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Gender Wage Inequality and Export-Led Growth in South Korea

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This article investigates the relationship between gender, wage inequality, and export-led growth in South Korea. The persistent gender wage gap in Korea's manufacturing sector is found to be linked to women's segregation in the country's major export industries where real wage growth has lagged productivity growth, despite favorable market conditions that might drive up women's wages relative to those of men. The interaction of state- and firm-level hiring, training, and promotion practices that structure women's and men's employment opportunities differently appear to have resulted in a relatively weaker fall-back position for women in labour markets. Econometric results are consistent with the hypothesis that women's weaker fall-back position limits their ability to bargain for wage increases commensurate with productivity growth. Further, evidence is presented which links gender wage inequality to the growth of Korean exports.

I. INTRODUCTION

South Korea's economic growth experience over the last three decades has generated a flurry of research activity to uncover the causes of that country's stellar performance. Standard macroeconomic indicators for Korea are indeed impressive with GDP growth rates averaging nine per cent annually from 1972 to 1990 while exports grew at an average annual rate of 15 per cent [*Bank of Korea, 1994*]. The debate over the sources of economic growth has been lively. Early on, Korea's export-led growth (EG) strategy was considered to be responsible for rapid growth, with neoclassical

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theorists stating that market liberalisation and free trade policies combined to make this approach work. Later studies have emphasised the important role of the state in stimulating growth.[1] Many of these studies have stressed that export-led growth in Korea was contingent upon a carefully constructed set of policies which served to create a favorable climate for business, at the same time disciplining both business and labour in order to achieve the state's investment and export targets.[2]

While numerous studies have considered how export-led growth has altered women's employment patterns,[3] an important gap in macro-level research is analysis of the role that gender has played in Korea's growth process.[4] This study reflects an effort to link the bodies of literature on gender and growth by presenting an analysis of the factors that contribute to persistent gender wage differentials in the manufacturing sector and by examining the influence of gender inequality in that sector on South Korean export growth.

To briefly summarise the results of the study, in spite of a strong demand for women's labour precipitated by the adoption of an export orientation and evidence of the absorption of surplus female labour supplies, the female–male wage gap has narrowed only marginally over the last 20 years. Persistent gender wage inequality appears linked to a variety of practices, including employment discrimination which has contributed to women's segregation in export manufacturing industries, and state and private sector policies that reduce women's bargaining power *vis-à-vis* employers relative to that of men. Further, the data suggest that gender relations exert some influence on macroeconomic outcomes, with gender-based wage differentials linked to export growth.

To present these research findings, the article is organised as follows. In the next section, I take up theoretical perspectives on the relationship between economic development, growth, and gender. This is followed by a discussion of the impact the export-led growth strategy has had on female and male earnings and employment in the manufacturing sector as well as of the unique character of the Korean labour market. I then consider the relationship between earnings, gender, and employment in order to understand the sources of gender-based wage inequality in South Korea. The role of gender inequality in promoting export growth is taken up in the following section. Finally, I discuss the relevance of these findings for the development debate on the relationship between growth and women's relative economic status.

II. GENDER AND EXPORT-LED GROWTH: THEORETICAL PERSPECTIVES

Gender, economic development, and export-led growth have largely been analyzed within the framework of neoclassical, traditional Marxist, and feminist theory. Neo-classical and traditional Marxist theory are similar in maintaining that capitalist economic development expands employment opportunities for women [*Tzannatos, 1995; Tiano, 1987; Lim, 1990*]. Marxist theorists emphasise that women's incorporation into paid labour serves to undermine patriarchal control over women and their labour in the household. Mainstream adherents focus on the positive impact on women's employment of profit-driven production systems. According to the latter view, labour markets are gender-blind and employers act in an economically rational manner by employing least-cost labour with the appropriate skills in order to maximise profits.

Feminist perspectives and analyses differ from mainstream accounts in several important ways. First, feminist economists generally rely on a methodological approach that is more contextual than that of mainstream theorists because gender relations are held to be developed through a multidimensional process whereby economic, social, legal, political, and cultural factors interact to produce outcomes [*Figart, 1996*]. Feminist researchers share with Marxist economists an emphasis on the central role of power in influencing resource and output distribution. Analyses frequently extend beyond the confines of the market to include the household and the state, arenas that can affect bargaining power, thereby shaping women's and men's access to resources.

While an extensive micro-level literature on gender has been amassed, there had until recently been relatively less focus on the role of gender at the macro-level. Since the mid-1980s, a literature on the impact of macro policies on the economic status of women has grown rapidly.[5] More recently, feminist research has begun to investigate the feedback effects between micro-level gender relations and macroeconomic performance.[6] There is a growing sense that gender has been an omitted variable in macro-level analyses.

Two contrasting theses that shape current debates on the relationship between gender and development result from the theoretical perspectives discussed here. The integration thesis, associated with neoclassical and some Marxist perspectives, holds that the process of capitalist expansion (viewed to be a necessary framework for economic development) results in increased gender equality as women gain access to paid employment, leading to their greater access to and control over resources. An export-oriented growth strategy is viewed to be particularly effective in improving

women's relative economic status [*Tzannatos, 1995*]. This is because export sales rely on low unit labour costs, a goal that can be achieved by hiring women whose relative labour costs are low. Over time, however, as women's labour force participation rises, women's increased job experience and tight labour markets will contribute to a reduction of the wage gap between men and women. Flowing from the neoclassical assumption of gender-blind labour markets is the contention that gender relations at the micro-level do not have any impact on the level of macroeconomic activity.

The exploitation thesis is associated with feminist economic analysis where the emphasis is on *relative* economic status, in recognition of the fact that differential material status can affect bargaining power in a number of spheres – in the labour market, the household, and at the level of the state. This view holds that the process of market-based economic development results in women's integration into production activities but in an inferior position relative to that of men as a result of inequalities in the patriarchal gender system. In particular, it is argued that patriarchal norms reflected in cultural, political, legal and economic institutions result in women's segregation in the lowest paying jobs, limit women's job tenure and mobility, and justify their relatively lower wages..

Further, the exploitation thesis contends that gender inequalities, represented by job segregation and wage differentials, contribute to capitalist growth and are unlikely to be reduced without state intervention. In an export-oriented economy producing labour-intensive goods, low wages may be relied on to gain external market share. Under those circumstances, gender-based wage inequality may be a stimulus to economic growth to the extent that women are segregated in export industries.

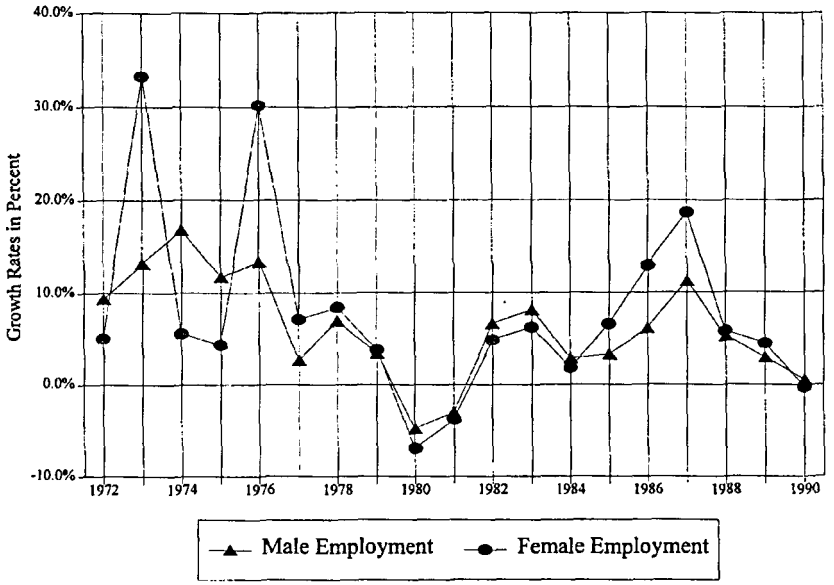
This debate raises three important questions with regard to the relationship between export-led growth and the relative economic status of South Korean women to be investigated in this paper. First, what has been the impact of EG on South Korean women's relative economic status? Second, given the demand for women's labour, stimulated by the EG strategy, what factors explain the failure of relative wage differentials to narrow substantially? A third important question is whether gender wage inequality has contributed to export growth. The following section addresses the first of these questions.

