of an increasing supply of educated SC men over time, and an otherwise efficient reservation policy, creating a system of rationing of jobs for SCs, who cannot compete in the non-reserved salaried job market. This has implications for the structure of the reservation policy, which may in fact be penalizing educated SC men and fostering an elite within them as the anecdotal evidence on “creamy layer” suggests.

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Part I: Female Labor Force Participation and
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Foreword

Today we live in a world of sharp contrasts. There has been great progress in human and economic development. At the same time, deep-seated social and political imbalances continue to constrain opportunities for many of the world's poor. With more than a billion people living on less than a dollar a day, the gap between rich and poor is wide. Millions are also affected by war and other forms of violence, discrimination, or political exclusion. The Social Development Department at the World Bank works to incorporate an understanding of these social, institutional and political factors into development policies, projects and institutions to secure better outcomes on the ground for poor people.

With the goal of empowering poor and marginalized women and men, social development is a process of transforming institutions for greater inclusion, cohesion and accountability. There is a need, therefore, to understand better the social context of the country and the factors that drive societies, as well as the needs and priorities of poor people. Poor people's own voices tell us that poverty is more than low income—it is also about vulnerability, exclusion and isolation, unaccountable institutions, and powerlessness.

This *Working Paper Series* disseminates the findings of on-going social development analysis and practice at the World Bank. Topics include participation and civic engagement, conflict prevention and reconstruction, community-driven development, and social analysis and policy. These reports have had an important impact in disseminating cutting edge research and experience and among development practitioners, governments and civil society across different regions of the world.

In this context, we are pleased to introduce a subset of social development working papers from the South Asia region. The South Asia papers capture the policy shifts in the region that are aimed at transforming institutions towards greater inclusion and empowerment of poor people. Each of these papers dwells at some length on the broader policy context of these changes, and is a testimony of the extent to which Social Development has entered the discourse on policy and on transformation of key institutions. The papers cover a range of important topics, from how traditional axes of exclusion (across caste and gender lines) affect labor market outcomes, to a new understanding of one of India's largest anti-poverty programs. The papers often challenge conventional notions of poverty reduction and provide alternative ways of thinking about policy reform. In particular, many of the papers look at how the local state can play a more inclusive and accountable role in the development process to secure better outcomes for the poor. This critical look at the relationship between the state and citizens is an important part of South Asia's Social Development agenda.

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Acknowledgements

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Executive Summary

Women's labor force participation in India has been flat despite high rates of growth, and even shows a slight decline from the 1980s to the late 1990s. Multivariate analysis at the household level shows that for men, the likelihood for being in the labor force increases with education but for women there is a significant decline with higher levels of education, substantiating previous analysis (Das and Desai, 2003). Moreover, rural women tend to face a higher "education penalty" than urban women, and for both urban and rural women, demographic variables such as age, childcare responsibilities and marital status, have significant effects in the expected directions. Also in keeping with the literature, southern and western regions are associated with much higher participation of women in the labor market.

Explanations: Two kinds of explanations have been articulated for Indian women's low labor force participation – the first is a supply side argument which postulates that the supply of well-paying, secure jobs for educated women is low. Hence educated women, who also belong to the higher socioeconomic strata, prefer to opt out of the labor force, rather than accept low status (manual) jobs. The second - demand side argument - rests on cultural mores and values of status and seclusion in the region which may prevent higher status households from allowing women to go out and work or demanding jobs. Family honor in most parts of India for instance, rests on women's restriction to the home, thus affecting their ability to work outside the house (Chen, 1995).

Testing for possible reasons: In this paper, we test for two important reasons for women's low labor force participation: an income effect, using husband's earnings as proxy; and a discrimination effect, decomposing wages of casual wage workers. For the former, the analysis finds that both husband's education and wages lower the probability of women being employed. However, after controlling for husband's income, women's post-primary education does indeed have a positive correlation with women's labor force participation. In fact, it takes a U form – with high labor force participation by uneducated women, falling to the lowest with primary completed education and rising again with post-primary education. All analysis is based on a pooled data set from the employment modules of the "thick rounds" of the National Sample Survey – the most reliable and nationally representative data available.

Thus, women with higher education perhaps stay out of the labor force due to an income effect. In the absence of regular salaried jobs, the only options available to them are in low-status, low-paying manual work, especially in rural areas – such as work on family farms, as petty vendors, domestic servants or daily laborers. In the face of such unsuitable employment opportunities, households decide to withdraw female labor if there is another earning member. (If women are household heads, they are more likely to be employed). Since educated women are usually married to educated men and are likely to have some financial resources, and instead of accepting poorly paid jobs as casual wage workers, they stay out of the labor force.

The analysis also tested for a discrimination effect in the casual wage labor market – the largest employer in India - based on the claim of feminist activists who have documented discrimination against female casual laborers. Some of the earliest work that was documented by the Women's Development Program in Rajasthan and by Shram Shakti (1988) is a stark testimony to this. Since then, an entire body of reports, qualitative work and micro studies have continued to document this. More recently, the Report of the Second National Commission on Labour (2002) comments at length on women's disadvantage in especially informal sector work and their low remuneration. Based on a simple Oaxaca-Blinder decomposition from 1999-2000 data, the analysis finds that 27.5 percent of the difference in casual wages

between men and women is explained by endowments and the rest or 72.5 percent is due to unexplained factors of which discrimination is probably a good part. The fact that less than 50 percent of uneducated women, but over 97 percent of uneducated men participate in the labor force is perhaps explained by some discrimination against women in the casual labor market both at entry and in wages. Since uneducated workers probably cannot afford to buy leisure, this may point to a kind of “discouraged worker” effect.

Thus, not only among the educated, but also among the uneducated, women would prefer to stay out of a discriminatory labor market if another member is earning. It is important to note here that in the United States, during the post-World War II period, the increased labor force participation of married women is explained by the fact that an increase in women’s own wages trumped the negative effect of husband’s wages on labor force participation. Thus, when women’s wages rose, this substituted for the income effect of men’s wages (Mincer, 1962 cited in Blau, 1998).

Women’s employment preferences: Women who do not enter the labor force predominantly work within the home¹. Descriptive statistics from various rounds of the NSS show that over 92 percent of women doing domestic work say that it is from compulsion. Of these, over 65 percent say it is because there is no other member in the household who will take on these duties. *The responses do not vary by educational status.* However, almost one-third of the women who do only domestic work, would like to be employed - primarily in regular part-time jobs. Again, there is little variation by educational level. Thus, a combination of norms that determine a woman’s place in the home and lack of appropriate employment opportunities seem to relegate women out of the labor force.

Policy Implications: From the analysis of household level factors, some policy conclusions seem to emerge. Policies to encourage women’s entry into the labor force need to address the needs of educated as well as uneducated women.

1. The first step toward better policy is to understand better the manner in which discrimination takes place. At the moment we have anecdotal evidence of types of discrimination. We know from documented case studies that aggregate-level “discrimination” probably constitutes a large share of the “unobserved” part of the male-female wage gap in casual labor. However, we are less clear about type of work women are assigned and other factors. We also do not have an idea of the extent to which hiring authorities consciously discriminate. Policy makers also need to take a fresh look at minimum wages and whether lower wages set for women may actually be harming women in the labor force.
2. Enforcement of equal pay for equal work (as mandated in the Constitution) especially in the casual labor market and galvanizing the legal system to respond to complaints about its infraction.
3. Since both wages and labor force participation (controlling for other members’ income) are responsive to higher education, one key recommendation is for policy to focus on higher and technical education for women. It is likely that quality of education and lack of technical skills are hampering women’s entry at full potential into the new services sector. For this, a policy that links technical education with labor market demands would be important.
4. Since the majority of women are employed in agriculture or agriculture based occupations, policy also needs to address issues that would enhance women’s productivity in the agricultural sector.

¹ Within the home, women undertake a range of activities that contribute to the economic welfare of the household and these are listed in the survey.

5. Almost thirty percent of Indian women would like to enter the labor force (Figure xx) but as part-time workers. Thus, flexibility of part-time work needs also to be promoted by policy in regular salaried jobs.
6. For casual laborers, the opportunity cost of foregoing a paid job is offset by child care needs in the home, which is perhaps why an overwhelming 92 percent of women say they work on the home due to “compulsion”. Thus, possibility of more efficient, well-regulated child care arrangement would also encourage women’s entry into the labor force.

Part I: Female Labor Force Participation and the Effects of Gender

DEFINING THE CONUNDRUMS

Women's labor force participation in South Asia is low compared to developing country standards, and India is no exception. Participation rates for women in the region range from about 16 percent in Pakistan, 23 percent in Bangladesh, 40 percent in Sri Lanka, to over 78 percent in Nepal, while male participation rates are comparable to levels in other parts of the world (World Bank, 2004). In India especially, in spite of robust growth rates, female labor force participation rates have remained stubbornly flat (Table 1). Further, since agriculture is the predominant avenue for employment, over two fifths of rural women participate in the labor force, but in urban areas despite higher levels of education, less than one-fourth of the women are in the labor force (Table 2). This indeed is one of the key conundrums of development policy and one that defies explanation through standard theories of labor force participation.

Low human capital skills and educational attainment are routinely implicated (see for example, Schultz 1994) in low labor force participation rates, but when we apply this argument to Indian women, the conundrum becomes more complex. Although the strength of the relationship between education and employment varies across countries, approaching insignificance in some cases (e.g. for Brazil see Lam and Dureya, 1999), India and Pakistan are unique in recording a negative relationship between women's education and labor force participation. In India, overall female labor force participation rates for the age-group 15-59 have hovered around 32-36 percent, with little change over the last decade and a half. On the other hand, at the aggregate level, between 1983 and 2000, women's secondary school education has more than doubled, and economic growth has been robust. ***What is perplexing is the fact that for individual women, with increasing educational level, labor force participation rates seem to decline, even if we take students out of the sample.*** This has been pointed out by some recent studies which suggest that ceteris paribus, labor force participation of women declines with education (Kingdon and Unni, 1997; Fafchamps and Quisumbing, 1999, Das and Desai, 2003).

Table 1: India: Labor Force Participation Rates for Men and Women 1983-2000

Year	Age 15-59		Age 25-55	
	Male	Female	Male	Female
1983	88.9	35.8	97.6	38.7
1987-88	87.6	36.5	97.7	39.9
1993-94	86.9	32.9	97.8	36.3
1999-2000	85.9	32.7	97.3	36.8

Source: Author's calculations from NSS various years

The second axiom in the literature is that there is an inverse correlation between fertility and women's employment, although the direction of causality is unclear. In other words, "maternal role incompatibility" prevents women with small children from entering the labor market and once this constraint is resolved (either through lowered fertility or through alternative childcare arrangements) women's entry into market work is facilitated. Here, as in the case of education, too there has been remarkable progress. At the aggregate level, in the period 1981 to 2000 the total fertility rate in India

declined from 4.2 children per woman (Census 1981) to 3.2 (SRS figures)² and India is on a path of steadily declining fertility. Even so, we do not see in the aggregate an increase in the labor force participation rate for women. The data do not allow us to explore the links between fertility and employment in this paper, but it is important to set this issue in context while defining the conundrums.

Table 2: Labor Force Participation Rates by Residence and Gender – 1983-2000

Category	Percent in the Labor force
Rural Men	97.81
Rural Women	42.77
Urban Men	97.05
Urban Women	22.57

Source: Author's calculations from NSS various years

Table 3: Allocation of Men and Women to Various Employment Types – 1983-2000

Employment Type	Men	Women
Regular Salaried	19.83	3.38
Non-farm self-employed	18.01	4.43
Self-employed farmers	30.80	14.22
Casual wage workers	27.65	15.26
Out of the LF & unemployed	3.72	62.72

Source: Author's calculations from NSS various years

This paper addresses the major paradoxes in the Indian labor market with respect to women's employment and questions the extent to which one of the key axes of stratification and exclusion –gender – affects labor market outcomes. **Its aim is to advance the understanding of low and declining female labor force participation, in the wake of better schooling and robust economic growth.** The paper is divided into six sections. The present section is Section 1 – which introduces the conundrums and key questions. Section 2 places this work within a regional South Asian context. Section 3 lays out the sources of data, makes conceptual clarifications and describes the analytical method. Section 4 presents the results of the analysis on determinants of labor force participation for men and women. Results on wage employment and wages are presented in Section 5. We test whether the Indian labor market discriminates against women through a test on differential wages between men and women in Section 6. The final section is a summary of the main findings and policy recommendations.

GENDER GAPS IN EMPLOYMENT: THE SOUTH ASIAN CONTEXT

The section draws from literature from diverse disciplines such as economics, anthropology and sociology to explain reasons for low female employment for South Asia, but finds little conclusive evidence to explain the patterns. There does appear to be a chasm between explanations that rest on women's low human capital endowments and those that draw on cultural norms that inhibit women and structural conditions that may discriminate against them in the labor market. As pointed out earlier, human capital theories focus on women's lower educational endowments and commitment to the labor market, and point

² Source: MOHFW – accessed on August 31 2005 from <http://mohfw.nic.in/dofw%20website/Health%20&%20Poulation%20Indicators/hpi%20frame.htm#b7>

out that returns to education for women tend to be higher than those for men. However, the relationship between education and employment for women in South Asia contradicts this. This section summarizes the main characteristics of women's work in South Asia, based on various strands of the literature, and the explanations put forth for low female labor force participation.

Women are concentrated in agriculture: Table 4 shows the sectoral composition of employment by gender. Across the region, women are much more likely than men to work in agriculture. They are thus more likely to be employed in rural compared to urban areas. Manufacturing tends to employ a fairly equal share of men and women, but trade tends to be male-dominated in South Asia, unlike in many other parts of the world.

Table 4: Sectoral composition of employment by gender

	Bangladesh		India		Nepal*		Pakistan	
	M	F	M	F	M	F	M	F
Agriculture/ Fisheries	54.3	75.7	53.1	74.8	67.1	85.2	36.0	64.2
Mining	0.4	1.1	0.7	0.3	0.1	0.0	<0.01	<0.01
Manufacturing	7.2	7.7	11.5	10.1	7.7	3.9	14.0	14.6
Utility	0.3	0.2	0.4	0.0	0.5	0.0	1.0	<0.01
Construction	2.9	0.5	5.7	1.7	6.2	1.1	7.5	0.3
Trade, Hotel, & Restaurant	18.0	2.5	13.1	4.3	7.3	3.7	17.3	1.9
Transport, Storage, & Communications	7.2	0.4	5.2	0.4	2.7	0.1	7.3	0.4
Finance & Business	1.0	0.2	1.6	0.5	0.9	0.2	1.1	<0.01
Community, Social, & Personal Services*	8.8	11.9	8.7	7.9	7.5	5.6	15.7	18.4
	100	100	100	100	100	100	100	100

Note: 1 Includes domestic occupations such as domestic household work, etc.

