



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

SOCIAL ECONOMICS, POLICY AND DEVELOPMENT

Working Paper No. 37

**Closing the Gender Gap in Bangladesh:
Inequality in Education, Employment and
Earnings**

by

Mohammad Hossain and Clem Tisdell

October 2003



THE UNIVERSITY OF QUEENSLAND

ISSN 1442-8563
**WORKING PAPERS ON
SOCIAL ECONOMICS, POLICY AND DEVELOPMENT**

Working Paper No. 37

**Closing the Gender Gap in Bangladesh: Inequality in
Education, Employment and Earnings**

by

Mohammad Hossain* Clem Tisdell†

October 2003

© All rights reserved

* School of Economics, The University of Queensland, Brisbane, QLD, 4072, Australia
Email: m.hossain@economics.uq.edu.au

† School of Economics, The University of Queensland, Brisbane QLD 4072, Australia
Email: c.tisdell@economics.uq.edu.au

WORKING PAPERS IN THE SERIES, *Social Economics, Policy and Development* are published by School of Economics, University of Queensland, 4072, Australia. They are designed to provide an initial outlet for papers resulting from research funded by the Australian Research Council in relation to the project 'Asset Poor Women in Development',

Chief Investigator: C.A. Tisdell and Partner Investigators: Associate Professor K.C. Roy and Associate Professor S. Harrison. However this series will also provide an outlet for papers on related topics. Views expressed in these working papers are those of their authors and not necessarily of any of the organisations associated with the Project. They should not be reproduced in whole or in part without the written permission of the Project Leader. It is planned to publish contributions to this series over the next few years.

For more information write to Professor Clem Tisdell, School of Economics, University of Queensland, Brisbane 4072, Australia. (e-mail: c.tisdell@economics.uq.edu.au)

Closing the Gender Gap in Bangladesh: Inequality in Education, Employment and Earnings

ABSTRACT

Assesses the status of women in Bangladesh by analysing the dynamics of female participation in labour force and education as well as gender earnings differentials at the macro level. The study finds evidence of growing commercialisation of women's work in Bangladesh. Although the bulk of the female labour force is engaged in self-employment activities in the rural area or in low-skilled textile and readymade garment industries in the urban area, women's participation in high-skill and entrepreneurial jobs as well as various decision-making bodies is also on the rise. While the gender wage differentials have been considerably reduced in many industries, in general women tend to be paid less than men. There have been remarkable improvements in women's educational attainments compared to men. Further, female access to education is found to be highly correlated with overall female labour force participation, and relative to male participation. The overall results are suggestive of an improvement in the status of women in Bangladesh.

JEL classifications: J16, J21, J82

Key words: Bangladesh, Women's empowerment, Female labour force participation, Female education, Gender wage differentials.

Closing the Gender Gap in Bangladesh: Inequality in Education, Employment and Earnings

1. Introduction

The extent of gender gaps in socio-economic and demographic attributes forms an important element in the analysis on the status or empowerment of women. In essence, 'empowerment of women' is a multi-dimensional concept and, as such, requires a careful examination of a wide range of socio-econo-cultural issues at the family level as well as in the societal context. A delegate at the 1997 Lund seminar on women's empowerment and demographic processes observed: "[women's] empowerment is about transformation of the power relations; that it includes both control over material resources, and a change in self-perception and confidence in one's self; that it can be viewed as an outcome and a process; and that women's empowerment involves the transformation of power relations at four different levels: the household/family, the community, the markets and the state" (IUSSP, 1997).

In ultimate sense, women themselves are the best judges of their own well-being or status in the society. Therefore, a proper assessment of the empowerment of women requires an understanding of how women themselves view their positions *vis-a-vis* men at the individual stage through the greater societal level. Though not universally applicable, some leading theories of family seek to explain the status of women in terms some 'incidence-based' criteria. These include the endowment and entitlements theory (Sen, 1981), the unitary theory (Becker, 1981) and the bargaining theory (Schultz, 1990; Alderman, *et al.*, 1995; Haddad *et al.*, 1997). Sen's theory explains the social status of women in terms of the possession and use of resources, the possibilities for exchanging the resources and, above all, the amounts of endowment and entitlements taken away from them. The unitary theory states that the family maximises a single and unified 'household utility function' through its decisions on consumption, labour supply and resource distribution within the family subject to an aggregate budget constraint. The bargaining theories argue that there may not exist a unified set of interests for the family as a whole, and suggest that families do experience conflicts the resolution of which depends on the relative "threat" power of the individual members in the family. Though criticised on various grounds (Gasper, 1993, for example), Sen's approach is regarded as being more operational than others because of its emphasis on the institutional factors in decision-making. Becker's theory is considered to be more

relevant for studying the impact of family decisions on children (who do not have a bargaining power) as well as gender discrimination with respect to children (Tisdell, 1999).

What is common to these theories is that they all require a substantial amount of inside information on relevant facts such as women's involvement in the family decision-making, their freedom to forming or joining social groups as well as control over the cash they earn. Hence, an application of these theories would inevitably require micro-level data. This notwithstanding, macro-level information can shed important insights on women's empowerment at the social, market and national levels. Reductions in the gaps in social, economic and political rights between men and women constitute part of the dimensions of women's status. Thus, trends in female education, women's participation in the workforce and women's earnings compared to men, among other things, can collectively indicate an improvement in women's status. Further, these attributes are likely to reinforce women's status at the personal levels by instilling in them confidence in their abilities and self-esteem in exercising and defending their rights as well as in attaining control over their own lives, relationships and resources on par with men. For instance, a rise in the literacy rate is expected to have a positive impact on the female labour force participation (FLP), which in turn will endow women with greater resources in terms of earnings. Assuming that women have some control over their resources, this will enhance their bargaining capacity and ensure greater participation in family decision-making.¹ As an income earner, a woman should also get better access to healthcare, partly because of her enhanced bargaining power and partly because she has to maintain a good health to restore and enhance her productive capacity.

To date, a plethora of micro-level studies has addressed the issue of women's status in Bangladesh (Amin and Pebley, 1994; Naved, 1994; Khundker, 1997; Bhattacharya and Rahman 1999; Zaman, 2001). However, there has been hardly any attempt to review the issue on the basis of the macro-level data. In a recent study, Hossain and Tisdell (2003) find that total fertility rate and female labour force participation are cointegrated and that female labour force participation Granger-causes reduced fertility. The present study is intended to provide a general overview of the status of women in Bangladesh by drawing on three important indicators of the status of women, namely, the female labour force participation, female educational attainments and gender wage differentials. As a passing note, the study also sheds light on women's employment in high-skill jobs and decision-making bodies including women's political participation. The structure of the paper is as follows. Section 2

examines the dynamics of female education. Section 3 analyses the trends in work force indicators of women *vis-à-vis* men. Section 4 assesses gender earnings differentials by focusing on the wage differentials in the manufacturing sector, and provides information on female employment in high-skill and decision-making positions as well as women's political participation. Section 5 examines the degree of association between various measures of female education and labour force participation. Section 5 presents the conclusion.

