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To work or not to work? Factors holding
women back from market work in Sri Lanka

Ramani Gunatilaka
October 2013

DWT for South Asia and Country Office for India

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Preface

The International Labour Organization (ILO) is devoted to advancing opportunities for women and men to obtain decent and productive work. It aims to promote rights at work, encourage decent employment opportunities, enhance social protection and strengthen dialogue in handling work-related issues. In the wake of the global financial crisis, the ILO's Decent Work Agenda and the Global Jobs Pact provide critical policy frameworks to strengthen the foundations for a more inclusive and sustainable future.

As part of an ILO project on "Female Employment Trends in South Asia", this paper by Ramani Gunatilaka provides new and important insights into the drivers of and barriers to the participation of women in market work in Sri Lanka. This country makes an interesting case study because, despite high levels of education and strong economic growth in recent years, participation of women in the labour force has remained low and relatively stable. Drawing on the labour force survey, the micro-econometric findings indicate the importance of such factors as education in enabling women to access better job opportunities. In terms of policy recommendations, these results suggest that investment in skills training beyond secondary education is critical, and it is imperative to encourage Sri Lankan women to engage in market work.

This paper is part of the ILO Asia-Pacific Working Paper Series, which is intended to enhance the body of knowledge, stimulate discussion and encourage knowledge sharing and further research for the promotion of decent work in Asia and the Pacific.

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Tine Staermose
Director, ILO DWT for South Asia and
Country Office for India

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Executive summary

This study is motivated by the recognition that increasing women's access to employment is necessary to increase human capital and capabilities within households. It is also acknowledged that Sri Lanka's economic growth prospects in the future will be heavily dependent on a greater number of women engaging in market work. The study seeks to inform policy-making aimed at encouraging women to join the work force, and does so by reviewing the literature and drawing on a background study of the views of stakeholders to investigate the factors associated with the probability of women's participation.

In particular, the study looks at the extent to which differences in individual characteristics, and household characteristics, socio-economic class, and familial responsibilities are associated with whether women work for pay or not. It also adds to the econometric literature on women's labour force participation in Sri Lanka by looking at the impact of broader employment and unemployment outcomes on discouraging participation. As far as we are aware, this is the first time that this issue has been looked at in Sri Lanka in the context of a representative sample survey. The econometric analysis also decomposes the likelihood of participation into contributing factors, in order to inform the process of prioritizing and targeting policies.

The study finds important differences in the factors that appear to enable and constrain married and single women, and female heads of households, from participating in the labour market. It is probable that these factors derive from the different roles that they are expected to play in the household as suggested by Malhotra and Degraff (2000). Contrary to the predictions of the static labour supply model, expected wage is not a good predictor of female labour force participation, but receiving remittances from abroad appears to obviate some of the financial need to work.

Of the explanatory variables constructed with the information available in the survey data, the positive drivers of married women's participation decision appear to be: age; educational attainment from GCE Advanced Level and beyond; higher per capita household consumption; availability of domestic help; a higher share of employed females relative to males with the same educational attainment as the individual in the district; and whether they live within the estate sector. Having children later rather than earlier is also likely to be important. The drivers of single women's participation are: age; all levels of education above primary; the presence of other adult women in the household; a higher share of employed females in the district relative to males in the same education category as the individual; and whether they live within the estate sector. Factors associated with the participation of female heads of household in market work are: age; level of education; a large informal sector in the district; and whether they live within the estate sector.

The study also identified barriers to participation. Receipt of remittances from abroad constrained the labour force participation of married women and female heads of households, and a larger proportion of household expenditure accounted for by the earnings of male members of the household made it unlikely that female heads participated. Islamic Moor ethno-religious identity and disability constrained the participation of all women of working age. Education up to GCE Ordinary Level held back married women, and a relatively higher status of household consumption held back single women from participating. Meanwhile, the employment and education characteristics of male household members and male head of household mattered for the participation of married women. Among local labour market conditions, more people being employed in manufacturing and services relative to agriculture in the district was associated with reduced participation of married women and female heads of households. On the other hand, a higher rate of unemployment appears to discourage

the participation of single women. Residence in Central, Eastern and North Western Province constrained the participation of married women female heads of households residing in all provinces outside Western Province were less likely to participate than those living in Western Province.

The decomposition analysis suggests that the most important contributors to the probability of married women's participation are spatial variables, demographic characteristics and education characteristics, which together account for 68 per cent of the likelihood ratio (LRI). The discouragement variables account for 15 per cent of the total while household characteristics constitute 10 per cent. In contrast, demographic characteristics account for half the LRI of the sample of single women. These results appear to be driven mainly by the variables, Islamic Moor and disabled. Education accounts for 24 per cent and household characteristics a further 11 per cent of the LRI of this group. Among female heads of households, the most important contributors are income effect of variables in the static labour supply model and demographic variables, which together account for just over 50 per cent of the LRI. Spatial variables (16 per cent) and household characteristics (11 per cent) are somewhat less important.

The participation decision of married women is particularly complex, depending on a variety of factors. Since most Sri Lankan women end up being married (in the sample, 79 per cent of women in the reference age group who are not household heads are married, while roughly 20 per cent are single), the challenge for policy makers, who are inclined to increase women's engagement in the market economy, is to address the factors that keep women from the workforce after they get married.

These constraints include cultural and status-related perceptions and attitudes about what sort of role married women should play within the household and the gender division of household and care labour within the family unit. But even while better education and higher socio-economic status encourage married women to seek market work, the legal framework governing work in the private sector imposes constraints that prevent women taking up night work or part-time work in rapidly growing and socially-acceptable service sectors. At the same time, many observers point out that the Sri Lankan law, governing maternity benefits, makes employers bear its entire cost, encouraging them to discriminate against the hiring of women (Ranaraja 2013). Meanwhile the lack of family-friendly policies in private institutions and perceived difficulties in finding employment encourage women to seek work in the public sector, which appears more family-friendly by default, rather than by policy, because work norms are less rigidly enforced there than in the private sector.

We need to emphasize here that equalizing women's access to paid employment will surely increase their total workload and commensurately the stress associated with it, if the current division of paid and unpaid work between husbands and wives remains unchanged. An analysis of the time use of husbands and wives in Sri Lanka, based on a survey of about 300 individuals working in Colombo district, conducted more than 13 years ago, found that entering the workforce increases the time that women spend working by three hours per day to 16 hours a day, compared with the time that unemployed wives of married men spend (Satharasinghe 1999). In contrast, husbands' total work time remained close to 14 hours, regardless of whether their wives were employed or not. Thus, any policy strategy that seeks to enhance women's participation in market work also needs to address the issue of the unequal division of unpaid work between men and women.

The findings of the present study highlight the importance of better education for female labour force participation. The critical stage in the education cycle for participation appears to be secondary education, beyond which the likelihood of participation rises, certainly more so for single women than for female heads of households and for married women. In terms of policy, however, the findings suggest that investment in skills training beyond secondary education is critical, and it is imperative to

encourage women to engage in market work. Thus, it is at this point that girls who do not continue in general education should be given the opportunity to acquire job-oriented technical and vocational skills through the vocational education system. The next point at which alternative employment skills need to be provided is after the GCE Ordinary Levels, for those who do not continue to study for the Advanced Levels. Acquiring some marketable skills at this stage in the education cycle is vital to enable women to engage in paid work, even after they are married. This training can equip women for higher skilled occupations in IT, the hospitality industry and the health, day-care/nursery and geriatric-care industry. On the other hand, the economy also needs to generate enough job opportunities for graduates outside the public sector. Currently, the public sector remains the employment sector of choice for many educated women.

Implementing measures to enhance skills is also likely to delay marriage and encourage women to postpone having children, enabling them to acquire some job experience which will increase their chances of finding employment once they return to the labour market after raising children. As de Silva *et al*. (2010) have pointed out, the recent rise in fertility foretells a difficult situation, where the ageing of the population will continue along with an increase in child dependency, thus increasing the dependency burden for the working population at both ends of the population pyramid. Hence, policies that enable women to remain or return to the workforce will help the country to bear the increasing dependency burden that has been projected. At the same time, considering the particular disadvantages faced by female heads of households who are often single parents, training opportunities and opportunities for flexible working arrangements should also be targeted towards this group of women.

The empirical results of this study also highlighted cultural and household-based constraints, particularly to married women's participation in the work force. A key factor is household work and the care burden on women deriving, on the one hand, from the lack of institutional support for the care of young children and elderly people and, on the other hand, social norms that impose on women the larger burden and responsibility for the care of children and household work. The policy implications of these findings are, firstly, the encouragement and implementation of family-friendly policies that encourage a more equitable sharing of the burden of care and household chores between males and females. Secondly, policies that enable more flexible work arrangements such as part-time work, and work that can be done online need to be implemented. Amending the legislation allowing night work in better-paying service industries is also important. Other measures facilitating night-work and more flexible work arrangements should also be implemented, for example, developing the telecommunications and other infrastructure necessary to support online working arrangements and safe and efficient transport to and from work. A secure environment for women to travel to and from work at different hours of the day requires the efficient and impartial maintenance of law and order. A vigilant and well-trained police force and an effective justice system are essential. Policy makers may also need to explore options for socializing the cost of providing maternal benefits, so that employers are not compelled to bear its entire cost, which creates incentives against hiring women. Thirdly, policy makers can provide incentives for the setting up of well-monitored crèches for young children and day care centres for the elderly which can, in turn, provide more job opportunities for women. Some schools in Colombo, for example, already provide day boarding facilities for children after school, and the children are cared for by trained personnel until their parents pick them up after work. Similarly, existing class-room infrastructure in other schools can be utilized after hours to provide reliable child care in a familiar environment.

The empirical results of this study highlighted the role that prevailing inequalities in opportunities and outcomes in the labour market play in discouraging women from entering the workforce. These results suggest that policies that discourage sexism and gender stereotyping in the workplace are likely to have a positive impact on female labour force participation, and that if the state's legal and

institutional infrastructure to handle issues of discrimination and sexual harassment is strengthened, this too will serve to encourage women to engage in market work.

While the National Human Resources and Employment Policy (Secretariat for Senior Ministers 2012) already refers to many of these policies, the findings of the present study provides the empirical evidence to underline them. Nevertheless, Ranaraja's (2013) consultations with stakeholders suggests that while existing policies are appropriate, their implementation is unsatisfactory. A case in point is the revision of the legal framework to enable women to undertake night work in service occupations, despite the fact that employers' and employees' representatives have agreed on this amendment. Another is the promotion of social dialogue between the industrial partners to create a working environment that will be more conducive to women's participation in the work force.

Weak implementation of existing policies may be due to a combination of factors, such as the lack of capacity in the public sector, and insufficient pressure and lobbying to force implementation, due to the dearth of women and more enlightened legislators in Parliament.

The findings of the present study also suggest directions for future research which can inform the formulation of specific policies within the parameters of the National Human Resources and Employment Policy. First, an up-to-date, detailed analysis of men's and women's time use in different cultural and locational contexts would be extremely informative, not only to find out their relative contribution in paid and non-paid work, but also to find out how processes can be made more efficient. For example, parents may be forced to spend an inordinate amount of time supervising children's homework due to the demands made by badly designed school curricula. Similarly, parents may have to spend a lot of time accompanying children to and from school, tuition classes and extra-curricular activities, due to poor quality education services, on the one hand, and the lack of a safe and efficient transport system, on the other hand. Secondly, perceptions about gender roles in relation to paid work, care work, and social and cultural activities with extended family and friends are likely to be important determinants of women's ability to engage in market work and need further exploration and analysis. Finally, up to date information about women's own perceptions about the barriers they face in participating in the labour market and in finding and maintaining jobs, and the kind of work arrangements, facilities and support systems that they think would enable them to go out to work are needed to find out whether policies designed to encourage them to go out to work are likely to actually achieve their objectives.

The research design of this study and its results also highlighted the complementarities of the two main sources of labour market data in Sri Lanka, the HIES and the LFS. Combining the HIES and LFS modules as the Department of Census and Statistics plans to do in 2013/14 will yield a more comprehensive and richer data set which will enable more insightful analysis of issues such as labour force participation in the future. Nevertheless, there are many relevant issues about employability which we were unable to look at due to data limitations. For example, the role played by skills could be captured only by variables denoting general education. Therefore, the LFS schedule needs to be revised in order to enable the collection of information about the technical and vocational training of all labour force participants. Some tests of cognitive and other work-oriented skills would also be useful to find out whether general education and skills-development programmes are effective in transferring work-oriented skills. Perhaps a special module included in the questionnaire every few years may yield the necessary information in a cost-effective way. Meanwhile, the revision of the LFS questionnaire in 2006 has given rise to a very high non-response rate to the question about the reasons for not entering the labour force. As a result, we do not have information about a critical dimension of non-participation, that is, what individuals perceive to be the reason why they do not engage in market work. It would also be more useful if the question about the duration of unemployment were reformulated to be open-ended, rather than closed with just three options as at present. If the

questionnaire can be revised to enable the collection of this information, it will help generate useful insights about dimensions of unemployment and discouragement.

The data collecting authorities can also consider including two additional questions in the schedule, first on the sources of information that people engaging in market work use to find out about job opportunities, and second, their perceived satisfaction about their current jobs. The availability of this information will enable more insightful analyses in the future about labour market issues that have become critically important for the development process.

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Ramani Gunatilaka is an Adjunct Research Fellow of the Faculty of Business and Economics, Monash University, Australia, and works as an independent consultant in Sri Lanka and the region. She is also a member of the Faculty of Graduate Studies, University of Colombo. She holds a BSc in economics from University College London, an MSc in development economics from the University of Oxford, and a doctorate in applied econometrics from Monash University. She has published in the areas of income distribution, poverty alleviation, rural development and labour market issues in Sri Lanka, and on the determinants of subjective well-being in rural and urban China.

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1. Introduction

A large body of empirical research in many countries has shown that women's access to employment and resources in women's hands increase human capital and capabilities within households and promote economic growth (Kabeer 2012). Meanwhile, the rights-based approach to gender equality, as defined by the Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW), commit signatory countries, of which Sri Lanka is one, to undertake to eliminate all forms of discrimination against women and ensure equality in access to opportunities and benefits (United Nations 1979). Of these rights, the right to equal opportunities for employment is a critical one. There are also practical reasons why Sri Lanka's policy makers need to turn their attention towards this issue: more women need to engage in market work and productivity levels must rise, across the board, if the economy is to maintain current economic growth rates, raise living standards, and generate savings to fund social protection for the present generation of Sri Lankans (Ministry of Labour Relations and Manpower *et al.* 2009; Institute of Policy Studies 2012).

While demographic changes and overseas migration have tightened the labour market, male participation is already relatively high at 75 per cent of the more than 15 years old male population of working age in 2010 (Department of Census and Statistics 2011). Labour force participation rates of women, in contrast, stands at 34 per cent (ibid.), one of the lowest in the world, negating the achievements in health and education on the country's Gender Inequality Index (UNDP Sri Lanka 2012).

Low rates of female entry to the labour market in Sri Lanka are surprising, given the relatively reasonable rates of economic growth (4.9 per cent annually since liberalization in 1977) that have been achieved, despite a decades-long conflict, which ended only in 2009. Besides, Sri Lankan women are generally well-placed in terms of both the family and the education system. For example, female inheritance rights and access to educational opportunities for Sri Lankan women make their lot better than that of many other South Asian women (Malhotra & De Graff 1997). In addition, the early introduction of universal franchise and equal rights to contest elections in 1931, constitutional protection of equal rights for men and women adopted in 1978, and the ratification of the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) in 1981, have contributed greatly towards improving the status of women in Sri Lanka. Nevertheless, as Jayaweera (2011, p. 80) notes, "Rising educational levels have not facilitated the access for the majority of women to remunerative employment and to upward occupational mobility".

Roughly 8 million of Sri Lankans above 15 years of age are currently working or seeking work. But figure 1 based on published historical data from the Department of Census and Statistics, shows that participation rates for both sexes (age 10 years and over) have been remarkably stable over the last two decades, despite considerable structural changes in the economy during this period. Male participation rates have been consistently twice as high as female participation rates, even while unemployment rates have declined for both sexes. The female unemployment rate is twice as high as the rate for males.

Figure 1: Labour force participation and unemployment rates, 1993-2010
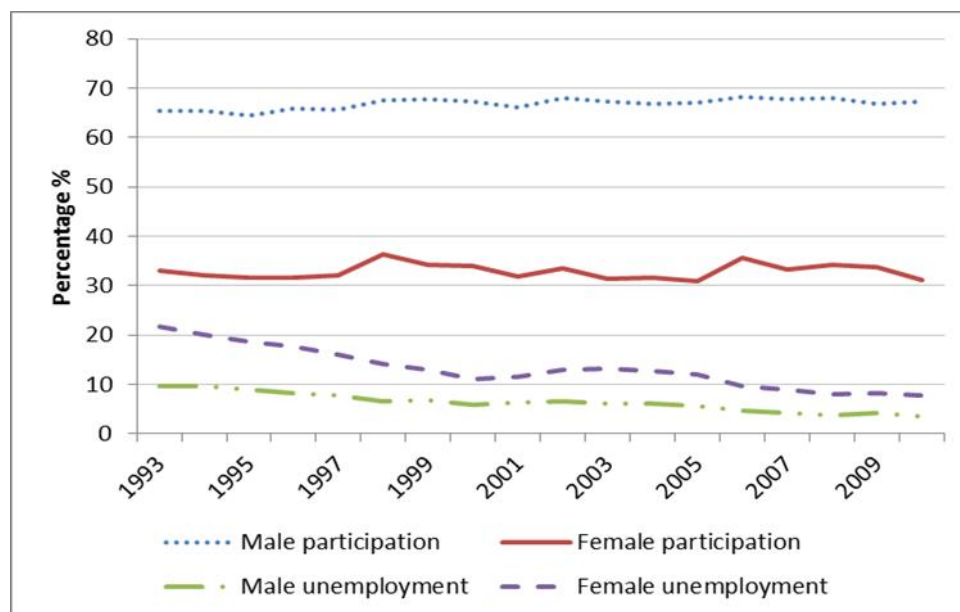
Source: Department of Census and Statistics (2011).

Note: Data relates to the population 10 years and over and to the provinces outside the North and East. There is no data available for the Northern and Eastern Provinces for most of the period, although data for some districts in these regions are available for a few years.

This study seeks to inform policy-making aimed at encouraging women to join the work force by investigating the factors associated with the probability of their participation and then decomposing the likelihood of participation into contributing factors. It is motivated primarily by the recognition that labour-force led economic growth in the future will be heavily dependent on greater numbers of women engaging in market work. Besides, since Sri Lankan women are outliving men in a population that is rapidly ageing (life expectancy at birth for men and women in 2002 was 69 and 77 years, respectively (UNDP Sri Lanka 2012)), whether women have access to social protection in old age will be largely conditional on their access to employment and earnings opportunities. This provides further justification for this research. The study uses unit level data from the Department of Census and Statistics' Labour Force Surveys (LFS) and the Household Income and Expenditure Survey (HIES) for the econometric analysis. But the quantitative analysis is informed by a background analysis, based on interviews with key stakeholders, such as officials in relevant government ministries, employers' organizations and trade unions (see Ranaraja 2013).

