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Abstract: Trade in services has played a pivotal role in boosting economic growth of India. However, very few studies exist that trace its gender differential impacts. This study makes a pioneering attempt to estimate the impact of exports of services on gender employment in 46 sectors, which include 15 services sectors. Social Accounting Matrix has been used to generate gender employment multipliers and identify sectors where higher exports of services may lead to greater gender employment equality. Further, a primary survey is undertaken to capture the gender differential impact of trade in Information and Technology Enabled Services. Policy implications to gender sensitise trade policy are derived from the results.

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I. Introduction

Trade in services has played a pivotal role in boosting economic growth of India. Both exports and imports of services have grown exponentially over the last decade. Since services by nature are closely inter-linked and widely used in other sectors of the economy, the trade effects of services has been widespread through out the economy. However, there have been very few studies that benchmark the development impacts of trade liberalization of services in India and even fewer that have attempted to trace the gender differential impacts. One of the main reasons for limited research in this area in India is lack of availability of data, in particular, of extent of women participation in different sectors in India. **This study makes a pioneering attempt to estimate the direct and indirect impact of exports of services on gender employment in 46 sectors, which include 15 disaggregated services sectors.** Social Accounting Matrix (SAM) has been used to generate gender employment multipliers. These gender employment multipliers identify sectors where higher exports of services may lead to greater gender equality in terms of generating more equal employment opportunities for women It also identifies sectors where large gender inequality exists and higher exports of services may further increase this inequality. These results may have an important bearing on formulation of trade policy as it indicates the thrust areas for the policymakers for achieving higher economic gender- equality in terms of employment opportunities.

Literature identifies two modes of trade, i.e., Mode 1 and Mode 4[1] as having a proven track record of contributing to the increased participation of women from developing countries in

[1] Mode 1 involves cross border trade in services like ICT (Information and Communication Technology), Professional services such as Accountancy, Engineering and Management etc. and Mode 4 involves the temporary movement of service suppliers of country to supply services in the territory of another country i.e.

trade in international services (UNCTAD 2004). It has been argued that both the Modes provide the greatest opportunity to developing countries to foster gender equity, welfare and women's social and economic empowerment. Given the exponential rise in exports of communication services since the past decade under Mode 1 in India and high use of communication services in all sectors of the economy we attempt to estimate the impact of 20% increase in exports of communication services on gender employment in all other sectors. This captures the indirect impact of trade in communication services, in particular ITES and BPO services, on women employment.

Looking at the direct impact of rise in exports of communication services on gender employment, we find that in case of India, the employment multipliers generated for communication services are much higher for men than women. This may be a reflection of the lowers access to technology, education and skill training to women in India. Higher trade in communication services therefore may no doubt create more employment opportunities for women but it may also lead to higher gender inequality. This highlights the need for targeted trade policy to promote exports of low skill ITES with higher women participation. Skill development and special training programmes to build IT skills of women need to be factored into the trade policy to make the gender impact of trade in ITES more gender neutral.

Further, the study undertakes a small primary survey to capture the extent of differential gender impact of trade in Information and Technology Enabled Services (ITES). The survey results not only highlight the gender differential impacts of trade in ITES in terms of employment but also highlights the gender inequalities in terms of incomes earned due to differential skills. The results show that there remains large untapped potential for women

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national movement of people in services like care services, doctors, nurses, teachers, health workers and social workers.

employment due to the unique opportunities offered by this sector in terms of flexible timing, work from home option and part time employment. The qualitative results also highlight the vulnerabilities of women which do not allow them to exploit full potential that exists in this sector for improving gender empowerment. The study derives from the analysis some relevant implications for gender sensitization of trade policy with respect to services.

The study is organized as follows: section 2 briefly reviews the existing literature on gender impacts of trade liberalisation in services; section 3 discusses the trends in gender employment and income in services in India; section 4 discusses the methodology used, which is Social Accounting Matrix (SAM) model; section 5 presents empirical results on direct and indirect impact of trade in services on gender employment in 46 sectors; section 6 presents results of impact of rise in exports of ITES on gender employment using SAM model and also discusses the results of the primary survey; Finally, section 7 concludes the study and derives implications for trade policy.

II Review of Literature

There exists a stream of literature on gender impact of trade liberalisation. Most of the studies point out that trade liberalisation may not be a gender-neutral process. It may lead to higher export opportunities for developing countries, creating new avenues of employment but the extent to which it impacts gender empowerment will depend on women participate rate in export-oriented sectors. Higher imports may adversely affect the employment of women, especially if the imports are in low-tech sectors where due to lower access to technology and resources women have higher probability of employment. In this context, we briefly review the existing literature and highlight gender-neutralizing trade policy implications of the studies.

Puri (UNCTAD, 2004) analyses the issues related to women's participation in two modes of service delivery which are Mode 1 and Mode 4[2]. The study finds that multilateral liberalization of Modes 1 and 4 is key to increased and beneficial participation of developing countries not only in world services trade, but also in trade led-growth and development in general. Both Modes provide the greatest opportunity to developing countries to foster gender equity, welfare and women's social and economic empowerment.

