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Contents

Dr. Xin Meng
Research School of Pacific Studies
Australian National University
P.O. Box 1428
Canberra ACT 2601
Australia
Fax # +61-6-249-3700

1. Introduction

The changing role of women and growing awareness of their economic inequality with respect to men have brought international attention to women's issues in the West in recent decades. The feminist movement, however, seems less effective in Asian countries, be they developed like Japan, newly developed like Taiwan, Korea, Singapore and Hong Kong or less-developed like ASEAN-4 countries, China and India.

Although most Asian countries have developed less than their western industrialised counterparts, Asia's rate of recent economic growth has greatly exceeded all other regions'. Nevertheless, countries in Asia do not share the same level of economic development. It is, therefore, of great interest to know what women's economic positions are in Asian countries with different economic-development levels and how much their positions have improved with economic development. This paper reviews recent studies on the economic status of women in Northeast and Southeast Asia.

A seemingly common belief is that the economic condition of women improves with economic development. This is because economic development improves the population's economy, thereby improving women's absolute economic condition. It also increases the education of women and the rest of society which raises awareness about women's inferior position, thereby prompting remedial action.

As much as this is a logical belief, the terribly disadvantaged economic position of women in the highly developed Japanese economy seems to suggest that economic development is not the only factor which affects women's economic status. Note that when talking about women's economic position, one always means relative to men. Economic development certainly can improve everybody's economic status, but it does not necessarily improve the position of women relative to men. Furthermore, if traditional attitudes are deeply rooted in a society, it may take a long time for there to be an acknowledgement of women's subordinate position and attempts to improve it.

Asian countries, generally, have long histories. Their male-dominated cultures have had a long, ingrained influence on all aspects of Asian life. As correctly pointed out by Gunderson (1994):

> Discrimination in the developing countries tends to be more overt, with all parties (employers, males and even females) often adhering to traditional attitudes about what jobs are 'suitable and proper' for women, and what pay is 'appropriate' given perceptions about who is the 'breadwinner'.

This comment seems relevant to most, if not all, Asian countries regardless of development.

Women's economic position compared to men's depends on (1) their labour force participation in the wage-earning sector, (2) their occupational attainment, (3) their relative wage level and (4) the time they spend working at home which, as economic theory suggests, reduces the time they can spend in paid employment (see Becker, 1965; Mincer, 1962; Gronau, 1980). Home production is a very important element of women's economic activity and an important aspect of women's relative economic position. Thus, this paper reviews recent economic literature on the above four aspects of women's position relative to men in Asian countries. In Section 6 it discusses a rather important theoretical question on the determinants of women's economic position in a society. Some relevant policy issues and conclusions are given in Section 7.

2. Female Labour Participation

Women's independence by and large depends on their *economic* independence, which is determined by whether they have paid employment. A few studies have argued that, apart from letting women have more independence, increasing levels of female employment tend to result in women having greater influence on family decisions. Thus, female labour participation is a very important aspect of women's relative economic status (see Standing, 1978; Heer, 1963; Schultz, 1990; Boserup, 1970).

2.1 Female Participation Rates

The ILO *Yearbook of Labour Statistics* has included labour participation statistics for years. For some Asian countries, however, data are unavailable. Table 1 summarises, and categorises by gender, data on labour participation rates in the 1970s and 1990s for total populations in Asian countries reviewed in this study.

Figures presented in Table 1 suggest that, apart from in China[1] and Thailand, female labour force participation rates are far below those for males. The different patterns of change in labour participation between the Asian Newly Industrialised Countries (NICs) and ASEAN countries in the last two decades seem obvious: For the Asian NICs, except Korea, male labour participation rates fell slightly, whereas rates for females increased. The trend is similar in Japan. Figure 1 presents detailed trends for labour-participation rates in Taiwan for both sexes in the last 16 years. On the other hand, labour participation rates for both sexes in ASEAN countries fell slightly. This may have been caused by changes in the general labour market or by data-measurement errors.

The general information provided above is less informative if the sectoral composition of labour force participation is not considered. Some studies suggest that in an agricultural economy, most family members work to some extent if they are physically capable of doing so (Standing, 1978). Nevertheless, this kind of participation does not provide females with independent income and, hence, a higher degree of economic independence. Therefore female non-agricultural participation, especially in wage, salary and self-employed sectors, provides more meaningful measurements from the point of view of improving women's economic status.

TABLE 1. Labour force participation rates and changes in the last two decades

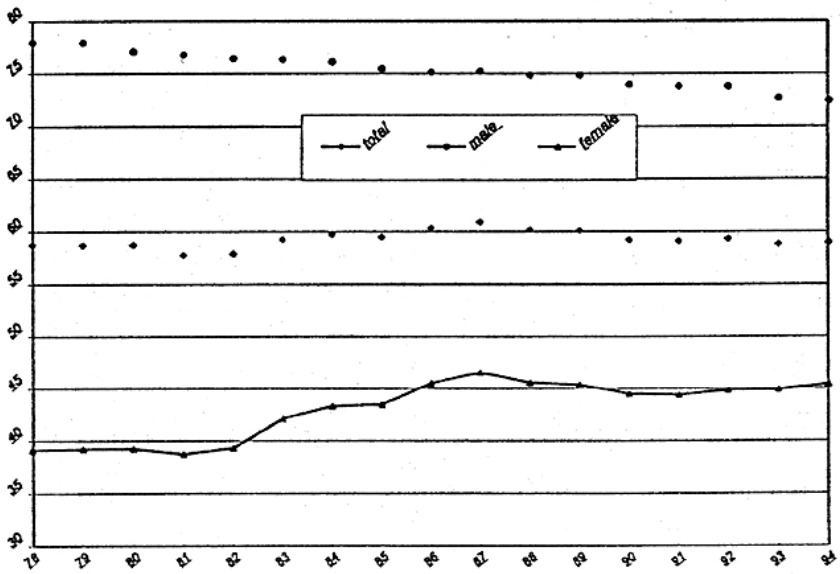
	Total		Males		Females	
	1970 (a)	1990 (b)	1970 (a)	1990 (b)	1970 (a)	1990 (b)

1. The high female labour force participation rate in China is not surprising. It has been reported that the socialist countries of Eastern Europe have consistently high female activity rates, higher on average than in other industrialised countries or low-income countries (see Standing, 1978). This may have been caused by communist parties' equal opportunity policy.

