

GENDER DISPARITIES AND LABOUR MARKET CHALLENGES

THE DEMAND FOR WOMEN WORKERS IN SRI LANKA



GENDER DISPARITIES AND LABOUR MARKET CHALLENGES: THE DEMAND FOR WOMEN WORKERS IN SRI LANKA

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FOREWORD



This study meets a significant gap in identifying how characteristics of firms and attitudes of managers keep women out of paid employment in Sri Lanka. Women make enormous contributions to economies, communities, and their families. However, from the recruitment stage itself, they remain disproportionately affected by gender-biased discrimination, occupational segregation, and gender wage gaps. This is a glaring aspect of gender inequality in the labour market.

Creating conditions for decent work and protecting employees from discrimination are basic human rights. With only 36 percent of women in the country willing and able to be employed, it is crucial to move towards formulating policies that support the creation of employment opportunities for women.

This report entitled 'Gender Disparities and Labour Market Challenges: The Demand for Women Workers in Sri Lanka' is amongst the first in Sri Lanka to illustrate the largely unexplored factors

on the part of employers and firms that prevent women from entering the paid workforce. In this study, it was found that gender-based segregation powerfully conditions the demand for low skilled women workers, partly because women are paid less than men. In addition, legislative constraints that did not facilitate flexible working hours and maternity benefits, resulted in employers hiring less women workers. Alarming, it was also found that male employers are unconsciously prejudiced against women workers, where three fourths of male respondents were less likely to hire women.

We hope that the policy directions laid out in this study will serve as a guide for the government, the private sector and non-governmental organizations in taking action to increase women's participation in the paid workforce.

As the United Nations Entity for Gender Equality and the Empowerment of Women, UN Women supports initiatives to enhance economic opportunities for women while also building their capacities for sustainable livelihoods. A fundamental promise of the 2030 Agenda is to leave no one behind. Women's ability to participate equally in existing labour markets and their ability to meaningfully participate in economic decision-making at all levels is central to realizing women's rights and gender equality.

UN Women is committed to working with the Government of Sri Lanka and other partners to further our joint efforts in creating an enabling environment where every woman and girl in Sri Lanka can live up to their full potential.

A handwritten signature in black ink, appearing to read 'Ramaaya Salgado'.

Ramaaya Salgado
Country Focal Point, UN Women Sri Lanka

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We express our sincere gratitude to Ramani Gunatilaka and Sunil Chandrasiri, the authors of this study, whose work provides an invaluable contribution to our understanding of women's labour force participation in Sri Lanka - in relation to the relative demand for women workers in formal enterprises. This study has benefited from the contributions and support of several individuals. Our thanks to:

- the Nielsen Company Ltd. for administering the survey under difficult conditions, and for Jinendra Kotalawela's initial leadership which proved invaluable. He developed an alternative listing of firms to that used by the Department of Census and Statistics, as well as an alternative hybrid data collection method when COVID-19 lockdowns made face-to-face interviews impossible;
- Kalani Perera and the team at the Nielsen Company Ltd. for promptly and patiently responding to many data-related queries;
- the Department of Census and Statistics, Sri Lanka, for making available several sample survey data sets used for the secondary analysis; and
- to the firms which were surveyed for the information shared with us, during trying times.

A special word of thanks to Jean D'Cunha, Senior Global Adviser on International Migration based in the UN Women Regional Office for the Arab States; Nansiri Iamsuk, Programme Specialist, UN Women Regional Office for Asia and the Pacific; Sara Elder, Head of the ILO's Regional Economic and Social Analysis Unit in Bangkok; and Sher Singh Verick, Head of the Employment Strategies Unit in the Employment, Labour Markets and Youth Branch of the ILO in Geneva, for their patient reading of the preliminary draft and the insightful comments which considerably improved the literature review and the interpretation and analysis of the results.

Last but not the least, we would also like to thank the UN Women colleagues: Ramaaya Salgado for seeing the need for this research and canvassing the funding to implement it; Prashani Dias for coordinating it through challenging times; and Avindi Perera for supporting its dissemination.

EXECUTIVE SUMMARY

Most Sri Lankan women are either unable or unwilling to engage in paid work: only 36 percent of women of the working-age cohort were either employed or seeking work in 2019. Supply-side analyses have identified unpaid care and household work, skills deficits, and gender discrimination as underlying supply-side factors. Demand-related elements such as the characteristics of the firm and attitudes of management are largely unexplored. This study addressed this gap in the literature by analysing primary and secondary data from private, formal enterprises in the manufacturing, trade, and service sectors to understand the attributes of firms that influence the demand for women workers.

Specifically, it estimated a model of labour demand based on microeconomic theory extended to capture the impact of firm- and industry-specific factors, influence of policy variables and employers' perceptions. The secondary data used for the analysis was data from the Department of Census and Statistics' (DCS) Economic Census 2013 and the nationally representative Annual Survey of Industries of 2006 and 2016. Synthetic wage data-series were constructed using the Department of Census and Statistics' Quarterly Labour Force Surveys of 2006, 2013, and 2016.

The establishments data was from a nationally-representative sample of formal firms in industry and services with adequate coverage of key sub-sectors such as food and beverages, textiles and garments, rubber and plastics, and chemicals in manufacturing; and five major sub-sectors in services: trade; finance, banking, insurance, and real estate; hospitality; and education, health, and social services. The primary data was collected during the period September 2020 to February 2021 through a structured questionnaire administered to a cross-section of 566 firms representing large, medium, and small-scale firms operating in key sub-sectors of the manufacturing and service sectors.

Findings

Firm and industry-level factors influencing the demand for women workers

Firms demand labour depending on how productive it is. Hence, a positive relationship between labour productivity and labour demand can be expected. **However, the study found that firms' relative demand for women workers was higher when productivity was lower.** This can be explained by the concentration of women workers in low-skilled occupations and low-productivity sectors. As capital intensity in the firm rises, the demand for labour can either increase or decline depending on what type of labour is needed to work with it, or what type of labour can be replaced with more capital.

The results do not suggest any complementarity between capital and the relative demand for women workers in either manufacturing or services, other than for the demand for skilled and unskilled women workers in the textiles and garments industries, and chemicals subsectors, and for unskilled women in the rubber and plastics and hospitality sectors. The generally weak relationship between capital and labour may be due to the data on fixed capital not reflecting the true value of plant and machinery, and of investments in modern technology such as ICT.

As unit-wage costs rise, firms prefer to employ skilled men rather than skilled women, and unskilled women rather than unskilled men, other things equal. Firms with greater shares of unskilled workers and clerical workers prefer to employ women rather than men, at least partly due to women's wages being lower than men's wages. The relatively high demand for low skilled women workers may also be influenced by the occupational structures of subsectors in manufacturing and services and the relative low capital, R&D, and possibly technology intensity, of their operations. The findings confirm the gender-based segregation

of occupations observed in Sri Lanka and around the world, and reveal the presence of gender-based wage discrimination in industry and services sectors that others have found. However, the findings also reflect the relatively undiversified nature of the country's economy as policy has drifted away from export promotion and become more inward-looking.

Small- and medium-scale firms (SMEs) demand relatively more women workers than large firms; that too, for unskilled workers mainly. SMEs also have limited access to capital given its high cost, and this may drive them to substitute unskilled women workers for capital. Firms with at least one female working proprietor demand more unskilled female workers.

Firms investing in research and development do not necessarily hire more women, skilled or unskilled. This is likely due to the low levels of R&D investment in Sri Lanka. Firms using advanced technologies such as cloud-software, mobile devices, digital payments, robotics, and 3D printers tended to demand more women, but the results were significant only for mobile devices and applications. However, firms which used digital media, advertising platforms and social media (social networking and collaboration platforms) tended to demand fewer women workers than men. **Firms invest more in training men than women, particularly external training.** These biases likely arise from the heavy concentration of women in low-skilled occupations and are likely to constrain women's opportunities for career advancement in relation to men.

Nevertheless, if production structures in manufacturing become more technology and R&D intensive, the relative demand for skilled women workers may expand. Currently, Sri Lanka seems to only be at an early stage of adopting modern technologies. Only 35 percent of employers agreed that their firms were heading towards a digitised system of operations while only 28 percent agreed that their firms were moving towards an automated system of production. Only

60 percent of firms use 3rd Industrial Revolution technologies and less than 20 percent use technologies from the 4th Industrial Revolution.¹

Exporting firms did not necessarily hire more women, but employers who saw government policies as constraining business were less likely to hire women workers in trade and services, irrespective of the type of skill demanded. These results are to be expected given the inward-oriented trade policies, poor links with global value chain systems, and low rates of export-oriented foreign direct investment in Sri Lanka over the last decade or more.

Employers' perceptions

If employers thought that women were more skilled than men, more loyal to the firm, worked harder, were more honest and conscientious, their firms were likely to employ relatively more women. In fact, employers acknowledged considerable skill gaps among women workers in middle-level occupations, particularly in English language skills, capacity to learn and problem solving. Perceived legislative constraints that prevented them from offering flexible working hours and nightwork to women, and the costs of providing maternity benefits made them less likely to hire them. These constraints may be one aspect of the negative and significant influence that government policies are perceived by employers in trade and services to constrain business operations. Nevertheless, there is also **considerable evidence of gender-biased discrimination by employers: as three-fourths of respondents were men, this factor made them significantly less likely to hire women.**

Coping with COVID-19

An overwhelming 90 percent of firms in the primary sample were impacted by the restrictions imposed due to the pandemic, while a third of the impacted had completely closed operations during the lockdown. Nearly 60 percent had closed partially,

1. Robotics, artificial intelligence, and 3D printing.

and a further 9 percent had resorted to working from home (WFH). **Between 2019 and 2020, women's employment in the study's sample of firms declined by 8 percent and the employment of males by 5 percent.** The gender and sector-wise changes in employment took place as a result of how the lockdown and restrictions in mobility impacted the operations of different subsectors. Although certain employees from some firms worked from home during the lockdown, their limited access to IT-related systems, infrastructure, appropriate workspaces, and lack of experience working from home constrained operations.

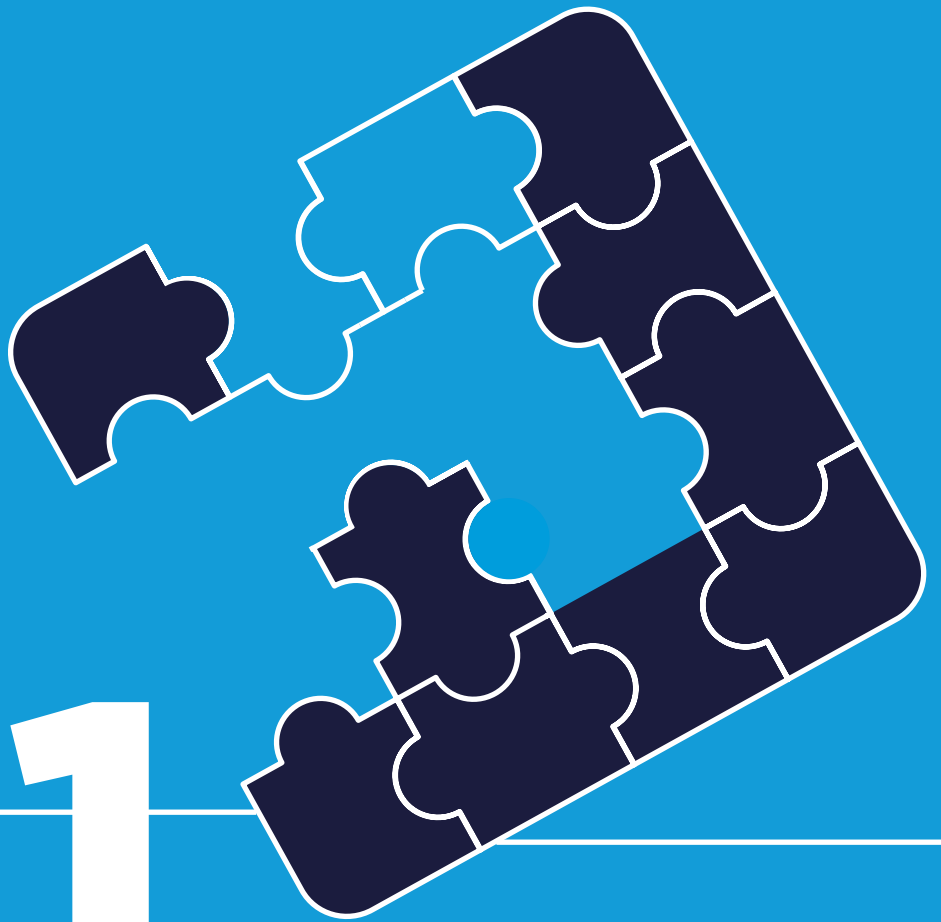
The third of these is critical for success given Sri Lanka's poor track record in implementing policy reforms and action programmes. The responsibility for each of these three sets of tasks can be assigned to committees made up of interested and responsible representatives of public, private, and non-governmental entities with a stake in the overarching objective of increasing women's participation in the paid workforce.

Policy implications

The policy implications arising from the findings of this study are as follows:

- Macroeconomic, industrial and trade policies to spur export-led economic growth, diversification of productive structures and promotion of productive efficiency.
- Measures to enhance women's acquisition of middle-level occupational skills, particularly English language skills and the capacity to learn and solve problems.
- Policies that promote small and medium firms: female entrepreneurship, ownership and management, and the retention of women workers after marriage.
- Labour law reforms that facilitate flexible working hours and nightwork for women and socialise the costs of maternity benefits.
- Policies that promote digitisation, automation, WFH and reskilling of workers.
- Supportive interventions that make employers confident about hiring women with disabilities.

Increasing the demand for women workers requires a concerted, coordinated effort by government, the private sector, and the non-government sector involving a process of, (a) raising awareness, policy dialogue and formulation; (b) the design of strategic interventions; and (c) implementation of interventions and monitoring.



CHAPTER **1**

INTRODUCTION

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INTRODUCTION

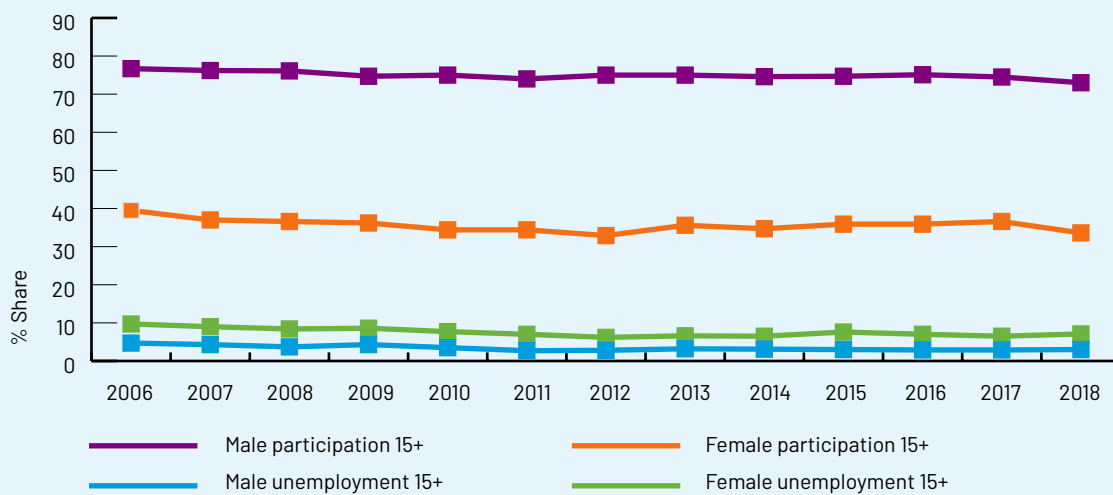
Sri Lanka's economic development remains constrained by low growth, low productivity, low-competitiveness, a low level of openness to trade, a high debt ratio, and a low rate of public revenue. Meanwhile, a low rate of women's participation in the paid labour force, high levels of educated youth unemployment and a rapidly aging population are worrisome features of its human development. While supply-side factors such as unpaid care and household work, skills deficits, and gender discrimination have been the subject of a growing body of research on low female participation rates (Gunatilaka 2013, 2016; Gunewardena 2015; Solotaroff et al. 2018; Samarakoon and Mayadunne 2018; Seneviratne 2019a; 2019b), the demand side of the equation has received much less attention, as has been the case elsewhere in the world. This is particularly true of the role of firm characteristics and attitudes of management about hiring women.

This study applies the microeconomic theory of the firm to analyse factors influencing firms' relative demand for women workers in Sri Lanka, for which it uses data from two sources: first, secondary data from the Department of Census and Statistics' Economic Census 2013 and the nationally representative Annual Survey of Industries of 2006 and 2016; and second, primary data from a sample of around 600 firms from a survey conducted in 2020. Since the fieldwork for the primary data collection was undertaken in the backdrop of the COVID-19 pandemic and resultant economic crisis, it also provided a good opportunity to collect and analyse primary data about how the crisis has affected firms' operations and their demand for women workers.

The study meets a significant gap in the body of knowledge on the demand for women workers in Sri Lanka and is of considerable policy importance, given Sri Lanka's commitment to the Sustainable Development Agenda and the achievement of Goal 5 relating to gender equality. Although Sri Lankan women have historically been placed better in the country's family and education systems than other South Asian women (Malhotra and De Graff 1997), women's workforce participation rate has been half of the men's rate over the last two decades (see Figure 1.1). In 2019, it stood at 34.5 percent of the working-age cohort whereas 73 percent of males of working age were either employed or seeking work (Department of Census and Statistics, 2020).

Thus, while a reasonable rate of economic growth, outmigration and ageing population has reduced the number of unemployed women, most women remain either unable or unwilling to engage in paid work. For example, unemployment among women at least 15 years of age declined from 9.7 percent in 2006 to 7.4 percent by 2019, but their participation rates in the paid workforce hardly changed. The low rate of women's participation in Sri Lanka's workforce has negated the achievements in health and education in the country's Global Gender Gap Index (GGGI). Sri Lanka ranked 102nd out of 153 countries in 2020 and its lowest ranking (126 out of 153 in 2020) was in the sub-index of Economic Participation and Opportunities compared to its high ranking in Health and Survival (1 out of 153) and Educational Attainment (88 out of 153).

Figure 1.1: Trends in labour force participation and unemployment in Sri Lanka by gender, 2006-2018



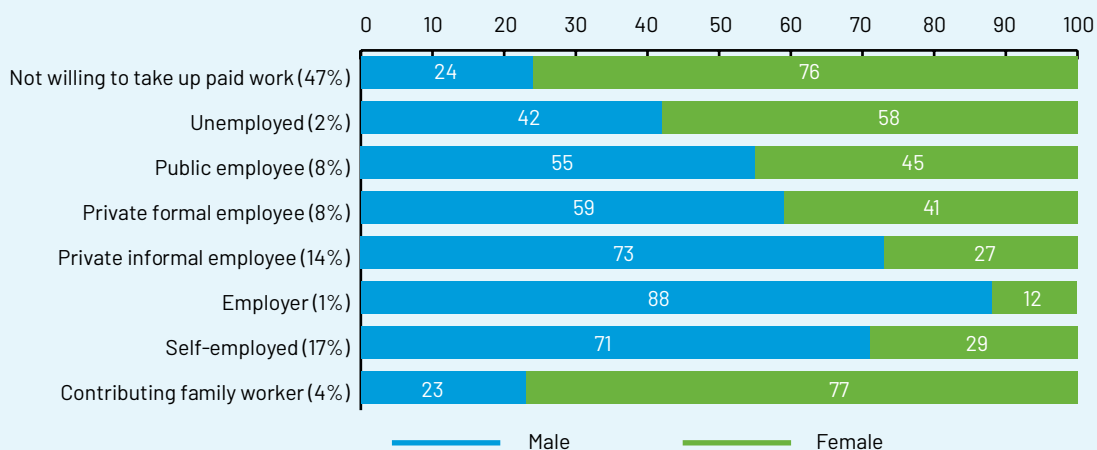
Source: Department of Census and Statistics (2015), Sri Lanka Labour Force Survey, Annual Report 2014 and Department of Census and Statistics (2019), Sri Lanka Labour Force Survey, Annual Bulletin 2018.

Note: Data for 2009 onwards includes all districts. Data for previous years either excluded both Northern and Eastern Provinces, Northern Province only, or some districts of Northern Province. See Department of Census and Statistics (2018) for details.

However, decent jobs were scarce even for the women who opted to work for pay since most Sri Lankan workers are informally employed. In 2016, two-thirds of all Sri Lankan workers were informal, although proportionately, this included more men (71 percent) than women (63 percent). Figure 1.2 sets out labour market outcomes in Sri Lanka by gender in 2016. Women accounted for three-fourths of non-participants, nearly three-

fifths of the unemployed and more than three-fourths of contributing family workers. At the same time, only 12 percent of employers were women; women accounted for a little more than a quarter of private informal employees; but they comprised two-fifths of private formal employees. Women's representation in the public sector was the most equal to that of men, at 45 percent of the total public workforce.

Figure 1.2: Distribution of labour market outcomes across gender in Sri Lanka, 2016



Source: Department of Census and Statistics (2017), Sri Lanka Labour Force Survey, Annual Report 2016. Numbers in parentheses are the proportions of that category of worker both male and female making up the total workforce.

There is a consensus 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). Hence, the low rate of women's engagement in the paid workforce is a cause for concern. *First*, if women hold back from participating in the labour market, they cannot enjoy the material benefits of the returns to skills that they, their parents and successive governments have invested in. *Second*, if they do not earn, they cannot save for their old age and will continue to be financially dependent on others, such as their husbands and children. This problem is becoming acute in Sri Lanka as its population ages and feminises (de Silva and de Silva 2015). *Third*, low female labour-force participation rates also reduce the rate of growth more generally. For example, in 2015 the McKinsey Institute posited that global GDP could expand by \$12 trillion by 2025 by closing gender gaps in work and society (McKinsey Global Institute 2015). In Sri Lanka in particular, if women do not enter the paid workforce in sufficiently large numbers and the entry of foreign migrant workers is also restricted, labour shortages will increase wage costs. This will make Sri Lankan products uncompetitive and choke off economic growth. The IMF in its recent country report has also underlined the significant gains to be had from closing the gender gap in Sri Lanka's labour market (IMF 2018).

But while the reasons behind women's low engagement with the labour market have been the subject of a growing Sri Lankan literature, along with analyses of gender-wage differentials in the labour market (see Gunatilaka 2013, 2016; Gunewardena, 2008, 2015; Gunewardena et al., 2010; Solorotoff et al., 2018; Samarakoon and Mayadunne, 2018; Seneviratne, 2019a, 2019b). these works have concentrated almost entirely on supply-side factors. They have found unpaid care, household work, changes in fertility and high reservation wages on the one hand, and skills deficits and gender discrimination (unequal or disadvantageous treatment of an individual or group of individuals based on gender) to be underlying factors. However, information about the demand side of the equation has received less attention.

The two earliest studies on labour demand in Sri Lanka, Kelegama and Wignaraja's (1992) macro-level analysis of the labour absorptive capacity of firms, and Chandrasiri's (2012) macro-level analysis about promoting employment-intensive growth in Sri Lanka, did not look specifically at the issue of demand for female labour. Some of the more recent studies, for example, Gunatilaka (2013), and Solorotoff et al. (2018), and the recent Labour Diagnostic by Ruppert Bulmer (2020) for the World Bank are general analyses of the labour market or of supply-side factors affecting women's workforce participation and have dealt with demand-side factors only in passing. In contrast, Ranaraja and Hassendeen (2016) focused exclusively on firms' demand for women workers, using qualitative data for their analysis.

For example, Gunatilaka's (2013) investigation of the supply-side factors impinging on the participation decision using the Household Income and Expenditure data from 2012 and Labour Force Survey data from 2008 and 2009 found that local labour market conditions in the previous year accounted for at least 16 percent of the probability that married women would participate in the paid workforce. Participation was found to increase with the shares of total workers employed in the previous year in the manufacturing sector and the services sector in the district, relative to the share of workers in agriculture. Moreover, a higher share of employed women in a particular educational category in the administrative district the previous year than the share of equivalent men, was associated with a greater probability that women would participate.

The study also found that women appeared to look on high levels of gender-based segregation in the local labour market the previous year positively: in districts with manufacturing and service sectors where women workers were highly concentrated, women appeared to think that they had a greater chance of work and so were more likely to enter the workforce. Local demand conditions were progressively less important in the participation decisions of women heading their households and those of single women (Gunatilaka, 2013).

Meanwhile, Ranaraja and Hassendeen's (2016) analysis of qualitative data, collected through Key Person Interviews of managers in 31 companies in the formal sector based in Colombo, highlighted sociocultural norms and the stereotypical perceptions of employers about the skill sets and capacities of men and women, underscoring gender-based discrimination in hiring practices. The study produced the following insights about firms' demand for women workers.

- First, that the occupational segregation of employed women, with the majority concentrated in certain types of jobs, was largely due to prevailing sociocultural norms about what jobs were suitable for women, which employers could do little to mitigate.
- Second, that there was no shortage of employment opportunities in the formal sector for women workers and that, in fact, employers were facing labour shortages despite offering attractive incentives specifically designed to overcome other constraints, such as lack of accommodation and transport. This finding again points to supply-side factors dominating women's workforce decisions.
- Third, that although the legal framework prohibits gender-based discrimination, employers had stereotypical perceptions about the skills sets and capacities of men and women that encouraged gender-based discrimination.
- Finally, that even though there is substantial evidence that flexible work arrangements would attract more women into the workforce, Sri Lanka's labour law did not support such arrangements as it recognises only full-time work for the entitlement of statutory benefits, thereby making some of these flexible arrangements illegal. For example, employing a worker part-time would make the firm liable to the same conditions covering full-time work such as the compensation that needs to be given to her on retrenchment, according to the Termination of Employment of Workmen (*sic*) (Special Provisions) Act No. 45 of 1971. Besides,

The Shop and Office Employees Act of 1954 and amendments prohibit the employment of women at night in the services sector even though it is this sector that can offer better jobs for women like information technology-related (ICT), call centre work. While a few firms did employ women at night in shops and offices, it was in violation of the law.

More recently, Ruppert Bulmer's (2020) analysis of labour market challenges in Sri Lanka Jobs Diagnostic Sri Lanka, also used firm-level data from the Economic Census of 2013 and the Annual Survey of Industries 2007 and 2015 to identify the factors associated with women's employment. It found that older and larger firms, foreign ownership, and sector-specific characteristics in subsectors dominated by low-skilled labour, such as textiles, food and beverages, retail, and other services, were positive and significant determinants of the demand for women workers in the private sector. In contrast, labour productivity was found to be a negative and significant determinant of the demand for female workers in manufacturing. However, the study did not examine whether several other factors, such as capital intensity and employers' perceptions of characteristics of the environment for business, influenced the demand for female labour at firm level, even though relevant information is available in the Economic Census of 2013 which was used for part of the analysis.

While Ruppert Bulmer (2020) used survey-based cross-section data for her analysis of the demand for labour in Sri Lanka's manufacturing and trade and services major sectors, Solorotoff et al. (2018) used both primary and secondary quantitative data, as well as qualitative data for theirs. The qualitative data was drawn from Focus Group Discussions (FGDs) and Key Person Interviews of household members, employers, and workers in three districts: Gampaha, Badulla and Trincomalee. The study found that work policies in private sector enterprises did not accommodate women's typical caregiving responsibilities and therefore inadvertently discriminated against them. A half of all male and female employers interviewed

believed that employers preferred to hire men, while a third believed that employers favoured men in pay, promotion, and hiring decisions. The study also attempted to extract insights about the most effective means of increasing the demand for female workers in five subsectors: commercial agriculture, tea plantations, garments, information and communications technology, and tourism. While these insights (summarised in Table 6.1 in the appendix of the present study) were obtained from the qualitative data analysis, the study did not contain any sub-sectoral analysis of survey data pertaining to enterprises belonging to these subsectors of interest or explain the reasons why these sectors were selected for analysis in the first place.

Since all of them adopted a general approach and disaggregated the analyses only by major industry sector, if at all, the policy insights derived from these analyses were also general and not specific to any sector. For example, Ruppert Bulmer (2020) recommended policy reforms under five broad headings:

- a) reduce barriers to firm growth and productivity gains,
- b) revise distortionary labour, government employment, and competition policies,
- c) enhance youth and women's capacity to achieve better labour outcomes,
- d) increase the productivity of the self-employed, and
- e) improve matching of job seekers with employers.

Similarly, the IMF (2018) covered fiscal policy, public financial management, labour market policies such as the reform of labour legislation and improving access to financial services. It also placed a heavy emphasis on 'gender budgeting' as a strategy to increase female participation in the work force. Meanwhile, Ranaraja and Hassendeen (2016) recommended policy reforms related to the following five broad areas:

- a) revisions to labour market institutions and labour legislation, particularly those relating to nightwork and part-time work;
- b) gender sensitisation in the private sector;

- c) improving infrastructure and support systems for women such as better transport, affordable childcare and better enforcement of law and order;
- d) providing incentives for employers and investors; and
- e) providing microfinance and microcredit for business start-ups for women entrepreneurs.

Soloratoff et al.'s (2017) study is the only one that provides sector-specific analyses about the information and communication technology (ICT), tea-estate work, tourism, garments, and commercial agriculture subsectors. Table 6.1 in the appendix summarises all subsector-level policy recommendations made. However, as the authors argue, many of these sector-specific recommendations are relevant for other industry subsectors too. The following seem to be key and appear to be applicable across sectors:

- a) creating an enabling policy environment for the employment of women;
- b) skills development;
- c) entrepreneurship development;
- d) providing safe transport facilities for female workers;
- e) formalising and publicising worker benefits that support female employment; and
- f) promoting investment.

This brief review of the Sri Lankan literature demonstrates that firm-level factors conditioning Sri Lankan women's employment have not been addressed satisfactorily, and so remain less understood. Hence, this study addressed this gap in the literature by using both primary and secondary data to throw further light on firms' demand for women workers.

Using an analytical approach guided by the theoretical and empirical literature, it explored the relationships between many industries and firm-level characteristics and the demand for women's labour that the international theoretical and empirical literature recognises as being important, and at the same time, examined employers' preferences for women workers relative to males given their perceptions of sociocultural norms and

conditions. The study also assessed the influence of government policy and labour regulations on the demand for women workers and describes how COVID-19 influenced firms' operations.

Most importantly, the analysis looked at the different types of factors associated with the demand for women workers in economic subsectors where women's employment was most concentrated over the 2006 to 2016 period and beyond, culminating in the most recent period marked by the COVID-19 pandemic and its associated economic crisis. As far as we are aware, this study is the first to examine the demand for female workers both at sectoral and sub-sectoral levels using the most comprehensive secondary data sets available, supplemented by data from a primary survey of enterprises conducted for this study.

Our research strategy proceeded as follows. First, we fully exploited the secondary data that is already available to see what it could tell us about the determinants of labour demand at the level of the firm in Sri Lanka's manufacturing and service sectors. A key objective of this part of the analysis was to see the extent to which the available secondary data confirmed the core model of labour demand which derives from the microeconomic theory of the firm. Only Bulmer's (2020) study has thus far exploited the Economic Census data and the Annual Survey of Industries data for the explicit purpose of understanding the determinants of labour demand in Sri Lanka, and that too, not completely. Besides, the focus of her econometric analysis was not to estimate the demand for women's labour but to estimate the factors conditioning the demand for labour in Sri Lanka in general. Hence, a reanalysis of the secondary data enabled us to assess how this data source can be improved in the future to conduct similar analyses, especially as the next Economic Census is due in 2022/23.

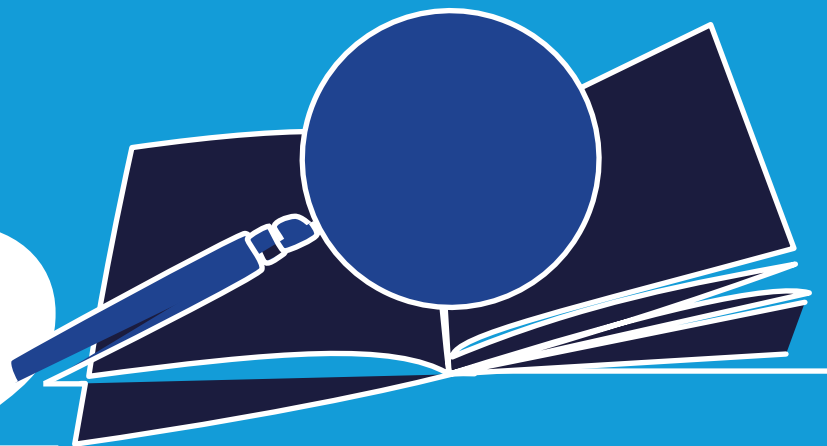
Second, we conducted a survey of around 600 firms representing key subsectors in industry and service sectors from November 2020 to January 2021. The main purpose of this survey was to

collect firm-level data to validate the findings of the secondary data analysis as well as to assess the role played by other factors, about which there was no information in the secondary data sources. These were the presence of skill gaps, employers' perceptions of gender-biased values and norms, their perceptions of women's capabilities in the workplace, and their perceptions of the environment for business.