With respect to Mode 2, i.e., tourism, studies have arrived at mixed results. Williams (2002) examines tourism and development from the perspective of social and gender equity and finds that the issue is multi-dimensional. The study argues that tourism growth may increase competition with other sectors such as domestic agriculture and other export areas. Most of these sectors provide wages for women and therefore it might be possible that tourist development may not be in line with social and sustainable development. Also, it has been argued that there are significant gender biases and inequality that may predispose women to greater vulnerabilities and constraints in enjoying the presumed benefits of tourism development and disproportionately shouldering the adjustments to its negative consequences.

With respect to Mode 3, i.e., commercial presence of foreign suppliers in services, not many studies exist. However, it has been argued that the current attempts to liberalise services and its necessary precursor, privatisation, have strong implications for women who have less

[2] Mode 1 involves cross border trade in services like ICT (Information and Communication Technology), Professional services such as Accountancy, Engineering and Management e.t.c. and Mode 4 involves the temporary movement of service suppliers of country to supply services in the territory of another country i.e. national movement of people in services like care services, doctors, nurses, teachers, health workers and social workers.

access than men to health, education and basic social services due to time, social or financial constraints (ILO/Commonwealth Secretariat, 2003).

Anh-Nga Tran-Nguyen (UNCTAD, 2004) examines the economic aspects of gender inequality. The study argues that while gender equality as a fundamental principle must be respected in all societies, the pursuit of the gender equality objective should be supportive of growth and development in the economy. It is therefore necessary to analyse the relationship between gender equality and development in order to ensure that the development process fully integrates gender equality concerns.

The above literature reflects that Gender inequalities which are visible often persist in terms of:

- Employment opportunities/job segregation
- Returns from labour
- Conditions of work and quality of employment
- Access to basic services and resources
- Access to technology and training
- Distribution of income inside and outside the household

However, the extent of the impact may differ considerably across sectors and countries. The extent of women participation in different sectors, social empowerment and cultural and economic equality in terms of access to resources are some of the factors that may lead to differential gender impacts

This paper makes an important contribution to the existing literature on gender and trade liberalisation in India as it generates gender-specific employment multipliers in 46 sectors of the economy which include 15 services sectors. These employment multipliers are used to

identify those sectors of the economy where trade may have higher gender-biased effects. The methodology used by the study is application of Social Accounting Matrix (SAM) constructed for the financial year 2003-04.

Drawing lessons from the existing literature which emphasizes the qualitative impact on gender of trade in services, the study further undertakes a primary survey. Since the results of the gender employment multipliers show that communication services is a sector with highest export growth but high gender differential in employment multipliers, this sector is selected for the primary survey. A primary survey of 65 companies which provide information and technology enabled services (ITES) and business processing and outsourcing (BPO) services is conducted. The survey analyses the gender impact by examining various gender dimensions like nature of employment; category of workers; composition of workforce as per education levels; work environment; and total salary and cost expenditure to the company.

III. Gender Employment and Wage/Salary Trends in Services in India

Services sector in India has grown by almost 8 per cent per annum in the last decade (1994-2004), which is way ahead of agriculture sector (which grew at 3 per cent) and manufacturing sector (which grew at 5.2 per cent) pulling up the growth rate of the economy to 8.1 per cent in 2005-06. Trade in services, has played an important role in fuelling growth of services sector. In 2005-06, exports of services grew by 35 per cent. It now contributes more than 50 per cent of the GDP. Growth in services has largely been fuelled by the information technology boom, in which India is emerging as a world leader. India accounted for 65 per cent of the global market in offshore IT services and 46 per cent of the global BPO market in 2004-05. Besides communication services, exports in the areas of construction, financial and professional services have also grown rapidly. However, very limited data exist that reflects

the extent to which the benefits of this growth in services, in terms of employment and wages & salaries, has been distributed between the gender.

The percentage share of female population in total population in India is around 48%, while the work participation rate of females in only 26% as compared to 52% in males[3]. There exists a wide urban-rural divide in the participation of women and men in the economy. About 24.9% of women in rural areas and about 14.8% of women in urban areas were in the workforce in India during 2004-05, whereas about 54.6% of men in rural areas and 56.6% of men in urban areas are in work force. In the organised sector, out of the total employees in 2004, about 18.7% were women. This indicates clear gender discrimination in labour force participation rate.

To assess the extent to which the benefits of growth of trade in services in India has been shared between the two genders, it is important to examine the extent to which females participate in different services sectors and gain positively in terms of wages and salaries.

III.1 Trends in Gender Employment in Services

In terms of gender employment in services sectors, we find that very limited information is available. Share of different services sectors in total female employment in services is computed. It is found that percentage of female employment in total employment in the services sector, comprising other transport services, communication, banking, insurance, tourism and other services, is around 16%. Share of 'other services' in total female employment in services sector is found to be highest (79%), followed by communication

[3] The source of this information is "Women and Men in India" (2006), Ministry of Statistics and Programme Implementation, GOI.

services (11%) and Banking services (5%). Female employment is found to low in other transport services, insurance services and tourism (Table 1).

Table 1: Employment in different services sector by Gender: 2003-04

Sector	Employment (In No's)		Total Employment	% of Female Employment	Share of Sector in Total Female Employment in Services (%)
	Female	Male			
Other transport services	137,915	12,996,805	13,134,720	1.1	3.1
Communication	482,569	2,419,228	2,901,797	16.6	11.0
Banking	219,882	1,543,406	1,763,288	12.5	5.0
Insurance	80,260	321,844	402,104	20.0	1.8
Other services	3,464,283	5,977,752	9,442,035	36.7	78.9
Tourism	5,479	40,560	46,039	11.9	0.1
Total	4,390,388	23,299,595	27,689,983	15.9	100.0

Source: Employment and Unemployment Situation in India-2004-05 (Report No. 515); author's estimates

Within different services, we find that gender differential in employment is highest in other transport services, followed by tourism and banking. In communication services, which has high share of female employment, share of female in total employment is only around 17%.