There have been periodic surveys of the employment situation faced by Sri Lankan women in the past, for example, Rodrigo and Deraniyagala (1990) and Jayaweera (2011). But as far as we are aware, there is little published analytical work devoted to the issue of women's labour force participation in Sri Lanka, with the exceptions of Malhotra and DeGraff (Malhotra & De Graff 1997; Malhotra & DeGraff 2000) and Madurawala (2009). Malhotra and DeGraff (1997) investigated the factors that are associated with labour force participation of single women separately from those associated with employment using a sample of 1460 women from Kalutara District in 1992. In contrast, Malhotra and DeGraff (2000) looked at whether differences in women's roles as unmarried daughters versus wives are relevant in shaping women's labour force activity. Madurawala (2009) used more recent information gathered from three micro-surveys of female employees, women who quit work and employers, to identify the issues and constraints faced by women of child-bearing ages in entering and remaining in the labour market.

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The sparseness of research in this area may be due to labour market research in Sri Lanka being long preoccupied with high rates of youth unemployment, rather than with labour force participation (see Gunatilaka *et al.* 2010). The ever-present threat of youth unrest arising from the mismatch between job aspirations and the kind of jobs that the economy has been able to generate has driven much of this research. For example, since 1971 Sri Lanka has experienced three youth insurrections, the last one dragging on for nearly three decades, with ethnic and regional dimensions. The issue of women's labour force participation has received relatively less attention and has only recently emerged to claim the attention of policy makers, after it came to be realized that the growth of Sri Lanka's prime age cohort was stabilizing, even while the population rapidly aged, with serious implications for future economic growth (Arunatilake & Vodopivec 2008; Ministry of Labour Relations and Manpower *et al.* 2009).

While female labour force participation rates in Sri Lanka are low, women who do decide to participate face a different set of disadvantages. In fact, a low participation rate is only the tip of the iceberg in terms of how women are faring in the labour market. First, finding employment is difficult even for those women who want to work, despite the fact that thanks to free education policies, women are as well-educated as men (Ministry of Labour Relations and Manpower *et al.* 2009). As noted earlier, the unemployment rate for women is twice that of males, and women with at least Advanced Level qualifications make up slightly more than a fifth of all unemployed people while equivalent males account for only less than a tenth (ibid.). This may be because job opportunities for women are limited to only a few sectors, whereas males have a wider range to choose from. Rapidly growing sectors, such as construction, trade and transport are largely male-dominated, and social attitudes about what sorts of jobs are appropriate for women and issues of personal safety, transport and housing, may be constraining women from taking up certain types of jobs, especially those away from home.

Secondly, on average, women are paid less than men, even when they share the same productive characteristics. For example, in 2006, male employees in the private formal sector enjoyed wage rates roughly twenty per cent higher than wages earned by women, when all other productive characteristics were accounted for, while the wage rates of male informal employees were 40 per cent more than those of female informal employees, when all other characteristics were controlled for (Gunatilaka 2008). Gunewardene's (2010) decompositions of the gender wage gap in the period 1996 to 2004 reveals that women are underpaid in all sectors and for all ethnic groups, even when unconditional wage gaps favour women. Thus, the disadvantages and discrimination that women face in the labour market, should they decide to participate, may discourage others from following suit.

In Section 2 we set out the background for this study by reviewing the theoretical reasons underlying women's participation in the labour force that have emerged in the literature. We then present a descriptive overview of trends in labour force participation and employment in Sri Lanka between 1996 and 2008, in order to further motivate the discussion. Section 3 sets out the empirical strategy, defines the variables and presents the results of the probability analysis and decomposition. Section 4 concludes and draws the implications for policy and future research.

2. Literature review, data and overview

2.1. Literature review

Labour force participation is usually regarded as an issue of labour supply, but it is also conditioned by factors that influence labour demand. Thus, while the theoretical literature about labour force participation starts with the neoclassical static labour supply model, subsequent theoretical developments have encompassed many other demand and supply side factors in trying to explain the participation decision. We briefly review this literature.

The standard, neoclassical static labour supply model suggests that an increase in the wage rate will increase the supply of labour (Blundell & MaCurdy 1999). This is because higher wages makes leisure, the opportunity cost of work, more expensive and hence reduces demand for it (substitution effect). On the other hand, an increase in the individual's or household's income will increase the demand for leisure and hence reduce labour supply (income effect). So the labour supply of an individual who is already working will depend on the relative strengths of the income and substitution effects. In contrast, for a person who is not already engaged in work, an increase in the wage rate increases the incentive to work, and an increase in non-labour income or the incomes of other household members is a disincentive to enter the workforce.

In developed countries, however, the elasticity of women's labour force supply in response to own wage changes appears to have declined markedly, perhaps partly due to fewer married women remaining on the margin between participating and not participating. Increasing divorce rates and greater career orientation are also making women's labour supply less sensitive to theirs and to their husbands' wages (Blau & Kahn 2007). Hence, the standard neo-classical theory about the relationship between wages and labour supply may be more relevant to the issue of women's labour force participation in the more traditional societies of developing countries.

Nevertheless, there are many factors besides a choice between paid work and leisure that underlie a woman's decision to go out to work. Deciding to participate in the labour market usually involves a choice between paid market work and unpaid housework or care-related work which feminist economists prefer to call caring labour as it describes an intrinsic motive based on emotional caring or attachment for individuals for performing that work (Folbre 1995). Moreover, while a woman's reproductive role may require that she withdraws from the labour market for the birth of her child, whether she chooses to supply care labour, rather than engage in market work thereafter may also depend on the cost and quality of alternative child care available, as well as on gender norms linked to culturally-constructed concepts of familial altruism and individual self-interest (Badgett & Folbre 1999). Gender theorists argue that divisions of housework between men and women is the outcome of housework conflict influenced by socialized gender-roles, with women being made to assume the lion's share of household chores to demonstrate their gender identities in heterosexual interaction (West & Zimmerman 1987; Braun *et al.* 2008; Ruppanner 2010). Demands made on women's time by caregiving and housework, in turn influenced by gender norms in the particular cultural context, are critical in the participation decision.

For example, Cunningham (2001) shows that unmarried women without children in Mexico are as likely to work as men, while the participation decision of married women depends on the presence of young children and the level and stability of household income. In Sri Lanka, nearly a third of the women employees of child-bearing ages that Madurawala (2009) surveyed had considered quitting

their jobs, because of difficulties balancing the costs of child care with market work, and a fourth had encountered pressure from husbands and other family members to quit work, in order to look after their children. Tellingly, one of the women whom Madurawala (2009) interviewed stated that although she has no intention of being reemployed, she feels that she has lost her financial freedom after relinquishing her previous job.

It stands to reason that the availability and cost of childcare must be an important determinant of women's market work. Lokshin et al. (1999) found that high costs of child care in Kenya discourages households from using formal child care facilities and has a negative effect on mother's participation in market work. In the U.S., one in five pre-school children of working women is looked after by grandparents and Posadas and Fernandez (2012) show that the availability of grandparents' childcare is a significant determinant of maternal labour force participation, particularly for disadvantaged women. In Sri Lanka it has long been culturally acceptable to delegate maternal responsibilities to substitutes, including grandmothers, aunts and child-minders (Dias 1990). The demand for day care in and around Colombo also appears to be growing as working mothers from wealthier urban households look to institutional providers of childcare. Nevertheless, Madurawala (2009) found that the principal coping strategy that working mothers resorted to in the absence of affordable formal child care facilities was to get the help of their parents or parents-in-law or extended family to look after their children while they were away at work. All the interviewees who quit their jobs did so mainly because of their inability to get their mothers' support in child caring (due to employment, illness or death). They were reluctant to keep their children with domestic aides in their absence.

In many developing countries, women from wealthier families or from specific ethnic groups are constrained in their activities because of concerns about sexual purity or are discouraged from venturing out of the domestic and social spheres. This is especially the case in Asian societies where women's life options are fundamentally defined by gender and familial relations or class and ethnic norms (Desai & Jain 1994). For example, Malhotra and DeGraff (2000) looked at whether differences in women's roles as unmarried daughters versus wives are relevant in shaping women's labour force activity in Sri Lanka and the extent to which this is mediated by social class and poverty status. They found that while poverty promotes women's market work, regardless of marital status, unmarried daughters in upper-class families are more often viewed as receiving care and are not impelled by family obligations and responsibilities to work, unless it is for personal fulfilment. In contrast, young, married women of the upper-classes are more likely to seek market work as they seem to aspire to, and/or be expected to contribute to maintain or improving the socio-economic status of the household. Malhotra and DeGraff's (1997) study about single young women's labour force participation and employment in Sri Lanka also found cultural differences across ethnic groups in the acceptability of young women working, the necessity for them to work across social classes, and class-based advantages in access to information and channels that facilitate job acquisition.

In Turkey, too, declining rates of female participation appear to be correlated with rising religious conservatism, in turn, fuelled by increased urbanization because men's attitudes towards conservatism differ between rural and urban areas (Goksel 2012). In contrast, Amin and Alam (2008) found that Muslim women in rural Malaysia, whether single and married, were significantly less likely to work for pay than Buddhists or Hindus. But there was no significant difference in the probability of urban married women of different religions working for pay, even though single Muslim women in urban areas were still less likely to participate in the labour market, than urban women of other religions. Similarly, Contreras and Plaza (2010) found that the more women had internalized *machista* and conservative cultural values in Chile, the less they were likely to participate in the labour market.

Badgett and Folbre (1999) also argue that these gender norms are reinforced by occupational segregation when women enter paid employment, with women crowding into certain occupations and

sectors that are considered socially 'appropriate' and losing out on jobs with better wages and conditions of work that are available to men.

Klasen and Pieters (2012) argue that a U-shaped curve exists within countries between economic or educational status and women's labour force participation at a given point in time. Among the poorly educated, women are forced to work to survive and combine farm work with housework and care work. But, as educational levels and economic status increase, women may face barriers to market work because of the absence of the need for female earnings and the prevalence of social stigmas associated with female employment. In fact, at this level of economic development, 'sending one's wife out to work' may be seen to lower social status. However, among the very highly educated, high wages, as well as the high social status associated with professional work, may enable women to work. The authors provide empirical evidence based on an analysis of data from the National Sample Survey of Employment and Unemployment to show that push and pull factors related to education and income do explain the U-shaped curve between education and female labour force participation in urban India between 1987 and 2004. Thus, they conclude that India's impressive economic performance has succeeded only in creating attractive labour market opportunities for highly educated women, whereas labour force participation among the poor appears to be distress-driven.

In fact, the interaction between the cultural context and macroeconomic conditions is an important theme in the literature on female labour force participation in developing countries. For example, the feminization U-curve hypothesis seeks to explain the relationship between female labour force participation and economic development in terms of a U-shaped function and combines elements of both labour demand and labour supply. In a developing country, female labour force participation first declines and then increases as the economy develops, due to a combination of structural change in the economy, income effects and social opprobrium associated with factory work by women (Goldin 1995; Mammen & Paxson 2000). The base situation is of a predominantly agricultural, poor economy where women's labour force participation is high on family-owned farms. Then, as the development process takes off, education levels rise and employment shifts from agriculture to manufacturing, but education levels among males rise much faster than among females and men are drawn into the manufacturing sector. The positive substitution effect of rising female wages is dominated by a negative income effect as women's unearned income rises fast. Participation is further reduced by social norms that work against women working outside the home. Later on as women's education rises, the service sector expands along with socially acceptable white-collar jobs opportunities. As a result, female labour force participation rates increase. Empirical evidence in support of this hypothesis, however, is mixed. Klasen and Pieters (2012) point out that the evidence in support of it is derived mainly on cross-country analysis, whereas panel analyses have produced mixed results (Cagatay & Ozler 1995; Tam 2010; Gaddis & Klasen 2011).

In any case, the growth of the manufacturing sector in many developing countries has been associated with higher levels of low-wage female, rather than male employment. Standing (1989) argues that economic liberalization and the advancement of modern technologies associated with changing skills and job structures have seen the erosion of labour rights of 'insiders', notably unionised male wage workers and minimum wage legislation. The labour of these workers has been substituted with the low-waged labour of young women, who have low aspiration wages, as well as low efficiency wages, and who are, therefore, prepared to work for low wages for long work weeks (Standing 1989, 1999). There is some empirical evidence in support of this. Berik et al. (2004) found that increasing trade openness was associated with higher residual wage gaps between men and women in two East Asian economies, while Menon and Rodgers (2009) found the same result holding in the more concentrated (less competitive) of India's manufacturing industries. In Brazil, tariff reductions were associated with an increase in female labour force participation and employment. An acceleration in the movement of workers from agriculture and manufacturing to trade and other services, greater labour market insecurity and male unemployment appear to underlie the observed increase in female economic

activity (Gaddis & Pieters 2012). However, a cross-country survey of developing countries by Cooray et al. (2012) found FDI and trade to have a generally negative, though negligible impact on female labour force participation. The authors suggest that this may be due to the globalization process increasing the skill premium which encourages younger cohorts to delay entry into the labour market and invest in acquiring skills instead. The direction of the change was also found to be dependent on the structure of the economy. Nevertheless, Madurawala's (2009) interviews of employers revealed that there is positive discrimination in favour of women in Sri Lanka's export-oriented garment industry because management perceives them as being more 'manageable', 'flexible', and as having 'patience', conducive to the smooth running of labour-intensive production processes without disputes and strikes. All of these factors were seen to translate into higher company profits.

Another strand in the theoretical literature explains women's labour supply in terms of an insurance mechanism for households or an added-worker effect, with women's labour force participation rates moving counter-cyclically by moving from non-employment into paid and self-employment during recessions (Fallon & Lucas 2002; Attanasio et al. 2005). Bhalotra and Umana-Aponte (2010) provide empirical evidence from Asia and Latin America, pointing out that counter-cyclicality is strongest in households with limited alternative means to cope with income shocks.

In the next section we look at the available Sri Lankan data that can be analysed to investigate the association of some of the drivers and constraints identified in the theoretical and empirical literature with women's entry into Sri Lanka's labour market.

2.2. Data

The primary source for labour force-related data series in Sri Lanka is the Department of Census and Statistics' Quarterly Labour Force Surveys. The surveys have been conducted every quarter since 1990 in all parts of the country (outside the North and East), with some exceptions. In 2005 only an annual survey was conducted throughout the country, and since 2008 the Northern and Eastern Provinces were also gradually covered as the war receded. Thus the series contains data from parts of the formerly conflict-affected regions after the conflict in those regions ended between 2007 and 2009.

The surveys include information on demographic characteristics, education, occupation and industry for all employed persons. They are conducted over 12-monthly rounds to capture regional and seasonal variations and are based on a two-stage stratified sample. The urban, rural and the estate sectors in each district of the country are the selection domains and the district is the main domain used for stratification.

Information enabling the identification of informal employment, according to the conceptual framework of the 15th International Conference of Labour Statisticians (15th ICLS), such as whether the enterprise is registered, its size and whether employees are effectively covered for social security, is available only from 2006 onwards. Unlike in earlier surveys, information about vocational and technical training and job experience is available only for unemployed persons from 2006 onwards. While reliable wage data for employees is also available only from 2006, the survey does not contain any information about the earnings of self-employed workers and employers, nor does it contain any other information about household income.

In contrast, the Department of Census and Statistics' Household Income and Expenditure Survey (HIES) which has been carried out every three to five years at least, since 1980 (known as the Labour Force and Socio-economic Survey in 1980 and 1985), contains information on both income and expenditure of individuals and households, as well as about demographic and employment-related characteristics. These surveys, too, are conducted over the year in 12-monthly rounds and are stratified according to sector of residence (urban, rural and estates), their design making them representative at district level.

Since 2006/7, some additional information on job status and new schedules on health status, schooling and access to facilities have been available. While the surveys conducted between 1990 and 2002 did not cover the North and the East, HIES 2006/7 covered two out of three districts in Eastern Province, and the most recent HIES 2009/10 survey covered all three districts in the east, and three out of five districts in the North.

However, the definition of employment that the HIES uses is not time-bound and determines the employment status of the survey respondents only according to the individual's income source, as reported by the respondent. Consequently, an individual cannot be classified both as employed or unemployed and in education, in the HIES. As a result, participation rates derived from the HIES may be biased downwards. In contrast, the Sri Lanka Labour Force Survey (LFS) determines employment status only after ascertaining the involvement of the individual in any form of economic activity through a series of tactical questions, and after verifying the duration of such involvement (Wickramasinghe 2009). As a result, the HIES figures for employment appear to be lower than the figures obtained from the LFS for the same survey year (Gunatilaka 2010). However, the official employment rate is based on the LFS figures.

In selecting the data to be analysed for the present study, it was decided to leverage the complementary strengths of both data sources. Hence, for the descriptive analysis of trends in participation and employment in the sub-section that follows, we decided to base our estimates on unit level data from four LFS data sets: those of 1996, 2000, 2004 and 2008. But considering that the first three surveys excluded the North and the East of the country, the trends analysis is based only on data from the provinces outside the formerly conflict-affected regions. For estimating models of labour force participation in section 4, we decided to use unit level data from the HIES of 2009/10, given the extensive information about household characteristics available in that survey.

However, we used data from the last two quarters of the LFS of 2008 and the first two quarters of the LFS of 2009 to construct some explanatory variables that were related to district-level employment outcomes of the previous year that may have had a bearing on the participation decision in 2009/10. These were merged with the HIES 2009/10 data by quarter, district, sex and education categories, as necessary. This also enabled us to avoid the problems of endogeneity and sample selection bias that would have arisen if we had used data from the HIES 2009/10 data itself to construct these variables. Admittedly, as stated earlier, the employment definitions in the two surveys are different. But this problem is unlikely to bias our results as it is the variation in these characteristics within that survey year that matter, rather than a comparison between these characteristics and similar characteristics between the two years.

It should be noted that the probability analysis is based on data from both the LFS of 2008 and 2009 and the HIES of 2009/10, and since the two LFS data sets do not contain data from the Northern Province and Trincomalee district in the East, we excluded all of Northern Province and Trincomalee District of the Eastern Province from the analysis. This is in spite of the fact that the HIES of 2009/10 covered the entire East and some of the North. The trends analysis, in contrast, excludes both the

Northern and Eastern Provinces. Per capita household consumption data from HIES 2009/10 was adjusted for spatial differences in prices using the Department of Census and Statistics' Laspeyres spatial price index, constructed using unit level data from HIES 2009/10.