We review the relevant but limited international literature in Chapter 2. Chapter 3 sets out the data and methodology used for the analysis. Chapter 4 presents the results of the analysis based on secondary data while Chapter 5 presents the results of the analysis using primary data. Chapter 6 concludes by synthesising the findings and drawing out their implications for policy.

CHAPTER

2



LITERATURE
REVIEW

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

In a recent review of the literature on women's workforce participation in developing countries, Klasen (2019) noted that while rapid fertility declines, women's increased access to education and favourable economic conditions should have seen higher proportions of women participating in the workforce; however, only Latin America has seen a strong increase in participation. In contrast, the response in the Middle East has been more muted, and in South Asia participation rates fell.

This regionally varied experience appears to be the result of the interaction of several factors, including initial (historic) conditions, economic structure and its change, and persistent gender norms and values (Klasen, 2019). For example, economic growth resulted in the greater workforce participation of Latin American women because conditions there (such as the extent to which women's education had expanded, their involvement in household activities, social norms about what kinds of jobs were suitable for educated women, and the growth of such jobs in export manufacturing and white-collar services) were all conducive. In contrast, Sarkar, Sahoo and Klasen (2017) showed that economic growth reduced women's labour market engagement in India through its impact on the earnings of other household members.

Meanwhile, there is little evidence that economic development has any effect on the occupational or sectoral segregation of workers on gender lines: as Borrowman and Klasen (2017) showed, even in contexts where economic growth promoted women's employment, they still largely entered sectors and occupations that they already dominated.

Most such insights about the factors conditioning women's labour force participation have been drawn from microeconomic analyses of the supply of labour using data from household surveys. Even findings about the impact of demand-related macroeconomic factors such as economic growth on women's employment, have been mostly investigated by way of macro-level fixed effects in analyses of cross-country or cross-regional experiences using household-level panel and/or cross-sectional data. For example, the study by Sarkar, Sahoo and Klasen (2017) on India cited above, used a nationally representative household-based panel dataset for its analysis, while Borrowman and Klasen (2017) used panel data and country-fixed effects from 69 developing countries over the period 1980-2011 to study the issue of gender-based occupational and sectoral segregation.

By contrast, studies of the demand for female labour are scarce. This is unsurprising as generally, the issue of the demand for labour, regardless of whether it is for men or for women, has remained a neglected area of study. When Hamermesh (1993) first drew attention to this important research gap, he suggested that the greater availability of household surveys compared to the scarcity of firm-level data was responsible for the relative neglect of labour demand. He also argued that the greater availability of household data has encouraged the development of techniques to analyse it, leading to the further neglect of the demand side by researchers. This may also be the reason why the literature about gender differentials in the labour market is concentrated on wage differentials rather than issues of labour demand; wage data is easily and reliably obtained from households and almost never from firms, while wage differentials, being the outcome of relative supply and demand conditions, subsume demand as well as supply conditions that give rise to labour market outcomes.

The relatively limited empirical literature on firms' demand for labour mostly use cross-country and/or time-series panel data-sets to study the dynamics of labour demand in response to changes in key variables identified by the microeconomic theory of the firm and its extended applications. In this chapter, we first review these studies very briefly to identify the theoretical and methodological approaches adopted and the insights about the determinants of the demand for labour that this strand of the literature has yielded. Thereafter, we turn our attention to studies that have specifically used firm-level data to analyse the determinants of the demand for women's labour.

2.2 THE DETERMINANTS OF THE DEMAND FOR LABOUR

Our review begins with Lichter, Peichl and Sieglock's (2012) exploration of the critical role that the wage plays in the demand for labour that the standard microeconomic theory of the firm predicts. Using administrative linked employer-employee panel data from German manufacturing, their study found that increases in the wage rate negatively impact labour demand in line with economic theory, but the effects are smaller in the short than in the long run, and that firms' labour demand is persistent over time. Their findings implied that firms face considerable adjustment costs when changing their level of employment, and that both in the short and long runs, own-wage elasticity for unskilled labour demand was higher in absolute terms compared to the own-wage elasticity for medium- and high-skilled labour.

Adam and Moutos (2014) found substantial heterogeneity among manufacturing industries and across countries with respect to labour-demand elasticities and that wage decreases impacted positively on employment growth in the future. Their study estimated the labour demand function of 23 industries across eleven European countries using cross-country panel data sourced from EU KLEMS database covering the years 1970 to 2007.

Some of these findings were confirmed in another study of labour demand elasticities in manufacturing by Babecky et al. (2012). The authors used a large panel dataset of Czech manufacturing firms with 50 or more employees to estimate labour-demand elasticity for 2002-2009 when the economy grew (up to 2007) and then contracted (2008-2009). They found that in normal times, the short-term wages and sales elasticities were -0.53 and 0.43 respectively, while the long-term elasticities were close to or below unity, standing at -0.94 for wages and 0.76 for sales. The authors saw the long-term wage elasticity as evidence that firms' employment decisions were made within fixed budgets. The study also found that including temporary workers did not significantly affect the results, suggesting that firms' hiring decisions are based on the total workforce necessary, and that temporary workers were used as an equal labour-demand channel with lower adjustment costs.

The relationship between the demand for labour and the price of other inputs to the production process has also been explored. For example, Cox, Peichl, Pestel and Sieglock's (2013) analysis used administrative-linked employer-employee microdata and information on electricity prices and usage during the period 2003-2007 to understand the relationship between employment and electricity price rises in German manufacturing. They found weak substitutability between electricity and labour when the production level was held constant, but moderate gross complementarity when the production level varied. Low- and high-skilled workers were affected more by electricity price rises than medium-skilled workers.

More recently, Acemoglu and Restrepo (2019) used information from the US GDP by Industry Accounts for 1987-2017 about value added and worker compensation in 61 private industries to assess the impact of automation on the demand for labour. They did so by examining the allocation of tasks to capital and labour and their study found that the displacement effect of automation shifted the task content of production against labour and so reduced the labour share in value added and perhaps the demand for labour itself. However, while

the effects of automation can be counterbalanced by the creation of new tasks in which labour has a comparative advantage, this reinstatement effect was found to be relatively weak. In fact, the authors suggest that the slower growth of employment in the US over the last three decades was due to an acceleration in the displacement effect – especially in manufacturing – a weaker reinstatement effect, and slower growth of productivity.

In contrast, recent research using a worldwide longitudinal dataset of 3,500 front-runner companies found patented applications using artificial intelligence (AI) having a positive and significant impact on employment (Damioli, Van Roy, Vertesy and Vivarelli, 2021). The study also found the technologies supportive of labour-friendly product innovation in the AI supply industries, although the effect was small and limited to service sectors and younger firms.

The impact of export-orientation on the demand for labour has vast theoretical and empirical literature. In its simplest form, trade liberalisation increases relative demand for the factor of production used most intensively in the production of the good in which the country has comparative or competitive advantages, whether it is an intermediate or final good. One of these conditioning advantages is the existence of required stocks of suitable labour, particularly in developing economies which have relatively more labour than other inputs to production, such as capital or technology. The broad predictions of the theory have been confirmed by the empirical literature from all parts of the world (see Los et al., 2015, for China; Vianna, 2016, for Latin American countries; and Kiyota, 2016, for China, Indonesia, Japan, and Korea). In addition, Sasahara (2019) has shown that exports from sectors with higher domestic value-added contents have generated greater employment effects in the US, China, and Japan.

2.3 DETERMINANTS OF THE DEMAND FOR WOMEN WORKERS

We now turn to the much more limited strand of the literature which looks at the demand for female labour. Some of this literature identifies trade liberalisation and foreign direct investment (FDI) as key determinants of the demand for women workers (see Tran, 2020, for a recent review). The associated literature consists of a large body of theoretical and empirical literature about the feminisation of labour in export-oriented manufacturing (Gaddis and Pieters, 2012; Ernesto, 2012; Pepper, 2012) and recognises that trade liberalisation can influence male and female employment differently.

According to the theory, first, trade liberalisation may induce skill-biased technological change, either by creating incentives for firms to adopt new technologies based on automation or digitisation, or through the import of machinery from technologically advanced countries (Gaddis and Pieters, 2012). If such capital investments are complementary to skilled female-labour, skill-biased technological change will see a rise in female employment. On the contrary, if these technologies are complementary to unskilled female-labour – i.e., their incorporation expands the production capacity of low skill-intensive products – then the demand for unskilled female workers will rise.

However, feminist economists perceive women's skill advantages in labour-intensive export industry differently; they argue that employers see women as being dexterous, docile, submissive, accustomed to carrying out repetitive tasks, and reluctant to join unions, which make them suitable for certain gender-typed jobs in light industries such as textiles and wearing apparel (Elson and Pearson, 1981). Feminist heterodox economists also argue that women workers are a source of competitive advantage for producers using labour-intensive production methods because of gender gaps in bargaining power in households and labour markets, which make women's labour relatively cheap and enable firms to compete for export market-share

based on unit costs (Seguino, 1997; Tejani and Milberg, 2016).

However, trade liberalisation can also increase competition among firms and reduce gender-based discrimination in pay and hiring decisions in the labour market if it increases the demand for women workers relative to males. Thus, trade liberalisation can improve the gender composition of the workforce and make it more equal.

The empirical evidence confirms that export-oriented industries enable women to find work with less discriminatory employers, and likely force employers to reduce wage and hiring discrimination to better compete in global markets (Gaddis and Pieters, 2012). For example, Fatima and Khan (2019) use industry-level data representing 21 developing and emerging economies to show that low-tech exports to developed countries and high-tech imports from developed countries increase female employment. Their findings also reveal that trading links with the developed world can further enhance female employment if the developing country has a greater pool of educated women workers.

However, even while trade liberalisation has provided more job opportunities for women, much of this work has been low-waged and has fallen short of decent work conditions, especially in economies with surpluses of unskilled workers and poor regulation of working conditions. For example, Aguayo-Tellez' (2011) review of the literature on the impact of trade liberalisation and FDI on gender inequality in employment, wages, education and skills, health, and other dimensions of welfare, notes that outcomes invariably depend on structural features of the economies in question, relating to global and local conditions such as resource endowments, culture and traditions, labour market institutions, government institutions, and consumer preferences. This includes the allocation of time spent in paid employment and unpaid work (Elias and Roberts, 2018), which also conditions women's work outcomes even after liberalisation.

Foreign direct investment (FDI) is also a major source of competition and technology transfer. The

inflow of FDI could change the gender composition of the employed labour force by modifying factor prices, introducing nondiscriminatory recruitment practices, reward systems, and modern human resource management practices. In this way, FDI can spearhead new ways of promoting employment and labour rights. For example, using a panel dataset of 94 developing countries, Quedraogo and Marlet (2017) noted that FDI inflows drew women into the formal sector and helped them integrate better and more extensively with the labour market. Their findings suggest that FDI inflows and the private sector in general can help central governments achieve greater gender development and equality by increasing the demand for female labour and encouraging sustainable labour practices and gender equality norms through the community social responsibility (CSR) initiatives of private sector firms. However, it should also be kept in mind that as Ernesto (2012) argued, the effects of trade liberalisation and FDI on gender inequality depend on global and local conditions such as resource endowments, labour-market institutions, government institutions, and consumer preferences.

Meanwhile, technological developments such as automation and digitisation are changing the production landscape and applications of robotisation and artificial intelligence are transforming the pattern of demand for labour, making many skills redundant. Digitisation is also transforming site-based production activities to cloud-based operations, radically transforming the way organisations conceive business operations, and increasingly allowing enterprises to externalise their activities by broad-basing supply sources. Rather than subcontracting through established firms, enterprises can now outsource to a crowd that is geographically dispersed around the world to perform a diverse range of activities, conduct business transactions through new start-ups (financial services, legal services, patent services, logistics, healthcare, etc.), and see profits and rents from platform ecosystems based on network effects.

While women generally have less access to technology than men, women entrepreneurs' and workers' access to the new technologies is even more constrained. Even so, Larsson and Viitaoja (2019) argue that women, on average, face a lower risk of being replaced by automation and digitisation, as compared to men because many of these technologies can provide more flexible working conditions that can benefit women. Besides, the spread of cheaper information and communication technologies have the potential to reduce gender disparities by offering a variety of opportunities for a greater degree of female participation, reshaping attitudes and norms among women and men about gender relations and encouraging employers to promote gender equality.² This digital transformation can enable a greater degree of female participation in the paid economy given supporting conditions and interventions.

Another approach adopted to analyse the demand for women's labour has studied the elasticity of substitution between male and female workers. For example, De Giorgi, Paccagnella and Pellizzari (2013) used a production function approach and data from Italian provinces for the period 1993-2006 to exploit a natural experiment related to the abolition of compulsory military service in 2000. Their findings suggested that young males and females are imperfect substitutes, with a relatively small, implied elasticity of substitution between young males and females ranging between 1.0 and 1.4. This in turn implied small effects of increased female participation on male wages and employment levels and suggested that males would benefit from increased female participation if male and female workers were complements.

While the limited number of studies on the dynamic demand for women workers reviewed thus far used panel data or time series data at industry-level from across geographical units such as countries or regions for their analysis, studies based on static labour demand models using firm-level data are even more scarce. Nazier's (2018) study of the demand for female workers in Egyptian

manufacturing is one of the few available and it used firm-level data from a little more than 12,000 firms obtained from the Egypt Economic Census of 2013 and the Egyptian Labour Market Panel Survey of 2012 for its analysis. Using a standard production function and a set of variables based on firm- and industry-specific characteristics, she found that micro and small-scale firms were more likely to demand women workers. Integrating with global markets increased demand, and high technology industries such as manufacture of basic pharmaceutical products, computer, electronic and optical products also tended to demand more female workers. The impact of capital employed on the demand for female labour was found to be negative and probably reflected one of the fundamental predictions of the microeconomic theory of the firm, that capital substitutes for labour in the production process.

Apart from the impact of macroeconomic conditions and characteristics of the production process at firm level as predicted by the theory of the firm, social norms about gender roles can influence employers' hiring decisions about women. For example, employers may perceive women as having low attachment to the labour market given social dictates that their primary responsibilities are in care and housework. So, in the UK, two-thirds of private sector employers surveyed on behalf of the Equality and Human Rights Commission (EHRC), said that a woman should disclose a pregnancy during the recruiting process, while a third thought it reasonable to ask women about their plans to have children in the future.³ Employers may also wish to hire women in jobs that they think require 'feminine' skills such as caring and social conversation and hire men in jobs requiring physical strength, authority and technical competence.

In fact, feminist economic theorists have highlighted the role of gendering in both the supply and demand for labour in a segregated labour market and in institutions (Anker 1997). Accordingly, social norms condition and drive

2. For more details see Larsson and Viitaoja (2019) and references cited therein.

3. See, Equality and Human Rights Commission, "Employers in the dark ages over recruitment of pregnant women and new mothers". <https://www.equalityhumanrights.com/en/our-work/news/employers-dark-ages-over-recruitment-pregnant-women-and-new-mothers>. Accessed July 2021.

households and institutions to invest in the development of 'feminine' skills such as teaching, cooking, or nursing, which channel women into jobs that reflect the traditional roles they play in society. In this way, the occupational segregation of the labour market is reinforced through feedback loops where social norms and gender stereotypes influence both demand and supply conditions and one reinforces the other.

Recall that in their study of Sri Lankan employers' perceptions on hiring women, Ranaraja and Hassendeen (2016) reported that employers believed that the occupational segregation of employed women was largely due to prevailing sociocultural norms on what jobs were suitable for women, about which employers could do nothing. Meanwhile, paternalistic attitudes among male employers may prevent them from giving women work that involved their engagement with unknown men. Such attitudes could also make employers think that they needed to protect women from work that might involve unsafe situations.

Such issues which are seen to derive from employers' biases and attitudes are encapsulated in the gender discrimination hypothesis that is widely debated in the literature.⁴ It holds that gender bias in recruitment, or employers' conscious or unconscious preference for male candidates, is pervasive and may arise due to several reasons. Some labour economists conceptualise discrimination as the outcome of employers' incomplete information on applicants' human capital characteristics that are relevant for the job and are therefore difficult to standardise on a resume (Becker, 1985; Heckman, 1998). Becker (1985) also argued that employers use group-level statistical summaries (i.e., group averages) as proxies for these variables, and this explains why individuals from these groups are treated differently. Thus, in selecting candidates for a vacancy, employers not only consider the observed and standardised qualifications shown in candidates' resumes, but also rely on stereotypes about the typical level and dispersion of other difficult-to-standardise qualifications.

This practice leads to forms of statistical discrimination based on rational assessments of productivity and risk regarding potential employees (Baumle and Fossett, 2005).

Consequently, the theory recognises that both descriptive and prescriptive gender stereotypes may influence hiring processes of women employees in this way. The first refers to beliefs about what men and women typically do (i.e., what women are like) while the latter refers to beliefs about how males and females should act (i.e., what women should be like). The descriptive stereotypes are based on the knowledge of men and women's typical abilities. This knowledge can be direct – based on experience – or indirect – received from third parties. Thus, in societies where the division of labour is gendered, men typically appear as possessing greater agency and leadership qualities than women and showing higher aspirations and commitment at work. In contrast, women are assumed to possess greater communal qualities associated with caring behaviours (*Cuddy et al., 2004*).

The second highlights that prescriptive stereotypes are based on cultural beliefs about what men and women ought or ought not to do. They are often justified with reference to higher communal values that reinforce a system of patriarchal authority favouring men. Prescriptive stereotypes are assumed to stem from a high level of contact and interdependence between men and women, which not only allow perceivers to create estimates of how men and women act, but also create expectations about how they should perform in real world situations. Its central argument is that gender stereotypes give rise to biased judgments and decisions, impeding women's employment opportunities. Thus, descriptive gender stereotypes can lead to prejudice and discrimination based on a perceived incongruity between gender stereotypes and role requirements, while prescriptive stereotypes can produce prejudice if individuals violate gender norms.

4. See the recent review by Gonz lez et al. (2019) and references cited therein.

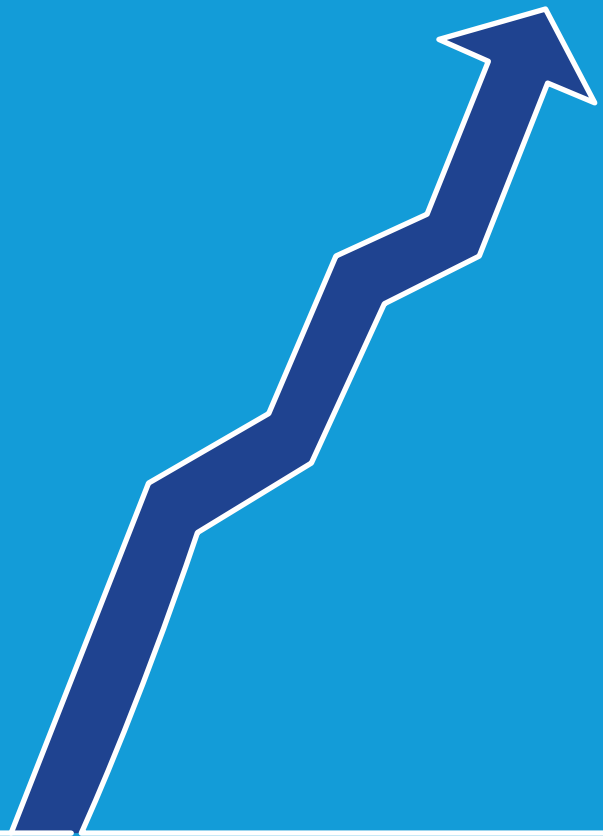
The recent study by Das et. al. (2019) focuses specifically on the role that culture and employers' perceptions play in the demand for women workers. The authors used data from a survey of 618 firms conducted in 2015 in the Indian state of Madhya Pradesh (cities of Bhopal, Indore, and Gwalior), to understand how the attitudes of managers influenced the recruitment of women workers. They used characteristics of the firm such as size, age, subsector, and location as controls. Using detailed descriptive, bivariate, and multivariate analysis at firm level, the study found that firm characteristics and location were more influential than employers' attitudes in hiring women in urban India. The results crucially suggested that the issue of female employment in urban India was amenable to policy intervention, and that it was not necessary to wait until cultural attitudes changed to increase the demand for women's labour.

In the next chapter we describe the data and methodology used for our analysis of the factors associated with the relative demand for women workers in Sri Lanka's formal enterprises.

CHAPTER

3

DATA,
METHODOLOGY
AND OVERVIEW



CHAPTER 3

DATA, METHODOLOGY AND OVERVIEW

3.1 INTRODUCTION

The analysis in this paper is made of two components that use two different types of data. The results of the two different analyses are presented in Chapters 4 and 5. The analysis in Chapter 4 exploited the secondary data that is already available to see what it could tell us about the determinants of labour demand at the firm level in Sri Lanka's manufacturing and service sectors. Chapter 5 used primary firm-level data to validate the findings of the secondary data analysis and assessed the roles played by other factors about which there was no information in the secondary data sources. These factors are the presence of skill gaps, employers' perceptions of gender-biased values and norms, their perceptions of women's capabilities in the workplace, and their perceptions of the environment for business.

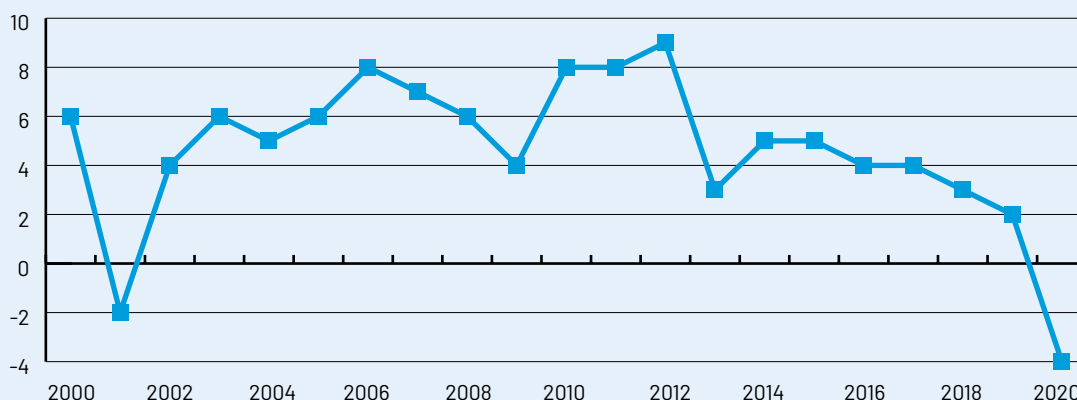
This chapter provides background information for the analyses in Chapters 4 and 5. It first provides background information about the structure and performance of Sri Lanka's economy and then describes both the primary and secondary data used. Section 3.4 explains the methodology used to analyse the data, including how the variables were constructed and used in the different models of labour demand estimated in the analytical chapters. Section 3.6 presents some descriptive statistics based on the different sources of data and Section 3.7 summarises the findings and concludes.

3.2 BACKGROUND

Economic liberalisation in 1977 helped transform Sri Lanka's economy from a poor import-substituting, plantations-based economy to a small lower-middle income country that is often referred to in the economics literature as an emerging economy. Nevertheless, the country's economic development remains constrained by low-growth, low productivity, low-competitiveness, a low level of openness to trade, a high debt ratio, and a low rate of public revenue. As for the human aspects of development, high levels of educated youth unemployment, low female labour force participation, and a rapidly aging population are worrisome features.

Figure 3.1 plots Sri Lanka's economic growth rate over the last two decades. While the economy expanded respectably even during the years of the conflict between 2002 and 2008 and for approximately five years after the war ended – 2013 – growth began to decelerate from then until the Easter Bomb attacks of 2019, followed by the pandemic, after which the economy began to drastically contract.

Figure 3.1: Sri Lanka's rate of economic expansion, 2000-2020



Source: Data Bank, World Bank. Accessed 26 July 2021.

Although liberalisation changed the structure of the economy, productivity levels in most economic subsectors remain low. Consider the change in the structure of production first. Before liberalisation, over 90 percent of the country's exports consisted of plantation crops (with just tea accounting for 60 percent). By the time of the Economic Census of 2013, the country's exports consisted mainly of manufactures (70 percent) but textiles and garments exports accounted for about 40 percent. Agriculture's contribution to GDP stood at 11 percent in 2012 and declined to 9.2 percent in 2020. Industry contributed 31 percent in 2012 but had dropped to a fourth by 2020. Manufacturing alone accounted for about half of the share of industry in GDP. The services sector is now the main contributor to GDP accounting for 42 percent in 2012 and 61.3 percent in 2020.

The structure of employment has also changed. Agriculture's contribution to total employment has declined over the years, to a third by 2012, and to 29 percent by 2020. A fourth of working Sri Lankans are in the industrial sector while the vast majority work in the services sector. However, there remain noticeable decent work deficits. For example, while the rate of informal employment is low in Sri Lanka compared to the South Asian average, 67 percent of all employment was informal in 2019 (Department of Census and Statistics, 2020).

Notwithstanding these structural changes, Sri Lanka's productivity has been declining for a while and in fact, COVID-19 impacted an economy that has been ailing for some time, coming hard on the heels of the Easter Bomb attacks of 2019. Total factor productivity in Sri Lanka grew at 3.5 percent per year during the period 1990 to 1995, reduced to 1.3 percent between 1995 and 2000 and limped along at 1.0 percent between 2000 and 2017 (APO, 2019).

Productivity growth at a national level is a function of the productive transformation or efficient allocation of factor inputs between different subsectors of the economy and requires, among other conditions, the reallocation of labour from low-productive subsectors to high productive subsectors. In Sri Lanka, however, the distribution of employment has shifted towards the less-productive sectors, and over 70 percent of the labour force is employed in economic subsectors below the national productivity average (World Bank, 2019a). For example, the agriculture sector employs 25.5 percent of the workforce while its productive efficiency is only 30 percent of the national average. Similarly, productivity levels in education, accommodation, and food services activities; wholesale and retail trade; public administration and defence; compulsory social security and manufacturing, are also low relative to the national average. Between 2013 and 2018,

financial and insurance activities and ICT were the only sectors which experienced increases in productive efficiency and the efficient allocation of human resources.

The economy has also been drifting away from the export-led growth which characterised the early years of liberalisation and sustained the economy through several decades of military conflict. While policymakers caught up with the backlog of much-needed investment in infrastructure after the war ended, they lost sight of the need to formulate and implement policies that would support the upgrading and diversification of production and export structures to generate decent jobs and make economic growth fiscally sustainable. In fact, expansive fiscal policies on the one hand and restrictive monetary policies on the other crowded out private investment, caused the rupee to appreciate and eroded the competitiveness of Sri Lankan exports. Nevertheless, while the pandemic has forced policymakers to look towards exports to resuscitate growth, global economic conditions for export-led growth remain weak as new variants of the virus sporadically choke economic recovery across the globe.

In the next section, we present key features of the secondary and primary data used for the analysis.

3.3 DATA

While the analysis in this study uses both primary and secondary data, the results of the secondary data analysis is presented first as it looks at a more limited number of variables and tests the extent to which the data supports the core model of labour demand. Hence, we describe the secondary data used first, and then go on to describe the primary data that was specifically collected for this study.

Secondary data

The analysis of secondary data was largely motivated by a desire to see what available data sources could tell us about firms' demand for women's labour. Further, since the secondary

sources were nationally representative samples, their analysis was likely to yield results that were more robust. Moreover, there was the possibility that the analysis of these data sources could inform the design of the survey instrument that was to be used for the collection of primary data.

Since the focus of our study was on the demand for women workers in non-farm establishments, there were only two sets of secondary data that could be used. The first was a representative sample from the Economic Census of 2013 conducted by the Department of Census and Statistics, which covered the formal and informal manufacturing, construction, trade, and services sectors. This was the only source of firm-level data for the trade and services sector because microdata from the new Annual Survey of Trade and Services was not available for analysis; there has only been one such survey and its microdata is not being released as the Department of Census and Statistics is still in the process of refining the survey instrument and methodology.

We decided to use only data related to the formal sector from the Economic Census 2013 as the data on informal enterprises did not contain information on key variables needed for the estimation of the core model, such as the value of fixed assets for the calculation of capital output ratios. We also decided to exclude the construction sector as it is heavily dominated by male workers and faces acute labour shortages which are being increasingly addressed by recruiting migrant workers.

However, preliminary data analysis conducted on the sample of formal manufacturing firms released from the Economic Census of 2013 revealed substantial non-response rates (roughly a third of the sample) relating to key variables such as value added and fixed assets. Therefore, we decided to use data from the Department of Census and Statistics' Annual Survey of Industries for the analysis of the formal manufacturing sector instead. The years selected were 2006 and 2016: microdata for 2016 was the most recently available and analysing the 2006 data enabled us to compare the determinants of female labour demand in the sector over a decade.

We also needed to construct gender-based wage ratios for the analysis of the demand for women workers in the manufacturing sector for 2006 and 2016, and for the trade and services sector from 2013 as theoretically, the demand for women workers would depend on the cost of hiring them, relative to the cost of hiring men. Since this data was not available in the enterprise-based data, we constructed a synthetic wage for each enterprise-level data set using the Department of Census and Statistics' Labour Force Survey (LFS) data for the years 2006, 2013 and 2016.

Nevertheless, the LFS data of 2006 did not cover the Northern and Eastern provinces because of the war prevailing in these two regions at the time, even though the Annual Survey of Industries of 2006 did so in a somewhat minimal way. Therefore, we excluded these two provinces from the analysis of the demand for women workers in Sri Lanka's manufacturing sector in 2006, but included them in the analysis for 2016, and in the analysis using trade and services data from the Economic Census of 2013.

Primary data

Our primary survey data was collected through a structured questionnaire administered to a sample of formal sector non-agricultural establishments randomly selected from lists of establishments from several sources as described below. While the listing of establishments from the Economic Census of 2013 would have been useful, the Department of Census and Statistics was not able to share this with us due to confidentiality issues.

Besides, it was carried out many years ago and the economy has been slowing down and experiencing several shocks since then, the most recent being the COVID-19 pandemic which followed close on the heels of the Easter Bomb attacks of 2019. This

would have led to the closure of many businesses making the Census-based listing of establishments woefully out of date. Therefore, we collaborated with Nielsen Company Lanka (Pvt) Ltd. who implemented the survey for us, to select the sample as follows.

In line with the distribution of non-agricultural, formal establishments across economic sectors according to the Economic Census of 2013, the sample of 600 was distributed across the manufacturing, trade and services at 25.6 percent, 41 percent, and 33.4 percent, respectively. Efforts were also made to cover major growth sectors identified by the Board of Investment (BOI) (2017)⁵ and the Export Development Board (EDB) (2019).⁶ While firms with less than 5 employees were not covered, small, medium, and large businesses were included. The spatial distribution of the sample across sector and province was not considered although given the high concentration of establishments in Western Province, the sample from Colombo, Gampaha and Kalutara districts was overdrawn.

The frame for the selection of the sample was constructed using the lists of businesses from the following six sources:

1. members list of The Employers' Federation of Ceylon (EFC);
2. members list of the Ceylon Chamber of Commerce;
3. the companies listed on the Colombo Stock Exchange Listed companies;
4. Businesses advertising in the rainbow pages of Sri Lanka Telecom;
5. businesses in Nielsen's list of those advertising on TV, radio and the newspapers;
6. list of other businesses.

After duplicates which appeared in more than one list were eliminated, the representativeness of the sample was cross-checked using different criteria such as employment and value-addition.

5. It covered 30 full tradable sectors including service exports and 29 sub-sectors. The top priority full sectors included seven sectors: a) Electronics, b) Industrial machinery & equipment, c) Transport equipment (motor vehicles and trailers), d) Accommodation & food services (tourism), e) Electrical equipment, f) Fabricated metal products and g) Chemical products. The selection of priority sectors for targeting was based on three main indices: a) impact for Sri Lankan economy, b) market opportunities and c) investor interest.

6. It covered six priority sectors: a) ICT, b) Wellness Tourism, c) Spice Concentrates, d) Boat Building, e) Processed Food & Beverages and f) Electronic and Electrical Components (EEC). The selection was based on qualitative and quantitative criteria derived from export potential assessments carried out by the BOI, EDB and Harvard Centre for International Development (CID).

Thereafter, 1,800 businesses were randomly drawn from it to allow for the exclusion of agricultural or microbusinesses, firms which were found to have closed, or those which refused to participate in the survey.

The distribution of the sample across these sources is set out in Table 3.1 below. In the absence of a reliable listing of businesses (which even the Department of Census and Statistics no longer had) this was the next best available sampling procedure. However, the distribution of the sample had to be modified during the administration primarily because only a third of the firms drawn from the list of firms from the Employers' Federation of Ceylon responded to the survey. Therefore, the large shortfall from this source had to be made up with additional observations from Sri Lanka Telecom's Rainbow Pages. We also had to drop 34 observations due to non-responses for key variables used in the analysis. So, the actual sample used for the analysis was 566 firms.

The eleven-paged survey questionnaire used for data collection was developed through an iterative process by the authors with inputs from Nielsen Company Lanka. It was translated to Sinhala and Tamil and finalised following the piloting of the questionnaire in April 2020. The questionnaire was designed to obtain information about the following features of the surveyed firms: type of business; year of commencement; ownership; location; total employment by gender and by three major occupation groups, high skilled (managerial and executive); medium skilled (clerical and supervisory); and low skilled (operatives and elementary workers) by gender; financial information relating to value of total sales, fixed assets and costs of production including the wage bill; whether the company exports, has unions, and invests in training; employers' perceptions about employing women including those with disabilities; employers' perceptions about automation and digitisation and the business environment. The employment and financial data related to the firm's performance in 2019, as the year 2020 was still in motion.