2. Gender Disparities in Education

Female education encompasses both social and economic dimensions that can contribute to female empowerment. Education is often regarded as an investment in human capital, which in turn raises the productivity of the labour force. Though productivity and earnings are determined by a host of other factors, persistent gaps in female-male educational attainments may partly explain the gender wage differentials. Human capital theory suggests that education and employment are the two most important determinants of individual earnings in that equalisation of education and employment opportunities tends to equalise individual earnings (Mincer, 1974; Becker 1993). Thus, from an economic perspective, education can raise women's status provided the amount of earnings and equality in earnings distribution are adequate indicators of empowerment. From the social point of view, more educated women tend to be the better carers of children's than the less educated. Female education is also found to have a negative effect on infant mortality (Schultz, 1989). Education makes women more conscious about the quality of life and the standard of living. By opening up the earning opportunities, education reduces the sense of insecurity about the future. As a result, more educated women tend to have fewer children than the less educated.

Educational attainment in Bangladesh is, in general, low. Poverty has remained the most significant economic factor behind the low literacy rate. The economic opportunities outside the home, which by any measure are short in supply, are mainly considered to be more suitable for men than women. Given the financial constraints and the lack of earning opportunities, it seems rational that a family would have a preference for educating a boy rather than a girl. Thus, traditionally the role of girls in Bangladesh has been linked to the households. Besides, early marriage, cultural norms and religious orthodoxy have also been responsible for the low educational attainments of women in Bangladesh.

2.1 *Female Enrolments at Various Levels of Schooling*

Female enrolments at various levels of education registered marked improvement over time. Between 1974 and 1998, primary enrolment of females grew by about 200 per cent, secondary enrolment grew by more than 700 per cent, college enrolment rose by a massive 2300 per cent and university enrolment increased by about 230 per cent. Female primary and secondary enrolments grew at an increasing rate almost throughout the entire sample period. University enrolment also showed a similar trend. College enrolment, on the contrary, grew at a decreasing rate until 1981. It, however, consistently grew at an increasing rate in the subsequent years. Male enrolments at various levels have also shown upward trends. A comparative analysis of female-male enrolments would thus provide a better picture of women's relative status in terms of education.

Between 1974 and 1998, the number of girls enrolled per 100 boys rose from 56 to 90 at the primary level, 27 to 82 at the secondary level, 11.5 to 51 in the colleges and 19 to 32 in the universities. Figure 1 shows the dynamics of female-male education enrolment ratios in Bangladesh. Female-male enrolment ratios at the primary and secondary levels consistently rose over time. Consequently, the gender gap in education at the lower levels has been radically reduced. Female-male enrolment ratios in the colleges remained steady at about 0.14 until 1981 but rose on a progressive scale thereafter. Finally, the female-male enrolment ratio at the university level remained constant in the 0.22 to 0.23 range until 1984 but depicted a steady increase since 1985. Given these trends, female and male enrolments at the primary, secondary, college and university levels will be equalised respectively by the years 2009, 2012, 2021 and 2148.²

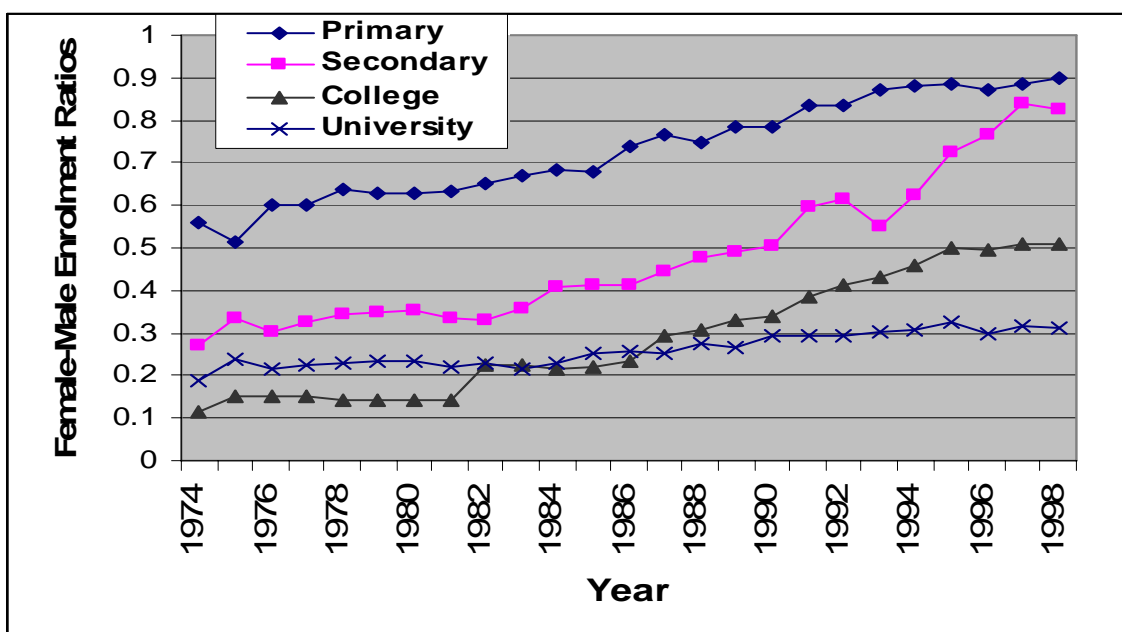


Figure 1: Female-Male Enrolment Ratios in Bangladesh at Various Levels of Schooling
Based on the BBS Data.

2.2 Actual Educational Attainments at Different Levels

The above facts and figures on female enrolments do not account for the drop-out rates and/or the success or completion rates at various levels of education. It is, therefore, likely that judging female educational achievements on the basis of participation rates alone would provide an inflated impression. Table 1 presents the proportions of students completing primary, secondary and tertiary (college and university) education. The proportions of female students completing education, both in absolute terms and in relation to the male counterparts, have shown positive trends for all levels of education. Also, the growth rates in actual educational attainments are similar to the growth rates in enrolments. For example, the female-male ratio of primary graduates increased from 0.38 to 0.73, or by 92.1 per cent between 1975 and 1999, which is comparable with the 83.4 per cent growth rate in the enrolment ratio. Similar conclusions can be drawn for the secondary and tertiary levels.