III.2 Trends in Gender Wage/Salary

With respect to wages and salaries, studies indicate large gender disparities. Very limited information exists on wage/salary differentiated across gender for disaggregated services sectors. NSSO (2005) estimates average wage/salary received per day by regular employees for two broad categories of services in India (Table 2). Very interesting insights emerge from this information. In urban areas, on an average wage/salary paid to females is only 75% of that paid to males, while in rural areas females are paid 58% of what is paid to the males. This wage disparity differs across sectors and education levels. In urban areas, the highest

gender wage disparity exists in mining and quarrying and manufacturing sectors. Female wage/salary are around 80% of male wage/salary on an average. In rural areas, the gender wage disparity is higher in almost all the sectors as compared to the urban areas. Better access to resources like education, technology and knowledge, may be a reason for the rural-urban differences in the trends. But this clearly reflects existence of gender wage disparity in all sectors of the economy.

Across services sectors, the wage/salary trends show that as the literacy levels of females increase the wage disparity declines. However, it is interesting to note that even for graduate and above, the salaries earned by females on an average is only 70-75% of that earned by males with similar education level. This implies that with higher growth of services, even if employment opportunities for women grow at the same rate, the benefits of the growth goes more to males as compared as females.

Table 2: Average Wage/ Salary (in Rs) received per day by regular wage/salaried employees of age 15-59 years by Industry of work, sex, sector and broad education level for India.

Industry division	Not literate		Literate upto middle		Rural Educational level Secondary & Hr Secondary		Graduate and above		All	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
1	2	3	4	5	6	7	8	9	10	11
Agriculture (01--05)	45.65	53.39	54.41	66.27	134.61	149.40	105.32	200.33	54.51	71.16
Mining and Quarrying (10-14)	84.88	174.13	212.29	217.64	83.29	323.41	0.00	341.46	82.75	246.93
Manufacturing (15 -22)	26.53	58.36	36.26	74.41	47.26	103.40	89.21	160.67	38.24	90.60
Manufacturing (23 -37)	38.40	75.73	58.54	84.51	62.12	109.43	219.58	534.81	57.95	146.72
Electricity Gas & Water(40-41)	168.63	142.41	178.57	202.95	290.91	260.51	111.91	306.55	253.95	246.32
Construction (45)	82.64	85.59	44.21	100.19	101.70	111.08	136.09	223.09	90.80	106.79
Trade (50-55)	34.72	65.35	40.70	66.67	67.51	86.57	136.45	108.34	51.15	75.34
Transport and Storage etc.(60-64)	87.75	98.28	102.54	112.79	105.32	138.45	256.22	235.17	135.75	126.96
Services (65-74)	100.00	51.82	97.35	126.43	89.95	193.12	157.28	278.29	143.72	200.71
Services(75 -93)	34.70	101.07	50.55	133.20	105.74	197.20	174.18	256.93	113.66	203.66
Private hhs with emp. Persons(95)	29.18	50.74	34.10	66.68	54.90	88.14	0.00	137.67	31.27	67.80
Others (99)	NA	0.00	NA	0.00	NA	0.00	NA	250.00	NA	250.00
All	35.74	72.47	47.75	98.59	100.19	158.04	172.70	270.02	85.53	144.93
					Urban					
Industry Division	Not Literate		Literate upto Middle		Educational level Secondary & Hr Secondary		Graduate and above		All	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Agriculture (01--05)	55.60	68.83	73.45	70.66	74.20	182.06	225.56	237.37	79.59	104.80
Mining and Quarrying (10-14)	154.15	266.71	75.78	248.61	714.29	348.64	351.30	806.61	186.30	359.41
Manufacturing (15 -22)	34.23	79.41	53.25	88.45	70.71	122.10	235.10	218.85	65.58	113.22
Manufacturing (23 -37)	54.81	106.70	45.81	108.62	113.24	176.79	219.39	362.06	102.16	189.41
Electricity Gas & Water(40-41)	127.06	169.10	103.33	188.21	240.48	325.56	422.72	523.53	233.34	340.51
Construction (45)	69.08	81.03	122.35	115.36	147.59	106.45	253.59	376.45	191.75	171.47
Trade (50-55)	48.81	62.44	53.63	76.41	95.07	112.21	204.85	208.97	104.53	103.47
Transport and Storage etc.(60-64)	90.72	104.74	144.69	138.84	228.99	211.92	414.48	361.17	278.41	207.57
Services (65-74)	45.77	64.01	108.36	122.25	131.04	174.19	372.60	501.69	304.07	360.15
Services(75 -93)	78.53	126.80	116.16	150.01	186.33	239.72	247.12	345.63	205.35	265.72
Private hhs with emp. Persons(95)	38.20	78.77	42.77	89.82	51.67	62.95	67.61	164.08	41.26	86.94
Others (99)	0.00	0.00	0.00	0.00	66.71	134.00	0.00	0.00	66.71	134.00
All	48.7	89.79	64.79	111.44	150.41	182.58	269.17	366.76	153.19	203.28

Source : National Sample Survey Organisation, 61st round (July 2004 - June 2005)

Note : Code in brackets represent National Industrial Classification (NIC), 1998 industry codes.