Table 3.1: Distribution of the sample of establishments across sources for the primary survey

Lists of firms		Universe	Intended sample size	Average firm size of actual sample (number of employees)	Standard deviation	Number of observations in actual sample
1.	Employers' Federation of Ceylon	681	150	267	361	53
2.	Ceylon Chamber of Commerce	632	50	797	2752	34
3.	Colombo Stock Exchange	290	30	468	657	30
4.	Sri Lanka Telecom Rainbow Pages	48000	300	34	131	383
5.	Nielsen's list of businesses advertising on TV, radio, and the newspapers	4000	50	371	676	47
6.	Others (BOI, SLASSCOM, Exporters' Association)	~1000 (679+)	20	466	1359	19
Total		55000	600	167	795	566

Source: Nielsen Company Lanka (2021).

While the restrictions on movement during the first COVID-19 lockdown and subsequent isolations delayed administering the survey, the conditions to do so became more favourable by the third quarter of the year. Hence, the field work was carried out by 32 male and 20 female enumerators between the 25th of September 2020 and February 2021. During this period, some of the interviews were carried out face to face, but given the sporadic isolations and restrictions that continued, a hybrid methodology that increasingly relied on telephone interviews was implemented. Further details of the implementation of the survey can be found in Nielsen Company Lanka (2021).

3.4 METHODOLOGY

The econometric model underlying the estimation of the demand for female labour assumes cost-minimising firms and a Hicks-neutral Cobb-Douglas demand function for the representative firm i as in the following equation:

$$FL_i = f(KO_i, YL_i).^7 \quad (1)$$

In this equation, the dependent variable FL is the firm's relative demand for female labour measured as the share of female workers in total employment in the firm. In this analysis, we also use two additional forms of this dependent variable: first, the share of skilled female-workers in total skilled employment in the firm, and second, the share of unskilled female-workers in total unskilled employment in the firm. The skilled workers include managers, technicians, and clerical workers, and the unskilled workers denote all other workers employed by the firm. KO is the capital output ratio and YL denotes labour productivity.

To equation (1) we added four other vectors to capture firm-specific characteristics, including the gender-based perceptions of employers ($FIRM$), industry-specific dummies ($INDUSTRY$), characteristics of the local labour market ($MARKET$) and employers' perceptions of the

institutional environment ($INSTITUTIONS$), as well as a disturbance term ε . In this way, equation (1) was expanded to model the demand for women workers as follows:

$$FL_i = \alpha_0 + \alpha_1 KO_i + \alpha_2 YL_i + \alpha_3 FIRM_i + \alpha_4 INDUSTRY_i + \alpha_5 MARKET + \alpha_6 INSTITUTIONS + \varepsilon. \quad (2)$$

There are at least four forms of the specification expressed in equation (2) that we used for the analysis depending on the data available with which to construct the variables. In what follows, we first describe the variables used in the secondary data analysis, and then define the additional variables used in the primary data analysis.

Definitions of variables used in the secondary data analysis

Firm-level characteristics included in the model that estimated the demand for women workers using secondary data from the Economic Census of 2013 and the Annual Survey of Industries of 2006 and 2016 were as follows. Since the available firm level data aggregated the total wage costs for all workers in the firm, we were not able to estimate the relationship between relative unit-wage costs for women and the demand for them in our specification. Hence 'Average cost per unit of labour' was included in the specification, in keeping with the overall microeconomic model of the firm's demand for labour rather than specifically for women workers.

However, it must be acknowledged here that in empirical terms, this variable is only partially correct but since we did not have data on the average wages for female workers, we improvised with average unit labour costs. This variable along with 'Capital intensity' and 'Labour productivity' (value added per worker/100) for 2006 and 2013 were expressed in 2016 prices using the Colombo Consumer's Price index (2006=100). Given that our average wage variable was not fully correct, we also include skilled and unskilled gender-wage ratios relating to the local market in our specification to improve

7. This approach is standard in studies on the demand for labour (see Nazier (2018) and Babecky et al. (2012) and references cited therein).

the predictive power of the model and provide some insights about the substitution between males and females based on their relative wages. Below, we explain their construction when we describe the local market variables included in our model.

Characteristics of the occupational structure of employment in the firm were denoted by the proportions of *'technical'*, *'clerical'*, and *'low-skilled'* workers in the firm. Characteristics related to ownership were denoted by *'the share of working proprietors'* in the workforce, whether the firm had *'at least one female working proprietor'*, and whether the firm was *'a sole ownership enterprise'*. Another firm-specific characteristic that was included was whether it had *multi-plant operations*. Firms with *'multi-plant operations'* are those operating multiple facilities in the same line of business or industry to maximise cost advantages given their experience and market power. Characteristics related to scale were denoted by whether the firm was a *'small'* (between 10 and 50 employees) or *'medium-sized'* (between 51 and 200 employees) firm as opposed to being a *'large'* (201 and more) firm (reference category). We also looked at whether the firm invested in *'R&D'* (research and development). In the analysis by subsector, we included the *'age of the firm'* as an additional explanatory variable. We were unable to control for the crucial role played by exports in the demand for women workers as revealed in the international literature. The questionnaire for the Economic Census 2013 for the trade and services sector did not ask the question, while the questionnaire for ASI 2016 does, but the database did not contain the answers.

Industry-specific characteristics included in equation (2) for the analysis of labour demand in the manufacturing sector using secondary data included dummy variables which took the value '1' if the firm belonged to any one of the five subsectors of manufacturing as follows: *'Food and beverages'*; *'Textiles and garments including footwear'*; *'Rubber and plastics'*; *'Chemicals'*; and the reference category which was any of the *'Other'* manufacturing subsectors. Subsector-specific dummies in the specification modelling the demand for women workers in the trade and services sector using data from the Economic Census of 2013 were: *'Trade'*; *'Finance, banking,*

insurance, and real estate'; *'Hospitality'*; and *'Education, health, and social services'*, with firms that did not belong to any one of these categories being assigned to the reference category of *'Other'* subsectors.

These subsectors that were denoted by dummy variables in the specification were selected according to the distribution of total female employment across subsectors in the two major sectors which were classified according to two-digit ISIC codes. Accordingly, the first four industry-specific dummy variables in each major sector had the highest concentrations of female workers in that subsector while the growth potential and capacity to absorb more labour was also high in some of these subsectors.

The models using secondary data included three variables which captured the influence of local market variables on the demand for women's labour at firm level. They were: the gender-based wage ratios between female and male skilled workers (skilled female wage/skilled male wage); between female and male unskilled workers (unskilled female wage/unskilled male wage); and whether the firm was in the economically advanced *'Western Province'*, where the national capital and metropolitan hub of Colombo is located. The same variables were included in the specification modelling the demand for women workers in the trade and manufacturing sector, but since the data was available, we also included a dummy denoting whether the firm was in a *Rural* (or estate) area as opposed to being in an urban space for this specification.

The gender-based wage ratios were included in the specifications on the basis that the firm was a price taker in the local labour market. Accordingly, synthetic wage ratios were constructed using data related to the daily cash wage earned by formal and informal employees derived from the Department of Census and Statistics' Labour Force Surveys of the same years – i.e., 2006, 2013 and 2016. The wage data of informal employees was also used for the estimation as confining the sample to the formal sector only would have reduced the number of observations and negatively affected the precision of the estimates.

The method used to construct the wage ratios followed the procedure used by Clemens and Dibben (2014) and Nazier (2018) which constructed a synthetic wage in two steps. First, a wage equation was estimated by regressing daily cash wage data from the Labour Force Survey for the same year as the enterprise data from the Economic Census and the Annual Survey of Industries, on three groups of explanatory variables which were also available in the enterprise data. The three groups of variables were geographic region, industrial subsector, and firm size in terms of employment. Thereafter, the results of the estimation were used to predict a synthetic wage using the enterprise-level data from the Economic Census and the Annual Survey of Industries, which had the same variables.

Since the synthetic wage generated in this way was particular to skill and industrial subsector, the wage ratios were not included as explanatory variables in the analyses of the demand for female labour by skill level, and the demand for female labour by industrial subsector. The procedure used to generate the synthetic wage is explained in detail in Appendix 2 which also presents the results of the wage estimation.

The role played by institutions in the analysis of secondary data could be captured only in the analysis of the demand for women workers in the trade and services sector using data from the Economic Census 2013. While the survey questionnaire for the ASI of 2016 included employers' perceptions about the business environment, they were supposed to be elicited only from employers who had experienced a decline in sales, whereas some employers who had not experienced any decline had also answered this question.⁸ Hence, unfortunately we could not use this information in our analysis.

In contrast, the relevant variables constructed for the trade and services sector from the Economic Census 2013 were based on employers' perceptions on major problems related to the availability labour, the demand for output, access to finance, and government policies. The questionnaire asked

employers to rate the influence that these issues had on their activities as 'Strong', 'Reasonable', 'Average', 'Minor', and 'None'. These responses were cardinalised so that 'Strong' was assigned a value of '5' and 'None' was assigned a value of '1'. The issues were 'Lack of trained labour', 'Lack of IT knowledge', 'Lack of clients and markets', 'Lack of finance' and rather broadly, 'Government policies', the latter which was unspecified in the questionnaire.

Definitions of variables used in the primary data analysis

The dependent variable in the specifications using the primary data from the UN Women's survey of 600 firms was the same as the analysis using secondary data, i.e., the share of women in total employment. While the survey was conducted in 2020 and 2021, the employment and other data used for the analysis were from 2019. The explanatory variables in the specifications modelling the relative demand for women's labour using primary data were also slightly different.

First, given the smaller sample, we did not analyse the data for the manufacturing, and trade and services sectors separately, but estimated the models for firms across all sectors. The first specification aimed to estimate, as closely as possible, the core model used for the secondary analysis. However, the estimation of this model had to be confined to the 322 firms in our sample who provided the financial data necessary to construct these variables or whose relevant data could be obtained from their annual reports. Even for these firms, only labour productivity and average unit labour costs could be included in the model as information on fixed assets was available only for about 60 firms.

The core model also included a dummy variable, 'Exports', which took the value '1' if the firm exported any of its output. Other dummy variables that were included denoted whether a trade union or workers' council operated in the firm, and the kind of training of employees that the company

8. This could have come about because the questionnaire lacked a skip at this critical point which would have prompted the interviewer to bypass the question on the reasons for a decline in sales if the responding firm had not experienced such a decline.

engaged in, whether on-the-job training, 'OJT', 'in-house training', 'external training', or 'e-learning'. As for the industrial category, dummies that denoted structural characteristics of subsectors, given the limited numbers of observations for the categories defined in the secondary analysis, we had to limit the categories to the following: 'Food and beverages', 'Textiles and garments', 'Other manufacturing firms', 'Trade', 'Finance, banking, insurance, and real estate', 'Hospitality', and 'Other service sector firms'. 'Other manufacturing firms' was the reference category. Having estimated this full model for the firms with financial data, we also estimated a second specification of the core model without the financial variables for the entire sample of firms.

A key objective of primary data collection and analysis was to find out how employers' perceptions about women workers influenced firms' demand for female labour. While employer's perceptions are widely used in analyses of this nature, they are admittedly subject to criticisms, as Das et al. (2019) have enumerated. For instance, interpretations of questions on attitudes and responses to them are strongly influenced by characteristics of the respondent (Grand, Bernier and Strohmer, 1982) and their opinion statements may be mistaken for their attitudes (Zaller 1992). Employers may also respond in a way that they see is socially desirable or appropriate (Fischer and Fick, 1993; Crandall, Eshleman and O'Brien, 2002), and the Likert type scales used to measure perceptions can mislead because respondents tend to select the option that represents the 'middle ground' rather than opt for what they really think.

Finally, respondent attitudes as derived from their responses may only be measures of their conceptual understanding of the issue or question and may not actually measure their real feelings, thought processes or actions Das et al. (2019). These problems can cause an array of biased perceptions surrounding constraints in hiring women, which may be different from actual constraints in a study like the current one. For example, employers may perceive labour laws as more constraining than they are.

Despite these shortcomings, respondents' perceptions are frequently cardinalised and used widely in regression analyses, and in this study, we do the same with the extent to which the respondent agreed with two types of statements. The first type set out reasons as to why employers may be reluctant to hire women. The second type set out reasons surrounding why they may want to hire them. For each case, respondents were asked whether they 'strongly disagreed' with the statement, 'disagreed' with it, 'neither agreed or disagreed' with it, 'agreed' with it, or 'strongly agreed' with it. A sixth option could be selected if they did not know, they could not say, or refused to answer. All such observations were dropped from that analysis.

The first five options were cardinalised so that the response 'Strongly disagree' was given a value of '1', while 'Strongly agree' was given a value of '5'. The statements about which respondents had to state their extent of agreement (or disagreement) expressed various reasons presented in the literature as to why employers may not want to hire women or may want to hire them. The former ranged from statements about skills and the burden of family responsibilities, through personnel management issues to constraints that may be imposed by the legislative framework. The latter ranged from statements about skills and aptitudes to characteristics such as honesty, loyalty, and diligence. In the analysis about the role that employers' perceptions of women workers played in the demand for them, we also included a dummy variable that took the value '1' if the respondent was a male to control for the impact that the respondent's gender may have influenced his or her perceptions.

We also wanted to explore how the utilisation of technologies from the Third and Fourth Industrial Revolution influenced firms' demand for women workers. The technologies included nano and cloud technologies, mobile phones, social media, artificial intelligence, robotics, 3D printing, automation, and digitisation. The role of employers' perceptions about the business environment in influencing the demand for female workers was captured by two variables denoting the level of business confidence felt by the firm in 2018 and 2019.

The options provided were ‘very pessimistic’, ‘pessimistic’, ‘neither pessimistic or optimistic’, ‘optimistic’, ‘very optimistic’, and the final option denoted that they did not know, they could not say, or refused to answer. Those who chose the sixth option were excluded from that analysis while the other options were cardinalised in the usual way with ‘very pessimistic’ assigned the value ‘1’ and ‘very optimistic’ assigned ‘5’. We also included a dummy variable which took the value ‘1’ if employers stated that COVID-19 had affected their business operations between March and June 2020 to control for the depressing impact that the pandemic may have had on employers’ recollection of the level of business confidence experienced in 2018 and 2019.

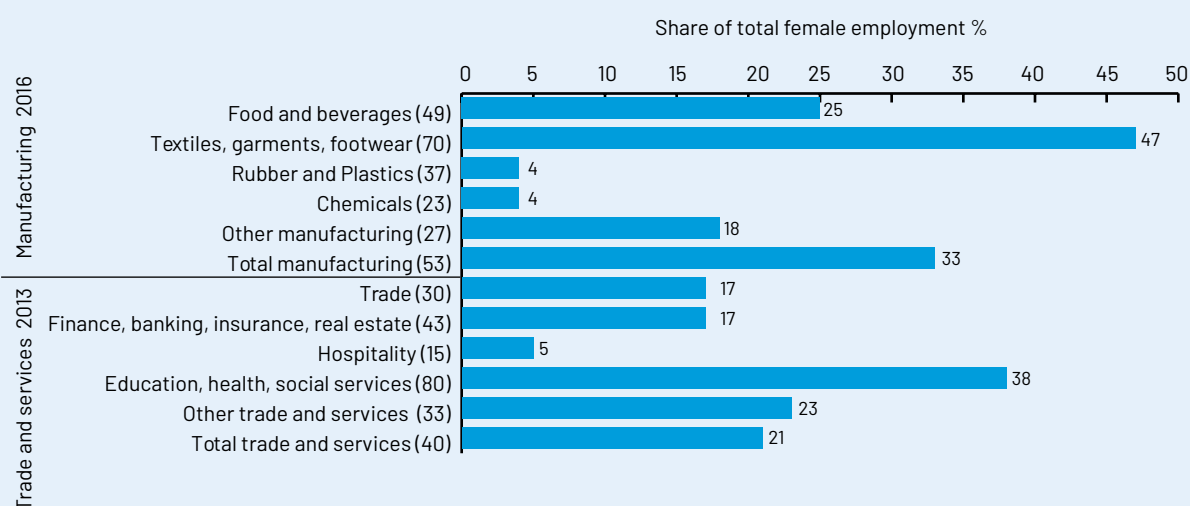
In the following, we describe key features of Sri Lanka’s manufacturing and services sectors as evidenced from the data used for our analysis on the demand for female workers.

3.5 DESCRIPTIVE OVERVIEW

3.5.1 Overview of the secondary data used for the analysis

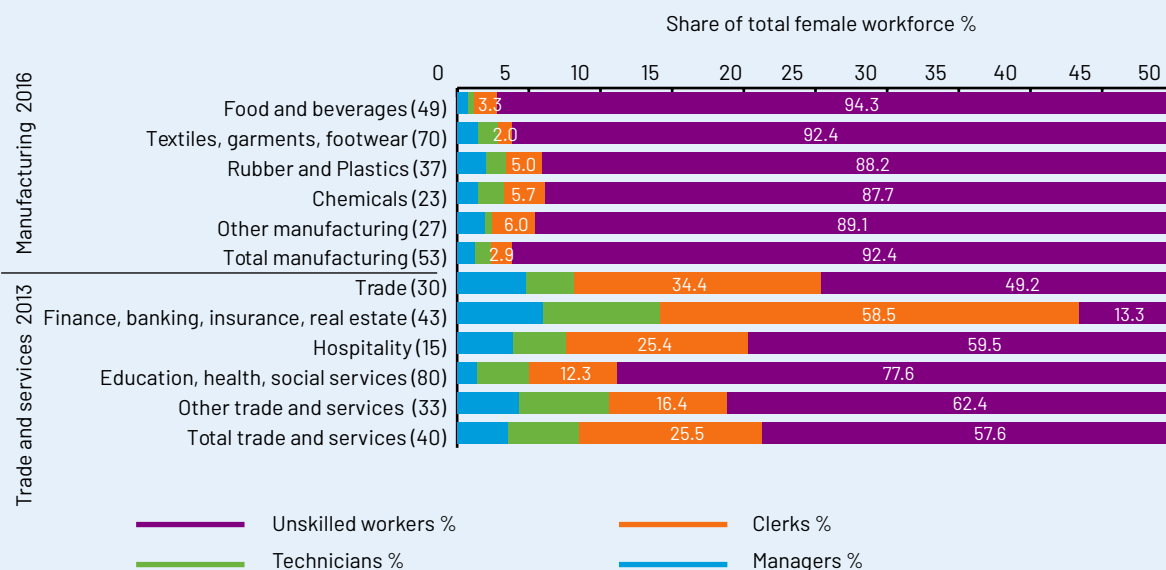
The secondary data used for the analysis confirms the gender-wise segregation of workers across industrial sectors in Sri Lanka’s formal manufacturing and services sectors. In terms of total workforce, women accounted for 53 percent of the total formal workforce in manufacturing in 2016 and 40 percent of the total formal workforce in trade and services in 2013. Figure 3.2 shows that women are concentrated primarily in 2 major manufacturing subsectors and across approximately 4 others in services. For example, a little less than half of all women employed in manufacturing in 2016 were in the textiles, garments, and footwear sector where they accounted for 70 percent of the total workforce. Another quarter was concentrated in the food and beverages sector, where they accounted for nearly half that workforce. In the trade and services sector, the overwhelming majority (40 percent) was concentrated in the education, health, and social services sectors where they made up 80 percent of the total workforce.

Figure 3.2: Distribution of Sri Lankan women workers across the formal manufacturing and services subsectors



Source: Estimated using sample weights with microdata from the Department of Census and Statistics’ Annual Survey of Industries 2016, and Economic Census 2013. Figures in parenthesis show the percentage share of women in the total workforce in each sector.

Figure 3.3: Distribution of Sri Lankan women workers across occupation categories in the formal manufacturing and services subsectors



Source: Estimated using sample weights with microdata from the Department of Census and Statistics' Annual Survey of Industries 2016, and the Economic Census 2013. Figures in parenthesis show the percentage share of women in the total workforce in each sector.

Figure 3.3 shows the distribution of total female employment across skilled and unskilled occupations in the two major sectors. The figure clearly portrays that female employment in manufacturing is highly concentrated in unskilled occupations such as machine operators, but less so in the trade and services sectors. While the share of unskilled females in the trade and services subsectors is on average slightly less than 60 percent, it is around 92 percent in the manufacturing sector, where it is highest in the three subsectors where most workers are women. In the trade and services sector, much of female employment is concentrated in the clerical occupations as office clerks, secretaries, and administrative assistants: that is nearly 35 percent in trade and 60 percent in finance, banking, insurance, and real estate. In contrast, the education, health, and social services sector,

where females account for 80 percent of the workforce, 78 percent are unskilled women workers, while in the hospitality sector, the subsector with the smallest female workforce among the specific subsectors concerned in the study, unskilled women account for 60 percent of all women employed.⁹ These statistics recall Borrowman and Klasen's (2017) finding from 69 developing countries that even in contexts where economic growth promoted women's employment, they still largely entered sectors and occupations that were already dominated by women.

We now turn to key characteristics of firms in the manufacturing and services sectors whose demand for female labour is the focus of this research. Table 3.2 sets them out in terms of the relative shares of the subsectors in total employment, women's employment, value added, fixed assets, and wage

9. Cultural reasons inhibit many women from taking up employment in the hospitality sector.

Table 3.2: Key characteristics of Sri Lanka's formal manufacturing and services sectors, 2013, 2016

	Total em- ployment (numbers)	Share of total employ- ment %	Share of women's employ- ment %	Share of value added %	Share of fixed assets %	Share of salaries and wages %	Average labour pro- ductivity (Rs. million)	Average capital intensity (Rs. 000)	Average unit wage cost (Rs. per annum)	Number of observa- tions
Manufacturing 2016										
Food and beverages	278,435	27.55	25.16	36.78	36.43	22.51	4.46	87.12	217,856	462
Textiles, garments, footwear	470,766	46.58	61.24	35.99	22.59	44.33	1.84	27.60	213,248	262
Rubber and plastics	39,314	3.89	2.69	4.67	7.08	5.42	3.40	33.34	415,987	57
Chemicals	39,027	3.86	1.68	2.88	3.44	5.69	1.73	4.96	340,795	58
Other	183,106	18.12	9.23	19.71	30.46	22.06	1.66	12.34	262,552	625
Total	1,010,648	100.00	100.00	100.00	100.00	100.00	2.40	33.86	245,296	1464
Trade and Services 2013										
Trade	186,430	23.34	17.26	0.45	33.21	19.18	1.99	11.15	246,207	239
Finance, banking	124,832	15.63	16.59	0.30	27.37	29.19	1.74	4.95	501,036	163
Hospitality	115,506	14.46	5.49	97.11	6.58	9.70	0.73	3.02	276,828	107
Education, health, etc.	151,960	19.03	37.89	0.11	3.40	6.67	0.54	5.73	183,034	165
Other	219,938	27.54	22.77	2.01	29.32	35.27	2.60	8.07	601,147	411
Total	798,667	100.00	100.00	100.00	100.00	100.00	1.64	7.59	335,027	1085

Source: Estimated using sample weights with microdata from the Department of Census and Statistics' Annual Survey of Industries 2016, and the Economic Census 2013.

bill, as well as in terms of key building-blocks of the microeconomic theory of the firm, average labour productivity, capital intensity, and unit-wage costs. The descriptive statistics reveal some interesting features worth examining in detail at the sub-sectoral level. For example, in the manufacturing sector, the textiles, garments and footwear subsector has the highest share of female employment (61 percent) and the lowest labour productivity. It also records the lowest average wages in manufacturing. Is this due to substitution between labour and capital, or structural features of employment, or both? Similarly, the food and beverages subsector has the second highest share of female employment (25 percent), the highest labour productivity, and the highest capital intensity in manufacturing. Is this due to substitution or complementarity between capital and labour, or structural features of the food and beverages subsector? Or could this feature reflect the problem of measuring capital intensity in the food and beverages subsector? Meanwhile, the rubber and plastics subsector recorded the highest average wages, second highest labour productivity and relatively high capital intensity.

The salient features of the trade and services sector are even more interesting. For example, the education, health, and social services subsector accounts for the highest share of female employment (38 percent), lowest average wages and lowest labour productivity. This is mainly due to factor market distortions which causes inefficient resource allocations, resulting in loss of competitiveness and the slowing-down of economic growth. Such distortions need to be removed to ensure that the process of productive transformation takes place both at sectoral and national level.

The trade subsector seems to be the most capital intensive and most productive sector in the trade and services sector with the second lowest average wages. Is high labour productivity in the trade subsector due to substitution or complementarity between factor inputs or structural features of this sector? The finance and banking subsector has the highest average wages, has moderate capital intensity and accounts for 16 percent of female employment in the trade and services sector. This may be due to structural features of employment

or problems associated with the measurement of capital intensity.

In this way, the table reveals interesting features of the sectors that merit rigorous investigation using model structures informed by the theoretical and empirical literature. Our first attempt at this uses the secondary data. The results of this analysis are reported in Chapter 4 of this study.

3.5.2 Overview of the primary data used for the analysis

A total of 566 firms from the sample of 600 that were surveyed were used for the estimation of the core model using primary data. The remaining 34 firms had not responded to questions about key characteristics in the model and were therefore excluded from the analysis.

Sectoral distribution of employment

Table 3.3 describes the situation of women's employment in Sri Lanka's manufacturing and services sector in the sample used for the analysis. While the survey covered firms in seven economic sectors, the table shows the distribution of women's employment across these sectors and the changes that the pandemic has wrought in terms of numbers of workers and their skill level. The 566 firms covered by the analysis accounted for nearly 94,430 workers, of whom slightly more than a third were women. Manufacturing other than food and beverages and textiles and garments, and the hospitality sector, accounted for nearly a half of all such women. Of the total number of skilled workers across all sectors, skilled women accounted for almost two-fifths, although their share of total skilled employment (high- and medium-skilled occupations) was above average at 44 percent in the hospitality sector, and below the sector-wide average, at 26 percent in the textiles and garments sector. While unskilled women accounted for two-thirds of all unskilled workers in almost all the subsectors bar two of them, they accounted for three-fourths of all unskilled workers in the textiles and garments sector.

Table 3.3: Women's employment in Sri Lanka's formal manufacturing and services sectors, 2019-2020

	Total employment 2019	% Share of female workers out of total in 2019	% Distribution of female workers across sectors 2019	% Share of high- and medium-skilled females in 2019	% Share of low skilled females 2019	% Change in total employment between 2019 and 2020	% Change in female employment between 2019 and 2021	% Change in male employment between 2019 and 2021	% Change in high- and medium-skilled female employment 2019 to 2020	% Change in unskilled female employment 2019 to 2021
Food and beverages (38)	8123	38.13	9.58	34.51	65.49	-0.92	3.23	-3.48	-0.61	7.57
Textiles and garments (31)	9516	31.72	9.33	25.88	74.12	-0.24	-0.99	0.11	-4.85	0.89
Other manufacturing (137)	23442	29.94	21.71	36.01	63.99	-17.20	-0.67	-24.26	-1.92	0.99
Trade (130)	7644	29.30	6.93	31.59	68.41	-11.39	-11.96	-11.16	-0.62	-55.63
Finance, banking, insurance, real estate (25)	10745	33.16	11.02	36.45	63.55	4.20	1.94	5.32	0.38	13.10
Hospitality (62)	22251	41.64	28.66	44.19	55.81	-1.73	-24.31	14.37	-47.24	633.65
Other services (144)	12709	32.48	12.77	39.40	60.60	0.42	-2.54	1.84	-2.15	-3.68
All sectors (567)	94430	34.24	100.00	38.03	61.97	-5.17	-7.83	-3.78	-18.80	21.62

Source: UN Women Survey on Factors Influencing the Demand for Women Workers 2020. Numbers in parentheses are the total number of firms in the sector covered by the survey.

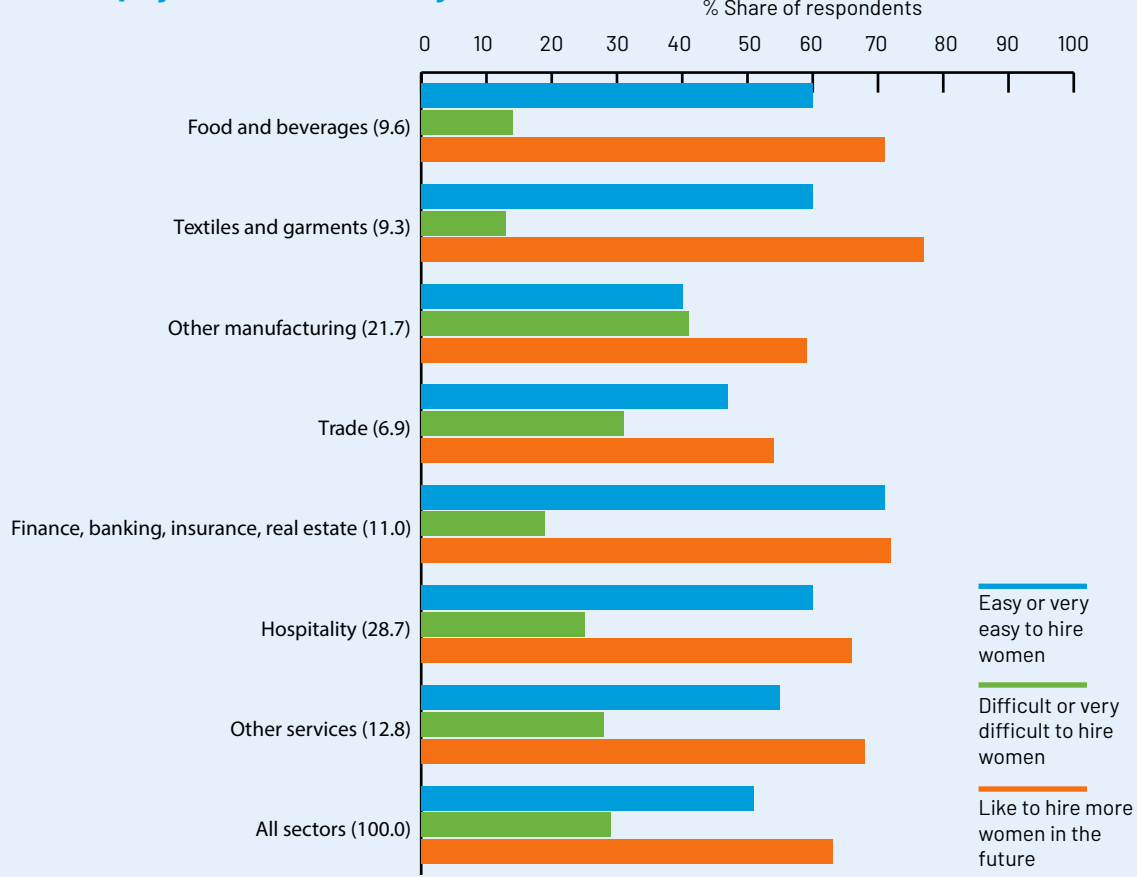
Across sectors, female employment declined by nearly 8 percent between 2019 and 2020, driven mainly by the halving of skilled female employment in the hospitality sector (by 47 percent), but the decline in total employment appears to have been mitigated by the rise in unskilled female employment by 22 percent, driven mainly by the expansion of job opportunities for unskilled females in the food and beverages and hospitality sectors. These changes are likely to have stemmed from the collapse in tourism, the clampdown on face-to-face interaction with customers leading to the closure of restaurants, and the conditions of the lockdown which were designed to encourage rather than constrain the food production and distribution (food delivery) sectors.

However, note the changes in male employment following lockdown: male employment in the hospitality sector increased by a considerable 14 percent and in the finance sector by a respectable

5 percent, although the employment of males in the other manufacturing sector declined by a fourth, while jobs for males in the trade sector contracted by 11 percent. As a result, male employment in our sample of firms declined by 5 percent. The gender and sector-wise changes in employment are likely to have been especially driven by how the lockdown and restrictions in mobility impacted on sectors and operations within the subsectors identified in the table.

The more muted gendered impact of the lockdown on employment in Sri Lanka can be contrasted with those of advanced countries such as the U.S.A, where women’s paid workforce participation is much higher (58 percent), and where women’s employment is heavily concentrated in low-wage face-to-face jobs that could not transition from in-person to working from home (Bateman and Ross, 2020). Also, a recent study by the International Finance Corporation (2020a) found that while

Figure 3.4: Employers’ perceptions about how easy it is to hire women and whether they would employ more in the future by sector



Source: UN Women Survey on Factors Influencing the Demand for Women Workers 2020.
Note: Figures in parenthesis show the distribution of women’s employment across sectors.

small- and medium-scale enterprises in Sri Lanka have experienced widespread business impacts because of COVID-19, the differences in impact between male- and female-owned SMEs were limited. Decreased sales, difficulties in meeting operating expenses, and shortfalls in meeting debt repayments were the main impacts, but women-owned SMEs were less likely to have made staff redundant, granted staff leave with or without pay, or reduced staff because of the pandemic. They were also smaller than male- or jointly-owned SMEs, less likely to have borrowed from a financial institution, more likely to have borrowed from family and friends, and were significantly less likely to have tried at least one new digital business channel.