III. EXPORT-LED GROWTH, LABOUR MARKETS, AND GENDER

A. Export-led Growth and Gendered Employment

South Korea's adoption of an export-oriented growth strategy was accompanied by the rapid incorporation of female labour. The experience of

FIGURE 1
ANNUAL GROWTH RATES OF MANUFACTURING. EMPLOYMENT BY SEX, 1972–90



Source: International Labour Organisation (various years).

South Korea is similar to that of other Newly Industrialised Economies (NIEs) in that the preferred female labour supply in the formal sector has been young unmarried women. The data in Figure 1 give manufacturing sector employment growth rates by gender for the period 1972 to 1990.[7] The high growth rates of female employment are congruous with the rapid growth of exports, and may also reflect the relatively lower base from which female employment grew. As the data indicate, female employment growth has exceeded that for men in numerous years, with the average annual growth rate for women during this period 7.2 per cent compared to 5.6 per cent for men.[8] By 1990, women's share of manufacturing employment had risen to 43.2 per cent, compared to 28.1 per cent in 1972.

Women's manufacturing employment has been concentrated in export industries. Moreover, the major export industries have tended to be female-dominated. Table 1 lists the top four exports in order of importance, measured by the value of foreign exchange earnings. All but the transport industry are female-dominated. The data in the column to the right indicate that in 1987, the majority of women workers (56.1 per cent) were employed in only three out of 27 manufacturing industries, all key export industries.

TABLE 1
MAJOR EXPORTS AND FEMALE EMPLOYMENT, 1987

Industry	Females as Percentage of Total Industry Employees %	Distribution of Female Workers %
1. Wearing Apparel	72.9	16.1
2. Textiles	62.5	20.9
3. Electronics	52.6	19.1
4. Transport	10.5	1.7

Source: Author's estimates. Data are from Bank of Korea *Economic Statistics Yearbook* (various years) and International Labour Organisation (various years).

Notes: The distribution of female workers represents the share of total female manufacturing workers employed in each of these export industries listed above. These numbers do not total to 100.0 percent since the remaining female workers (42.2 per cent) are employed in the other 23 industries.

These three industries have been primary sources of export earnings since 1975 (with transport relatively new as a major export industry).

B. Relative Wage Trends

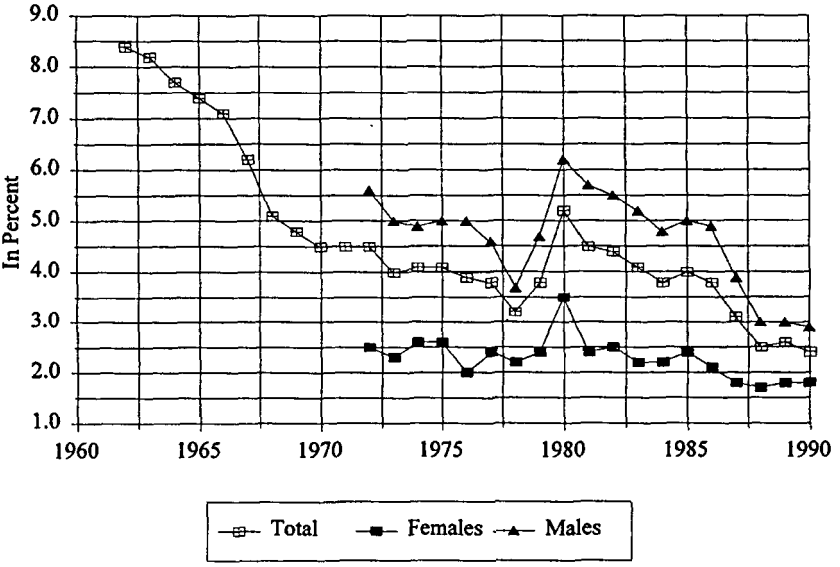
Despite the relatively stronger demand for female labour evidenced by the differences in employment growth rates, women's relative wages have not improved substantially since the adoption of an export-led growth strategy. The data in Table 2 indicate the ratio of average female to male earnings in the manufacturing sector has risen from 47.0 per cent in 1975 to 50.5 per cent in 1990.[9] In the primary female-dominated export industries – textiles, wearing apparel, and electronics – the female/male earnings ratio has risen

TABLE 2
RATIO OF FEMALE TO MALE EARNINGS IN SELECTED INDUSTRIES IN THE MANUFACTURING SECTOR, 1975–90

	Mfg. Sector %	Textiles %	Apparel %	Electronics %	Transport %
1975	47.0	na	na	na	na
1977	45.0	45.1	48.6	53.6	54.6
1980	45.0	46.3	48.9	44.7	50.9
1985	47.0	48.6	56.8	48.0	48.0
1990	50.5	52.0	58.4	57.6	50.4

Source: Author's calculations. Data are from International Labour Organisation (various years).

FIGURE 2
KOREAN UNEMPLOYMENT RATES, 1962–90



Source: Bank of Korea (various years) and International Labour Organisation (various years).

by a greater amount. In the case of the wearing apparel industry, for example, the ratio of female to male earnings rose from 48.6 per cent in 1977 to 58.4 per cent in 1990. In the transport and machinery industries (both male-dominated with women's share of jobs 12 and 16 per cent, respectively, in 1990), the wage gap has widened. This trend is also apparent in other male-dominated industries such as petroleum, iron, and steel.

In theory, wage growth may be dampened by the existence of surplus labour supplies. There is, however, considerable evidence that surpluses of female labour have been absorbed and are not a factor holding down female wage growth [*Bai, 1982*]. Consistent with these findings, female (and male) unemployment rates have fallen since 1962 (Figure 2).[10] Sustained growth of output and exports during this period, with the exception of a recession at the end of the 1970s, explain the declines in unemployment rates which were also accompanied by increases in nominal female and male wages. It is difficult to attribute the wage hikes to anything but labour shortages given that neither union power nor government involvement in wage setting was a significant factor during this period. It is notable that the male unemployment rate has been substantially higher than that of females for

TABLE 3
TOTAL REAL WAGE AND LABOUR PRODUCTIVITY GROWTH IN SELECTED INDUSTRIES, 1975–90

(Per cent Change)

	Real Earnings* %	Labour Productivity %
Average Manufacturing	570	606
Female-Dominated Industries		
Textiles	518	405
Wearing Apparel	570	637
Electronics	553	1393
Male-Dominated Industries		
Transport equipment	623	584
Machinery	637	349

Source: Author's calculations. Data are from the Korean Productivity Center (unpublished data) and Bank of Korea Economic Statistics Yearbook [various years].

*Real earnings are calculated from nominal monthly earnings, including overtime pay and bonuses, deflated by the producer price index. Using the consumer price index in place of the producer price index to calculate real earnings would have yielded a somewhat lower percentage increase in real wages.

most of the last 20 years, although the gap has recently begun to narrow.[11]

The number of workers competing for jobs in labour-intensive export industries is restricted by several additional factors. First, female labour force participation rates for women 14–19 have fallen since the 1970s, mainly due to rising enrollments in higher education [*Se-Il Park, 1988*]. Also, a 'marriage bar' has operated in Korea whereby women are frequently required to quit their formal sector jobs upon marriage, thereby substantially limiting the available supply of female labour. Finally, there is evidence of a low elasticity of substitution of female for male labour within Korea's manufacturing sector, resulting in substantial gender-based labour market segmentation.[12]

Another plausible explanation for persistent gender-based wage differentials is that women may be concentrated in industries with slow productivity growth while men are employed in industries with relatively rapid productivity growth. This view is based on the assumption that earnings is the manufacturing sector will reflect productivity growth, given indications of inelastic labour supply by the mid-1970s. Accordingly, we would expect the data to show that earnings growth is the most rapid in industries with the fastest productivity growth.