IV Methodology and Data Sources: The Social Accounting matrix (SAM)

To estimate the impact of trade in services on gender employment Social Accounting Matrix (SAM) has been used. SAM constructed here is for the financial year 2003-04 and consists of 46 sectors. The employment multiplier of a sector gives an estimate of the aggregate direct and indirect employment changes, in person years, resulting from the increase in INR 100,000 (i.e., 0.1 million rupees) of output in services sectors, presumably due to exports

The following are the sources have been used for estimating gender wise employment coefficients.

1) For plantation crops the ratio of female to total employees is taken from Indian labour statistics 2003-04.
2) For other crops the estimates are based on gender wise work force from the 2001 census. The same coefficients are used for the food crops, cash crops and "other crops"
3) For minerals the gender wise estimates are based on "Statistics of mines in India, vol-I-Coal and vol-II- other minerals. Indian Bureau of Mines
4) For different sectors under manufacturing the estimates are based on report no 515 of the NSSO on "Employment and Unemployment situation in India" 2004-05. This source is also used for getting the estimates in case of animal husbandry, forestry, fishery, and other service sectors.

V Empirical Results: Direct and Indirect Impact of Exports of Services on Gender Employment

V.1 Direct Impact of Trade in services on Gender Employment

Use of services in manufacturing sector has been rising rapidly in India. With trade liberalisation, as competition in manufacturing sector is rising, demand for specialized services is also increasing. Detailed examination of economy-wide input-output matrix show that the use of services sector input to industry has increased by about 40 percent in the period 1979-80 to 1993-94 and about 108 per cent in the period 1993-94 to 1998-99. Services which are used predominantly by the industry are communication services, hotels and restaurants, storage and warehousing, banking and transport services. Rise in exports of services will therefore have both direct as well as indirect impact on gender employment.

Using SAM model, the impact of rise in exports of services on gender employment is estimated. These employment multipliers are obtained by multiplying the output multiplier vector of each sector with employment coefficients of that sector.

The direct impact of a rise of 20% in output of a service sector (presumably because of rise in exports) on gender employment is estimated for six disaggregated services. The employment multiplier generated by the SAM model are specified in person-years of additional employment created for an increased output of Rs. 1 lakh (0.01 million Rs.) of the concerned sector.

The results are presented in Table 3. The employment multiplier is found to be highest for males in communication services followed by tourism and other transport services. With respect to females, the employment multiplier is highest for other services (which is the residual sector) followed by communication services and tourism. However, it is interesting to note that the gender differential in employment multipliers is high in communication services. This is indicative of lower access to better resources in terms of education, training, technology and knowledge to females as compared to males. Out of the total direct employment created by exports of Rs 0.1 million worth of communication services only 35% of it is for females. For most of the services, we find that out of the total employment created by a unit rise in exports only 30 to 40 percent of the employment goes to females. This implies that though trade in services creates additional employment for women, the gender inequality increases in terms of work participation. This presents a case for an immediate policy intervention.

The results show that trade in services, on its own, may ensure rise in female employment but it may also in the process lead to an increase gender inequality in terms of labour

participation rate. Given the gender wage disparity this will lead to higher gender inequality in terms of incomes earned and may lead to lower economic empowerment of women. Studies show that economic empowerment of women in terms of higher access to economic resources leads to higher social empowerment of women, it therefore becomes important to intervene in this process and formulate trade policies that are corrective in nature.

Table 3: Gender wise Increased Employment generation due to 20% increase in Exports over 2003-04

Sector	Increased Exports due to 20 % increase in export value over 2003-04 (Rs billion)	Increased Employment of Males due to 20 % increase. (in person-years)	Increased Employment of Females due to 20 % increase. (in person-years)	Male-Employment multiplier	Female-Employment multiplier
Communication	9.07	154,190	84,351	1.7	0.93
Banking	2.74	38,634	25,208	1.41	0.92
Insurance	3.84	49,920	31,872	1.3	0.83
Other transport services	29.43	470,880	226,611	1.6	0.77
Tourism	46.11	751,593	428,823	1.63	0.93
Other services	150.96	2,279,496	1,434,120	1.51	0.95

V.2 Indirect Impact of Trade in Services on Gender Employment

There is growing recognition that services procured from service provider firms are increasingly becoming an important input to all other sectors of the economy, particularly for manufacturing sector. The growing complexity of manufacturing production and distribution resulting from the application of new technologies, and increasing problems of coordination caused by these changes in manufacturing has raised the service content of manufactured goods (Guerrieri and Meliciani, 2003). In India, studies show that an increasing use of

services in manufacturing sector has increased output and productivity growth of the manufacturing sector (Banga and Goldar 2005). This has further increased the demand for services. Higher use of services, because of its linkages with other sectors of the economy, creates along with direct impact, a strong indirect impact on employment.

The indirect impact of rise in exports of services on gender employment in other sectors of the economy is estimated using SAM model. The results are presented in Table 4. The results show that a rise in 20% exports of all services leads to an additional employment generation in the economy of 59.75 lakh person years. Out of this male employment contributes 37.44 lakh person yeras and female employment contributes 22.3 lakh person years, representing 37.3 % of the total additional employment generation.

