THE EFFECTS OF ECONOMIC DEVELOPMENT AND WORLD-SYSTEM ON OCCUPATIONAL SEX SEGREGATION

INHEE HAHM
Ewha Womans University

In order to better integrate women's subordinate status into the world-system, I examined how processes of the new international division of labor and consequent underdevelopment affect women's overall economic status and occupational sex segregation (OSS). For the empirical test, I used panel regression analyses with 71 cross national cases for 1960–80, and 1970–80 periods. The results of the analyses clearly show that world-system position, and economic development proved to have important consequences for OSS. However, the results unexpectedly show a negative relation for multinational corporation dependency, which are stronger for the longer term period than the shorter term. Of the intervening variables, the effects of female labor force participation show a negative effect on OSS, and those of the female share of the service sector show a strong positive effect on OSS at either point in time. Fertility did not show any significant effects on OSS.

INTRODUCTION

In recent years, a growing number of studies (Elson and Pearson 1981; Lim 1983; Ward 1984, 1990; Nash 1988) have pointed toward the importance of understanding women's subordinated status within a global perspective. However, the issue of gender inequality has received little systematic attention in world-system theory.

This neglect is unfortunate. The intrusion of the world capitalist economy affects the level of economic growth, income inequality, and over-urbanization with excessive growth of the tertiary sector (Chase-Dunn 1975; Bornschier et al. 1978; Evans and Timberlake 1980; Kentor 1981; Timberlake 1985). All can be argued to influence women's disadvantaged status in the labor market.

The effect of socioeconomic development on women is a hotly debated issue. Development is not a neutral process, but is shaped by the hierarchical and exploitative structure of capitalist production. The negative effects of development on the economic status of women can be appropriately understood within the context of the world capitalist system—a relationship that is relatively unexplored in both world-system and development literature (Ward 1984; Safa 1987). There is a critical need to incorporate the "gender dimension" into the
world-system theory.

The distortion of the peripheral economy brought by dependent development affects all workers. But the results from dependency may be expected to have a more deleterious impact on women than on men. The causality between the various types of economic dependency and gender inequality remains unspecified, however (Marshall 1985; Ward 1988).

Recently, several efforts have begun to study gender related issues, such as female labor force participation (Ward 1984; Marshall 1985; Pampel and Tanaka 1986), fertility (Ward 1984; Lodon 1988), and the growth of the tertiary sector (Timberlake and Kentor 1983; Bradshaw 1987) under the world-system framework. However, within the gender blind categories of world system perspectives (Hartmann 1981), this research has failed to directly focus on gender inequality. Most research took for its main question the relationship of “gender dimension” to the world-system, rather than the realtionship of women to men. The object of analysis should be not only women and the world-system, but also the relations between women and men within the whole process and the way in which those relations work to subordinate women.

In order to study women’s status vis-a-ais men’s in the labor force, we need relational data (Mason 1986). Thus, I chose, as the dependent variable of my research, “occupational sex segregation(OSS)”. Certainly, women’s high economic participation rates are not equivalent to high status. Women are concentrated in a narrow range of occupations characterized by low wages, low skill levels, high turnover, insecurity of tenure, and limited upward mobility. The segmentation of labor market and the occupational segregation by sex are the most distinctive and persistent features of the capitalist labor market (Rubery 1980; Reskin 1984; Roos 1985).

While the literature on occupational sex segregation has become substantial (Blaxall and Reagan 1976; Reskin 1984; Baron and Bielby 1985, 1986), only a few studies examined its crossnational comparison(Semyonov 1980; Roos 1985; Semyonov and Shenhav 1988). Moreover, most previous studies have often had a principally domestic focus. They are too narrowly confined to the domestic economy to explain the trends of a female work force on a global scale. Therefore, the effect of world-system/dependency on the women’s subordinated status in the labor market has not yet been fully examined.

The purpose of my work is to examine the effects of world-system/dependency structures and dynamics on occupational sex segregation (OSS) within a cross national framework. First, I examined how processes of the global economy, especially the new international division of labor (Fröbel et al. 1980), and consequent underdevelopment affect women’s overall economic position and OSS. Second, with the theoretical and empirical link between OSS and independent variables, I presented panel regression analyses with 71 cross-
national cases. Third, I discussed the central question, how the world-system/dependency generates OSS, and suggested directions for future research.

THEORETICAL REVIEW

It has been argued by Marxists and non-Marxists alike, that capitalist expansion is not gender specific, and in the long run the process of capitalist development should destroy the socially accepted and ideologically reinforced subordination of women (Barrett 1980; Benholdt-Thomson 1984).