The data in Table 3 give the total percentage change in real wages and labour productivity of production workers in selected manufacturing

industries for the period 1975–90. These are grouped into female-dominated and male-dominated industries for comparative purposes. Labour productivity has grown rapidly in most female-dominated export industries while real wage growth has lagged (with the exception of the textile industry). The disparity between productivity and wage growth is most evident in the electronics industry. Wage growth in female-dominated industries has been below the manufacturing average while productivity growth has exceeded the manufacturing average in wearing apparel and electronics. By comparison, real wage growth in male-dominated export industries outpaced productivity growth, especially in the machinery industry. Evidently, productivity gains have tended to be more equitably shared with workers in male-dominated industries while workers in female-dominated industries have been unable to secure gainsharing from productivity growth. Under conditions of surplus female labour supplies, it might be expected that rapid increases in labour productivity would translate into expanded employment rather than wage increases. The constraints on female labour supply suggest, however, that the Korean case cannot be satisfactorily explained in this way.

C. The State and Korean Labour Markets

The persistent gender wage gap is curious, given the evidence of reductions in educational differentials between men and women [*Tak, 1987; B. S. Lee, 1993; Yang-Ro Yoon, 1993; Yousefi, 1997*] and as noted, the relatively more rapid productivity growth in a number of female-dominated industries. To understand the factors that contribute to the apparent rigidity of the gender wage gap, it is useful to consider the unique character of the Korean economy and, in particular, the role of state intervention, coupled with the structure of and institutions that govern labour markets in Korea.

Numerous analyses underscore the willingness of the state to intervene in markets to ensure the success of its economic growth strategy.[13] You and Chang [*1993*] provide convincing arguments that the state's propensity for intervention in markets shows up in labour markets. The Korean state has been noted for its repression of trade union activity, intended to limit worker-management conflict and thereby reduce production costs, essential in an export-oriented economy producing price elastic goods. While enterprise unions have been sanctioned, they have also been fragmented, limiting their power, and further, have largely been company-dominated [*Deyo, 1987*]. The state's economic strategy also entailed efforts to mobilise workers through ideological campaigns to (1) promote familialism between capital and labour[14] and (2) encourage workers to see themselves as 'fighting a patriotic war against poverty' [*You and Chang, 1993: 7*]. Further, the state has been instrumental in promoting educational programmes to

upgrade worker skills as the economy moved up the industrial ladder [*Han, 1994*].

Labour markets are also influenced by the structure of the manufacturing sector, coupled with the nature of business-state relations. The manufacturing sector is dominated by large *chaebol* or conglomerates which operate in both capital- and labour-intensive (export) industries. In promoting its export-led growth strategy, the state has been willing to both discipline and cajole big business to meet investment and export targets. As a result, there has been strong pressure on firms to export as a means to generate the profits and foreign exchange necessary to fund investments (and technology imports) in capital-intensive industries. Further, firms that are successful at meeting the state's export targets have been rewarded with access to subsidised credit and a host of other benefits [*Amsden, 1989*]. The pressure on firms to limit labour cost increases in export industries appears to be much greater than in capital-intensive industries that are import substituting.

These institutional arrangements play a role in wage determination and employment patterns. As the next section makes clear, they also have gender-specific effects that help to account for gendered labour market dynamics and wage disparity.

IV. GENDER RELATIONS AND LABOUR MARKET DYNAMICS

Labour theorists have advanced a variety of explanations for gender wage differentials. Human capital theory relates the gender wage gap to variations in individual productivity. Roh's [*1991*] human capital analysis for Korea found that productivity differentials between men and women explained only 37.8 per cent of the gender wage differential during the period 1975–89 with the remainder due to 'pure wage discrimination', a result the author attributes to institutional factors that affect women's employment opportunities.[15] These results invite attention to the processes by which gender wage differentials are produced.

Job segregation has been identified as an important factor that can contribute to gender wage differentials in several ways. Women may be concentrated into relatively few industries as a result of an intentional process of clustering or 'crowding'. The result is a relative oversupply of labour in the industries to which women are assigned, which produces a downward pressure on their wages [*Bergmann, 1974*]. Job segregation may also drive down relative wages if women are employed in less capital-intensive manufacturing industries where labour productivity is low.

Related to the job segregation explanation is efficiency wage theory which suggests that wage differentials may result from effort-inducing wage

payments beyond the market clearing wage when monitoring worker effort is costly or in order to reduce turnover. Gender wage gaps can result if men are more concentrated in those occupations or industries that pay efficiency wages.

What factors determine job segregation by gender? Polachek [*1981*] has argued that women may take jobs that require less human capital (and therefore pay lower wages) if they expect to leave the labour force in the future for childbearing reasons, since human capital is expected to erode during that absence. It is economically rational for individuals who expect to enter and exit the labour market to limit human capital attainment and choose jobs having low penalties for intermittent employment. Gender wage differentials that arise from this source could be construed as non-discriminatory outcomes based on individual choice, albeit influenced by social norms. In contrast, feminist economists point to employer- and male employee-based impediments to employment which can (1) cause 'crowding' and/or (2) may result in women being relegated to lower paying jobs that have limited job mobility. Gender wage differentials resulting from this source can be attributed to employment discrimination. Yang-Ro Yoon [*1993*] tested the neoclassical job segregation thesis and 'crowding' hypothesis for the Korean economy using an occupational choice model and found evidence to support the 'crowding' hypothesis but little support for Polachek's voluntary job segregation thesis.[16]

'Crowding' in Korea can be traced to several barriers that women face in gaining access to better paid jobs. The widespread use of discriminatory hiring procedures has been noted by Nam [*1991*] who cites gender-based restrictions on job applications, structuring the employment opportunities of women differently from those for men. In a sample of 1989 firm job advertisements, Nam found that 65 per cent expressed a gender preference for workers despite the Equal Opportunity Act of 1988 which prohibits such practices. Of those advertisements that were gender-specific, the overwhelming majority were for male workers. The percentage of firms in the sample hiring both men and women for the same job was only 5.5 per cent, with women in general solicited for those jobs that had already been designated 'female' jobs. Numerous studies point to a 'rule of exclusion' of women from managerial and supervisory positions.[17] Employer discrimination apparently plays a role in perpetuating gender-based job discrimination, suggesting that job segregation is not entirely a matter of women's 'choice' to seek specific types of employment.

Firms' reluctance to hire lower cost female labour in some industries may at first glance appear to be anomalous, but can be explained by the particular character of the Korean economy. As noted, the manufacturing sector is dominated by large *chaebol* or conglomerates operating in both

capital- and labour-intensive industries. Their reluctance to hire lower cost female labour in capital-intensive sectors may in part be the result of a patriarchal social system which allocates preferred job slots to males. Ratifying this social norm may produce labour peace in an otherwise repressive system of capital–labour relations, making discrimination less costly than otherwise. There is an added benefit of job discrimination related to the *chaebol's* reliance on profits and foreign exchange earnings from exports to fund investments (and technology imports) in capital-intensive industries [*You, 1995*]. Limiting women's job opportunities by segregating them in the labour-intensive export industries ensures a cheap labour supply that promotes exports sales and thus technological upgrading in other industries owned by the *chaebol*, and can lead to economic rewards from the state in return for meeting export targets. While there is no direct evidence that this reasoning has been articulated by the *chaebol*, it is clear that gender segregation is not an economically irrational choice.