Table 1:
Primary, Secondary and Tertiary Education Attained by Females Compared to Males
(percentages) in Bangladesh

| Year | FPE | MPE | FPE/MPE | FSE | MSE | FSE/MSE | FTE | MTE | FTE/MTE |
|------|------|------|---------|-----|-----|---------|-----|-----|---------|
| 1970 | 4.6 | 10.9 | 0.42 | 0.4 | 3.9 | 0.10 | 0.0 | 0.8 | --- |
| 1975 | 5.4 | 14.1 | 0.38 | 0.4 | 4.5 | 0.09 | 0.1 | 1.1 | 0.10 |
| 1980 | 11.5 | 21.5 | 0.53 | 0.8 | 7.3 | 0.11 | 0.2 | 1.6 | 0.13 |
| 1985 | 12.6 | 21.3 | 0.59 | 1.7 | 8.6 | 0.20 | 0.3 | 2.0 | 0.15 |
| 1990 | 17.1 | 27.3 | 0.63 | 1.7 | 8.5 | 0.20 | 0.5 | 2.7 | 0.19 |
| 1995 | 19.8 | 29.2 | 0.68 | 1.9 | 8.3 | 0.23 | 0.6 | 3.2 | 0.19 |
| 1999 | 23.2 | 32.0 | 0.73 | 2.1 | 7.8 | 0.27 | 0.7 | 3.8 | 0.18 |

Sources: Barro and Lee (1994), UNDP (1994, 2000, 2001).

Notes: FPE =Female Primary Education Attained; MPE = Male Primary Education Attained; FSE = Female Secondary Education Attained; MSE = Male Secondary Education Attained; FTE = Female Tertiary Education Attained; MTE= Male Tertiary Education Attained.

2.3 Overall Literacy Estimates

Both male and female literacy rates have increased over time. But the female literacy rate grew at a faster rate than the male literacy rate. Indeed, in the span of 30 years (1970 to 2000) the female-male literacy ratio has more than doubled, from 0.30 to 0.61. However, literacy estimates are inclusive of persons who do not have any formal education but can just read and write simple sentences. Hence, enrolment and attainment rates should be preferred to the literacy estimates for purposes of policy analysis.

3. Gender Inequalities in Labour Force Participation

Traditionally, the productive activities of women in Bangladesh have remained confined mostly to the non-monetised household sector and, to an extent, selected agricultural activities. Their household activities typically include cooking and serving the meals, raising the children, attending the aged family members, and washing and drying clothes, among other things. The agricultural activities include raising the family livestock and poultry, cultivating vegetables within the family homestead, threshing, boiling, drying and husking of crops, and processing and preserving food. It is, therefore, not surprising that women's participation in formal economic activities in Bangladesh has in general been very low compared to that of men. In 1974, for example, female employment (FEMPL) constituted only 4.2 per cent of total employment (TEMPL) in the economy (Table 2). The ratio was slightly higher for the urban areas (4.5 per cent) but much lower for the rural areas (3.6 per cent). Similar pictures emerge from the female labour force participation rates (FLP) in

absolute terms and in relation to the male labour force participation rates (MLP). The overall FLP was only 4.1 per cent in 1974, which was just a little over five per cent of the MLP.

Table 2

Female Employment as A Ratio of Total Employment, Female Labour Force Participation Rates Compared to Males across Urban and Rural Areas, Bangladesh

| Year | Female Employment as Share of Total Employment (FEMPL/TEMPL) | | | Female Labour Force Participation Rate (FLP) | | | FLP as Ratio of MLP | | |
|------|--|-------|-------|--|-------|-------|---------------------|-------|-------|
| | National | Urban | Rural | National | Urban | Rural | National | Urban | Rural |
| 1974 | 0.042 | 0.045 | 0.041 | 0.041 | 0.056 | 0.040 | 0.051 | 0.077 | 0.049 |
| 1981 | 0.051 | 0.071 | 0.047 | 0.051 | 0.075 | 0.042 | 0.065 | 0.102 | 0.053 |
| 1984 | 0.086 | 0.132 | 0.083 | 0.080 | 0.125 | 0.074 | 0.102 | 0.167 | 0.094 |
| 1986 | 0.102 | 0.133 | 0.097 | 0.094 | 0.140 | 0.090 | 0.116 | 0.178 | 0.110 |
| 1989 | 0.413 | 0.255 | 0.433 | 0.414 | 0.263 | 0.432 | 0.485 | 0.344 | 0.494 |
| 1991 | 0.392 | 0.226 | 0.424 | 0.582 | 0.301 | 0.651 | 0.731 | 0.394 | 0.808 |
| 1996 | 0.382 | 0.278 | 0.404 | 0.506 | 0.286 | 0.573 | 0.646 | 0.400 | 0.713 |
| 2000 | 0.377 | 0.302 | 0.395 | 0.518 | 0.337 | 0.572 | 0.658 | 0.451 | 0.717 |

Notes: MLP = Male Labour Force Participation Rate. (FEMPL/TEMPL) ratios are based on the civilian employment of persons 10 years and above. The labour force participation rates represent the refined activity rates, that is, the labour force participation rates for persons 15 years and above.

Source: Bangladesh Bureau of Statistics.

The female workforce indicators for Bangladesh showed a steady rise over time but still remained low until the mid-1980s. Female employment as share of total employment (FEMPL/TEMPL) rose at annual compound rates of respectively 7.67, 9.45 and 7.44 per cent for the economy as whole, urban area and rural area between 1974 and 1986 (Table 3). But in absolute terms, these shares were only 10.2, 13.3 and 9.7 per cent respectively in 1986. FLP and FLP/MLP also showed a similar trend.

Table 3:

Annual Compound Growth Rates of Selected Workforce Indicators, Bangladesh

| Period | FEMPL / TEMPL | | | FLP | | | FLP / MLP | | |
|-----------|---------------|-------|-------|----------|-------|-------|-----------|-------|-------|
| | National | Urban | Rural | National | Urban | Rural | National | Urban | Rural |
| 1974-86 | 7.67 | 9.45 | 7.44 | 7.16 | 7.93 | 6.99 | 7.09 | 7.23 | 6.97 |
| 1989-96 | -1.11 | 1.24 | -0.99 | 2.91 | 1.21 | 4.12 | 4.18 | 2.18 | 5.38 |
| 1996-2000 | -0.33 | 2.09 | -0.56 | 0.59 | 4.19 | -0.04 | 0.46 | 3.05 | 0.13 |

Notes: As in Table 1.

Source: Based on Data in Table 1.

Female employment and workforce participation rate have dramatically increased since the second half of the 1980s. According to the 1989 Labour and Manpower Survey, women

accounted for over 41 per cent of total employment in the country and female labour force participation rate was just about the same. Although FEMPL/TEMPL for the rural area and the economy as a whole has shown a declining tendency since 1989, FLP for both categories have been on the rise. The compound growth rates presented in Table 3 reflect on the inter-temporal changes of these attributes. However, the basis of these estimates was altered in 1989. Activities such as threshing, boiling, drying and husking of crops, and processing and preserving food, under the 'extended' definition of the labour force since 1989, may have greatly inflated these figures. These activities are mainly carried out by the females in the rural agricultural households. Therefore, the workforce indicators at the national and rural levels need a careful interpretation. For example, under the extended definition, women occupied respectively 39.2 and 37.7 per cent of the total employment nationally in 1991 and 2000 respectively, while under the old definition these rates would only be 17.62 and 21.26 per cent respectively.³ Similarly, FLPs for the nation as a whole were 58.2 and 51.8 per cent respectively in 1996 and 2000 under the new definition. According to the old definition, these rates were respectively 18.1 and 22.8 per cent. Under the old definition, FEMPL/TEMPL for the whole economy grew at an annual compound rate of 5.38 per cent during 1986-2000. During the same period, FLP increased at a compound rate of 4.94 per cent per annum. Nonetheless, despite the mismatch of the statistics, both 'definitions' indicate a growing participation of women in income-generating activities.