Major population surveys have many sampling units which have different probabilities of being selected. The sampling units may also have different means. If this is the case, then an unweighted sample mean is an inefficient estimator of the population mean. In order to ensure the efficiency of the estimators and the representativeness of the findings, the data was adjusted using the inflation factors provided by the Department of Census and Statistics. Thus, the survey commands of the statistical package, Stata, were used to generate descriptive statistics, as well as regression results.[1]

2.3. Overview of trends, 1996-2008

In this section we present trends related to labour force participation and employment outcomes of women and men who are at least 15 years of age, using four years of annual LFS data over the period 1996 to 2008. The Northern and Eastern Provinces are not included in this analysis because of non-availability of data.

2.3.1. Labour force participation

While female labour force participation rates are lower than male participation rates in every age category (see Figure 2), they have been declining over the years for the 15-24 years age group, but have risen for the 40+ age group. In contrast, male participation rates have declined for young people between 15 and 19 years of age, but remained steady in all other age categories. The decline in youth participation rates are likely because they may be staying longer in education, in order to better their chances of getting a good job when they eventually enter the labour market.

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[1] However, Stata's estimation commands that adjust for sample design do not produce goodness of fit tests and we could not find a suitable user-written programme to do it either. Hence, we are unable to say to what extent the variations in the explanatory variables included in our models together, account for the probability of labour force participation.

Figure 2: Labour force participation by age category (%), 1996-2008

Women

Men
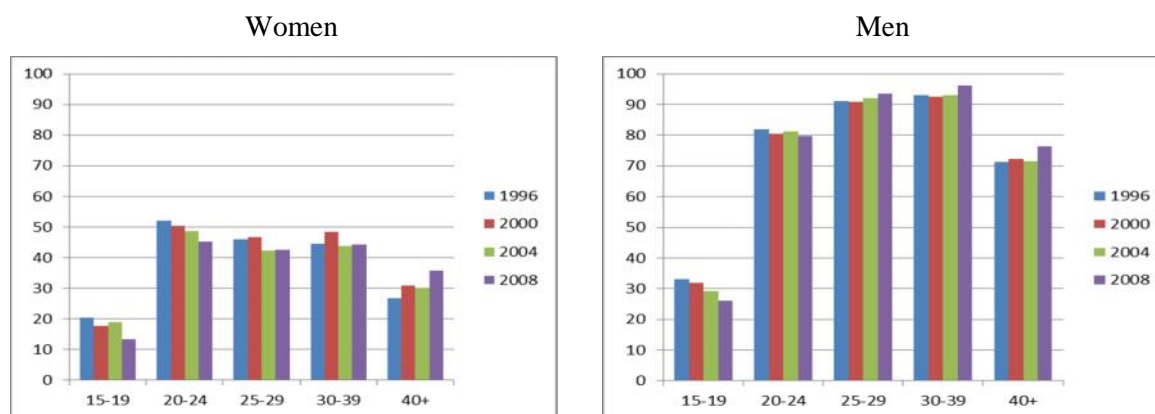
Figure 3: Labour force participation by marital status (%), 1996-2008
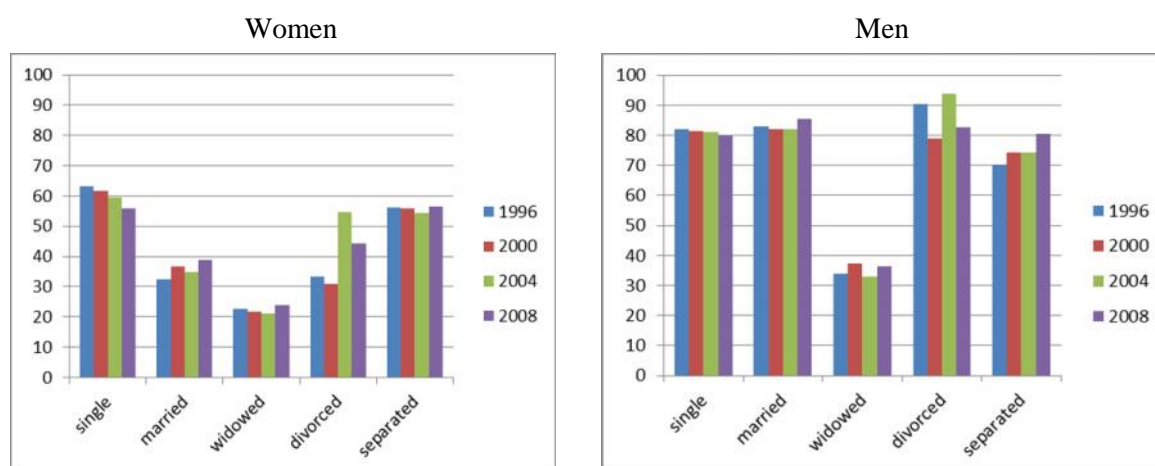
Women

Men

Source: Estimated using LFS 1996, 2000, 2004 and 2008. Data excludes Northern and Eastern Provinces. Sample weights used.

As Malhotra and DeGraff (2000) note, given the centrality of marriage in Sri Lanka, the dynamics of women's employment and economic contributions to the family cannot be fully understood without considering the role of marital status. Figure 3 sets out participation rates by marital status, and while widowhood is associated with the lowest rates of women's labour force participation (24 per cent in 2008), married women have the next lowest participation rates (39 per cent in the same year). Among males, only 30 per cent of widowed males are either employed or looking for work, compared to general rates of over 70 per cent in all other marital status categories. However, it is significant that single women's participation rates of over 50 per cent appear to drop to less than 40 per cent on marriage. But over the years, single women's participation rates have declined slightly, and married women's participation rates have increased slightly.

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Figure 4: Labour force participation by ethnicity (%), 1996-2008

Women   Men

Figure 5: Labour force participation by religion (%), 1996-2008

Women   Men

Source: Estimated using LFS 1996, 2000, 2004 and 2008. Data excludes Northern and Eastern Provinces. Sample weights used.

While the participation rates of males of all ethnic groups have been high and fairly consistent over the 1996-2008 period, there are distinct differences in female participation rates among ethnic groups. Figure 4 shows that participation rates are highest among Up Country Tamils, who account for roughly 4 per cent of the female working age population and lowest among Moors, who account for about 9 per cent of the female population of working age, although there appears to be a slightly increasing trend in the latter's participation rates over the years. In terms of religious category too, men's participation rates have been high and around the same level, whereas there are distinct differences by religion in female participation rates (Figure 5). Hindu women's participation rates are among the highest and followers of Islam have the lowest rates. These figures can be explained by the fact that most Up Country Tamil women are Hindus, who have traditionally played an important role in the labour force as tea pluckers and rubber tappers, almost from the very beginning of the plantation economy in the nineteenth century (Jayawardena 1976). Increasing participation rates in recent years among Moors, who are almost invariably followers of Islam, may be due to rising education levels among this group as the experience in other countries has been that female labour force participation rates are strongly influenced by education levels.

In fact, there is a faint suspicion of a U-shaped relationship between educational status and women's labour force participation in Figure 6. Thus, what Klasen and Pieters (2012) find in India may be prevailing in Sri Lanka, too, with participation rates among the primary-educated actually rising in recent years. Nevertheless, the U-shaped relationship in Sri Lanka is not at all as pronounced at the lower end of the educational attainment scale as in India. This is probably due to their having two additional educational categories, literate and literate below primary. In contrast, the proportion of Sri Lankan workers in these two categories is relatively small. For example, only 8 per cent of women between 15 and 60 years of age were illiterate in 2008, according to LFS data. This number halves if the sample is truncated at 40 years of age. Participation rates are above 70 per cent for those with tertiary education, and above 45 per cent for those with Advanced Level qualifications. But participation rates among the latter have been declining over the years, probably because they are delaying entry into the labour market in favour of obtaining more training to improve their job prospects when they enter it eventually.

Figure 6: Labour force participation by education level (%), 1996-2008

Source: Estimated using LFS 1996, 2000, 2004 and 2008. Data excludes Northern and Eastern Provinces. Sample weights used.

In Figure 7 and Figure 8 we combine education levels and marital status to show that, while for single women better education is associated with greater participation, the U-shaped relationship between participation rates and educational attainment is slightly more pronounced for married women. Malhotra and DeGraff (2000) found a similar relationship for young married women in Kalutara district in Sri Lanka in the early 1990s. Only university-educated married women match their single counterparts in participation rates. Participation rates of married women in all other education categories are lower than the rates of similarly educated single women.

While participation rates of plantation women are much higher than the rates of urban or rural women, due to the reasons discussed above in relation to Up Country Tamil women, the urban sector posts the lowest participation rates (see Figure 9). There is little significant difference in participation rates across provinces, other than for Central Province and Uva, where female labour force participation rates tend to be higher, driven, no doubt, by the concentration of plantations in these two districts and higher rates of poverty in Uva (Figure 10).

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Figure 7: Labour force participation of single persons by education level (%), 1996-2008

Source: Estimated using LFS 1996, 2000, 2004 and 2008. Data excludes Northern and Eastern Provinces. Sample weights used.

Figure 8: Labour force participation of married persons by education level (%), 1996-2008
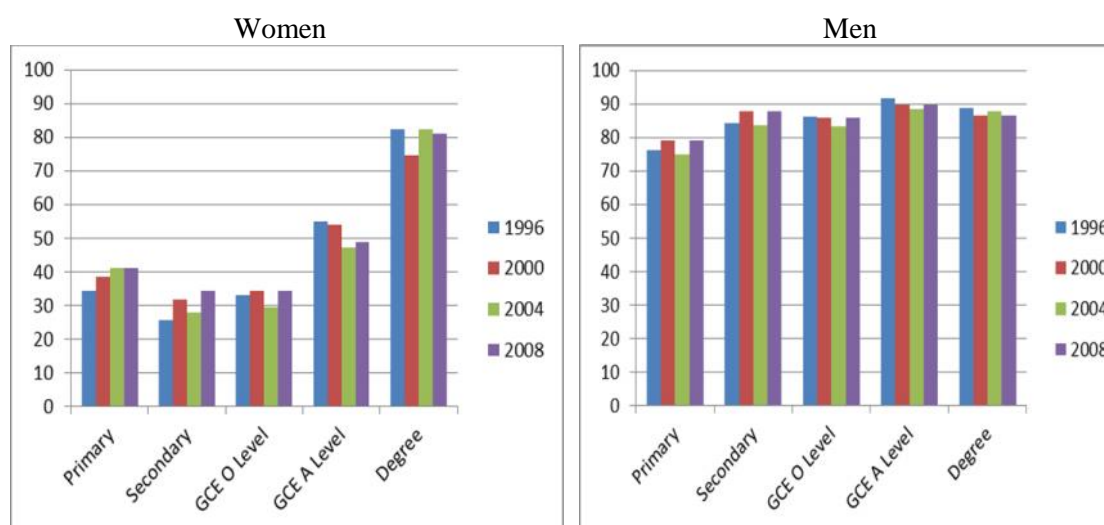
Source: Estimated using LFS 1996, 2000, 2004 and 2008. Data excludes Northern and Eastern Provinces. Sample weights used.

Finally, we look at the reasons advanced for not entering the labour force in Figure 11. We are able to plot the graph with only the data for 1996, 2000 and 2004 because the structure of the questionnaire was changed in 2006 from whence onwards the response rate for this question became too low for analysis. There are interesting differences in the reasons that men and women have advanced for not working. Housework is the predominant reason why women do not participate, but pursuing education and retirement are the main two reasons why men do not participate. Disability and disinclination appears to account for greater proportions of men who are not in the labour force than for women non-participants.
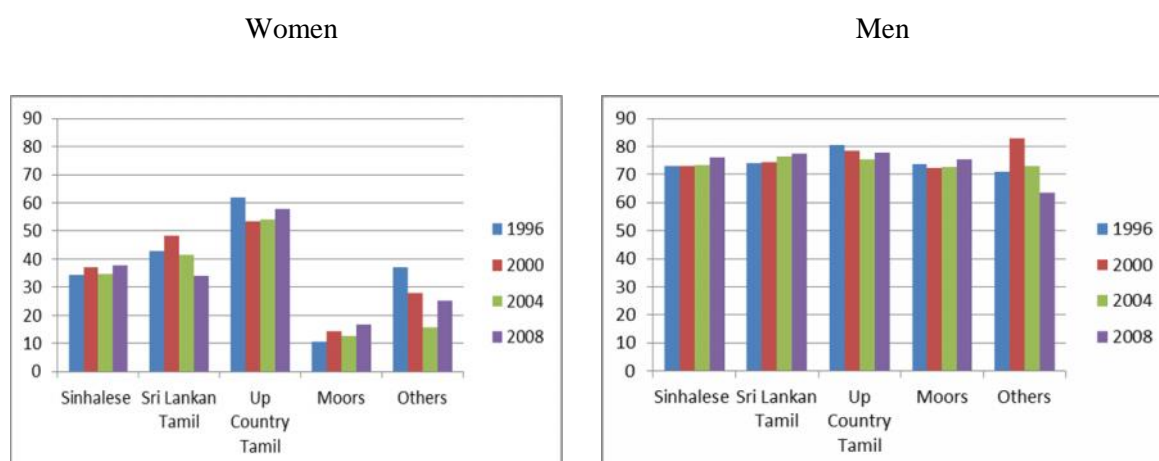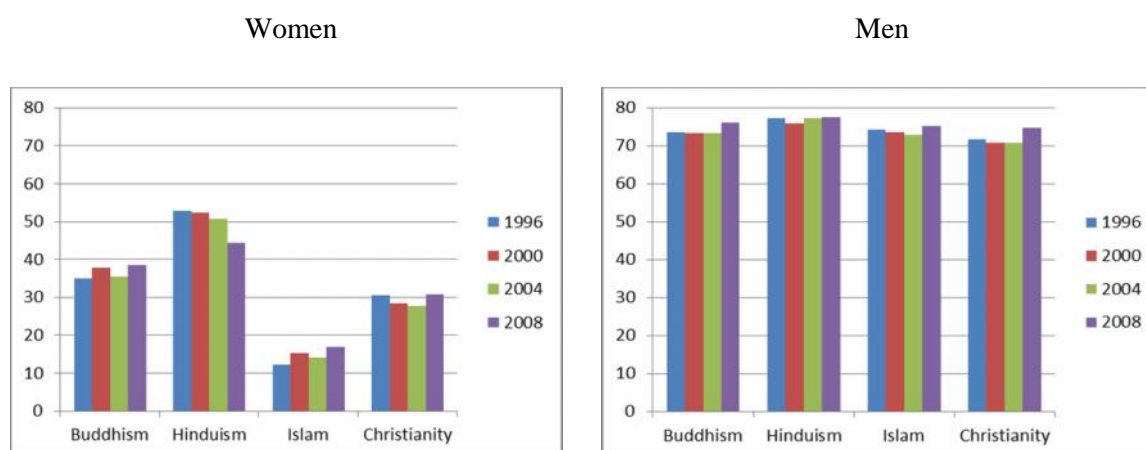
Figure 9: Labour force participation by sector of residence (%), 1996-2008
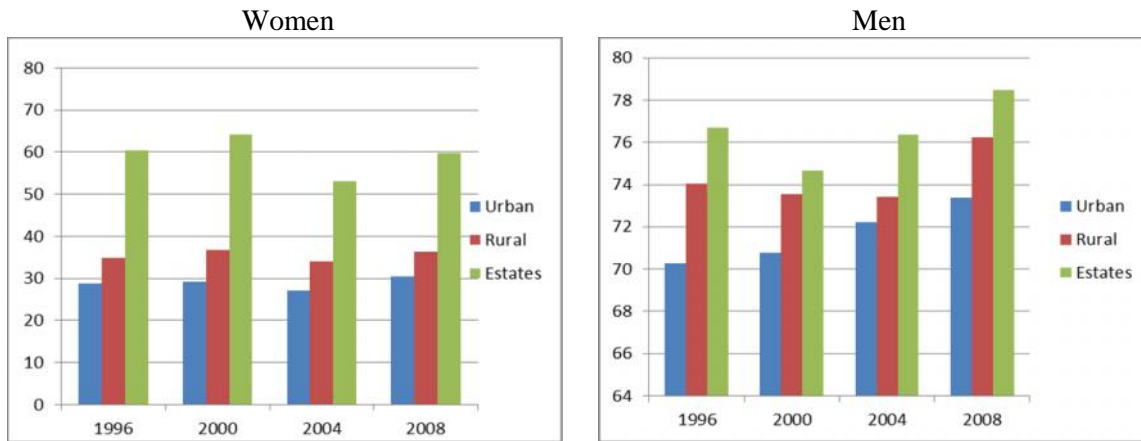
Source: Estimated using LFS 1996, 2000, 2004 and 2008. Data excludes Northern and Eastern Provinces. Sample weights used.
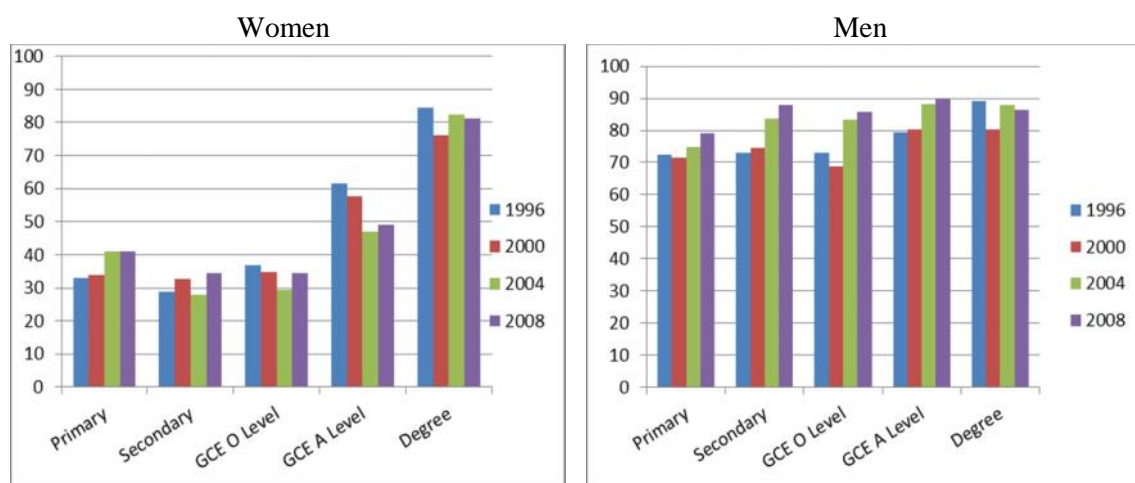
Figure 10: Labour force participation by province (%), 1996-2008
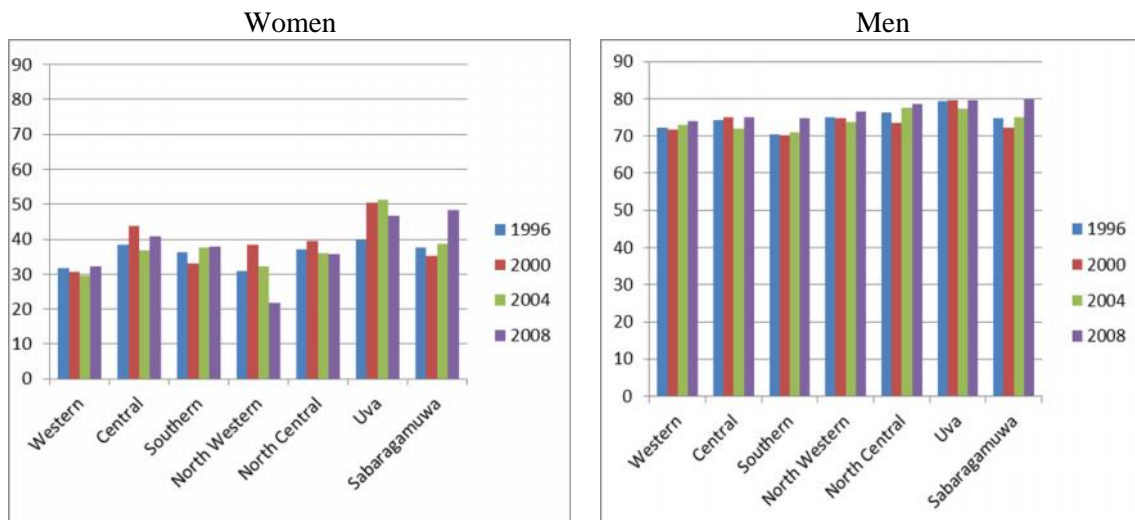
Source: Estimated using LFS 1996, 2000, 2004 and 2008. Data excludes Northern and Eastern Provinces. Sample weights used.