Women's employment opportunities are also constrained by the marriage bar – a widespread practice of requiring women to resign their positions upon marriage.[18] Further, there are gender differences in maximum-age limitations set that limit applicants' access to advertised jobs, with the most frequently cited maximum age for women 25 and for men 30. Social norms that restrict women's employment and, as a result, job tenure can lower women's average earnings. This problem, which results from discriminatory practices related to rigidly-defined social roles for women, shows up in human capital analyses as a productivity-related characteristic and thus has the appearance of being non-discriminatory.[19]

Interestingly, while Korean society places a heavy emphasis on women's domestic responsibilities as wives, mothers, and daughters-in-law, married women are also expected to contribute to family income [*Cho and Koo, 1983*]. The combination of restrictions on married women's formal sector employment and the expectation that married women contribute to family well-being has pushed them into informal sector employment (including home-based work) where wages are substantially lower than in the formal manufacturing sector. Home-based employment is responsive to cyclical fluctuations in the Korean economy with these workers serving as a buffer, indicating the insecurity of married women's employment in this sector of the economy.[20]

Another aspect of discrimination in Korea that human capital analyses do not capture is differential access to training. Private sector job training programs which provide an avenue for unskilled workers to move into skilled jobs limit women's access to training slots to those areas considered to be 'female' jobs, excluding them from training in areas such as metal processing, transportation, construction, and food processing. The gendered aspects of on-

TABLE 4
ON-THE-JOB TRAINING BY GENDER

	In-Plant		Public	
	1978 %	1990 %	1978 %	1990 %
Females	29.2	18.2	4.9	6.8
Males	70.8	81.8	95.1	93.2

Source: Ministry of Labor [*1984*]; Moon [*1995*].

the-job training in the textile industry are particularly interesting. Spinning firms hire both male and female trainees, but give only men training as machine technicians. Women are given a brief training in machine-tending. During the remainder of the training period (two to three months), these female trainees, who are paid a lower wage than regular workers, are used in regular production work. Ok-Jie Lee [*1993*] argues that since these trainees are roughly as productive as experienced workers after one month, the training period in effect serves as a strategy for lowering wages.

Public training programs similarly discriminate against women, advertising for males to fill training slots leading to high paying jobs in male-dominated industries, while women's training slots are concentrated in areas considered to be traditionally female (for example, knitting and machine embroidery). The state has also unequally funded on-the-job training for women and men as the data in Table 4 show, increasing the difficulty women face in obtaining high-wage jobs with upward mobility. The state's record suggests a higher degree of discrimination in allocating training slots than that of private firms, with only 6.8 per cent of slots going to women in 1990, compared to 18.2 per cent for private firms.

Several state hiring practices serve to further weaken women's labour market position. For example, the state mirrors the private sector by engaging in gender-specific hiring practices and, further, numerically limits the number of slots available to women in some upper-level positions [*Nam, 1991*]. In addition, the state awards extra points to ex-military officers and veterans on civil service examinations. Since only men are required to serve in the military, men's scores are inflated by this practice. Moreover, military service is counted as work experience to be reflected in wages. Women's contributions in the form of unpaid family labour are not similarly rewarded. This practice has an impact on private sector wage payments since firms, which face an artificial labour shortage due to women's exclusion from a variety of job slots, must compete with the state to hire

competent workers by upgrading starting wages for those who have fulfilled military service.

The state has intervened in labour union activity in a way that has a relatively greater effect on women than men. Labour-intensive export industries have been targeted by labour legislation which prohibits the establishment of unions in foreign-invested firms and serves to prevent strikes and labour disputes. Further, a 1971 law denied rights to collective action in 'public interest' industries, which comprised those located in Free Trade Zones (FTZs) [*Ogle, 1990; Nam, 1994*]. FTZs are home to foreign-invested firms producing for export. The proportion of foreign-invested firms is very low in Korea by comparison to other NIEs, and these firms have been permitted only in a narrow range of industries of which the most significant is electronics [*Amsden, 1989*]. This is a female-dominated industry and it is instructive that the gap between real wage and productivity growth is greater here than in other female-dominated industries (Table 3).

The evidence suggests substantial hiring discrimination in Korea. Whether this is related to women's low wages is an empirical question that can be examined by investigating the relationship between the proportion of women in an industry and the industry relative wage, controlling for relevant variables including labour productivity. To investigate this question, a simple model of interindustry wage differentials is estimated using cross-sectional time-series two-digit and three-digit manufacturing industry data for the period 1978–89. Previous research suggests that persistent interindustry wage differentials can be explained by productivity-related characteristics of workers, unobserved quality differences, unionisation, the number of hours worked (which affects overtime pay), and efficiency wage payments [*Dickens and Katz, 1987; Krueger and Summers, 1988*]. Numerous studies have also considered the effect of female concentration on interindustry wage differentials and have provided consistent results that the proportion of females in an industry lowers the relative industry wage [*Elliott and White, 1993; England, Chassie and McCormack, 1982; Fields and Wolff, 1995*].

Two explanations noted above that explain gender wage differentials may also be useful in explaining inter-industry wage differentials when there is gender-based job segregation. The neo-classical argument that women may choose lower paying jobs requiring less human capital since they anticipate leaving paid employment for marriage and unpaid labour is consistent with the view that women's segregation in low-skilled labour-intensive industries is voluntary and therefore non-discriminatory. In this case, the proportion of women employed in an industry would be highly correlated with a measure of labour productivity, a variable that captures both (average) human capital characteristics of workers and capital-intensity of production.

Bargaining power theory, which can link efficiency wage effects to gendered differences in the fall-back position of workers, may more adequately explain interindustry wage differentials. Efficiency wage theory is based on the premise that higher wages can stimulate labour productivity. One variant of that theory, the 'shirking' model [*Bowles, 1985*], is based on the notion that labour effort varies in accordance with a worker's fall-back position. A worker's fall-back position can be defined as the maximum attainable level of well-being (income) outside the negotiated labour arrangement. Among the factors defining this position are skills and access to alternative jobs that pay higher wages and/or have better working conditions.

This concept, which focuses attention on the external factors that serve to produce unequal opportunity for different groups, can be used to understand wage differentials. The strength of workers' bargaining power to negotiate for wages that reflect productivity will be influenced by their fall-back position. An improvement in a worker's fall-back position may require the employer to pay a higher wage in order to elicit sustained or increased labour effort. Conversely, groups with a weak fall-back position will be less likely to be able to successfully bargain for wage payments that keep pace with productivity growth.[21]

In Korea, women's fall-back position appears to be considerably weaker than men's, evidenced by limits to job training and employment, the marriage bar which pushes women into informal sector employment where wages are low, and state hiring policies. In view of these circumstances, a plausible gendered efficiency wage hypothesis is that in a manufacturing sector with gender segregation and institutional impediments to employment, women's weaker fall-back position will result in lower wages (in the industry and for women on average), net of industry-specific labour productivity.

The model presented here analyses the factors that influence industry relative earnings where the share of female workers, average number of days worked per month, and value-added per worker serve as explanatory variables.[22] The number of days worked per month is assumed to affect bonus payments and therefore monthly earnings. Value-added per worker, a measure of labour productivity, captures but cannot differentiate among several characteristics of jobs: capital-intensity of production and average worker productivity resulting from (1) human capital accumulation and/or (2) effort induced by efficiency wage payments. While previous research suggests that unionisation rates will have an effect on interindustry earnings differentials, those data were not available for Korea. The effect of unions on industry earnings differentials is expected to be relatively low in Korea prior to 1987 due to the severe restrictions placed on trade union activity.[23]

A covariance model of industry relative earnings was estimated using two functional forms. In specification 1, the following equation was estimated:

$$INDAVG_{it} = \alpha_0 + \alpha_1 FEMEMP_{it} + \alpha_2 DAYS_{it} + \alpha_3 VA_{it} + \alpha_4 Y79_{it} \ldots + \alpha_{14} Y89it + \varepsilon_{it} \quad (1)$$

where $INDAVG_{it}$ is the ratio of monthly earnings in industry i to average manufacturing monthly earnings in time t, FEMEMP is the share of female workers in industry i relative to women's share of all manufacturing jobs, DAYS is the average number of days worked per month in industry i relative to the manufacturing average, VA is the ratio of value-added per worker in industry i to value-added per worker in the manufacturing sector, Y79 to Y89 are a series of dummy variables which take the value 1 in each time period t (t = 2 to 11) and 0 otherwise, and ε_{it} is the error term. The dummy coefficients, introduced to allow the intercept to vary over time, capture the effects of external shocks on relative industry wages.[24]