Hong Kong	62.6	62.5	80.2	78.1	44.3	46.5
Taiwan (c)	58.7	58.8	78.0	72.7	39.2	44.9
Singapore	61.6	64.5	80.9	79.1	42.1	50.6
Korea	62.2	49.9	77.1	68.3	47.6	32.6
Malaysia	61.5	59.6	79.8	77.1	43.1	42.2
Thailand	87.0	81.9	93.1	87.7	81.0	76.3
Indonesia	74.6	65.5	94.6	82.6	55.9	49.1
Philippines	56.9	64.7	83.7	81.8	30.1	47.8
Japan	63.3	63.8	80.0	78.0	47.5	50.3
India (d)	n.a. (f)	37.5	n.a.	51.6	n.a.	22.3
China (e)	n.a.	79.2	n.a.	85.6	n.a.	73.6

Source: Except on China and Taiwan, data are from the ILO Yearbook of Labour Statistics, various years. Data for the 1970s were calculated by the author based on the ILO Yearbook of Labour Statistics.
Notes: (a) Data for the 1970s are basically for 1979, except on Korea (1975), Malaysia (1976), Thailand (1978), Indonesia (1976) and Philippines (1975); (b) Data for the 1990s are basically for 1993, except on India (1990), Indonesia (1992), Korea (1990), Malaysia (1990), Thailand (1990) and China (1990); (c) Data on Taiwan are from the Yearbook of Manpower Statistics, 1995; (d) The much lower participation rates for India are partly caused by insufficient data on the working age population. The ratios presented in the Table for India are active population relative to total population rather than population aged 15 and above; (e) Data on China are from the Chinese Statistical Yearbook, 1994. As there is little active population data, the ratios are derived from the employed population divided by population aged 15 and above; (f) n.a: not available.

Figure 1. Change of male and female labour participation rates in Taiwan, 1978-1994



Anker and Hein (1986), following Durand (1975), presented women's share of all non-agricultural employment (including self-employment and family work) to indicate women's involvement in non-agricultural activity. Their findings suggest that ratios vary dramatically in Asian countries, which may reflect Durand's (1975) finding that at low levels of development, countries varied considerably in women's share of non-agricultural activity, but differences between countries were not as great at higher levels of development. Anker and Hein's study

also found no significant relationship between female participation in non-agricultural labour and levels of development, but this finding seems unconvincing given that economic-development levels were substituted by the proportion of male labour outside agriculture.

Using the same data source (ILO Yearbook of Labour Statistics), Table 2 presents the most recent data on women's share of non-agricultural activity for the Asian countries studied in this paper. The countries are ranked according to their per capita GDP. It is interesting to see that in ranking these countries, women's share of non-agricultural activity roughly indicates levels of national economic development. India has the lowest rate of women's non-agricultural activity, rates for ASEAN countries are much higher but considerably lower than in the NICs and Japan.[2]

TABLE 2. Female share of non-agricultural activity, 1990

	Women's share of non-agricultural activity	Per Capita GDP (US$)
India	12.1	371
Philippines	22.5	717
Indonesia	16.7	596
Malaysia	26.5	1,931
Korea	32.4	5,925
Hong Kong	36.0	12,568
Singapore	39.1	12,939
Japan	36.9	23,629

Source: ILO *Yearbook of Labour Statistics* and the World Bank World Table, IEDB and ANU.

The relationship between the degree of economic development and female share of non-agricultural activity presented in Table 2 may well be explained by the fact that economic development has been export-oriented in most Asian countries. This development strategy relies heavily on rapid growth of low-wage female employment. As Standing (1989) correctly pointed out:[3]

2. Although some observers have suggested that in the course of economic development there is a U-shaped pattern of female participation (Sinha, 1965), it does not seem the case for the country data presented here. Standing (1978) in his book on female labour force participation suggested that changes in female participation will depend on various issues concerning sectorial distribution of labour force. Therefore, a simple U-shaped pattern is unlikely. However, recent work by Manning (1996) on the Indonesian labour market indicates that female labour force participation across education levels in Indonesia appears to have a U-shaped pattern. Nevertheless, the case studied by Manning is different from the original hypothesis on the relationship between female and participation and economic development.
3. Also see Levin (1991) for a similar analysis on Hong Kong.

> Indeed, no country has successfully industrialised or pursued this development strategy without relying on a huge expansion of female labour. And in export processing zones of many industrialising countries is not uncommon for three-quarters of all workers to be women.

The reasons are well known. Much of the assembling and production line work is semi-skilled and low paid; young women, particularly in the newly industrialised countries in Asia, have been socially and economically oppressed for so long that they have low 'aspiration wages' and 'low efficiency' wages. They are prepared to work for low wages for long work weeks, normally without agitating to join unions, and when their productivity declined after a few years of youthful diligence they are replaced by new cohorts. (Standing, 1989)

A recent study by Schultz (1990) used a ratio of female wage and salary earners over total female employment to indicate changing female participation in the labour force. His study suggests that in East Asia,[4] women constitute a third of the total labour force and their participation is rising 0.26 per cent a year. Further decomposition by Schultz suggests that women account for 34 per cent of all wage earners, 60 per cent of unpaid family workers and 24 per cent of self-employed workers in this region. These rates increased 0.21 per cent, 0.22 per cent and 0.42 per cent a year, respectively.

To link these changes in female employment to economic development, Schultz (1990) adopted a simple decomposition, decomposing change in female employment into inter-sectoral and intra-sectoral effects. Schultz's study suggests that the increase in East Asian female wage and salary earners' status is fully explained by within-sector (non-agricultural sectors) gains in the fraction of women in the labour force, rather than the impact of the shift from agricultural to non-agricultural employment.

2.2 Determinants of Female Labour Participation

Neoclassical economic theory suggests that a female's labour supply is not only a function of her own market wage offer (substitution effect), but also a function of her family welfare (income effect). Thus, a family is an economic agent which maximises its welfare subject to time and budget constraints. Each individual within the family must choose between work in the market, work at home and leisure to maximise a family's utility (Mincer, 1962; Backer, 1965; Gronau, 1980; Standing, 1978). Empirical studies often use a woman's market-wage offer (substitution effect), her husband's earnings and family non-earnings income (income effect), her schooling, work experience, number of children and other family background as variables to explain female labour supply.

On household decisions, optimisation leads to higher male labour participation if men earn more than women, who are left to work at home. Many empirical studies have proved that a woman's wage offer impacts positively on her labour participation, whereas her husband's wage offer and family non-earnings income correlate negatively to her participation (Gronau, 1978, Heckman, 1974, 1980; Schultz, 1980).