Female employment multipliers are found to be high in agriculture and animal husbandry sectors and very low in crude petroleum and natural gas. This indicates that rise in export of services has high indirect impact on women employment in agriculture and animal husbandry. This is plausible as services are used extensively in manufacturing sector which in turn creates demand for agriculture products. Among manufacturing sectors, female multipliers are found to be high for wood, furniture, etc; beverages, tobacco, etc; and food products. In sectors which are comparatively high-tech, such as chemicals, electrical, electronic machinery and applications, industrial machinery and transport equipment, we find that female employment multipliers are low. This emphasizes again the lower access of females to education, knowledge and technology. In case of services, we find that due to both direct and indirect impact of rise in output of services, presumably because of exports, the employment multipliers generated are high for trade (retail and wholesale) and education and research.

A close look at the male-female employment multipliers generated show that gender inequality in employment multipliers is higher in sectors like agriculture, other minerals, wood furniture, trade, construction, metal products and hotel and restaurants. This implies that though these sectors may generate higher employment opportunities for females they may also create higher gender inequality as the differences between male-female employment multipliers is higher in these sectors.

To boost gender equality in employment opportunities created by a rise in export in services, policy intervention is required to build capacities of women, particularly in the identified sectors, such as agriculture, trade, construction and hotel and restaurant, so as to enable them to seek higher employment opportunities.

VI. Impact of Exports of ITES on Gender Employment

ITES and BPO are contributing in a big way to India's economic transformation, The Indian ITES-BPO segment has grown by 33.5% per cent contributing $8.4 billion to the total software and services exports of $31.4 billion in FY 2007. The ITES-BPO employee base has grown to 553,000 in 2007 from 415,000 in 2006. Besides logging in a radical growth, the Indian ITES-BPO industry has also matured in terms of the services it began providing to global clients.

To estimate and assess the impact of exports in ITES on gender employment both primary and secondary analyses have been undertaken. Using SAM model, total impact i.e., direct and indirect impact on gender is estimated and a rise in female participation in different sector due to an increase in 20% exports from 2003-04 level is estimated. A small primary survey of

65 ITES and Business Process Outsourcing (BPO) firms has been carried out in Hyderabad and Bangalore, which are the two hubs of these services.

Table 4: Impact of Rise in Exports of Services (over 2003-04) on Gender Employment

S No	Sectors	Female Employment Multiplier	Male Employment Multiplier
1	Food crops	5.15	7.90
2	Cash crops	2.11	3.07
3	Plantation crop	2.51	2.90
4	Other crops	1.27	1.74
5	Animal husbandry	3.92	2.55
6	Forestry and logging	1.37	1.68
7	Fishing	1.07	1.90
8	Coal and lignite	0.84	1.46
9	Crude petroleum, natural gas	0.24	0.38
10	Iron ore	0.78	1.29
11	Other minerals	0.39	2.05
12	Food products	1.78	2.62
13	Beverages, tobacco, etc.	1.82	1.84
14	Cotton textiles	1.35	2.23
15	Wool Silk and synthetic fibre	1.00	1.63
16	Jute, hemp, mesta textiles	1.30	2.13
17	Textiles products including wearing apparel	1.38	2.04
18	Wood, furniture etc.	1.89	3.40
19	Paper & printing, etc.	0.64	1.22
20	Leather and leather products	1.19	2.11
21	Rubber, petroleum, plastic, cola.	0.49	0.84
22	Chemicals, etc.	0.69	1.12
23	Non-metallic products	0.85	1.72
24	Metals	0.57	1.29
25	Metal products	0.73	1.75
26	Tractors, agriculture Implements, industrial machinery, other machinery	0.47	1.04
27	Electrical, electronic machinery and applications	0.38	0.77
28	Transport equipments	0.70	1.28
29	Miscellaneous manufacturing industries	0.55	1.16
30	Construction	0.97	2.02
31	Electricity	0.85	1.48
32	Gas and water supply	1.12	1.79
33	Railway transport services	0.96	1.74
34	Other transport services	0.77	1.60
35	Storage and warehousing	0.97	1.88
36	Communication	0.93	1.70
37	Trade	1.00	2.12

38	Hotels and restaurants	1.63	2.64
39	Banking	0.91	1.42
40	Insurance	0.83	1.31
41	Ownership of dwellings	0.86	1.52
42	Education and research	1.40	2.02
43	Medical and health	1.03	1.62
44	Other services	0.95	1.51
45	Public administration	1.26	2.25
46	Tourism	0.94	1.64

VI.1: Impact of ITES on Women Employment using SAM

Given the exponential rise in exports of communication services in India, a separate analysis is done for the impact of 20% rise in exports of communication services on gender employment. The results are presented in Table 5.

Using SAM, The results show that a 20% increase in exports of ITES will have differential impact on gender employment in different sectors depending on the extent to which ITES services are used in the sector (i.e., direct impact) and the demand created for the output of the sector due to expansion of other sectors (indirect effect). Table 5 shows that female employment as a percentage of total employment increases more than 50% in animal husbandry, beverages, forestry and plantation crops. However, the female employment increases by less than 10% of total employment in sectors like electrical, metal products, railway transport services, industrial machinery and crude petroleum. These are sectors which have low female employment, plausibly because of use of high technology to which females have lower access, as discussed earlier. This emphasizes the need for increasing the indirect impact of communication services on female employment opportunities in identified sectors. More importantly, female participation in communication services used by these sectors need to be developed and also better access to technology and resources needs to be provided to females.