A second specification of the model was estimated to test for robustness with the variables measured as log differences. Natural logarithms of variables are used to eliminate the problem of heteroscedasticity. The estimated model is as follows:

$$Ln(W_a - W_i)_t = \delta_0 + \delta_1 Ln(FEMEMP_a - FEMEMP_i)_t + \delta_2 Ln(DAYS_a - DAYS_i)_t + \delta_3 Ln(VA_a - VA_i)_t + \delta_4 Y79_{it} \ldots + \delta_{14} Y89_{it} + u_{it} \quad (2)$$

where $Ln(W_a - W_i)$ represents the difference between the natural logarithm of average gross monthly earnings of all industries and that for industry i, $FEMEMP_a - FEMEMP_i$ is the difference between the proportion of females in all industries and in industry i, $DAYS_a - DAYS_i$ is the difference between average days worked in all manufacturing industries and in industry i, $VA_a - VA_i$ is the difference between the value-added per worker in all industries and in industry i, and dummy variables Y79 to Y89 are defined as in equation (1).[25]

In both specifications of this model, a negative coefficient on FEMEMP would indicate a downward pressure on relative industry wages as the share of women in an industry rises, reflecting women's weaker bargaining power. Positive coefficients on value-added per worker (VA) and days (DAYS) would indicate the positive effect of labour productivity and overtime respectively on relative industry wages. If the percentage of employees that are female is (inversely) correlated with labour productivity, as suggested by the Polachek and simple efficiency wage hypotheses, we would anticipate statistical evidence that FEMEMP is collinear with VA.

TABLE 5
JOB SEGREGATION AND INDUSTRY RELATIVE WAGES, 1978–89
Results from the Covariance Model

	Specification 1: Ratios		Specification 2: Log Differences	
Variables	Eq. (1)	Eq. (2)	Eq. (1)	Eq. (2)
Constant	−91.902	−55.253	0.043	−0.042
	(1.58)	(1.34)	(0.30)	(0.31)
FEMEMP	−0.897	−0.684	−2.174	−2.952
	(11.12)*	(11.83)*	(10.68)*	(8.74)*
DAYS	2.356	1.714	1.364	1.431
	(4.14)*	(4.25)*	(0.69)	(0.76)
VA		0.190		0.404
		(9.52)*		(2.75)*
Y79	−1.221	−1.103	0.011	0.011
	(0.82)	(0.29)	(0.05)	(0.06)
Y80	−2.197	6.575	0.032	−0.173
	(0.40)	(1.66)***	(0.16)	(0.86)
Y81	−2.934	−4.188	0.052	0.098
	(0.60)	(1.09)	(0.26)	(0.52)
Y82	−3.521	−5.323	0.032	0.094
	(0.64)	(1.39)	(0.16)	(0.49)
Y83	−4.036	−5.930	0.099	0.167
	(0.72)	(1.52)	(0.62)	(0.86)
Y84	−5.279	−5.827	0.067	0.116
	(0.96)	(1.52)	(0.34)	(0.61)
Y85	−5.566	−5.844	0.095	0.144
	(1.01)	(1.52)	(0.49)	(0.75)
Y86	−7.174	−7.122	0.152	0.206
	(1.31)	(1.85)***	(0.78)	(1.08)
Y87	−5.970	−5.824	0.166	0.210
	(1.09)	(1.51)	(0.85)	(1.08)
Y89	−9.213	−8.643	0.252	0.307
	(1.68)***	(2.24)***	(1.28)	(1.61)
Adjusted R^2	0.697	0.852	0.512	0.547
No. of obs.	99	99	99	99

Source: Monthly earnings are from the Ministry of Labor's Monthly Labor Survey. Value added data are from the Summary of Mining and Manufacturing Surveys published by the Bank of Korea in *Economic Statistics Yearbook* [various years]. Employment data are from International Labour Organisation (various years).

Notes: Data for 1988 are unavailable. Equations are estimated using ordinary least squares. In specification 1, the dependent variable is the ratio of the industry wage to the average manufacturing wage. In specification 2, the dependent variable is the difference between the natural logarithm of the average manufacturing wage and the industry wage. Numbers in parentheses are t-statistics. A single asterisk (*) denotes $p < 0.01$, a double asterisk (**) denotes $p < 0.05$,and a triple asterisk (***) denotes $p < 0.10$.

The results obtained from estimating both specifications are presented in Table 5. In specification 1, equation (1) shows the strong negative effect on industry wages of the proportion of female workers, while days worked has a strong positive effect. Adding in VA produced the results shown as equation (2). Note that the coefficient on the proportion of females in the industry is smaller but significant, suggesting that a partial explanation for women's relatively low wages is their concentration in industries that are less capital-intensive than those in which men are employed. The coefficient on DAYS is significant but smaller in this equation, while several year dummy coefficients are significant. The adjusted R^2 rises with the inclusion of the value-added variable from 0.697 to 0.852. Overall, the R^2 obtained in this model is very high.

The results obtained from estimating specification 2 are broadly similar, with all variable coefficients (with the exception of the dummies) of the same sign. DAYS is not significant in this model, however, although the variable has the expected sign. Also, the size of the coefficient on FEMEMP is larger with the addition of the value-added variable for reasons that are not clear.

Pooling cross-sectional time-series data can result in more efficient parameter estimates but a realistic assumption is autocorrelation of error terms. A time-wise autoregressive model was estimated to correct for this problem and the generalised least square results are presented in Table 6. In both specifications, the signs on coefficients are the same as obtained in the OLS estimates in Table 5. The GLS estimates, however, produce smaller coefficients on the value-added variable in both specifications. Also noteworthy is that the coefficient on FEMEMP in specification 2 remains stable with the addition of the value-added variable by comparison with the OLS estimates.

The regression results suggest that gender plays some role in determining industry relative wages, net of the average labour productivity of workers in the industry.[26] The results are robust with regard to the negative impact of the proportion of women in an industry on industry relative wages. The positive and significant sign on the value-added variable in all specifications indicates, in accordance with standard economic theory, that wages in part reflect labour productivity, although this variable does not reveal the source of productivity differentials among industries which may be due to skills of workers, unobserved (average) productivity differentials as well as efficiency wage payments.

These results are consistent with the argument that the failure of gender-based wage differentials in South Korea to narrow despite tight labour markets and a relatively stronger demand for female labour may be attributable to persistent job segregation, as well as hiring and training

TABLE 6
JOB SEGREGATION AND INDUSTRY WAGE DIFFERENTIALS
GLS Results, 1978–89

	Specification 1: Ratios		Specification 2: Log Differences	
Variables	Eq. (1)	Eq. (2)	Eq. (1)	Eq. (2)
FEMEMP	–34.766 (11.32)*	–29.612 (2.92)*	–1.954 (9.88)*	–2.184 (9.43)*
DAYS	1.358 (41.54)*	1.124 (18.88)*	1.482 (1.03)	1.840 (1.28)
VA		0.071 (5.07)*		0.179 (1.84)***
No. of obs.	98	98	98	98

Source: See Table 5.