Source: Bangladesh: Salmon (2000); India: National Sample Survey Organization (2002); Maldives:

The importance of agriculture gives credence to the U hypothesis: One explanation for women's low labor force participation in South Asia rests on the classic "U" hypothesis, which postulates that in the aggregate, female participation rates tend to be higher when an economy is organized around family-based production in agriculture. With economic growth and increased urbanization, participation often declines as women stay at home and men go out to work. At still higher levels of income per capita, female participation rises again as labor market options for women increase (World Bank, 1995). In response, others have pointed out that in the case of India in particular, unlike South East Asian countries, there has been no "feminization" of the work force with increasing levels of GDP. In fact, Indian women have remained "at the bottom of the U" in terms of labor force participation over several decades, in spite of steady economic growth (Das and Desai, 2003).

Traditional surveys measuring employment underestimate women's employment: One of the abiding contributions of feminist analysis of labor markets has been to point out under-measurement of women's labor force participation and their economic roles. Men's and women's employment trajectories are quite distinct, and women are more likely to be in part-time employment, market work from the home, or to take up work during periods of crisis. Standard labor force surveys often fail to capture these elements³. Thus, women's employment is often under-reported and under-enumerated. Other factors such as timing of survey can also affect measurement of women's workforce participation, especially in South Asia, where women tend to take up paid work during periods of drought. Thus, it is likely that women's

³ For details see Beneria 1982 and Folbre 1995. For under-measurement using NSS data, see Hirway, 2002.

employment is actually higher than is reported, and even analyses that use standard surveys (such as this one), but which rely on full-time usual status activity tend to underestimate women's employment.

South Asia is beset by cultural norms of seclusion that may affect women's employment: Cultural norms that govern women's mobility and market work play a very significant role in women's employment. These norms operate at multiple levels and often mirror the status of women in a particular region, caste, or religion, permeating the household as well as the public sphere and in that sense affecting both the supply of female labor as well as demand for it. Thus, there are significant differences in labor force participation of women by region, ethnicity, religion and social status: female labor force participation rates are extremely low in north India and Pakistan, and relatively higher in southern India. The practice of *purdah*, prevalent in Muslim societies, but also pervading Hindu areas, is also related to the ethos of seclusion across the region (again barring several South Indian states and Sri Lanka). While these norms are more lax among women from SC/STs, the term "Sanskritization" has been used to describe the aspiration by the "lower" castes to acquire higher status through emulation of cultural and religious norms of the "higher" castes, which includes controls on women's mobility and market work⁴.

But within countries there are significant ethnic and regional variations: In spite of a broad set of common gender norms, there is a great diversity within countries based on region and ethnicity in female labor force participation. For instance, In Sri Lanka, Indian Tamil women are more likely to be employed, but they are usually poor estate laborers and cannot afford the luxury of unemployment. On the other hand, open unemployment among Sinhalese women is very high, and Sri Lankan Tamil are somewhere in between (Das and Heltberg, 2005). In India, while Scheduled Castes and Scheduled Tribes (SC/STs) are generally disadvantaged in the social structure, restrictions on *women* are less marked than on upper caste women (Beteille, 1991; Agarwal, 1994). Among non-SC/ST, keeping women within the confines of the home is an assertion of status and honor, while among non-SC/STs, ritual purity, absence of widow remarriage and women's seclusion are important in asserting high status. Among SC/STs, poverty drives women's participation in the labor force and norms of seclusion are lax, allowing them greater mobility and ability to access market work. Thus, many ethnic minorities are also more likely to be poor, and poverty drives female labor force participation across the region.

Caste, ethnicity and class also interact with region and growth patterns to produce region-specific patterns of labor force participation. Thus, in rural north India, high caste Brahmin and Rajput women will seldom go out to work, but SC/ST women are usually employed outside the home (Agarwal, 1994). In southern India women's participation in the labor market is markedly higher than those in other areas. Thus, each Indian state/region produces its own peculiar patterns of female labor force participation, which are a mix of cultural norms and structural opportunities. This is also true in Bangladesh, Nepal, Pakistan and Afghanistan.

Behavior of the labor market – "glass ceilings" and "glass walls" Although research on demand for female versus male labor is limited, some evidence suggests that low participation rates of educated women are caused not merely by cultural norms of status and seclusion, but in large part by lack of labor market opportunities for educated women (Kingdon and Unni, 1997). The behavior of the labor market also drives households' labor supply decisions in other ways. For example, evidence from rural Nepal indicates that girls engage in own-household domestic work not because of parental discrimination but

⁴ See box 1 in the companion paper "Caste, Ethnicity and the Indian Labor Market"

because they have a comparative advantage over boys in such work (Edmonds, 2002). Also, evidence from some areas in rural Bangladesh points out that women engage in own-home self-employment because the economic payoffs may be higher than (typically low-paying) wage-work (Khandker, 1987). However, occupational gender differentiation is so well entrenched that women's entry into "non-female" trades and professions tends to act as "glass walls" against diversification of occupations by women.

DETERMINANTS OF LABOR FORCE PARTICIPATION

This section presents the results from the descriptive, bivariate and multivariate analysis of labor force participation of men and women over the period 1983 to 1999-2000, with the results reported in Appendix table 3.

Key Results

- *For men, the likelihood for being in the labor force increases with education but for women there is a significant decline in labor force participation rates with higher levels of education. This is the most significant finding and is in keeping with recent work by the author.*

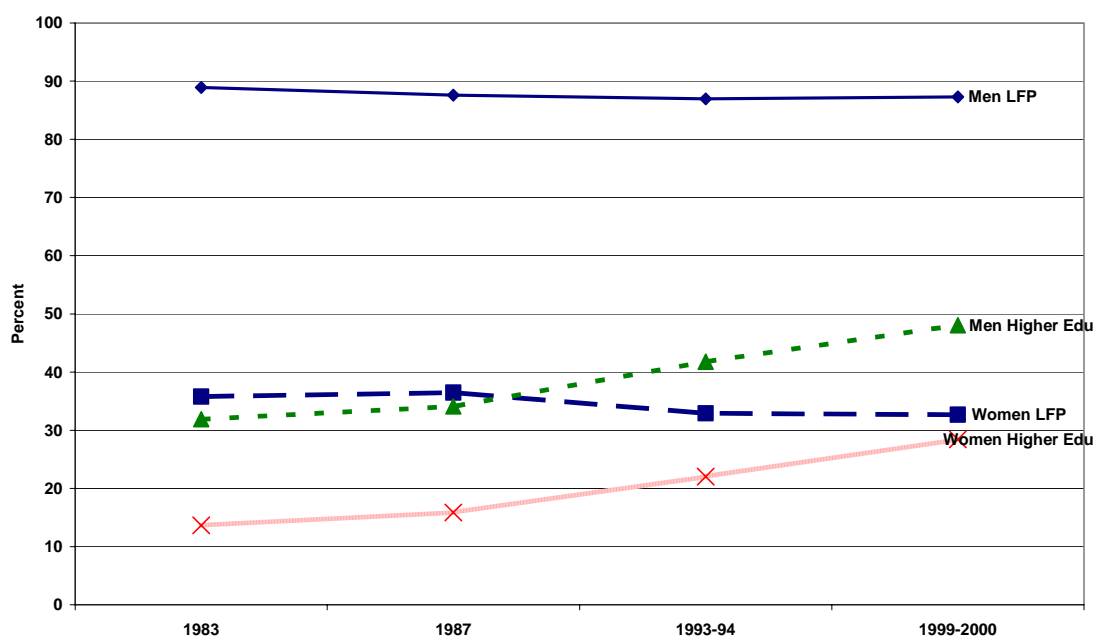
Rural women face a higher "**education penalty**" than urban women.

- *In urban areas, 1999-2000 is associated with a lower likelihood of labor force participation compared to 1983, after controlling for individual and household characteristics, and the effects are stronger for men than for women.*
- *Demographic variables such as age, childcare responsibilities and marital status, have significant effects in the expected directions.*
- *Southern and western regions are associated with much higher participation of women in the labor market, also in keeping with the literature on the subject.*

Women's labor force participation declines with education: One of the most dramatic developments affecting the Indian labor market has been growth in post-primary education for both men and women. While the proportion of the population with college education is still very small⁵, secondary school education is responsible for the growth evidenced in figure 2. In contrast, labor force participation rates among 25-55 year olds have declined from 36 to about 33 percent for women but remained stable for men at around 87 percent. At the bivariate level, we find that for men, there is little difference in labor force participation by education level, but for women there is a significant decline with higher levels of education. Thus, almost half of uneducated women but less than one fourth of women with higher education are in the labor market.

⁵ Only 4 percent of all women and less than one percent of rural women have college education in the analytic sample.

Figure 1: Trends in Labor Force Participation and Higher Education 1983-2000 for Individuals aged 25-55

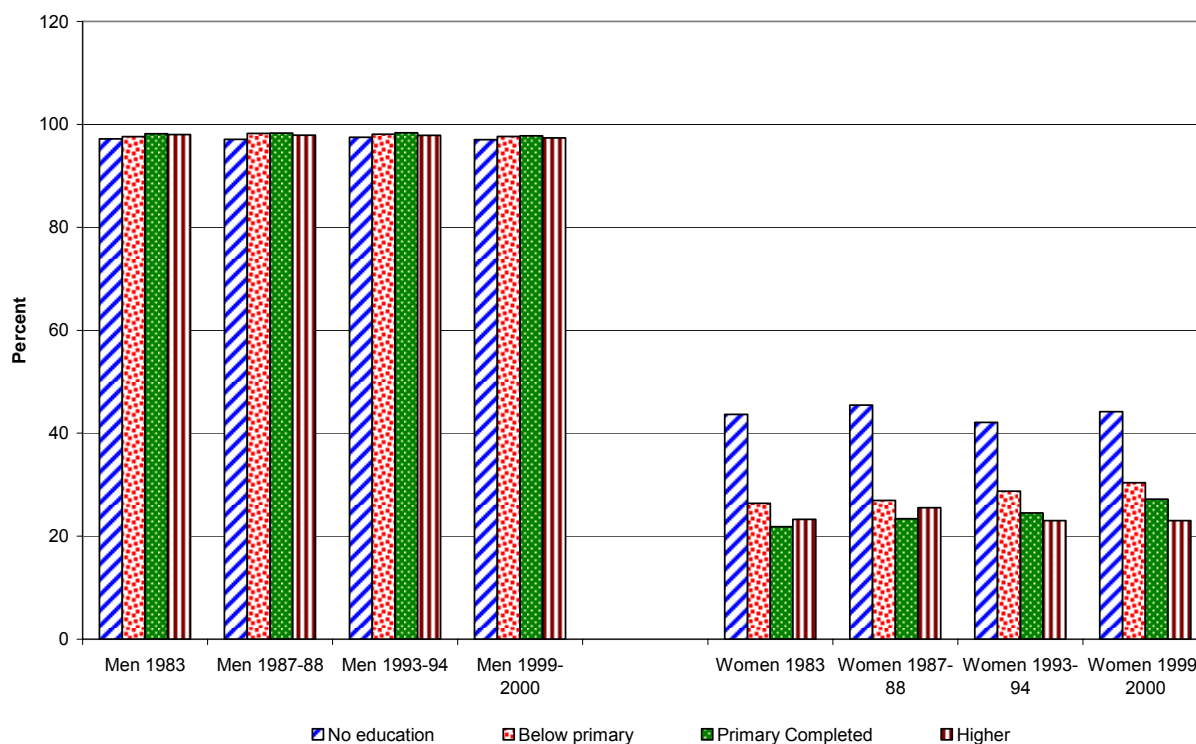


Source: Author's calculations from NSS various years

When we control for demographic and caste factors, we find that the relationship between education and declining labor force participation holds at the multivariate level for women as well. Less than 48 percent of all women with secondary education and beyond are likely to be in the labor force compared to uneducated women (Panel 2 in Appendix Table 3). When the multivariate analysis is disaggregated by residence, we find that **rural women face the “education penalty” more than urban women**. While urban women with post-primary education are 73 percent as likely as their uneducated counterparts to be likely to be in the labor force, this proportion declines to only 35 percent for rural women (Panel 4 and 6 in Appendix Table 3).

For men, the likelihood for being in the labor force increases with education, and this effect is higher in urban areas. We draw on another analysis (Das and Desai, 2003) which shows that labor force participation declines as education increases for men *aged 20 to 30*, with the greatest negative effect for men with post-primary education. These men probably represent the often remarked upon group of “educated unemployed youth” - queuing to find a suitable white collar job. A wait of 2-3 years to find a suitable government/salaried position is fairly common. After the age of 30, men either find what they are looking for or give up waiting for a formal sector job and accept whatever job is available. In contrast, the negative relationship between education and women’s labor force participation persists at all ages. Over time, the likelihood of being in the labor force increases for rural men in 1993-94 compared to 1983. For urban men, there is a statistically significant decline (to the tune of 78 percent) in labor force participation in 1999-2000, compared to 1983.

Figure 2: Labor Force Participation by Educational Level 1983 – 2000 for Individuals aged 25-55



Source: Author's calculations from NSS various years

Demographic and Household Determinants: Women's labor force participation is most often explained in relation to their household roles and responsibilities. This explanation rests on cultural norms globally which see women in reproductive roles rather than productive ones. Thus, the presence of small children in the household, larger households with greater caregiving and cooking responsibilities may mean that women stay home to attend to domestic duties. In the US the advent of paid childcare and the rise in employment opportunities enabled women to be freed from reproductive responsibilities and enter the workforce in large numbers.

The way in which demographic factors play out in developing and especially South Asian countries is somewhat different. Extended families mean that multiple women within the household share childcare responsibilities, but the ethos of seclusion may also mean that young married women stay in the home if they are able to, but older women go out to work. Figure 2 earlier shows that women's labor force participation peaks between the ages of 35-49 when child bearing responsibilities are completed and social mores no longer place inordinate controls on mobility. Controlling for other factors, presence of children in the household under the age of five, has only a small, though significant depressing effect on labor force participation. The fact that household size does not affect women's labor force participation may indicate that larger households have more women who can share childcare responsibilities, and that household size may be capturing the effect of shared care giving responsibilities for women.

The multivariate analysis shows the importance of other demographic characteristics. Thus, married women and younger women, and women from non-SC/ST households are less likely to participate in the labor force. As expected, women who are household heads are much more likely to be employed. Although women work primarily in agriculture, amount of land the household possesses appears to have no effect on women's labor force participation.

Regional Variations: Earlier we discussed the importance of region in determining the probability of women's employment. Not only are some regions more open in their norms about women's employment, mobility, acceptance of women's visibility in public spaces, but there is also a strong structural dimension that plays out in regional variations. Certain regions – notably the southern states - have benefited more than the northern and central ones from the growth spurt that India has witnessed in the 1990s and beyond. These are also the regions which have had improved women's labor force participation rates, although direct causality cannot be attributed. An analysis of trends in table 5 below indicates that over time, most regions have seen a decline in women's labor force participation. This decline is particularly evident in the northern states of Himachal, Punjab, Haryana, Rajasthan, Delhi and Chandigarh. Southern states on the other hand, seem to have witnessed a slight increase in women's labor force participation, but the north-eastern states, which had very low rates in the 1980s appear to have seen the greatest positive change.