Figure 11: Reasons for non-participation (%), 1996-2004
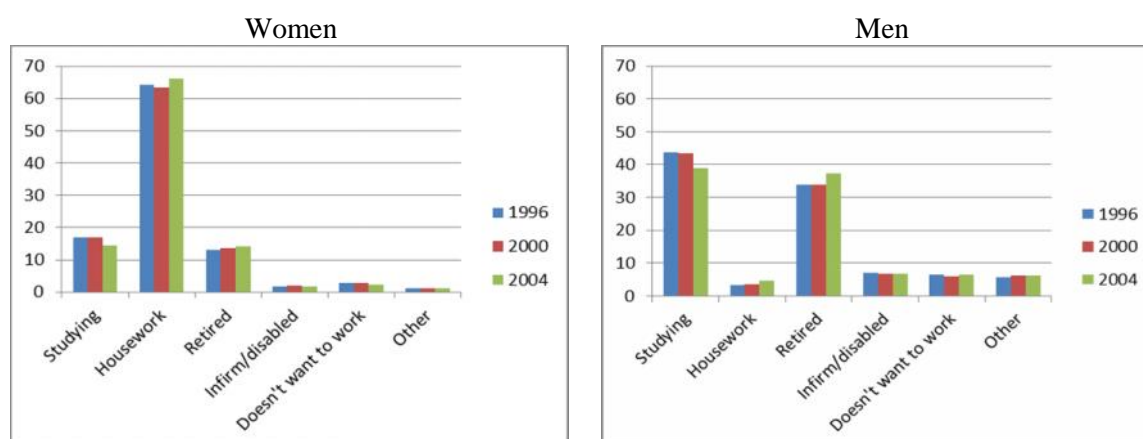
Women

Men

Source: Estimated using LFS 1996, 2000 and 2004. Data excludes Northern and Eastern Provinces. Sample weights used.

2.3.2. Employment and unemployment

Having entered the labour market, how have women fared compared to men, in terms of the kinds of jobs they have managed to get? Figure 12 shows that while the majority of employed men and women are educated up to secondary level, the proportion is much higher for men, whereas the proportions of better educated women workers in employment are somewhat higher than for males. This stands to reason. The discussion of trends in participation suggested that participation levels are lowest among secondary-educated women, whereas higher levels of education appear to be associated with greater participation. This is not the case with men. Consequently, the share of women educated up to and beyond the GCE Advanced Levels in employment exceeds the share of similarly educated men who have jobs.

Figure 12: Share in employment by education level (%), 1996-2008

Women

Men
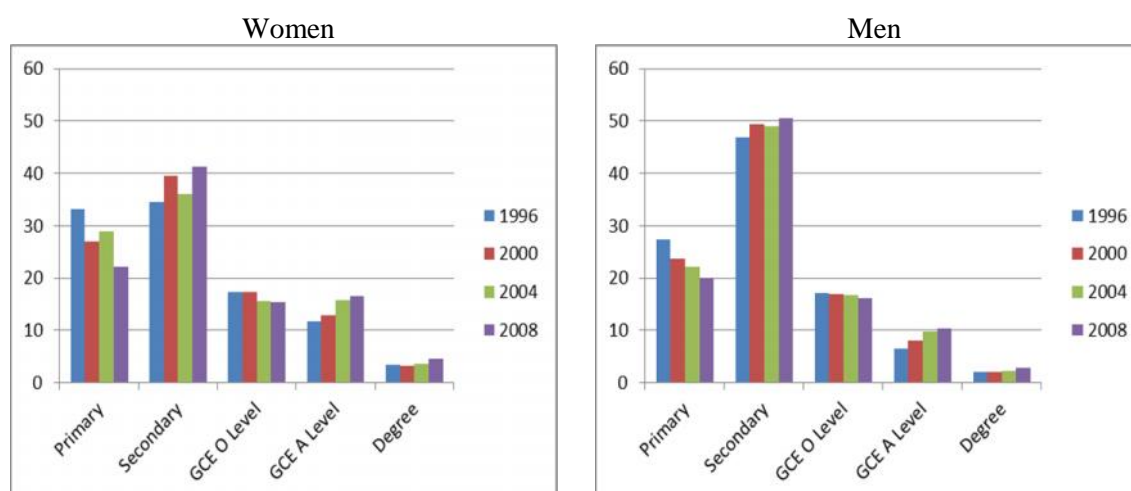
Figure 13: Share in employment by major industrial sector (%), 1996-2008
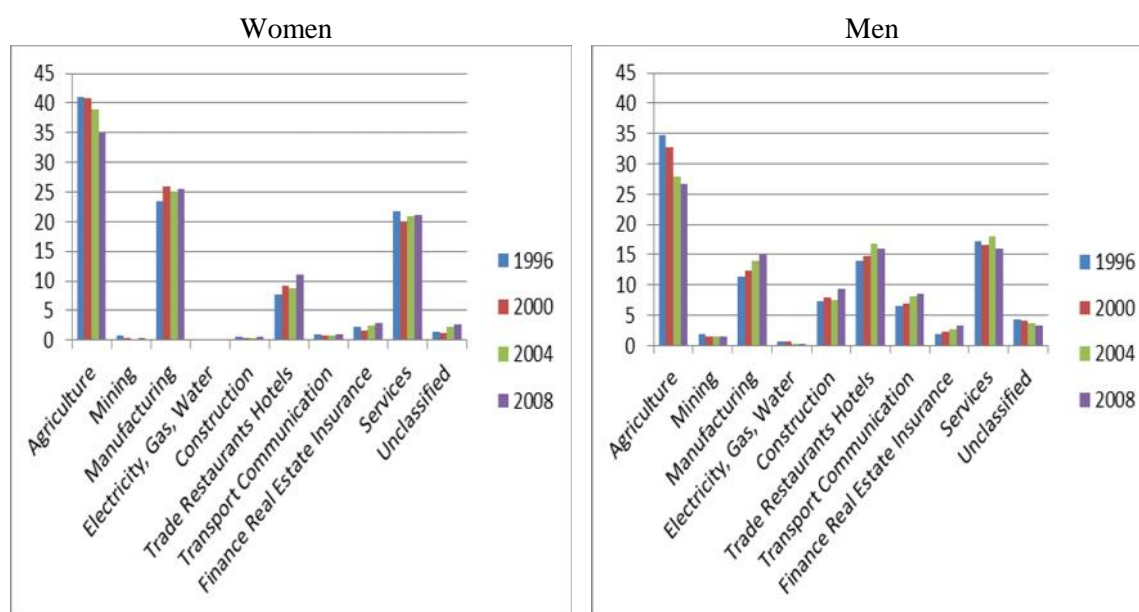
Women

Men

Source: Estimated using LFS 1996, 2000, 2004 and 2008. Data excludes Northern and Eastern Provinces. Sample weights used.

However, there appears to be some degree of segregation in terms of major industrial sector of employment between the two sexes. Figure 13 shows that women are concentrated in four out of ten industrial sectors. The proportion of women in agriculture exceeds that of men. In fact, it is possible that men are moving out of agriculture and women are taking up the jobs that men give up. On the other hand, the proportion of women in manufacturing too, exceeds that of men. This is likely because of the feminization of export manufacturing, due to reasons discussed in section 2.1 above. The proportion of women in services is also higher than that of men. However, while trade, restaurants and hotels is the fourth highest sector of concentration of employed women, men's concentration levels in this sector are higher. There are proportionately few women in the growing construction and transport and communication sectors.

Occupational segregation between the sexes appears far less pronounced (Figure 14). In fact, the proportion of women employed in a professional category exceeds the proportion of males employed in the same category. But this is likely driven by the health and education sectors, which are dominated by public service provision, where better-educated women are well-represented. For example, Figure 15 shows employment by job status, and it can be seen the proportion of employed women, who are public employees, is slightly more than of men. In fact, the proportion of female public employees educated beyond GCE Advanced level is twice the proportion of men (Gunatilaka 2011). The proportion of women employers appears miniscule, but the proportion of female family workers substantial, exceeding 20 per cent in 2008. Note that the proportion of women and men employed in the private sector has declined over the years, whereas the proportion of self-employed men and women appears to have risen somewhat, to about 25 per cent of the total employed female workforce in 2008, and nearly 40 per cent of the employed male workforce.

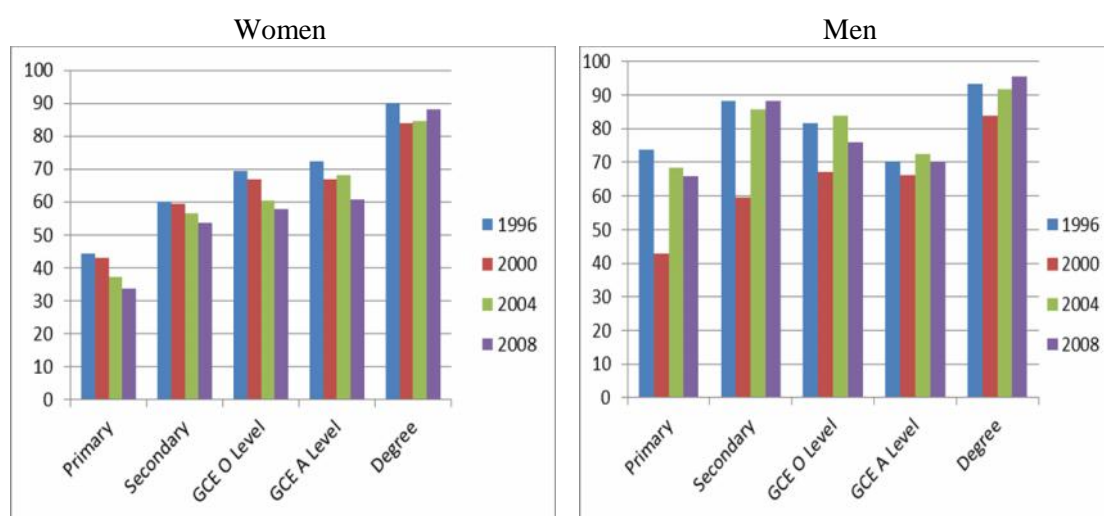**Figure 14: Share of employment by major occupation category (%), 1996-2008**
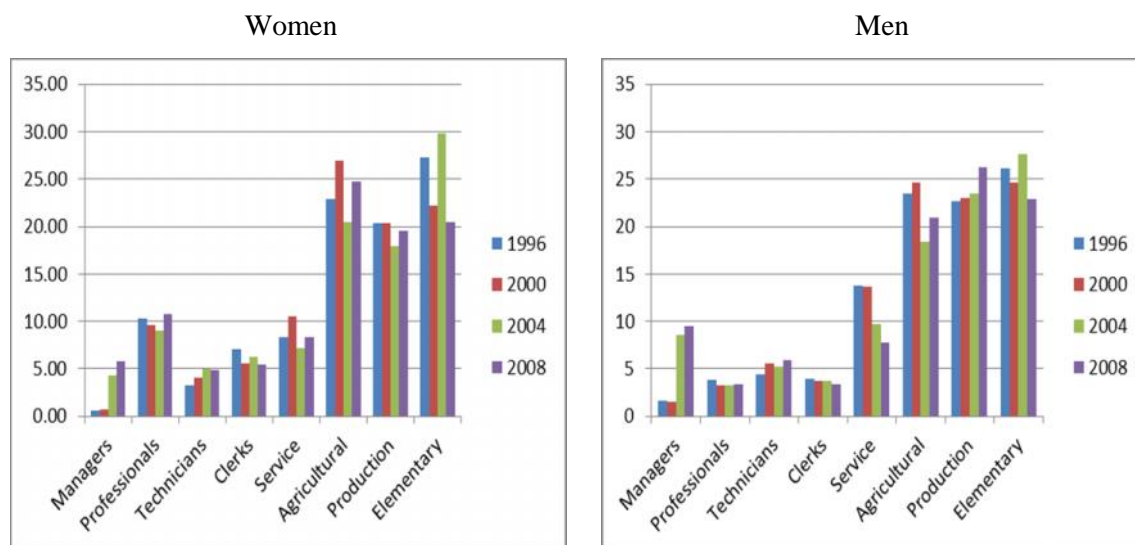
Women

Men

Source: Estimated using LFS 1996, 2000, 2004 and 2008. Data excludes Northern and Eastern Provinces. Sample weights used.

Figure 15: Share of employment by status (%), 1996-2008
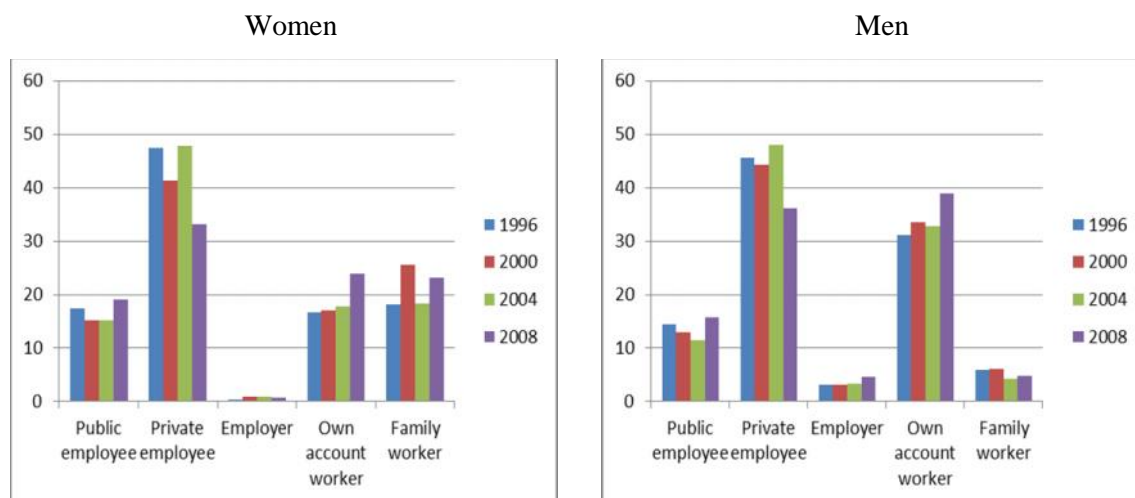
Women

Men

Source: Estimated using LFS 1996, 2000, 2004 and 2008. Data excludes Northern and Eastern Provinces. Sample weights used.

What of the unemployed? While unemployment rates among both men and women have been declining over the years, Figure 16 shows that while unemployment rates have been broadly similar between men and women educated up to GCE Ordinary Levels, unemployment rates among women educated beyond that level have been greater than among males with the same levels of educational attainment. Nevertheless, unemployment rates among GCE Ordinary Level and Advanced Level qualified women have declined markedly over the years. For example, the unemployment rate among Advanced Levels qualified women has declined from a high of 21 per cent in 1996 to 8 per cent in 2008. Graduate unemployment, too, while increasing from 1996 to 2004, has declined thereafter.

The duration of unemployment has also been consistently higher for females than for males, although we show data only for 1996, 2000 and 2004 (Figure 17). This is because the form of the response to this question was changed in the 2006 schedule, from simply asking for the number of months, to asking whether respondent had been seeking a job for less than six months, between 6 months to a year, and for more than a year. Hence we were unable to include this information in the graph to enable comparison with previous years. Nevertheless, the duration of job search appears to rise with the level of education. The better-educated one is, the greater one's job aspirations, and also probably, the time spent looking for a suitable job. Furthermore, families of educated girls seeking jobs will be more willing to support them until they secure jobs which are considered socially acceptable and safe, thereby inadvertently prolonging the duration of unemployment. However, it is interesting to note that the duration of job search has declined over the years. This could either be due to a more buoyant job market or the reverse, where greater economic hardship and uncertainty encourage aspirants to move down in the labour market much faster.