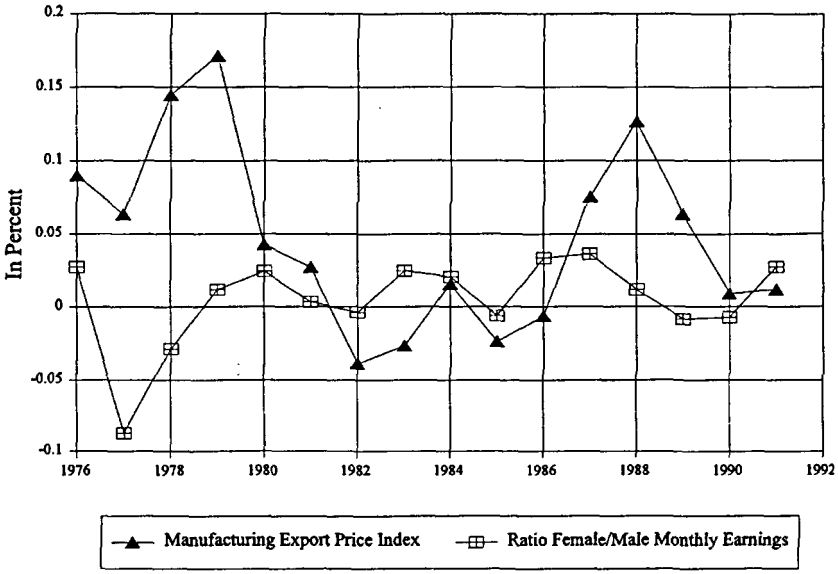
Notes: Data for 1988 are unavailable. Numbers in parentheses are t-statistics. A single asterisk (*) denotes $p < 0.01$, a double asterisk (**) denotes $p < 0.05$, and a triple asterisk (***) denotes $p < 0.10$.

practices that weaken women's fall-back position in labour markets, making it possible for employers to make wage payments that vary from labour productivity. The evidence presented here is also consistent with Roh's [*1991*] findings and, further, associates women's relatively lower wages and wage discrimination with their job segregation in export industries. These findings, suggestive of a complex set of social, legal, and economic relationships that result in gender-based discrimination in the economic arena, are consistent with the exploitation thesis. Adherents to the exploitation thesis have further argued that gender based-wage discrimination, rather than being eliminated, is an element in the success of the export-led growth strategy. That question is examined in the next section.

V. GENDER INEQUALITY AND EXPORT GROWTH

Gender wage differentials that result from the payment of artificially low wages to women may stimulate export demand if women's low wages contribute to lower unit labour costs and export prices. This negative relationship is likely to be particularly strong where women are concentrated in export industries and exports are price elastic. As a first step in investigating the relationship between gender wage differentials and export growth, consider the data provided in Figure 3. The plotted variables (measured as first differences) suggest a positive relationship between

FIGURE 3
CHANGE IN Ln OF EXPORT PRICE INDEX AND F/M EARNINGS GAP, MANUFACTURING



Source: Bank of Korea (various years) and International Labour Organisation (various years).

export prices and the ratio of female to male earnings during the period 1975–90 in the manufacturing sector – as female wages rise relative to men's, the export price index also rises.

Do wage increases for women, relative to men, dampen export demand? Put differently, is there an inverse relationship between gender equity and export growth? To test this question, a benchmark standard export function is estimated where manufactured exports are a function of relative prices and foreign income. The standard export function is then estimated, after including an additional variable – the ratio of female to male earnings in the manufacturing sector (W_f/W_m). In standard theory, the ratio of female to male earnings would not have any noticeable influence on exports since relative wages would reflect differing marginal productivities. In that event the coefficient on relative wages would be insignificant. If gender wage inequality promotes export growth, we would expect the coefficient on the ratio of female to male earnings to be negative, indicating that as female wages rise relative to male wages, export demand declines.

All variables in the regression are measured as first differences of natural logarithms and therefore coefficients can be interpreted as elasticities.[27] Research indicates that changes in foreign income and relative

prices affect export demand with a lag and, accordingly, a one-period lag of the foreign income variable, 0–6 quarterly lags of the relative price variable, and 0–4 quarterly lags of the relative wage variable are included in the export function.[28] The modified export function to be estimated can be written:

$$\Delta \mathrm{Ln}X_t = \alpha_0 + \alpha_1 \Delta \mathrm{Ln}Y^*_{t-1} + \sum_{i=0}^{6} \alpha_{2+i} \Delta \mathrm{Ln}(eP^*/P)_{t-i} + \sum_{i=0}^{4} \alpha_{8+i} \mathrm{Ln}(W_f/W_m)_{t-i} + \varepsilon_t \quad (3)$$

where X is manufactured exports in time t, Y* is foreign income, e is the nominal exchange rate, P* is the foreign price level, P is the domestic price level, W_f and W_m are weighted averages of female and male earnings in export manufacturing industries, respectively, and ε_t is the error term. The notes to Table 7 provide details on data sources and the measurement of variables.

The effects of relative prices and relative wages may be difficult to sort out econometrically due to the problem of multicollinearity. For example, an increase in the size of the relative wage variable, due perhaps to an increase in the female wage, may result in an increase in the export price index. On the other hand, the relative price variable is influenced by a number of factors in addition to male and female domestic wages: the exchange rate, foreign prices, and the mark-up. Moreover, by adding a separate variable for gender wage differentials, we are, in essence, attempting to isolate the effect of shifts in female/male relative wages on exports. An additional interpretation of this variable is that it acts as a proxy, representing compositional differences in male and female employment. In that sense, it may be considered an indirect measure of the impact of gendered job segregation on export growth.

The results of estimating the standard version of the export function with quarterly data for the period 1976.4 to 1990.1 are given in equation (1) in Table 7. The coefficients on the independent variables are positive, but only foreign income is statistically significant. Note that exports are price inelastic and foreign income elastic.[29] A modified export function which includes the gender relative wage variable was then estimated and the results are given in equation (2). The sum of the coefficients on the relative wage variable is negative and is statistically significant. That is, as the ratio of female to male wages rises, export demand declines. The sign and size of the relative price variable is stable with the addition of the relative wage variable, and is significant at the five per cent level. In addition, the

inclusion of the relative female/male wage variable can be seen to improve the explanatory power of the model.[30]

Gender-based wage inequality, according to these results, has been a stimulus to export demand. This result is at best tentative and requires further investigation and empirical validation. It does, however, suggest linkages exist between macroeconomic performance and micro-level gender relations which are influenced by social norms and institutions that affect women's employment and therefore bargaining power. In Korea, these linkages are related to women's segregation in labour-intensive export industries and the state's export-led growth strategy.

To make more explicit these connections in Korea, it is useful to note some salient characteristics of the labour-intensive export industries in which women have been segregated. Export sales tend to be more dependent on low unit labour costs in labour-intensive industries producing homogenous goods than in capital- or skill-intensive high-tech industries. In the latter case, export demand tends to be a function of foreign income and quality rather than low costs. To the extent that women become more integrated into skill- and capital-intensive industries, a relative increase in the female wage may be less likely to have a negative effect on export growth. The evidence from Korea in this regard is mixed. While the chemical industry has become more male-dominated since the 1970s, the transport, iron and steel, fabricated metal, and machinery industries have become marginally more integrated.

The simultaneous growth of female wages and exports may also be possible if the industries in which women are segregated themselves become more capital- or skill-intensive, or develop niche markets for which quality matters. There is some evidence that the latter scenario has become more prevalent in the late 1980s. While women continue to be concentrated in the electronics and wearing apparel industries, increasingly sales for those goods depend on quality in production. In recent years, wage growth has outstripped productivity growth in both industries, contributing to a narrowing of the gender wage gap. In spite of this, export growth in female-dominated industries has exceeded that of total exports for the period 1985-90 [*Seguino, 1994*].

Although this might appear to be good news, one should not lose sight of the fact that wages have lagged productivity growth in female-dominated industries while the reverse has occurred in male-dominated industries (see Table 3). The results presented here suggest that at least part of South Korea's earlier comparative advantage in world markets has been obtained as a result of gender discrimination at a variety of levels, with women in that country having borne a large share of the cost of 'success.'