Perceptions of employers about hiring women

A key objective of the primary data collection and analysis was to understand how the perceptions of employers about hiring women influenced the demand for their labour. The survey instrument asked two basic questions of employers related to the main objective of this study. First, employers were asked whether it was difficult to employ women, and the options for responses were as follows: 'very difficult', 'difficult', 'neither easy nor difficult', 'easy', 'very easy', and finally, don't know, can't say, or refused. Hearteningly, **half of the employers surveyed said that it was easy or very easy to employ women workers.** Only 29 percent said that it was difficult or very difficult (Figure 3.4).

In terms of subsector, while 71 percent of employers in the finance, banking, insurance, and real estate sectors thought it was 'easy' or 'very easy' to hire women. Of those who thought it was 'easy' or 'very easy' to hire women, only 40 percent in the other combined manufacturing subsectors, and 47 percent in trade, thought it was 'easy' to do so. In the food and beverages and textiles and garments sectors, 60 percent of respondents thought it was 'easy' to hire women. Second, employers were asked about their willingness to employ more females in the future. Interestingly, nearly 63 percent of

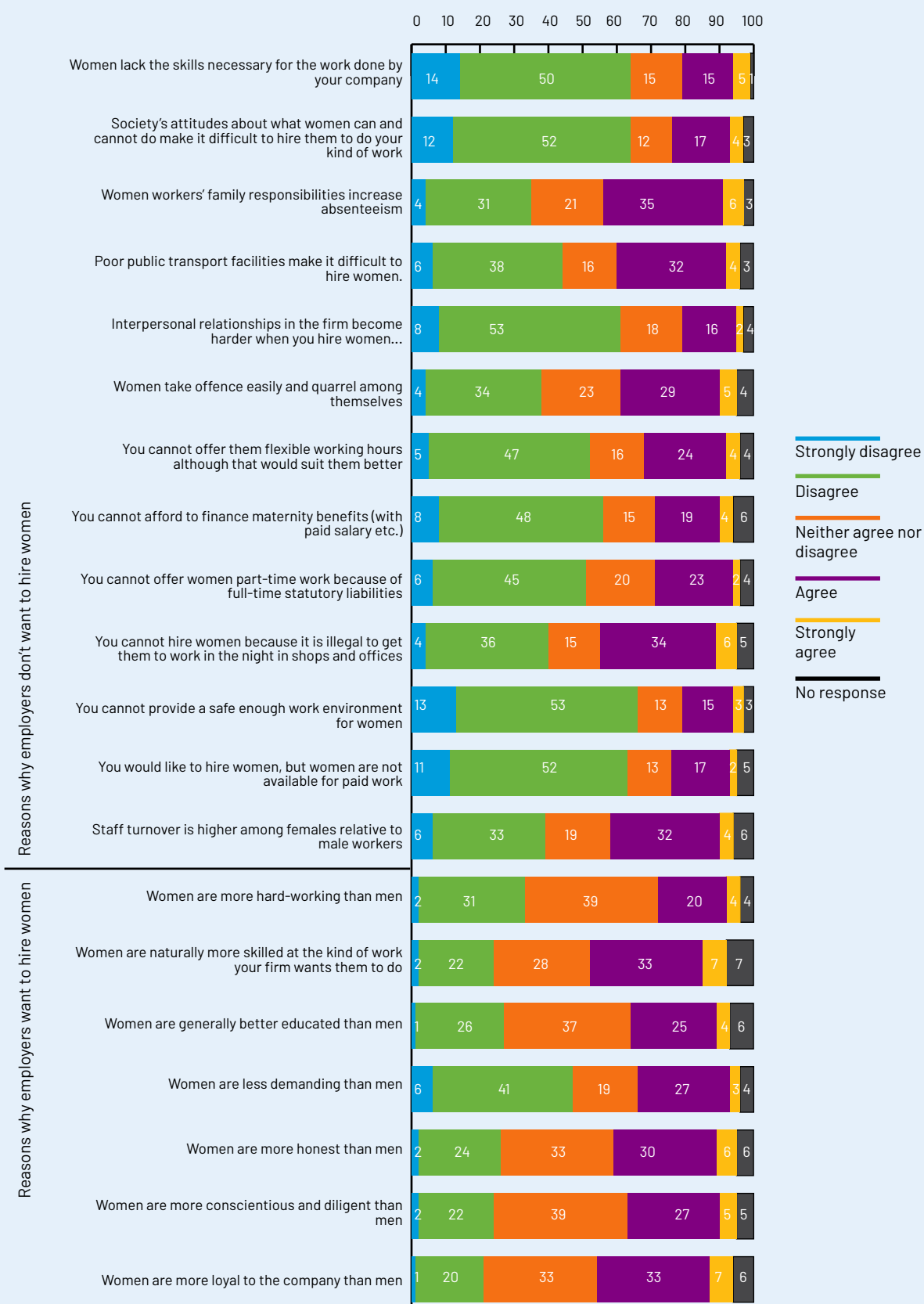
employers responded positively, agreeing that they would indeed like to employ more women in the future. In the textiles and garments sector, 77 percent of employers agreed that they would, and even in the trade sector, 54 percent said they would.

To investigate employers' perceptions about hiring women further, the questionnaire asked employers why they would like to hire women, and why they would not. The questions took the form of statements about which they had to express their level of agreement. Figure 3.5 presents the extent to which employers agreed with thirteen statements about the reasons why they may not want to hire women, and seven more about the reasons why employers may want to hire women. These statements were based on the qualitative findings of Ranaraja and Hassendeen (2016) and other anecdotal evidence.

It appears that most employers cite the following as the main reasons why they would prefer not to hire women: family responsibilities resulting in absenteeism among women workers (41 percent); it being illegal to get women to work at night in shops and offices (40 percent); poor public transport (36 percent); staff turnover being higher among women than among men (34 percent); and conventional perceptions that women take offence easily and quarrel among themselves (34 percent). In contrast, only 20 percent of employers agreed with the statement that women lacked the necessary skills for the work done by their companies and only 18 percent thought that they could not provide women with a safe working environment.

Thus, with respect to supportive conditions that the government needs to provide, **public transport and allowing night work for women working in shops and offices appear to be more important** than socialising the cost of maternity benefits or facilitating part-time work, although with respect to the latter, a fifth of employers agreed that the issue of paying maternity benefits was a constraint, while a quarter of all employers agreed that the inability to offer part-time work due to statutory liabilities made them reluctant to hire women. Only a third of employers agreed that they would like to hire

Figure 3.5: Employers' perceptions about hiring women in Sri Lanka's formal manufacturing and services subsectors 2019



Source: UN Women Survey on Factors Influencing the Demand for Women Workers 2020.

Table 3.4: Percentage share of employers in each subsector who agree with the following statements about women workers, 2019

	Food and beverages	Textiles and garments	Other manufacturing	Trade	Finance, banking, insurance, and real estate	Hospitality	Other services	All subsectors
Women lack the skills necessary for the work done by your company	8	6	31	25	0	18	15	20
Society's attitudes about what women can and cannot do make it difficult to hire them to do your kind of work	11	6	25	29	8	18	20	21
Women workers' family responsibilities increase absenteeism	32	52	45	48	36	39	32	41
Poor public transport facilities make it difficult to hire women	32	42	43	37	28	34	31	36
Interpersonal relationships in the firm become harder when you hire women	13	26	16	23	12	23	14	18
Women take offence easily and quarrel among themselves	26	45	36	38	16	27	36	34
You cannot offer them flexible working hours although that would suit them better	21	23	27	29	16	32	31	28
You cannot afford to finance maternity benefits (with paid salary etc.)	11	19	21	30	12	31	21	23
You cannot offer women part-time work because of full-time statutory liabilities	18	19	31	27	16	24	22	25
You cannot hire women because it is illegal to get them to work in the night in shops and offices	24	35	45	44	20	48	36	40
You cannot provide a safe enough work environment for women	3	13	22	25	4	21	17	19
You would like to hire women, but women are not available for paid work	16	16	23	18	0	24	17	19
Staff turnover is higher among females relative to male workers	21	39	38	43	20	34	35	36
Women are more hard-working than men	37	26	18	23	0	29	29	24
Women are naturally more skilled at the kind of work your firm wants them to do	42	52	36	40	8	39	48	40
Women are generally better educated than men	34	26	27	32	12	32	29	29
Women are less demanding than men	26	26	26	42	4	34	28	30
Women are more honest than men	42	29	34	40	16	35	36	36
Women are more conscientious and diligent than men	47	16	26	37	12	40	33	32
Women are more loyal to the company than men	39	32	35	46	8	40	43	39
Total (%).	100	100	100	100	100	100	100	100
Total (number of respondents)	38	31	137	130	25	62	143	566

Source: UN Women Survey on Factors Influencing the Demand for Women Workers 2020.

women but that women were not willing to enter the paid workforce. As for why employers would like to hire women, 41 percent did so because they thought women had more appropriate skills for the work of their companies than did men, while 40 percent valued their greater loyalty, and 36 percent their greater honesty.

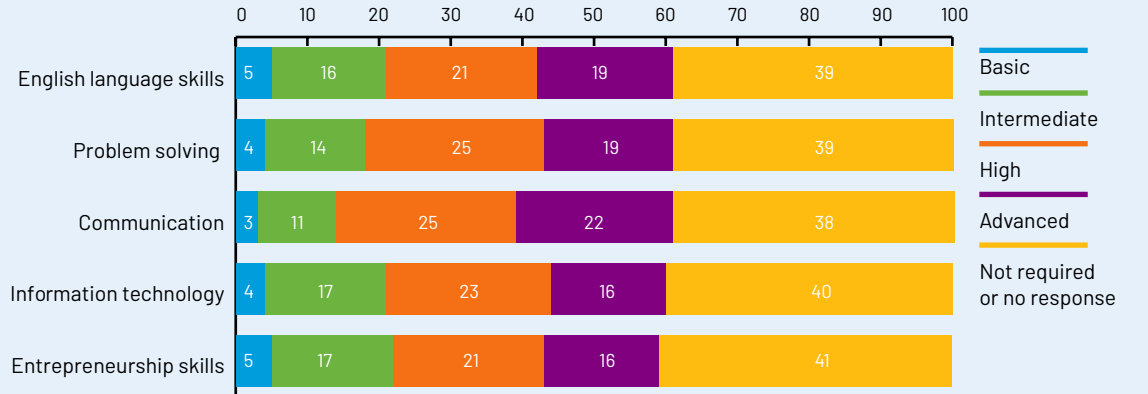
Table 3.4 sets out the percentage shares of respondents in each subsector who agreed with the perception-related statements discussed above. By and large, employers' perceptions about hiring women are similar across subsectors apart from a few exceptions, with the finance, banking, insurance, and real estate sectors generally being an outlier probably due to the high-skilled nature of business operations. For example, employers in

this subsector were least concerned about women lacking the necessary skills as most jobs in the sector are for high-skilled women, whose skills deficits are very low, as we will see in the next section. Employers in this sector, and in the textiles and garments sector, were also relatively unaffected by what society regards as appropriate jobs for women. In contrast, **employers in the other manufacturing and trading sectors were constrained in hiring women because they perceive women as lacking the necessary skills.**

Skills deficits among female employees

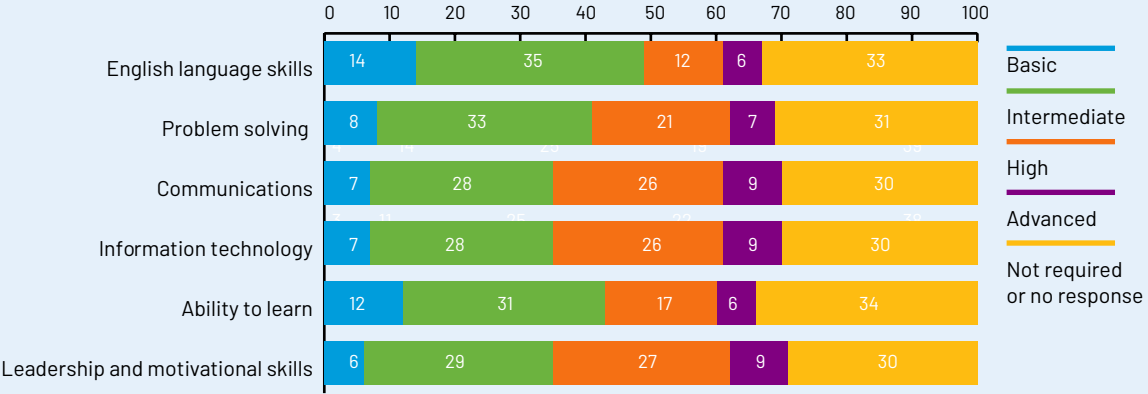
The rich data in the primary survey allows us to examine in greater detail, why only 20 percent of

Figure 3.6: Perceptions about the skills of women employees in high skilled occupations in Sri Lanka's formal manufacturing and services subsectors 2019



Source: UN Women Survey on Factors Influencing the Demand for Women Workers 2020.

Figure 3.7: Perceptions about the skills of women employees in medium skilled occupations in Sri Lanka's formal manufacturing and services subsectors 2019



Source: UN Women Survey on Factors Influencing the Demand for Women Workers 2020.

employers believed that women lacked the skills necessary to work in their enterprises and that the majority did not perceive women as being less endowed with skills. The questionnaire asked respondents to rate the skills of female workers in high-, middle-, and low-skilled occupation categories. Employers' opinions were sought in relation to employees' core skills following Dunder et al (2014 and 2017), Chandrasiri and Gunatilaka (2015, 2016 and 2019), as these are more important for employers. For example, the skills that workers in high-skilled occupations generally require are English language skills, problem solving skills, communication skills, information technology skills and entrepreneurial skills, whereas workers in middle-skilled occupations required, the first four of these skills plus leadership and motivational skills. In contrast, the skills typically required of low-skilled workers that respondents were asked to rate were English language skills, communication skills, ability to follow instructions, team working skills, and understanding customer needs. Employers were asked to rate them according to whether they were 'required', 'basic', 'intermediate', 'high', or 'advanced' relative to the skills required for each occupation skill category. The distribution of responses across these options for high, medium and low-skilled workers are graphed in Figure 3.6, Figure 3.7 and Figure 3.8.

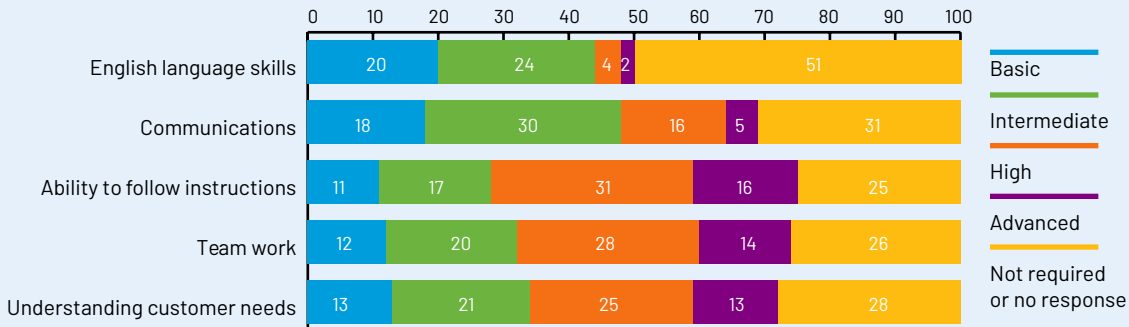
They clearly demonstrate the presence of serious skill deficits among middle-skilled female employees compared to their counterparts in high-skilled occupations.

For example, employer ratings on competencies of high-skilled female employees are satisfactory with over 60 percent of high-end ratings for communication, problem solving, ICT, English language, and entrepreneurial skills (Figure 3.6). In contrast, middle-level female employees appear least competent in English language skills with half of the sample rating themselves as having only basic or intermediate skills (Figure 3.7). Capacity to learn and problem solving also score poorly with 44 percent and 41 percent of employers rating their medium-skilled female employees as having only as basic or intermediate levels of skills in these areas of competencies.

Skills deficits among low-skilled female employees are somewhat better than among women employees in middle level occupations.

Nearly half of the sample thought that their low-skilled female employees had high or advanced capacity to follow instructions, and 42 percent rated their team working skills as high or advanced (Figure 3.8). For example, the deficits in communications of this group of workers were much lower than among female employees in middle-level occupations. Thus, the skills of the large number of low-skilled women employed by these firms (accounting for roughly two-thirds of all female employees as Table 3.3 shows) appear to be adequate for the tasks they are required to do. By contrast, deficits in core skills among female employees appear to be most acute among employees in medium-skilled occupations. This is an important finding of this study using primary

Figure 3.8: Perceptions about the skills of women employees in low-skilled occupations in Sri Lanka's formal manufacturing and services subsectors 2019



Source: UN Women Survey on Factors Influencing the Demand for Women Workers 2020.

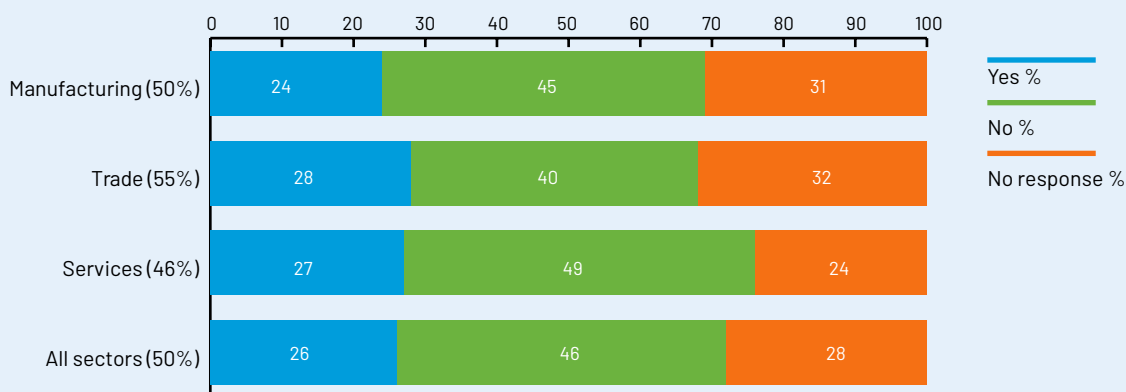
data, as it explains the relatively low representation of female workers in middle-skilled occupations in Sri Lanka's manufacturing and services sectors.

Marriage and women's participation in the labour market

Marriage impedes women's labour-force participation in many countries, particularly their participation in the organised sector. The relationship between marriage and participation in the labour force, however, is mediated by several factors: the country's level of development in

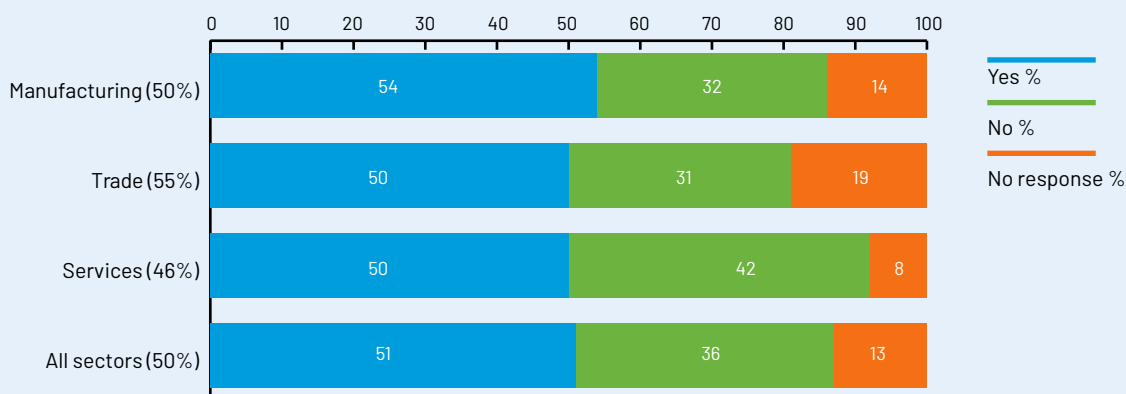
providing welfare facilities for working parents and mothers; social protection measures; the practice of flexible working hours and arrangements for working from home; employers' attitudes towards reemploying married females and the country's level of technological development, among others. (Tumsarp and Pholphirul, 2020). The empirical literature also makes a distinction between the relationship between marriage and workforce participation of married women with children and those without children, concluding that marriage with children constrains workforce participation more than marriage without children (Azcona et al. 2020).

Figure 3.9: Employers' responses to the question: 'Do female workers tend to leave after marriage?'



Source: UN Women Survey on Factors Influencing the Demand for Women Workers 2020. Numbers in parentheses are the average shares of female workers who employers say tend to leave after marriage.

Figure 3.10: Employers' responses to the question: 'Do female workers who leave after marriage want to return?'



Source: UN Women Survey on Factors Influencing the Demand for Women Workers 2020. Numbers in parentheses are the average shares of female workers who employers say tend to leave after marriage.

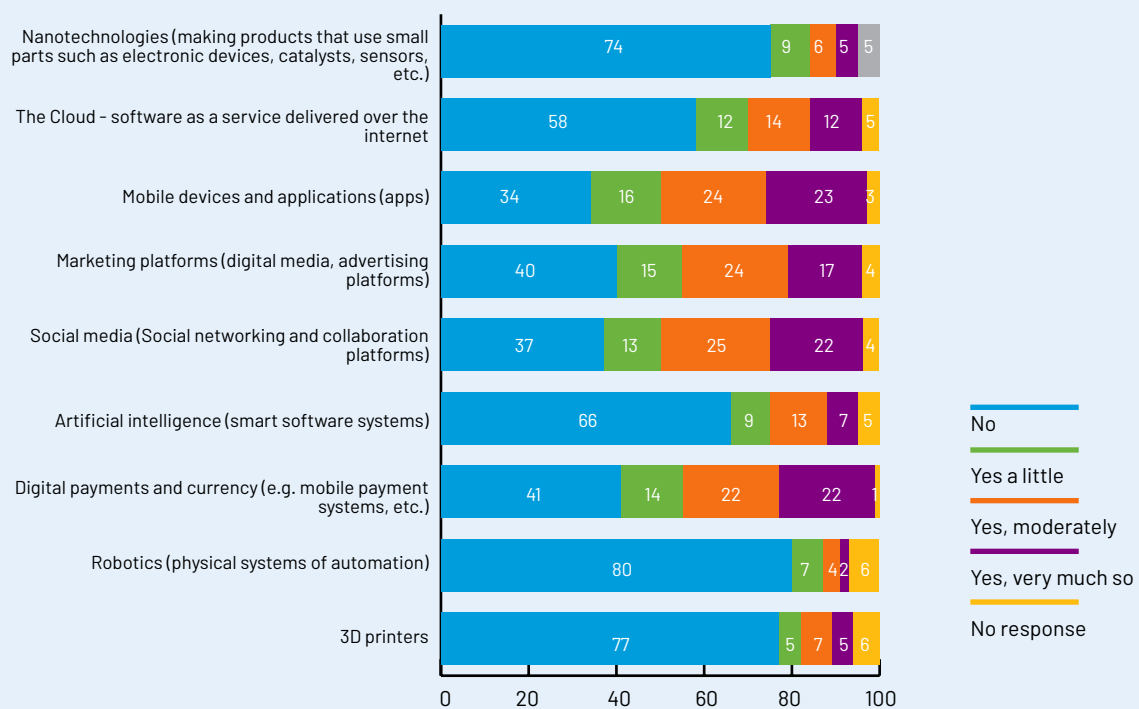
In Sri Lanka, nationally representative labour-force survey data for 2016 show participation rates for married women being somewhat higher than for unmarried women - 39 percent as against 35 percent, whereas the equivalent figures for married and unmarried men were 85 percent and 61 percent. However, regression analyses of women's labour supply using household-level data from Sri Lanka suggest that while marriage is associated with a lower likelihood of paid labour-force participation, having young children constrains participation more (Gunatilaka 2013, Seneviratne 2017). The data collected from employers through the primary survey for the present study provides additional insights which cannot be obtained from the LFS data.

As Figure 3.9 shows, only a little more than a quarter of all employers surveyed said that women workers in their firms tended to leave after marriage. On average, half of all women who

left these firms, did so for this reason. When asked whether women workers who left to get married wanted to return after three or four years, **half the employers said that women tended to leave after marriage said that they did wish to return** (Figure 3.10).

A little more than a third of them said that they did not. Additionally, in those firms whose representatives said that the women who left wanted to return, on average, half of the women who left to marry wanted to return. Thus, while encouraging women to enter the labour market remains a challenge as attested to by the supply-side analyses, the primary data from establishments suggests that once employed, a substantial proportion of women remain employed after marriage and even want to return if they had left. Hence, retaining women employees who get married and supporting the return to work of those who leave after marriage, is yet another

Figure 3.11: The use of new technologies in Sri Lanka's formal manufacturing and services subsectors 2019



Source: UN Women Survey on Factors Influencing the Demand for Women Workers 2020.
Note: Figures in parenthesis show the distribution of women's employment across sectors.

area needing supportive policy interventions and the provision of support and incentives such as affordable childcare, wage subsidies and opportunities for retraining or reskilling. This is because characteristics such as being older, better educated (A' Levels and beyond), having older children, having children later rather than earlier, have been found to be drivers of married women's participation in the paid workforce (Gunatilaka 2013). Hence, policies that support these factors are likely to enable more married women to undertake paid work.

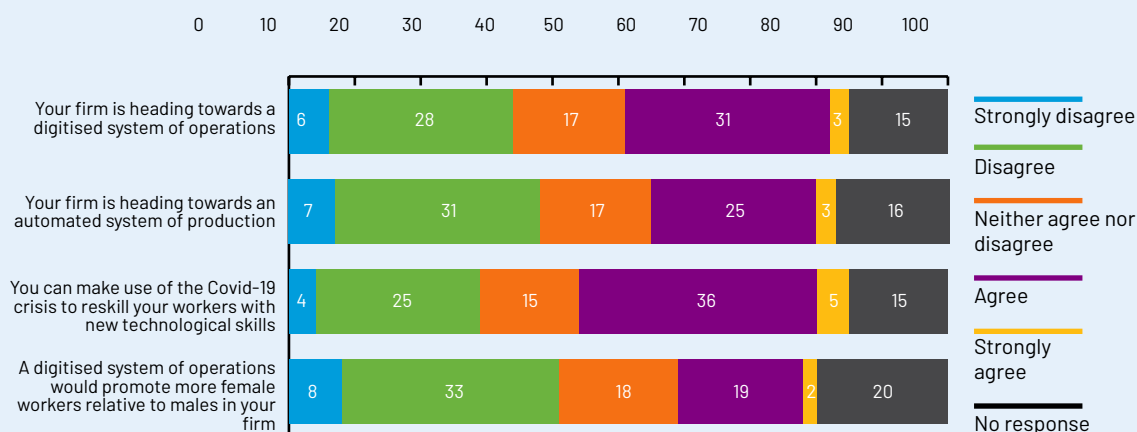
Technology and the business climate, and the demand for women workers

Figure 3.11 shows that ICT technologies related to the 3rd Industrial Revolution such as **mobile devices and applications, marketing platforms, social media, and digital payments are used in at least 60 percent of firms in the sample, which is still rather low for an emerging economy such as Sri Lanka's**. An even lower proportion of firms (less than 20 percent) currently use technologies from the 4th Industrial Revolution, such as robotics, artificial intelligence, and 3D printing. In fact, in terms of technology readiness, Sri Lanka ranks in the lower-middle score group against Singapore and Malaysia, who are placed in a higher score

group, with India and Vietnam placed in the upper-middle score group (UNCTAD, 2020). Thus, while the digital ecosystem in Southeast Asia is rapidly evolving, especially in the use of social media strategies such as big data, artificial intelligence, and multi-functional messaging apps, the rate at which Sri Lankan businesses have taken up these technologies is disappointing. It is likely to negatively impact their competitiveness and growth prospects in the years to come. However, this is the case with most developing countries where the use of technology in consumption (e.g. platform apps, social media) is much more advanced than in production (e.g. automation).

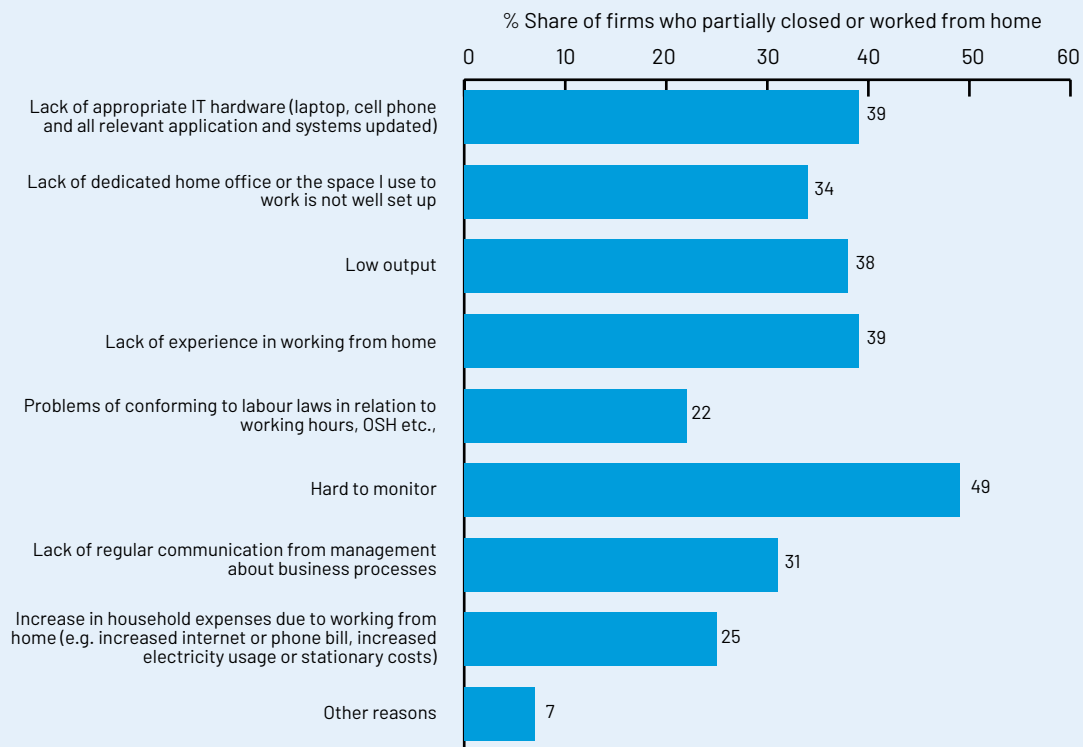
Nevertheless, **most employers generally did not believe that their firms would digitise or automate systems soon** (Figure 3.12). Only 35 percent of employers agreed that their firms were heading towards a digitised system of operations, while only 28 percent agreed that their firms were moving towards an automated system of production. **Only a fifth believed that digitisation would provide job opportunities for women in their firms, although 40 percent believed that the pandemic could be used to reskill workers and introduce new technologies**. These results suggest that most Sri Lankan employers are not aware of how advanced technologies can impact production and that their ignorance may cause them to miss opportunities

Figure 3.12: Employers' perceptions about the impact of advanced technologies in Sri Lanka's formal manufacturing and services subsectors 2019



Source: UN Women Survey on Factors Influencing the Demand for Women Workers 2020.

Figure 3.13: Challenges that firms faced working from home, 2020



Source: UN Women Survey on Factors Influencing the Demand for Women Workers 2020.

in upgrading their production processes and remaining competitive.

While COVID-19 had negatively impacted an overwhelming 90 percent of firms in the sample, 34 percent of the impacted had completely closed operations during the lockdown, 58 percent had partially closed, and a further 9 percent had resorted to working from home. Figure 3.13 shows the challenges that 237 firms faced when implementing work from home (WFH) practices. **Half the firms found it difficult to monitor WFH. More than a third of such firms were constrained by employees' limited access to IT related systems, infrastructure, and workspaces at home, and did not have access to the necessary infrastructure as two-fifths of firms and employees struggled with low output and lack of experience WFH.**

While the data from our sample does not allow us to see the gendered impacts of WFH, other studies suggest that Sri Lankan women working remotely, almost invariably from the educated,

urban middle classes, are likely to have fared better than comparators in more advanced economies. Meegaswatte (2021) found that by and large, Sri Lankan women were able to devote enough time to professional work despite the burdens of domestic labour largely thanks to support structures available to women in the traditional South Asian home.

A study of the impact of COVID-19 on employment in 15 large private sector firms by the International Finance Corporation in partnership with Australian Aid (2020b) found that although women were almost twice as likely as men to report that household or care responsibilities affected their productivity, they reported an increased level of productivity during this period as compared to men. This was despite household responsibilities and additional hours of work. The report suggests that WFH has allowed more women to manage paid and unpaid work better. Nevertheless, Meegaswatte (2021) found the lack of a designated space for working from home and pressure on IT resources when the spouse was also working

remotely as constraints. The IFC's (2020b) report also found that while women employees were more likely to have worked additional hours, remote working, a change in job role or to have been re-allocated to a different business unit or work location, they had also had more difficulty meeting increased electricity and other utility bills that working from home involved.