Since the activities of boiling, drying and husking of crops, and processing and preserving food are non-existent or negligible in the urban areas, the female workforce indicators for the urban area can be taken as representative or relatively consistent with the underlying trends. The annual growth rates in the urban area for FEMPL/TEMPL, FLP and FLP/MLP were respectively 1.14, 1.21 and 2.18 per cent between 1989 and 1996 and respectively 2.09, 4.19 and 3.05 per cent between 1996 and 2000.

3.1 Possible Determinants of Increased Female Labour Force Participation

Several factors contributed to the growing participation of women in income-earning activities. The expansion of the micro-credit programmes through the *Grameen Bank* (GB) and various non-government organisations has been a major contributor to the transition to commercialisation of women's work from the subsistence economic activities and/or unpaid household works in the rural areas (NGOs) (Naved, 1994; Amin and Pebley, 1994). The unprecedented growth of female labour force participation in the urban areas can be

attributed mainly to the massive expansion of the export-oriented manufacturing industries, especially the labour-intensive readymade garment industries due to various economic reforms, including trade liberalisation (Khundker, 1997).

The *Grameen Bank* and the NGOs in Bangladesh have rural women as their main target groups. Since the late 1970s, these institutions have provided micro-credit and organisational support to the rural poor to engage in income-earning activities, mostly in the form of self-employment. The *Grameen Bank* and BRAC (Bangladesh Rural Advancement Committee) are the two largest micro-credit providers in Bangladesh. In 1980, the *Grameen Bank* had a total of 14,830 members, which rose to 869,538 in 1990. By 2002, it spread over 41,000 or more than 60 per cent of the villages in Bangladesh and had about 2.4 million members of which 95 per cent were females. As of 2002, BRAC had about 3.5 million members across 61,912 villages and about 2,300 urban slums. Women comprised 99 per cent of the total membership. Currently, more than 3,000 NGOs of various statures operate in Bangladesh.

Though some of the NGOs also work with urban people, it was largely the expansion of the export-oriented garment industries that made possible the astonishing growth in the female paid employment in the urban area. The liberation of the external trade regime through successive phases of the so called structural adjustment programmes since 1982 has significantly affected the Bangladesh labour market. The structural adjustment programmes that included reductions or removal of quantitative restrictions and tariffs, devaluation of the domestic currency and provision of various export incentives have been successful in reducing the anti-export bias of the economy (Rahman, 1995; Hossain, 2003; Hossain and Alauddin, 2003). The reduction in anti-export bias combined with the quota arrangements under the Multi-Fibre Agreement (MFA) and the Generalised Systems of Preferences (GSP) facilities have been instrumental to the unusual growth of the textile and readymade garment exports of Bangladesh in recent years. Domestic producers as well as the multinational companies have relied heavily on Bangladesh's unskilled labour force, especially its female labour force, which provided the comparative advantage for establishing apparel industries in Bangladesh. As shown in Table 4, the readymade garment industries employed only 7.6 thousand female workers in 1986, but this rose to 476 thousand in 1996, an increase of more than sixty-fold in 10 years.

Table 4:
Trends in Female Employment in Readymade Garment Industries
and the Manufacturing Sector as a Whole in Bangladesh

| Year | Readymade Garment Industries | | All Industries | |
|------|------------------------------|----------------------------------|--------------------------|----------------------------------|
| | Female Employment ('000) | % of Females in Total Employment | Female Employment ('000) | % of Females in Total Employment |
| 1986 | 7.6 | 67.98 | 17.03 | 3.04 |
| 1989 | 109.4 | 70.98 | 170.19 | 14.10 |
| 1993 | 244.7 | 71.34 | 273.02 | 21.86 |
| 1996 | 475.9 | 66.06 | 513.62 | 29.96 |

Sources: Bangladesh Bureau of Statistics and Khundker (1997)

As percentage of total employment in the garment industries, female employment has remained at about 70 per cent over time. In the export-oriented garment industries, this share is about 90 per cent (Bhattacharya and Rahman, 1999). Other major sources of women's employment in Bangladesh include tea and coffee processing, fertilizer manufacturing, drugs and pharmaceuticals, wood and cork products. Over time, female employment has declined or remained stable in tea and coffee processing, fertilizer manufacturing, and the drugs and pharmaceuticals industries but has significantly increased in the manufacturing of wood and cork products (see Khundker, 1997). Overall, female employment in the manufacturing sector has risen tremendously through time, both in numbers and as share of total employment. The trend in the share of female employment in readymade garment industries and the manufacturing industries as a whole is evident from Figure 2.

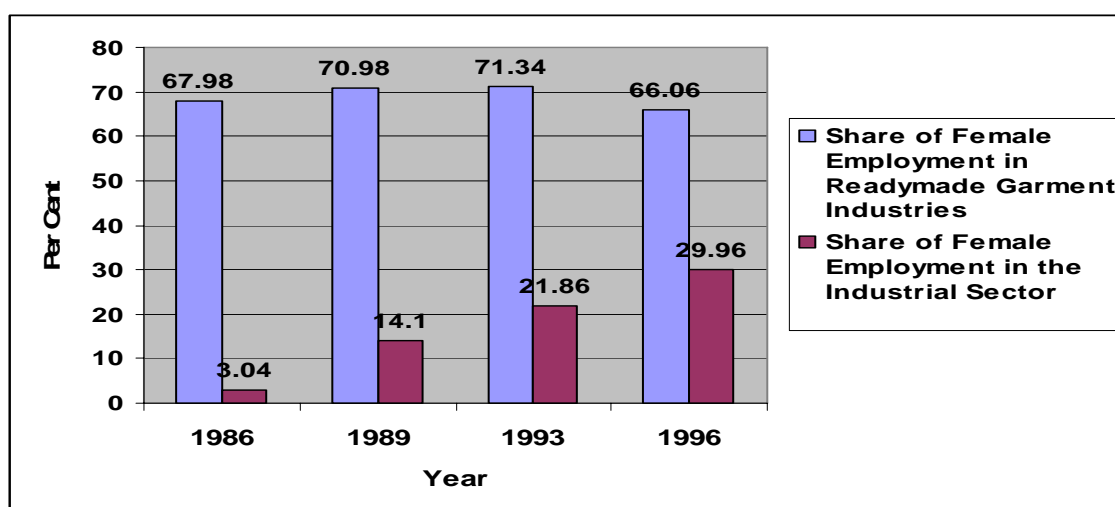


Figure 2: Shares of Female Employment in Bangladesh Readymade Garment Industries and the Industrial Sector as a Whole Based on the BBS Data