TABLE 7
EXPORTS AND GENDER-BASED WAGE DIFFERENTIALS, 1976.4–1990.1
Dependent Variable: Manufactured Exports

Variable	Equation (1)	Equation (2)
Constant	–0.007 (–0.38)	–0.003 (0.23)
Y^*_{t-1}	3.337 (2.66)*	2.715 (2.12)**
eP^*/P [a]	0.603 (1.83)	0.664 (3.182)***
W_f/W_m [b]		–1.840 (9.35)*
Adjusted R^2	0.150	0.444
Durbin-Watson	2.570	2.252
Number of observations	53	53

Source: Export, exchange rate, and earnings data are from Bank of Korea's *Economic Statistics Yearbook* and *Monthly Statistical Bulletin* [various years]. Female and male employment data are from the International Labour Organisation [various years]. Data on foreign income and foreign prices are from OECD [1989, 1990, 1991].

[a] Sum of 0 – 6 quarterly lags.
[b] Sum of 0 – 4 quarterly lags.

Notes: All variables are measured as first differences of natural logs. Numbers in parentheses are t-statistics. A single asterisk (*) denotes $p < 0.01$, a double asterisk (**) denotes $p < 0.05$, and a triple asterisk (***) denotes $p < 0.10$. Y*is a trade-weighted average of inflation-adjusted GNP data for the US, UK, Japan, and Germany. The ratio of foreign to domestic prices (eP^*/P) is measured as follows. The numerator is a trade-weighted average of the won/foreign currency exchange rate (of the same four countries) multiplied by the foreign country's consumer price index and the denominator is the Korean export price index. W_f/W_m is a proxy measure of the ratio of female to male earnings (including overtime pay and bonuses) in the manufacturing sector. Female earnings are calculated as a weighted average of earnings (using female employment as weights) in the textile, wearing apparel, rubber, and electronics industries while male earnings are represented by a male employment-weighted average of earnings in the iron and steel, fabricated metal, machinery, and transport industries.

VI. SUMMARY AND CONCLUSIONS

While some researchers have suggested that gender inequalities have contributed to the success of the export-oriented growth strategy, little empirical evidence has been provided to support that claim. The results obtained here differ from previous studies in that preliminary econometric support is provided for the hypothesis that gender wage differentials can

explain some of South Korea's export growth.[31] This study also examines the causes behind persistent gender wage differentials in Korea's manufacturing sector which are found to be in part the result of gender inequities shaped by the labour market, the state, and rigid gender roles. These findings require further corroboration through empirical testing. They also invite greater attention to the interplay between micro-level gender relations and macroeconomic outcomes, suggesting the possibility that causality operates in both directions.

To briefly address some of the policy implications of these findings, the gender wage gap might be lessened by state-level policies that improve women's fall-back position in Korea. For example, enforcement of equal opportunity legislation in private and public hiring, the creation of a level playing field for labour union activity between export and domestic industries, elimination of the marriage bar and maximum-age limitations in hiring, and equitable access to job training in all fields would serve to improve women's economic alternatives and might raise women's wages relative to those of men.[32] It is difficult to discern with any certainty the macro-level impact this policy direction might have on Korea's export-led growth strategy. There is evidence that during the period 1978 to 1989, Korea's macroeconomy exhibited wage-led characteristics (a redistribution to wages stimulates growth) in spite of the potential negative effect on exports.[33] Those research results would suggest that improvements in women's wages (absolutely and relative to men's) may be compatible with continued export-led growth, given an appropriate macroeconomic policy environment and an export production mix for which demand is relatively price inelastic and quality matters.

The relevance of these findings for other developing countries may be limited for a variety of reasons. South Korea's experience with export-led growth is in some regards a very particular one, predicated as it was on a prior land reform, massive amounts of US foreign aid in the early 1950s, and a role in the geo-political drama of the 1960s and 1970s that served to open export doors in industrialised countries. While South Korea has moved up the industrial ladder to the production of capital- and skill-intensive goods, state intervention in markets was instrumental in that process.

Moreover, the Korean labour market itself has unique features and institutional arrangements that may not (and in some cases should not) be replicated in other countries. For example, the state's role in directing economic growth was accompanied by a variety of labour market policies designed to reduce labour conflict and raise productivity. Policies have included a mixture of trade union repression, appeasement, and mobilisation through the provision of ideological incentives for workers to identify their interests with rapid industrialisation [*You, 1995*]. Further, the structure of the Korean economy with the *chaebol* as the centrifugal force

is also distinctive. The *chaebol's* interest in promoting exports as a means to (1) fund investments and technology imports, and (2) obtain government rewards in response to meeting export performance targets, may explain their employment practices *vis-à-vis* women. Finally, patriarchal norms that sanction a social and economic hierarchy with women at the bottom have played a major role, and further, appear to be consistent with the economic strategy that the Korean state has pursued. Given the state's willingness to intervene in the economy in pursuit of its development goals, the failure to intercede in an effort to promote non-discriminatory treatment of women is instructive.

Many of the developing countries that have adopted EG do not share South Korea's historical circumstances and institutional environment in labour and product markets. It is unlikely that they will move quickly from the production of labour-intensive goods where low costs matter to the production of capital- and skill-intensive goods where quality matters. Rather, their specialisation in low-wage labour-intensive goods is likely to continue for some time. In this environment, EG may not succeed in ameliorating gender inequalities since higher wages for women in labour-intensive industries are at odds with a stage of export-led growth in which low unit labour costs matter the most. The seeming incompatibility between gender equity and export-led growth might, however, be altered by efforts to facilitate job integration.

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NOTES

1. Among the studies of note, representing a variety of perspectives, are: Amsden [*1989*], Dornbusch and Park [*1987*], Hart-Landsberg [*1993*], Kim and Park [*1985*], Kwack [*1990*], Scitovksy [*1990*] and World Bank [*1993*].
2. Policies have included import restrictions for selected industries, indirect tax exemptions and tariff exemptions for domestic and imported inputs used in the production of exports, wage guidelines and limits on labour union activity, and state-funded training programs. Restrictions on foreign direct investment have limited capital mobility, thereby giving the state greater leverage over the domestic economy. Nationalisation of banks permitted the use of subsidised credit as both a carrot and stick to discipline business to meet the state's export and investment goals. Some of these measures have been phased out in the 1980s, but financial markets and trade have not yet been fully liberalised.
3. See, for example, Cho [*1987*], Cho and Koo [*1983*], Koo [*1987*], B. S. Lee [*1993*], H. C. Lee [*1988*], Nam [*1991, 1994*], Roh [*1990, 1991*], Tak [*1987*], Young Hee Yoon [*1989*], Yang-Ro Yoon [*1993*], and Yousefi [*1997*].
4. An exception is Amsden [*1989, 1990*] who has noted the large gender wage differentials in the manufacturing sector.
5. See, for instance, Gladwin [*1991*], Beneria and Feldman [*1992*], Bakker [*1994*], Sparr [*1994*], and Aslanbeigui, Pressman, and Summerfield [1994].
6. See, for example, the special issue of *World Development* (Nov. 1995) on this topic.