Table 5: Effect of 20 % Increase in Exports of Communication Services on Female Employment

SNo	Sector	Increase in Female Employment (%)
1	Animal Husbandry	75.9
2	Beverages, tobacco, etc.	75.7
3	Forestry and logging	55.4
4	Plantation Crop	49.9
5	Textiles products including wearing apparel	46.0
6	Education and research	42.3
7	Medical and health	39.0
8	Other crops	38.8
9	Cash Crops	38.8
10	Food crops	38.7
11	Chemicals, etc.	38.4
12	Other services	36.6
13	Cotton textiles	33.2
14	Wool Silk and Synthetic fiber	33.2
15	Jute, hemp, mesta textiles	33.0
16	Wood, furniture, etc.	31.3
17	Non-metallic products	26.6
18	Food Products	23.7
19	Hotels and restaurants	21.0
20	Rubber, petroleum, plastic, cola.	19.9
21	Insurance	19.8
22	Miscellaneous manufacturing industries	17.2
23	Communication	16.6
24	Iron ore	14.3
25	Leather and leather products	14.2
26	Paper & printing, etc.	13.4
27	Banking	12.4
28	Trade	12.2
29	Tourism	12.1
30	Fishing	11.1
31	Construction	10.7
32	Other Minerals	9.9
33	Electrical, electronic machinery and applications	9.4
34	Metal products except mach. and Equipment	5.9
35	Gas and water supply	5.4
36	Railway transport services	5.3
37	Ownership of dwellings	5.0
38	Storage and warehousing	4.4
39	Metals	3.3
40	Coal and lignite	3.0

41	Transport Equipments	2.9
42	Electricity	2.8
43	Tractors, agri. Implements, industrial machinery,	1.4
44	Crude petroleum, natural gas	1.1
45	Other transport services	1.0
46	Public administration	na

VI.2 Impact of Trade in ITES on Gender Employment: Primary Survey Results

This section analyses the impact of increase in growth and trade in ITES on gender employment, including, gender balance in nature of employment generated across skill levels, the tenure of employment namely permanent, casual or contract based employment, education, health, work environment, and salary among other related criteria..

The data for the primary study has been collected from 65 ITES and BPO firms for the period 2003-04 to 2005-06 through a structured questionnaire. The following are the major heads on which data was collected:

1. Organization Details
2. Employment Details
3. Work Environment

VI.2.1. Gender Employment in Surveyed Firms

The gender distribution of the employees in these 65 companies was examined. The data on employment for three years 2003-04, 2004-05 and 2005-06 in each firm was collected so as to assess the change in gender employment overtime. However, the answering base varied across the years. For the financial year 2003 -04, only 8 companies responded. For these companies we find that there is a heavy male domination in the IT sector with 73 % of the employees being male. For the year 2004, 59 companies responded. We find that percentage of female employees in total employment increased from 27% to 34%. In 2005, all firms

responded and we find that out of total number of employees 34% were females. The gender ratio does not seem to have changed much overtime and there appears to be a gender bias in favour of men with most companies employing 70% men in their workforce.

Table 6: Gender Employment Profile (No. of People)

No. of Employees	FY 2003	FY 2004	FY 2005
Ans. Base	8	59	65
Overall No. of Employees	1939	6444	5531
% of Male Employees	73.13	66.38	66.05
% of Female Employees	26.87	33.62	33.95

The nature of work in the ITES sector is such that long hours are inevitable. This is especially true for the software, ITES and BPO sector. This itself may act as a disincentive for women entering into this sector. This may explain in part the skewed distribution of the labor force in favor of males. Further, Heeks (1996) argues that a possible reason for women's observed under-achievements can be a lack of international mobility because of family commitments. In spite of this the existence of male domination may be a manifestation of the fact that there are fewer women available with the technical skills required for the job. As more girls are opting for engineering, this ratio can be expected to increase – but the many factors that still inhibit girls from taking up science and technology courses are not likely to change drastically in the near future unless some policy intervention is done.

VI.2.2 Nature of Employment

To assess the nature of employment, three categories of employment, i.e., permanent, casual and contract were considered.

Table 7 shows that in the organizations surveyed 68.4% employees are permanent while 23.9% are contract workers and 7.7% casual workers. This implies that the growth in the ITES sector would mainly be led by permanent employment. On an average, 65.3% of total females employed and 34.6% of total males employed were permanent employees indicating females are largely preferred for permanent jobs than contract or casual jobs. Given low

answering base it is difficult to draw conclusions for casual and contract employment. What is found is 54.4% females and 45.6% males are on contract employment.

Table 7: Nature of Employment 2005-06 (No. of People)

Nature of Employment	Ans. base	Total in ITES	% Total	Male	% of Male	Female	% of Female
Permanent	65	12089	68.4	4189	34.6	7900	65.3
Casual	13	1366	7.7			173	12.7
Contract	41	4215	23.9	1920	45.6	2295	54.4
Total		17670		6105	34.6	10368	58.7

Labour Turnover

As shown in Table 8 the rate of turnover is highest at the junior level. We find that the rate of turnover is lower for female employees than male employees. However, since the answering base is small it is difficult to say anything conclusively in this regard.