Such studies, however, treat market employment as homogeneous while in most developing countries distinguishing between formal and informal sectors of the labour market is absolutely essential, especially regarding female labour participation. Hill (1983) developed a labour participation multinomial logit model to estimate an individual's choice between

4. Countries included in his definition of East Asia are Hong Kong, South Korea, Indonesia, Philippines, Singapore and Thailand. The period he analysed is from the late 1950s and the early 1960s to the early 1980s.

working in the formal sector, working in the informal sector[5] and not participating in the labour market. The model was applied in his study to a Japanese data set, about 40 per cent of female labour was involved in the informal sector in Japan. The sample included 1,037 women with an overall participation rate of 28.5 per cent, of which 60 per cent were employees and 40 per cent were family workers.

Hill's (1983) study suggests that female labour participation behaviour varies between the formal and informal sectors. For example, husbands' wages correlate negatively to women joining the formal sector but positively to women working for family business. Furthermore, having children under six discourages women from working in the formal sector while encouraging women to work in family business.

Tiefenthaler (1994) uses the same methodology to analyse female labour participation on Cebu Island, Philippines. Labour-participation decisions result from choosing between the formal sector, informal sector, contract sector and non-participation. The findings from this study support Hill's (1983) findings. Predicted wage offers have significant effects on the probability of participation in all sectors but correlate negatively to non-participation. Non-earnings income has a significantly negative impact on participation in all three market sectors. When wage-offer effects are controlled, human capital variables, education and age are predicted to (and actually do) correlate positively to household productivity, thereby increasing reservation wages and decreasing the probability of participation in all sectors except family production.

Tiefenthaler's (1994) study revealed new insight into the variation of participation's fixed costs across the three market sectors. First, women who live in urban areas are significantly less likely to participate in the informal and contract sectors than women who live in rural areas. Furthermore, women who live far from main roads are less likely to participate in the formal sector than in the other two sectors. These results suggest that transportation costs in formal-sector employment affect rural women significantly. Second, if a household head runs a farm or business, the probability of participation in the formal sector decreases dramatically when age is held constant. Third, having children under six reduces women's ability to participate in the formal and contract sectors but not in the informal sector.

These findings indicate that women's labour-participation behaviour in developing countries varies across formal, informal and other relevant sectors. Thus, treating formal and informal sectors as a homogeneous labour market causes biased estimation, creating misleading information for policy makers.

2.3 Other Constraints on Female Participation in the Labour Market

Women in most developing countries are more likely to participate in the informal sector, where they become family workers or self-employed. This occurs not only because it is easier for them to work while looking after children, but also because the fixed cost of employment in the informal sector is much lower than in the formal sector (as mentioned under the last sub-heading). However, creation of family business is constrained by low probability of access to formal credit markets.

It is often argued that women suffer frequent discrimination in formal credit markets in developing countries because of their poor education, inferior legal status and unpaid reproductive responsibilities (McKee, 1989; Lycetter and White, 1989). Some econometric studies have examined the degree to which females are discriminated against in Ecuador's

5. Self-employed and family workers are included in the informal sector.

formal credit market (Baydas, Meyer, and Aguilera-Alfred, 1994). But there has been no similar study in Asian countries.

2.4 Impact of Technological Change on Women's Employment Opportunities

The impact of information technology on women's working lives has become an important topic in labour-economics literature since the mid-1980s. However, most studies have concentrated on developed countries. A recent book, *Women Encounter Technology* edited by Mitter and Rowbotham (1995), is an attempt to pioneer analysis of information-technology effects on women's employment opportunities in developing countries.

Three chapters in the book analysed this issue in Asian countries: Changes in textiles - implication for Asian women (Jezkova); Computerisation and women's employment in India's banking sector (Gothoskar); and Information technology, gender and employment - a case study of the telecommunications industry in Malaysia (Sim and Yong).

One study suggests the development of Asian NICs' textile industries caused a shift from low-wage, labour-intensive manufacturing to technology-intensive manufacturing. The textile industry is being marginalized rapidly in these countries. This trend has led to a relocation and sourcing strategy which benefits textile, especially garment, producers in many Asian developing countries. Since labour for this industry is predominantly female, employment of women has risen greatly in many Asian countries (see Jezkova, 1995).

The other two chapters describe how the introduction of information technology increased female participation in banking in India and telecommunications in Malaysia. Nevertheless, within each sector, female participation in low-skilled clerical positions increased more rapidly than in general. These jobs pay less but are more stressful than jobs dominated by males in the same industries (see Sim and Yong, 1995; Gothoskar, 1995).

This is a static look at women's economic position compared to men's. A dynamic comparison is also necessary. If we consider that females were working in the agricultural sector with no independent income before working in 'low-paid' clerical jobs, we may conclude that the economic position of females improved with the introduction of information technology.

3. Gender occupational segregation and impacts of technological change on women's occupational attainment

It is accepted in academic and policy-making circles that women are less likely to participate in paid employment and when they do participate it is usually in low-paid occupations. Male-dominated culture, in developed and developing countries, means that males normally get more education and training and therefore high-skilled jobs. Women, on the other hand, are more likely to be neglected in terms of formal education and training and more likely to be pushed to the lower-end of the occupational hierarchy. Even when equally qualified, women are likely to receive less pay than their male counterparts.

3.1 Gender Occupational Segregation

Anker and Hein (1986) analysed women's occupational distribution among six main non-agricultural occupations. Their findings suggest that in most Asian countries under study, females dominate clerical and service occupations. In some countries, women are also engaged frequently in sales. However, the category 'sales worker' is very heterogeneous,

ranging from store managers and reasonably well-paid employees to low-income pavement traders. Analysis and interpretation of figures concerning sales occupations must be treated with caution.

It has also been found that, although professional work is basically male dominated, in most Asian countries the proportion of women in this job category is normally higher than female participation in all non-agricultural jobs, suggesting an over-representation of women in the professional category. Anker and Hein's (1985) interpretation of this phenomenon is that in many countries women's relatively high share of professional jobs is due to their predominance in teaching and nursing jobs. Among all occupations, females are most under-represented in management.

To understand the change in female-occupation distribution between the 1980s and 1990s, Table 3 reproduces Anker and Hein's study on women's shares in each non-agricultural occupation in the 1980s (for some countries, the 1970s) and presents the same figures for the 1990s.[6] The figures presented in the first column for each occupation in Table 3 are the share of female labour in that occupation. In the second column of each occupation, the ratios in the first column are divided by women's share in the total non-agricultural sector (the last column of the table). If the figure in the second column of each occupation is greater than one, it suggests that the proportion of women working in that occupation is greater than the proportion of women working in the total non-agricultural sector, hence over-representation. Less than one suggests under-representation.