These findings point to the digital divide as a major constraint on the business sector in deriving benefits from digitisation which echo the findings of other researchers. For example, Gibbs, Mengel and Siemroth (2021) found that productivity among IT professionals fell by a fifth when working from home during the COVID-19 pandemic even though total hours worked increased by roughly a third. The substantial increase in communication and coordination costs during WFH was an important reason for the decline in productivity. The authors also found that employees with children living at home worked longer hours than those without children at home, and that their productivity declined even more steeply. With respect to the possibility of a gendered impact of the pandemic because of the digital divide, only digitally literate persons were able to work from home during the pandemic, and these proportions were relatively equal between the genders in Sri Lanka. For example, 33 percent of males and 29 percent of females were computer literate whereas 50 percent of males and 43 percent of females were digitally literate in Sri Lanka in 2017 (DCS, 2019).

3.6 EMPLOYMENT OF WOMEN WITH DISABILITIES

People with disabilities are less likely to be employed and the situation for women with disabilities is much worse as they experience multiple disadvantages on account of both their gender and disability. Women with disabilities are less likely to be employed than men with disabilities in all regions of the world, but while the gap is narrowest in Europe (6 percent), it is highest in Central and Southern Asia, where 44 percent of men with disabilities are employed compared with

only 18 percent of females (UN 2019). This is mainly due to their limited access to education which is a significant factor when entering the labour market. Consequently, women with disabilities are more likely to be engaging in unpaid work than women without disabilities, suggesting that unpaid work may be the only option available to them in the household.

However, even in advanced economies, the relative disadvantages that disabled women face in employment are considerable. For example, Kim et al. (2020) found that in the UK, women with disabilities were significantly less likely to be supervisors than men with disabilities and felt more limited in the type or amount of paid work they could do than women without disabilities.

Sri Lanka's disability prevalence rate in 2012 during the last Population Census was 12.9 percent, and significantly higher among females than males in all age groups (DCS, 2012). For example, in 2012, 77 men out of every 1,000 had either mental or physical disabilities, while the equivalent rate for women was 95. Only 15 percent of Sri Lankan women with disabilities was employed in 2001 (UN Women, 2019). Thus, a sizable proportion of Sri Lankan women with disabilities face multiple barriers in accessing paid work. Worldwide, COVID-19 has exposed and exacerbated existing gender gaps in employment and has impacted marginalised groups, including women with disabilities the worst. There is yet little information about its impact on women with disabilities in Sri Lanka, but the primary survey conducted for the purpose of this study collected information about the employment of women with disabilities from the establishments in the sample which should help craft appropriate policies and programmes to mitigate the impact of the pandemic on this marginalised group.

Data from the primary survey reveals that **only 20 out of 567 firms surveyed (roughly four percent of firms in the sample) employed women with disabilities in 2020**. This figure varies from 2 percent of firms in the trade and services sectors to 11 percent in manufacturing. The low rate of

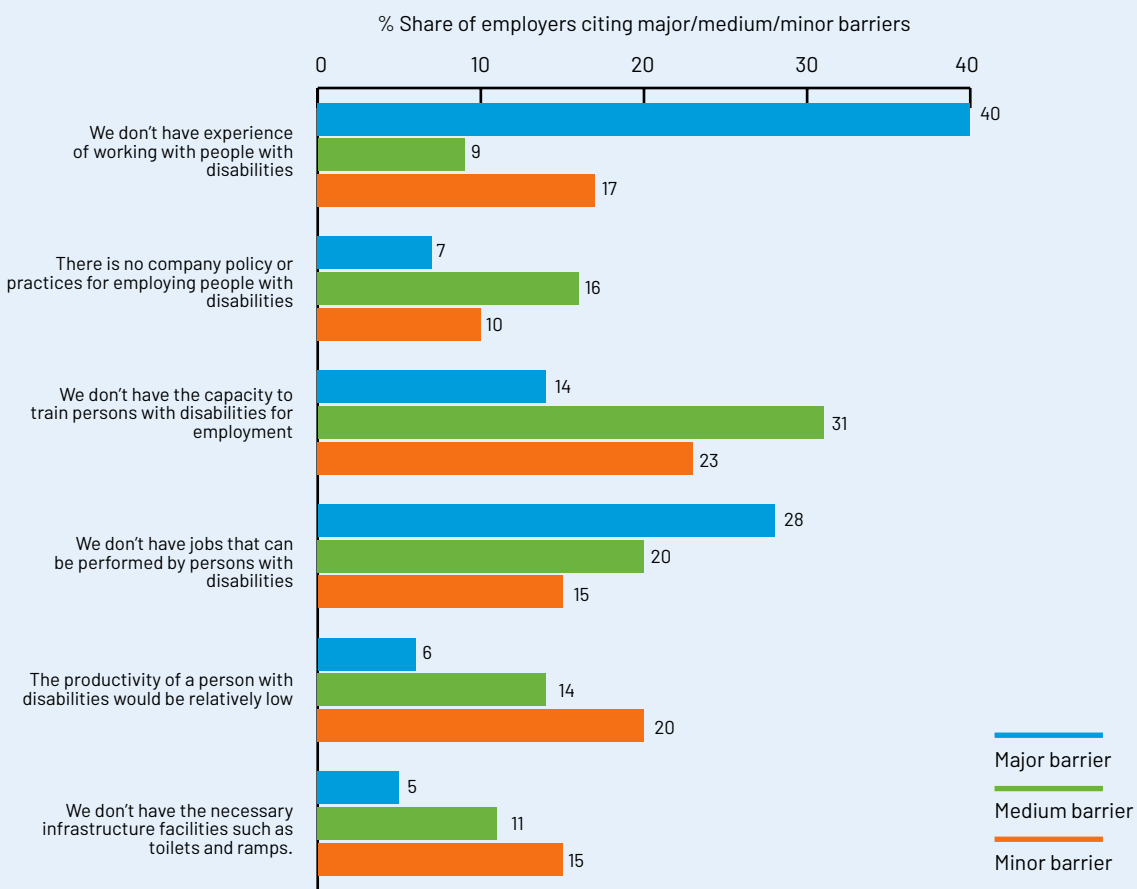
employment of disabled women in industry, trade and services sectors may in part be due to the impact of COVID-19. **The data suggests that small-scale enterprises may be more likely to employ disabled women:** while 10 of the small-scale firms in the sample employed women with disabilities, only 4 medium-scale firms and 6 large firms did the same. This may be due to smaller firms using family labour and the labour of female family members with disabilities. It could also be due to the small scale of operations of these businesses which use simple and more labour-intensive technology.

Since small-scale establishments account for a large share of establishments in industry and services sectors (for example, the Economic Census of 2013/14 found that micro- and small-scale establishments account for 44 percent and 67 percent of employment in the industry and service sectors), the primary data collected by the

present study suggests that these sectors may offer more employment opportunities for women with disabilities. Three-fourths of firms employing disabled women were in the manufacturing sector. 12 of the 20 the firms employing disabled women employed them in low skilled occupations. 9 employed them in medium-skilled occupations and only 1 firm employed disabled women in high-skilled occupations.

The international empirical literature suggests that employers' attitudes contribute significantly to the successful employment of people with disabilities (for example, see Song Ju et. al., 2013, Vornholt et. al., 2018 and Strindlund et. al., 2019). Employers have been found to be in favour of recruiting people with disabilities if they had previous experience doing so as they become strongly committed and develop good working relationships with them.

Figure 3.14: Major, medium, and minor firm-level barriers to the employment of persons with disabilities, 2020



Source: UN Women Survey on Factors Influencing the Demand for Women Workers 2020. The numbers in parentheses in the legend are the number of firms which responded to the question about the three types of barriers.

The primary survey canvassed the attitudes of employers towards the employment of disabled women through two questions. First, whether they found it difficult to employ people with disabilities; and second, by asking employers to rank the barriers they faced when employing people with disabilities.

According to the data from the survey, **half of all employers said that they found it difficult to employ people with disabilities.** This finding is of serious concern as there have been many efforts over the last decade by the government and other stakeholders to promote inclusive employment, and this reflects that a lot more needs to be done to change the attitudes of employers on employing people with disabilities. Only a third of all employers said that they do not find it difficult to employ people with disabilities, and of these employers, half belonged to large-scale enterprises. While these positive responses of large firms are to be welcomed, as they are usually in a better position to provide better work environment for disabled persons, very few of them do so, as discussed above. Meanwhile, a third of medium-scale establishments in the services sector and small-scale establishments in the manufacturing sector appear willing to absorb people with disabilities to their workforce, but most firms said that they faced many challenges that prevented them from doing so. The data from the primary survey about the barriers at firm-level to the employment of disabled persons is summarised and presented in Figure 3.14.

As the figure shows, **lack of experience in working with disabled individuals was the major barrier faced by two-fifths of the 253 firms** who responded to this question. Not having jobs which disabled persons could be hired for was the second most significant barrier cited (28 percent of those who cited major barriers). **Among the medium barriers, not having the capacity to train people with disabilities was the most cited, at 31 percent of all respondents** who answered the question about the middle-level barriers they faced. This reason was cited as a major barrier by 14 percent of employers who responded to the question on major barriers and as a minor barrier by 23 percent of those respondents who answered the question

about minor barriers. This can also be viewed as a positive response by employers and suggests possible areas of support and other interventions that may encourage employers to hire persons with disabilities. It is also related to the barrier of lack of experience in working with persons with disabilities. In contrast, **relatively few employers cited the lack of necessary infrastructure and facilities such as toilets and ramps as barriers to employing persons with disabilities.**

This evidence suggests that employers may be receptive to employing people with disabilities and that building up their 'disability confidence' through appropriate interventions may pay dividends in terms of increasing job opportunities for such people. Only a small minority of employers cited the relatively low productivity of disabled persons as any sort of barrier to the employment of disabled persons. This contrasts with the international experience where employers' concerns about the low productivity of people with disabilities have impeded the hiring of disabled persons (see Strindlund et al. 2019 for a review of the literature).

These findings about the employability of persons with disabilities drawn from the survey of establishments conducted for the purpose of this study are in line with those of other studies that have emphasised the importance of policymakers and stakeholders collaborating with employers in such a way that employers are convinced through their own experience that employees with disabilities can contribute positively to a firm's business operations (Strindlund et al., 2019). Further, an understanding of how employers' perceptions on the employability of persons with disabilities can vary, makes it possible for policymakers, non-government organisations, donor agencies, and others interested in promoting inclusive employment to tailor employer-oriented support for confidence-building interventions and partnerships. Such measures can enhance employers' conviction in people with disabilities, which in turn may enable employers to view people with disabilities as an important segment of society that needs to be given special attention to ensure their inclusion in the labour market.

3.7 SUMMARY

This chapter covered a lot of ground describing the data used for the analysis, explaining the methods applied, and drawing from the data to present a descriptive overview of the issues related to the relative demand for women workers that are subjected to econometric analyses in the chapters to follow.

The study used secondary data from the Department of Census and Statistics' Economic Census of 2013 and the Annual Survey of Industry of 2006 and 2016 to develop the core model of the demand for women's labour in Sri Lanka's trade and services and manufacturing sectors using the microeconomic theory of the firm. Thereafter, it validated the core model and extended it using data from a representative sample of private formal firms surveyed for the purpose of the study in 2020. The extensions to the model investigated how perceptions of employers about hiring women, the application of advanced technologies and employers' perceptions about the business environment influence the demand for women's labour.

The extensive descriptive overview of the two sources of data provided in this chapter highlighted salient characteristics of the data and the issues that this study sought to investigate. For example, the secondary data used for the analysis confirmed the gender-wise segregation of workers across industrial sectors in Sri Lanka's formal manufacturing and services sectors and that women's employment in manufacturing is highly concentrated in unskilled occupations, but less so in the trade and services sectors. These findings are further validated by primary data from firms accounting for a little less than half a million workers, of whom almost exactly a third were women. Unskilled women accounted for two-thirds of all unskilled workers.

The pandemic and associated economic crises saw the decline of total female employment in the sample of firms surveyed, by nearly two percent between 2019 and 2020 as medium-skilled workers mainly in the hospitality sector lost jobs with the collapse of

tourism and the shutdown of restaurants. However, the decline in total employment appears to have been mitigated by the rise in unskilled female employment by nearly a fifth, driven mainly by the expansion of job opportunities for unskilled females in the food and beverages and hospitality sectors. Male employment in the sample of firms surveyed declined by slightly less than one percent. The gender and sector-wise changes in employment are likely to have been driven by how the lockdown and restrictions in mobility impacted sectors and operations within the subsectors; for example, while restaurants were closed, operations related to the delivery of prepared food were permitted and increased.

Employers' perceptions about hiring women were informative and interesting. While nearly half of them said that it was 'easy' or 'very easy' to employ women workers, only 28 percent said that it was 'difficult' or 'very difficult'. Meanwhile, two-thirds of employers said that they would like to employ more women in the future. Most employers cited the following as the main reasons why they would not like to hire women: family responsibilities increasing absenteeism among women workers; it being illegal to get women to work in the night in shops and offices; poor public transport; staff turnover being higher among women than among men; and conventional perceptions that women take offence easily and quarrel amongst themselves.

In contrast, only 20 percent of employers agreed that women lacked the skills necessary for the work done by their companies. Among the reasons why employers liked to hire women, the most important appeared to be their perceptions that women had more appropriate skills for the work of their companies than did men, that women were more loyal and that they were more honest.

Regarding skills, the primary data revealed that the skills of the large number of low-skilled women employed by these firms appear to be adequate for the tasks they are required to do, and the skills of women in higher skilled occupations were largely satisfactory. By contrast, skills deficits appear to be most acute among female employees in medium-

skilled occupations. These workers appear to be the least competent in English language skills with half the respondents rating them as having only basic or intermediate skills. Capacity to learn and problem solving also score poorly.

On the question of whether women employees tended to leave after marriage, the primary data from establishments suggests that once employed, a substantial proportion of women do remain employed after marriage and even want to return if they had left. Thus, retaining women employees who get married and supporting the return to work of those who leave after marriage, is yet another area needing supportive policy interventions such as affordable childcare facilities and opportunities for retraining and reskilling.

The primary survey also collected information about the employment of women with disabilities in the firms surveyed. Only 20 firms in the sample employed women with disabilities in 2020; 10 of them were small scale enterprises; 4 medium scale firms; and, 6 large firms. A little more than half of the firms employing such women employed them in low-skilled occupations. Half of all employers said that they found it difficult to employ people with disabilities. Only a third of all employers said that they do not find it difficult to employ people with disabilities, and of these employers, half operated large-scale enterprises. While the positive approach of large firms is to be welcomed as they are usually in a better position to provide a suitable work environment for persons with disabilities, very few of them do, as revealed by the data. Lack of experience in working with individuals with disabilities was the major barrier faced by two-fifths of a little less than half the sample who responded to this question. Not having jobs which such persons could be hired for was the second most cited major barrier, by slightly more than a quarter who cited major barriers. Among the medium barriers, not having the capacity to train people with disabilities was the most cited, at almost a third of all respondents who answered the question about the middle-level barriers they faced. This was cited as a major barrier by 14 percent of employers who responded

to the question on major barriers and as a minor barrier by 23 percent of those respondents who answered the question about minor barriers. This clearly indicates the area of support and other interventions needed to provide employment for persons with disabilities which is also related to lack of experience in working with such persons. In contrast, relatively few employers cited the lack of necessary infrastructure and facilities such as toilets and ramps as barriers to employing persons with disabilities. These findings suggest that employers are receptive to employing people with disabilities and that confidence building measures may help increase job opportunities for such people.

CHAPTER

4



THE DEMAND
FOR WOMEN
WORKERS:
SECONDARY
DATA ANALYSIS

CHAPTER 4

THE DEMAND FOR WOMEN WORKERS: SECONDARY DATA ANALYSIS

4.1 INTRODUCTION

In this chapter we identify the key determinants of the demand for female workers in Sri Lanka's manufacturing, trade and services sectors using the model set out as equation (2) in Chapter 2. Different specifications of the model were estimated depending on the availability of the data (ASI 2006 and 2016 and the Economic Census of 2013), but in essence, the models include core variables of the theory of the firm plus others capturing the influence of firm and industry characteristics, local labour-market features, and institutional constraints. The dependent variable is the share of female employment in total employment in the manufacturing and trade and services sectors. Additionally, we look at the determinants of relative demand for skilled women workers and unskilled women workers in these two major sectors. This is so that we can compare the relative significance of factors associated with the relative demand for the two skill-based categories of women workers and obtain some insights about the substitutability between male and female workers in these skill groups.

Methodologically, our model specification is innovative given the richness of the available data and attempts to capture the influence of a range of firm-level and industry-specific factors on the demand for skilled and unskilled female workers by major industry categories, as well as at the level of key subsectors. It also captures the influence of perceptions of institutional constraints on the demand for women workers in the trade and

services sector. The results of our methodological strategy presented and discussed below are in line with the predictions of the theory of the firm and the associated empirical literature. They confirm the influence of firm and industry-specific factors in the demand for female workers in the two sectors.

The chapter is structured as follows. Section 4.2 of this chapter reports and discusses the results of the estimations of the models of the relative demand for women workers in the two major sectors. In contrast, the analysis in Section 4.3 zooms in on the relative demand for skilled and unskilled women workers in key subsectors of the major sectors, i.e., food and beverages, textiles and garments, rubber and plastics, chemicals, and other manufacturing subsectors, as well as the trade, finance, banking, insurance and real estate, hospitality, education, health and social services, and other sectors in the trade and services major sector. The final section summarises the main findings of the analysis using secondary data.

4.2 ANALYSIS BY MAJOR SECTOR

The results of the estimation of models based on a Cobb-Douglas type production function for the two major sectors are reported in Table 4.1 below in column 4 (manufacturing 2006), column 5 (manufacturing 2016) and column 6 (trade and services 2013). These results are preceded by 3 columns setting out the means of the variables included in each specification with the standard deviations underneath. We also estimated the relative demand for women workers by 2 skill categories for further insights. Accordingly, skilled workers included all those in the occupation categories of managerial, technical, and clerical workers while unskilled workers included all other workers. Table 4.2 presents the results of the estimation of demand by skill level. The R-squared statistics for the results of the estimations shows that the explanatory power of the models improve significantly when the demand for women's labour is modelled by skilled and unskilled worker categories.

We begin by examining the influence of core variables on the demand for women workers as predicted by the theory of the firm. As the results in Table 4.1 show, the evidence about how labour productivity and capital intensity influence the relative demand for female labour is mixed. Theoretically, the demand for labour is a function of labour productivity and hence a positive relationship between employment and productivity can be expected. But the results for the manufacturing sector (both years) reveal that the relationship between labour productivity and the relative demand for female workers is negative and significant for both years (the coefficient is much larger in 2006). This means that as productivity rises, the demand for women workers relative to male workers declines. The negative and statistically significant influence of labour productivity on the demand for women workers in manufacturing is in line with Bulmer's (2020) findings based on ASI 2007 and 2015 data which

she explains as deriving from the concentration of female workers in low-skilled occupations and low-productivity sectors in Sri Lanka's manufacturing. In fact, productivity in manufacturing is relatively low compared to other subsectors in Sri Lanka's economy, and was lower than the national average by 4 percent and 7 percent in 2016 and 2019, respectively.¹⁰ Even by international standards, labour productivity in Sri Lankan manufacturing is low, accounting for only one-fourth of productivity levels in Malaysian manufacturing in 2016.¹¹ In contrast, the coefficient is positive in the specification for the trade and services sector, though not significant.

The coefficient for capital intensity reported in Table 4.1 does not suggest any complementarity between capital and the relative demand for female workers: although positive in manufacturing, it was significant only in 2006, whereas in the trade and services sector, it is negative but not significant. There could be two reasons for this. First, the data available in the ASI databases on fixed capital may not accurately capture the true value of capital (e.g., plant and machinery) employed in manufacturing at the data collection stage due to enumerators lacking the necessary skills and experience in valuation, a highly skilled discipline usually requiring four years of university training. Secondly, the influence of investment in modern technology such as the hardware and software used in information and communication-related operations, may also not be captured accurately in both major sectors due to incomplete information. This problem has been long recognised in the literature. For example, Hamermesh (1993) in his seminal work argued for the use of appropriate measures of capital to examine complementarity/substitution between capital and labour. This challenge has only grown with the application of modern technological developments in production and distribution systems, needing more meaningful disaggregation of capital and labour inputs to establish better representation of these characteristics when estimating the demand for labour.

10. Estimates by the authors based on CBSL (2020b).

11. Estimates by the authors based on statistics published by the Department of Statistics, Malaysia (2016).

Table 4.1: Factors associated with the relative demand for women workers in Sri Lanka's formal manufacturing and services sectors, 2006, 2013, 2016: Results of OLS estimation

Dependent variable	Means			Coefficients		
	Manufacturing 2006 (1)	Manufacturing 2016 (2)	Trade and services 2013 (3)	Manufacturing 2006 (4)	Manufacturing 2016 (5)	Trade and services 2013 (6)
				Share of women in total employment	Share of women in total employment	Share of women in total employment
Firm-specific variables						
Labour productivity (Rs. million)	0.01 (0.04)	3.04 (9.67)	2.92 (8.81)	-0.3883* (0.2332)	-0.0030** (0.0013)	0.0001 (0.0012)
Capital intensity (Rs. 000)	12.50 (139.03)	28.09 (313.04)	8.13 (13.35)	0.0001*** (0.0000)	0.0000 (0.0000)	-0.0013 (0.0010)
Average cost per unit of labour (Rs.)	35294.18 (32431.15)	242210.61 (166743.83)	447932.86 (917623.74)	-0.0000*** (0.0000)	-0.0000*** (0.0000)	-0.0000 (0.0000)
Share of technical workers in total employment	0.02 (0.05)	0.03 (0.07)	0.18 (0.27)	0.5039** (0.2233)	0.2016 (0.1627)	-0.2226 (0.1693)
Share of clerical workers in total employment	0.03 (0.06)	0.04 (0.08)	0.23 (0.28)	0.0008 (0.1957)	0.2657 (0.1856)	-0.0832 (0.1980)
Share of low-skilled workers in total employment	0.91 (0.13)	0.88 (0.15)	0.45 (0.37)	0.4373*** (0.1499)	0.2478** (0.1189)	-0.1446 (0.1764)
Share of working proprietors in total employment	0.06 (0.10)	0.08 (0.15)	0.09 (0.19)	-0.5284*** (0.1580)	-0.0825 (0.0603)	0.0982 (0.1028)
At least one female working proprietor	0.09 (0.29)	0.14 (0.35)	0.25 (0.43)	0.1633*** (0.0477)	0.2387*** (0.0380)	0.1158*** (0.0382)
Sole ownership	0.61 (0.49)	0.55 (0.50)		-0.0569** (0.0267)	0.0492* (0.0291)	
Multi-plant operations	0.20 (0.40)	0.14 (0.35)	0.40 (0.49)	0.0698** (0.0277)	0.0602** (0.0304)	-0.0270 (0.0468)
Small firm	0.41 (0.49)	0.33 (0.47)	0.49 (0.50)	0.0211 (0.0330)	0.0354 (0.0250)	-0.0746 (0.0545)
Medium-sized firm	0.13 (0.34)	0.21 (0.41)	0.21 (0.41)	0.0677* (0.0394)	0.0936*** (0.0352)	0.0091 (0.0564)
Firm invests in R&D		0.27 (0.44)	0.10 (0.30)		0.0596 (0.0413)	-0.0482 (0.0390)
Subsector						
Food and beverages/Trade	0.19 (0.39)	0.32 (0.47)	0.23 (0.42)	0.0600 (0.0390)	0.2595*** (0.0534)	-0.0782 (0.0520)
Textiles and garments/Finance, banking, insurance and real estate	0.21 (0.41)	0.18 (0.38)	0.16 (0.37)	0.3624*** (0.0305)	0.4143*** (0.0399)	0.2036** (0.0882)
Rubber and plastics/Hospitality	0.04 (0.21)	0.04 (0.20)	0.10 (0.30)	0.1229* (0.0684)	0.3723*** (0.0778)	0.0471 (0.1396)

Table 4.1: Factors associated with the relative demand for women workers in Sri Lanka's formal manufacturing and services sectors, 2006, 2013, 2016: Results of OLS estimation [continued]

Dependent variable	Means			Coefficients		
	Manufacturing 2006 (1)	Manufacturing 2016 (2)	Trade and services 2013 (3)	Manufacturing 2006 (4)	Manufacturing 2016 (5)	Trade and services 2013 (6)
				Share of women in total employment	Share of women in total employment	Share of women in total employment
Chemicals/ Education, health and social services	0.04 (0.19)	0.04 (0.20)	0.14 (0.35)	0.1770*** (0.0648)	0.0728 (0.0820)	0.3146*** (0.0494)
Local market variables						
Gender-based skilled wage ratio	0.91 (0.12)	0.91 (0.06)	0.95 (0.07)	-0.2127 (0.1419)	-0.7855*** (0.2391)	-1.0474* (0.6264)
Gender-based unskilled wage ratio	0.64 (0.10)	0.60 (0.14)	0.74 (0.10)	0.2058 (0.1813)	0.1333 (0.1548)	0.3794* (0.2046)
Rural sector			0.29 (0.46)			0.0084 (0.0433)
Western Province	0.30 (0.46)	0.24 (0.43)	0.61 (0.49)	-0.0351 (0.0333)	0.0249 (0.0343)	-0.0880* (0.0529)
Institutional constraints						
Lack of trained labour			2.31 (1.43)			0.0234 (0.0155)
Lack of IT skills			1.84 (1.23)			-0.0095 (0.0233)
Lack of clients and markets			2.36 (1.48)			0.0120 (0.0137)
Lack of finance			2.34 (1.45)			0.0108 (0.0157)
Government policies			2.24 (1.47)			-0.0382** (0.0185)
Constant				-0.0139 (0.2098)	0.5049** (0.2455)	1.1942** (0.5892)
R-squared				0.3551	0.5365	0.2876
Number of observations	768	1483	1234	768	1483	1234

Source: Estimated with microdata from the Department of Census and Statistics' Economic Census 2013 and Annual Survey of Industries 2006 and 2016, using sample weights. Results for manufacturing 2006 do not include the Northern and Eastern Provinces due to data constraints. Gender-based skilled and unskilled wage ratios generated using microdata from the Department of Census and Statistics' Labour Force Surveys of 2006, 2013 and 2016

Notes: Standard deviations are in parentheses below the means and standard errors are in parenthesis below the coefficients. Means and standard deviations of the dependent variable for each specification are: Share of females in total employment 0.37 (0.32), 0.39 (0.31), and 0.34 (0.28). Labour productivity, capital intensity and unit labour costs for 2006 and 2013 have been expressed in 2016 prices using the Colombo Consumer's Price index(2006=100). The reference categories are, Share of managers in total employment, Large firm, Other subsectors, Urban sector, and Non-Western Provinces. ***, **, and * denote statistical significance at the one percent, five percent and ten percent levels, respectively.

The influence of average wages or the firm's unit cost of labour on the demand for female labour is negative and significant in the specifications related to the manufacturing sector, and just negative in the specification related to the trade and services sector. This implies that as unit wage-costs rise, firms prefer to employ men, all other things equal. However, the specification also included 2 variables representing gender-wage differentials for skilled and unskilled labour prevailing in the local market in terms of geographic region, industrial subsector, and firm size. These results show that the gender-based wage ratio for skilled workers is negative, and significant in the manufacturing and the trade and services sectors. In contrast, the coefficients for the gender-based wage ratios for unskilled workers are positive in both sectors, although significant only for the trade and services sector. The first of these results thus implies that as the wages of skilled females rise relative to those of males, the demand for women workers declines in the two major sectors. The second of these implies that even though the wages that firms need to pay to hire unskilled women rise relative to the wages of unskilled men, the demand for women workers rises.

Estimating the demand for women workers by skill category confirms these relationships (Table 4.2). It can be seen that the negative relationship between unit labour costs and the demand workers hold for both skilled and unskilled women: significantly in the case of manufacturing, even though not significantly in the case of trade and services. To further check for the robustness of the relationship between average wages and the demand for female workers, we estimated the same specification, although with the share of skilled female workers in total employment (total female skilled workers/total employment) as the dependent variable. The results for both sectors (not reported here due to space constraints) confirms the negative relation between average wages and the demand for female workers. The relationships between skill-related gender wage ratios and the relative demand for skilled and unskilled women workers are also in line with

these findings: the skilled gender wage ratio is negatively (and significantly for manufacturing in 2016) associated with the relative demand for skilled and unskilled women workers, suggesting substitution of males for females. Meanwhile, the unskilled gender wage ratio is positively associated with the relative demand for both skilled and unskilled women workers. The coefficient is positive and significant in the demand function for skilled women in the manufacturing sector in 2006, suggesting that as unskilled women workers' wages in the local labour-market rise relative to men's, firms proportionately demand more unskilled women workers. Hence, there may be some substitution effect between skilled and unskilled women. The coefficient is also positive and significant in the demand function for unskilled women in the trade and services sector.

These results could derive from the relative inelasticity of the demand for women workers in large sectors dominated by women in low-skilled occupations and the fact that women generally earn far less than men do for the same work. For example, ADB (2018) shows that women earn one-half to two thirds of what men earn for the same work in many countries in Asia, while wages tend to vary systematically with the gender composition of occupations.

Table 4.2: Factors associated with the relative demand for skilled and unskilled women workers in Sri Lanka's formal manufacturing and services sectors, 2006, 2013, 2016: Results of OLS estimation

Dependent variable	Manufacturing 2006		Manufacturing 2016		Trade and services 2013	
	Share of skilled women in total skilled employment	Share of unskilled women in total unskilled employment	Share of skilled women in total skilled employment	Share of unskilled women in total unskilled employment	Share of skilled women in total skilled employment	Share of unskilled women in total unskilled employment
	(1)	(2)	(3)	(4)	(5)	(6)
Firm-specific variables						
Labour productivity (Rs. million)	-0.3639* (0.2166)	-0.4909* (0.2617)	-0.0011 (0.0016)	-0.0031** (0.0014)	-0.0002 (0.0016)	-0.0007 (0.0009)
Capital intensity (Rs. 000)	-0.0000 (0.0000)	0.0001*** (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	-0.0003 (0.0015)	-0.0012 (0.0007)
Average cost per unit of labour (Rs.)	-0.0000** (0.0000)	-0.0000*** (0.0000)	-0.0000** (0.0000)	-0.0000** (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)
Share of technical workers in total employment	-0.1542 (0.4064)	0.7996*** (0.2531)	-0.3470* (0.1919)	0.5132** (0.2172)	-0.1924 (0.1663)	-0.0185 (0.0617)
Share of clerical workers in total employment	0.6212* (0.3613)	-0.1664 (0.2033)	0.7232*** (0.2424)	0.1461 (0.2050)	-0.0495 (0.1945)	-0.0756 (0.0622)
Share of low-skilled workers in total employment	-0.2854 (0.2186)	0.5618*** (0.1579)	-0.3229** (0.1385)	0.3710*** (0.1388)	-0.2644 (0.1656)	0.1908*** (0.0642)
Share of working proprietors in total employment	-0.2514*** (0.0799)	-0.5546*** (0.1610)	-0.0586 (0.0614)	-0.0840 (0.0599)	-0.1512 (0.1054)	0.0978 (0.0931)
At least one female working proprietor	0.0386 (0.0354)	0.1665*** (0.0500)	0.0099 (0.0354)	0.2418*** (0.0391)	0.0309 (0.0449)	0.2259*** (0.0329)
Sole ownership	-0.0678** (0.0292)	-0.0563** (0.0279)	-0.0568 (0.0362)	0.0492 (0.0316)		
Multi-plant operations	0.0059 (0.0283)	0.0648** (0.0294)	-0.0342 (0.0299)	0.0613** (0.0307)	-0.0181 (0.0479)	0.0113 (0.0312)
Small firm	0.0254 (0.0254)	0.0173 (0.0343)	-0.0238 (0.0430)	0.0404 (0.0259)	-0.0254 (0.0519)	0.0150 (0.0420)
Medium-sized firm	0.0322 (0.0357)	0.0848** (0.0424)	-0.0014 (0.0455)	0.1425*** (0.0390)	0.0142 (0.0621)	0.0890* (0.0465)
Firm invests in R&D			0.0808* (0.0433)	0.0652 (0.0430)	-0.0036 (0.0433)	-0.0430 (0.0403)
Subsector						
Food and beverages/trade	-0.0845*** (0.0283)	0.0750* (0.0407)	0.0961 (0.0626)	0.2958*** (0.0545)	-0.0528 (0.0542)	-0.0419 (0.0360)
Textiles and garments/finance, banking, insurance and real estate	0.0782*** (0.0245)	0.3782*** (0.0318)	0.0816* (0.0456)	0.4366*** (0.0416)	0.1215 (0.0898)	0.1249** (0.0487)
Rubber and plastics/hospitality	0.1067* (0.0644)	0.1382* (0.0707)	0.2392* (0.1224)	0.4057*** (0.0847)	-0.0458 (0.1479)	-0.0058 (0.1232)

Table 4.2: Factors associated with the relative demand for skilled and unskilled women workers in Sri Lanka's formal manufacturing and services sectors, 2006, 2013, 2016: Results of OLS estimation [continued]

Dependent variable	Manufacturing 2006		Manufacturing 2016		Trade and services 2013	
	Share of skilled women in total skilled employment	Share of unskilled women in total unskilled employment	Share of skilled women in total skilled employment	Share of unskilled women in total unskilled employment	Share of skilled women in total skilled employment	Share of unskilled women in total unskilled employment
	(1)	(2)	(3)	(4)	(5)	(6)
Chemicals/ education, health and social services	0.1177** (0.0493)	0.1983*** (0.0697)	0.0657 (0.0677)	0.0867 (0.0815)	0.1534*** (0.0537)	0.3046*** (0.0450)
Local market variables						
Gender-based skilled wage ratio	-0.2123 (0.1341)	-0.2299 (0.1512)	-0.7546*** (0.2166)	-0.6522*** (0.2509)	-0.2763 (0.6892)	-0.7462 (0.5528)
Gender-based unskilled wage ratio	0.5957*** (0.1608)	0.2556 (0.1883)	0.2993 (0.1966)	0.1832 (0.1593)	0.1362 (0.2625)	0.3610* (0.1967)
Rural sector					0.0409 (0.0473)	-0.0584* (0.0308)
Western Province	0.0172 (0.0305)	-0.0450 (0.0354)	-0.0059 (0.0265)	0.0236 (0.0351)	-0.0674 (0.0567)	-0.0423 (0.0400)
Institutional constraints						
Lack of trained labour					0.0064 (0.0192)	0.0157 (0.0128)
Lack of IT skills					0.0001 (0.0277)	-0.0153 (0.0135)
Lack of clients and markets					0.0276 (0.0173)	0.0153 (0.0128)
Lack of finance					0.0004 (0.0154)	0.0053 (0.0124)
Government policies					-0.0392* (0.0222)	-0.0254** (0.0103)
Constant	0.2425 (0.2553)	-0.1485 (0.2222)	0.9246*** (0.2136)	0.2145 (0.2621)	0.6776 (0.6254)	0.5359 (0.5114)
R-squared	0.2798	0.3672	0.2552	0.5327	0.1742	0.4030
Number of observations	768	768	1483	1483	1234	1234

Source: Estimated with microdata from the Department of Census and Statistics' Economic Census 2013 and Annual Survey of Industries 2006, 2016, using sample weights. Results for manufacturing 2006 do not include the Northern and Eastern Provinces due to data constraints. Gender-based skilled and unskilled wage ratios have been generated using microdata from the Department of Census and Statistics' Labour Force Surveys of 2006, 2013 and 2016.