Table 5: Labor Force Participation Rates by Region and Gender – 1983-2000

	Central		North		South		East		West		North East	
Year	male	female	male	female	male	female	male	female	male	female	male	female
1983	97.9	34.2	97.2	20.3	97.4	49.5	97.9	23.6	97.5	50.9	97.3	19.2
1987-88	97.9	33.9	97.8	21.9	97.4	52.5	98.1	24.9	97.5	52.9	97.1	18.4
1993-94	98.0	29.2	97.3	17.7	97.4	51.0	98.1	22.5	98.0	45.7	97.7	22.7
1999-2000	97.5	31.0	96.8	12.6	97.3	51.7	97.3	22.7	97.4	46.4	96.4	23.9

Source: Author's calculations from NSS various years

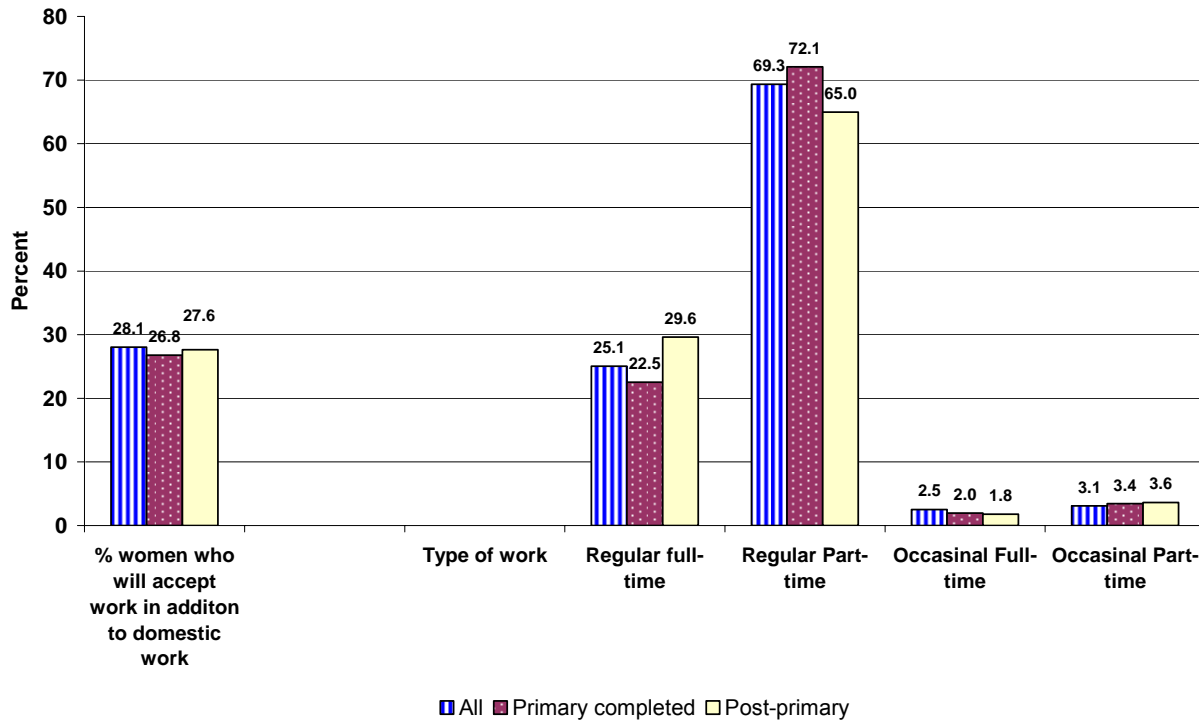
Even after controlling for other characteristics the multivariate analysis shows that women in the southern and western states were each three times as likely as those in the Hindi-speaking central belt to participate in the labor market. However, it is very difficult to separate the effects of stricter gender norms from the effects of poor employment opportunities across regions. What is also important is that after controlling for other factors, there is a huge urban-rural divide in north eastern states with respect to women's labor force participation. While rural women in the NE are only half as likely as women from central states to participate in the labor force, urban women from the NE are more likely to participate. While other regions also have urban-rural differences, nowhere is the distinction as sharp as in the NE.

What do women who are out of the labor force do with their time?

enter the labor force predominantly work within the home⁶. Over 92 percent of women doing domestic work say that it is from compulsion. Of these, over 65 percent say it is because there is no other member in the household who will take on these duties. ***The responses do not vary by educational status.*** However, almost one-third of the women who do domestic work alone, would like to be employed - primarily in regular part-time jobs. Again, there is little variation by educational level. Thus, a combination of norms that determine a woman's place in the home and lack of appropriate employment opportunities relegate women out of the labor force.

⁶ Within the home, women undertake a range of activities that contribute to the economic welfare of the household and these are listed in the survey.

Figure 3: Aspirations of Women (aged 25-55) Currently Doing Domestic Work Only by Educational Status 1983 - 2000



Source: Author's calculations from NSS various years

Testing for an income effect:

Literature on women's labor force participation, particularly from developed countries, indicates that women's employment decisions are often contingent upon husbands' employment status and earnings (See Cohen and Bianchi, 1999). We test to see if husband's income or employment status affects women's probability of being employed. We hypothesize that husband's income would lower the wife's probability of being employed after controlling for other factors. Educated women are also women with higher socioeconomic status, and would stay out of the labor force because of an income effect. Thus, if we control for husband's income, we would expect that education would increase women's probability of being employed.

Appendix Table 4 presents the results of logistic regressions predicting the probability of being employed for wives of household heads. We find that indeed husband's education as well as his wages lowers the probability of women being employed. Moreover, **after controlling for husband's income, women's post-primary education does indeed have a positive correlation with women's labor force participation.** In fact, it takes a U form – with high labor force participation by uneducated women, falling to the lowest with primary completed education and rising again with post-primary education. Thus, women with higher education perhaps stay out of the labor force due to an income effect (Panel 3 in Appendix Table 4).

In the absence of regular salaried jobs, the only options available to educated women are low-status, low-paying manual work, especially in rural areas – such as work on family farms, as petty vendors, domestic servants or as daily laborers. In the face of such unsuitable employment opportunities, households decide

to withdraw female labor if there is another earning member. (If women are household heads, they are more likely to be employed). Since educated women are usually married to educated men and are likely to have some financial resources, instead of accepting poorly paid jobs as casual wage workers, they stay out of the labor force.

WAGE EMPLOYMENT AND THE GENDER WAGE GAP

- *There has been a remarkable growth in wage employment for all from 1983-2000, but gender gaps persist.*
- *There has been also an increase in nominal wages over the period 1983-2000, but here too, the gender wage gap has remained.*
- *In urban areas, all the effects are magnified in terms of higher wages with education, higher returns for women and a consistent rise in wages associated with survey year.*
- *Decomposition of wages of men and women engaged in casual labor shows that 27.5 percent of the wage differential is explained by observable factors or endowments. The “residual” or “discrimination” component accounts for over 72 percent of the gap.*

Women are less likely than men to be in wage employment: Globally, in developing countries and in South Asia as well, women are less likely than men to be in wage employment (both formal and informal), even where labor force participation rates are high. They are more likely to be in the informal sector. Reviews of self-employment in the informal sector suggest that women also have a higher likelihood of small self-employment ventures which are less lucrative compared to those belonging to men. They tend to have small investment, are often based in the home and have few market linkages. Since social capital and networks are so important to business success, women-owned businesses face a disadvantage since women’s networks are grounded in communities and not in the market. Thus, their wherewithal to access markets is severely constrained (Sethuraman, 1998). “Shram Shakti”, the report of the National Commission on Self-Employed Women and Women in the Informal Sector (GOI, 1988) provided the earliest and most graphic description of India’s informally employed women. For self-employed workers, the report presented a picture of small producers, often disguised wage laborers and home based workers, who either supply their produce to middlemen through informal contractual arrangements and retailing establishments or have their own small vending businesses.

Growth in wage employment but gender gaps remain: While self-employment continues to be predominant in India, there has been a growth in wage employment over the period of a decade and half from 1983 onwards. Particularly since the 1990s, there has been a growth in the share of wage workers and a proportionate decline in self-employment for both women and men. However, there are striking differences between the participation in wage employment across lines of gender. **Only 15 percent of women but over 42 percent of men were wage workers in the late 1990s** (Table 6). The literature on women’s empowerment associated with employment underscores the importance of paid work as the pathway for empowerment, and unpaid work and self-employment associated with household enterprises as having fewer benefits for women’s status and for the well-being of the family (Stephen 2000; Kabeer 2000; Swaminathan, 2004).

Table 6: Growth in Wage Employment 1983-20000

	1983	1987-88	1993-94	1999-2000
Men	19.16	17.77	41.71	42.60
Women	6.37	9.38	14.79	15.27

Note: (% employed in work for cash wages in the last week)

Source: Author's calculations based on NSS various years

Growth in nominal wages but gender wage gap unchanged: There has also been an increase in nominal wages over the period 1983-2000, but the wage differential between men and women has remained almost flat. In clerical jobs – which are mostly in the public sector and where wages (at least in the public sector) do not differ by type or quality of work performed but only by grade and seniority – we find that the unadjusted ratio of female to male wages is close to unity. However, this ratio has declined in favor of men from 1983 to 2000, perhaps with the advent of clerical jobs in the private sector that do not pay solely on the basis of seniority. In other occupations, especially, manual ones, women's wages are about one half that of men's. Since most manual workers have minimal education, and educational status does not affect wages, the wage gap appears to be based on gender, hours worked, skill level and perception of work performed. For instance, even minimum wages are set lower for women than for men – on the assumption that women do “lighter work” as compared to men and wage rates for the same job shows that women often earn half the wages that men do in the same activity (for comparative wages for men and women for the same work/activity, see Appendix Tables 6 and 7).

Education enhances wages more for women than for men: Appendix Table 5 presents results of an OLS regression predicting the determinants of wages. It shows that the effect of education in enhancing wages occurs for all groups, but is higher in urban than in rural areas and higher for women than for men, controlling for skill, number of hours worked and age. Moreover, it is post-primary education that gives the highest returns, in keeping with the literature⁷. In urban areas, all the effects are slightly magnified in terms of higher wages with education, higher returns for women and a rise in wages associated with survey year. Thus, compared to 1983, wages were likely to be higher in 1999-200, controlling for other factors.

Does the labor market discriminate against women? Decomposing the gender wage gap in the casual labor market

Feminist activists working to organize casual laborers have documented for decades now the manner in which the labor market discriminates against female casual laborers. Some of the earliest work that was documented by the Women's Development Program in Rajasthan and by Shram Shakti (1988) is a stark testimony to this. Since then, an entire body of reports, qualitative work and micro studies have continued to document this. More recently, the Report of the Second National Commission on Labour (2002) comments at length on women's disadvantage in especially informal sector work and their low remuneration. However, while policy makers and academics have listened respectfully, yet, in the absence of empirical evidence, it has been difficult to put in place policy recommendations.

⁷ There is a large body of literature that documents women's higher returns to education in the form of earnings, compared to those of men (see Duraisamy, 2000 for India; Gindling et al, 1995 for Taiwan). Higher levels of education are also associated with higher returns (Kingdon and Unni, 1998)

Table 7: Oaxaca Decomposition of Male-Female Wage Gap for Casual Workers 1999-2000 (age 25-55)

Men's nominal weekly cash wages (in Rs.)	277.6
Women's nominal weekly cash wages (in Rs.)	154.0
Women's wages as a percent of men's	55%
Oaxaca-Blinder Decomposition	
Gap Attributable to Endowments (%)	27.5
Gap Attributable to "Discrimination" (%)	72.5

Based on a simple decomposition, we find that 27.5 percent of the difference in casual wages is explained by endowments and the rest (72.5 percent) is due to "discrimination". We are hesitant to use the term "discrimination" to characterize the part that is not explained by endowments due to the fact that the model may have limited explanatory power in explaining the determinants of wages. Keeping in mind this caveat, other studies (mentioned earlier) have documented similar figures. While not all the studies cited earlier are strictly comparable due to differences in methodology, yet, our estimates are closest to those of the OLS based estimates from MP and TN by Kingdon and Unni (1997).

Less than fifty percent of uneducated women participate in the labor force (Figure 4). The discrimination in the casual labor market both at entry and in wages perhaps accounts for a large part of this non-participation. Thus, not only among educated, women, but also among the poorest – if another member is earning, women would prefer to stay out of a discriminatory labor market. This may explain why only 15 percent women are casual laborers – as compared to 27 percent of men (Table 3).

MAJOR FINDINGS AND DISCUSSION

The following results are of great relevance in interpreting the reasons for low female labor force participation and for policy reform:

- Education lowers the likelihood of women to participate in the labor force.
- Husband's income lowers the probability of women being employed but after controlling for husband's income, women's post-primary education has a positive correlation with labor force participation.
- Of the women who do not participate in the labor force, preferences for employment are remarkably similar across educational groups.
- In keeping with the literature on the subject, women have higher returns to education (in the form of wages but not in terms of entry into the labor market) than men. Also, higher levels of education are associated with higher returns.
- Among casual laborers, women get about half the wages that men do and differences in endowments and demographic characteristics among men and women explain only about 28 percent of this differential in wages. The unobserved explanations such as type of work men and women undertake, skill levels not caught by the model, and outright discrimination against women in the casual labor market accounts for about 73 percent of this wage-gap.
- **We conclude that limited employment opportunities are responsible for women's low participation in the labor force.**

Recently, two kinds of explanations have been articulated for women's low labor force participation – the first is a supply side argument which postulates that the supply of well-paying, secure jobs for educated women is low. Hence educated women, who also belong to the richer strata, prefer to opt out of the labor force, rather than accept low status (manual) jobs. The second - demand side argument - rests on cultural mores and values of status and seclusion in the region which may prevent higher status households from allowing women to go out and work or demanding jobs. Family honor in most parts of India for instance, rests on women's restriction to the home, thus affecting their ability to work outside the house (Chen, 1995).

The analysis presented above adds substantially to the literature that explains why Indian women choose to stay out of the labor force. It points out that it is important to **distinguish between opportunities for entry into the labor market and returns to education in the form of wages** for women. In both entry and returns, women tend to be disadvantaged in the labor market. In an earlier analysis we (Das and Desai, 2003) showed that women's labor force participation declined with education. This analysis takes forward that original work and **tests for two important reasons for women's low labor force participation – an income effect and a discrimination effect**. We find in this analysis, that husband's education and wages do indeed depress women's labor force participation, but once we control for these, women with higher education become more likely to enter the labor market. In the United States, during the post-World War II period, the increased labor force participation of married women is explained due to the fact that an increase in women's own wages trumped the negative effect of husband's wages on labor force participation. Thus, when women's wages rose, this substituted for the income effect of men's wages (Mincer, 1962 cited in Blau, 1998).

While we are aware of the ethnographic evidence that documents cultural norms of seclusion and their effect on women's market work, we also know that these norms are very lax among the poorest, who cannot afford the cultural trappings of status (See Agarwal, 1994; Chen, 1995). We also believe that among educated women, these would be diluted if appropriate jobs were available, in the same way as happened in other countries. If indeed cultural norms of seclusion play out more among educated women and their families in India, we would expect that their employment aspirations and attitudes to work would be different from those of uneducated women. In fact, it is interesting that cultural values of women staying home and working in the domestic arena do not vary by educational level (Figure 5).