4. Female-Male Earning Differentials

The analysis in the previous two sections indicates that female-male gaps in education and labour force participation have been gradually reduced over time. To the extent that closing of the gender gaps in education and earning opportunities are indicators of the status of women, it can be asserted that women's status has significantly improved in Bangladesh. But such improvements would at best be partial unless accompanied by reductions in earnings inequality. This section makes an assessment of the gender earning differentials in Bangladesh by analysing the available statistics on male and female wages in various three-digit level manufacturing industries. As a passing note, the analysis also focuses on women's representation in various high level occupations and decision-making bodies, including their political participation. However, longitudinal data on women's employment across occupations and their earnings compared to men are hardly available for Bangladesh. Therefore, the analysis does not capture the full dynamics of the changes taking place in these areas, and consequently cannot test fully for changes in economic discrimination against females that are expected to occur with economic development (see Tisdell, 1996).

4.1 *Gender Earnings Differentials*

The available official sources of database on Bangladesh do not report the sector or economy-wise male and female wage rates separately. However, the Census(es) of the Manufacturing Industries (CMI) report male and female employment and employment costs for the industries surveyed in a particular year. This section utilises the 1992-93 and 1995-96 CMI data to investigate the nature and direction of gender earnings differentials in selected three-digit level manufacturing industries. Industries where female employment was less than one percent of total employment in 1995-96 are not included in the analysis

With a very few exceptions, female-male ratio of the wage bill (FMW) fell short of female-male employment ratio(FME) for both the "all employees" and the "operatives" categories in both the financial years in question. The notable exceptions include the drugs and pharmaceutical industries in 1992-93 for both categories and the wearing apparel industries in 1995-96 for the "operatives" category. Overall, the gaps were significantly reduced between the two periods. In 1992-93, for the manufacturing sector as a whole, FME and FMW for "all employees" category were respectively 0.28 and 0.13 and for "operatives" category respectively 0.30 and 0.19. In 1995-96, the overall FME and FMW for "all employees" category were respectively 0.43 and 0.35 and for "operatives" category respectively 0.52 and

0.51. The average female-male wage ratio (FMWR), presented in Table 5, better explains the extent and direction of the inequality in earnings.

Table 5:
Average Yearly Earnings of Females as Ratios of Males' Earnings for Selected Manufacturing Industries in Bangladesh

| Industry Name | All Employees | | Operatives | |
|------------------------|---------------|--------------|--------------|--------------|
| | 1992-93 | 1995-96 | 1992-93 | 1995-96 |
| Food manufacturing | 0.372 | 0.484 | 0.361 | 0.524 |
| Beverages | 0.243 | 0.559 | 0.420 | 0.705 |
| Tobacco. | 0.151 | 0.392 | 0.556 | 0.468 |
| Textiles | 0.522 | 0.641 | 0.583 | 0.829 |
| Wearing Apparels | 0.669 | 0.845 | 0.835 | 1.102 |
| Footwear | 0.210 | 0.622 | 0.291 | 0.872 |
| Furniture and Fixtures | 1.000 | 0.764 | --- | 0.845 |
| Printing & Publishing | 0.750 | 0.619 | --- | 0.526 |
| Drugs & Pharma. | 1.292 | 0.923 | 1.375 | 0.985 |
| Industrial Chemicals | 0.614 | 0.519 | 0.289 | 0.333 |
| Other Chemicals | 1.000 | 0.857 | 0.625 | 0.739 |
| Plastic Products | 0.444 | 0.947 | 0.583 | 1.042 |
| Pottery & Chinaware | 0.500 | 0.257 | 0.476 | 0.293 |
| Glass & its Products | 0.277 | 0.237 | 0.402 | 0.315 |
| Fabricated Metal Prod. | 0.500 | 0.929 | 0.857 | 1.063 |
| Electrical Machinery | 1.000 | 0.700 | 1.029 | 0.786 |
| All Industries | 0.477 | 0.802 | 0.625 | 0.985 |

Source: Based on Bangladesh Bureau of Statistics data

For the “all employees” category, FMWR was less than 25 per cent in 3 out of a total of 16 industries, the lowest being 15.1 per cent for the tobacco industries. In 8 of the industries, women received 50 per cent or less of what men received. In 12 of the industries the FMWR was 75 per cent or less. In three cases, women received as much as men while in a lone case (drugs and pharmaceuticals), women received proportionately more than men. The 1995-96 figures show marked improvements over the 1992-93 figures. The numbers of industries with less than 25 and 50 per cent FMWR declined to 1 and 4 respectively from 3 and 8. But in 10 of the industries FMWR was still less than or equal to 75 per cent, and that in all the 16 industries, the FMWR was less than unity. In all, in 6 of the industries the FMWR has declined while in the rest the FMWR has appreciated. FMWR for the “operatives” category overall shows a better picture in terms of the extent of inequality. In four of the industries FMWR decreased between 1992-93 and 1995-96 while in others FMWR increased with three of the industries having a greater-than-unity FMWR. FMWR also shows remarkable

improvements for the manufacturing sector as a whole, especially for the “operatives” category. The estimates by the UNDP also suggest similar improvements. According to the UNDP, the estimated FMWR in Bangladesh were 0.295 and 0.578 respectively for the years 1994 and 2001 for the whole economy (UNDP, 1994; 2002). These figures are much higher than those for neighbouring India where literacy and labour force participation are substantially higher than Bangladesh.

4.2 Female Employment in High-Skill and Decision-Making Positions

As noted earlier, female labour participation in Bangladesh has been mainly driven by the expansion of the low-skilled textiles and readymade garments industries in the urban area and the spread of micro-financing by various NGOs including the *Grameen Bank*. Available data also show some perceptible changes in the female to male employment ratio (FME) in various high-skill, managerial and government executive positions. Table 6 compares the FME for selected occupations for the financial years 1985-86 and 1995-96.

Table 6:
Female-Male Employment Ratios for Selected High-Skill Occupations
and Decision-Making Bodies in Bangladesh

| Occupation | 1985-86 | 1995-96 |
|---|----------------|----------------|
| Physical Scientists and Related Technicians | 0.13 | 0.80 |
| Architects, Engineers, Surveyors and Related Technicians | 0.03 | 0.10 |
| Medical, Dental, Veterinary and Related Workers | 0.12 | 0.66 |
| Accountants | 0.03 | 0.11 |
| Economists | --- | 0.09 |
| Adjudicators | 0.00 | 0.06 |
| Teachers | 0.20 | 0.41 |
| Managers Including Wholesale and Retail Trades | 0.01 | 0.06 |
| Supervisors (Clerical, Production and Transport) | 0.04 | 0.10 |
| Working Proprietors (Wholesale, Retail, Catering and Lodging) | 0.04 | 0.06 |
| Social and community Services | 0.14 | 0.38 |
| Public Administration and Defence | 0.12 | 0.14 |
| Secretariat and Ministries | 0.11* | 0.14 |

The most significant changes occurred in the professions of physical scientists, healthcare, teaching, and social and community services. Notable changes also took place in the managerial, supervisory and entrepreneurial positions. These show the signs of breaking the

“glass ceiling” on the part of women, albeit to a very limited extent. Until 1985-86, there was hardly any woman adjudicator in the country. By 1995-96 female adjudicators comprised more than five per cent of the total employment in that occupation. These changes, by and large, can be attributed to the spread of education among women.