Figure 16: Unemployment rates by educational attainment (%), 1996-2008
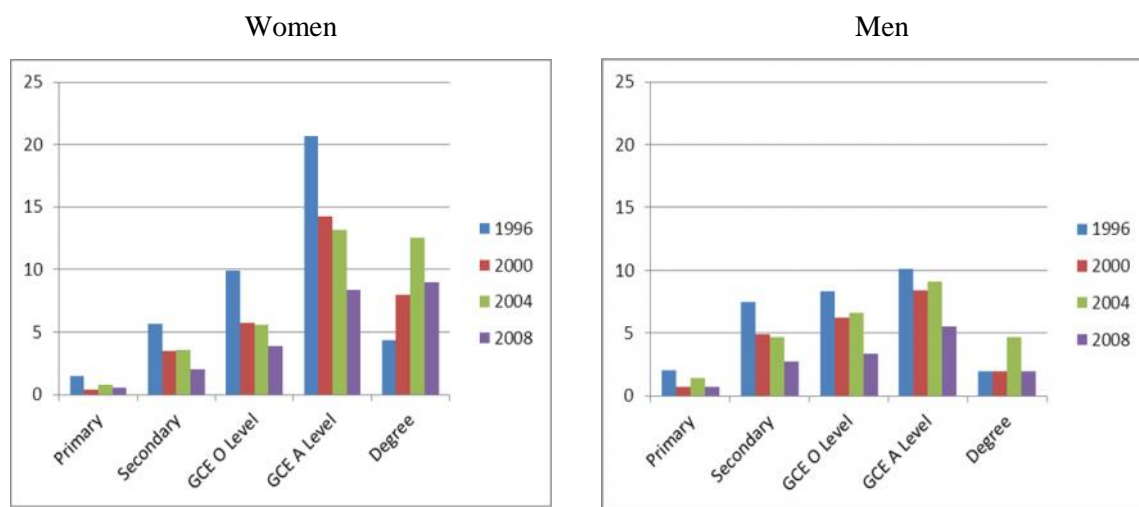
Figure 17: Duration of unemployment (months), 1996-2004
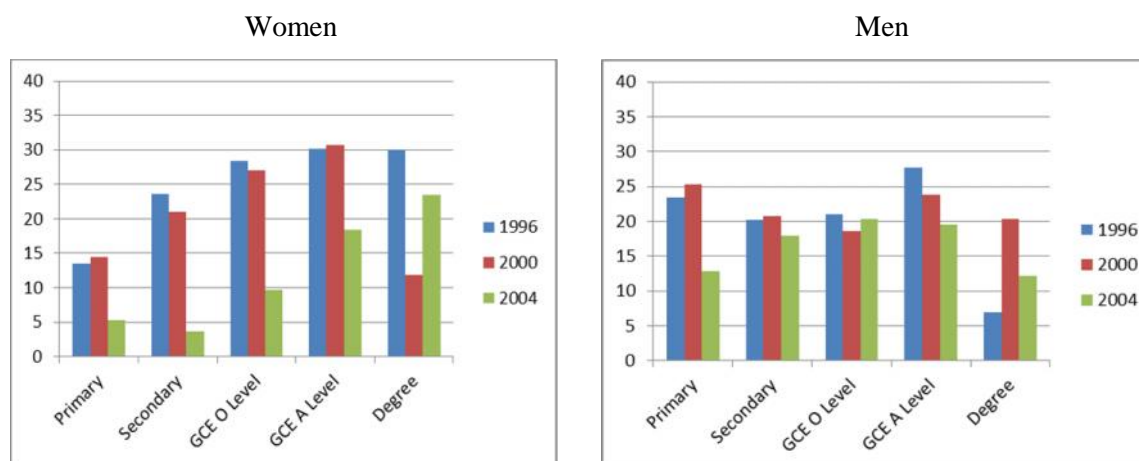
Source: Statistics for Figure 16 estimated using LFS 1996, 2000, 2004 and 2008. Statistics for Figure 17 estimated using LFS 1996, 2000 and 2004 Data excludes Northern and Eastern Provinces. Sample weights used.

In the next section we estimate the probability of women's labour force participation and decompose it into contributory groups of factors.

3. Probability of women's participation

The review of the theoretical literature in section 2.1 suggests that differences in individual characteristics, socio-economic class, familial responsibilities and labour market conditions are important factors associated with whether women work for pay or not. In this section we attempt to answer two questions. First, what are the factors associated with the probability of women's labour force participation in Sri Lanka? Second, which of these groups of factors appear to have the greatest impact among all these characteristics on the probability of participation?

In section 3.1 we set out the empirical strategy used in the study to answer the first of these questions and section 3.2 sets out the results of this analysis. Section 3.3 describes the Shapley value decomposition methodology that we deploy to answer the second question and discusses the results of decomposing the probability of participation into contributory factors. This allows us to compare the different extents to which the groups of factors are associated with the participation outcome, which can be used to formulate and prioritize policies to address the issue.

3.1. Empirical model and variables

This study analyzes women's labour force participation decisions by assuming implicitly, as do Klasen and Pieters (2012), that women's participation decision is made conditional on men's. Hence, the models estimated here based on four sub-samples of data on women available in HIES 2009/10 do not accommodate joint utility maximization or bargaining within the household.

The first model estimates the factors associated with the labour force supply decision of all women aged 20 to 59, excluding women who are heads of their households. Following Klasen and Pieters (2012), the analysis aims to estimate the effect of women's own education separately from household head's education, which proxies for household wealth and status effects. Hence, the model cannot be estimated on a sample that includes female heads of households. The sample includes, however, self-employed persons for whom the HIES 2009/10 contains earnings data. The second and third models estimate separately the labour force supply decisions of married women and single women of the same age group, who are not heads of households. The fourth model estimates the factors associated with labour force participation of women of the same age group, who are heads of their households. This model is estimated because women-headed households are a particularly disadvantaged group, and since the military conflict is likely to have left more women responsible for their households than before the conflict. For example, of the total sample of 23,044 women in the 20 to 59 years age category, 13 per cent are heads of their households, and of this proportion, half is made up of widows and women who are either divorced or separated. The remaining female heads of households are mainly married with roughly 100 being single. We also model the labour force participation of married, as well as single males of the same age group for comparison purposes.

The probability of the individual's participation in the labour force is estimated by implementing the following model where the binary dependent outcome p_{ijt} of individual i in district j in year t, takes the value one if he or she is a participant, and zero if not:

$$p_{ijt} = F(\alpha_{0t} + b_{2j(t-1)} \ln \bar{w}_{j(t-1)} + b_{3j} X_{it} + b_{4j(t-1)} Z_{j(t-1)}). \qquad (1)$$

In equation (1), $F(z) = e^Z / (1 + e^Z)$ is the cumulative logistic distribution. The variable $\ln \bar{w}_{j(t-1)}$ is the average log hourly wage of similarly educated women or male employees in district j in year $t-1$. The vector X_{it} consists of four categories of explanatory variables, including the individual's demographic characteristics, educational attainment, household characteristics, and spatial characteristics. The vector $Z_{j(t-1)}$ consists of indicators of labour market conditions in district j in the previous year. We describe these variables in detail in what follows.

The variable $\ln \bar{w}_{j(t-1)}$ is included in the model as the expected hourly market wage can influence the individual's decision to participate, according to the neo-classical model. However, constructing this variable involves some methodological issues. Since wages are observed only for employed persons, wages need to be imputed for individuals who are not employed and whose decision to participate may be determined by the wage they are likely to get. The usual procedure is to estimate a standard wage equation with Heckman selection bias correction (Heckman 1979), and this is, in fact, the approach that Klasen and Pieters (2012) adopt. In their participation model they included the predicted wage obtained by estimating a wage equation which is corrected for selection bias through the Heckman procedure, by using age and its square as identifiers. This method of identifying the own wage effect has also been used in analyses of female labour supply by Heim (2007) and Blau and Kahn (2007).

However, we were unable to use the same approach in this study as the log likelihood function turned out not to be concave, indicating that age and its square could not be used to identify the wage successfully in the Sri Lankan case. Other variables which could predict participation, but were not likely to be correlated with the wage, such as household composition variables, did not work either. Therefore, we decided to use the log of the average hourly wage received by similarly-educated female or male employees as the case may be in the same district in the same quarter of the previous year, as the next best alternative. This data was sourced from the last two quarters of LFS 2008 and the first two quarters of LFS 2009. Although this information relates only to employees, as the LFS does not contain information on the earnings of own account workers and employers, we think that it is reasonable to assume that individuals making the decision to enter the labour market in a given year, will be influenced by the wages that similarly educated peers of the same sex will have already been successful in obtaining within their geographical area of reference. Admittedly, last year's wage is not this year's and, with inflation, may be lower in real terms. However, it could be argued that wages tend to be sticky and that just one year is too short a period for people to adjust their wage expectations, according to changes in inflation. In any case, this was the best we could do to include the wage as an explanatory variable in the given circumstances.

In addition to the expected wage, the neo-classical model predicts that an increase in non-labour income or the incomes of other household members reduces labour supply. To represent these factors, we include in our model two variables: the *share of total household expenditure accounted for by the earnings of male household members* and a dummy for *foreign remittances* to denote that income source. Foreign remittances may constrain women's labour force participation in yet another way that is not recognized by the static labour supply model: if the migrants are women who have left their children behind to be cared for by other female relatives, those relatives may not be able to go out to work.

Among the other factors that the international theoretical and empirical literature reviewed in section 2 has advanced as being associated with women's labour force participation, the following variables

are likely to be relevant to Sri Lanka. First, the demographic characteristics of the individual in terms of *age*, its *square*, and in the case of married men and women, their *age at the birth of the first child.* We include this last variable as women who marry and have children early are less likely to participate in the labour market. This issue is likely to be important for Sri Lanka because having declined to below replacement levels (1.9) in the period 1995-2000, the total fertility rate appears to have increased to 2.3 over the period 2003/04-2006/07, due to a decline in the mean age at marriage of women from 25.5 years in 1993 to 23.6 years in 2006/07 and a marginal decline in the use of permanent methods of contraception (De Silva *et al.* 2010). These changes can be expected to have a negative impact on female labour force participation.

The trends analysis also suggested that marital status and ethnicity are likely to have an impact. Accordingly, we have three marital status dummies, *married, widowed* and *divorced*, with *single* being the reference group. Since participation rates were found to vary by both religion and ethnicity in the trends analysis and since these categories were not mutually exclusive, we included six mutually exclusive ethno-religious categories, *Sinhalese-Christian, Sri Lankan Tamil-Hindu, Sri Lankan Tamil-Christian, Up Country Tamil-Hindu, Up Country Tamil-Christian* and *Islamic-Moor,* with *Sinhalese-Buddhists* as reference category it being the largest group. There were insufficient numbers of persons of other ethnic and religious categories (for example, Malays) in the sample to be included in the analysis. Other characteristics relating to the individual included as explanatory variables were whether he or she was *disabled*, *birth order* (in the case of unmarried individuals) and education-related variables. Birth order was included as it was hypothesized that the oldest children in a family may be under more pressure to look for work as part of the household's economic strategy. The reference category for the group of education variables was *Primary* which included all persons with less than six years of education. The dummy variables *Secondary, GCE Ordinary Levels, GCE Advanced Levels* and *Degree* were included to denote different levels of educational attainment.

Household characteristics, such as its economic situation and demographic composition, have been found to be important correlates of participation in the empirical literature. For example, economic need may drive women from poorer families to work. Hence we include in our model the *log of per capita household consumption expenditure* to denote the economic situation of the household. The gender and generational composition of households have been shown by Malhotra and DeGraff (2000) to have an impact on the labour market behaviour of young Sri Lankan women. The care burden of being a *mother of children less than 5 years of age* and being *mother to children between 5 and 15 years of age* may prevent married women from market work. In contrast, fatherhood may impel men to work. Having to care for *elderly parents* (more than 70 years of age) may prevent women from working, hence we attempt to control for this by including the share of household members, who are elderly parents of the household head or his or her spouse in our model. While the cost of childcare has been found to be an important determinant of women's labour force participation, we are unable to include it in our model because of data limitations. Besides, since most working mothers seem to rely on their own mothers or relatives to look after their children while they are at work (Madurawala 2009), it is hard to put a price on this service. However, we do have data on the availability of *domestic help* which may free women of higher income status and better education to go out to work for reasons of personal fulfilment. Similarly, the presence of *other adult females* in the household who can undertake household and care work may free up women to go out to work. The presence of *employed males in white-collar jobs* in better-off households appears to be an important source of social capital that can be leveraged to find suitable jobs and may encourage participation (Malhotra & De Graff 1997), but the number of *employed males* in the household may reduce the need and, therefore, likelihood of female participation. Class and background have been found to be important in the Sri Lankan context (Malhotra & De Graff 1997; Amarasuriya 2010), and we use dummies for the *educational attainment of the household head* where the head is male, as proxies for the social status of the household.

In addition to the expected wage, we include several other demand-side factors manifest in the local job market outcomes of peers which are likely to influence labour force participation. Many women may be discouraged from entering the job market, considering the difficulties associated with finding a job, evident in high levels of unemployment, gender-based discrimination and industrial segregation. The structure of the local economy, a key component of the feminization U-hypothesis may also be important. Hence, in our model we include several variables which look at the association of employment outcomes in the previous year with decision-making about whether to participate in the labour force in the current year. The variables were constructed using data from the last two quarters of LFS 2008 and the first two quarters of LFS 2009.

First, we include the gender and education category-specific *unemployment rate* prevailing in the district in the same quarter in the previous year. The second variable is the proportion of *informal employment* in the district in the same quarter the year previously. The definition of informality follows recommendations by the 15th International Conference of Labour Statisticians and takes into account both informal jobs and production units (see Gunatilaka (2008) for details). The third is the *proportion of total employment in large firms* with more than 100 employees in the same district, in the same quarter, in the previous year. This variable is included because it is possible that larger firms are better able to absorb some of the costs associated with a female labour force. For example, under Sri Lanka's Maternity Benefits Ordinance, the employer needs to bear the entire costs of providing paid maternity leave, which smaller firms may not be able to do. This may result in smaller establishments discriminating against women in their hiring decisions. Consequently, women may be more encouraged to look for work in districts where relatively more people are employed in large firms, than in districts where relatively few people are employed in large firms.

Much of the research on the feminization U-shaped hypothesis concentrates on the relationship between female labour force participation and a country's level of economic development, represented by GDP per capita (see Gaddis & Klasen 2011 for a review of the literature). But Gaddis and Klasen (2011) use cross-country annual data from 1980-2008 to look at the association of changes in female labour force participation with rates of change in sectoral employment. While we are unable to draw on such a panel to analyse the Sri Lankan situation, due to data limitations, in this study we examine the association of differences in sectoral employment shares in districts in the previous year, with female labour force participation in the current year. To achieve this we include two variables - the *shares of all employed persons working in the manufacturing* and *services sectors* in the district in the same quarter in the previous year. The reference category is the *share of all employed persons working in the agricultural sector*. The sixth variable is a *gender-related encouragement index* expressed as a ratio between the share of employed females and that of employed males in the same educational category as the individual in the district during the previous year. It is hypothesized that the larger the share, the more encouraged women will be to participate. The last variable is the *Duncan Segregation Index* (Duncan & Duncan 1955) by gender, in terms of industrial sector of employment in the district in the previous year. The index takes the value zero if there is no segregation, that is, the share of women out of all employed women, who are employed in the given industrial categories, is equal to the proportion of males out of all employed males employed in the same industrial categories, and the value one, if there is complete segregation.

Finally, we include spatial variables, such as *rural* or *estate* location and seven provincial dummies to control for regional and community-based fixed effects. The *urban* sector and *Western Province* are the reference categories.

3.2.   Results of the probability analysis

Table 1 presents the marginal effects of the logistic estimation of the probability of labour force participation of all women, who are not heads of households, and who are not in education, but are in the age category 20 to 60 years. Table 1 presents the marginal effects of estimating five models, each with an additional set of explanatory variables, so that the fifth model contains the full set of explanatory variables. Sample means or proportions are set out in the first column. Table 2 sets out the estimation results for married and single women, who are not heads of households, for women who are heads of households, and for married and single men, of the same age group.

The first point to note is that the neo-classical theory based on the expected wage, as determining labour force participation, diminishes in significance as soon as the education-related variables are added on and, in fact, implausibly, but insignificantly, even changes signs. Thus, the expected wage appears not to be a good predictor of labour force participation in Sri Lanka, as Klasen and Pieters (2012) found in India. The marginal effect of the variable denoting the share of total household expenditure accounted for by the earnings of male members, though negative, turns out not to be significant. But the receipt of remittances from abroad remains consistently negative and significant, reducing the probability of participation by roughly 12 per cent.

The likelihood of participation increases with age, but at a diminishing rate. Marriage and widowhood are significantly associated with a decline in the probability of participation relative to being single, the reference category. When all other available characteristics are controlled for in model 5, only Islamic Moors are significantly less likely to participate than the reference category of Sinhalese Buddhists. But note how the marginal effect on the dummy variable Up Country Tamil Hindus, Sinhalese Christians and Sri Lankan Tamil Christians ceases to be significant once the spatial variables are included. This suggests that the generally high participation rates of Up Country Tamil Hindus is a feature peculiar to the plantation-based labour market, rather than to the country at large. In fact, households in the plantations are permitted to stay in accommodation provided by the plantation only during the period when even one member of the household remains an employee of the estate. This would be an added incentive for women in plantations to engage in market work. Many plantation companies also provide crèches where women can leave their children while they are at work. This factor is also likely to encourage participation.

The education variables are critically significant to the participation decision, and the U-shaped relationship is discernible. Women educated up to secondary level are significantly less likely to participate in the work force than the primary or less-educated reference category. Women with GCE Ordinary levels are also less likely to participate than primary-educated women, but not as unlikely to participate as women with secondary education, although the results are significant only in model 3. Further educational attainment is associated with an increase in the probability of participation and this is the case, even when all characteristics for which we have information are controlled for. In fact, having a degree has the single largest effect on participation, suggesting that university education increases the probability of participation by 45 per cent. This positive association needs to be compared with the negative impact of marriage (27 per cent), widowhood (25 per cent) and being of the Islamic Moor ethno-religious category (17 per cent).

We turn next to the association of household-related variables with labour force participation, evident in models 4 and 5 in the last two columns of the table. Many of these results confirm earlier findings of Malhotra and DeGraff (2000) and Madurawala (2009). Women in wealthier households are more likely to participate, but the results are not significant and the marginal effects are in any case small. We also tested for a U-shaped relationship between economic status and female labour force

participation as suggested by the literature and included a quadratic term for the household consumption variable in an earlier version of the model. But the quadratic term turned out not to be significant either so we just retained only the household consumption variable in the final version of the model.

If the woman is a mother of children less than five years of age, the likelihood of her engaging in market work declines significantly by 11 per cent, but having older children is associated with a greater likelihood of joining the labour force by 2 per cent. The share of elderly parents in the household is not significantly correlated with labour force participation, but having domestic help appears to significantly enable a woman to participate, while the presence of other women of working age in the household also helps, though to a lesser degree. As the number of employed males in the household increases, the likelihood of women also going out to work declines significantly. The number of employed males in the household in white collar jobs also appears to marginally reduce the probability of women's participation. Household status, represented by the educational attainment of the male household head, also seems to work monotonically and significantly against participation.