We conclude that macro level gender inequality, as measured by wage discrimination and barriers to entry into preferred jobs are a disincentive to women entering the labor force. This is different from a "discouraged worker" effect – these are women who never tried to enter the labor market. In fact, the majority of women who do enter the labor market are those with absolutely no option – uneducated women who take to casual labor. Therefore, they enter the labor market from a position of weakness, and are in no position to negotiate wages or conditions of work. Educated women prefer to stay out of the labor force in the absence of appropriate options and if there is another earning member. The companion paper shows that SC/ST women who can access quotas have an advantage over other women in salaried public sector jobs. Within households we cannot rule out competition for scarce jobs among educated men and women – brothers and sisters, husbands and wives. Anecdotal evidence supports this conjecture, but we have no way of testing it with the available data.

Policy Implications and Directions: There are significant policy implications and pointers to future directions from this study. In India, women's employment has been largely addressed through anti-

poverty, safety-nets, social protection, small livelihoods, and micro-credit programs. Little attention has been paid to the manner in which this links to the macro policy framework. Issues of wage discrimination, links to markets for women's rural groups and their scaling-up have been in the public discourse, but have largely been ignored by policy. In fact, women's employment has been viewed from a welfare/poverty perspective rather than a core growth issue. The findings in this paper have significant implications for policy - both at the macro level, as well in the context of the new National Employment Guarantee Act which purports emphasize women's access to employment.

- Understanding the manner in which discrimination takes place is important to making policy changes. At the moment we have anecdotal evidence of types of discrimination. We know from this analysis that aggregate-level "discrimination" is what probably constitutes a large share of the "unobserved" part of the male-female wage gap. However, we are less clear about type of work women are assigned and other factors. We also do not have a clear idea of the extent to which hiring authorities consciously discriminate. That being so, one recommendation can clearly be made – enforcement of equal pay for equal work (as mandated in the Constitution) and galvanizing the legal system to respond to complaints about its infraction. Policy makers also need to take a fresh look at minimum wages and whether lower wages set for women are actually harming women in the labor force. There is a strong thread of activism for social protection to casual laborers, but this recommendation argues for policy to go beyond "protection" and "security" and to create mechanisms for a level playing field for women in the casual labor market.
- For educated women, policy needs to address mechanisms that would encourage women's entry into preferred jobs. More research is needed on states where women's labor force participation and wages are high and on the increase. What policies were put in place? What types of incentives would work? What would encourage the private sector to hire more women? What incentives would families need to increase the supply of female labor? What reform needs to be put in place so that women can take legal recourse to blatant cases of discrimination? To these questions we have less than perfect answers.
- Since both wages and labor force participation (controlling for other members' income) are responsive to higher education, one key recommendation is for policy to focus on higher and technical education for women. It is likely that quality of education and lack of technical skills are hampering women's entry at full potential into the new services sector. For this, a joint assessment and policy that links technical education with labor market demands would be important.
- Since the majority of women are employed in agriculture or agriculture based occupations, policy also needs to address issues that would enhance women's productivity in the agricultural sector.

Appendix 1: Data, Conceptual Clarifications and Methods

DATA

I use data from the National Sample Survey (Employment and Unemployment schedules) from the years 1983, 1987-88, 1993-94 and 1999-2000. This allows for an analysis of determinants as well as trends over time. National Sample Surveys are the most reliable and nationally representative data sets which address employment issues. The pooled sample (even when truncated by age, as explained below) comprises almost half a million cases. All analysis and tables are weighted and the multivariate analysis is conducted separately for men and women and urban and rural. The unit of analysis is the individual although some implications for the household are drawn. I use usual principal status activity in all cases, except for wages where I use wages earned from the primary activity (activity 1) in the last week.

CONCEPTUAL CLARIFICATIONS:

Three conceptual and methodological points deserve clarification up-front:

Most studies focus on wages or earnings as the key outcome variable denoting welfare, returns to education and to labor force participation more generally. However, in India, by 2000, only 29 percent of the workforce aged 25-55 (prime working age) earned any wages in the last week, and self-employment dominates the Indian labor market. Therefore, measuring returns to education through wages captures only a small proportion of the employed labor force.

In countries where the public sector dominates regular salaried employment and where the civil service is patterned on the colonial British system, as is the case in South Asia, it is the *entry into public sector jobs* which is the critical issue. Once recruited, wage rates for the most part conform to rules and procedures that seldom vary by gender, ethnicity, or even education and performance.

Thus, earnings pre-suppose employment, and studies that focus on wages as returns to education do not take into account returns in the form of entry into or access to employment. ***This paper argues that for the Indian labor market, it is entry into the labor market that is of crucial importance.*** This is particularly important for women (Das and Desai, 2003), since less than 20 percent of them are wage workers (based on usual principal status). For women thus, but also for men, it is entry into the labor force that is the critical marker for employment.

Most analyses of the Indian labor market address the age-group 15-59. However, in India, declining labor force participation rates are explained in large part by the growth in secondary schooling, and individuals from the ages of 15 to about 22 now tend to remain in school longer (Sundaram, 2001). Also, age specific labor force participation rates (Figure 2) indicate that the prime working age is 25-55. Therefore, in truncating the sample by age at one end to 25 and at the other end to 55 years we not only avoid the majority of students but also early retirees and can measure the real effect of caste and gender on labor force participation. ***This analysis is based therefore on the age-group 25-55.***

METHODS

The sociometric analysis is based on a descriptive analysis of the data and trends, bivariate associations between key labor force participation variables and the independent variables of interest. The paper itself draws from recent previous research on the subject.

The multivariate analysis addresses several issues:

Determinants of labor force participation and the effect of education: Determinants of labor force participation for men and women aged 25-55 conducted separately for urban and rural areas are estimated through logistic regression models. Odds ratios are calculated to provide a tactile quality to the coefficients and allow easier interpretation of coefficients in relation to not participating. The major independent variables of interest are education, marital status, age, region of residence, household headship and childcare responsibilities as well as characteristics of the household such as SC/ST status and household size. In addition, we include dummies for survey year, with 1983 as reference (see list of variables in Appendix 2).

Effect of husband's characteristics on women's labor market participation: In order to understand the impact of husband's earnings on the employment decisions of women, a second set of models estimates the probability of labor force participation for married women, with all the controls mentioned above, but also adding husband's education and wages.

Determinants of wages and effects of labor market discrimination in understanding labor supply decisions for women: First we estimate the determinants of wages for men and women through an Ordinary Least Squares (OLS) model. We test to see the effect of education on wages for men and women. Further, in order to test for the effect of endowment vs. discrimination in wages for men and women, we decompose the wages of men and women engaged in casual labor using the Oaxaca-Blinder method for the 55th Round (1999-2000).

Casual work is the single most important category of wage employment for women in the prime-working age (25-55 years) and this share has been increasing over time. Moreover, SC women have the highest likelihood of being casual laborers, followed by ST women and finally, non-ST/ST women. Overall, in casual labor women's wages are about 55 percent those of men and the majority of casual laborers are engaged in agricultural work. We model the determinants of wages using an ordinary least squares method, including a number of variables that denote family and individual characteristics (Appendix Table 5). We also include education, but we do not believe it impacts heavily on casual work⁸. We do not include skills due to limitations in the data set, which does not tell us enough about manual skills.

While we control for the three sectors which employ the majority of casual workers – agriculture, manufacturing and construction – within the sectors we cannot control for type of work performed and occupational assignment of men and women to particular casual jobs (such as women not undertaking ploughing). Appendix Tables 6 and 7 show that in ploughing for

⁸ However, in another analysis (Desai and Das, 2004) we show that the “education-intensity” of manual work is increasing over time.

instance, men's wage rates are much higher than those of women. These factors we believe are critical determinants of overall wages in the casual labor market. That being so, type of work performed by men and women, as pointed out earlier is also a function of perception in the Indian labor market – thus, the widely held belief is that women do “light work” in construction, when in fact they may not. Finally, while we are unable to control for experience in the job, we use age (and age squared) as a proxy for experience. We also include control for number of days worked in the last week. We then run a simple decomposition based on robust standard errors.

Previous estimates: Of the other recent analyses that have used the Oaxaca-Blinder method to decompose wages of men and women in the Indian labor market, three stand out in particular⁹.

- Duraisamy and Duraisamy (1996) decomposed wages of workers with post-secondary education in different scientific disciplines from data sets of 1961-81. Overall, they found that women's earnings were about 21 percent less than men's and about 67-77 percent of the differential is explained by “discrimination”.
- Kingdon's (1997) analysis of earnings in urban Lucknow (where female labor force participation is about 11%) from a 1995 data set where she includes both self-employed and wage workers (corrected for selectivity) shows that about 45 percent of the earnings differential is explained by “discrimination”.
- Kingdon and Unni (1997) decomposed wages for wage earners in urban districts of MP and Tamil Nadu using the NSS 43rd Round (1987-88). Based on OLS, after standardizing by male and female means, they find that the average discrimination was between 75%-78% in the urban labor market in the two states¹⁰. Their findings indicate that women suffer high levels of wage discrimination in the Indian urban labor market, and education contributes little to this discrimination: the wage-disadvantage effect of women's lower years of education than men is entirely offset by the wage-advantage effect of women's higher returns to education than men's. They conclude that this wage disadvantage contributes to lower educational attainment among women. Thus, contrary to human capital explanations of low education contributing to low labor force participation, their findings lend credence to the fact that the opposite may in fact be true – that labor market discrimination contributes to low educational attainment.

We believe that it is important not only to separate self-employed earnings from those of wage workers, but even within wage workers, to separate regular salaried from casual workers. This is because:

- **First**, women who report themselves as self-employed often work on family enterprises and find it hard to distinguish their own earnings from that of the household's – particularly the husband's.

⁹ Reilly and Dutta (2005) estimate the inter-industry gender wage gap across survey years, using three waves of the NSS from 1983-1999. They compute the overall “treatment” component (as opposed to the “endowment”) to explain one-third of the wage gap. However, based on differences in methodology, their estimates are least comparable to the present analysis, but useful to know that they find that over time, the effect of “treatment” had not widened.

¹⁰ Selectivity corrected wage equations tend to show much lower estimates – for instance, discrimination accounted for 35% in urban MP and 45% in urban TN of the difference in wages between men and women in Kingdon and Unni's analysis.

There is also an underreporting of employment itself when women work on family farms or non-farm enterprises.

- **Second**, regular salaried work is predominantly in the public sector, where wages are fixed by seniority and pay scale and would tend not to vary by gender. The variation by gender in public sector jobs would be at point of entry and in occupational assignment, but not wages¹¹.
- **Third**, casual work is the employment of last resort for all workers. Selection into casual work thus is of those workers who did not get employment elsewhere.

¹¹ In another study (Das, 2002) the author has addressed the issue of assignment to different employment types.

Appendix 2: Independent Variables and Coding

Variable	Coding
Age Age Squared	i. In years ii. Age Squared as a continuous variable
Marital Status	Dummy Married =1 if currently married Any other =0
Education	4 Dummies No education (reference) Below primary Primary completed Post-primary (secondary and above)
Region	Dummies North =1 if Himachal Pradesh, Punjab, Haryana, Rajasthan, Chandigarh, Delhi East =1 if West Bengal, Orissa, Andaman and Nicobar Islands West =1 if Gujarat, Maharashtra, Goa, Dadra and Nagar Haveli, Daman and Diu South =1 if Tamil Nadu, Karnataka, Kerala, Andhra Pradesh, Lakshadweep, Pondicherry North-East =1 if Manipur, Tripura, Arunachal Pradesh, Sikkim, Assam, Meghalaya, Mizoram, Nagaland Central (Reference) =1 if Bihar, Jharkhand Uttar Pradesh, Uttaranchal, Madhya Pradesh
Urban Residence	Urban dummy (rural as reference) when analysis not conducted separately for urban/rural samples
Household Size	Continuous
Household Head	Dummy (not head as reference)
Spouse of Head	Dummy (not spouse as reference)
Land Possessed	Continuous (in hectares)
Caste	Dummies for non-SC/ST (reference), SC, ST
Round	Dummies for 38 (reference) 43, 50th, 55th
Days Worked	Variable used in OLS predicting wages Continuous – days works in activity 1 in the last week

Appendix 3:

Odds Ratios of Logistic Regression Predicting Labor Force Participation for Rural and Urban Men and Women

	Panel 1 All Men	Panel 2 All Women	Panel 3 Rural Men	Panel 4 Rural Women	Panel 5 Urban Men	Panel 6 Urban Women
Age	1.218	1.151	1.17	1.145	1.338	1.198
Age2	0.997	0.998	0.997	0.998	0.995	0.998
Married	3.964	0.625	3.879	0.732	4.437	0.419
Household size	1.009*	0.958	1.005NS	0.961	1.025	0.932
Below Primary	1.311	0.517	1.288	0.508	1.563	0.546
Primary Completed	1.512	0.409	1.454	0.413	1.862	0.422
Post-primary	1.422	0.474	1.216	0.345	1.975	0.725
SC	0.925**	1.585	0.921*	1.579	0.973NS	1.848
ST	1.208	3.238	1.259	3.419	0.829*	2.171
Household head	3.248	2.949	3.196	3.075	3.442	2.32
Spouse of Head	0.156	1.061	0.153	1.11	0.163	0.778
Land Possessed	1.074	1.001	1.084	1.004**	1.027*	1NS
Child ≤5 years	1.074**	0.911	1.081*	0.925	1.049NS	0.892
Region: North	0.784	1.081	0.741	1.063	0.924NS	1.01NS
Region: South	0.86	3.038	0.793	3.33	1.116*	2.121
Region: East	1.02NS	0.608	0.909*	0.559	1.457	0.997NS
Region: West	0.846	3.123	0.809	3.959	0.975NS	1.462
Region: NE	0.813	0.525	0.807	0.489	0.84NS	1.19
Round 43	1.155	1.1	1.244	1.113	0.933NS	1.005NS
Round 50	1.225	0.949	1.391	0.934	0.9*	0.999NS
Round 55	1.004NS	1.01NS	1.128	1.034**	0.775	0.929

Note: All coefficients are significant at the .001 level except:

** = .01 level; * = .05 level; NS = Not significant

Appendix 4:

Odds Ratios of Logistic Regression Predicting Labor Force Participation of Married Women (age 25-55) Controlling for Husbands' Characteristics

	Panel 1 Married women LFP <u>without</u> husband's characteristics	Panel 2 Adding husband's education	Panel 3 Adding Husband's education and wages
Husband's Characteristics			
Husband: Weekly (log) cash wages			0.657
Husband: Below Primary		0.803	0.79
Husband: Primary Completed		0.692	0.693
Husband: Post-primary		0.456	0.482
Woman's characteristics			
Age	1.137	1.136	1.189
Age2	0.998	0.998	0.998
Household size	0.949	0.957	0.969
Below Primary	0.487	0.601	0.708
Primary Completed	0.372	0.516	0.565
Post-primary	0.398	0.653	1.113
Urban	0.358	0.386	0.465
SC	1.587	1.493	1.441
ST	3.418	3.168	2.833
Land Possessed	1.001**	1.001	1NS
Household head	4.486	4.588	6.542
Child ≤5 years	0.995NS	0.966	0.922
Region: North	1.052	1.057	1.042NS
Region: South	3.371	3.266	3.302
Region: East	0.567	0.553	0.576
Region: West	3.28	3.345	3.103
Region: NE	0.452	0.446	0.969NS
Round 43	1.135	1.151	1.262
Round 50	0.943	0.972*	1.591
Round 55	1.033**	1.08	2.264