6. Figures for the 1990s are the author's calculation from ILO, *Yearbook of Labour Statistics*, Table 2B.

Here are the most obvious recent trends in female-occupation distribution: female participation in all non-agricultural sectors increased for all countries under consideration and female representation in management increased in most Asian countries, especially the NICs and Japan. Even in Korea, where social attitudes most discourage female independence, female representation increased in most high-level occupations. In his review, Standing (1989) suggested that 24 of the 30 jobs formerly barred to women have opened recently to them in Korea. These trends indicate that economic development may affect female-occupation distribution.

Note that the data for China represent the situation before economic reform; labour market reform occurred mainly in the second half of the 1980s and early 1990s. Since government assigned people to jobs before reform in China, the occupation distribution presented here does not reflect individual choices.

India is another exception, where data are available only for 1971 and 1981. Nevertheless, comparing female-occupation distribution in 1981 with other Asian countries in the 1980s suggests that Indian women are the least represented in the non-agricultural sector. This may not only reflect the impact of economic development, but also culture.

3.2 A Country Study of Hong Kong

The economic development of Hong Kong, an NIC, in the last two decades is similar to subsequent economic development in Thailand, Malaysia, Indonesia and China. Accordingly, this country study may reveal implications for other Asian countries with similar projected development patterns.

Levin (1991) uses periodic industry manpower surveys to assess trends in gender occupational segregation for three industries in Hong Kong. The three industries - spinning, garments and electronics - have been the major employers of women in the last three decades. The surveys employ a standard classification of production-related jobs with four skill levels: technician, craftsman, operative and unskilled.

The study reveals that in 1967, in the spinning industry, women comprised 45 per cent of people in all four job levels. About 83% of these women were concentrated in the operative category and 13.3 per cent in the unskilled category. Only 3.5 per cent of the women were in the technician and craftsman categories, whereas about 14 per cent of total employees were in these two categories. Twenty years later, in 1987, this situation had changed little. Women comprised 48 per cent of people employed in all four occupations, and 75.7 per cent and 19.4 per cent of these women were operative and unskilled workers respectively. A similar situation was found in the garment industry.

Proportions in the electronics industry differ slightly. In 1970, 82 per cent of employees in the four skill levels were women, 90 per cent of them held operative jobs. About 9 per cent of them were technicians and craftsmen, comprising 41 per cent of all technicians and craftsmen. This figure is considerably higher than in spinning and garment industries in the late 1960s. However, in 1986, only 5.3 per cent of women were employed in the two high-level occupations. Moreover, women as a proportion of all technicians and craftsmen had fallen sharply from 41 per cent to 24 per cent.

This study is confined to the three industries which were important during initial export-oriented economic development. If we consider the possibility that, over time, the sectoral distribution of labour has changed and that more women may have moved from labour-intensive manufacturing to technology-intensive service and manufacturing sectors,

TABLE 3. Change in female-occupation distribution, 1980-1990

	Year	Professional (1)		Managerial (2)		Clerical (3)		Sales (4)		Service (5)		Labour (6)		Women's share in non-agricultural sector (7)
		%	(1)(7)	%	(2)(7)	%	(3)(7)	%	(4)(7)	%	(5)(7)	%	(6)(7)	
Hong Kong	1981	40.6	1.13	11.8	0.33	50.8	1.42	28.1	0.78	34.4	0.96	34.6	0.97	35.8
	1993	41.8	1.13	18.3	0.49	64.1	1.73	32.9	0.89	46.3	1.25	16.2	0.44	37.0
Korea	1980	27.8	0.89	1.5	0.05	33.3	1.06	35.2	1.12	51.3	1.63	25.9	0.82	31.4
	1992	45.7	1.17	4.0	0.10	40.4	1.04	47.3	1.21	61.8	1.58	27.3	0.70	39.0
Singapore	1980	39.0	1.17	14.2	0.43	62.7	1.88	29.2	0.88	43.7	1.31	31.5	0.95	33.3
	1993	16.9	0.42	35.8	0.89	41.2	1.02	74.3	1.84	41.3	1.02	37.3	0.93	40.3
Taiwan	1980	36.7	1.08	5.2	0.15	43.4	1.28	38.0	1.12	40.7	1.20	30.3	0.89	34.0
	1992	42.7	1.10	10.0	0.26	54.7	1.41	39.3	1.01	49.9	1.29	28.3	0.73	38.8
Indonesia	1980	36.5	1.06	10.3	0.30	13.5	0.39	7.8	0.23	51.2	1.49	26.1	0.76	34.3
	1990	42.9	1.17	10.6	0.29	21.4	0.58	48.2	1.32	57.9	1.58	26.2	0.72	36.6
Malaysia	1970	34.4	1.35	3.4	0.13	25.2	0.99	17.9	0.70	32.9	1.29	17.4	0.68	25.5
	1990	46.6	1.29	12.1	0.34	51.5	1.43	33.7	0.93	43.5	1.20	28.4	0.79	36.1
Philippines	1981	59.3	1.32	28.5	0.63	38.0	0.85	61.8	1.38	43.0	0.96	29.0	0.65	44.9
	1993	62.7	1.40	33.7	0.75	56.7	1.26	67.4	1.50	56.1	1.25	20.7	0.46	44.9
Thailand	1980	47.1	1.12	17.8	0.42	42.8	1.02	59.6	1.42	0.0	1.19	29.8	0.71	41.9
	1990	51.5	1.11	18.9	0.41	52.5	1.14	60.4	1.31	56.3	1.22	34.9	0.76	46.2
Japan	1975	37.3	1.07	5.4	0.15	50.5	1.44	38.6	1.10	53.7	1.53	24.3	0.69	35.0
	1993	41.8	1.04	8.5	0.21	60.7	1.51	38.5	0.96	54.3	1.35	29.0	0.72	40.2
India	1971	18.1	1.68	1.4	0.13	4.1	0.38	6.0	0.56	16.3	1.51	11.7	1.08	10.8
	1981	20.5	0.70	2.3	0.08	6.4	0.22	6.7	0.23	17.9	0.61	12.8	0.44	29.4
China	1982	38.3	1.07	10.4	0.29	24.5	0.69	45.9	1.29	47.9	1.34	35.4	0.99	35.7

Source: Anker and Hein (1985 for the 1980s data; ILO Yearbook of Labour Statistics and author's own estimation for the 1990s data. Data for Taiwan are from the Yearbook of Manpower Statistics, Taiwan, 1995.

the rather depressing portrait of female-occupation distribution depicted in the three sectors may not reflect the general female-occupation distribution in Hong Kong in the last two decades. In fact, if we refer to the figures in Table 3, it is obvious that female representation in the labour category decreased dramatically in about the last 10 years while increasing in managerial, clerical and service categories.