Table 8: Rate of Turnover of Employees in the ITES sector 2005-06 (Percent)

Rate of turnover	Ans. Base	Males	Females
Junior Level Management	15	28.67	12.80
Middle Level Management	13	22.31	8.85
Senior Level Management	11	14.27	11.13

VI.2.3.Work Environment

One of the advantages of ITES is the opportunity provided by these services to work from home to women. Given the household responsibilities, this is an advantage that is expected to improve women work participation rate in this service sector. The surveyed firms were questioned with respect to kind of advantages offered by them to their employees in terms of flexible timings, working from home and working part-time.

As expected, Table 9 shows that more women take this option of working from home though the percentage of women taking this advantage is very low, i.e., only 20%. In terms of taking

advantage of flexi timing and part-time the trend between men and women appears to be the same.

Table 9: Work Environment 2005-06

	Working from Home	Flexi. Time	Part Time
Ans. Base	26	22	3
Males (%)	18	14	20
Females (%)	20	14	20

Provision of such facilities by the ITES sector are new in the context of the work environment in India and have brought about changes in a positive direction in the overall work environment and work culture for the Indian corporate sector. This has led to creation of opportunities for the labour force and has brought in greater flexibility and higher productivity. As is well known, providing flexibilities in the work environment helps to absorb larger numbers of the women underemployed population into the work force. However, this appears to remain largely untapped by women in this sector.

VI.2.4. Gender Skill Levels in Employment

The definition of skilled, semi-skilled and unskilled employment in the ITES sector is based on the following criteria:

A *skilled* worker would include a graduate/ B.E. with specific computer related skill set or MBA (working with SAP or other specialized IT) with Marketing /Finance /HR Specialization.

A *semi skilled* worker would include a graduate/post graduate without any specific computer related skill such as B.Com, BA, BE (With no IT education), (BSC (Non Computer science

background), MBA (With no IT education), etc. An *unskilled* worker includes all undergraduates and Class IV employees such as housekeeping staff, catering, etc.

Table 10 presents the results with respect to skill levels in employment with respect to gender. The survey results show that the percentage of females is highest in the unskilled category, i.e., undergraduate and class IV employees. 44% of this workforce constitutes women. This reflects the low access to education to women. Skilled female workers are 32% of total skilled workers while in the semi-skilled category females are 24%.

Table 10: Gender Ratio based on Skills: 2005-06

Category of Employment	Ans. Base	Males	Females	Total	Percentage of Females to Total
Skilled	65	11734	5538	17272	32
Semi-skilled	60	4709	1541	6250	24
Unskilled	55	514	404	918	44

The minimum education required for being employed in ITES is higher than in many other services. Unskilled worker is an undergraduate. Given the lower literacy rates in women as compared to men, we find that 83% of women employed in this sector are graduate and above. The percentage of uneducated women in this sector is only 12%. This indicates that to avail the employment opportunities in this sector it will be important to improve the education levels in women.

VI.2.5 Wages/Salaries by Gender in ITES

As was discussed above, the secondary data indicates that there exists considerable gender wage-disparity in India, though compared to other sectors it is lower in services sectors. However, information is not available with respect to disaggregated services. India has two types of wage advantages that have reinforced each other:

a. The lower wages for Indian software professionals relative to that of their US counterparts makes Indian software cheaper in global markets.

b. The wages for the software professionals in India is higher than other sectors in the Indian economy. This has ensured a steady stream of supply of software professionals.

ITES being comparatively skill intensive service, the probability of gender disparity in wages/salaries is expected to be lower. Since legally the firms cannot bring gender bias in terms of wages/salaries offered the response to differences in salaries offered to men-women was not forthcoming. However, the total expenditure by the companies on men and women was recorded. Table 11 presents the total salary cost to the company. The results show that cost to the company is increasing for skilled labour and declining for unskilled labour. This is true for both males and females. However, total cost to company for females shows an increase. The cost borne by the company for males and females reflects gender bias but it cannot be attributed mainly to wage disparity since the companies that report gender wise cost to company are not the same as those which report gender wise employment. But this does indicate that total income earned by females in this sector is lower than that earned by males.

Table 11: Total Cost to the Company in Rs. Lakhs

Category of Employment	Cost to the Company in FY 2004-05		Cost to the Company in FY 2005-06	
	Male	Female	Male	Female
Skilled	192.53	65.55	220	74.43
Semi-skilled	48.3	18.39	47.15	17.40
Unskilled	99.69	29.14	87.57	20.48
Total Cost to the Company	204	92.31	137.17	97.79

VI.3 Broad Conclusions from the Survey Results

The survey results highlight some very important qualitative gender impacts of trade in ITES and BPO. This sector has witnessed spectacular growth in exports in the past decade. It therefore becomes important to assess whether women have been an equal beneficiary of gains to the sector. Some of the important observations from the survey of 65 ITES and BPO companies are:

- The ITES and BPO services have offered new employment avenues for women, consequently there is a possibility that some women, for whom the opportunity cost was almost nil, may have may found gainful employment in this sector. There has been a rise of almost 10% in female employment in three years in the total number of companies surveyed. The female employment is 34% in the surveyed firms, which is greater than the female in total services sector, i.e., 16%.
- This sector provides employment opportunity to mainly educated women. Most of the females employed are educated, i.e., at undergraduate level. However, in the unskilled category the proportion of females to males is higher implying that the gender bias increases with the skill. This may be indicative of lower number of females in the labour market with higher skills as compared to those with lower skills.
- Women are taking advantage of employment opportunities offered by this sector in terms of working from home, part-time employment and flexi-timing. However, these opportunities remain largely untapped and there exists a large potential for women to enter job market on the basis of these opportunities offered.
- The results indicate that there is a possibility of existence of gender wage-disparity in this sector but the low answering base makes it difficult to draw conclusive results on this.