Note: All coefficients significant at the .001 level except: ** = .01 level; * = .05 level; NS = Not significant

Appendix 5: OLS Regression Predicting (log) Wages for Men and Women (age 25-55)

	All Men	All Women	Rural Men	Rural Women	Urban Men	Urban Women
Age	0.043	0.022	0.033	0.011*	0.061	0.064
Age2	0	0	0	0NS	-0.001	-0.001
Married	0.136	0.152	0.111	0.111	0.121	0.22
Days Worked	0.218	0.203	0.228	0.211	0.175	0.167
Household size	0.001NS	-0.004NS	0.007	-0.002NS	-0.005**	-0.007NS
Below Primary	0.187	0.151	0.176	0.153	0.204	0.213
Primary Completed	0.31	0.192	0.308	0.191	0.298	0.271
Post-primary	0.84	1.214	0.823	0.95	0.845	1.5
Urban	0.433	0.325				
SC	-0.117	0.012NS	-0.129	0NS	-0.1	0.088
ST	-0.143	0.046**	-0.15	0.046**	-0.064**	0.022NS
Household head	0.079	0.09	0.073	0.035NS	0.103	0.222
Spouse of Head	0.059NS	-0.044**	0.147*	-0.061	-0.117NS	-0.008NS
Land Possessed	0NS	0NS	0NS	0NS	0NS	-0.003NS
Region: North	0.368	0.345	0.501	0.335	0.192	0.299
Region: South	0.098	-0.011NS	0.194	0.024NS	-0.068	-0.111
Region: East	0.033	-0.05*	0.03*	-0.034NS	0.037*	-0.099**
Region: West	0.124	-0.004NS	0.094	-0.02NS	0.123	0.056NS
Region: NE	0.216	0.4	0.254	0.434	0.123	0.258
Round 43	0.498	0.448	0.588	0.43	0.443	0.514
Round 50	1.027	1.143	1.053	1.148	1.005	1.121
Round 55	1.705	1.83	1.719	1.831	1.702	1.839
Constant	1.101	1.3	1.262	1.581	1.424	0.672**

** - .01 level; * - .05 level; NS – Not significant

Note: All coefficients significant at the .001 level except:

Appendix 6: All-India Average Daily Wage Rates in Agricultural Occupations 2002-2003

(In Rupees)		
Activity	Men	Women
Ploughing	71.53	40.46
Sowing	62.62	44.20
Weeding	53.90	44.90
Transplanting	57.33	48.24
Harvesting	58.03	47.86
Winnowing	52.88	44.11
Threshing	57.22	46.84
Picking*	54.76	43.63
Herdsmen	40.36	31.60
Well-digging	83.38	43.74
Cane crushing	57.83	42.95

<http://labourbureau.nic.in/wrr2t2a.htm>

Appendix 7: All-India Average Daily Wage Rates in Non-Agriculture Occupations 2002-2003

(In Rupees)

Month	Sweeper		Unskilled Labourers	
	Men	Women	Men	Women
July,2002	47.60	47.96	57.16	43.07
August	48.65	47.94	57.25	42.96
September	50.31	49.06	57.32	43.14
October	48.64	47.15	57.53	43.37
November	50.50	50.31	57.49	43.48
December	50.50	50.77	57.61	43.48
January,2003	50.50	50.77	57.89	43.60
February	50.50	49.76	58.04	43.64
March	50.58	51.15	58.02	43.61
April	50.86	50.84	58.00	43.60
May	50.88	50.64	58.30	43.55
June	51.39	50.57	58.34	43.50
Annual Average	50.08	49.74	57.75	43.42

<http://labourbureau.nic.in/wrr2t2a.htm>

Appendix 8: OLS Regression Predicting (log) Wages for Casual Workers (age 22-55)

1999-2000 (NSS 55th Round)

Round 55 Variables	Casual workers	
	Men	Women
Age	0.013**	0.01NS
Age2	0**	0NS
Married	0.038*	0.034NS
Days Worked	0.2	0.198
Household size	0.002NS	0.002NS
Below Primary	0.087	0.123
Primary Completed	0.122	0.104
Post-primary	0.164	0.157
Urban	0.113	0.124
SC	-0.034	0.02NS
ST	-0.166	-0.035*
Household head	0.004NS	0.031NS
Spouse of Head	-0.005NS	-0.039NS
Child ≤5 years	-0.01NS	-0.023NS
Land Possessed	-0.054	-0.059
Agriculture	-0.19	0.402
Manufacturing	0.185	0.581
Construction	0.229	0.856
Region: North	0.399	0.363
Region: South	0.359	0.1
Region: East	0.058	0.042NS
Region: West	0.183	0.059
Region: NE	0.227	0.36
Constant	3.83	3.122

Note: All coefficients significant at the .001 level except:

** - .01 level; * - .05 level; NS – Not significant

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Do Traditional Axes of Exclusion
Affect Labor Market Outcomes in India?

Part II: Caste, Ethnicity and the Indian Labor Market

Executive Summary

Caste and the Indian Labor Market: Caste has historically been the key axis of stratification in India, believed to be responsible for major inequalities in access - in as diverse areas as education, health, technology, and jobs. Caste becomes especially important for labor markets because it has at once a ritual and an occupational logic. Thus, historically strict rules of dining and marriage, based on ritual purity and pollution have governed the relations between castes, and an equally strict division of labor has meant that certain castes or sub-castes have undertaken certain occupations.

One of the most significant affirmative action policies in India is that of caste based reservations in the most coveted jobs – regular salaried work in the public sector - and in publicly funded education. Preferential treatment for SC/STs¹² (and more recently for Other Backward Castes) in other ways and areas such as age relaxation, waiver of application fee, special coaching, quotas in public employment and poverty alleviation programs have also had a bearing on educational attainment and labor markets. However, the impact of reservations is a controversial issue and not easy to measure.

Peeling the layers to understand the effects of caste on labor market access: This analysis is based on four thick rounds of the National Sample Survey (1983 to 1999-2000). It uses varied sociometric methods to understand the interface between caste and tribal status and access to labor markets. The main results are below:

Labor force participation rates for SC/STs are higher than for the non-SC/ST counterparts. SCs are typically landless laborers while STs are historically forest dwellers whose mainstay is subsistence agriculture. Analysis of occupational groups indicates that SCs have remained restricted to caste based occupations and this also plays out within the public sector. Thus, SCs dominate the manual jobs of sweeping and cleaning – historically assigned to them in the caste hierarchy. Other occupations – notably the non-agricultural semi-skilled jobs, also tend to be caste based. STs are less beset by this demarcation, since they were traditionally assigned a role outside the pale of the caste system and since they for the most part own some land for subsistence agriculture, they also have a higher likelihood of being agriculturists. Recent evidence on the low mobility in the Indian labor market also finds significant effects of caste based occupations (Munshi & Rosenzweig, 2005).

The effect of caste plays out in the form of an increased likelihood of being in casual labor and reduced chances of being in non-farm self-employment, even after controlling for background characteristics. In regular salaried work – which is still predominantly in the public sector and where reservation policy operates - urban-based SC/ST candidates have an advantage. Rural areas have lower job opportunities for all workers and so the effect of being SC or ST is muted. Land-ownership patterns also seem to drive the patterns in rural areas where even lucrative non-farm jobs have a base in agriculture. Thus, the primary fall-back option for SC and STs, who do not own land (STs tend to own small plots of land for subsistence farming) is casual labor.

In the wake of expanding education, once SCs do not get access to salaried jobs, they crowd into casual labor, or stay out of the labor force if they can afford to. The multiplied effects of education on caste suggest that SC men suffer a disadvantage in regular salaried jobs if they have post-primary education. This appears to indicate that educational attainment of SC men has risen over time, and the reservation

¹² This analysis uses the terms “Scheduled Caste” and “Scheduled Tribe” to describe the most marginalized people, rather than the more politically correct Dalit and Adivasi due to the fact that it is addressing the impacts of the job reservation policy and thus uses the Constitutional and administrative terms.

policy, which seems to work well, actually creates a system of rationing of jobs for SCs – and they cannot compete in the non-reserved category. This has implications for the structure of the reservation policy, which may in fact be penalizing educated SC men and fostering an elite within them as the anecdotal evidence on “creamy layer” suggests.

The real upward mobility for SC/STs seems to take place when they migrate to urban areas: However, those that do migrate to towns perhaps have the social networks and education, and we could speculate on a selection bias. The fact that formal jobs need more than education is well-accepted - they need access to information, ability to traverse the bureaucratic loopholes, knowledge about rules, procedures etc. Here, contacts and networks are key to successful entry into the formal salaried market, since information flows often lack transparency.

For STs in general and rural SC women, education appears to have a positive effect. This is in keeping with the impression in government recruitment agencies that there is a dearth of ST candidates especially in rural areas and the fact of low educational attainment of SC women and of all STs in rural areas.

Policy Implications: While this analysis has not been able to test directly the impact of job quotas, its results point to the ***success of the reservation policy in enabling access of SC and STs to get regular salaried jobs*** – which are predominantly in the public sector. However, it also raises some important questions and calls for a fresh look at the reservation policy and its implementation, particularly in the wake of its impact on the employment potential of educated SC men. That being said, as pointed out earlier, the reservation policy is politically one of the most volatile subjects in India, and government would need to build a consensus even to assess its impact and to propose changes to it.

The following results deserve additional attention from the policy perspective:

- There are few employment avenues outside of the reserved jobs in the public sector, to accommodate the supply of increasing numbers of educated SCs - especially SC men – leading to a system of filtering or rationing on the basis of which some get jobs and others are relegated out of the labor force or to casual labor. Policy needs to address the issue of other employment avenues for qualified SCs in such areas as non-farm self-employment. Institutions that are supposed to address the self-employment needs for SC/STs (like government-run SC/ST Corporations, Marketing Federations etc) are largely ineffective in allowing these groups to acquire a hold in self-employment.
- Paradoxically, there are still reserved positions at the highest grades that remain unfilled. Therefore, not only the structure of the reservation policy but its implementation needs to be reassessed.
- Increasing numbers of qualified SC candidates and the attendant likely competition among SCs (especially among SC men) for reserved jobs may be fostering an entrenched elite, leaving out “first generation” entrants into the reserved labor market. This is based on speculation and anecdotal evidence, but is important to research further to test empirically to see if it holds. If it does, it would have important implications for the structure of the reservation policy.
- STs are still educationally not as advanced as SCs and the gap between STs and non-STs is very wide. There are thus, not as many qualified candidates to fill even the highest positions in public sector jobs that are reserved for them. Policy thus needs to continue to focus on education and skills for STs as the primary labor market intervention.
- Education and skills among women – especially ST women – is of particular concern, leading to their concentration in manual work. Moreover, we need to assess whether the slight decline in the labor force participation rates for SC women holds even after controlling for other factors. If

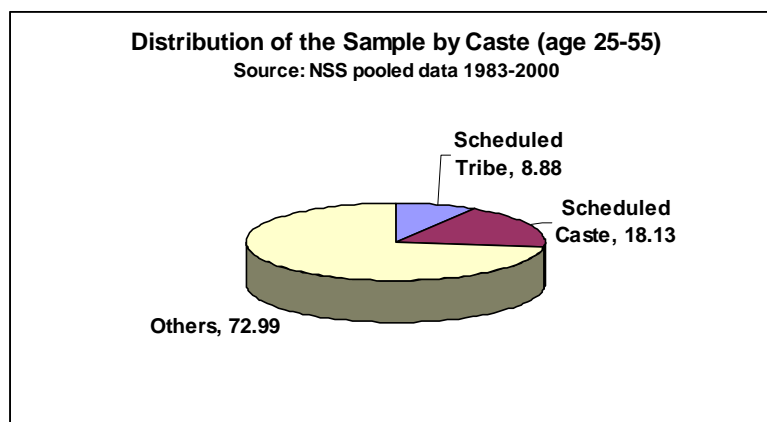
this is so, SC women may perhaps be opting out of a discriminatory labor market, in the same way as non-SC women do (see companion paper on female labor force participation).

I. Caste and Employment: Setting the Context

India and Nepal are perhaps the only countries that have a caste system that has a direct impact on labor markets¹³. André Beteille, one of India's foremost social anthropologists sums up the characteristics of castes as

“...hierarchically ranked groups or categories based on hereditary membership which maintain their social identity by strict rules of endogamy. The fact of hereditary membership is of great importance. It fixes the social status of individuals at birth and prevents his (sic) movement from one group or category to another. In spite of many exceptions, these factors combine to fit the social divisions in a caste society into an uncommonly rigid mould.” (Beteille, 1991:39).

Figure 4: Distribution of the Sample by Caste (age 22-25)



The reason why caste is so important for labor markets is that it has at once a ritual and an *occupational logic*. Thus, strict rules of dining and marriage, based on ritual purity and pollution, governed the relations between castes, and *an equally strict division of labor meant that historically certain castes or sub-castes only undertook certain occupations*. Social status was also commensurate with economic and political power. Although this has changed dramatically over the past millennium, caste still remains at the crux of social stratification with consequences for labor market outcomes in India. Recent evidence on low mobility in the Indian labor market finds significant effects of caste based occupations (Munshi & Rosenzweig, 2005).

This paper is Part II of the larger work that addresses the issue of traditional axes of exclusion and their impact on labor markets. It uses the National Sample Survey (NSS) – the largest and most nationally representative data set and uses sociometric methods on data that are pooled from four waves of the NSS, covering the period 1983 to 1999-2000. The paper addresses following questions:

- If lower levels of education among SC/STs confine them to lower status jobs, what happens when we control for education?
- What is the effect of caste on allocation to different employment types – notably the preferred employment avenues of regular salaried work, and to what extent have reservations mediated the access of SC/STs to these jobs?

¹³ As the executive summary also states, this analysis uses the terms “Scheduled Caste” and “Scheduled Tribe” to describe the most marginalized people, rather than the more politically correct Dalit and Adivasi due to the fact that it is addressing the impacts of the job reservation policy and thus uses the Constitutional and administrative terms.

The paper is divided into four sections. This introductory section sets the context, reviews the literature and is titled section I. Section II reports the results of the analysis of determinants of labor force participation for SC/ST men and women. Section III is based on the results of the analysis of allocation to different employment types and the final section, Section IV summarizes the main findings and their implications for further work and for policy. The data and methods are contained in a technical note in Appendix 1. the rest of the appendices lay out other technical issues and report the results of the multivariate analysis.

Box 1: What do we know about caste/tribe links with the labor market?