Table 1: Factors associated with the probability of women's participation in the labour force 2009/10: Marginal effects of logistic estimation

	Mean or proportion	(1)	(2)	(3)	(4)	(5)
Variables of the static model of labour supply						
Log of average hourly wages in district in same education category in the previous year	3.5361	0.0950***	0.0674***	-0.0101	-0.0101	-0.0150
Share of total consumption expenditure accounted for by the earnings of males in household	0.6746	-0.0067	-0.0038	-0.0035	-0.0024	-0.0032
Household receives remittances from abroad (d)	0.0513	-0.1353***	-0.1167***	-0.1114***	-0.1290***	-0.1166***
Demographic characteristics						
Age	37.5520		0.0260***	0.0231***	0.0240***	0.0260***
Age squared	1536.4380		-0.0003***	-0.0003***	-0.0003***	-0.0003***
Married (d)	0.7954		-0.3083***	-0.3032***	-0.2592***	-0.2725***
Divorced (d)	0.0024		-0.0691	-0.0514	-0.0597	-0.0626
Widowed (d)	0.0175		-0.2492***	-0.2557***	-0.2409***	-0.2492***
Sinhalese Christian (d)	0.0498		-0.0721***	-0.0611***	-0.0579***	-0.0122
Up Country Tamil Hindu (d)	0.0338		0.2378***	0.2105***	0.1967***	0.0255
Up Country Tamil Christian (d)	0.0042		0.0608	0.0485	0.0441	-0.0750
Sri Lankan Tamil Hindu (d)	0.0510		0.0403**	0.0207	0.0184	0.0203
Sri Lankan Tamil Christian (d)	0.0113		-0.0710**	-0.0845**	-0.0847**	-0.0470
Islamic Moors (d)	0.0937		-0.1900***	-0.2017***	-0.2008***	-0.1712***
Disabled (d)	0.1403		-0.0836***	-0.0844***	-0.0857***	-0.0880***
Education characteristics						
Secondary education (d)	0.4227			-0.0829***	-0.0658***	-0.0387**
GCE O' Levels (d)	0.1840			-0.0450**	-0.0174	0.0190
GCE A' Levels (d)	0.1740			0.0314	0.0654***	0.0912***
Degree (d)	0.0276			0.4531***	0.4692***	0.4623***
Household characteristics						
Log of real per capita consumption expenditure	8.7649				0.0153	0.0152

	Mean or proportion	(1)	(2)	(3)	(4)	(5)
Mother of children < 5 years (d)	0.1415				-0.1084***	-0.1098***
Mother of children between 5 and 15 years (d)	0.2980				0.0225*	0.0218*
Proportion of household members who are elderly parents	0.0088				0.0416	0.0471
Household has domestic help (d)	0.0047				0.1653**	0.1767**
Number of other adult women in household	0.7986				0.0211***	0.0229***
Number of employed males in household	1.1383				-0.0279***	-0.0290***
Number of employed males doing white collar jobs in household	0.2787				-0.0277**	-0.0235**
Male household head educated up to secondary level (d)	0.4235				-0.0612***	-0.0552***
Male household head educated up to O' Levels (d)	0.1418				-0.0729***	-0.0568***
Male household head educated up to A' Levels (d)	0.0793				-0.0786***	-0.0624***
Male household head is a graduate or postgraduate (d)	0.0222				-0.0551	-0.0424
Labour market variables						
Gender-based unemployment rate in district in previous year	0.0508					-0.1677
Share of informal workers in district in previous year	0.6909					-0.0984

	Mean or proportion	(1)	(2)	(3)	(4)	(5)
Share of employed in large (>100) firms in district in previous year	0.0936					-0.2425
Share of employed in manufacturing in district, previous year	0.2498					-0.3456***
Share of employed in services in district, previous year	0.4205					-0.1899**
Employed females/employed males, in education category and district, previous year	1.1268					0.0296***
Duncan Index of Industrial Segregation in district in previous year	0.1920					0.2745**
Spatial variables						
Rural (d)	0.8114					0.0178
Estates (d)	0.0504					0.1954***
Central Province (d)	0.1331					-0.0787***
Southern Province (d)	0.1265					-0.0248
Eastern Province (d)	0.0615					-0.1100***
North Western Province (d)	0.1270					-0.0497*
North Central Province (d)	0.0641					0.0483
Uva Province (d)	0.0681					0.0591
Sabaragamuwa Province (d)	0.1026					0.0392
Number of observations		18800	18800	18800	18800	18790

Notes:
1. Probability of labour force participation 0.426.
2. The sample includes all women who are between 20 and 59 years of age who are not heads of their households.
3. (d) denotes dummy variables. The omitted categories are: single; Sinhalese Buddhist; primary education or less; mother of children 16 years or more; male household head has primary education or less; share of employed in agricultural sector in district in previous year; urban sector; Western Province.
4. ***, **, and * denote statistical significance at the one per cent, five per cent and ten per cent levels respectively.
5. Estimated using data from HIES 2009/10 and LFS 2008 and 2009. Northern Province and Trincomalee district excluded. Sample weights used.

We turn next to the relationships between the variables representing the demand side of the labour market with the probability of women entering the workforce. While the unemployment rate for similarly educated women in the district in the previous year, the share of informal employment, and the share of employment in large firms is not significantly correlated with the likelihood of labour force participation, the other variables appear to matter more. As the shares of total workers in the district employed in the manufacturing sector increases, relative to the share of workers in agriculture, women are significantly less likely to enter market work. It is the same with the share of the services sector, but its impact is half of that in manufacturing. Although Gaddis and Klasen (2011) point out that structural change is traced out very differently across countries and that these sectoral patterns do not amount to a systematic U-shaped trend at the aggregate level, we can speculate that the Sri Lankan results suggest that the country may be somewhere around the bottom of the feminization U-curve, if such a curve holds for Sri Lanka. As the share of employed women in a particular educational category in the district increases in relation to the share of employed men in the same educational category, women appear to become more encouraged to look for work and the chances of female labour force participation increase. The index of gender segregation by industrial sector has a positive and significant effect (27 per cent), suggesting that women look on high levels of segregation positively, as enabling them to get jobs relatively easily in sectors, such as the garments industry, where the demand for women workers is high and consequently, there are high concentrations of them there.

Finally, we look at the association of spatial variables with the probability of female labour force participation. Women on the estates are 20 per cent more likely to participate than women in urban areas for reasons discussed before. And women in Southern Province, North Central Province, Uva and Sabaragamuwa are more likely to enter the labour force than women in Western Province. The last three provinces are largely agricultural, and this may be a factor associated with women's participation. The reason why women in Southern Province are more likely to participate than women in Western Province, when other characteristics are controlled for, is not immediately clear. However, note that women in the conflict-affected Eastern Province are significantly less likely (11 per cent) to participate in the labour market than women in Western Province, suggesting that conditions may be particularly unfavourable for women to enter the labour market there, due to a variety of factors.

Thus, the main findings of the estimations in Table 1 suggest that both push and pull factors are driving participation. While the expected wage is not a good predictor of female labour force participation, a university education is the single most powerful factor encouraging women to participate in the labour force. This is followed by higher levels of gender-based industrial segregation in the district, availability of domestic help, and the spatial variables of living in the estates sector, and in the agricultural North Central, Uva and Sabaragamuwa Provinces. Among the constraining factors are the following, in order of importance: a high share of total employment in manufacturing in the district relative to the share in agriculture, marriage, widowhood, a high share of total employment in the service sector in the district relative to the share in agriculture; being an Islamic Moor; and, having children less than five years of age. Receiving remittances from abroad also appears to obviate some of the financial need to work.

The results highlight the importance of marriage as a variable associated with labour force participation deriving, no doubt, from the different roles that married and single women are expected to play in the household (Malhotra & DeGraff 2000). Figure 18 plots the density of labour force participation by age for three subsamples of women: married and single women who are not heads of households, and women who are household heads. The majority of married women who are not heads of households who participate in the labour force are less than 30 years old. There are relatively few who participate in the labour market beyond that age. On the other hand, the majority of women who head their households and engage in market work are in their middle years peaking at around 50, suggesting that family circumstances, probably the death or incapacity of a spouse or marriage breakdown, push them into the labour force later on in life. In contrast, age appears to make little difference to the participation of single women other than at the two ends of the age spectrum. Given these marked differences, in Table 2 we estimate the probability of labour force participation of these three groups of women. We also estimate the participation of married and single men for comparison purposes. Sample means or proportions for these five models are set out in Table 3.

In Table 2 it is apparent that remittances from abroad are associated with reduced likelihood of participation for everybody, most so for female heads of households (by 24 per cent), but not significantly so for single women. The share of the earnings of male members of the household on female labour force participation has a significant and negative effect only on the participation of female heads of households (17 per cent). These results provide some empirical support for the income or disincentive effect of the neo-classical labour supply model.

Figure 18: Density estimation of the labour force participation of single and married women, and of female household heads, 2010
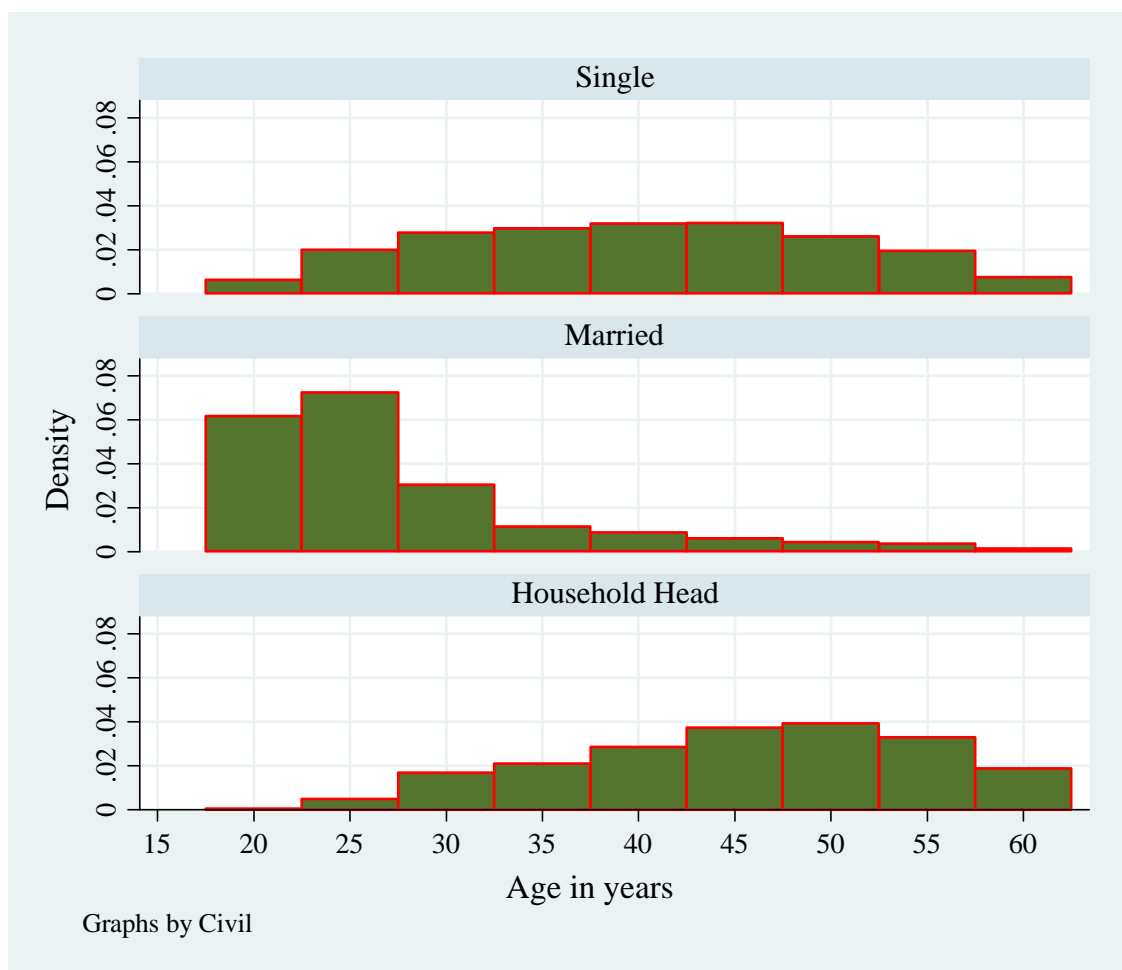
Source: Estimated using HIES 2009/10. Data excludes Northern Province and Trincomalee District.

Among the ethno-religious characteristics, Islamic Moor women, whether married, single or heads of households are, on average, 18 per cent less likely to participate in the work force than Sinhalese Buddhists. Up Country Tamil Christian women are significantly less likely to participate even when residential sector is controlled for, but this may be because the number of observations is extremely low – less than one per cent of the entire sample. Disability is strongly associated with non-participation of single women and men, more so for men. For example, being disabled is associated with a 42 per cent reduction in the probability of single men's participation and with a 20 per cent reduction in participation by single women.

Table 2: Factors associated with the probabilities of participation in the labour force of married and single women who are not heads of households, of women who are heads of households, and of married and single men, 2009/10: Marginal effects of logistic estimation

	Women			Men	
	Married not heads of households	Single not heads of households	Heads of household	Married	Single
	(1)	(2)	(3)	(4)	(5)
Probability of labour force participation	0.3617	0.6682	0.4675	0.9749	0.8954
Variables of the static model of labour supply					
Log of average hourly wages in district in same education category in the previous year	-0.0137	-0.026	-0.0454	-0.0006	-0.0078
Share of total consumption expenditure accounted for by the earnings of males in household	-0.0011	-0.0135	-0.1673***		
Household receives remittances from abroad (d)	-0.1268***	-0.0627	-0.2462***	-0.0529***	-0.0666**
Demographic characteristics					
Age	0.0253***	0.0463***	0.0596***	0.0053***	0.0457***
Age squared	-0.0003***	-0.0007***	-0.0007***	-0.0001***	-0.0006***
Sinhalese Christian (d)	-0.0276	0.0474	-0.0042	0.0005	0.0168
Up Country Tamil Hindu (d)	0.0591	-0.0286	-0.0351	-0.0069	0.0414
Up Country Tamil Christian (d)	-0.0518	-0.1342	-0.2859***	0.0241***	0.0508
Sri Lankan Tamil Hindu (d)	0.0121	-0.0455	0.0042	0.0029	0.0385**
Sri Lankan Tamil Christian (d)	-0.0609	-0.0844	-0.0667	-0.0015	0.0286
Islamic Moors (d)	-0.1707***	-0.1945***	-0.1809***	0.0027	-0.0385*
Disabled (d)	-0.0657***	-0.2034***	-0.0881***	-0.0432***	-0.4168***
Education characteristics					
Secondary education (d)	-0.0768***	0.2182***	-0.0118	0.0014	0.1373***
GCE Ordinary Levels (d)	-0.0408*	0.2356***	-0.005	-0.0101	0.0449**
GCE Advanced Levels (d)	0.0776**	0.2015***	0.1207	0.0032	-0.0105
Degree (d)	0.5046***	0.2842***	0.4150***	0.0129	0.0557*
Household characteristics					
Log of real per capita consumption expenditure	0.0193*	-0.0446**	-0.0310	0.0043	-0.0221**
Mother/father of children < 5 years (d)	-0.1002***		-0.1637***	0.0106**	
Mother/father of children 5 to 15 years (d)	0.0189		-0.0486	0.0117***	
Proportion of household members elderly parents	0.0704	-0.0904	0.2513	0.0239	0.1531
Household has domestic help (d)	0.1984***	0.1049	0.2061	0.0093	-0.0113
Number of other adult women in household	0.0110	0.0289**	-0.0264		
Number of employed males in household	-0.0329***	-0.0156	-0.0182		
Number of employed males doing white collar jobs	-0.0233*	-0.0235	0.0363		
Male household head with secondary education (d)	-0.0563***	-0.0114			

	Women			Men	
	Married not heads of households	Single not heads of households	Heads of household	Married	Single
	(1)	(2)	(3)	(4)	(5)
Male household head educated up to Ordinary Levels (d)	-0.0420**	-0.0453			
Male household head educated up to Advanced Levels (d)	-0.0626***	-0.0455			
Male household head graduate or postgraduate (d)	-0.0255	-0.1134			
Labour market variables					
Unemployment rate in district in previous year	0.1016	-0.5515***	0.0309	0.0306	-0.1344
Share of informal workers in district in previous year	-0.1024	0.0429	0.3827*	-0.0027	-0.0311
Share of employed in large (>100) firms in district in previous year	-0.1928	-0.1121	0.3049	-0.0987*	0.2273
Share of employed in manufacturing in district, previous year	-0.4140***	-0.2473	-0.6382**	0.0218	-0.1883*
Share of employed in services in district, previous year	-0.2122***	-0.0968	-0.3718*	0.0031	-0.1781**
Employed females/employed males, in education category and district	0.0282**	0.0366*	0.0669*	0.0013	-0.0027
Duncan Index of Industrial Segregation in district in previous year	0.2005	0.5831**	-0.3394	0.0203	0.1409
Spatial variables					
Rural (d)	0.0153	-0.0050	-0.0145	0.0046	-0.0110
Estates (d)	0.2062***	0.1151**	0.2428***	-0.0074	0.0295
Central Province (d)	-0.0901***	-0.0387	-0.2952***	0.0053	0.0081
Southern Province (d)	-0.0304	-0.0389	-0.1758***	-0.0073	0.0175
Eastern Province (d)	-0.1175***	-0.0764	-0.2331***	0.0005	0.0235
North Western Province (d)	-0.0475*	-0.0667	-0.1386*	-0.0002	0.0198
North Central Province (d)	0.0431	0.0134	-0.2345***	0.0054	0.0120
Uva (d)	0.0590	-0.0984	-0.2889***	0.0171***	-0.088
Sabaragamuwa (d)	0.0278	-0.0223	-0.2344***	0.0045	-0.0257
Number of observations	14764	3462	2783	14029	4716

Notes:
1. (d) denotes dummy variables. The omitted categories are: Sinhalese Buddhist; primary education or less; mother of children 16 years or more; male household head has primary education or less; share of employed in agricultural sector in district in previous year; urban sector; Western Province.
2. ***, **, and * denote statistical significance at the one per cent, five per cent and ten per cent levels respectively.
3. Estimated using HIES 2009/10 and LFS 2008 and 2009. Northern Province and Trincomalee district excluded. Sample weights used.

The U-shaped relationship between educational attainment and labour force participation found earlier appears to be driven by the sample of married women, whereas the relationship appears more monotonic for single women, with the exception of GCE Ordinary Level qualified women whose likelihood of participation is somewhat lower than even GCE Advanced Level qualified women. It is possible that at the margin, GCE Ordinary Level qualified females opt out of the labour market to continue in education up to Advanced Level. Married women graduates are nearly twice as likely to participate as single women graduates and 50 per cent more likely to participate than married primary-educated women. A similar U-shaped relationship appears to hold between education and the labour force participation of female heads of households, even though only the result for the variable denoting tertiary education is significant. The education variables are also significantly associated

with the participation of single men, though the size of impact is much smaller than in the case of single women. But by and large, education appears to have little impact on married men's decision to work.

In economically better off households, single women, and to a lesser extent, single men, appear to be significantly under less pressure to work. In contrast, married women in economically better off households are more likely to work, confirming earlier findings by Malhotra and DeGraff (2000). These results also contrast with the model for the entire subsample reported in Table 1 where per capita household expenditure was not significantly associated with labour force participation. Having children less than five years significantly constrains married women's participation and the participation of female heads of households, but compels men to work. Many of the other household variables have an impact on the participation decision of married females, whereas only the presence of other females of working age in the household acts as an inducement for single women to participate. Note in particular the importance and significance of domestic help in enabling married women to participate, even though it is positively, but not significantly, associated with the labour force participation of all other subsamples apart from single men.