VII. Conclusions and Implications for Trade Policy

India has witnessed a services dominated export growth. Services exports grew by 32.5% in 2006-07 and reached US$ 81.3 billion[4]. Within the services sector, while software services rose by 32.7%, non-software miscellaneous services (mainly led by business services such as

[4] Planning Commission 2007.

management, architectural and engineering consultancy) grew by 39.3%. In an attempt to assess the extent to which these gains from trade in services has been distributed amongst gender, this paper estimates the impact of trade in services on gender employment. The extent to which women participate in the growing trading sectors is an important indicator of the extent to which trade may empower women economically.

To estimate the impact of trade in services on gender employment, the paper undertakes analysis at three levels using both secondary and primary level data. Firstly, it estimates direct impact of rise in 20% exports of services in six disaggregated services sectors from 2003-04 level on gender employment in these sectors. SAM model is used to generate employment multipliers. The results show that the maximum impact on female employment will be in communication services and tourism along with other services. These are the sectors where exports are grwing fast. However, the results also showed that in communication services, which is the fastest growing export sector, the difference in the employment generated for men and women varies the most. Growth in export of communication services, if unintervened may lead to higher gender disparity as the gans will be harnessed more by men as comapred to women.

Secondly, the paper estimates indirect impact of export of services (of Rs 0.1 million) on gender employment in 46 sectors of the economy, which includes 15 services sectors. Female employment multipliers are found to be very high in agriculture and animal husbandry sectors and very low in crude petroleum and natural gas. Among manufacturing sectors, female multipliers are found to be high for wood, furniture, etc; beverages, tobacco, etc; and food products. In sectors which are comparatively high-tech, such as chemicals, electrical, electronic machinery and applications, industrial machinery and transport equipment, we find

that female employment multipliers are low. This emphasizes the lower access of females to education, knowledge and technology. In case of services, we find that due to both direct and indirect impact of rise in output of services, presumably because of exports, the employment multipliers generated are higher for trade (retail and wholesale) and education and research.

But the results also show that gender inequality in employment multipliers is higher in sectors like agriculture, other minerals, wood furniture, trade, construction, metal products and hotel and restaurants, which implies that these are the sectors which require policy intervention to create greater gender equality.

Thirdly, given the importance of communication services in the trade boosted growth process of services, further analysis is undertaken of impact of trade in communication services on gender employment. The impact of 20% increase in communication services on gender employment in 46 sectors has been estimated, followed by a primary survey of 65 ITES and BPO companies in Hyderabad and Bangalore. The results of SAM model show that due to derived demand, the indirect impact on gender employment is most favourable on sectors like animal husbandry, beverages, forestry and plantation crops. However, high tech sectors like chemicals, electrical, electronic machinery and applications, industrial machinery and transport equipment, female employment generated is much lower than males. This is indicative of lack of access to technology and resources to women.

The primary survey results indicate that education of women is important for improving women employment in this sector. The sector provides unique opportunity to women in terms of work environment as it offers part-time, flexi time and work from home opportunities. But Indian women have yet taken full advantage of these opportunities. This is a sector which has

tremendous opportunities for women, at all skill levels. Policy intervention is necessary in ITES and BPO sector if the gains have to be equally distributed between men and women.

Trade Policy Interventions

Some of the policy implications that emerge from the results are as follows:

- High tech sectors such as chemicals, electrical, electronic machinery and applications, industrial machinery and transport equipment have high indirect impact of exports of services. These are also the sectors which use specialised services. Low female employment multipliers in these sectors hinder the gains from being distributed more equitably. An important reason for this is lower number of women entering science and engineering streams. Access to technology to women is also lower. An important corrective policy direction in this respect would be special incentives and schemes for encouraging women to enter science and engineering streams. Public universities can offer scholarships and incentives for encouraging higher education of women. thus, low women participation in high tech industries needs to be corrected to improve gender equality.
- The sectors which have higher gender inequality in terms of employment and wages but have high female participation are agriculture, other minerals, wood furniture, retail and wholesale trade, construction, metal products and hotel and restaurants. Female employment in these sectors is high but the gender differential is also high which may increase further if no policy intervention takes place. Sector specific polices need to be designed to reduce the gender imbalance in employment and returns to labour. Government should enhance the capacity of women to compete in business or in labour market through training, provision of subsidized services, and

financial support. Easy Loans can be provided to women to encourage entrepreneurships in these sectors.

- In services sectors, especially communication services a large untapped potential exists to improve gender imbalances. This is a sector which offers unique opportunities to women like work from home, flexi timing and part time employment. It is important to ensure higher gender sensitive employment, which can be done by providing IT training to women even with lower skills as those that exist currently in the sector (i.e., undergraduate level). The urban in providing female employment should also be corrected by encouraging higher access to IT in rural areas. exports of low tech ITES needs to be encouraged as these are the services which are relatively gender sensitive. It is also important to have pay equity legislation in place, and applicable to national and foreign service suppliers that includes benefits for part time as well as full time workers, including healthy working conditions. Safety and childcare provisions are some of the schemes which can be introduced in this export-oriented sector.

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