- *Caste is at once a ritually and an occupationally ordered system of stratification. In spite of far-reaching changes, certain occupations continue to be caste based. This segmentation is particularly pronounced in certain types of skilled and unskilled manual work.*
- *One of the most significant labor market policies in India is that of caste based reservations in jobs that until recently have been the most highly coveted – regular salaried work in the public sector. Preferential treatment for SC/STs in other areas (such as age relaxation, waiver of application fees etc.), as well as quotas for SC/STs in public employment works has also had a bearing on labor markets.*
- *High poverty rates among SC/STs and lower restrictions on mobility and public appearance have meant that women among SC/STs have had higher labor force participation rates than other women.*

A. Scheduled Castes and Tribes

It is important to understand the situation of the Scheduled Castes (SC) and Scheduled Tribes (ST)¹⁴ in the Indian system, especially for its implications for labor and employment. Scheduled Castes are the erstwhile untouchables. Untouchability is illegal in India, but Scheduled Castes continue to suffer varying degrees of subordination and segregation in Indian society, depending on the region and degree of political mobilization among them. There are vast differences in most development indicators for Scheduled Castes and Scheduled Tribes compared with the rest of the population, including in poverty rates, health and education. Scheduled Castes are landless peasants in rural areas and are most likely to be casual laborers.

The situation of Scheduled Tribes is different from that of Scheduled Castes. The former are “indigenous peoples” - the earliest inhabitants of the sub-continent, and their relationship with the state and the waves of colonizers of the sub-continent has been historically one of assimilation combined with resistance. In terms of the ritual structure of the caste system, they are outside the pale of the system – thus lowest in the social hierarchy. They have traditionally lived in the forested areas, away from mainstream village life, and have a distinct cultural identity¹⁵. Scheduled Tribes are a majority in the Northeast region of India. Here, large groups of them converted to Christianity and got access to Western education. On the other hand, Scheduled Tribes living in other parts of the country are among the most impoverished and marginalized.

The major difference in the status of Scheduled Castes and Scheduled Tribes is that while the former were **segregated** socially from the mainstream and from upper castes spaces, the latter were **isolated**, socially

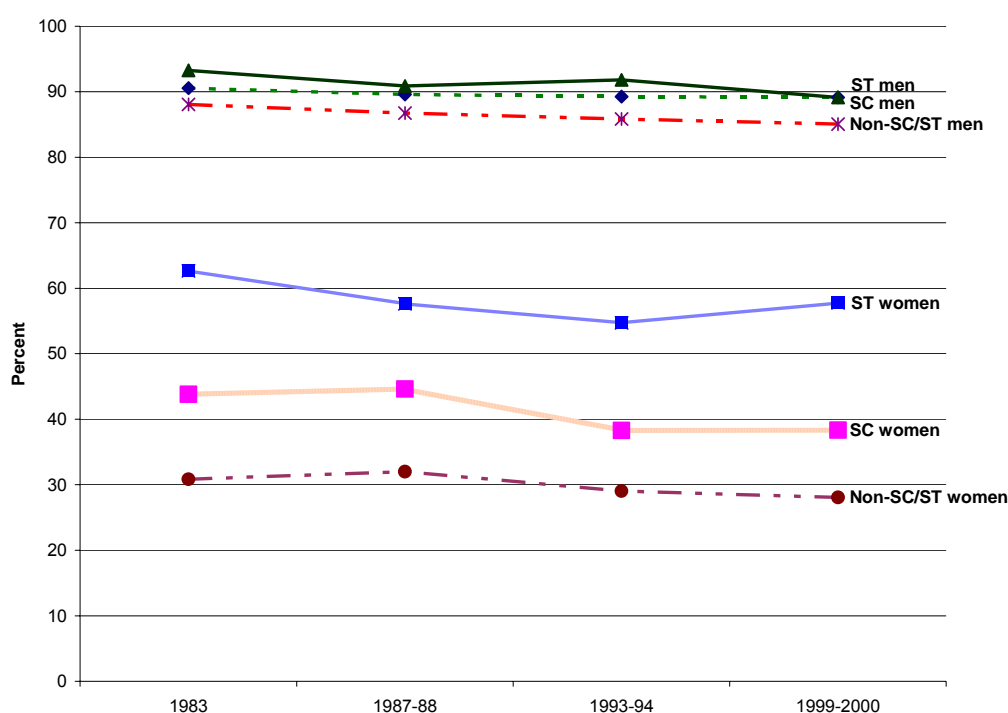
¹⁴ The terms Scheduled Caste and Scheduled Tribe come from the Constitution Orders passed in 1950 for Scheduled Castes and Tribes, schedules to which contains the names of castes and tribes that are earmarked for special treatment such as reservations in legislatures, public sector employment and government run educational institutions.

¹⁵ The Constitution Order 1950 declared 212 tribes located in 14 states as “Scheduled Tribes”. The Anthropological Survey of India identifies 461 tribal communities in India, accounting for a little over 8 percent of the population (Xaxa, 1999).

and often physically (Béteille, 1991). Although both are concentrated in rural areas, Scheduled Castes are more likely to reside in urban areas than are Scheduled Tribes. Since the mainstay of STs is a form of subsistence agriculture, their primary occupation is usually farming. Scheduled Castes on the other hand, are most often landless and therefore, also more likely to be casual laborers. These two aspects *of residence and occupation* have a direct bearing on their ability to access markets in general and the labor markets including job quotas in particular.

Labor force participation rates among men do not vary for the large part by caste/tribe status, although non-SC/ST men have slightly lower participation rates (Figure 2). The major difference among the men is in occupation assignment (Table 1) and assignment to different employment types (Figure 3). Among women, the differences are very stark, and women belonging to SC and STs have much higher participation rates than other women. Poverty and lower restriction on SC and ST women in terms of stigma associated with manual work and restrictions on mobility drive their work force participation, as discussed in the next section.

Figure 5: Trends in Labor Force Participation by Caste and Gender 1983-2000



B. Gender, Caste and Region

While Scheduled Castes and Scheduled Tribes are generally disadvantaged in the social structure, restrictions on *women* among them are less marked than those on upper caste women (Beteille, 1991; Agarwal, 1994). Among non-SC/ST, keeping women within the confines of the home is a matter of family honor. Ritual purity, absence of widow remarriage and women's seclusion play an important role in asserting high status. Among SC/STs, poverty drives women's participation in the labor force and norms of seclusion are lax, allowing them greater mobility and ability to access market work. But, while SC/ST women are more likely to be in the labor force, the quality of their jobs is low and they are concentrated in unskilled manual work that pays low wages (see table 1 and Figure 3). Caste interacts with region to produce region-specific patterns of female labor force participation. Thus, in rural north

India, high caste Brahmin and Rajput women will seldom go out to work, but SC/ST women are usually employed outside the home (Agarwal, 1994).

Table 8: Occupational Distribution by Caste and Gender 1983-2000

	SC men	SC women	ST men	ST women	Non SC/ST men	Non SC/ST women
Professional, technical, administrative	2.74	0.89	2.69	0.96	8.25	2.01
Clerical	3.03	0.22	2.19	0.31	5.61	0.62
Sales and service	8.28	4.04	4.23	2.20	13.18	2.71
Agricultural workers	59.58	34.71	73.32	52.19	48.26	23.09
Other manual	22.70	4.50	14.89	4.24	20.55	3.66
Out of the labor force/unemployed	3.67	55.65	2.69	40.11	4.14	67.91

Source: Author's calculations based on NSS pooled sample for individuals ages 25-55

Recent research is pointing to a tendency associated with Sanskritization (see box 2), of upwardly mobile SC/STs emulating “upper caste” norms and values. Thus, gender inequality and controls on women among Scheduled Castes and Scheduled Tribes appear to have increased in the post-colonial period, perhaps as a consequence of these groups having being “mainstreamed” into society.¹⁶ On the other hand, regular salaried jobs in the government come with high status and benefits, and it is difficult to say which a Scheduled Caste or Scheduled Tribe household aspiring for high status would choose for its women as a marker of status – relegation to the home or the status associated with government jobs. Anecdotal evidence suggests that the latter would trump the former.

Box 2: Caste and Economic and Social Mobility

Several processes in the post-colonial period have diluted the effect of caste in the society and economy. “*Sanskritization*” is a process by which lower castes take on the cultural symbols of upper castes such as names, food habits, customs and even deities. “*Westernization*” is the influence of Western education and media and attendant norms of individualism. Both these processes contribute to the social mobility of castes. The first assists the lower castes in adopting the cultural norms of the upper castes, usually after they have attained some measure of education and economic status. The second affords them certain equality in status with upper castes with access to information, education and Western norms. Both of these processes are facilitated by two related processes – *urbanization* and *secularization*. In urban areas, the ritual hold of the caste system gets diluted as norms of purity and pollution are difficult to uphold since upper castes can no longer have control over whom they eat with or who serves them food. Thus, by and large, economic development and educational attainment, through processes of urbanization, secularization, Westernization and Sanskritization enable the mobility of individuals, while social movements enable the upward mobility of entire castes.

Drawn from MN Srinivas (1962; 1966)

C. Caste-based job reservations in India

Since the roots of discrimination against SC/STs lay in the traditional caste-based stratification system, the Constitution of independent India facilitated reservation of seats in public employment and educational institutions, broadly proportionate to their representation in the population. Thus, Scheduled Castes have a 15 percent and Scheduled Tribes a 7.5 percent reservation in all public educational institutions and government or quasi-government jobs (which form the major part of all regular salaried jobs). In addition, in 1991, these quotas were extended to Other Backward Castes (OBCs) as well.¹⁷ There

¹⁶ See Dreze and Gazdar (1996)

¹⁷ OBCs are not strictly comparable to SCs and STs and quotas for them have only begun in 1991.

is also a relaxation of age bars and exemption of application fees for these groups. Some states have set up special cells to provide information and coaching services to SC and ST candidates, to enable them to succeed in the competitive examinations crucial to obtaining government jobs.

It is generally accepted that these quotas have been successful in helping historically marginalized groups find a space in the public arena. However, there are also concerns that elites within these groups have monopolized the gains in employment. The historically most disadvantaged castes (within SCs) still continue to be among the poorest and the most excluded from lucrative and high status employment (Thorat and Deshpande, 1999). Traditional caste patterns are often seen replicated in the entry of SCs into the public sector workforce. Thus, the fact that over 65 percent of sweepers in central government ministries are SCs (Table 2) indicates that SCs are more likely to undertake “ritually unclean” and manual work. Also, several government establishments are unable to fill the jobs reserved for SCs and STs, often on grounds of lack of suitable candidates. This is a politically volatile subject and unions of SCs and STs within government establishments have on their part sought to further the interests of their constituencies and lobby for filling these vacancies.

The debate on quotas and their implementation has been marked historically by casteist rancor and blame-throwing. It is perhaps the politically most volatile subject in Indian employment policy and as this paper goes into print, there is a new wave of controversy about extending quotas into private educational institutions. While one group asserts that vacancies in government jobs are not filled because the policy is not implemented in letter or spirit, recruiting authorities assert that there is a dearth of “deserving” or qualified candidates among these groups to fill the positions. Simultaneously, higher education has also expanded for SC/STs, and there is now a steady supply of educated SC/ST candidates, so we would expect that jobs in the reserved category would get filled, but table 2 shows that only 3 percent the highest level jobs (Group A and B) in the central government were filled by STs, against the reservation of 7.5 percent. While STs tend to fill the quotas as the level of jobs declines, they are only fully represented in the manual jobs (Group D) which do not require higher education. SCs do better than STs, but the highest levels still have a “backlog”. Table 2 is only an example, and the vacancy position differs by state, type of establishment, strength of SC/ST unions and availability of qualified candidates.

Table 9: Representation of SC/ST in central government services – 2002

Group/Grade Level	SC	ST
A	11.09	3.01
B	14.08	2.78
C	16.12	5.94
D (Excluding Sweepers)	20.07	7.64
Sweepers	65.22	4.62

Source: Department of Personnel, Public Grievances and Pensions,

Government of India. Accessed on August 1 2005 from

http://www.persmin.nic.in/annual_report1.html

Note: “A” denotes highest level and “D” the lowest (eg: messengers, janitors, cleaners and “peons”)

II. Caste and the Determinants of Labor Force Participation

This section reports the results of the bivariate and multivariate analysis on the determinants of labor force participation. Appendix 4 and 5 lay out the coefficients of the regression models.

Box 3: Key Findings on Caste and Labor Force Participation

- Women from both SC and ST background are more likely to be in the labor force, as are ST men. However, SC men are less likely than other men to be in the labor force, after controlling for background factors.
- There are large positive effects of education for SC women in rural areas. In urban areas only primary but not post-primary education is important. Perhaps, the jobs that urban SC women are eligible for are likely to be those that require less rather than more education – perhaps the low-end jobs. For ST women, primary education helps in rural areas, but otherwise education for the most part has little effect on their labor force participation.
- Multiplied effects of education and caste are associated with a lower likelihood of both SC and ST men being employed **in rural areas**. In urban areas, education really has no effect on SC or ST men's participation in the labor force, and if anything, having primary education, has a negative effect for SC men.

Labor force participation rates among SC women are about 40 percent and among ST women about 60 percent. Controlling for other factors, SC women are about one and a half times as likely and ST women more than three times as likely as other women to participate in the labor market. However, trends in Figure 2 show that the decline in labor force participation witnessed among all women is also evident among SC women, but we do not assess whether this is due to a Sanskritization effect or an opportunity effect. In the aggregate national analysis (rural/urban combined) the interaction effects of caste and education indicate that primary school completion has a positive effect on both SC and ST women's labor force participation. However, the analysis disaggregated by residence shows that the positive effects of education on SC women in rural areas are very large. In urban areas only primary but not post-primary education is important. Thus, the jobs that urban SC women are eligible for are likely to be those that require less rather than more education – perhaps the low-end jobs. For ST women, primary education helps in rural areas, but otherwise education for the most part has little effect on their labor force participation.

In the case of men, interaction terms denoting the multiplied effect of SC or ST status with different levels of education indicate that post-primary education lowers the likelihood of both SC and ST men being employed in rural areas. In urban areas, education seems to have no statistically significant effect on the labor force participation of SC and ST men, except that SC men with primary education are less likely to be employed. Clearly, in rural areas, the supply of educated men outstrips demand, with fewer jobs being available for educated candidates and in urban areas education does not seem to matter.