Table 3: Sample means or proportions, married and single women, female heads of households, married and single men

	Women			Men	
	Married not heads of households	Single not heads of households	Heads of household	Married	Single
	(1)	(2)	(3)	(4)	(5)
Variables of the static model of labour supply					
Log of average hourly wages in district in same education category in the previous year	3.4828	3.8148	3.3865	3.7706	3.8864
Share of total consumption expenditure accounted for by the earnings of males in household	0.7070	0.5782	0.2172		
Household receives remittances from abroad (d)	0.0480	0.0621	0.1460	0.0468	0.0544
Demographic characteristics					
Age	39.4865	27.9006	44.5367	41.9733	27.4597
Age squared	1668.6720	863.5111	2075.6760	1857.2250	820.2712
Sinhalese Christian (d)	0.0502	0.0455	0.0565	0.0497	0.0522
Up Country Tamil Hindu (d)	0.0325	0.0348	0.0421	0.0329	0.0295
Up Country Tamil Christian (d)	0.0036	0.0068	0.0078	0.0028	0.0035
Sri Lankan Tamil Hindu (d)	0.0493	0.0538	0.0498	0.0561	0.0642
Sri Lankan Tamil Christian (d)	0.0107	0.0135	0.0184	0.0118	0.0119
Islamic Moors (d)	0.0946	0.0852	0.1058	0.0943	0.0916
Disabled (d)	0.1506	0.0822	0.2370	0.1479	0.0822
Education characteristics					
Secondary education (d)	0.4528	0.2907	0.4194	0.4749	0.4344
GCE Ordinary Levels (d)	0.1770	0.2293	0.1511	0.1602	0.2053
GCE Advanced Levels (d)	0.1364	0.3586	0.1008	0.1040	0.2179
Degree (d)	0.0251	0.0417	0.0149	0.0251	0.0254
Household characteristics					
Log of real per capita consumption expenditure	8.7659	8.7889	8.8797	8.7646	8.7822
Mother/father of children < 5 years (d)	0.1779		0.1570	0.2035	
Mother/father of children 5 to 15 years (d)	0.3747		0.3954	0.4216	
Proportion of household members elderly parents	0.0088	0.0091	0.0158	0.0091	0.0082

	(1)	(2)	(3)	(4)	(5)
Household has domestic help (d)	0.0052	0.0033	0.0068	0.0047	0.0051
Number of other adult women in household	0.6259	1.5251	0.5647		
Number of employed males in household	1.1839	0.9889	0.4309		
Number of employed males doing white collar jobs	0.2877	0.2594	0.0897		
Male household head with secondary education (d)	0.4313	0.4019			
Male household head educated up to Ordinary Levels (d)	0.1424	0.1482			
Male household head educated up to Advanced Levels (d)	0.0785	0.0847			
Male household head graduate or postgraduate (d)	0.0222	0.0248			
Labour market variables					
Unemployment rate in district in previous year	0.0479	0.0664	0.0426	0.0451	0.0574
Share of informal workers in district in previous year	0.6924	0.6850	0.6948	0.6942	0.6901

	Women			Men	
	Married not heads of households	Single not heads of households	Heads of household	Married	Single
	(1)	(2)	(3)	(4)	(5)
Share of employed in large (>100) firms in district in previous year	0.0931	0.0956	0.0881	0.0919	0.0948
Share of employed in manufacturing in district, previous year	0.2481	0.2574	0.2406	0.2482	0.2560
Share of employed in services in district, previous year	0.4182	0.4307	0.4157	0.4182	0.4317
Employed females/employed males, in education category and district	1.0875	1.3107	1.0788	1.0506	1.1340
Duncan Index of Industrial Segregation in district in previous year	0.1908	0.1974	0.1857	0.1914	0.1986
Spatial variables					
Rural (d)	0.8196	0.7879	0.7737	0.8163	0.7898
Estates (d)	0.0502	0.0467	0.0591	0.0511	0.0452
Central Province (d)	0.1334	0.1299	0.1611	0.1278	0.1189
Southern Province (d)	0.1219	0.1554	0.1161	0.1225	0.1366
Eastern Province (d)	0.0604	0.0650	0.0789	0.0689	0.0790
North Western Province (d)	0.1296	0.1113	0.1313	0.1293	0.1118
North Central Province (d)	0.0687	0.0443	0.0813	0.0703	0.0497
Uva (d)	0.0706	0.0563	0.0690	0.0682	0.0577
Sabaragamuwa (d)	0.1043	0.0944	0.0898	0.1033	0.1078
Number of observations	14764	3462	2783	14029	4716

Notes: Estimated using HIES 2009/10 and LFS 2008 and 2009. Northern Province and Trincomalee district excluded. Sample weights used.

Among the district-level labour market outcome variables, the education-specific unemployment rate appears to have a large and significantly constraining effect on the participation of single women: a one per cent increase in the unemployment rate in the district reduces the likelihood of participation by 55 per cent. The presence of a large informal sector is associated with greater likelihood female heads of households participating in the labour market. This could be because such women lack the social capital and networks needed to get better jobs. Besides, hours of work in the informal sector may be more flexible, unlike in formal employment, where the opportunities for part-time work are virtually non-existent. The presence of large firms in the district has a negative and significant impact only on the participation of married men. This may be due to the preponderance of this population sub-group in self-employment. Higher shares of employed in manufacturing and services relative to the share of total employment in the agricultural sector have a significantly negative association with

the participation of married women, women household heads and single men, all other characteristics being controlled for. It is possible that women working in agriculture are likely to be poorer, have more children and hence need to work. It is also possible that larger manufacturing and service sectors encourage more single males to remain in education, in order to increase their chances of getting jobs with better terms and conditions. This may, in turn, be encouraged by the relative scarcity of 'good' (formal) jobs in the non-farm sector (Gunatilaka & Vodopivec 2010). A high ratio between the share of employed women in a particular educational category in the district and the share of employed men in the same educational category appears to encourage all three groups of women to participate. The marginal effect associated with the Duncan Index of Segregation is more difficult to explain, as it denotes that as there is greater segregation, single women are more encouraged to participate. Significant at the 5 per cent level, the effect is large at 58 per cent. This may be because segregation implies easier access to jobs that are considered "women's work", such as in the garments industry, where the demand for women workers is high and, consequently, there are high concentrations of them there.

Living on the estates is significantly associated with the participation of all three groups of women, most so for female heads of households. Again, issues of housing and crèches highlighted earlier may be critical. The provincial spatial dummies are all negative, large and significant for women, who are heads of households. Married women in Central, Eastern and North Western Provinces are also far less likely to engage in market work than married women in Western Province.

In addition to the models presented in Table 3, we estimated four more equations for smaller sub-samples of married women and women, who are heads of households, and for single women and single men, with one more variable each, where this information was available in the survey. The variables were: age at birth of first child, and birth order. The marginal effects deriving from these estimations are reported in Table 5 in the Appendix. It can be seen that an increase in the age at birth of first child by one year is associated with an increase in the likelihood of participation of married women by 0.3 per cent at the one per cent critical level, but has little significant association with the participation of female heads of households. Birth order appears to be significantly correlated with the participation of single males, but its effect is small – 1.5 per cent. It is not significantly associated with the participation of single females.

The results of the estimations in Table 3 highlight important differences in the factors that enable and constrain married and single women, and female heads of households, from participating in the labour market. These are most likely to derive from the different roles that they are expected to play in the household, as Malhotra and DeGraff (2000) suggest. Of the variables we have been able to explore, given the information available in the survey data, the drivers of married women's participation decision appear to be: age, educational attainment from GCE Advanced Level and beyond; higher per capita household consumption; availability of domestic help; a higher share of employed females relative to males in education category; and whether they are living on estates. Having children later, rather than earlier, is also likely to be important. The drivers of single women's participation are: age; all levels of education above primary; the presence of other adult women in the household; a higher share of employed females, relative to males, in education category; and whether they are living on estates. Factors encouraging the participation of female heads of household in market work are: age, university education, a large informal sector, and whether they are living on estates.

Constraints to the labour force participation of these three groups of women are as follows: remittances from abroad (in the case of married women) and female heads of households, and the earnings of male members of household for female heads; Islamic Moor ethno-religious identity and disability; education up to Ordinary Level for married women, and a relatively higher status of household consumption for single women; if they have children under the age of 5 years for married women and female heads of households, and the employment and education characteristics of male

household members and male head of household for married women; more people employed in manufacturing and services, relative to agriculture, in the district for married women and female heads of households, and a greater rate of unemployment for single women; residence in Central, Eastern and North Western Province for married women, and those residing in all provinces outside Western Province, for female heads of households.

Since most Sri Lankan women end up being married (in the sample, 79 per cent of women in the reference age group, who are not household heads, are married while roughly 20 per cent are single), the challenge for policy makers wanting to increase women's engagement in the market economy is to address the factors that keep women from the workforce after they get married.

3.3.   Decomposition of the probability of participation

What is the relative impact on women's labour force participation of the groups of socio-economic factors, identified above, as being strongly associated with the probability of participation? We answer this question known in the literature as the 'levels' effect, by deploying the Shapley value decomposition technique. The methodology derives from Shapley's (1953) solution to the problem of calculating the real power of any given voter in a coalition voting game with transferable utility, when all orders of coalition formation are equally probable. In the economics literature it has been used primarily to decompose income inequality (Chantreuil & Trannoy 1997; Sastre & Trannoy 2001b; Sastre & Trannoy 2001a; Gunatilaka & Chotikapanich 2009; Devicienti 2010). However, Kolenikov and Shorrocks (2005) and D'Ambrosio et al. (2009) have used the procedure to decompose poverty, and Shorrocks (1999) has shown that the Shapley value decomposition can be applied to any function. Nevertheless, as far as we are aware, the technique has yet to be applied to decompose the probability of labour force participation.

D'Ambrosio et al. (2009) explain the method simply and concisely, and we present their exposition and notation in what follows. For details and a more mathematical exposition see Shorrocks (1999) and Sastre and Trannoy (2001). Let $I(a,b)$ be any function depending on two variables a and b. The Shapley decomposition then computes the impact on I of eliminating a and b in all the possible sequences of elimination, in order to estimate the contribution of each variable on the composition of I. Consider first the impact of variable a on I. The variable can be the first or the second to be eliminated. If it is the first, then the function $I(a,b)$ will be equal to $I(b)$. In this case, the contribution of a to $I(a,b)$ will be equal to $I(a,b) - I(b)$. If variable a is the second to be eliminated, the function I will be equal to $I(a)$. Since both elimination sequences are possible and assuming that the probability of the two sequences is the same, we can conclude that the (marginal) contribution $C(a)$ of the variable a to the function $I(a,b)$ is equal to

$$C(a) = \frac{1}{2}\left[I(a,b) - I(b) \right] + \frac{1}{2}I(a). \qquad (2)$$

Similarly, it can be shown that the (marginal) contribution $C(b)$ of the variable b to the function $I(a,b)$ is

$$C(b) = \frac{1}{2}\left[I(a,b) - I(a) \right] + \frac{1}{2}I(b). \qquad (3)$$

Combining equations (2) and (3) produces

$$C(a) + C(b) = I(a, b). \tag{4}$$

It can be seen that the procedure treats all factors even-handedly and that, therefore, the Shapley decomposition is symmetric in all variables. In this section we follow D'Ambrosio et al. (2009) and apply the Shapley value decomposition methodology to decompose the following likelihood ratio,

$$LRI = 1 - \left(\ln L / \ln L_0 \right). \tag{5}$$

In equation (5), $\ln L$ is the maximal value of the log-likelihood and $\ln L_0$ is the log-likelihood obtained when only a constant term is introduced. This is a measure of goodness of fit of the regressions that is similar to the R squared used in linear regressions. The bounds of this measure are 0 and 1. Like D'Ambrosio *et al.* (2009) we simplify the computation by computing the marginal contribution of each category of explanatory variables, rather than of each variable, to the log-likelihood. However, for the decomposition analysis we obtain the log-likelihood by estimating the same models for married and single women as in Table 2, but without using sampling weights. This is because Stata's survey commands to adjust for sample design do not produce any tests for goodness-of-fit. The results of the estimations carried out without adjusting for sample design, and on which the decomposition results are based, are presented in Table 6 of the Appendix, alongside the results of the models which have been adjusted for sample design which were presented above in Table 2. It can be seen that the marginal effects are very similar in terms of size and significance.

In Table 4 we present the marginal impacts of the six groups of variable on the likelihood ratios derived from estimating the probabilities of labour force participation of married and single women. There are interesting differences in the impacts of these variables on the participation of married women, single women, and those who are heads of households. The most important contributors to the probability of married women's participation are spatial variables, demographic characteristics and education characteristics which, together, account for 68 per cent of the LRI. The discouragement variables account for 15 per cent and household characteristics 10 per cent. In contrast, demographic characteristics account for half the LRI of the sample of single women. These results appear to be driven mainly by the variables Islamic Moor and disabled, as Table 4 suggests. Education accounts for 24 per cent and household characteristics another 11 per cent of the LRI of this group. Among female heads of households, the most important contributor to the LRI is the static labour supply model variables and demographic variables. Spatial variables (16 per cent) and household characteristics (11 per cent) are somewhat less important.

Table 4: Shapley decompositions of the logit regressions: Marginal effects of the six categories of explanatory variables on the likelihood ratio LRI

	Married women	Single women	Women heads of households
Marginal impact of the static labour supply model variables related to wages and income	0.57 (5.55)	0.34 (4.06)	3.07 (27.23)
Marginal impact of demographic characteristics	2.33 (22.77)	3.84 (51.48)	3.05 (27.03)
Marginal impact of education	2.26 (22.04)	1.29 (24.00)	0.96 (8.54)
Marginal impact of household characteristics	1.09 (10.63)	0.96 (11.63)	1.21 (10.73)
Marginal impact of discouragement	1.63 (15.97)	0.37 (4.83)	1.14 (10.12)
Marginal impact of spatial variables	2.36 (23.03)	0.42 (4.00)	1.84 (16.34)
Likelihood ratio LRI	10.24 (100.00)	7.12 (100.00)	11.28 (100.00)

Notes: The numbers in parenthesis on the separate lines give the marginal impact in relative terms.

4. Conclusions and policy implications

This study was motivated by the recognition that increasing women's access to employment is necessary to increase human capital and capabilities within households. It was also acknowledged that Sri Lanka's economic growth prospects in the future will be heavily dependent on greater numbers of women engaging in market work. The study sought to inform policy-making aimed at encouraging women to join the work force, and did so by reviewing the literature and drawing on a background study of the views of stakeholders to investigate the factors associated with the probability of women's participation. In particular, the study looked at the extent to which differences in individual characteristics, household characteristics and socio-economic class, and familial responsibilities were associated with whether women work for pay or not. This study was also able to add to the econometric literature on women's labour force participation in Sri Lanka by looking at the impact of employment and unemployment outcomes in discouraging participation. As far as we are aware, this is the first time that this issue has been looked at in Sri Lanka, in the context of a representative sample survey. The econometric analysis also decomposed likelihood of participation into contributing factors, in order to inform the process of prioritizing and targeting policies. We first present an overview of the findings and then discuss their implications for policy and future research.

4.1. Overview of findings

The study found important differences in the factors that appear to enable and constrain married and single women, and female heads of households, from participating in the labour market. As Malhotra and DeGraff (2000) suggest, these are most likely to be derived from the different roles that they are expected to play in the household. Contrary to the predictions of the static labour supply model, the expected wage is not a good predictor of female labour force participation, but receiving remittances from abroad appears to obviate some of the financial need to work.

Of the variables we have been able to look at, given the information available in the survey data, the drivers of married women's participation decision appear to be: age, educational attainment from GCE Advanced Level and beyond; higher per capita household consumption; availability of domestic help; a higher share of employed females, relative to males with the same educational attainment as the individual in the district; and whether they are living on estates. Having children later rather than earlier is also likely to be important an important factor. The drivers of single women's participation are: age; all levels of education above primary level; the presence of other adult women in the household; a higher share of employed females in the district, relative to males in the same education category as the individual; and whether they are living on estates. Factors associated with the participation of female heads of household in market work are: age, a university education, a large informal sector in the district, and whether they are living on estates.

Constraints to the labour force participation of these three groups of women are as follows: remittances from abroad in the case of married women and female heads of households, and the earnings of male members of household for female heads; Islamic Moor ethno-religious identity and disability; education up to Ordinary Level for married women, and a relatively higher status of household consumption for single women; whether they have children below 5 years of age for married women and female heads of households, and the employment and education characteristics of male household members and male head of household for married women; more people employed in manufacturing and services, relative to agriculture in the district, for married women and female heads of households, and a greater rate of unemployment for single women; residence in Central,

Eastern and North Western Province for married women, and for female heads of households, whether they are residing in all provinces outside Western Province.

The decomposition analysis suggested that the most important contributors to the probability of married women's participation are spatial variables, demographic characteristics and education characteristics which, together, account for 68 per cent of the LRI. The discouragement variables account for 15 per cent and household characteristics 10 per cent. In contrast, demographic characteristics account for half the LRI of the sample of single women. These results appear to be driven mainly by the variables Islamic Moor and the disabled. Education accounts for 24 per cent and household characteristics another 11 per cent of the LRI of this group. Among female heads of households, the most important contributors are income effect of variables in the static labour supply model and demographic variables which, together, account for a little more than 50 per cent of the LRI. Spatial variables (16 per cent) and household characteristics (11 per cent) are somewhat less important.

The participation decision of married women is particularly complex, depending on a variety of factors, and since most Sri Lankan women end up being married (in the sample, 79 per cent of women in the reference age group, who are not household heads, are married, while roughly 20 per cent are single), the challenge for policy makers, who intend to increase women's engagement in the market economy, is to address the factors that keep women from the workforce after they get married.

These constraints include cultural and status-related perceptions and attitudes about what sort of role married women should play within the household and the gender division of household and care labour within the family unit. However, even while better education and higher socio-economic status encourage married women to seek market work, the legal framework governing work in the private sector imposes constraints that prevent women taking up night work or part-time work in rapidly growing and socially acceptable service sectors. At the same time, many observers point out that the Sri Lankan law governing maternity benefits makes employers bear its entire cost, encouraging them to discriminate against the hiring of women (Ranaraja 2013). Meanwhile, the lack of family-friendly policies in private institutions and perceived difficulties in finding employment, encourage women to seek work in the public sector, which appears more family-friendly by default, rather than by policy, because work norms are less rigidly enforced there than in the private sector.

We need to emphasize here that equalizing women's access to paid employment will surely increase their total workload and, commensurately, the stress associated with it, if the current division of paid and unpaid work between husbands and wives remains unchanged. An analysis of the time use of husbands and wives in Sri Lanka, based on a survey of about 300 individuals working in Colombo district, conducted more than 13 years ago, found that entering the workforce increases the time that women spend working by three hours per day to 16 hours a day, compared with the time that unemployed wives of married men spend (Satharasinghe 1999). In contrast, husbands' total work time remained close to 14 hours, regardless of whether their wives were employed or not. Thus, any policy strategy that seeks to enhance women's participation in market work also needs to address the issue of the unequal division of unpaid work between men and women.