Notes: Standard deviations are in parentheses below the means and standard errors are in parenthesis below the coefficients. Means and standard deviations of the dependent variable for each specification are: Share of skilled women in total skilled employment 0.14 (0.25), 0.19 (0.27), and 0.33 (0.31); Share of unskilled women in total unskilled employment 0.37 (0.34), 0.40 (0.33), and 0.23 (0.30). Labour productivity, capital intensity and unit labour costs for 2006 and 2013 have been expressed in 2016 prices using the Colombo Consumer's Price index (2006=100). The reference categories are, Share of managers in total employment, Large firm, Other subsectors, Urban sector, and Non-Western Provinces. ***, **, and * denote statistical significance at the one percent, five percent and ten percent levels, respectively.

Does the structure of occupations in a firm also influence the demand for female workers? This was investigated by including three attributes of the firm's occupation structure in the specification: a) the share of technical workers in total employment; b) the share of clerical workers in total employment; and c) the share of low-skilled workers in total employment. While none of these variables were significant predictors of the relative demand for women workers in the trade and services sector, the evidence for the manufacturing sector is mixed (Table 4.1). While the relative demand for female workers rose significantly with the share of technical workers in total employment for the manufacturing sector in 2006, it was merely positive in 2016.

However, disaggregation of the demand for women workers by skill yields further insights about the relationship between the occupational structure of firms and the relative demand for women workers, just as in the case of the relationship between average unit labour costs and labour demand. The positive and significant coefficients of the share of technical workers in manufacturing for the relative demand for unskilled female workers in Table 4.2 suggest incremental demand for unskilled female workers due to complementarity effects. In contrast, as the share of technical workers in manufacturing increases, the demand for skilled female workers falls significantly in 2016, suggesting that males have an advantage in operations requiring more technical input. The positive and significant relationship between the share of clerical workers and the demand for skilled women suggests that skilled women have an employment advantage in firms requiring relatively more clerical workers. In still further contrast, the coefficients of the share of low skilled workers in both the manufacturing and trade and services sectors are positive and significant in the estimation of the demand for unskilled female workers.

Thus, in sum, the demand for women workers in more technical operations in the manufacturing sector tends to be low but those requiring more clerical inputs demand more skilled women workers. However, all operations whether in manufacturing or trade and services dominated by

low-skilled workers demand relatively more low-skilled women workers to take up those jobs. These results confirm the gender-based segregation of occupations observed around the world and in Sri Lanka (see ADB, 2015; ILO, 2016; IMF, 2017; Soloratoff et al. 2018; Das and Kotikula, 2019; and Ruppert Bulmer, 2020).

A considerable theoretical and empirical literature has accumulated about the extent of gender-based segregation of occupations and underlying reasons. The theoretical explanations have ranged from neo-classical theories about different skill preferences and skill investments of men and women (Becker 1981, Bertrand 2010 and Blau and Kahn 2017) and discrimination (Becker 1957), to institutionalist segmented labour market theories (Doeringer and Piore 1971; Reich, Gordon, and Edwards 1973).

In contrast, feminist economic theorists have highlighted the role of gendering in the supply and demand for labour in a segregated labour market and in institutions (Anker 1997). Consequently, labour markets reflect sociocultural norms regarding gendered skills and content of jobs by turning into gendered institutions (Elsion 1999). The socialisation of appropriate gender attributes for one's sex, particularly in gender roles and the division of unpaid work which shapes education and labour market decisions that are reinforced from one generation to the next. Employers are also subject to the same forces of gendered socialisation, which they often reinforce through hiring practices and hierarchies of work, consciously or unconsciously. However, the empirical literature has not yielded any clear and consistent patterns of the drivers of levels and changes in occupational and sectoral segregation (Borrowman and Klasen 2019).

The relatively underdeveloped structures of production in Sri Lanka's manufacturing, trade, and services sectors with their heavy concentrations of low-skilled workers are also likely to have helped reinforce the gender-based segregation of occupations. Modernisation of these two sectors with the application of modern technology, driven by the economic crisis of COVID-19, and the need to relocate as many operations as possible from

the workplace to home, are likely to increase the demand for female workers with the necessary skills in middle- and high-skilled occupations.

The results in Table 4.1 show that firms' demand for women workers also depend on several other firm-specific characteristics such as the scale of operations (size), ownership, location, multi-plant operations, business experience, and whether the firm invests in research and development. **The share of women in the workforce is likely to be higher for small- and medium-scale firms in both major sectors, and significantly, for medium-scale firms in the manufacturing sector.** Ruppert Bulmer (2020) also found this to be the case, using data from the Economic Census of 2013 and ASI 2007 and 2015.

Table 4.2 shows that the coefficients of the scale variables in the estimations by skill categories are positive and significant for unskilled female workers in both sectors. These findings suggest that **small- and medium-scale firms have restricted access to capital markets, compared with large-scale firms, and may tend to substitute labour for capital.** This is likely to be especially true for Sri Lanka where access to and cost of capital have been identified as major constraints affecting business development (International Finance Corporation, 2020a; Deshapriya and Maduwanthi, 2020). This evidence also confirms the well-known Marshall-Hicks' rules for factor demand elasticities which predict that firms with a relatively high share of labour tend to have higher labour elasticities, compared to firms with high capital intensity.

The coefficient of the variable multi-plant operations is positive and significant in manufacturing, and negative but not significant in the trade and services sector (Table 4.1). In terms of skill categories however, the coefficient is positive and significant for unskilled female workers in both major sectors (Table 4.2). The influence of investment in R&D is positive in manufacturing and negative in trade and services but not significant in either sector (Table 4.1). In terms of skill categories, however, the coefficient is positive and significant in manufacturing for skilled female workers suggesting that manufacturing firms investing in

R&D demand relatively more skilled women workers (Table 4.2). When added to other insights provided by the analysis, this result also suggests that if production structures in manufacturing become more technology and R&D intensive, the demand for skilled women workers is likely to expand.

The influence of the characteristics of firm ownership on the demand for female workers was examined using 3 variables: a) the share of working proprietors in total employment; b) at least 1 female working proprietor; and c) whether the firm is characterised by sole ownership. Of these 3 variables, at least 1 female working proprietor seems to be the most influential predictor of the demand for female workers in both sectors. Its coefficients are positive and significant for the total sample (Table 4.1), as well as in the specifications for unskilled female workers in manufacturing and the trade and services sectors (Table 4.2).

In addition to the gender-based skilled and unskilled wage ratios prevailing in the local market discussed above, the influence of other characteristics of the local market such as whether the firm is in the rural or estates sector as opposed to the urban sector, or in Western Province rather than in other provinces, was examined by including appropriate dummy variables in the specifications. However, the spatial variables did not produce any conclusive results pertaining to the demand for female workers in the manufacturing and trade and services sectors.

The influence of employers' perceptions of institutional constraints on the demand for female workers in the trade and services sector was tested using 5 proxy measures: a) lack of trained labour; b) lack of IT skills; c) lack of clients and markets; d) lack of finance; and, e) government policies. The negative and significant influence of government policies in the demand for female workers in trade and services, irrespective of the type of skill demanded (Table 4.2) is a key finding of the analysis. The coefficients of the other measures of institutional constraints are not significant predictors of the demand for female labour.

The industrial subsectors to which firms belong appear to be significant determinants of the firm's

demand for women workers. As Table 4.1 shows, **all four subsectors in manufacturing are positively and significantly associated with the demand for women workers.** In the trade and services sector, the demand for women workers by firms in finance, banking, insurance, and real estate is higher than the demand for them by firms in the reference category. Similar results are obtained for the education, health, and social services category. The results of the estimation of demand by skill level in Table 4.2 show that the positive and significant relationships between industrial subsector and the demand for women workers largely holds regardless of whether the demand is for skilled or unskilled women workers, especially in the manufacturing sector. The sole exceptions are food and beverages in 2006 where the relationship is negative and significant for skilled women workers and positive and significant for unskilled women workers. In the trade and services sector, the results are negative for both categories of skilled women workers, but not significant for the subsectors of trade and hospitality.

In fact, many of the features of the relative demand for women workers appears to derive from the gender-based segregation of workers in industrial subsectors and this has been remarked upon in many reviews of female employment (for example, ILO, 2016). Given the importance of industry-level characteristics determining the demand for women workers in this study, too, in the next section we further mine the data and estimate the demand for women workers by skill in manufacturing and trade and services subsectors.

4.3 ANALYSIS BY SUBSECTOR

Subsector-specific analyses can yield more detailed insights as they use information about the heterogeneity of subsectors that is lost when the data at industry level are aggregated across vertical and horizontal activities. Thus, subsector level analyses exploit the heterogeneity that industry level analyses are forced to ignore. Since the dummy variables representing subsectors emerged as significant predictors of the relative demand for female labour in the preceding analysis, we estimated the demand for skilled and unskilled women workers in each of the subsectors in the expectation that a disaggregated analysis would yield sector-specific insights that can better inform policy. The subsectors are those represented by subsector dummies in the models estimated for the manufacturing and services sectors in Section 4.2 above.

The R-squared statistics for the estimation of skilled and unskilled female labour demand by subsector set out in Table 4.3 and Table 4.4 indeed show that the subsector models have greater explanatory power compared to the models estimated by major sector. While Table 4.3 presents the results of the estimation by skills and subsectors in the manufacturing sector using data from ASI 2016, Table 4.4 sets out the results for the subsectors in the trade and services sector using data from the Economic Census of 2013. Below is Table 4.5 and Table 4.6 which present the means and standard deviations of the characteristics of the subsectors. In the following, we discuss the estimation results for the manufacturing sector, and succeeding that is the discussion of the results of the estimation for the subsectors of the trade and services sector.

Relative demand for skilled and unskilled women workers in manufacturing subsectors

Labour productivity is negatively associated with the demand for both skilled and unskilled female labour in all the manufacturing subsectors other

than in the rubber and plastics sector, where an increase in productivity is associated with an increase in the demand for skilled women workers. Capital intensity is also generally associated with an increase in demand for both skilled and unskilled women workers other than in the rubber and plastic sector where employers seem to prefer skilled men over skilled women if capital intensity is high. The coefficients for this variable for both types of female labour in the textiles and garments sector are positive and significant, suggesting that in this sector, both skilled and unskilled female labour is complementary to capital. It should be noted that the textiles and garments sector has been transformed by technological developments that have made upstream processes capital-intensive activities while downstream activities, particularly sewing, have remained labour intensive.

Firms' decisions on how to combine capital and labour are also influenced by the cost of capital, government policies related to labour market regulations, and other institutional support systems such as training and development and R&D. Meanwhile, Sri Lanka's deteriorating investment climate since the mid-1980s has seen low investment in fixed capital in the manufacturing sector (World Bank, 2019b; CBSL, 2020a). In the textiles and garments sector, this is likely to have conditioned a relatively higher demand for unskilled labour.

In line with the theory, as unit costs of labour increase, the relative demand for female workers declines in all manufacturing subsectors (significantly in the food and beverages sector and in other manufacturing) with textiles and garments and chemicals subsectors being the exceptions, but neither of these sectors see any significant positive coefficients. Of course, this variable is only partially representative of female wage costs as discussed earlier, and we were unable to include skill-based gender wage differentials in the subsector specifications because the synthetic wages were generated using industrial subsector, region, and firm-size as predictors (see Technical Appendix for further details about how these were generated).

Turning to variables denoting the occupational structure of firms, **we found that the more technician-intensive is the firm-level workforce, the less likely women are to be employed in two subsectors.** Although, while the negative coefficients are not statistically significant, coefficients are significant where they are positive. So, for example, in the rubber and plastics and chemical subsectors, a technician-intensive workforce increases the relative demand for skilled women significantly. By contrast, a technician-intensive workforce in the textiles and garments sector increases the demand for unskilled women, suggesting that they are complementary to technically-intensive production processes in the subsector. These results are reflected by the coefficients for the unskilled worker ratio in the same sector: as the share of unskilled workers in the textiles and garments sector increases, the relative demand for unskilled women rises, but the relative demand for skilled women falls significantly.

This same pattern is evident in the other manufacturing subsector category, suggesting that in firms with less technically-sophisticated production processes, employers prefer to hire men for skilled occupations and unskilled women for the large share of unskilled jobs. However, as the proportion of clerks in the workforce increases, the demand for skilled women (clerks are included in this category) rises relative to men in the rubber and plastics, chemicals, and other subcategories. A greater proportion of working proprietors in the firm's workforce is significantly associated with reduced demand for female labour but the results are significant only for skilled women in the textiles and garments and the chemicals subsectors, and for unskilled women in the rubber and plastics and the combined group of other subsectors.

Among ownership-related characteristics, the fact that firms have at least one female working proprietor is associated with increased demand for skilled and unskilled women in several subsectors. The older the firm, the lower the demand for female workers in the food and beverages subsector, but older firms have a relatively higher demand for skilled women

workers in the textiles and garments sector and for unskilled women workers in the chemicals subsector. Sole ownership is significantly associated with a greater relative demand for labour only in the chemicals sector and that too, for unskilled female labour. Apart from this, sole ownership is significantly associated with a reduced demand for skilled female labour in the food and beverages and rubber and plastic sectors, and a reduced demand for unskilled female labour only in the textiles and garments sector. Multi-plant operations make for greater relative demand for unskilled females in the textiles and garments sector, while small and medium firms generally tend to demand relatively more skilled and unskilled female workers in most of the manufacturing subsectors. But, here too, the relative demand for unskilled women is much greater, for example, 29 percent rather than 9 percent more than large firms in medium-sized firms in the food and beverages sector. Investment in R&D is associated with a relatively higher demand for skilled females in the food and beverages sector. The demand for women workers is lower in chemical firms in Western Province, and relatively higher in firms in other industrial subsectors located in Western Province.

The subsector-level analysis of the demand for female workers by skill in the manufacturing sector confirms the greater relative demand for unskilled female workers especially in the small and medium sectors. Skilled females have a better chance of becoming employed in the rubber and plastics sector if they are small and medium firms, or in more productive firms, or in firms with a greater proportion of technicians in the workforce, or if at least one working proprietor is female. They are also more likely to be employed in small and medium firms in the food and beverages sector and firms in the combined other industrial subsector category. Such firms tend to concentrate more on domestic sources for raw material and the sale of final products while absence of competition leads to inefficiency, low productivity, and low profitability, increasing dependence on women workers to keep wage costs down.

In the next section, we investigate the characteristics associated with the relative demand for skilled and unskilled women workers in the trade and services subsectors.

Relative demand for skilled and unskilled women workers in the trade and services subsectors

The coefficients of the core model at subsector level in the trade and services sector do not provide any conclusive evidence about whether firm productivity and capital intensity influences the demand for female labour. As discussed in Section 4.2 above, this could be due to errors in measuring labour productivity and capital intensity even at subsector level.

Generally, the prevailing occupational structure of firms appears to significantly influence a greater demand for unskilled women workers in the education, health and other services, and other trade and services categories. For example, a greater concentration of technicians is associated with increased relative demand for unskilled women workers in the education, health and social services sectors and the other trade and services category, but lower demand for skilled women workers in the trade and education, health and social services categories. However, firms with higher concentrations of low-skilled workers in almost all sectors have a higher relative demand for unskilled female workers than male workers, but lower relative demand for skilled women workers than skilled male workers.

Thus, firms in these subsectors seem to prefer males in skilled jobs and females in unskilled jobs because unskilled female labour is cheaper and labour productivity relatively higher. This is due to the perception that unskilled women workers are also considered to be (relatively) more efficient in production systems, which are more labour intensive. Meanwhile, as the share of clerical workers in total employment in firms in the education, health and social services sector increases, the demand for skilled women workers in the trade and education, health and social

services subsectors declines significantly. This last result suggests that while women workers predominate in this sector (accounting for 80 percent of total employment in the education, health, and social services), they are more likely to be found in other occupations, which Figure 3.2 attests.

Unlike in the manufacturing subsectors, in almost all the trade and services subsectors the proportion of working proprietors is associated with relatively lower demand for both skilled and unskilled females. But having at least one female working proprietor increases the relative demand for both skilled and unskilled women workers. The results on ownership suggest that promoting female-owned businesses through entrepreneurship development can help support the employment of women in enterprises. As for whether older firms employ more women, Ruppert Bulmer (2020) investigated this relationship and found a significant and positive relationship between firms that had operated for at least 20 years and female employment within such firms. Therefore, in this study, too, we tested whether the age of the firm was significantly associated with the demand for skilled and unskilled female workers across subsectors and found a significant and positive relationship between the two variables only for skilled females in the finance and banking sector and for unskilled females in the hospitality subsectors.

Compared to large firms, small and medium firms generate more demand for skilled and unskilled female workers in the hospitality sector, and small firms demand more unskilled female workers in the education, health, and social services subsector. Medium firms in the textiles and garments subsector appear to demand relatively more skilled females. **These results suggest that promoting small and medium firms in the trade and services subsectors are likely to have a positive impact on female employment.**

Investment in R&D is not a significant predictor of the relative demand for female workers in the trade and services subsector, whether skilled or unskilled. These results are to be expected

given the low level of R&D investment in privately-owned Sri Lankan firms and even by government-owned organisations (WEF, 2019).¹² However, many firms are being forced by the pandemic to invest in modern technology, and these investments may enhance the demand for skilled female workers in the future.

We examined the influence of location-specific factors on the demand for female workers by using Western Province as a proxy variable, but the coefficient was positive and significant for both skilled and unskilled women workers only in the education, health, and social services subsector and negative and significant for skilled women workers in the finance, banking, insurance, and real estate subsectors. It is possible that males possessing the required skills for operations in the finance, banking, insurance, and real estate subsectors are more scarce in areas outside the economically advanced Western Province, and this provides opportunities for female workers with the necessary skills in the provinces. It is also possible that skilled women face less competition from skilled males for suitable vacancies in this sector outside the Western Province.

In fact, employers' perceptions that trained labour is lacking increases the demand for skilled and unskilled females in most subsectors in the trade and services group, but the results are significant only for the trade, finance, banking, insurance, and real estate, and hospitality subsectors. Perceptions that workers with IT skills are lacking lowers demand for both skilled and unskilled women workers in the trading subsector. Perceptions of lack of clients and markets have mixed effects on the demand for skilled and unskilled women workers in the five subsectors, while perceptions of being credit constrained is significantly associated with a lower share of skilled and unskilled female workers in the hospitality sector. Nevertheless, constrained access to credit is associated with significantly greater demand for skilled women in the finance, banking, insurance, and real estate sector, and for unskilled women in the education, health, and social services sector. This suggests complementarity between access to finance

12. R&D investments as % GDP was 0.11 percent and ranked at 111th position out of 141 countries in 2019.

and women workers in the last two sectors, but substitutability between the two in the hospitality sector. These results may be due to this variable doing the work of the capital intensity variable, which, because of the data-related concerns mentioned above, does not perform well in the specifications.

Nevertheless, the findings suggest that supportive credit policies may be more effective in leveraging greater demand for women workers in the finance, banking, insurance, and real estate sector, and the education, health, and social services sectors. Our last variable denoting institutional constraints refer to employers' perceptions of government policy as a constraint to business. The results show that employers feeling this way is negatively and significantly associated with the demand for skilled female workers in the finance, banking, insurance and real estate and other sub-sectors of the trade and services sector, but positively associated with the demand for skilled women in the hospitality sector.

To recap the results of our estimations very briefly, while some of the variables included in the specifications did not produce expected results, several other variables were positively associated with the relative demand for female workers and contributed to the explanatory power of the models. The largest and consistent positive influences on labour demand were exerted by variables denoting industry subsector, ownership, scale of operations, and occupation structure. In the final section we discuss the main findings of the analysis.

Table 4.3: Factors associated with the relative demand for skilled and unskilled women workers Sri Lanka's formal manufacturing subsectors, 2016: Results of OLS estimation

	Food and beverages		Textiles and garments		Rubber and plastics		Chemicals		Other subsectors	
	Skilled (1)	Unskilled (2)	Skilled (3)	Unskilled (4)	Skilled (5)	Unskilled (6)	Skilled (7)	Unskilled (8)	Skilled (9)	Unskilled (10)
Labour productivity (Rs. million)	-0.0030 (0.0028)	-0.0057** (0.0028)	-0.0213* (0.0109)	-0.0049 (0.0091)	0.0359*** (0.0116)	-0.0232* (0.0117)	-0.0049 (0.0091)	-0.0232* (0.0117)	-0.0322 (0.0232)	-0.0013 (0.0011)
Capital intensity (Rs. 000)	0.0000	0.0000	0.0024***	0.0009**	-0.0011**	0.0008**	0.0009**	0.0008**	0.0018	0.0000
Average cost per unit of labour (Rs.)	-0.0000** (0.0000)	-0.0000* (0.0000)	-0.0000 (0.0000)	0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000** (0.0000)
Share of technical workers in total employment	-0.4176 (0.3214)	-0.0208 (0.4901)	-0.8273 (0.7085)	1.9560*** (0.6915)	1.6383* (0.9385)	-0.0152 (0.9124)	1.9560*** (0.6915)	-0.0152 (0.9124)	-0.7996 (1.1799)	0.5250** (0.2195)
Share of clerical workers in total employment	0.3823 (0.2375)	-0.3149 (0.5188)	0.0378 (0.9933)	0.1926 (0.8755)	1.6750* (0.9338)	-0.2501 (0.8267)	0.1926 (0.8755)	-0.2501 (0.8267)	-0.1301 (0.9423)	0.0799 (0.1815)
Share of low-skilled workers in total employment	-0.1182 (0.1864)	-0.1458 (0.3636)	-1.2219** (0.5093)	1.4087*** (0.4596)	0.7311 (0.6151)	0.6993 (0.5783)	1.4087*** (0.4696)	0.6993 (0.5783)	-0.2310 (0.5529)	0.2476** (0.1099)
Share of working proprietors in total employment	-0.1109 (0.0774)	0.1353 (0.1658)	-0.3532* (0.2131)	-0.0222 (0.1762)	0.6363 (0.4969)	-1.1928** (0.4707)	-0.0222 (0.1762)	-1.1928** (0.4707)	0.4021 (0.3850)	-0.1374*** (0.0521)
At least one female working proprietor	0.0329 (0.0415)	0.1211* (0.0718)	-0.0202 (0.0677)	0.1881*** (0.0488)	0.4265*** (0.1556)	0.1754 (0.1476)	0.1881*** (0.0488)	0.1754 (0.1476)	-0.1172 (0.1078)	0.3661*** (0.0870)
Age of firm	-0.0010* (0.0006)	-0.0013* (0.0008)	0.0036* (0.0021)	0.0001 (0.0021)	-0.0010 (0.0021)	-0.0002 (0.0021)	0.0001 (0.0021)	-0.0002 (0.0021)	0.0067* (0.0040)	0.0010 (0.0014)
Sole ownership	-0.1494** (0.0652)	0.0469 (0.0438)	-0.0626 (0.0887)	-0.1026** (0.0471)	-0.2053** (0.0854)	-0.0410 (0.0818)	-0.1026** (0.0471)	-0.0410 (0.0818)	0.3865*** (0.0959)	0.0545 (0.0447)

Table 4.3: Factors associated with the relative demand for skilled and unskilled women workers Sri Lanka's formal manufacturing subsectors, 2016: Results of OLS estimation

	Food and beverages		Textiles and garments		Rubber and plastics		Chemicals		Other subsectors	
	Skilled (1)	Unskilled (2)	Skilled (3)	Unskilled (4)	Skilled (5)	Unskilled (6)	Skilled (7)	Unskilled (8)	Skilled (9)	Unskilled (10)
Multi-plant operations	-0.0108 (0.0388)	0.1185** (0.0505)	-0.0651 (0.0442)	0.0078 (0.0481)	0.1168 (0.0785)	0.0170 (0.0967)	0.0078 (0.0481)	0.0170 (0.0967)	0.1540 (0.1047)	0.0278 (0.0473)
Small firm	0.1129*** (0.0411)	0.1115* (0.0617)	-0.0024 (0.0592)	0.1092** (0.0553)	0.0676 (0.0613)	0.0034 (0.0709)	0.1092** (0.0553)	0.0034 (0.0709)	0.0514 (0.0923)	0.0584 (0.0385)
Medium-sized firm	0.0925*** (0.0369)	0.2979*** (0.0610)	-0.0404 (0.0726)	0.1179 (0.0845)	-0.1037 (0.0691)	0.2994** (0.1241)	0.1179 (0.0845)	0.2994** (0.1241)	0.3695*** (0.0819)	0.1369** (0.0677)
Firm invests in R&D	0.0970** (0.0481)	0.0052 (0.0480)	0.1487 (0.1268)	0.0181 (0.0652)	0.0453 (0.0767)	-0.2717*** (0.0728)	0.0181 (0.0652)	-0.2717*** (0.0728)	-0.0341 (0.0935)	0.1461* (0.0780)
Western Province	0.0358 (0.0372)	0.0421 (0.0594)	0.0408 (0.0370)	-0.0012 (0.0453)	-0.0426 (0.0822)	0.0039 (0.0778)	-0.0012 (0.0453)	0.0039 (0.0778)	-0.2129** (0.0843)	0.1051* (0.0621)
Constant	0.3351 (0.2120)	0.5241 (0.3662)	1.3365*** (0.4798)	-0.7152 (0.4680)	-0.6210 (0.5658)	0.0178 (0.5960)	-0.7152 (0.4680)	0.0178 (0.5960)	0.4104 (0.5563)	-0.2067* (0.1097)
R-squared	0.2555	0.1897	0.4510	0.3036	0.7995	0.6690	0.3036	0.6690	0.6484	0.3182
Number of observations	462	462	262	262	57	57	262	57	58	625

Source: Estimated with microdata from the Department of Census and Statistics' Annual Survey of Industries 2016, using sample weights.

Notes: Dependent variables are (a) total number of skilled women workers/total number of skilled workers and (b) total number of unskilled women workers/total number of unskilled workers. Standard errors are in parenthesis below the coefficients. Labour productivity, capital intensity, and unit labour costs for 2013 have been expressed in 2016 prices using the Colombo Consumer's Price index (2006=100). The reference categories are: Share of managers in total employment, Large firm, Other subsectors, Urban sector, and Non-Western Provinces. ***, **, and * denote statistical significance at the one percent, five percent and ten percent levels, respectively.

Table 4.4: Factors associated with the relative demand for skilled and unskilled women workers Sri Lanka's formal trade and services subsectors, 2013: Results of OLS estimation

	Trade		Finance, banking, insurance, real estate		Hospitality		Education, health, and social services		Other sectors	
	Skilled (1)	Unskilled (2)	Skilled (3)	Unskilled (4)	Skilled (5)	Unskilled (6)	Skilled (7)	Unskilled (8)	Skilled (9)	Unskilled (10)
Labour productivity (Rs. million)	0.0006 (0.0022)	0.0006 (0.0015)	0.0055 (0.0056)	-0.0054 (0.0036)	0.0259 (0.0187)	-0.0119 (0.0078)	-0.0261 (0.0261)	0.0254 (0.0408)	-0.0017 (0.0015)	-0.0002 (0.0010)
Capital intensity (Rs. 000)	0.0009 (0.0022)	-0.0013 (0.0011)	-0.0036 (0.0042)	0.0056 (0.0050)	-0.0023 (0.0041)	0.0049** (0.0024)	0.0010 (0.0025)	-0.0033 (0.0039)	0.0021 (0.0014)	0.0000 (0.0009)
Average cost per unit of labour (Rs.)	-0.0000 (0.0000)	-0.0000** (0.0000)	0.0000* (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)
Share of technical workers in total employment	-1.0101*** (0.1659)	0.0433 (0.1614)	-0.1035 (0.2393)	0.0318 (0.1467)	-0.0433 (0.2062)	-0.1397 (0.1222)	-0.2792* (0.1440)	0.2262* (0.1361)	0.0319 (0.1427)	0.1339* (0.0730)
Share of clerical workers in total employment	-0.8595*** (0.1723)	-0.2102 (0.1815)	0.1709 (0.2517)	-0.2425** (0.1207)	0.3658 (0.2212)	-0.0129 (0.1217)	-0.6302*** (0.1659)	0.1124 (0.1380)	0.0417 (0.1549)	0.1888*** (0.0627)
Share of low-skilled workers in total employment	-0.9268*** (0.1395)	-0.0035 (0.1993)	0.0050 (0.2517)	0.5443*** (0.2002)	0.2838* (0.1699)	0.1689* (0.0941)	-0.7993*** (0.1310)	0.6031*** (0.1431)	-0.1418 (0.1401)	0.2308*** (0.0876)
Share of working proprietors in total employment	0.3274 (0.3209)	0.2154 (0.2385)	-0.6820*** (0.2278)	-0.3667* (0.2052)	-0.3253 (0.2417)	0.0929 (0.2220)	-0.3852** (0.1776)	-0.5440*** (0.1773)	-0.1684* (0.0933)	0.0548 (0.0931)
At least one female working proprietor	-0.0026 (0.0733)	0.2103*** (0.0644)	0.1769 (0.1128)	0.3975*** (0.1092)	0.0315 (0.0726)	0.1200*** (0.0357)	0.1580*** (0.0595)	0.2779*** (0.0519)	0.0712 (0.0600)	0.3689*** (0.0450)
Age of firm	0.0011 (0.0016)	-0.0010 (0.0016)	0.0079*** (0.0022)	0.0007 (0.0014)	0.0022 (0.0025)	0.0025*** (0.0009)	0.0005 (0.0013)	0.0007 (0.0015)	0.0001 (0.0006)	0.0003 (0.0006)
Multi-plant operations	0.0117 (0.0719)	0.0063 (0.0586)	-0.0895 (0.0862)	0.0375 (0.0668)	0.1272 (0.1128)	0.1940* (0.1087)	0.1188* (0.0647)	0.1176 (0.0739)	-0.0631 (0.0495)	-0.0225 (0.0451)
Small firm	0.1011 (0.0853)	-0.0113 (0.0787)	-0.1258 (0.0892)	-0.1916** (0.0880)	0.2867** (0.1428)	0.2464* (0.1250)	0.0689 (0.0693)	0.1563*** (0.0532)	-0.0728 (0.0575)	0.0529 (0.0387)

Table 4.4: Factors associated with the relative demand for skilled and unskilled women workers Sri Lanka's formal trade and services subsectors, 2013: Results of OLS estimation

	Trade		Finance, banking, insurance, real estate		Hospitality		Education, health, and social services		Other sectors	
	Skilled (1)	Unskilled (2)	Skilled (3)	Unskilled (4)	Skilled (5)	Unskilled (6)	Skilled (7)	Unskilled (8)	Skilled (9)	Unskilled (10)
Medium-sized firm	0.1015 (0.1013)	0.1009 (0.0941)	0.2308* (0.1370)	-0.1013 (0.0648)	0.1539 (0.1368)	0.1449 (0.0964)	0.1806* (0.0974)	0.2439** (0.0948)	-0.1146* (0.0588)	-0.0001 (0.0440)
Firm invests in R&D	0.0702 (0.0844)	-0.0626 (0.0589)	0.0773 (0.1114)	-0.0382 (0.0716)	0.0341 (0.0909)	-0.0520 (0.0547)	-0.1147 (0.1449)	-0.1007 (0.0697)	-0.0223 (0.0411)	0.0481 (0.0552)
Western Province	-0.0335 (0.0697)	-0.0401 (0.0642)	-0.3287*** (0.1132)	-0.0231 (0.0686)	-0.1015 (0.0755)	-0.0197 (0.0374)	0.0903* (0.0534)	0.0949* (0.0520)	0.0767 (0.0626)	0.0509 (0.0547)
Lack of trained labour	0.0562* (0.0310)	0.0500** (0.0209)	0.0503 (0.0455)	0.0532** (0.0216)	-0.0197 (0.0282)	0.0389** (0.0160)	0.0102 (0.0240)	-0.0070 (0.0242)	0.0039 (0.0172)	-0.0022 (0.0161)
Lack of IT skills	-0.0817** (0.0323)	-0.0446* (0.0262)	0.0432 (0.0274)	0.0009 (0.0197)	0.0033 (0.0290)	0.0050 (0.0185)	0.0248 (0.0305)	0.0287 (0.0272)	-0.0064 (0.0183)	-0.0025 (0.0167)
Lack of clients and markets	-0.0106 (0.0251)	0.0430* (0.0238)	0.0389 (0.0369)	0.0178 (0.0388)	0.0578** (0.0286)	0.0062 (0.0179)	-0.0029 (0.0224)	-0.0390* (0.0199)	0.0356* (0.0189)	0.0069 (0.0160)
Lack of access to finance	0.0041 (0.0253)	-0.0195 (0.0231)	0.0704* (0.0397)	0.0280 (0.0270)	-0.0689** (0.0298)	-0.0586*** (0.0180)	0.0101 (0.0190)	0.0589*** (0.0191)	-0.0124 (0.0156)	-0.0038 (0.0146)
Government policy	-0.0415 (0.0304)	-0.0205 (0.0204)	-0.1655*** (0.0363)	-0.0285 (0.0237)	0.0199 (0.0354)	0.0040 (0.0141)	0.0477* (0.0255)	-0.0143 (0.0209)	-0.0388*** (0.0143)	-0.0201 (0.0129)
Constant	1.0656*** (0.1172)	0.1970 (0.1532)	0.4261*** (0.1445)	0.0539 (0.1252)	-0.2841 (0.1880)	-0.2788** (0.1177)	0.7597*** (0.1522)	-0.1607 (0.1330)	0.3773** (0.1504)	-0.0691 (0.0700)
R-squared	0.3362	0.4223	0.5940	0.5235	0.3166	0.4180	0.4604	0.5089	0.1749	0.4202
Number of observations	239	239	163	163	107	107	165	165	411	411

Source: Estimated with microdata from the Department of Census and Statistics' Economic Census 2013 and Annual Survey of Industries 2016, using sample weights.
Notes: Dependent variables are (a) total number of skilled women workers/total number of skilled workers and (b) total number of unskilled women workers/total number of unskilled workers. Standard errors are in parenthesis below the coefficients. Labour productivity, capital intensity, and unit labour costs for 2013 have been expressed in 2016 prices using the Colombo Consumer's Price Index (2006=100). The reference categories are: Share of managers in total employment; Large firm; Other subsectors; Urban sector, and Non-Western Provinces. ***, **, and * denote statistical significance at the one percent, five percent and ten percent levels, respectively.