III. Caste and the Determinants of Type of Employment

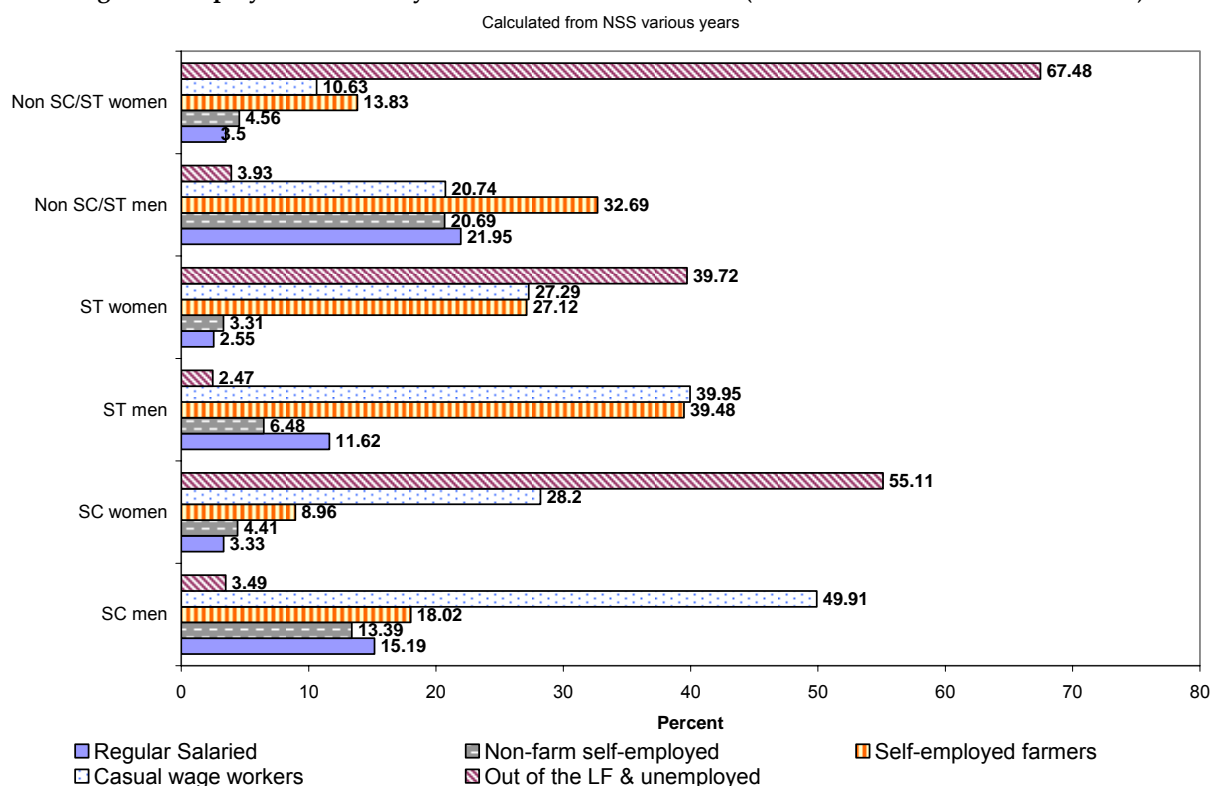
Box 4: Key Findings on Caste and Employment Type

- SC/ST men are either self-employed farmers or casual laborers, as is the case with those SC/ST women, who are in the labor force.
- There are significant urban-rural differences. After controlling for background characteristics in rural areas, the effect of being SC or ST disappears for regular salaried work for men and is negligible for women. Perhaps there are so few regular salaried jobs in rural areas, and they mostly exist in the public sector, that reservations have succeeded in wiping out the disadvantage of being SC or ST.
- In urban areas, there is a premium to being SC and ST for both men and women in terms of access to salaried jobs.
- Multiplied effects of education and caste suggest that the supply of educated SC labor outstrips demand. Once they do not get access to salaried jobs, they crowd into casual labor, or stay out of the labor force if they can afford to. It also indicates that once the reserved quotas are filled up SC candidates have no other avenue such as self-employment open to them.
- For STs in general and rural SC women, education appears to have a positive effect. This is in keeping with the impression in government recruitment agencies that there is a dearth of educated ST candidates especially in rural areas and the fact of lower educational attainment of SC women and STs in rural areas.

Merely participating in the labor market is a poor indicator of welfare. Ideally, we would use wage data to calculate the welfare impacts of labor force participation. However, the data set does not include wages for self-employed persons¹⁸. Therefore, we use a loose hierarchy of employment types to assess individuals' allocation to different employment types – viz. regular salaried, non-farm self-employed, farm-based self-employed, casual labor and out of the labor force (see Appendix 2 for coding of dependent variables). We use regular salaried work as the comparison category, since this is the preferred form of employment for educated individuals and the type they aspire to – not merely for wages but for job security, benefits and status. We then estimate the likelihood of assignment of individuals to each of the employment categories simultaneously using a multinomial logistic regression (See appendices for details).

¹⁸ Per capita household expenditure is often used as a proxy for income, but especially in large extended households, it would be impossible to attribute incomes to specific individuals. Moreover, expenditure is often endogenous to employment.

Figure 6: Employment Status by Caste and Gender 1983-2000 (Calculated from NSS various Years)



A. Effects of caste on employment status

At the bivariate level, non-SC/ST men are most likely to be in regular salaried jobs and this substantiates common knowledge in India (Figure 3). Caste differences are more manifest among men as far as regular salaried jobs are concerned, since salaried employment is so unusual for all women - less than 4 percent of women from any caste group are in salaried employment. Off-farm self-employment too is the preserve of non-SC/ST men, while SC/ST men are either self-employed farmers or casual laborers. This is also the case with SC/ST women, who are in the labor force. Thus, SC/STs are concentrated in casual labor or in farming, as pointed out earlier. In the multivariate analysis, we find that even after controlling for education and other background characteristics, the bivariate associations hold where differences between SC/ST and non-SC/ST are concerned.

There are very significant rural/urban patterns: In rural areas (Table 4), the SC effect (drawn from predicted probabilities) is really felt in the increased likelihood of being casual laborers and the reduced likelihood of being self-employed farmers. However, the effect of being SC or ST (which is pronounced at the bivariate level) disappears for regular salaried work for men and is negligible for women in rural areas. It is likely that there are so few regular salaried jobs in rural areas, and they mostly exist in the public sector, that reservations have succeeded in wiping out the disadvantage of being SC or ST.

In urban areas (Table 5), there is a premium to being SC and ST for both men and women where formal jobs are concerned. Each group (SC men and women and ST men and women) has a 4 percent higher likelihood of being in a regular salaried jobs compared to non-SC/ST. The clearest disadvantage of belonging to SC or ST is in the lower access to non-farm self-employment. In another analysis we had found (Das, 2002) that men in general who do not get formal jobs tend to be self-employed in household enterprises in urban areas. This avenue is almost closed for SC and STs, perhaps since self-employment requires access to credit markets, raw materials, information and social networks.

Table 10: Caste Effects on Employment Type for RURAL Men and Women aged 25-55 (1983-2000)

Rural Male						
	SC	Non-SC	SC Effect	ST	Non-ST	ST Effect
Regular Salaried	0.09	0.09	0.00	0.08	0.08	0.00
Non-farm self-employed	0.11	0.15	-0.04	0.05	0.13	-0.08
Self-employed in agr	0.23	0.40	-0.18	0.44	0.46	-0.02
Casual workers	0.54	0.33	0.21	0.41	0.31	0.10
Out of the LF/unemployed	0.03	0.03	0.00	0.02	0.03	-0.01
Rural Female						
	SC	Non-SC	SC Effect	ST	Non-ST	ST Effect
Regular Salaried	0.02	0.01	0.01	0.02	0.01	0.01
Non-farm self-employed	0.04	0.05	-0.01	0.03	0.04	-0.01
Self-employed in agr	0.11	0.17	-0.06	0.30	0.20	0.11
Casual workers	0.31	0.17	0.14	0.28	0.14	0.14
Out of the LF/unemployed	0.52	0.61	-0.08	0.37	0.62	-0.25

Author's Calculations from Predicted Probabilities Based on Multinomial Logistic Regression Models Run on NSS Pooled Sample

Table 11: Caste Effects on Employment Type for URBAN Men and Women aged 25-55 (1983-2000)

Urban Male						
	SC	Non-SC	SC Effect	ST	Non-ST	ST Effect
Regular Salaried	0.41	0.37	0.04	0.43	0.39	0.04
Non-farm self-employed	0.25	0.36	-0.12	0.21	0.37	-0.15
Self-employed in agr	0.03	0.07	-0.04	0.06	0.07	0.00
Casual workers	0.26	0.15	0.11	0.23	0.14	0.10
Out of the LF/unemployed	0.05	0.04	0.01	0.06	0.04	0.02
Urban Female						
	SC	Non-SC	SC Effect	ST	Non-ST	ST Effect
Regular Salaried	0.10	0.06	0.04	0.10	0.07	0.04
Non-farm self-employed	0.07	0.07	0.00	0.06	0.06	0.00
Self-employed in agr	0.02	0.03	-0.01	0.04	0.03	0.01
Casual workers	0.13	0.06	0.07	0.15	0.05	0.09
Out of the LF/unemployed	0.68	0.79	-0.11	0.65	0.79	-0.14

Author's Calculations from Predicted Probabilities Based on Multinomial Logistic Regression Models Run on NSS Pooled Sample

B. Multiplied effects of caste and education

In the previous section we reported the effects of caste. In this section we discuss the combined effects of caste and various education levels. It is based on interaction terms from multinomial logistic regressions. These are reported in Appendix 6 and 7. Some of the results are counter-intuitive and surprising. We find that while the effect of caste alone (see previous section) confers an advantage in terms of access to regular salaried jobs, yet the multiplied effects of caste and education are more complex. As we will discuss in the next section, this has important implications for the reform of the reservation policy.

Education seems to disadvantage SC men in their quest for high status jobs. Thus, post primary educated SC men have a higher likelihood of being casual laborers and being out of the labor force. In rural areas, even primary education makes them more likely to be casual laborers. Thus, education for the most part confers a “penalty” on SC men.

For ST men too post-primary education is associated with a higher likelihood of being in casual labor, but only in rural areas. In urban areas, primary education has positive effects for ST men. Therefore, for ST men, education seems to help in urban areas, but not in rural areas.

At the aggregate national level, both SC and ST women benefit from education, in terms of their access to regular salaried jobs. Post-primary education has strong positive effects, with stronger effects for ST women. However, SC women in urban areas face the same education penalty as do SC men. They become less likely to get salaried jobs. With higher levels of education, the size of the “penalty” becomes larger.

For ST women, primary completion helps them to stay out of casual labor in urban areas, but otherwise there is little effect of education. Thus, for women in rural areas, education confers a benefit on SC/ST women, but in urban areas, there is little effect.

IV. Discussion and Implications for Policy

- 1. The structure of urban and rural labor markets and access to land determines labor market outcomes:** While the analysis presents a complex labor market, it also yields important insights into urban and rural markets. Rural areas have lower job opportunities for all workers and so the effect of being SC or ST is muted – the only real difference between SC/ST and others is that the former are more likely to engage in casual work. Even lucrative non-farm jobs have a base in agriculture. Thus, the options for SCs and for STs who do not own land (STs tend to own small plots of land for subsistence farming) is casual labor. Therefore, the main difference between SC/ST and non-SC/ST in rural areas is in land ownership and access to farm based employment. When this is not available, casual work is the only recourse.
- 2. The real upward mobility for SC/STs seems to take place when they migrate to urban areas,** since that is where they have a real advantage in employment type. However, those that do migrate to towns are perhaps ones with social networks and education, and we could speculate on a selection bias. The fact that formal jobs need more than education is well-accepted - they need access to information, ability to traverse the bureaucratic loopholes, knowledge about rules, procedures etc. Here, contacts and networks are key to successful entry into the formal salaried market, since information flows often lack transparency.
- 3. Job quotas create a system of rationing of salaried (public sector) jobs for SCs. This works as an “SC cap” on the most coveted jobs, since they cannot penetrate the non-reserved public sector jobs.** The multiplied effects of education on caste suggest that the supply of educated SC labor outstrips demand, leading to a glut of educated men in both urban and rural areas and of educated women in urban areas. That education among SC and STs is improving is without doubt. Desai and Kulkarni (2005) compare the transition probabilities to the next educational level of SCs, STs and Muslims with that of upper caste Hindus. Muslims also suffer from educational disadvantage but do not benefit from affirmative action policies, as do SC/STs. Their results indicate that while SC/STs continue to lag behind upper caste Hindus in educational attainment, these disadvantages have been diminishing over time, particularly in the 1990s. In the wake of expanding education, once SCs do not get access to salaried jobs, they crowd into casual labor, or stay out of the labor force if they can afford to. These results also indicate that once reserved quotas are filled up (especially for Group A, B and C jobs) SC candidates have no other avenue such as self-employment open to them. A corollary of this is also the generation of an entrenched elite among SCs, who benefit from reservations across generations.
- 4. For STs in general and rural SC women, education appears to have an overall positive effect.** This is in keeping with the impression in government recruitment agencies that there is a dearth of ST candidates especially in rural areas and the fact of low educational attainment of SC women and of all STs in rural areas.

IMPLICATIONS FOR POLICY

While this analysis has not been able to test directly the impact of job quotas, its results point to the *success of the reservation policy in enabling access of SC and STs to get regular salaried jobs* – which are predominantly in the public sector. However, it also raises some important questions and calls for a fresh look at the reservation policy and its implementation, particularly in the wake of its impact on the employment potential of educated SC men. That being said, as pointed out earlier, the reservation policy

is politically one of the most volatile subjects in India, and government would need to build a consensus even to assess its impact and to propose changes to it.

The following results deserve additional attention from the policy perspective:

- There are few employment avenues outside of the reserved jobs in the public sector, to accommodate the supply of increasing numbers of educated SCs - especially SC men – leading to a system of filtering or rationing on the basis of which some get jobs and others are relegated out of the labor force or to casual labor. Policy needs to address the issue of other employment avenues for qualified SCs in such areas as non-farm self-employment. Institutions that are supposed to address the self-employment needs for SC/STs (like government-run SC/ST Corporations, Marketing Federations etc) are largely ineffective in allowing these groups to acquire a hold in self-employment.
- Paradoxically, there are still reserved positions even at the highest grades that remain unfilled. ***Therefore, not only the structure of the reservation policy but its implementation needs to be re-assessed.***
- Increasing numbers of qualified SC candidates and the attendant likely competition among SCs (especially among SC men) for reserved jobs may be fostering an *entrenched elite*, leaving out “first generation” entrants into the reserved labor market. This is based on speculation and anecdotal evidence, but is important to research further to test empirically to see if it holds. If it does, it would have important implications for the structure of the reservation policy.
- STs are still educationally not as advanced as SCs (also see Xaxa, 2001) and the gap between STs and non-STs is very wide. There are thus, not as many qualified candidates to fill even the highest positions in public sector jobs that are reserved for them. Policy thus needs to continue to focus on education and skills for STs as the primary labor market intervention.
- Education and skills among women – especially ST women – is of particular concern, leading to their concentration in manual work. Moreover, we need to assess whether the slight decline in the labor force participation rates for SC women holds even after controlling for other factors. If this is so, SC women may perhaps be opting out of a discriminatory labor market, in the same way as non-SC women do (see companion paper on female labor force participation).

Appendix 1: Data, Conceptual Clarifications and Methods

As pointed out in Part 1 of this volume, most analyses of the labor market address the age-group 15-59. However, in the case of India, the declining labor force participation rates are in large part due to the fact that there has been a growth in secondary schooling and individuals from the ages of 15 to about 22 now tend to remain in school longer. Also, age specific labor force participation rates indicate that the prime working age is 25-55. Therefore, when we consider this age group, we not only avoid the majority of students but also the early retirees and can measure the real effect of caste and gender on labor force participation, after controlling for education. *The rest of this analysis is based therefore on the age-group 25-55.*

Data for this analysis come from four rounds of the Employment and Unemployment Schedule of the National Sample Survey data – 1983, 1987-88, 1993-94 and 1999-2000 for individuals aged 25-55 (for reasons explained earlier). This enables us to map the trends over time to see what has changed for the groups under consideration – men and women; and SC and STs (as compared to non-SC/STs). All analyses are weighted and the multivariate analysis is conducted separately for men and women and urban and rural. I use usual principal status activity in all cases, except for wages where I use wages earned from the primary activity (activity 1) in the last week. The independent variables of interest are SC, ST and education (described in detail in Appendix 2).