3.3 Discrimination in Women's Occupational Attainment

Gender differences in occupational attainment may be explained by two important factors: the difference in individual endowments and discrimination in occupational attainment. The above review presented a general picture of gender occupational segregation, but the cause of this segregation is unclear. Brown, Moon and Zoloth (1980) developed an approach to distinguish gender occupational segregation between the portion caused by gender-endowment differences and the proportion which cannot be explained by these differences, which is normally attributed to gender discrimination in occupational attainment.

The basic idea of the Brown et al's (1980) approach is to assume that male occupational attainment is a non-discriminatory norm. By using the estimated parameters of a male occupational attainment model and female data for each of its variables, hypothetical female occupational attainment can be predicted. This hypothetical female occupational attainment suggests what female occupational distribution would have been like if females had faced the same occupational attainment pattern as their male counterparts. The difference between real male and predicted female occupational distribution patterns is caused by gender endowment differences, and the difference between predicted and real female occupational distributions is due to discrimination.

According to economic theory, an individual's occupational attainment is a function of employers' willingness to hire that person (labour demand) and the individual's desire to work in a particular occupation (labour supply). Labour demand is determined by the individual's human capital, and the labour supply is expressed as a utility function which includes at least three components: income of occupations, taste for the work involved and family size (Brown, Moon and Zoloth, 1980).

Brown, Moon and Zoloth specified a multinomial logit model to capture how the variables, which affect demand decisions for an occupation and an individual's occupational supply decisions, affect the probability of individual *i* working in occupation *j*. This model is given as:

$$P_{ij}=prob(y_i=oc_j)=\frac{e^{x_i\beta_k}}{\sum_{k=1}^{J} e^{x_i\beta_k}} \qquad i=1, \ldots, N, \quad j=1, \ldots, J.$$

where
N= sample size,
J= number of occupational groups,
x_i= a vector of exogenous variables affecting supply and demand factors

Normally, the exogenous variables included in the model are an individual's human capital

variables (education, age or experience) and family background which affect individual labour supply decision.

There have been no studies of this type in Asian countries except China. Meng and Miller (1995) adopted Brown et al's approach to analyse gender occupational segregation and its impact on gender wage differential in China's rural industrial sector. The prediction of female occupational distribution[7] based upon a male-occupational-distribution pattern suggests that, in the absence of discrimination, there would be a shift from female workers to female staff groups (about 18 per cent). The majority of the shift that does occur is from the workers group to the ordinary staff group (about a 13 per cent increase in the ordinary staff group). However, even in the absence of discrimination, predicted female staff membership is still 10 per cent lower than that for men. This suggests that occupational distributions for men and women differ because of endowment differences and occupational discrimination between gender groups.[8]

4. Female non-market production and its macroeconomic impact

As early as the 1960s, economists realised that female non-market work contributed to economic growth (Mincer, 1962; Becker, 1965). Mincer, Becker and later Gronau (1980) developed the 'new home economies' models which describe family time allocation among market activity, family production and leisure. However, underestimating female work in labour statistics and national-income accounts, especially in the developing nations, is still a serious problem (Gleason, 1991; Beneria, 1992).

4.1 Determinants of Women's Time Devoted in Non-Market Production

Household production of non-marketed goods and services is a family necessity. Historically, family production was generally performed by females. However, family production does not generate any direct monetary income, thereby giving no economic independence to female family members. This is especially true in developing countries (see Evenson, 1983; Goldschmidt-Clermont, 1987)[9]. Given that more working hours devoted to family production implies less working hours available for market work, female time allocation for market work, family production and leisure certainly constrains female participation in paid employment. Therefore, female non-market production is a very important dimension of females' relative economic position.[10]

The determinants of women's time devoted to non-market production always greatly interest labour economists. Nevertheless, besides data-availability problems, not many studies

7. Note that the occupational category used in Meng and Miller=s (1995) study differ from ILO international comparable categories as their study utilised industrial-firm-survey data. The occupations attained by individuals are within firm occupations. The ranking of occupations is manual workers, shift leaders, ordinary staff, technician and managerial staff, and middle level staff.
8. Obviously, a society=s discriminatory attitude towards women may also reduce females= access to education and other training, reducing their human capital relative to male counterparts. This effect, however, is rather hard to capture with current data and methodologies.
9. In the review of 36 countries, women=s non-market production contributions ranges from 2.5 to 1.4 times that of men.
10. New home economics assumes a family as a utility maximiser maximising household utility subject to family budget and time constraints. It does not take the relative economic position of each family member into account (see Becker, 1965; Gronau, 1980).

have examined women's time allocation for non-market work in developing countries [see Evenson's (1978) study on Philippines; Khandker's (1988) study on Bangladesh; Malathy's (1994) study on India; Floro's (1992) study on Philippines and Floro's (1995).

As 24 hours is the maximum that an individual can devote to market work, non-market family production and leisure each day, time allocation for family production mirrors time allocation for market production. Hence, theoretically, any variable affecting women's labour participation (such as a wife's market earnings, husband's earnings, family non-earning income, wife's education level, her age and other family background variables) may have the opposite impact on women's time allocation for family production. Table 4 presents the predicted relationship between these variables, female labour participation and female time allocation for home production. The opposite impacts are clearly shown in the table.

TABLE 4. Predicted correlation between female time allocation and its explanatory variables

Variables	**market work**	**family work**
Wife's wage	0	-
Husband's wage	-	?
Family non-earnings income	-	0
Wife's education	0	-
Wife's age	-	0
Number of children	-	0

Apart from the impact of these main variables, changes in male contributions to family production, family total income and some government policies -- such as reducing welfare spending -- may also affect female time allocation for family production.

Malathy's (1994) study on urban Indian women shows that a woman's time for home production tends to fall when her wage increases. On the other hand, a husband's wage affects a woman's home-production time positively, suggesting a substitutability of spouses' roles in all activities. An increase in family assets reduces women's time allocation for home production.[11] The reason for this may be that some home produced goods and services can be bought if a family can afford them.

An increase in a household's assets leads to an increase in time spent teaching children at the expense of other non-market activity. Moreover, higher female education reduces the amount of time spent in all non-market activity except child education. This indicates that a mother will devote more time to her children's education as family income and her education increases.