4.2. Policy implications and directions for future research

The findings of the present study highlight the importance of better education for female labour force participation. The critical stage in the education cycle for participation appears to be secondary education, beyond which the likelihood of participation rises, certainly more so for single women than

for female heads of households and for married women. In terms of policy, however, this finding suggests that investment in skills training beyond secondary education is critical to encourage women to engage in market work. Thus, it is at this point that girls, who do not continue in general education, should be given the opportunity to acquire job-oriented technical and vocational skills through the vocational education system. The next point at which alternative employment skills need to be provided is after the GCE Ordinary Levels, for those who do not continue to study for the Advanced Levels. Acquiring some marketable skills at this stage in the education cycle is vital to enable women to engage in paid work, even after they are married. This training can equip women for higher skilled occupations in IT, the hospitality industry and the health, day-care/nursery and geriatric-care industry. On the other hand, the economy also needs to generate enough job opportunities for graduates outside the public sector. Currently, the public sector remains the employment sector of choice for many educated women.

Implementing measures to enhance skills is also likely to delay marriage and encourage women to postpone having children, enabling them to acquire some job experience which will increase their chances of finding employment once they return to the labour market after raising children. As de Silva *et al*. (2010) have pointed out, the recent rise in fertility foretells a difficult situation, where the ageing of the population will continue along with an increase in child dependency, thus increasing the dependency burden for the working population at both ends of the population pyramid. Hence, policies that enable women to remain or return to the workforce will help the country to bear the increasing dependency burden that has been projected. At the same time, considering the particular disadvantages faced by female heads of households, who are often single parents, training opportunities and opportunities for flexible working arrangements should also be targeted towards this group of women.

The empirical results of this study also highlighted cultural and household-based constraints, particularly to married women's participation. A key factor is the household work and care burden on women, deriving, on the one hand, from the lack of institutional support for the care of young children and elderly people and, on the other hand, social norms that impose on women the larger burden and responsibility for the care of children and household work. The policy implications of these findings are, first, the encouragement and implementation of family-friendly policies that encourage a more equitable sharing of the burden of care and household chores between males and females. Secondly, policies that enable more flexible work arrangements, such as part-time work, and work that can be done online need to be implemented. Amending the legislation allowing night work in better-paying service industries is also important. Other measures facilitating night-work and more flexible work arrangements should also be implemented, for example, developing the telecommunications and other infrastructure necessary to support online working arrangements and safe and efficient transport to and from work. A secure environment for women to travel to and from work at different hours of the day would require the efficient and impartial maintenance of law and order. A vigilant and well-trained police force and an effective justice system are essential. Policy makers may also need to explore options for socializing the cost of providing maternal benefits so that employers are not compelled to bear its entire cost, which creates incentives against hiring women. Thirdly, policy makers can provide incentives for the setting up of well-monitored crèches for young children and day care centres for the elderly, which can, in turn, provide more job opportunities for women. Some schools in Colombo, for example, already provide day boarding facilities for children after school, who are looked after by trained personnel, until their parents pick them up after work. Similarly, existing class-room infrastructure in other schools can be utilized after hours to provide reliable child care in a familiar environment

The empirical results of this study highlighted the role that prevailing inequalities in opportunities and outcomes in the labour market play in discouraging women from entering the workforce. These results suggest that policies that discourage sexism and gender stereotyping in the workplace are

likely to have a positive impact on female labour force participation, and that, if the state's legal and institutional infrastructure to handle issues of discrimination and sexual harassment is strengthened, this too will serve to encourage women in engaging in market work.

While the National Human Resources and Employment Policy (Secretariat for Senior Ministers 2012) already refers to many of these policies, the findings of the present study provides the empirical evidence to underline them. Nevertheless, Ranaraja's (2013) consultations with stakeholders suggests that, while existing policies are appropriate, their implementation is unsatisfactory. A case in point is that of revising the legal framework to enable women to undertake night work in service occupations, despite the fact that employers' and employees' representatives have agreed on this amendment. Another is the promotion of social dialogue between the industrial partners to create a working environment that will be more conducive to women's participation.

Weak implementation of existing policies may be due to a combination of factors, such as the lack of capacity in the public sector, and insufficient pressure and lobbying to force implementation because of the dearth of women and more enlightened legislators in Parliament.

The findings of the present study also suggest directions for future research, which can inform the formulation of specific policies within the parameters of the National Human Resources and Employment Policy. First, an up-to-date, detailed analysis of men's and women's time use in different cultural and geographical contexts will be extremely informative, not only to find out their relative contribution in paid and non-paid work, but also to find out how processes can be made more efficient. For example, parents may be forced to spend an inordinate amount of time supervising children's homework as a result of the demands made by badly designed school curricula. Similarly, parents may have to spend substantial time accompanying children to and from school, tuition classes and extra-curricular activities because of poor quality education services, on the one hand, and the lack of a safe and efficient transport system, on the other hand. Secondly, perceptions about gender roles in relation to paid work, care work, and social and cultural activities with extended family and friends are likely to be important determinants of women's ability to engage in market work and need further exploration and analysis. Finally, up to date information about women's own perceptions about the barriers they face in participating in the labour market and in finding and keeping jobs, and the kind of work arrangements, facilities and support systems that they think will enable them to go out to work are needed to find out whether policies designed to encourage them to go out to work are likely to actually achieve their objectives.

The research design of this study and its results also highlighted the complementarities of the two main sources of labour market data in Sri Lanka, the HIES and the LFS. Combining the HIES and LFS modules, as the Department of Census and Statistics plans to do in 2013/14, will yield a more comprehensive and richer data set, which will enable more insightful analysis of issues, such as labour force participation in the future. Nevertheless, there are many relevant issues about employability which we were unable to look at, due to data limitations. For example, the role played by skills could be captured only by variables denoting general education. Therefore, the LFS schedule needs to be revised to enable the collection of information about the technical and vocational skills training of all labour force participants. Some tests of cognitive and other work-oriented skills would also be useful to find out whether general education and skills-development programmes are effective in transferring work-oriented skills. Perhaps a special module included in the questionnaire every few years may yield the necessary information in a cost-effective way. Meanwhile,, the revision of the LFS questionnaire in 2006 has given rise to a very high non-response rate to the question about the reasons for not entering the labour force. As a result, we do not have information about a critical dimension of non-participation, that is, what individuals perceive to be the reason why they do not engage in market work. It would also be more useful if the question about the duration of unemployment were

reformulated to be open-ended, rather than closed with just three options, as at present. If the questionnaire can be revised to enable the collection of this information, it would help generate useful insights about dimensions of unemployment and discouragement.

The data collecting authorities can also consider including two additional questions in the schedule, first on the sources of information that people engaging in market work use to find out about job opportunities, and second, their perceived satisfaction about their current jobs. The availability of this information will enable more insightful analyses in the future about labour market issues that have become critically important for the development process.

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Appendix

Table 5: Factors associated with the probabilities of participation in the labour force of married women, women who are heads of households, and single women and men with additional variables, 2009/10: Marginal effects of logistic estimation

	Women			Men
	Married not heads of households	**Heads of household**	**Single not heads of households**	**Single**
	(1)	**(2)**	**(3)**	**(4)**
Variables of the static model of labour supply				
Log of average hourly wages in district in same education category in the previous year	-0.0338**	-0.033	-0.0211	-0.0042
Share of total consumption expenditure accounted for by the earnings of males in household	-0.0001	-0.1561***	-0.0296**	
Household receives remittances from abroad (d)	-0.1401***	-0.2226***	-0.0194	-0.0514*
Demographic characteristics				
Age	0.0365***	0.0652***	0.0530***	0.0505***
Age squared	-0.0004***	-0.0008***	-0.0008***	-0.0007***
Age at birth of first child	0.0038***	-0.0031		
Birth order			-0.0102	0.0153**
Sinhalese Christian (d)	-0.0227	-0.0085	0.0586	0.0216
Up Country Tamil Hindu (d)	0.1025**	-0.0635	-0.0484	0.0532**
Up Country Tamil Christian (d)	-0.0312	-0.2841***	-0.1497	0.0324
Sri Lankan Tamil Hindu (d)	-0.0149	0.0068	-0.0716	0.0323
Sri Lankan Tamil Christian (d)	-0.0867*	-0.0234	-0.1281	0.0142
Islamic Moors (d)	-0.1798***	-0.1733***	-0.1856***	-0.0466*
Disabled (d)	-0.0667***	-0.0697**	-0.2482***	-0.3970***
Education characteristics				
Secondary education (d)	-0.0480**	-0.0486	0.1922***	0.1313***
GCE Ordinary Levels (d)	-0.0268	-0.0878	0.1691***	0.0318
GCE Advanced Levels (d)	0.1054***	0.0522	0.1278**	-0.0209

	Women			Men
	Married not heads of households	**Heads of household**	**Single not heads of households**	**Single**
	(1)	**(2)**	**(3)**	**(4)**
Degree (d)	0.5150***	0.4127***	0.2283***	0.0247
Household characteristics				
Log of real per capita consumption expenditure	-0.0024	-0.0402	-0.0593**	-0.0208**
Mother/father of children < 5 years (d)	-0.1045***	-0.1523***		
Mother/father of children 5 to 15 years (d)	-0.0006	-0.0365		
Proportion of household members elderly parents	-0.0513	0.1492	-0.2944	0.2277
Household has domestic help (d)	0.1525	0.3225*	0.1428	0.0312
Number of other adult women in household	0.0051	-0.0334	0.0350**	
Number of employed males in household	-0.0351***	-0.0277	-0.0016	
Number of employed males doing white collar jobs	-0.0215	0.0566	-0.0048	
Male household head with secondary education (d)	-0.0778***		0.0197	
Male household head educated up to O' Levels (d)	-0.0526**		0.0152	
Male household head educated up to A' Levels (d)	-0.0732***		-0.0113	
Male household head graduate or postgraduate (d)	-0.0517		0.0037	
Unemployment rate in district in previous year	0.0842	0.3969	-0.6086***	-0.1749

	Share			
Share of informal workers in district in previous year	-0.1113	0.3897*	-0.0882	-0.0542
Share of employed in large (>100) firms in district in previous year	-0.0703	0.298	-0.545	0.1871
Share of employed in manufacturing in district, previous year	-0.2991**	-0.9729***	-0.1741	-0.2013*
Share of employed in services in district, previous year	-0.1820*	-0.4706**	-0.1229	-0.1826**
Employed females/employed males, in education category and district	0.0488**	0.0727*	0.0334*	-0.002
Duncan Index of Industrial Segregation in district in previous year	0.0269	-0.0779	0.6465**	0.1809
Spatial variables				
Rural (d)	0.0049	-0.0159	-0.0093	-0.0233*
Estates (d)	0.2331***	0.2579***	0.0974*	-0.0083
Central Province (d)	-0.05	-0.3363***	-0.0474	0.0049

	Women			Men
	Married not heads of households	**Heads of household**	**Single not heads of households**	**Single**
	(1)	**(2)**	**(3)**	**(4)**
Southern Province (d)	0.0126	-0.2071***	-0.0652	0.0193
Eastern Province (d)	-0.0954**	-0.2340***	-0.0281	0.0347
North Western Province (d)	-0.0364	-0.1927***	-0.0815	0.0358
North Central Province (d)	0.0940*	-0.2738***	0.0249	0.0323
Uva (d)	0.0964*	-0.3188***	-0.0631	-0.07
Sabaragamuwa (d)	0.0720*	-0.2793***	0.0148	-0.0063
Number of observations	9921	2330	2892	3897

Notes:

1. (d) denotes dummy variables. The omitted categories are: Sinhalese Buddhist; primary education or less; mother of children 16 years or more; male household head has primary education or less; share of employed in agricultural sector in district in previous year; urban sector; Western Province.

2. ***, **, and * denote statistical significance at the one per cent, five per cent and ten per cent levels respectively.

3. Estimated using HIES 2009/10 and LFS 2008 and 2009. Northern Province and Trincomalee district excluded. Sample weights used.

Table 6: Factors associated with the probabilities of the participation of married women, single women and female heads of households 2009/10: Marginal effects of logistic estimation with and without sample weights

	Married women		Single women		Women heads of households	
	With sample weights	Without sample weights	With sample weights	Without sample weights	With sample weights	Without sample weights
	(1)	(2)	(3)	(4)	(5)	(6)
Variables of the static model of labour supply						
Log of average hourly wages in district in same education category in the previous year	-0.0137	-0.0093	-0.0260	-0.0308	-0.0454	0.0125
Share of total consumption expenditure accounted for by the earnings of males in household	-0.0011	-0.0001	-0.0135	-0.0146*	-0.1673***	-0.1611***
Household receives remittances from abroad (d)	-0.1268***	-0.1252***	-0.0627	-0.0713**	-0.2462***	-0.2524***
Demographic characteristics						
Age	0.0253***	0.0328***	0.0463***	0.0483***	0.0596***	0.0565***
Age squared	-0.0003***	-0.0004***	-0.0007***	-0.0007***	-0.0007***	-0.0007***
Sinhalese Christian (d)	-0.0276	-0.0091	0.0474	0.0464	-0.0042	0.0208
Up Country Tamil Hindu (d)	0.0591	0.0614**	-0.0286	-0.0049	-0.0351	0.0229
Up Country Tamil Christian (d)	-0.0518	-0.0678	-0.1342	-0.1298	-0.2859***	-0.2441***
Sri Lankan Tamil Hindu (d)	0.0121	0.0278	-0.0455	-0.0402	0.0042	0.0053
Sri Lankan Tamil Christian (d)	-0.0609	0.0379	-0.0844	-0.0367	-0.0667	-0.0182
Islamic Moors (d)	-0.1707***	-0.1437***	-0.1945***	-0.2181***	-0.1809***	-0.1427***
Disabled (d)	-0.0657***	-0.0668***	-0.2034***	-0.2083***	-0.0881***	-0.1196***
Education characteristics						
Secondary education (d)	-0.0768***	-0.0680***	0.2182***	0.2042***	-0.0118	-0.0283
GCE Ordinary Levels (d)	-0.0408*	-0.0366*	0.2356***	0.2381***	-0.0050	-0.0290
GCE Advanced Levels (d)	0.0776**	0.1007***	0.2015***	0.2195***	0.1207	0.0512
Degree (d)	0.5046***	0.5131***	0.2842***	0.2975***	0.4150***	0.4204***
Household characteristics						
	Married women		**Single women**		**Women heads of households**	
	With sample weights	Without sample weights	With sample weights	Without sample weights	With sample weights	Without sample weights
	(1)	(2)	(3)	(4)	(5)	(6)
Log of real per capita consumption expenditure	0.0193*	0.0274***	-0.0446**	-0.0529***	-0.0310	-0.0401**
Mother of children < 5 years (d)	-0.1002***	-0.0932***			-0.1637***	-0.1499***
Mother of children 5 to 15 years (d)	0.0189	0.0101			-0.0486	-0.0431
Proportion of household members elderly parents	0.0704	0.0427	-0.0904	-0.2068	0.2513	0.2581*
Household has domestic help (d)	0.1984***	0.0895	0.1049	0.1179	0.2061	0.1344
Number of other adult women in household	0.0110	0.0099*	0.0289**	0.0364***	-0.0264	-0.0175
Number of employed males in household	-0.0329***	-0.0367***	-0.0156	-0.0224*	-0.0182	-0.0145
Number of employed males doing white collar jobs	-0.0233*	-0.0240**	-0.0235	-0.0080	0.0363	-0.0016
Male household head with secondary education (d)	-0.0563***	-0.0406***	-0.0114	-0.0038		
Male household head educated up to O' Levels (d)	-0.0420**	-0.0408***	-0.0453	-0.0405		
Male household head educated up to A' Levels (d)	-0.0626***	-0.0544***	-0.0455	-0.0634*		
Male household head graduate or postgraduate (d)	-0.0255	-0.0296	-0.1134	-0.1516**		
Discouragement variables						

Unemployment rate in district in previous year	0.1016	0.0613	-0.5515***	-0.3835**	0.0309	0.1302
Share of informal workers in district in previous year	-0.1024	-0.0895	0.0429	0.0797	0.3827*	0.2846
Share of employed in large (>100) firms in district in previous year	-0.1928	-0.3216*	-0.1121	0.1767	0.3049	0.1110
Share of employed in manufacturing in district, previous year	-0.4140***	-0.3647***	-0.2473	-0.3185	-0.6382**	-0.8748***
Share of employed in services in district, previous year	-0.2122***	-0.0978	-0.0968	-0.1506	-0.3718*	-0.1260
Employed females/employed males, in education category and district	0.0282**	0.0270***	0.0366*	0.0229	0.0669*	0.0439
Duncan Index of Industrial Segregation in district in previous year	0.2005	0.0614	0.5831**	0.5002**	-0.3394	-0.0089
Spatial variables						
Rural (d)	0.0153	0.0415***	-0.0050	-0.0053	-0.0145	0.0353

	Married women		Single women		Women heads of households	
	With sample weights	Without sample weights	With sample weights	Without sample weights	With sample weights	Without sample weights
	(1)	(2)	(3)	(4)	(5)	(6)
Estates (d)	0.2062***	0.2728***	0.1151**	0.0846**	0.2428***	0.2466***
Central Province (d)	-0.0901***	-0.0988***	-0.0387	-0.0097	-0.2952***	-0.2822***
Southern Province (d)	-0.0304	-0.0569**	-0.0389	-0.0229	-0.1758***	-0.1904***
	(1)	(2)	(3)	(4)	(5)	(6)
North Western Province (d)	-0.0475*	-0.0608***	-0.0667	-0.0165	-0.1386*	-0.1165*
North Central Province (d)	0.0431	-0.0022	0.0134	0.0506	-0.2345***	-0.1983***
Uva (d)	0.0590	0.0429	-0.0984	-0.0821	-0.2889***	-0.2581***
Sabaragamuwa (d)	0.0278	0.0302	-0.0223	0.0039	-0.2344***	-0.1842***
Likelihood ratio LRI						
Number of observations	14764	15045	3462	3484	2783	2893

Notes:
1. (d) denotes dummy variables. The omitted categories are: single; Sinhalese Buddhist; primary education or less; mother of children 16 years or more; male household head has primary education or less; urban sector; Western Province.
2. ***, **, and * denote statistical significance at the one per cent, five per cent and ten per cent levels respectively.
3. Estimated using HIES 2009/10 and LFS 2008 and 2009. Northern Province and Trincomalee district excluded. Models (1), (3) and (5) are estimated with sample weights, Models (2), (4) and (6) without.

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Female labour force participation in Sri Lanka: trends, drivers and barriers

This study looks at the extent to which differences in individual and household characteristics are associated with whether women in Sri Lanka work for pay or not. The study finds important differences in the factors that enable or constrain women from participating in the labour market. The econometric analysis confirms the importance of better education for female labour force participation. The critical stage in the education cycle for participation is secondary education, beyond which the likelihood of participation rises. In terms of policy, the findings suggest that investment in skills training beyond secondary education is critical. The empirical results also highlight the importance of cultural and household-based constraints, particularly to married women's participation in the work force. A key factor is household work and the care burden deriving, on the one hand, from the lack of institutional support for the care of young children and elderly people and, on the other hand, social norms that impose on women the responsibility for the care of children and household work. The study also looks at how inequalities in employment opportunities and outcomes in the labour market discourage women from participation. Finally, the study stresses the need for improving implementation of policies and revising laws to promote opportunities for women in paid work.