The sociometric analysis is based on:

- **Descriptive analysis** of the data and trends
- **Bivariate associations** between key employment outcomes and the independent variables of interest
- **Multinomial logistic regressions** predicting the probability of being in different employment types: Merely participating in the labor market is a poor indicator of welfare. Ideally, we would use wage data to calculate the welfare impacts of labor force participation. However, the data set does not include wages for self-employed persons¹⁹. Therefore, we use a loose hierarchy of employment types to assess individuals' allocation to different employment types – viz. regular salaried, non-farm self-employed, farm-based self-employed, casual labor and out of the labor force (see Appendix 2 for coding of dependent variables). We use regular salaried work as the comparison category, since this is the preferred form of employment for educated individuals and the type they aspire to – not merely for wages but for job security, benefits and status. We then estimate the likelihood of assignment of individuals to each of the employment categories simultaneously using a multinomial logistic regression.
- **Use of predicted probabilities:** The effects of the key independent variables on type of employment from a multinomial logistic regression are sometimes difficult to interpret. The coefficients of such models are based on a reference category dependent variable (in this case formal work). Thus, the coefficients for each of the other dependent variables have to be interpreted in relation with the omitted category. This can sometimes become confusing. In order to have a clearer understanding of the coefficients, I calculate mean predicted probabilities for each dependent variable category with the two main independent variables of interest (SC and ST). For instance, I first calculate the mean predicted probability of being in formal employment for Scheduled Caste women, then calculate the same probabilities if the women were not

¹⁹ Per capita household expenditure is often used as a proxy for income, but especially in large extended households, it would be impossible to attribute incomes to specific individuals. Moreover, expenditure is often endogenous to employment.

Scheduled Caste but retained all other characteristics. The difference gives us the net effect of being Scheduled Caste for formal work.

Appendix 2: Dependent Variable Categories for Multinomial Logistic Regression Predicting the Probability of Different *Employment Outcomes*

Dependent Variable Category	Coding criteria (based on usual principal status activity and National Classification of Occupations)
1. Formal Work	Regular salaried or wage employee
2. Non-Farm self-employed	Own account workers not hiring labor Own account employers Unpaid family helpers <u>And</u> Excluding codes 60-65 of the National Classification of Occupations at the 2 digit level
3. Farm-based self-employed	Own account workers not hiring labor Own account employers Unpaid family helpers <u>And</u> Including codes 60-65 of the National Classification of Occupations at the 2 digit level
4. Casual Wage workers	Worked as casual labor in public works Worked as casual labor in other types of works
5. Out of the Labor Force and Unemployed	Unemployed Pensioners, rentiers, prostitutes, beggars, smugglers, disabled, others Domestic workers Students

Appendix 3: Independent Variables and Coding

Variable	Coding
Age Age Squared	i. In years ii. Age Squared as a continuous variable
Marital Status	Dummy Married =1 if currently married Any other =0
Education	4 Dummies No education (reference) Below primary Primary completed Post-primary (secondary and above)
Region	Dummies North =1 if Himachal Pradesh, Punjab, Haryana, Rajasthan, Chandigarh, Delhi East =1 if West Bengal, Orissa, Andaman and Nicobar Islands West =1 if Gujarat, Maharashtra, Goa, Dadra and Nagar Haveli, Daman and Diu South =1 if Tamil Nadu, Karnataka, Kerala, Andhra Pradesh, Lakshadweep, Pondicherry North-East =1 if Manipur, Tripura, Arunachal Pradesh, Sikkim, Assam, Meghalaya, Mizoram, Nagaland Central (Reference) =1 if Bihar, Jharkhand Uttar Pradesh, Uttaranchal, Madhya Pradesh
Urban Residence	Urban dummy (rural as reference)
Household Size	Continuous
Household Head	Dummy
Spouse of Head	Dummy
Land Possessed	Continuous (in hectares)
Caste	Dummies for non-SC/ST (reference), SC, ST
Round	Dummies for 38 (reference) 43, 50th, 55th

Appendix 4:

Odds Ratios from a Logistic Regression

Predicting Labor Force Participation (age 25-55)

	Panel 1 All Men	Panel 2 All Men with Interaction Terms	Panel 3 All Women	Panel 4 All Women with Interaction Terms
Age	1.218	1.216	1.151	1.151
Age2	0.997	0.997	0.998	0.998
Married	3.964	3.957	0.625	0.624
Household size	1.009*	1.01*	0.958	0.958
Below Primary	1.311	1.326	0.517	0.517
Primary Completed	1.512	1.544	0.409	0.394
Post-primary	1.422	1.537	0.474	0.481
SC	0.925**	0.995NS	1.585	1.576
ST	1.208	1.371	3.238	3.242
Household head	3.248	3.252	2.949	2.951
Spouse of Head	0.156	0.156	1.061	1.061
Land Possessed	1.074	1.075	1.001	1.001
Child ≤5 years	1.074**	1.075**	0.911	0.911
Region: North	0.784	0.783	1.081	1.081
Region: South	0.86	0.86	3.038	3.04
Region: East	1.02NS	1.013NS	0.608	0.608
Region: West	0.846	0.845	3.123	3.123
Region: NE	0.813	0.828	0.525	0.524
Round 43	1.155	1.154	1.1	1.1
Round 50	1.225	1.224	0.949	0.949
Round 55	1.004NS	1.007NS	1.01NS	1.01NS
SC*Primary Completed		1.008NS		1.243
SC*Post-primary		0.735		0.92*
ST*Primary Completed		0.862NS		1.257
ST*Post-primary		0.538		0.803

Note: All coefficients significant at the .001 level except:

** - .01 level

* - .05 level

NS – Not significant

Appendix 5:

Odds Ratios of Logistic Regression Predicting Labor Force Participation for Rural and Urban Men and Women (age 25-55)

	Panel 1 Rural Men	Panel 2 Rural Men With Interaction Terms	Panel 3 Rural Women	Panel 4 Rural Women With Interaction Terms	Panel 5 Urban Men	Panel 6 Urban Men With Interaction Terms	Panel 7 Urban Women	Panel 8 Urban Women With Interaction Terms
Age	1.17	1.168	1.145	1.145	1.338	1.338	1.198	1.197
Age2	0.997	0.997	0.998	0.998	0.995	0.995	0.998	0.998
Married	3.879	3.867	0.732	0.732	4.437	4.443	0.419	0.417
Household size	1.005NS	1.006NS	0.961	0.96	1.025	1.025	0.932	0.933
Below Primary	1.288	1.299	0.508	0.508	1.563	1.571	0.546	0.55
Primary								
Completed	1.454	1.437	0.413	0.396	1.862	1.975	0.422	0.413
Post-primary	1.216	1.345	0.345	0.337	1.975	2.007	0.725	0.761
SC	0.921*	0.974NS	1.579	1.557	0.973NS	1.078NS	1.848	1.947
ST	1.259	1.419	3.419	3.359	0.829*	0.756**	2.171	2.408
Household head	3.196	3.2	3.075	3.073	3.442	3.439	2.32	2.331
Spouse of Head	0.153	0.153	1.11	1.11	0.163	0.163	0.778	0.78
Land Possessed	1.084	1.084	1.004**	1.004**	1.027*	1.027*	1NS	1NS
Child ≤5 years	1.081*	1.082*	0.925	0.924	1.049NS	1.048NS	0.892	0.892
Region: North	0.741	0.741	1.063	1.063	0.924NS	0.923NS	1.01NS	1.005NS
Region: South	0.793	0.792	3.33	3.333	1.116*	1.115*	2.121	2.13
Region: East	0.909*	0.901*	0.559	0.56	1.457	1.456	0.997NS	0.994NS
Region: West	0.809	0.809	3.959	3.957	0.975NS	0.975NS	1.462	1.464
Region: NE	0.807	0.822**	0.489	0.483	0.84NS	0.829NS	1.19	1.217
Round 43	1.244	1.242	1.113	1.113	0.933NS	0.933NS	1.005NS	1.005NS
Round 50	1.391	1.39	0.934	0.934	0.9*	0.899*	0.999NS	1NS
Round 55	1.128	1.132	1.034**	1.032**	0.775	0.775	0.929	0.932
SC*Primary								
Completed		1.243NS		1.182**		0.629		1.33
SC*Post-primary		0.696		1.174**		0.874NS		0.658
ST*Primary								
Completed		0.85NS		1.455		1.549NS		0.848NS
ST*Post-primary		0.502		1.094NS		1.177NS		0.714

Note: All coefficients significant at the .001 level except:

** - .01 level

* - .05 level

NS – Not significant

Appendix 6:

Interaction effects from the multinomial logistic regression predicting the probability of being in various employment types for rural men and women (age 25-55)

	RURAL MEN				RURAL WOMEN			
	Non-Farm SE	Farm SE	Casual	Out of LF	Non-Farm SE	Farm SE	Casual	Out of LF
Age	-0.11	-0.12	-0.14	-0.35	-0.11	-0.09	-0.09	-0.25
Age2	0	0	0	0.01	0	0	0	0
Married	-0.02NS	-0.11	0.05NS	-1.68	0.2**	0.9	0.12*	0.74
Household size	0.08	0.05	-0.02	0.02	0.05	0.06	0NS	0.08
Below Primary	0.11	-0.32	-0.61	-0.51	-0.23	-0.6	-0.85	-0.02NS
Primary Completed	-0.08*	-0.55	-1.14	-0.78	-0.16NS	-0.5	-1.14	0.19*
Post-primary	-1.31	-1.9	-3.12	-1.52	-2.59	-3.07	-4.29	-1.83
SC	-0.42	-0.8	0.34	-0.14**	-0.71	-1.03	0.16	-0.76
ST	-0.97	-0.08*	0.24	-0.35	-0.35	0.38	0.7	-0.76
Household head	0.09	-0.17	0NS	-1.2	-0.06NS	-0.03NS	-0.1NS	-1.13
Spouse of Head	-1.23	-1.51	-1.07	3.33	0.35	-0.11*	0.24	-0.02NS
Land Possessed	-0.11	0.23	-0.14	0.11	-0.2	0.09	-0.31	0.05
Region: North	-0.56	-0.94	-0.98	-0.67	-0.69	-0.57	-1.82	-0.17*
Region: South	-0.2	-0.74	0.18	-0.06NS	0.2	-0.44	0.47	-1.11
Region: East	0.09	-0.51	0.09	-0.02NS	0.15*	-1.38	-0.6	-0.11*
Region: West	-0.46	-0.77	-0.07	-0.44	0.08NS	0.38	0.8	-0.73
Region: NE	-0.66	-0.7	-0.85	-0.4	-1.92	-2.11	-2.08	-1.07
Round 43	0.17	0.09	0.15	0.18	0.51	-0.01NS	-0.11*	-0.04NS
Round 50	0.4	0.35	0.52	0.21	0.28	0.3	0.33	0.38
Round 55	0.57	0.37	0.73	0.42	0.46	0.23	0.39	0.31
SC*Primary completed	-0.05NS	0.15*	0.18**	-0.12NS	0.32NS	0.24NS	0.49*	0.14NS
SC*Post-primary	-0.01NS	0.28	0.66	0.41	-0.62	0.38	-0.47	-0.98
ST*Primary completed	-0.09NS	0.05NS	0.11NS	0.12NS	-1.25	-1.16	-1.18	-1.48
ST*Post-primary	-0.01NS	-0.1NS	0.33	0.16NS				
Constant	2.83	4.6	5.29	7.55	2.64	3.56	4.61	7.82

Note 1: Reference category for dependent variable is regular salaried employment

Note 2: All coefficients significant at the .001 level except:

** - .01 level

* - .05 level

NS – Not significant

Appendix 7:

Interaction effects from the multinomial logistic regression predicting the probability of being in various employment types for urban men and women (age 25-55)

	URBAN MEN				URBAN WOMEN			
	Non-Farm SE	Farm SE	Casual	Out of LF	Non-Farm SE	Farm SE	Casual	Out of LF
Age	-0.07	-0.09	-0.14	-0.44	-0.09	-0.17	-0.08	-0.29
Age2	0	0	0	0.01	0	0	0**	0
Married	0.04NS	0.02NS	-0.13	-1.41	0.14*	1.07	0.04NS	0.88
Household size	0.12	0.17	0.05	0.05	0.1	0.16	0.01NS	0.14
Below Primary	-0.34	-0.83	-0.82	-0.68	-0.24	-0.73	-0.76	0.17
Primary	-0.49	-1.04	-1.28	-0.98	-0.34	-0.99	-1.14	0.31
Completed								
Post-primary	-1.18	-1.91	-3.07	-1.19	-2.1	-3.51	-4.08	-1.26
SC	-0.46	-0.89	0.3	-0.17**	-0.85	-1.32	-0.05NS	-1.09
ST	-0.52	-0.13NS	0.53	0.23*	-0.58	-0.41	0.59	-0.85
Household head	-0.08	-0.5	-0.21	-1.62	0.14*	0.02NS	0.09NS	-0.86
Spouse of Head	0.03NS	-0.43NS	0.23NS	1.3	0.56	0.23	0.37	0.49
Land Possessed	0.6	-0.05NS	-0.15	0.07*	-0.12	0.13	-0.08**	0.13
Region: North	0.01NS	-0.69	-0.47	-0.52	-0.94	-1.2	-1.13	-0.28
Region: South	-0.18	-0.43	0.78	-0.18	0.19	-0.21	0.81	-0.5
Region: East	-0.16	-1.16	0NS	-0.2	-0.16**	-1.86	-0.09NS	-0.06NS
Region: West	-0.36	-0.46	0.02NS	-0.34	-0.15	0.11NS	0.43	-0.32
Region: NE	0.04NS	-0.01NS	-	0.04NS	-0.15NS	0.43**	-0.35*	-0.13NS
Round 43	0.12	0.41	0.14	0.18	0.22	0.4	0.01NS	0.13
Round 50	0.31	0.24	0.4	0.19	0.34	0.22	0.21	0.18
Round 55	0.49	0NS	0.66	0.4	0.52	-0.16*	0.17	0.25
SC*Primary completed	-0.24	0.04NS	0.14*	0.28*	0.41**	-0.27NS	0.49	-0.03NS
SC*Post-primary	-0.08NS	0.01NS	0.77	0.33	0.63	1.29	1.08	0.91
ST*Primary completed	-0.52	-0.18NS	0.03NS	-0.61*	-0.06NS	0.43NS	-1.23	-0.18NS
ST*Post-primary	-0.19*	0.08NS	-	0.07NS	0.39*	0.81**	-0.02NS	0.22NS
Constant	1.45	0.49*	0.07NS 3.13	8.04	1.37	1.29**	2.17	6.83

Note 1: Reference category for dependent variable is regular salaried employment

Note 2: All coefficients significant at the .001 level except:

** - .01 level

* - .05 level

NS – Not significant

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