7. Average annual economy-wide female employment growth rates also surpass those of men during this period (3.2 per cent annually for women and 2.4 per cent for men).
8. Yoon [*1989*] finds that rising demand in the manufacturing sector was a major factor contributing to the growth in women's share of employment, with supply-side factors playing a lesser role. As the data in Figure 1 indicate, however, the demand for female labour is not always stronger than that for males. According to Fuess and Lee [1994], women serve as a buffer during times of economic downturn in Korea, which may explain the greater variability in women's employment growth rates.
9. These data are from Korea's Occupational Wage Survey and the Monthly Wage Survey produced by the Ministry of Labor and cover establishments with more than ten workers, excluding public employees. Women are more likely than men to be employed in firms with fewer than ten workers, for example, in small-scale industry and in the informal sector, where wages are lower than in the larger firms. As a result, the official wage data presented here overstate women's manufacturing earnings. For a discussion of this issue, see Cho [*1987*], Amsden [*1989*], and Nam [*1991*].
10. There continue to be pockets of underutilised labour, primarily in the agricultural sector. As Richardson and Kim [*1986*] point out, however, a large segment of inactive rural labour is comprised of married women and the elderly who cannot be easily mobilised for other sectors.
11. Employment and unemployment data may misrepresent women's paid work behaviour, of course, and thus these data should be viewed with caution. Women may report withdrawal from the labour market in response to job shortages, making official unemployment data cyclically sensitive. The trend of declining unemployment rates for men and women is obvious, however, providing some evidence that female labour supplies are constrained. Another potential difficulty with unemployment data is that frequently, women (and men) who are employed as unpaid family workers are recorded among the employed, serving to disguise the true rate of unemployment. This problem was addressed by the Economic Planning Board which revised the survey instrument in 1976 to exclude unpaid family workers who work less than 18 hours a week from the employed.
12. For more on gender and labour market segmentation, see Lindauer [*1984*] and Section IV of this paper. To evaluate the substitutability of female for male labor in response to shifts in relative wages in Korea's manufacturing sector, I tested what might be called the 'relative wage hypothesis'. Those results, available on request, indicate an extremely low elasticity of substitution (0.059) of female for male labour, and the coefficient was statistically insignificant.
13. See, for example, Amsden [*1989*], Chang [*1993*] and Singh [*1993*].
14. Corporate familialism can be described as a system of mutual rights and responsibilities between workers and employers, but the term has had different meanings for female and male workers. For male workers in Korea's capital-intensive industries, it has meant long-term employment in return for work place harmony and labor's respect for the prerogatives of management. For female workers, responsibilities include obedience and the acceptance of their subordinate position in the firm hierarchy; female workers' rights, however, have been in relatively short supply [*You, 1995*].
15. See also Yang-Ro Yoon [*1993*].
16. An alternative and simpler test of the 'crowding' hypothesis is to estimate the standard deviation of employment by gender (measured in natural logs). A relatively large standard deviation indicates a greater degree of variability in employment levels which can be interpreted as a greater concentration of workers of that sex in a limited number of industries. Estimates of the Korean gender-specific standard deviations in 1990 manufacturing employment for three-digit ISIC industries show a greater variability in employment for females (S.D = 1.50) than for males (S.D = 1.04), indicating women are less evenly distributed throughout manufacturing industries than men, a phenomenon that may contribute to their relatively lower wages. The Duncan index can also be used to measure job segregation, and extends from 0 (the case of no employment dissimilarity) to 1 (the case of complete job segregation). The index for Korea was calculated from gender-disaggregated employment data for 27 three-digit ISIC manufacturing industries. The value of the index fell

from 0.422 to 0.374 from 1976 to 1990, suggesting a reduction in the degree of job segregation. This index is a useful indicator of the degree of segregation, but it does not give information about the extent to which women more than men face 'crowding' in a limited number of job categories.

17. As recently as 1990, women held only 2.6 per cent of all managerial and supervisory positions in Korea, compared to 21.6 per cent of professional and technical positions in the manufacturing sector [*International Labour Organisation, 1994*]. On women's exclusion from managerial and supervisory positions, see, among others, Cho [*1987*], Nam [*1991*], and Ok-Jie Lee [*1993*].
18. For discussion of the marriage bar, see Lindauer [*1984*], J. A. Sohn [*1990*], B. S. Lee [*1993*], and Nam [*1991*]. About 65 per cent of Korean firms had written policies prohibiting married women's employment in their firms, according to an empirical study by Nho [*1987*]. Similar findings were published by the Korean Federation of Employers Association [*1989*]. In other instances, while the marriage bar may not be codified in firm policies, women are required to sign a statement that they agree to resign upon marriage.
19. Ok-Jie Lee [*1993*] argues that in the textile industry the marriage bar serves as a strategy of labour control where the most routine repetitive jobs are allocated to women and the optimal length of female service is two or three years. According to Lee, employers, aware that women workers become increasingly dissatisfied with their wages after some time on the job, prefer to limit the work force to young workers who are unlikely to actively resist low wage payments.
20. Roh [*1990*] reports the results of a systematic analysis of the status of married women engaged in home-based work. The sample group was employed primarily in labour-intensive export-oriented manufacturing industries which experience more cyclical patterns of product demand than capital-intensive industries. Hourly earnings in 1987 were roughly three quarters those of women and one third those of men employed in the formal manufacturing sector. Lower earnings are in part a result of the fact that home-based workers do not receive various allowances, bonuses, or pensions.
21. Alternatively, the 'crowding' hypothesis which results in an oversupply of labour in a limited number of industries, may explain interindustry wage differentials. This explanation suggests that job segregation is discriminatory insofar as ascriptive rather than (or in addition to) human capital characteristics determine employment opportunities. It also is consistent with the bargaining theory hypothesis in that women's lack of alternative job opportunities is a major factor limiting their ability to bargain for higher wages.
22. Earnings data reported for the manufacturing sector in Korea include monthly wages and bonuses. For convenience, I use the terms earnings and wages interchangeably throughout this discussion.
23. Se-Il Park [*1980*] and Richardson and Kim [*1986*] found little evidence of trade union influence on earnings in the 1970s.
24. Dummy variables may pick up variations in product demand that affect the industry's demand for labour and therefore wages. The model was estimated using a variable to capture the impact of demand shifts on relative industry wages, measured as gross output in industry *i* relative to gross manufacturing output. The inclusion of that variable yielded results similar to those provided by specification 1 with regard to the size and sign of the coefficient on the remaining explanatory variables. Those results are available from the author on request. The model presented here uses dummy variables since these capture the effects of a variety of external factors in addition to demand.
25. Results obtained from representing the variables as first differences (for exlample, $\mathrm{Ln}(W_a - W_i)$ were similar to those presented here.
26. Because the data used in the analyses here are highly aggregated (at the two-digit manufacturing industry level) a second set of regressions were run using ordinary least squares on three-digit industry level data for which only two years of data were available (1982 and 1991). The results obtained (not shown here) are very similar with the exception that the coefficient on FEMEMP is larger than in the estimates provided in this paper, suggesting that the more aggregated data obscure the negative effect of gender on industry wages. Results are available from author on request.

27. Augmented Dickey Fuller (ADF) unit root tests were conducted to test the stationarity of the data. The tests revealed each series to be integrated of order one or I(1), becoming stationary after first differencing.
28. Experimentation with longer lags yielded similar results with regard to the size and sign of the coefficients on the price and wage variables, but were statistically insignificant.
29. Estimates of export demand elasticity indicate greater inelasticity since the mid- 1980s. Prior to that time, Korean exports exhibited the expected high price elasticity of demand found in other countries producing homogenous labour-intensive goods. The change in price elasticity may be related to shifts in the export mix. Several studies note that quality factors are increasingly important in determining demand for some Korean exports (for example, color televisions, wearing apparel, automobiles, computer components, and footwear). Price is correspondingly a weaker determinant of export demand. See, for example, Won-am Park [*1989*], World Bank [*1989*], and Seguino [*1994*]. Won-Am Park [*1989*] also found evidence of price inelastic export demand although in the longer run (two years), export demand appeared to be price elastic in that study.
30. An omitted variable test for the relative wage gap variables yielded an F-statistic of 6.97, significant at the one percent level, permitting us to reject the null hypothesis that the relative wage variables do make a significant contribution to the explanation of the dependent variable.
31. As was noted above, however, the economy's structure and export mix mediate the impact of relative wages on exports. This suggests the possibility that the relationship between gender wage inequality and export growth is not static.
32. Some policy steps have been taken that may improve women's social and economic status in Korea, thereby offering them greater bargaining power in the economic arena. For example, a minimum wage law was passed in 1988, and the Family Law Reform also passed in that year may improve women's economic status within the family. On these policy shifts, see Nam [*1995*] and Yousefi [*1997*].
33. Seguino [*1994*], using a Neo-Kaleckian model which examines the relationship between growth, output, and income distribution, found empirical evidence to support the view that Korea's economy was wage-led in the 1980s. The wage-led character of the economy results from the country's structural dependence on intermediate and capital goods, import restrictions, and limits to capital mobility.

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