Table 4.5: Characteristics of firms in Sri Lanka's formal manufacturing subsectors, 2016

Lists of firms	Food and beverages	Textiles, garments, and footwear	Rubber and plastics	Chemicals	Other sectors
Labour productivity (Rs. million)	4.21	1.47	2.41	2.44	2.96
	(9.83)	(2.91)	(2.89)	(3.17)	(11.96)
Capital intensity (Rs. 000)	40.55	14.60	35.17	8.70	25.81
	(321.56)	(63.35)	(147.59)	(19.79)	(390.39)
Average cost per unit of labour (Rs.)	230033.43	217173.94	290128.67	284415.89	250698.48
	(144225.68)	(105196.11)	(207351.65)	(287713.31)	(175501.56)
Share of technical workers in total employment	0.04	0.03	0.04	0.04	0.03
	(0.06)	(0.04)	(0.07)	(0.06)	(0.08)
Share of clerical workers in total employment	0.05	0.03	0.06	0.05	0.04
	(0.08)	(0.04)	(0.08)	(0.07)	(0.10)
Share of low-skilled workers in total employment	0.87	0.92	0.86	0.87	0.88
	(0.15)	(0.11)	(0.12)	(0.14)	(0.17)
Share of working proprietors in total employment	0.07	0.07	0.03	0.09	0.09
	(0.14)	(0.16)	(0.08)	(0.16)	(0.15)
At least one female working proprietor	0.14	0.18	0.07	0.19	0.12
	(0.35)	(0.39)	(0.26)	(0.40)	(0.32)
Age of firm	25.02	14.27	26.88	15.09	16.60
	(25.20)	(11.10)	(23.54)	(9.82)	(14.52)
Sole ownership	0.51	0.53	0.39	0.36	0.64
	(0.50)	(0.50)	(0.49)	(0.48)	(0.48)
Multi-plant operations	0.16	0.19	0.21	0.17	0.10
	(0.36)	(0.40)	(0.41)	(0.38)	(0.30)
Small firm	0.27	0.29	0.35	0.38	0.39
	(0.44)	(0.45)	(0.48)	(0.49)	(0.49)
Medium-sized firm	0.33	0.14	0.19	0.31	0.13
	(0.47)	(0.35)	(0.40)	(0.47)	(0.33)
Firm invests in R&D	0.29	0.26	0.46	0.33	0.22
	(0.46)	(0.44)	(0.50)	(0.47)	(0.41)
Western Province	0.19	0.32	0.33	0.22	0.23
	(0.40)	(0.47)	(0.48)	(0.42)	(0.42)
Number of observations	462	262	57	58	625

Source: Estimated using sample weights with microdata from the Department of Census and Statistics' Annual Survey of Industries 2016.

Notes: Standard errors deviations are in parenthesis below the means. The means and standard deviations of the dependent variable for each subsector are: food and beverages 0.44 (0.26); textiles, garments and footwear 0.67 (0.25); rubber and plastics 0.40 (0.26); chemicals 0.44 (0.32); other subsectors 0.24 (0.28).

Table 4.6: Characteristics of firms in Sri Lanka's formal trade and services subsectors, 2013

Lists of firms	Trade	Finance, banking, insurance, real estate	Hospitality	Education, health, and social services	Other sectors
Labour productivity (Rs. million)	4.53	3.86	1.59	0.73	2.60
	(13.21)	(7.06)	(3.70)	(1.41)	(8.93)
Capital intensity (Rs. 000)	13.15	6.43	4.06	4.45	8.90
	(17.31)	(8.53)	(6.85)	(9.08)	(15.06)
Average cost per unit of labour (Rs.)	386150.46	734698.97	300390.75	279527.40	466168.98
	(600554.96)	(1763447.55)	(334089.99)	(793997.87)	(801398.21)
Share of technical workers in total employment	0.12	0.14	0.11	0.19	0.23
	(0.20)	(0.22)	(0.20)	(0.29)	(0.31)
Share of clerical workers in total employment	0.26	0.35	0.19	0.13	0.17
	(0.28)	(0.31)	(0.24)	(0.23)	(0.25)
Share of low-skilled workers in total employment	0.50	0.25	0.59	0.57	0.46
	(0.34)	(0.32)	(0.34)	(0.35)	(0.38)
Share of working proprietors in total employment	0.09	0.09	0.09	0.08	0.11
	(0.14)	(0.21)	(0.17)	(0.16)	(0.23)
At least one female working proprietor	0.31	0.12	0.24	0.28	0.25
	(0.46)	(0.32)	(0.43)	(0.45)	(0.43)
Age of firm	21.09	20.81	20.20	16.82	19.43
	(21.04)	(20.22)	(25.35)	(22.83)	(25.56)
Multi-plant operations	0.42	0.53	0.37	0.26	0.32
	(0.49)	(0.50)	(0.49)	(0.44)	(0.47)
Small firm	0.47	0.32	0.58	0.65	0.53
	(0.50)	(0.47)	(0.50)	(0.48)	(0.50)
Medium-sized firm	0.27	0.15	0.18	0.16	0.21
	(0.44)	(0.36)	(0.38)	(0.37)	(0.41)
Firm invests in R&D	0.08	0.13	0.10	0.10	0.11
	(0.27)	(0.34)	(0.31)	(0.30)	(0.32)
Western Province	0.53	0.66	0.45	0.44	0.64
	(0.50)	(0.48)	(0.50)	(0.50)	(0.48)
Lack of trained labour	2.42	1.96	2.63	2.38	2.33
	(1.43)	(1.35)	(1.45)	(1.38)	(1.44)
Lack of IT skills	1.95	1.93	2.00	1.78	1.74
	(1.23)	(1.32)	(1.30)	(1.18)	(1.17)
Lack of clients and markets	2.43	2.14	2.85	2.07	2.46
	(1.44)	(1.40)	(1.52)	(1.41)	(1.53)

Table 4.6: Characteristics of firms in Sri Lanka's formal trade and services subsectors, 2013 [continued]

Lists of firms	Trade	Finance, banking, insurance, real estate	Hospitality	Education, health, and social services	Other sectors
Lack of access to finance	2.41	2.07	2.38	2.40	2.46
	(1.41)	(1.42)	(1.36)	(1.55)	(1.48)
Government policy	2.39	2.29	2.24	1.96	2.26
	(1.48)	(1.49)	(1.45)	(1.33)	(1.48)
Number of observations	239	163	107	165	411

Source: Estimated with microdata from the Department of Census and Statistics' Economic Census 2013, using sample weights.

Notes: Standard deviations are in parenthesis below the means. Means and standard deviations of the dependent variable for each subsector are: trade 0.27 (0.24); finance, banking, insurance and real estate 0.41 (0.30); hospitality 0.20 (0.21); education, health and social services 0.62 (0.25); other subsectors 0.23 (0.30). The reference categories are: Share of managers in total employment, Large firm, Non-Western Provinces. ***, **, and * denote statistical significance at the one percent, five percent and ten percent levels, respectively.

4.4 SUMMARY

This chapter presented the results of the analysis of secondary data investigating the factors associated with the relative demand for female workers in Sri Lanka's manufacturing and services sectors. **Many of the findings underline the gender-based occupational and sectoral segregation of Sri Lanka's labour market**, as in many other developing countries. For example, the demand for Sri Lankan women workers is strongly associated with distinct manufacturing and services subsectors, and much of that demand is for low-skilled women. Positive and significant relationships between industrial subsectors and the demand for unskilled women workers, and negative and significant relationships between industrial subsectors and the demand for skilled women largely hold across sectors.

All operations – whether in manufacturing or trade and services – dominated by low skilled workers are associated with greater demand for low-skilled women workers relative to low-skilled male workers to take up those jobs. Meanwhile, firms whose operations require more skills (for example, clerks in middle-level occupations) demand more skilled women workers. These results confirm that the gender-based segregation of occupations and sectors observed around the world is also a dominant feature of Sri Lanka's labour market.

Of the core variables identified by the microeconomic theory of the firm, labour productivity is negatively and significantly associated with the demand for female labour in manufacturing. This is likely due to the concentration of female workers in low-skilled occupations and low productivity sectors of Sri Lanka's manufacturing, as Bulmer (2020) has already pointed out. Labour productivity in manufacturing was below the national average in 2019. Only the relationship between the unit cost of labour and the demand for female labour is clearly in line with the theory that postulates a negative relationship. However, given that this variable only partially reflects the cost of women workers, we also included gender-based wage ratios prevailing in the local market in the specifications. The results suggest the relative inelasticity of the demand for women workers in large sectors dominated by women in low-skilled occupations, especially where women probably earn far less than men do for the same work.

Capital appears to be complementary with women's labour only in some manufacturing sectors. For example, capital intensity is positively and significantly associated with the demand for skilled and unskilled women workers in the textiles and garments, and for unskilled women in the rubber and plastics sectors. Limited traction of the capital intensity variable in many of the subsector

models may be due to the quality of data being compromised by the difficulty of capturing the true value of capital during the enumeration. The influence of investment in modern technology such as the hardware and software used in information and communication-related operations, may also not be captured accurately in both major sectors due to incomplete information. Nevertheless, the fact that small and medium firms have a significantly higher demand for female workers than large firms in several subsectors suggests that such firms' constrained access to capital markets, compared with large-scale firms, may see them substitute women's labour for capital, particularly as women's wages are lower than men's, and will therefore be more affordable.

Employers' perceptions of being credit-constrained was also associated with a lower share of female workers in the hospitality sector but significantly greater demand for skilled women in the finance, banking, insurance and real estate sector, and for unskilled women in the education, health and social services sector. This suggests complementarity between access to finance and women workers in the last two sectors, but substitutability between the two in the hospitality sector. The variables relating to firm size and access to finance may be due to these variables doing the work of the capital intensity variable, which, due to weaknesses in the data about fixed assets, did not perform well in the specifications.

However, manufacturing firms in the food and beverages sector investing in R&D had a greater demand for skilled women workers. By contrast, investment in R&D was not a good predictor of the demand for women workers in any of the trade and services subsectors. When added to other insights provided by the analysis, these findings suggest that if production structures in manufacturing become more technology-and-R&D-intensive, it is likely to expand the demand for skilled women workers. Application of modern technology in these sectors, driven by the economic crisis of COVID-19 and the need to relocate as many operations as possible from the workplace to home, may increase the demand for female workers with the necessary skills in middle and high skilled occupations.

Employers' perceptions of the lack of trained labour being a constraint in their operations was associated with a higher level of demand for females relative to males in many subsectors in the trade and services group. These results suggest that perceptions that labour lacked the necessary skills are related to the availability of skills in the male workforce, which encouraged employers to hire women to carry out those tasks. Lack of demand for education, health and social services was associated with lower relative levels of demand for females of firms in these subsectors where women workers predominate. Meanwhile, employers, who saw government policy as a big problem to business, recruited relatively fewer skilled women to work in the finance, banking, insurance and real estate, and other sub-sectors of the trade and services sector.

In brief, the results show how the relative demand for women workers in Sri Lanka as elsewhere, is in a straitjacket fashioned by rigidities caused by the gender-based segregation of the labour market along sectoral and occupational lines. The relatively high demand for low-skilled workers seems to be influenced by the occupational structures of subsectors in manufacturing and services, and the relatively low capital, R&D, and possible technological intensity, of their operations. These findings suggest some space for effective policy intervention through incentives to technologically upgrade production structures that will increase the demand for skilled women workers.

However, this will also displace sizeable proportions of unskilled women from employment: recall that Acemoglu and Restrepo (2019) found automation to displace more workers than it reinstated them in the US. Enhancing the skills portfolio of low-skilled women, and certainly of school leavers, may enable some of them to take up the better paying jobs that technological enhancement will bring about. Promoting small and medium firms and female-owned businesses may also stimulate the demand for women workers. However, supportive credit policies may be more effective in leveraging greater demand for women workers in the finance, banking, insurance, and real estate sector, and the education, health, and social services sectors, rather than in the hospitality

sector where other constraints may be too binding, especially those related to sociocultural norms. Nevertheless, the role of other government policies also needs to be evaluated to understand how they inhibit firms from employing women.

In the next chapter, we analyse the primary survey data collected from firms for the purpose of this study to throw further light on these issues, as well as on other constraints to firms' demand for women workers which stem from employers' perceptions about women workers and of the business environment.



CHAPTER

5

THE DEMAND
FOR WOMEN
WORKERS:
PRIMARY DATA
ANALYSIS

CHAPTER 5

THE DEMAND FOR WOMEN WORKERS: PRIMARY DATA ANALYSIS

5.1 INTRODUCTION

This chapter investigates the factors associated with the relative demand for female workers in formal private sector industries in Sri Lanka using the primary data collected from a sample of firms in the manufacturing and services sectors using a structured questionnaire. The analysis uses the methodological approach described in Chapter 3 and implemented with secondary data in Chapter 4, but this chapter uses the rich primary data set to examine in detail how the gender-biased values and norms held by employers influence their decisions about employing female workers. The chapter is organised as follows: the next section presents the results of validating the core model of demand; the second examines how employers' perceptions about women workers influences the demand for their labour; and the third looks at the role played by technology and perceptions about the investment climate. The last section summarises and concludes.

5.2 VALIDATING THE CORE MODEL

In this section, we use primary data collected from our survey to test the validity of the core model of the demand for female workers that we estimated using secondary data in Chapter 4. The richness of the primary data enables us to introduce some new variables to the core specification such as export orientation, presence of trade unions, and different modes of training and development.

Table 5.1 reports the results of the estimation of two versions of the core model. The first is estimated on the smaller subsample of firms which had the financial data necessary to construct the variables related to productivity and average unit labour costs. The second specification does not include these variables and is therefore estimated over a much larger sample of 566 firms. The estimation of the first specification using primary data does not present any contradictory evidence on the relationship between productivity and average unit labour costs and the demand for labour. The two coefficients are negative and in line with the results of the estimation of the model using secondary data, and the reasons advanced in that analysis are also applicable here. However, we were not able to test the relationship between the capital-output ratio and the demand for female labour due to incomplete data on fixed assets.

Table 5.1: Factors associated with the relative demand for women workers in Sri Lanka's formal manufacturing and services sectors, 2019: Results of OLS estimation of the core model

	Mean	(1)	(2)		Mean	(1)	(2)
Labour productivity (Rs. million)	-276.06	-0.0000*		Trade	0.19		0.0002
	(36503.32)	(0.0000)			(0.40)		(0.0332)
Average cost per unit of labour (Rs.)	248055.26	-0.0000		Finance, banking, insurance, real estate	0.08		0.0486
	(1014308.92)	(0.0000)			(0.28)		(0.0606)
Age of firm (years)	18.35	0.0001		Hospitality	0.16		-0.0512
	(19.31)	(0.0009)			(0.37)		(0.0419)
Share of medium-skilled workers in total employment	0.31	0.0511	0.0281	Other services	0.22		0.0593*
	(0.29)	(0.0867)	(0.0525)		(0.42)		(0.0322)
Share of low-skilled workers in total employment	0.42	-0.0199	-0.0564	Constant		0.3278***	0.2507***
	(0.36)	(0.0807)	(0.0480)			(0.0927)	(0.0570)
Small firm	0.27	-0.0938**	-0.0317	R-squared		0.0866	0.1263
	(0.44)	(0.0368)	(0.0252)	Number of observations		322	566
Medium-sized firm	0.27	-0.0557	-0.0359				
	(0.44)	(0.0634)	(0.0326)				
Firm exports	0.56	-0.0328	-0.0384				
	(0.50)	(0.0387)	(0.0250)				
Firm has a trade union or workers' council	0.13	0.0099	0.0020				
	(0.34)	(0.0892)	(0.0430)				
Firm does on-the-job training	0.82	0.0166	0.0328				
	(0.38)	(0.0406)	(0.0291)				
Firm has inhouse training	0.78	0.1154***	0.0507*				
	(0.41)	(0.0421)	(0.0291)				
Firm has external training	0.60	-0.0348	-0.0618**				
	(0.49)	(0.0480)	(0.0299)				
Firm has e-learning	0.46	0.0051	0.0309				
	(0.50)	(0.0535)	(0.0309)				
Rural	0.09	-0.0164	0.0046				
	(0.29)	(0.0431)	(0.0317)				
Western Province	0.63	0.0490	0.0254				
	(0.48)	(0.0360)	(0.0243)				
Trade and services sector		-0.1010***					
		(0.0372)					
Food and beverages	0.06		0.1992***				
	(0.24)		(0.0494)				
Textiles, wearing apparel	0.05		0.3001***				
	(0.22)		(0.0529)				

Source and notes: Estimated using microdata from the UN Women Survey on Factors Influencing the Demand for Women Workers 2020. The dependent variable is the share of women workers in the firm's total employment. Mean and standard deviation of the dependent variable are 0.20 (0.24) in Model 2.

The coefficient of the share of middle-skilled workers in total employment was found to be positive in estimates for manufacturing (2006 and 2016) reported in Chapter 4, and we observe similar results in the estimates using the primary data for 2019. While the coefficient of the low-skill worker ratio was negative and not significant in the estimates for the trade sector using the Economic Census data of 2013, the coefficient of the low-skill ratio for the manufacturing sector was positive and significant for both time points (2006 and 2016). The result for the combined manufacturing and services sectors using the primary data analysis were negative but not significant.

The older the firm, the greater the relative demand for female workers, but this result was not statistically significant either. The analysis using secondary data examined the role of this characteristic at sub-sector level and found it to be positive in the chemicals and services subsectors and negative for food and beverages, textiles, garments and footwear, rubber and plastics and trade subsectors. It was also positive for finance, banking, insurance, real estate, hospitality, and education, health and social subsectors. We could not verify this with the primary data analysis as the small sample size did not permit analysis at subsector level.

The medium size of firms is associated with a lower demand for women workers unlike in the secondary data analysis where it was found to be positive and significant for the manufacturing sector and positive but not significant for the trade and services sectors. The coefficient on small firms is negative but significant in the primary data analysis in the specification for the smaller sample of firms, but positive though not significant for manufacturing using secondary data from 2006 and 2016, and negative though not significant for the trade and services sectors in 2013. Therefore, the negative relationship between small-scale and demand for women workers revealed by the primary data analysis could be due to the primary data sample being dominated by firms in the trade and services sector. The Easter Bombing of April 2019 may also have played a part.

Trade liberalisation and foreign direct investment (FDI) have been identified as key determinants of the demand for female labour in industry (Gaddis and Pieters, 2012; Ernesto, 2012; Pepper, 2012) and the primary data enabled us to test this hypothesis in the Sri Lankan context. However, the results of the estimation in Table 5.1 show that the coefficient of export orientation is negative, though not significant. This may be explained by the inward-oriented trade policies, poor links with global value chain systems and the absence of export-oriented foreign direct investment (EOFDI) in Sri Lanka over the last two decades, as the country drifted away from the trade liberalisation policies of the post-1977 period even while its South Asian neighbours progressively liberalised their trade over the same period (de Mel, 2018).

We examined the relationship between training and the relative demand for labour using the primary sample survey data by looking at four modes of training: i.e., on-the-job training; in-house training (other than OJT); external training; and e-learning. The coefficients of on-the-job training, in-house training and e-learning are all positive but significant only for in-house training. **The negative and significant coefficient of external training suggests limited training opportunities offered to female workers as against male counterparts.**

This result could derive from the fact that in most enterprises, women are concentrated in low-skilled occupations and that OJT and in-house training suffice for the tasks that they must carry out and that the provision of external training, necessary for middle- and high-skilled workers, suggests that the firm has relatively more males in skilled occupations requiring external training. The only exceptions are the health, education and social services subsectors.

Like the secondary data analysis, the **primary data analysis also highlights the influence of sector-specific factors on the relative demand for female workers.** For example, the firms belonging to the food and beverages and textiles and garments sub-sectors have significantly higher relative demand for women workers than firms in the other manufacturing sectors and this was

also found to be the case in the secondary data analysis. Similarly, the finance, banking, insurance, and real estate subsector is associated with a higher demand for women but not significantly so. However, the relationships between the trade and hospitality subsector dummies and the demand for women's labour as evidenced by the primary data analysis is different from the results of the secondary data analysis which may be due to the small size of the primary data samples at subsector level. **The primary data analysis shows that firms located in the Western Province have higher relative demand for women workers compared to firms located in other provinces, but the result is not significant.** This result may be driven by the manufacturing sector's relatively higher demand for female workers and the fact that the labour market in Western Province is very tight for males in the trade and services sector, as it is the most economically dynamic and advanced of all Sri Lankan provinces. The coefficient for the Western Province was also negative and significant for the trade and services sector analysis using Economic Census data of 2013.

By and large, the analysis using primary data confirms the relationships suggested by the secondary data analysis. In the next sections, we extend the model further to understand the influence of other key factors such as employers' perceptions about women workers and the influence of modern technology, digitisation, and investment climate.

5.3 EMPLOYERS' PERCEPTIONS ABOUT WOMEN WORKERS

We examined the influence of both descriptive and prescriptive gender stereotypes and gender-based discrimination in employers' demand for women workers using primary data about employers' attitudes towards women workers. Once again, the dependent variable was the share of women workers in the firm's total employment and as described in Section 3.3, the relevant explanatory variables were constructed using information about the extent to which respondents agreed about statements relating why they may not want to hire women, and those relating why they may

want to hire them. These variables were added to the core model estimated and described in Section 5.2 above. However, since the non-response rate varied for each of these statements, we estimated 2 types of models to examine whether the results were conditioned by the size of the sample. The first model was the full model where all the relevant perceptions variables were added to the core model. The second type of model estimated was partial, where each of the relevant variables was added to the core model and each model was estimated separately. Additionally, including a dummy variable denoting whether the respondent was male controlled for any gender-related bias of the respondent.

The results of the analysis of the perceptions of employers that may influence why they may not want to hire women are presented in Table 5.2. Due to space constraints, we report only the results related to the perceptions variables of interest and not those related to explanatory variables of the core model. The full model where the first type of perceptions variables was added to the core model could be estimated only with 446 observations. Means and standard deviations of the explanatory variables of the sample used for the complete model are set first, followed by the estimates of the full model, called Model (1). The coefficients of the perception variables added singly to the core model in the partial models, coefficient of the control variable of the gender of the respondent, the R-squareds and number of observations used to estimate the partial models are reported in the remaining columns.

In the full model, the only coefficients which are negative and significant relate to employers perceiving women as lacking the necessary skills for their business, their perceptions on societal attitudes about the kind of jobs women can and cannot do. This perception, that women's family responsibilities increase absenteeism is positively associated with the demand for women workers, and this result seems counterintuitive, but the coefficient is significant only at the 10 percent critical-level. **Respondents being male powerfully and negatively influence the relative demand for labour.**

The R-squared statistics for the partial equilibrium analyses in almost all the models are quite high. In the model featuring employers' perceptions that women lack the necessary skills, the R-squared is even higher than in the complete model. While even in the partial models, the coefficients denoting the relationship between lack of skills, societal attitudes, and the demand for labour are negative and significant, issues related to the legal framework, interpersonal relationships, and the inability to provide a safe working environment also appear to negatively influence the demand for female labour. The significant constraints stemming from the legislative framework are the inability to offer flexible working hours and nightwork, and difficulties related to financing maternity benefits. Inability to offer part time work does not appear to be a significant constraint, but this issue may also be picked up by the variable relating to flexible working hours. These results confirm Ranaraja and Hassendeen's (2016) conclusions based on their qualitative data and analysis that provisions in the current legal framework impede the hiring of Sri Lankan women by private employers.

While there has been growing awareness and discussion about the negative impact of these factors on women's employment in Sri Lanka for several years now, policymakers have to date not taken any concrete steps to address them. Our evidence based on primary data also resonates with the findings of Das et. al. (2019) who suggested that the issue of female employment in urban India was amenable to policy intervention, and that it was not necessary to wait until cultural attitudes changed to increase the demand for women's labour.

Table 5.2: The relative demand for women workers and employers' perceptions about why they would not want to hire them, 2019: Results of OLS estimation of the extended model

	Means Model (1)	Model (1)	Partial models	Coefficients	Respondent is male	R-squared	Number of observations
Women lack the skills necessary for the work done by your company	2.38	-0.0644***	(2)	-0.0827***	-0.1306***	0.2691	558
		(0.0148)		(0.0104)	(0.0250)		
Society's attitudes about what women can and cannot do make it difficult to hire them to do your kind of work	2.43	-0.0327**	(3)	-0.0632***	-0.1337***	0.2340	549
		(0.0154)		(0.0109)	(0.0260)		
Women workers' family responsibilities increase absenteeism	3.05	0.0269*	(4)	-0.0027	-0.1615***	0.1840	548
		(0.0144)		(0.0108)	(0.0266)		
Poor public transport facilities make it difficult to hire women	2.93	-0.0108	(5)	-0.0162	-0.1604***	0.1897	546
		(0.0141)		(0.0104)	(0.0265)		
Interpersonal relationships in the firm become harder when you hire women	2.51	-0.0087	(6)	-0.0265**	-0.1575***	0.1853	543
		(0.0154)		(0.0122)	(0.0265)		
Women take offence easily and quarrel among themselves	2.97	0.0183	(7)	0.0014	-0.1666***	0.1806	544
		(0.0140)		(0.0113)	(0.0267)		
You cannot offer them flexible working hours although that would suit them better	2.70	-0.0133	(8)	-0.0356***	-0.1564***	0.1986	545
		(0.0151)		(0.0110)	(0.0264)		
You cannot afford to finance maternity benefits (with paid salary etc.)	2.58	0.0146	(9)	-0.0238**	-0.1524***	0.1900	531
		(0.0149)		(0.0115)	(0.0265)		
You cannot offer women part-time work because of full-time statutory liabilities	2.69	-0.0027	(10)	-0.0170	-0.1506***	0.1747	543
		(0.0154)		(0.0118)	(0.0269)		
You cannot hire women because it is illegal to get them to work in the night in shops and offices	2.97	-0.0105	(11)	-0.0261**	-0.1466***	0.1839	536
	(1.07)	(0.0135)		(0.0106)	(0.0272)		
You cannot provide a safe enough work environment for women (e.g. difficult to provide grievance and redress mechanisms for harassment / sexual harassment, separate toilets)	2.35	-0.0162	(12)	-0.0389***	-0.1514***	0.1965	550
	(0.98)	(0.0153)		(0.0119)	(0.0267)		
You would like to hire women, but women are not available for paid work	2.47	0.0167	(13)	-0.0078	-0.1597***	0.1768	536
	(0.97)	(0.0148)		(0.0121)	(0.0270)		

Table 5.2: The relative demand for women workers and employers' perceptions about why they would not want to hire them, 2019: Results of OLS estimation of the extended model [cont...]

	Means Model (1)	Model (1)	Partial models	Coefficients	Respondent is male	R-squared	Number of observations
Staff turnover is higher among females relative to male workers	2.95	0.0154	(14)	-0.0055	-0.1587***	0.1767	530
	(1.06)	(0.0133)		(0.0111)	(0.0266)		
The respondent is male	0.73	-0.1050***					
	(0.44)	(0.0289)					
Constant		0.5539***					
		(0.0897)					
R-squared		0.2528					
Number of observations		446					

Source and notes: Estimated using microdata from the UN Women Survey on Factors Influencing the Demand for Women Workers 2020. The dependent variable is the share of women workers in the firm's total employment. Mean and standard deviation of the dependent variable for Model 1 are 0.32 (0.27).

Why might employers want to hire women rather than men? The analysis focussed on seven different aspects of employee performance: hard-work; skills and education; honesty; being less demanding; being more conscientiousness; and being more loyal to the company. Table 5.3 follows the same format as Table 5.2, presenting the estimates of the full model (core model plus all the perceptions variables relating to why employers may want to hire women) along with the means, and thereafter the results of the partial models. In the full model, perceiving women as being more skilled than men (for the work carried out by the firm) and more loyal to the firm than men are significantly associated with a greater demand for female labour. However, the coefficients relating to perceptions that women work harder, are more honest and more conscientious are positive and significant in the more parsimonious models. Employers' perceptions that 'women are generally better educated than men' is also positively associated with a greater demand for their labour but the result is not statistically significant. Finally, employers' response to the statement on 'women are less demanding than men' is negative and statistically insignificant.

Overall, the evidence relating to employers' perceptions about whether women are better workers than men suggest that explicit forms of active gender discrimination are less evident at the level of recruitment at the firm. Thus, while earlier research investigating the gender discrimination hypothesis in relation to the hiring of workers reported that employers prefer men over women in hiring at all levels (Ruppert Bulmer, 2020), the evidence based on primary data provides a more nuanced analysis. However, it is possible that the results of the primary analysis are driven by the gender-based occupational and sectoral segregation of Sri Lanka's labour market, which we could only weakly control for with sector dummies, given the small size of our sample. Thus, employers may be happy to employ women because the nature of their operations favoured a female workforce.