Buvinic and Yudelman (1989) found that urban women spend less time on household production than their rural counterparts since they tend to have more access to time-saving technologies or services.

Although an increase in women's market-work participation tends to reduce their time for non-market family production, the rate of decrease is not necessarily in proportion to the rate of increase in participation. As a result, women may have to reduce any existing leisure time

11. This is also found in Floro's (1992) study on 374 women in Philippine rural households.

(DeVanzo and Lee, 1983; Floro, 1995).

Other studies have also found that non-economic factors have a direct impact on women's time for non-market production. Floro (1992) found that breast-feeding women spend more time in household production because they must stay at home.

4.2 Macroeconomic Impact of Female Non-Market Contributions

The fact that women tend to work in the informal sector, family production and volunteer positions means there may be an underestimation of their work in labour statistics and national-income accounts, something that has been pointed out frequently in the last two decades (Boserup, 1970; Dixon-Mueller and Anker, 1988; Beneria, 1992). It is very hard to value non-market work in monetary terms. Furthermore, as labour participation has been defined in relation to market work or to the performance of some work for pay or profit (Beneria, 1992), the so-called 'invisible contribution' of women is difficult to record in labour-market activity.

Nevertheless, in the last two decades much work has been done on how to re-evaluate women's non-market contributions for both labour and national-income statistics. Some case studies have suggested that there is a substantial underestimation of female labour. Gleason's (1991) and Beberua's (1992) studies cited a few examples which provide insight into this. In Sudan, official data put female labour participation in 1970 at above 10 per cent, while a 1966 census estimated the rate at 40 per cent by including primary and secondary occupations (Beberua, 1992). Another example is a study of women in the Dominican Republic. For the 2,100 households surveyed, female labour participation was estimated at 84 per cent whereas the official census suggested it was only 21 per cent (Gleason, 1990). Unfortunately, there have been no similar studies on Asian countries.

On national-income accounting, some studies suggest that underestimation is just as big. For example, non-marketed goods and services in Botswana accounted for an estimated 58 per cent of the country's total rural production and approximately 23 per cent of GDP in 1974-75 (Floro, 1995). Further, the United Nations has estimated that GDP in developing countries would increase from between 11 per cent in the Philippines to 35 per cent in Pakistan if unpaid house work was counted (UN, 1991).

5. The Gender Wage Gap

The gender wage gap is a worldwide observable phenomenon in developed and developing countries. Unlike female labour participation, the gender wage gap does not seem to have an obvious relationship to economic development; rather, it relates closely to government policy and cultural influences[12] as stated by Gunderson (1994):

> The earnings gap tends to be smaller in countries with centralised collective bargaining that emphasise egalitarian wage policies in general (e.g. Sweden, Norway and Australia). It tends to be largest in countries that emphasise a traditional non-egalitarian role for women in the labour market (e.g. Japan) or that have decentralised, market-oriented wage determination with enterprise-level bargaining (e.g. United States and Canada). (Gunderson, 1994)

12. Another important consideration in this regard is the general situation of income distribution. For example, Blau and Khan (1992) argue that the overall level of wage inequality is greater in the US than elsewhere, and that this has an adverse impact on women's relative pay.

Although this statement refers to developed countries, its basic rule seems applicable to developing countries. Table 5 presents female/male wage ratios for the Asian countries studied in this paper for the years 1980 and 1990. Data presented in this table indicate no close relationship between economic development and female relative earnings. Among all the countries listed in the table, women in Japan and Korea seem to earn the least relative to their male counterparts, whereas women in China seem to have the highest relative earnings.[13] Some surveys also indicate that women in Vietnam earned about 72 per cent of the respective male rate of pay in 1992 (Desai, 1995) and highly educated women in Indonesia earned 88 to 90 per cent of the comparable male rate while low-educated women earned 70 to 75 per cent of the associated pay rate for men in 1992 (Manning, 1996).

TABLE 5. Female earnings as a percentage of male earnings in the manufacturing sector[(a)]

	1980[(b)]	**1990**
Hong Kong	74 (81)	70 (90)
Taiwan[(c)]	66 (81)	61 (90)
Singapore	62 (83)	71 (90)
South-Korea	46 (80)	54 (90)
Malaysia	73 (80)	n.a.[(a)]
Philippines	62 (80)	n.a.
Thailand	70 (83)	n.a.
Japan	53 (80)	50 (90)
China	85 (81)	86 (87)

Source: ILO, *Yearbook of Labour Statistics*, various years
Notes: (a): Not available; (b): Data from Heyzer, 1989; (c): Data for Taiwan are from the Yearbook of Earnings and Productivity Statistics, 1992; (d): Survey data on China's state-owned sector in 1981 and 1987.

5.1 Decomposition of the Gender Wage Gap

Table 5 shows wage gaps between females and males. Economic theory suggests that the gender wage gap may be caused by three factors: gender-labour-productivity differences, gender occupational segregation[14] and internal occupational gender discrimination (see Becker, 1957; Blinder, 1973; Oaxaca, 1973; Brown, Moon, and Zoloth, 1980; Sloane, 1985).

13. This may again be attributed to the fact that the communist government implemented an equal opportunity policy.
14. The reason that gender occupational segregation may cause an increase in the gender wage gap is that women are normally more concentrated in low-paid jobs.

Econometrically, there are different ways to examine gender wage differentials. The simplest way is to assume that only initial wage levels (intercept differential) are affected by gender factors while the market does not pay males and females different prices for their endowments (slope differential). Hence, the gender wage differential can be captured by adding a gender dummy variable to a wage equation to detect the degree to which women suffer discrimination. This type of study is common in the early stage of gender-wage-differential analysis.

Some recent studies adopting this approach suggest that, by controlling a wide range of productivity-related characteristics that determine wages (e.g. human capital and family background variables), women working in foreign (American and Japanese) firms in Thailand earn 11 to 15 per cent less than men who are similarly employed (Lawler et al, 1991); a similar differential of 9 per cent was found in China's urban sector (Byron and Manaloto, 1990) and a 20 per cent difference was discovered in China's rural industrial sector (Meng, 1992).

This approach, however, ignores the fact that the market may pay men and women differently for their human capital and other endowments. Blinder (1973) and Oaxaca (1973) developed similar decomposition approaches to partition the gender wage differential into components caused by two factors: specifically, a difference in productivity and an unexplained component that is often referred to as discrimination,[15] which includes the intercept and slope differences.

Most studies adopting this approach are on developed countries, but a few studies were conducted for developing countries. Table 6 summarises the results on some Asian countries.