4.2 Women’s Political Participation

As women are regarded as the best judges of their own well-being, it is argued that women can envision their future through their participation in the political institutions, including governance and social development. In Bangladesh, women’s political participation has been traditionally low despite the fact that the first female to the parliament was elected as early as 1973, just two years after the independence. The UNDP (1994; 2002) data show that in 1994, women occupied just 8 per cent of the ministerial level positions, which rose to 9.5 per cent in 1999. Women occupied respectively 10.3 and 9.1 per cent of the seats in the national parliament in 1994 and 2001 respectively. It must be noted that women’s participation has been consistently low at the world level as well. At present, women occupy only 13.8 per cent of the parliament seats around the world. Again, Bangladesh’s figures are similar to those for India where women’s shares in the ministerial positions were 3 and 10.1 per cent in 1994 and 1999 respectively and women’s share in the parliamentary seats was 7.3 per cent in 1994 (UNDP, 1994; 2001).

5. Correlation between Female Education and Labour Force Participation

While women’s decisions for labour force participation and education can be affected by numerous reasons, the increasing participation of females in education and labour force in Bangladesh suggests an association between the two. As presented in Table 7, the various measures of female education employed here have all very high positive correlation with different indicators of female labour force participation. The estimated correlation coefficients highlight two distinguishing facts. *First*, the female primary education enrolment ratio has marginally higher degree of association than the enrolment ratios at the secondary and tertiary education levels with all of the three indicators of female labour force participation, namely, the absolute female participation rate (FLP), the overall female-male labour force participation ratio (FMLP) and the urban female-male labour force participation ratio (FMLPU), than secondary and tertiary education. *Second*, the female-male enrolment ratio (FMER) is almost perfectly correlated with FMLP and FMLPU. The degree of association between FMER and FMLPU is particularly important in the context of

Bangladesh where, as mentioned before, the low-skill manufacturing industries have been the major source of female employment in recent years. The link between the two is visualised in the scatter plot shown in Figure 3. The least squares regression line corresponding to this scatter has a slope of 1.06, which suggests that a one percentage point increase in female-male enrolment ratio leads to 1.06 percentage points increase in female-male labour force participation ratio in the urban area.

Table 7
Correlation between Different Measures of Female Education and Labour Force Participation in Bangladesh

| Attribute | Overall Female Enrolment Ratio | Female Primary Enrolment Ratio | Female Secondary Enrolment Ratio | Female Tertiary Enrolment Ratio | Overall Female to Male Enrolment Ratio |
|---|--------------------------------|--------------------------------|----------------------------------|---------------------------------|--|
| Overall Female Labour Force Participation | .964 | .980 | .971 | .923 | .969 |
| Overall Female to Male Labour Force Participation | .945 | .964 | .913 | .839 | .990 |
| Urban Female to Male Labour Force Participation | .914 | .937 | .880 | .791 | .992 |

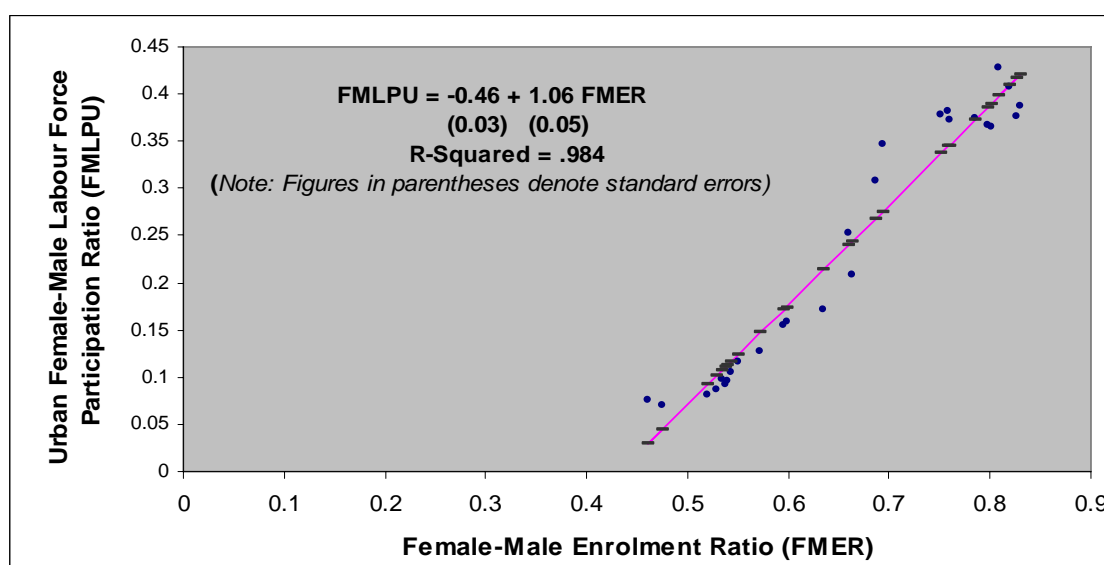


Figure 3: Scatter Plot of Urban Female-Male Labour Force Participation Ratio and Female-Male Enrolment Ratio for the period 1974-2000, Bangladesh

The reasons for the positive association between the closing gender gap in education and that in labour force participation need investigation. Human capital theory would suggest that

educational access is starting to equalise the capital invested in males and females thereby resulting in greater convergence of their productivity. But since most formal employment is in low skilled or unskilled jobs in Bangladesh, this argument does not seem convincing as a major explanation of the trends.

Another possible explanation is that although education is not very productivity-enhancing in itself, it acts as a useful sorting or screening device for employers (Riley, 1979; Tisdell, 1982). For example, those with education have demonstrated their ability to conform, be punctual, be conscientious and so on; qualities of importance in formal work places for productivity. Most learning of work skills in Bangladesh occurs at work places; not in schools, it involves learning-by-doing.

While the use of education as a screening device for employment may partially explain the rising relative employment of females as a result of their growing access to education in Bangladesh, it may not do so entirely. Increased education may make females more confident in seeking employment, increase their abilities to search for employment and present themselves well in seeking employment. This increases their competitiveness in comparison to males seeking employment and may contribute to their increased presence in commercial employment.