Nevertheless, in these models too, the coefficient on the variable denoting whether the respondent is male is large, negative, and statistically significant. **Nearly three-fourths of respondents were male, most of them were senior staff members** (owner, CEO, Managing Director, General Manger, or Director Human Resources) **who were directly involved in the process of selecting and recruiting workers, and this significant negative bias works against the selection and recruitment of female employees.** This bias can be overtly and covertly reinforced through the gendered 'coding' of job advertisements, the gendered review of employee performance, and in skewed ways in which applications are tracked and credentials compared in processes where male applicants benefit. At the same time, these biases can impede women's career development by limiting opportunities for career advancement and taking on challenging job assignments. **Our evidence suggests that investing in the capacity of talented women employees to move up the management hierarchy to take up positions of responsibility and decision-making is likely to have a positive effect on the demand for women workers in Sri Lanka's formal enterprises.**

Table 5.3: Employers' perceptions about why they would want to hire women and the relative demand for women workers, 2019: Results of OLS estimation of the extended model

Lists of firms	Means Model(1)	Model(1)	Partial models	Coefficient	Respondent is male	R-squared	Number of observations
Women are more hardworking than men	3.24	0.0023	(2)	0.0357***	-0.1491***	0.1895	545
		(0.0170)		(0.0129)	(0.0266)		
Women are naturally more skilled at the kind of work your firm wants them to do	3.07	0.0504***	(3)	0.0550***	-0.1383***	0.2224	524
		(0.0156)		(0.0115)	(0.0260)		
Women are generally better educated than men	2.80	-0.0176	(4)	0.0123	-0.1684***	0.1978	531
		(0.0165)		(0.0130)	(0.0266)		
Women are less demanding than men	3.16	-0.0127	(5)	-0.0012	-0.1605***	0.1837	541
		(0.0127)		(0.0115)	(0.0267)		
Women are more honest than men	3.15	-0.0149	(6)	0.0221*	-0.1673***	0.1890	534
		(0.0188)		(0.0122)	(0.0271)		
Women are more conscientious and diligent than men	3.28	-0.0002	(7)	0.0373***	-0.1566***	0.1985	538
		(0.0195)		(0.0127)	(0.0269)		
Women are more loyal to the company than men	0.72	0.0417**	(8)	0.0443***	-0.1635***	0.2019	530
	(0.45)	(0.0187)		(0.0123)	(0.0267)		
Respondent is male	0.72	-0.1397***					
	(0.45)	(0.0287)					
Constant		0.2618***					
		(0.0936)					
R-squared		0.2236					
Number of observations		468					

Source and notes: Estimated using microdata from the UN Women Survey on Factors Influencing the Demand for Women Workers 2020. The dependent variable is the share of women workers in the firm's total employment. Mean and standard deviation of the dependent variable are 0.32 (0.28) in Model 1. The table does not report the coefficients of the variables in the core model due to space constraints.

5.4 ADVANCED TECHNOLOGIES AND PERCEPTIONS ABOUT THE INVESTMENT CLIMATE

To understand how technological transformation and the business environment influence the demand for female labour, we added several relevant variables to our core model. The influence of modern technological applications was examined using variables denoting the extent to which 9 different technologies were being used in the firm. We also included variables denoting how the extent of digitisation and automation in the firm as perceived by employers. The role played by business confidence was also examined.

The results of the estimation are presented in Table 5.4. Only the coefficients of the additional variables related to technology and the investment climate are reported. There are 3 specifications. The first is parsimonious and shows the relationship between the use of new technologies and the demand for women workers. The second specification adds only the variables related to employers' perceptions of the investment and business climate to the core model. The third specification is the full model which adds both types of variables to the core model. Given the relatively high rate of non-responses for questions about the business environment, the last 2 models have been estimated over a much smaller sample.

Five (cloud-software, mobile devices, digital payments, robotics, and 3D Printers) out of 9 technological applications are positively associated with the demand for women workers, but of them, only 1 (mobile devices and applications) is statistically significant and that too, in the parsimonious equation but not in the full one. It is also worth noting that out of the 4 technological applications which were negatively associated with the demand for women workers, 2 are statistically significant - the use of marketing platforms (digital media, advertising platforms) in the parsimonious equation and social media (social networking and collaboration platforms) in the complete model.

Hence, the technology variables do not explain much of the variation among firms in the employment of women. However, the extent to which employers agreed that firms were heading towards a digitised system of production was significantly associated with a decline in the relative demand for women's labour (in the parsimonious model).

Table 5.4: Advanced technologies, perceptions of the investment climate and the relative demand for women workers 2019: Results of OLS estimation of the extended model

Lists of firms	Mean	(1)	(2)	(3)	(4)
<i>Technologies</i>					
Nanotechnologies (making products that use small parts such as electronic devices, catalysts, sensors, etc.)	1.40	-0.0193	-0.0218		-0.0239
	(0.84)	(0.0174)	(0.0174)		(0.0209)
The Cloud - software as a service delivered over the internet	1.80	0.0043	0.0031		0.0245
	(1.11)	(0.0151)	(0.0155)		(0.0179)
Mobile devices and applications (apps)	2.43	0.0229*	0.0211*		0.0095
	(1.21)	(0.0123)	(0.0124)		(0.0153)
Marketing platforms (digital media, advertising platforms)	2.18	-0.0277*	-0.0299*		-0.0221
	(1.18)	(0.0156)	(0.0157)		(0.0182)
Social media (social networking and collaboration platforms)	2.40	-0.0183	-0.0280*		-0.0364**
	(1.23)	(0.0150)	(0.0151)		(0.0178)
Artificial intelligence (smart software systems)	1.57	-0.0234	-0.0183		-0.0153
	(0.98)	(0.0161)	(0.0162)		(0.0188)
Digital payments and currency (e.g. mobile payment systems, etc.)	2.21	0.0041	0.0055		0.0072
	(1.23)	(0.0134)	(0.0134)		(0.0163)
Robotics (physical systems of automation)	1.23	-0.0117	-0.0090		-0.0208
	(0.63)	(0.0221)	(0.0221)		(0.0267)
3D printers	1.41	0.0079	0.0012		-0.0017
	(0.89)	(0.0162)	(0.0162)		(0.0184)
<i>Perceptions about the business environment</i>					
Your firm is heading towards a digitised system of operations	3.01			-0.0301*	-0.0128
	(1.06)			(0.0181)	(0.0201)
Your firm is heading towards an automated system of production	2.80			0.0076	0.0087
	(1.06)			(0.0171)	(0.0184)
You can make use of the COVID-19 crisis to reskill your workers with new technological skills	3.12			0.0022	-0.0022
	(1.06)			(0.0150)	(0.0158)
Level of business confidence in 2018	4.08		-0.0006	0.0025	0.0145
	(0.83)		(0.0187)	(0.0208)	(0.0222)
Level of business confidence in 2019	3.68		0.0339**	0.0353**	0.0274
	(1.00)		(0.0152)	(0.0166)	(0.0179)
Affected by COVID-19	0.89		-0.0044	0.0038	0.0464
	(0.31)		(0.0408)	(0.0449)	(0.0472)
Constant		0.3365***	0.2313**	0.1494	0.1841
		(0.0682)	(0.0945)	(0.1130)	(0.1179)
R-squared		0.1536	0.2048	0.1442	0.1865
Number of observations		492	480	411	382

Source and notes: Estimated using microdata from the UN Women Survey on Factors Influencing the Demand for Women Workers 2020. The dependent variable is the share of women workers in the firm's total employment. Mean and standard deviation of the dependent variable are 0.32 (0.28) in Model 1. The table does not report the coefficients of the variables in the core model due to space constraints.

The results suggest that the relative demand for female workers in Sri Lanka is only weakly associated with the new technologies and this is to be expected as most firms have not adopted them. The findings also suggest that issues relating to digitisation, automation, and reskilling of workers require policy interventions to exploit potential benefits of modern technology in promoting female employment.

The coefficients of business confidence for 2018 and 2019 are positive but statistically significant only for 2019. The positive but statistically insignificant coefficient for COVID-19's impact on business operations in the full model shows that whatever crisis the firm experienced during the pandemic of 2020, it has not coloured perceptions about business confidence in the previous years. In any case, of the total sample, only a third were fully closed during the first wave of COVID-19, while 58 percent was partially closed. This attests to the resilience of Sri Lanka's business sector during crises, a characteristic that may have developed over the long, destructive, and uncertain years of the war. However, subsequent waves of the pandemic and the lockdowns which followed are likely to have closed many businesses that survived the first wave.

5.5 SUMMARY

The analysis in this chapter used the primary data to validate and extend the core model of the demand for female workers estimated using secondary data. High non-response rates for key financial variables such as fixed assets constrained the core specification, but the primary data analysis largely confirmed the relationships suggested by the secondary data analysis. For example, the relationship between small and medium size of firm and demand for female labour was negative but not significant in the primary data analysis unlike in the secondary data analysis. The negative relationship between small scale and demand for women workers revealed by the primary data analysis could be due to the sample being dominated by firms in the trade and services

sector. Like in the secondary data analysis, higher shares of middle-skilled and low-skilled workers in total employment were associated with a greater demand for female workers in the analysis using primary data.

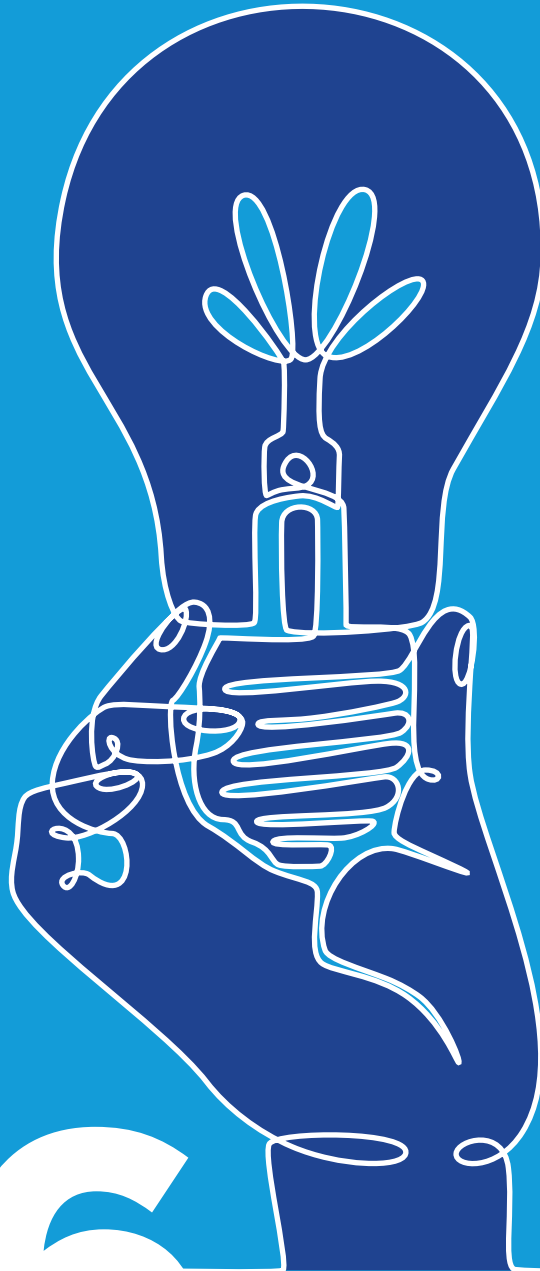
The rich primary data also enabled us to introduce new variables such as export orientation, the presence of trade unions and different modes of training and development. The negative coefficient on export orientation was not significant and can be explained by the gradual erosion of Sri Lanka's outward-oriented trade and investment position over the last two decades. All types of training other than external training were positive but significant only for in-house training. Extensions to the model looked at the influence of employers' perceptions about women workers, technology, and perceptions about the investment climate, on firms' demand for women workers.

The influence of both descriptive and prescriptive gender stereotypes and gender-based discrimination in employers' demand for women workers was evident. The male respondents made up of 70 percent of the sample, and powerfully and negatively influenced the relative demand for labour. Perceiving women as lacking the skills necessary for their business, their perceptions reflecting societal attitudes about the kind of jobs women can and cannot do were significant constraints. Results of the partial analysis confirm Ranaraja and Hassendeen's (2016) conclusions that provisions in the current legal framework impede the hiring of Sri Lankan women by private employers. For example, the inability to offer flexible working hours and nightwork, and difficulties related to financing maternity benefits were associated with significantly lower demand for women workers. Inability to offer part-time work did not appear to be a significant constraint, but this issue may have been picked up by the variable relating to flexible working hours.

Among the reasons why employers would prefer to employ women, their perception that women are more skilled than men (for the work carried out by the firm), and more loyal to the firm than

men, were significantly associated with a greater demand for female labour. The coefficients relating to perceptions that women work harder, are more honest, and more conscientious were also positive and significant in the more parsimonious models. This evidence based on primary data echoes Das et. al.'s (2019) observations that the issue of female employment in urban India was amenable to policy intervention, and that it was not necessary to wait until cultural attitudes changed to increase the demand for women's labour.

The use of technologies such as cloud-software, mobile devices, digital payments, robotics, and 3D Printers were positively associated with the demand for women workers, but of them, only mobile devices and applications was statistically significant and that too, in the parsimonious equation but not in the full one. The use of marketing platforms in the parsimonious equation and social media in the complete model were negatively and significantly associated with the relative demand for women workers. The low level of technology adoption in the sample firms is the most likely reason for the weak association between technology adoption and the demand for female workers.



CHAPTER

6

CONCLUSION

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6.1 INTRODUCTION

While the Sri Lankan literature about supply-side factors underlying low rates of women's participation in Sri Lanka's labour market has grown over the last decade, demand-side factors such as the role of firm-level characteristics and the attitudes of management about hiring women have remained less understood, mainly due to the lack of data. The present study attempted to address this gap in knowledge by applying the microeconomic theory of the firm to both primary and secondary data to analyse factors influencing firms' relative demand for women workers in Sri Lanka. Both types of data provided a cross-sectional coverage of business establishments operating in different sub-sectors of the private, formal manufacturing and service sectors of the national economy.

The secondary data was from the Department of Census and Statistics' Economic Census 2013 and the nationally representative Annual Survey of Industries of 2006 and 2016. The primary data was from a sample of 566 firms from a survey of establishments conducted between September 2020 and February 2021. The core model used for the econometric analysis of the data was based on standard microeconomic theory and the detailed analyses investigated the relationships between the relative demand for female workers in formal private sector establishments and firm, industry and sub-sector specific characteristics. The influence of employers' perceptions about hiring women and the business environment were also studied.

In the rest of this concluding chapter, we pull together the insights yielded from our analysis in a summary of the main findings in Section 6.1 and draw their implications for policy in Section 6.2.

6.2 SUMMARY FINDINGS

The estimation of the core model of labour demand using secondary data did not produce evidence of a clear relationship between demand for female labour and productivity. However, labour productivity was negatively and significantly associated with the demand for female labour in manufacturing and this is likely due to the concentration of female workers in low-skilled occupations and low-productivity manufacturing sectors. Results of the estimation of the core model also failed to confirm any close association between demand for female labour and capital intensity, but this could be due to limitations in the data on fixed assets. The relationship between size of firm and the relative demand for female workers varied by subsector and year.

The results of the secondary data analysis suggest that the gender-based segregation of the labour market on sectoral and occupational lines powerfully conditions the relative demand for female labour. The relatively high demand for low-skilled workers seems to be influenced by the occupational structures of subsectors in manufacturing and services and the relatively low capital, R&D, and possible technological intensity, of their operations. Subsector-specific factors also seem to underlie the high demand for female workers in the finance and banking, education, health and social services subsectors. The influence of spatial variables (rural sector, Western Province) on the demand for female labour could not be discerned. Among ownership-related characteristics, the firm, having at least one female working proprietor, is associated with greater demand for skilled and unskilled women workers.

Unlike in other emerging economies, export orientation was not associated with an increased

demand for women workers. This is symptomatic of the weak export orientation of Sri Lanka's economy in recent times and underlines the urgent necessity of re-establishing an export led-growth strategy facilitated through export-oriented foreign direct investment. While these measures are desperately needed to resuscitate economic growth and create decent jobs, the experience of other countries, as well as Sri Lanka's own experience soon after liberalisation, show that they are also likely to yield rich dividends in promoting employment opportunities for women.

On-the-job training and in-house training are the main sources of training for employees in the firms covered in the primary survey but the evidence suggests that women being concentrated in low-skilled occupations have less access to good training opportunities. Employers' assessment of the skills of women workers in their firms revealed high skills deficits among female employees in middle-level occupations relative to high- and low-skilled female workers. Middle-level workers appear to be the least competent in English language skills with half of employers rating them as having only basic or intermediate skills. Capacity to learn and problem solving also score poorly.

Sri Lanka seems to lag in the application of modern technology and digital technology in business operations while employers do not seem to be positioning themselves to use the COVID-19 crisis as an opportunity to reskill their workers and derive the full benefit of modern technological applications. While coping with COVID-19 may have pushed firms to have employees work from home, the experience with WFH during the pandemic showed that employees' limited access to IT related systems, infrastructure, and workspaces at home, low output, and lack of experience in this form of work, have been impediments.

While encouraging women to enter the labour market remains a challenge as attested to by previous supply-side analyses, the primary data from establishments suggests that once employed, a substantial proportion of women remain employed after marriage and even want to return if they had left. Thus, policies and strategies

to retain women employees who get married and supporting the return to work of those who leave after marriage, is yet another area that needs attention.

The primary data analysis found descriptive and prescriptive gender stereotyping and gender-based discrimination by employers. For example, respondents being male powerfully and negatively influenced the relative demand for female labour. Employers perceiving women as lacking the skills necessary for their business, and societal attitudes that prescribe the kind of jobs women can and cannot do, were significant constraints. The analysis also confirmed Ranaraja and Hassendeen's (2016) observations that provisions in the current legal framework impede the hiring of Sri Lankan women by private employers. The inability to offer flexible working hours and nightwork for women in shops and offices, and difficulties related to financing maternity benefits, were associated with significantly lower demand for women workers. In contrast, employers prefer to employ women if they perceived them as being more skilled than men (for the work carried out by the firm), more loyal to the firm than men, that they worked harder, and were more honest and conscientious.

Employers appear to be willing to hire women with disabilities and seem to be held back by their lack of experience and inability to provide the necessary training. Since they appear receptive towards external support and interventions, this is an area where interventions by both the government and non-governmental sector can yield positive outcomes.

6.3 IMPLICATIONS FOR POLICY

The most important determinant of the demand for female labour in Sri Lanka is unarguably the sectoral and occupational structure of firms which generates more demand for unskilled women workers in particular subsectors.

This suggests two important areas for policy intervention. First, macroeconomic, industrial and trade policies to diversify and upgrade productive

structures, promote productive efficiency, and spearhead export-led economic growth are needed. Second, policies that promote women's acquisition of middle-level occupational skills can help them access better paying jobs and facilitate their participation in the growth process. In what follows, we discuss these and other policy reforms and interventions that can help increase the demand for female workers in Sri Lanka's private formal establishments.

Macroeconomic, industrial and trade policies to diversify productive structures, promote productive efficiency, and spearhead export-led economic growth. While productivity, employment and decent work are closely interlinked, Sri Lanka's economy has long been operating on the inside of its production possibility frontier. This is because distortions in factor markets have allocated resources inefficiently, generating suboptimal growth and minimal employment generation. In this way, Sri Lanka's economy has failed to meet the full growth and employment potential of its resource endowments. The policy framework that has been place in recent times has compounded this situation as it had lost sight of the fundamental role that exports play in generating economic growth and employment in a small economy, and through both, the tax revenue to sustain public investment and services.

A vast empirical literature shows that policies that promote exports help expand employment and jobs for women, especially in small economies such as Sri Lanka where the small size of its domestic market does not permit the realisation of economies of scale. The analysis in this study which finds that labour productivity and capital intensity have little influence on the relative demand for female labour in industry and services is symptomatic of the underlying malaise. Thus, urgent policy reforms are needed to minimise market distortions and enhance productive efficiency. Therefore, macroeconomic, sectoral, and trade policies that promote exports, attract increased investments, increase the access to modern technology, and expand the demand for labour are urgently needed. This is because men's participation rates have already been maximised

and when the demand for labour increases, women will have a better chance of being hired for the new jobs.

Enhance women's acquisition of middle-level occupational skills. For women to access the new jobs generated by more productive and efficient production structures, they would need skills endowments in line with the job opportunities that will open. This study suggests that while employers regard the skills of women in high- and low-skilled occupations as largely adequate, there are notable skills deficits among female workers in middle-level occupations. We are unable to say whether these skills deficits are present in the male workforce as well. If so, the lack of middle-level skills is likely to constrain the diversification, upgrading, and growth of the country's productive sector, and thereby limit decent work opportunities for women in such occupations. Hence, while prioritising export-led growth and economic diversification as suggested above, women's participation in that growth process needs to be ensured by their acquisition of appropriate skills, an issue which this study identified as being most pressing in middle level occupations. English language skills and the capacity to learn and solve problems need special attention.

Furthermore, this study revealed that while firms provide women workers mainly with on-the-job training and in-house training, likely because they are low-skilled workers, male employees who dominate the strata of skilled occupations are the main recipients of external training. This helps perpetuate the gender-based segregation of occupations and constrains the upgrading of women's skills and their moving into more skilled occupations within the firm. Therefore, while the general education and technical and vocational education providers need to concentrate on building up the middle-level skills and competencies of young people, firms need to increase the capacity of talented female employees in low-skilled occupations through access to training so that they can take up jobs in more skilled occupations.

Policies that promote small and medium firms; female entrepreneurship, ownership, and

management; and the retention of women workers after marriage. Compared to large firms, small and medium firms seem to generate more demand for skilled and unskilled female workers in several subsectors according to the secondary data analysis. Thus, a strong SME policy framework to promote small and medium firms in manufacturing, trade and services are likely to have a positive impact on female employment. However, limited access to finance was found to constrain the demand for female labour in several subsectors as well as in small and medium enterprises as the analysis suggests complementarity between access to finance and women workers in several subsectors. Policies that support female entrepreneurship and ownership of firms is likely to enhance the employment prospects of female workers as this study found that the firm having at least one female working proprietor is associated with increased demand for skilled and unskilled women.

At the same time, the primary data analysis showed that even though employers are favourably disposed towards hiring women, when managers in decision-making positions are male rather than female, they exert a strong and negative influence on the relative demand for female labour. Hence, encouraging the promotion of women to these positions is likely to encourage the hiring of more women into the workforce, if other supportive policies are also in place. Policies that support the retention of women employees who get married and the return of those who leave upon marriage can also enhance women's engagement with paid work. A more gender-sensitive working environment and culture, measures such as providing childcare facilities, flexible working hours, and working from home arrangements, may well reduce the turnover of married female employees.

Labour law reform that facilitates flexible working hours and nightwork for women and socialise the costs of maternity benefits. The study found that employers' perceptions that certain provisions in the legislative framework are detrimental to women's employment prospects are indeed negatively associated with the demand for women's labour. Employers' inability to offer flexible working

hours and nightwork, difficulties related to financing maternity benefits, and the inability to provide a safe working environment constrain them from demanding more women workers as do their skills endowments and societal attitudes about what sort of jobs are appropriate for women. Policymakers urgently need to revise the relevant provisions in the legal framework to increase the demand for female workers.

Policies that promote digitisation, automation, WFH and reskilling of workers. As in other developing countries, Sri Lanka's formal private businesses appear to lag in the adoption of modern technology in business operations. Employers are not ready to make use of the COVID-19 crisis as an opportunity to reskill their workers and appropriate the full benefits of modern technological applications. Hence, public policy interventions to promote digitisation, automation, and reskilling of workers are urgently needed as a strategy to promote female employment and in fact upgrade production processes. Providing incentives to technologically upgrade production structures and adopt modern technological applications can be considered. While WFH can help bring more women into the workforce, the existing burden of unpaid care that women bear may permit only the more educated and better off who can depend on extended family and domestic help to assist with household and care work to benefit. Even then, the impediments to working from home such as supportive infrastructure and monitoring systems need to be addressed.

Interventions to build up the disability confidence of employers. Employers seem receptive to employing persons with disabilities but are held back by their lack of experience with working with them and providing them with the appropriate training. Thus, in addition to supportive work structures and infrastructure at the workplace, appropriate interventions such as providing training, internships, and wage subsidies, can help increase job opportunities for women with disabilities. Such interventions can help build employers' 'disability confidence' and make them more willing to hire job applicants with disabilities.

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APPENDIX 1

Table 6.1: Sub-sectoral policy recommendations made by Solotaroff et al. (2017).

Sector	Recommendations
ICT	<ul style="list-style-type: none"> • Create an enabling policy environment for increasing women’s participation in the sector • Make hiring criteria (education, skills, and experience) for ICT employment clear and transparent. • Introduce, formalise, and publicise worker benefits that support women, such as on-site childcare and flexible, part-time work options • Increase female enrolment in ICT technical education by scaling up promotion of STEM courses to girls and their parents. • Expand industry-linked internships and school-based business incubator and exposure programs for female students at the secondary school level • Provide career counselling and job market information in higher education • Establish special on-the-job training and mentoring opportunities for female ICT workers to enable their rise into leadership roles. • Encourage education and vocational training institutions to invite input from ICT employers when developing education and training curricula
Tea Estates	<ul style="list-style-type: none"> • Promote women into management positions • Adopt new practices that promote women’s technical training • Increase awareness of sexual and gender-based violence • Encourage women living in tea estates to pursue work outside the estate.
Tourism	<ul style="list-style-type: none"> • Address the supply-side constraints • Recognise and meet the transportation needs of women • Take advantage of tourism employers’ acceptance of the need for childcare services and other benefits and their willingness to help pay for them • Encourage entrepreneurship of women in the tourism sector • Create greater access to training in skills that are marketable in the tourism industry • Develop a strategy, and involve women in every part of its planning and execution
Textiles and garments	<ul style="list-style-type: none"> • Have women who are more highly placed in the garment industry act as role models. • Improve workplace conditions for women and raise awareness about these improvements • Enforce transparent labor recruitment standards to reduce discrimination against married and older female workers. • Establish garment factories in remote areas of Sri Lanka in collaboration with local and foreign investors. • Providing women with dedicated, safe transportation to and from garment sector jobs
Commercial agriculture	<ul style="list-style-type: none"> • Emphasise diversification to higher value crops • Commercial agriculture is a valuable entry point for reaching some of the most vulnerable groups of women • Provide greater incentives to invest in rural industries • Provide worker benefits and protection for women working in commercial agriculture

Source: Solotaroff et al. (2017)

APPENDIX 2

Constructing synthetic wage ratios using Labour Force Survey data

We followed Clemens and Dibben's (2014) method of constructing synthetic wage ratios that they included in an analysis of the determinants of health outcomes in the UK. However, while Clemens and Dibben (2014) used multi-level modelling to construct a synthetic wage from the UK Labour Force Survey data given its nested or hierarchical characteristics, we were unable to do the same with Sri Lanka's Labour Force Survey data. This was because while Sri Lanka's LFS is also nested in terms of provinces (9), districts (25) and sectors (3), the total number of private formal and informal employees in manufacturing with wage data was only around 4,000 in 2016, and of them, women accounted only for 1,600 and skilled women for only 223. So, since the LFS database was too small to be divided up among a sufficiently large number of groups to enable multilevel modelling, we estimated a standard wage equation using Poisson regression given the skewed nature of the wage data (see <https://blog.stata.com/2011/08/22/use-poisson-rather-than-regress-tell-a-friend/>).

The outcome variable was the daily cash wage, and the independent variables were of 3 groups: region, industrial subsector, and firm size. There were 3 regions in the specification used to construct the synthetic wage with 2006 data as data was not available from the Northern and Eastern provinces that year due to the war: the regions were, Western Province; Central, Southern and North Western Province; and North Central, Uva and Sabaragamuwa Provinces, with Western Province being the reference category. For the analysis of enterprise-level data from 2013 and 2016, a fourth region, the war-affected North and East was included.

The industrial subsector dummies were as for the models of labour demand estimated in Chapter 4 with the Other manufacturing or service category being the reference category. The group of variables denoting firm size were, '1 to 15', 'Between 16 and 100', and 'More than 100' with '1 to 15' being the reference category. Nazier (2018) appears to have followed a similar procedure to estimate wages for her analysis of the demand for women workers in Egyptian manufacturing using the Egyptian Economic Census data of 2013 and the ELMPS of 2012. She states that the method used was inspired by Elbers et al. (2003).

The results of the wage estimations using the Labour Force Survey data are set out in Tables 6.2, 6.3 and 6.4 below.

Table 6.2: Results of estimation of wages for skilled and unskilled men and women in Sri Lanka's manufacturing sector, 2006

	Skilled men	Skilled women	Unskilled men	Unskilled women
	(1)	(2)	(3)	(4)
Region - Central, Southern and North Western Provinces	-0.4911*** (0.0000)	-0.3289*** (0.0041)	-0.1419*** (0.0001)	-0.1925*** (0.0001)
Region - North Central, Uva, and Sabaragamuwa provinces	-0.4587*** (0.0032)	-0.2739** (0.0145)	-0.2949*** (0.0000)	-0.1679*** (0.0014)
Food and beverages	-0.4163*** (0.0050)	-0.2647* (0.0862)	-0.1017 (0.1038)	-0.1764 (0.1388)
Textiles garments and footwear	-0.0533 (0.8401)	0.2209 (0.4976)	0.0190 (0.8386)	-0.3196** (0.0179)
Rubber and plastics	0.0521 (0.8174)	0.1190 (0.4875)	0.1366 (0.1753)	-0.3117** (0.0445)
Chemicals	-0.2202 (0.2102)	-0.1671 (0.2848)	0.0945 (0.1233)	-0.0215 (0.8792)
Between 16 and 100 employees	0.0342 (0.8984)	0.1985 (0.3170)	0.0927 (0.1234)	0.2685*** (0.0000)
More than 100	0.3398 (0.1779)	0.2069 (0.1749)	0.2341*** (0.0000)	0.4816*** (0.0000)
Constant	6.6284*** (0.0000)	6.2896*** (0.0000)	5.7965*** (0.0000)	5.3570*** (0.0000)
Number of observations	406	342	1190	1282

Source: Estimated with microdata from the Department of Census and Statistics' Labour Force Survey 2006, using sample weights.

Table 6.3: Results of estimation of wages for skilled and unskilled men and women in Sri Lanka's manufacturing sector, 2016

	Skilled men	Skilled women	Unskilled men	Unskilled women
	(1)	(2)	(3)	(4)
Region - Central, Southern and North Western Provinces	-0.3197*** (0.0001)	-0.2829*** (0.0000)	-0.1612*** (0.0000)	-0.2537*** (0.0000)
Region - Northern and Eastern Provinces	-0.0437 (0.8078)	-0.0509 (0.7161)	-0.2178*** (0.0000)	-0.1885*** (0.0036)
Region - North Central, Uva, and Sabaragamuwa provinces	-0.2851*** (0.0012)	-0.1548** (0.0435)	-0.3096*** (0.0000)	-0.2214*** (0.0000)
Food and beverages	-0.0117 (0.8876)	0.0272 (0.7021)	-0.2037*** (0.0000)	-0.7006*** (0.0000)
Textiles garments and footwear	-0.0465 (0.5788)	-0.0795 (0.1517)	-0.1877*** (0.0006)	-0.3459*** (0.0049)
Rubber and plastics/	0.0610 (0.6741)	0.2095 (0.1159)	-0.0834 (0.5767)	-0.5750*** (0.0004)
Chemicals	-0.1206 (0.3747)	-0.1284 (0.3287)	-0.1856* (0.0629)	-0.6342*** (0.0000)
Between 16 and 100 employees	0.1488 (0.1460)	0.0932 (0.2766)	0.1101** (0.0236)	0.3752*** (0.0000)
More than 100	0.2857*** (0.0031)	0.2185*** (0.0077)	0.2672*** (0.0000)	0.4780*** (0.0000)
Constant	7.3323*** (0.0000)	7.2155*** (0.0000)	7.1917*** (0.0000)	6.7514*** (0.0000)
Number of observations	540	475	1845	1264

Source: Estimated with microdata from the Department of Census and Statistics' Labour Force Survey 2016, using sample weights.

Table 6.4: Results of estimation of wages for skilled and unskilled men and women in Sri Lanka's trade and services sector, 2013

	Skilled men	Skilled women	Unskilled men	Unskilled women
	(1)	(2)	(3)	(4)
Region - Central, Southern and North Western Provinces	-0.2488*** (0.0585)	-0.2542*** (0.0695)	-0.1265*** (0.0351)	-0.2199** (0.1087)
Region - Northern and Eastern Provinces	-0.4086*** (0.0647)	-0.3518*** (0.0698)	-0.1262** (0.0516)	-0.4042*** (0.1195)
Region - North Central, Uva, and Sabaragamuwa provinces	-0.2516*** (0.0912)	-0.2074** (0.0924)	-0.1845*** (0.0370)	-0.3384*** (0.1042)
Urban sector	0.0850* (0.0490)	0.0816 (0.0580)	0.0921** (0.0396)	0.0733 (0.0952)
Trade	0.1240** (0.0588)	0.1579** (0.0625)	0.2428 (0.1620)	0.2212 (0.2061)
Finance, banking, insurance, and real estate	-0.0590 (0.0848)	0.1671 (0.1916)	0.0567 (0.0504)	0.0786 (0.1133)
Hospitality	-0.2174** (0.0966)	-0.1546 (0.1057)	0.0064 (0.0912)	-0.0110 (0.1092)
Education, health, and social services	0.0656 (0.0597)	0.0904 (0.0646)	0.1510*** (0.0319)	0.1187 (0.1143)
Between 16 and 100 employees	0.2519*** (0.0571)	0.2636*** (0.0643)	0.3030*** (0.0414)	0.4820*** (0.0819)
More than 100	0.3122*** (0.0609)	0.3887*** (0.0693)	0.2919*** (0.0561)	0.5040*** (0.1220)
Constant	6.9586*** (0.0653)	6.8241*** (0.0774)	6.6389*** (0.0305)	6.2929*** (0.1718)
Number of observations	866	736	1859	557

Source: Estimated with microdata from the Department of Census and Statistics' Labour Force Survey 2013, using sample weights.



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