Although the decomposition results are sensitive to the functional form used in the wage-equation estimation, the results presented in Table 4 may still reveal an interesting implication; market discrimination against women does not correlate highly with economic development but does relate closely to government legislation and cultural influence. China, particularly, can shed light on this.

China's urban state enterprises are controlled by central and provincial governments. Before economic reform began in the late 1970s, individuals' earnings were determined centrally in this sector. Economic reform has changed this situation slightly, but the basic wage-setting system has changed little. Since the Chinese government follows an equal-opportunity policy for political and ideological reasons, gender-wage discrimination is certainly less serious in China's state enterprises than in the rural industrial sector (Meng and Kidd, 1995).

On the other hand, China's rural industrial sector is a newly developed, decentralised sector. Hence, company managers rather than government set wages in this sector. Here, cultural influence is important and has led to gender bias (Meng, 1993).

TABLE 6. Summary of decomposition results of gender wage differentials for some Asian countries

Country/Year	Source	female /male wage ratio	Unexplained portion %	Explained portion %	Data base
Taiwan, 1982 (a)	Gannicott	64	56	44	Non-farm workers
Taiwan, 1989 (b)	Kao et al	62	84	16	the manpower survey

15. In this paper it will be called the unexplained part of the gender wage gap.

Malaysia, 1973 (a)	Chua	59	66	34	Civilian workers
Malaysia	Chapman et al				
China, 1985	Meng	80	84	16	rural indu. sector
China, 1987	Meng	88	47	53	state sector
Indonesia, 1992	Manning	71	48	52	CBS national labour force survey

(a): From Kao et al (1994).
(b): The poportions of unexplained and explained accounted for the total gender wage gap as presented in Kao et al's paper (presented in this table) and does not seem consistent with their paper's estimated results of wage equations and mean values. The author tried to duplicate the decomposition according to estimated wage-equation results (regression 3) and mean values presented in their paper for a married-and-single combined sample; the unexplained portion obtained accounted for 34 per cent of the total gender wage gap, consequently the explained portion should account for 66 per cent.

Blinder's (1973) and Oaxaca's (1973) decomposition approaches are better than the simple dummy variable approach for they distinguish gender productivity differences from gender wage discrimination. Nevertheless, they ignore another important possible cause of gender wage gaps, namely occupational segregation. It is obvious that, since wages vary considerably across occupations, occupational segregation on the basis of gender will affect gender wage differentials. Many studies have reported that women are ranked normally at the lower end of the occupational hierarchy (see Levin, 1991; Anker and Hein, 1986; ILO, 1994). As Gunderson (1994) pointed out:

> Much of that gap (gender wage gap) reflects the fact that women tend to work in female-dominated occupations that are low paid. Even when these occupations involve the same skill, effort, responsibility and working conditions as the male-dominated jobs, they tend to pay less than the male-dominated jobs. (Gunderson, 1994)

It is, therefore, very important to incorporate the impact of occupational segregation into the decomposition of gender wage differentials.

Brown, Moon and Zoloth (1980) extended Blinder's (1973) decomposition approach to allow consideration of the impact of gender occupational segregation on gender wage differentials. The only study of this type on Asian countries is Meng and Miller's (1995) paper on China's rural industrial sector. Their findings suggest that, although occupational-assignment discrimination in this sector is less important than wage discrimination within each occupation, both within-occupation wage discrimination and inter-occupational wage discrimination are higher in China's rural industrial sector than in industrialised countries.

5.2 Problems Specifically Concerning Developing Countries

As mentioned above, gender wage differentials are heavily influenced by government policies, laws and cultural influence. However, many Asian countries, such as Hong Kong, Korea, Malaysia, Singapore, Thailand and China, have not ratified equal-pay-for-equal-work legislation (Standing, 1989). Anti-discrimination policies -- including equal-employment

opportunity, equal-pay-for-equal-work and comparable-worth policies -- are especially hard to implement in developing countries because of the informal urban sector and rural subsistence sector dominate their economies (Gunderson, 1994).

In the informal and rural sectors, government policies play a tiny role or none at all. Thus, traditional gender discrimination can affect both gender-occupational-attainment and wage-determination patterns. This cultural influence normally affects employers and employees, including females. Economic theory suggests that competition will eventually drive from the market employers who discriminate against female employees because they will have to pay higher labour costs than their non-discriminating counterparts. Hence, in a competitive market, gender discrimination is unsustainable (see Krueger, 1963; Madden, 1975; Gordon and Morton, 1974; and Cardwell and Rosenzweig, 1980). However, when both employers and employees (including females) share the same discriminatory attitude toward female employees, employers who do not discriminate will be unable to benefit from cheaper female labour. Therefore large, persistent wage discrimination may exist.

Nevertheless, as an economy develops and society becomes more educated, the influence of traditional discriminatory attitudes will change eventually and wage discrimination may then be eliminated slowly.

Another serious problem causing gender-wage discrimination in developing countries is extensive unemployment in rural and urban areas. The pools of unemployed in less-developed countries encourage, by and large, gender discrimination since so many women are willing to work under discriminatory conditions. As the World Bank recently pointed out:

> Women in developing countries are often overrepresented in the informal sector and are so eager for jobs in the modern sector that they willingly ignore employer's failure to implement government-legislated standards (World Bank, 1994).

Much literature argues that the recent trends of privatisation and public-spending cutbacks have severe implications for women not only because women's wages and employment conditions are better on average in the public sector than in the private sector, but also because wage differentials between men and women are smaller in the public sector (Standing, 1989).

6. Determinants of the female economic position in society

So far, this paper has reviewed studies on various aspects of women's economic positions in Asian countries. It is natural now to seek the determinants of women's economic position in society.

6.1 Impact of Economic Development

Economic development certainly helps to improve women's economic position in society especially regarding labour participation.

Economic development may affect females' choices between participating in the market and family production and not participating (leisure) in different ways: (1) As an economy

grows, females' education improves and their awareness of the importance of independence rises. Hence, they are more likely to want to participate in the market. (2) Economic growth and technological change will also lead to housework becoming more socialised. More substitutes of family products and services will appear in the market. At the same time, as a result of economic growth, household income will increase. Consequently, these socialised family products and services will become more affordable (the opportunity cost of socialised housework decreases). This may also cause women to participate more in the market. (3) Nevertheless, although the above two effects of economic growth may increase female labour participation, female demand for leisure time may also rise with increasing family income. This, on the other hand, would cause a negative income effect.