Other factors possibly also play a role such as consequences of rising urbanisation in Bangladesh. Furthermore, we should not overlook the fact that increased access to education can as well be a cause and effect of macroeconomic and social changes, just as increased savings is sometimes both a cause and consequence of economic growth.

6. Conclusion

This study has reviewed the status of women in Bangladesh on the basis of the macro-level data on women's participation in the labour force and education, gender earnings differentials and women's participation in high-skill jobs and decision-making bodies. The study indicates that in terms of the labour force participation and education, the status of women *vis-à-vis* men in Bangladesh has improved over the last two decades and a half. Participation in the labour force endows women with entitlements to resources. Education fosters self-esteem in women through knowledge and information. But by themselves, they do not ensure equality in earnings and employment as well as women's participation in decision-

making bodies in the economic and political sectors. An analysis of the developments in the latter areas also suggests some tangible improvements. While gender earnings gaps in the manufacturing sector are still large in most cases, the gaps are being narrowed over time. Women's participation in high-skill jobs and managerial and decision-making positions, including political bodies has also increased over time, though to a limited extent. The study also indicates that female labour force participation and education are highly correlated and this may be due in Bangladesh to reasons other than the productivity enhancing effects of education. However, the area needs to be further investigated as there is no representative study on these issues on Bangladesh. In fine, the gender gaps in labour force participation, education and earnings have been noticeably reduced in Bangladesh in recent decades. There are signs therefore that women's status is improving in Bangladesh.

Endnotes

¹ Amin and Pebley (1994) suggest that the NGO-financed development programmes in rural Bangladesh had significantly raised women's participation in household decision-making in addition to conferring women a greater control over resources. Similar views are expressed in Naved (1994). But in their study on the South-West West Bengal, India, Tisdell *et al.* (2001) found little evidence of empowerment of rural women through work force participation.

² These predictions are based on a simple linear regression of the enrolment ratios on time as follows: $y_{it} = \alpha + \beta x_t$
where, y_{it} = female-male enrolment ratio at the i_{th} educational level; and x_t = Time.

The estimated equations are as the following:

$$\begin{aligned} \text{(Primary Enrolment)} : y_t &= -30.33 + 0.0156 x_t \\ &(-25.44)^* (26.06)^* \\ \text{Adjusted } R^2 &= .97 \quad F(1,24) = 678.98^* \end{aligned}$$

$$\begin{aligned} \text{(Secondary Enrolment)} : y_t &= -42.65 + 0.0217 x_t \\ &(-12.98)^* (13.12)^* \\ \text{Adjusted } R^2 &= .88 \quad F(1,24) = 172.16^* \end{aligned}$$

$$\begin{aligned} \text{(College Enrolment)} : y_t &= -35.98 + 0.0183 x_t \\ &(-19.63)^* (19.78)^* \\ \text{Adjusted } R^2 &= .94 \quad F(1,24) = 391.62^* \end{aligned}$$

$$\begin{aligned} \text{(University Enrolment)} : y_t &= -9.74 + 0.0050 x_t \\ &(-12.27)^* (12.60)^* \\ \text{Adjusted } R^2 &= .87 \quad F(1,24) = 158.79^* \end{aligned}$$

(Note: Figures in parentheses denote the t-statistics. An asterisk indicates that the relevant test statistic is significant at the 1 per cent level of significance or less).

³ These comparative statistics are taken from the *Statistical Pocketbook of Bangladesh 2000*.

References

- Alderman, H., Chappori, P.A., Haddad, L., Hoddinot J. and Kanbur, R. (1995). "Unitary vs. Collective Models of Households: Is it Time to Shift the Burden of Proof?" *World Bank Research Observer*, **10**(1): 1-19.
- Amin, S. and Pebley, A. R. (1994). "Gender Inequality within the Households: The Impact of Women Development in 36 Bangladeshi Villages", *Bangladesh Development Studies*, XXII (2&3): 121-154.
- Becker G.S. (1981). *A Treatise on the Family*. Harvard University Press, Cambridge, MA.
- Becker G.S. (1993). *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education*, 3rd Edition, Chicago: The University of Chicago Press.
- Bhattacharya, D. and Rahman, M. (1999). "Female Employment Under Export-Propelled Industrialization: Prospects for Internalizing Global Opportunities in the Apparel Sector in Bangladesh", UNRISD Occasional Paper 10.
- Gaspar, D. (1993). "Entitlement Analysis: Relating Concepts and Contents", *Development and Change*, **24**: 679-715.
- Haddad, L., Hoddinot, J. and Alderman, H (1997). *Intrahousehold Resource Allocation in Developing Countries*, Johns Hopkins University Press, Baltimore.
- Hossain, M.A. (2003). *Trade Liberalisation and Macroeconomic Performance: Analytics and Empirics from Bangladesh*, Unpublished PhD Thesis, School of Economics, University of Queensland.
- Hossain, M. A. and Alauddin, M. (2003). "Trade Liberalization in Bangladesh: The Process and its impact on Macro-Variables Particularly Export Expansion", *Journal of Developing Areas* (forthcoming).
- Hossain, M. A. and Tisdell, C. A. (2003). *Fertility and Female Labor Force Participation in Bangladesh: Causality and Cointegration* (Mimeo), School of Economics, University of Queensland.
- IUSSP (International Union for the Scientific Study of Population) (1997). Report on the Seminar on "Female Empowerment and Demographic Processes: Moving Beyond Cairo" held at Lund University, Lund, Sweden between April 21-24, 1997.
- Khundker, N. (1997). "An Analysis of Gender Issues in Bangladesh's Development since the 1980s", in R. Sobhan (ed.), *Growth or Stagnation? A Review of Bangladesh's Development 1996*, Centre for Policy Dialogue and University Press Limited, Dhaka.
- Mincer, J. (1974). *Schooling, Experience and Earnings*, New York: Columbia University Press.
- Naved, R.T. (1994). "Empowerment of Women: Listening to the Voices of Women", *Bangladesh Development Studies*, XXII (2&3): 155-178.
- Rahman, S.H., 1995. "Trade and Industrialisation in Bangladesh: An Assessment" in Helleiner, G.K. (ed.), *Manufacturing for Exports in the Developing World: Problems and Possibilities*, Routledge, London and New York.
- Riley, J.G. (1979). "Testing the Educational Screening Hypothesis", *Journal of Political Economy*, **87** (Part 2): S221-251.