If we combine all these factors, we may hypothesise that when an economy develops to a certain stage where the negative income effect is insufficient to offset the other two effects, the impact of economic growth on female labour participation may be positive. However, this positive impact would eventually reach a point after which negative income effects would dominate and further income increases would reduce female labour participation. This hypothesis suggests an inverse U-shaped relationship between female labour participation and economic development which may be seen as a macro-version of a backward-bending labour supply curve.

The following regression model can test this hypothesis.

$$FLPR_{it} = \alpha + \beta_1 GDPCT_{it} + \beta_2 GDPCT^2_{it} + \beta_3 MLPR_{it} + \beta CountryDummies$$

$FLPR_{it}$ represents the female labour participation rate for country *i* at time *t*. $GDPCT_{it}$, is *GDP* per capita for country *i* at time *t*. $GDPCT^2_{it}$ is the quadratic term of *GDPCT*, which is used to capture the inverse U-shaped relationship between economic development and female labour participation. $MLPR_{it}$, is the male labour participation rate for country *i* at time *t*, which captures the country's general labour market situation. Country dummy variables are used to capture the impact of different cultural and other country specific factors.

This model is estimated using penal data for Australia, Chile, Germany, Hong Kong, Indonesia, Japan, Korea, Philippines, Singapore, Taiwan, Thailand and the US in 1965, 1970, 1975, 1980, 1985 and 1990. The estimated results are presented in Table 7.

It is clear from the regression results that, by controlling country specific cultural and other influences and a country's general labour market, the relationship between GDP per capita and the female participation rate presents itself as an inverse U-shaped curve. This certainly confirms the above hypothesis.

TABLE 7. Regression results of female participation rate determinants

	Coefficient	**T-Ratio**
Constant	11.219	2.61
GDP Per Capita	13.024	2.19
GDP Per Capita^2	-4.253	-1.80
Male Participation Rate	0.361	3.68
Australia	6.188	1.17

Chile	-10.606	-2.61
Germany	-3.427	-0.94
Hong Kong	-0.930	-0.26
Indonesia	-1.494	-0.34
Japan	0.884	0.26
Korea	-0.547	-0.14
Philippines	-1.259	-0.28
Singapore	-4.776	-1.34
Taiwan	-2.835	-0.62
Thailand	12.280	2.74
R^2		0.70
Number of observations		54

Source: Author's own estimation. Labour force participation rate data are from the ILO Yearbook of Labour Statistics, various years. GDP per capita data are from the World Bank World Table, IEDB and ANU.

The above results, however, indicate that some country specific factors, including cultural, institutional and policy differences, matter in determining female labour participation (a few country dummy variables and male labour participation rates are statistically significant). Furthermore, economic development does not seem to play a significant role where gender wage differentials are concerned (refer to Table 5). Culture, institutions and other country specific factors may play more important roles.

6.2 Impact of Cultural and Institutional Differences

Unlike other economic phenomena, women's economic positions seem heavily influenced by cultural and institutional differences. For example, female labour participation is significantly lower in most Muslim countries than in non-Muslim countries. Japan, the most developed of the Asian countries studied in this paper, has the lowest female-to-male wage ratio. Further, as mentioned earlier, most former communist countries have relatively high female participation rates and small gender wage gaps.

This sub-section will focus on the impact of culture, institutional settings and other factors on gender wage differentials among countries. Neoclassical theory suggests that, with perfect competition, gender wage discrimination may be caused by the personal tastes of employees, employers and consumers (Becker, 1957; Arrow, 1972, 1973). This so-called personal taste can be traced back to influences of culture or religion. As culture and religion varies among countries, the degree of discrimination against females will differ.

With economic development, cultural influence may weaken gradually as society becomes better educated and more aware of the problem of discrimination. However, some countries have stronger cultural influences so they are slower to eliminate gender discrimination (like Japan and Korea).

Countries with similar social awareness may have different gender wage differentials

simply because of their distinct labour-market settings or government policy. For example, Australia has a better gender wage differential than the US because it has a more centralised wage-setting system (Gunderson, 1994). Better differentials in former communist countries, with egalitarian ideologies and continuing centralist policy, are another example.

The reason a more market-oriented economy tends to have a wider gender wage gap is again related to cultural influence. When a cultural influence causes society to discriminate against females, employers' and even employees' personal tastes will create a large gender wage gap given that wages are determined by market demand (employers) and supply (employees). If wages are determined by a government with equal-pay-for-equal-work or work-of-equal-value policies, the gender wage differential is less likely to be affected by employers' or employees' personal tastes. On the other hand, if wages are determined by the market and employers and employees do not discriminate against women, gender-wage discrimination should not be serious.

Hence, apart from the impact of economic development, the interaction of cultural influences and institutional settings determines the extent to which a society discriminates against women in terms of wage settings.

7. Conclusions

This paper has reviewed a large volume of literature on the relative economic positioning of females in South and East Asia, and includes some initial research by the author. From it, the following concluding remarks may be drawn.

First, the statistical data in this paper suggest that female labour participation in most Asian countries is closely linked to national economic development. This is not only proved by the fact that the Asian NICs' female labour participation rates have increased gradually in the last two decades with fast economic growth, but also because women's share of non-agricultural activity is much higher in Japan and the NICs than in the ASEAN countries and India. A regression analysis using time-series data across the countries under study indicates that there is an inverse U-shaped relationship between female labour participation and economic development. This implies that female labour participation will increase with a country's economic growth until a point where negative-income effects on labour supply will dominate.

Second, there is increasing interest on how changing technology and world-trade patterns affect women's economy in Asia. It has been found that these changes have caused Asian women to participate more in the non-agricultural sector, especially in the labour-intensive textile and garment sectors. However, most studies suggest that women are more concentrated in low-paid employment than men. Although this may reflect the static situation of female occupational attainment, a truer picture comes from a dynamic comparison. Women's economic positions relative to men have improved if it is taken into account that women worked in agriculture or family business without pay before taking these jobs. Nevertheless, more study on this is needed.

Third, on gender occupational segregation, it has been found that over the last two decades female representation in high-level occupations has increased. Even in Korea, where social attitudes are against women's economic independence, female representation in high-level jobs has increased considerably. As suggested by Standing (1989), the long-term trend is likely to be a further substitution of women for men.

Finally, it seems gender wage differentials should be the focus of government attention. Many studies suggest that gender wage differentials are heavily influenced by culture and labour-market institutional settings but have little to do with economic development.

Generally, the problem of gender wage differentials is less serious in countries where governments greatly influence enterprise wage settings. However, the lack of government influence on agricultural and urban-informal sectors exacerbates the problem in developing countries.

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