- Sen, A.K. (1981). *Poverty and Famine: An Essay on Entitlement and Deprivation*, Clarendon Press, Oxford.
- Schultz, T. P. (1989). "Benefits of Educating Women. Washington, D.C.: World Bank, Background Papers Series, Education and Employment Division, Population and Human Resources Department.
- Schultz, T. P. (1990). "Testing Neoclassical Model of Labour Supply and Fertility", *Journal of Human Resources*, **25**(4): 599-634.
- Tisdell, C. A. (1982). *Microeconomics of Markets*, John Wiley, Brisbane.
- Tisdell, C. A. (1996). "Discrimination and Changes in the Status of Women with Economic Development: General Views and Theories" in K.C Roy, C.A. Tisdell and H.C. Blomqvist (eds.), *Economic Development and Women in the World Community*, Praeger, Westport, Connecticut, pp. 25-36.
- Tisdell, C. A. (1999). "Poverty and Economically Deprived Women and Children: Theories, Emerging Issues and Development", Working Paper # 1, Social Economics, Policy and Development, University of Queensland.
- Tisdell, C. A., Roy, K. C. and Regmi, G (2001). "Socioeconomic Determinants of the Intra-Family Status of Wives in Rural India: Analysis and Empirical Evidence", *Gender Issues*, **19**(3): 41-60.
- Zaman, H. (2001). "Paid Works and Socio-Political Consciousness of Garment Workers in Bangladesh", *Journal of Contemporary Asia*, **31**(2): 145-160.

PREVIOUS WORKING PAPERS IN THE SERIES
SOCIAL ECONOMICS, POLICY AND DEVELOPMENT

1. Poverty and Economically Deprived Women and Children: Theories, Emerging Policy Issues and Development”, Clem Tisdell, September 1999.
2. Sen’s Theory of Entitlement and the Deprivation of Females: An assessment with Indian Illustrations by Clem Tisdell, Kartik Roy and Ananda Ghose, September 1999.
3. Gender Inequality, Development and UNDP’s Social Valuation Indices: HDI, GDI and GEM with Particular Reference to India by Clem Tisdell, Kartik Roy and Anand Ghose, September 1999.
4. Asset-Poor Women in India and the Relevance of Amartya Sen’s Analysis by Clem Tisdell, February 2000.
5. Institutional Impediments, Entitlement Exchange and Women’s Empowerment in Rural India: The Case of Access to Education by K. C. Roy, Clem Tisdell and A. Ghose, February 2000.
6. The Socio-Economics of Gender Issues in Rural India: Results of Interviews in Three Villages and a Forest Meeting in Eastern India by Clem Tisdell and Kartik C. Roy, May 2000.
7. The Development of Kiribati: An Analysis of Trends, Issues and Policies by Clem Tisdell, May 2000.
8. The Development of Samoa: An Analysis of Trends, Issues and Policies by Clem Tisdell, May 2000.
9. The Development of the Solomon Islands: An Analysis of Trends, Issues and Policies by Clem Tisdell, May 2000.
10. The Development of Tuvalu: An Analysis of Trends, Issues and Policies by Clem Tisdell, May 2000.
11. The Development of Vanuatu: An Analysis of Trends, Issues and Policies by Clem Tisdell, May 2000.
12. Sustainable Development and Human Resource Capital by Clem Tisdell, May 2000.
13. Gender Inequality in India: Evidence from a Rural Survey in West Bengal by Clem Tisdell, July 2000.
14. Property Rights in Women’s Empowerment in Rural India: A Review by K. C. Roy and C. A. Tisdell, July 2000.
15. Push-and-Pull Migration and Satisficing versus Optimising Migratory Behaviour: A Review and Nepalese Evidence by Clem Tisdell and Gopal Regmi, October 2000.
16. Socioeconomic Determinants of the Intra-family Status of Wives in Rural India: Analysis and Empirical Evidence by Clem Tisdell, Kartik Roy and Gopal Regmi, December 2000.
17. Villagers and the Use and Conservation of Indian Forests: The Role of Joint Forest Management by Clem Tisdell, Kartik Roy and Ananda Ghose, May 2001.
18. Globalisation, Development and Poverty in the Pacific Islands: The Situation of the Least Developed Pacific Island Nations by Clem Tisdell, June 2001.
19. Globalisation, Institutions and Empowerment of Women in Africa: Kenya’s Experience by Tabitha Kiriti, Clem Tisdell and Kartik Roy, June 2001.
20. Female Participation in Decision-Making in Agricultural Households in Kenya: Empirical Findings by Tabitha Kiriti, Clem Tisdell and Kartik Roy, September 2001.
21. Migration of Husbands, Remittances and Agricultural Production: Impacts when Wives Head Households in Rural Kenya by Tabitha Kiriti and Clem Tisdell, November 2001.
22. Summaries of Survey Responses of Household Heads in Three Forest Villages in the Midnapore District of West Bengal, India: Use of Forest Resources by Villagers, Forest Sustainability and Management by Clem Tisdell, Kartik Roy and Ananda Ghose, November 2001.
23. A Report on Socioeconomic Attributes and Gender Inequality in Kondh-Dominated Villages: A Comparative Analysis of Tribals and Non-Tribals in the Phulbani District, Orissa, India, by Clem Tisdell, Kartik Roy and Ananda Ghose, March 2002.
24. Economic Theories of the Family and Discrimination in a Social Context: Entitlements of Kondh Tribal Females in India by Clem Tisdell, Kartik Roy and Ananda Ghose, March 2002.

25. Children and Economic Development: Family Size, Gender Preferences and Human Capital Formation – Theory and Indian Cases by Clem Tisdell, May 2002.
26. Gender, Marital Status, Farm Size and other Factors Influencing the Extent of Cash Cropping in Kenya: A Case Study by Tabitha Kiriti and Clem Tisdell, May 2002.
27. Commercialisation of Agriculture in Kenya: Case Study of Urban Bias on Food Availability in Farm Households by Tabitha Kiriti and Clem Tisdell, June 2002.
28. Prejudice against Female Children: Economics and Cultural Explanations, and India Evidence by Clem Tisdell and Gopal Regmi, September 2002.
29. Economic Globalisation, Liberalisation and Bangladesh: Poverty, Labour Norms and the Environment by Clem Tisdell, November 2002.
30. Rural Poverty and China's Entry to the WTO: Present Knowledge, Unresolved Issues and China's Policy Options by Clem Tisdell, November 2002.
31. Family Size, Economics and Child Gender Preference: A Case Study in the Nyeri District of Kenya by Tabitha Kiriti and Clem Tisdell, June 2003.
32. Commercialisation of Agriculture in Kenya: Case Study of Policy Bias and Food Purchases by Farm Households by Tabitha Kiriti and Clem Tisdell, June 2003.
33. The Relationship Between Commercial Agriculture and Food Availability to Kenyan Farm Families: A Case Study by Tabitha Kiriti and Clem Tisdell, June 2003.
34. Marital Status, Farm Size and other Influences on the Extent of Cash Cropping in Kenya: A Household Case Study by Tabitha Kiriti and Clem Tisdell, June 2003.
35. Gender Inequality, Poverty and Human Development in Kenya: Main Indicators, Trends and Limitations by Tabitha Kiriti and Clem Tisdell, June 2003.
36. Fertility and Female Work Force Participation in Bangladesh: Causality and Cointegration by Mohammad Hossain and Clem Tisdell, September 2003.