But this has not occurred, despite the increase of women's labor force participation. Rather, the segregation of women and men in the labor market (Stevenson 1975; Amsden 1980), the substantial wage gap by sex (International Labor Organization, 1989), and women's subordinated status in the labor market are discovered almost everywhere.

These unequal statuses of women can be most appropriately understood within the world capitalist system (Ward 1984, 1990). Women's increasing employment is a logical outcome of the expansion of capitalist production. In the initial stage of capital penetration, there is a strong preference for low paid, unprotected segments of the population, such as rural migrants, ethnic minorities, or women without alternative employment (Lim 1983). Lacking experience in trade unions, these groups are vulnerable to intense exploitation.

This trend is intensified as labor is forced to compete internationally (Fröbel et al. 1980; Fernandez-Kelley 1983; Cho 1985). The "secondary labor force" in core countries is especially hard hit by the reorganization of production on a global scale, because they are in direct competition with low paid, unorganized labor in the peripheries (Lim 1983; Sassen-Kobb 1983, 1985).

The effects of world-system intrusion on women's economic status may vary according to the different types of foreign investment and development strategy (Ward 1988; Nash 1988). In this chapter, I will review the overlapping and sequential processes of dependent development (Cardoso 1973; Evans 1979), the new international division of labor, and their effects on gender inequality in the labor market. My concern will be focused on the labor market processes in which women are segregated and subordinated by global restructuring.

From the 1950s until the early 1970s, many periphery countries implemented the import substitution strategies to remedy the poor balance of payments that were generated by unequal trading with core countries (Evans 1979; Bornschirer et al. 1985). The initial flows of foreign capital resulted in short-term economic growth in some periphery countries, but in the long run, the cumulative stocks of capital led to capital outflow to core nations and to the structural distortion of the periphery economies. As the multi-national
corporations provided the latest, capital intensive technology for the peripheries, fewer jobs were created relative to the amount of investment. Agricultural workers displaced by the mechanization of agriculture and unemployed workers faced minimal growth in manufacture and went into the low wage service sector (Timberlake and Kentor 1983; Nash 1988).

Under import substitution policies, women’s subordinate position was reinforced by the capital intensive and heavy industries that reinforced occupational sex segregation. In many periphery countries, with the limited industrial job market, men were preferred as workers (Chaney and Schmink 1980; Nash 1988). The marginalization of women from paid employment has contributed to the “feminization of the informal sector” (Safa 1987).

During the mid 1960s and into the 1980s, some periphery women have become the target of the new development strategy: export processing or labor intensive industries in the global assembly line (Fröbel et al. 1980; Fuentes et al. 1984). Increased competition among core capitalists to minimize production costs and increase profits leads them to relocate production in peripheries, where surplus pools of cheap labor are available. The geographical dispersion of productive stages has been made possible by the fragmentation or the “deskilling” of the labor process (Braverman 1974; Horton and Lee 1988). By virtue of deskilling, workers’ control over their labor has been denied. Moreover, core capitalists use “offshore sourcing” (the possibility of transferring abroad labor intensive production phases) as an alternative of “risk diversification” (Nash 1983).

The new international division of labor was further facilitated by the needs of periphery governments seeking alternative paths to development. Throughout the last three decades, increasing numbers of periphery countries have adopted “export oriented industrialization” as a way of alleviating trade imbalances, providing jobs for unemployed populations, stimulating domestic economic growth, and promoting capital accumulation (Deyo 1987; Tiano 1987, 1990). As a result, export processing zones and runaway shops are primarily located in developing countries which have vast labor reserves brought by high unemployment and high population growth (ILO 1985).

The role of gender in this new international division of labor should not be underestimated. As a result of the new trend, a new type of wage employment has become available to women in many periphery countries: work in “global assembly line” manufacturing exclusively for export to the core countries (Lim 1990). Although precise statistics on the number of women directly employed by export processing industries in peripheries do not exist, an ILO study (1985) estimated that 4 million workers were directly employed by multinational corporations (MNCs) in all economic sectors.

More recently, MNCs have increasingly employed women in labor intensive
export manufacturing industries. Women, between the ages of 15 to 25 years, constitute over 85 percent of the global assembly processing labor force (ILO 1985).

The recruitment of women into these labor intensive jobs is another stage in the search for a cheap labor force. Cheap labor is essential to labor intensive industries because they are highly competitive, due to comparatively simple technology, low capital investment, and low skill requirements (Deyo 1984; Forsythe et al. 1988). Thus, it is relatively easy for new firms to enter the labor intensive industries. Moreover, the monopoly sector generates a corresponding competitive sector, through which it gains flexibility in adapting to changing demands.

The positive impact of export processing industrialization on the market status of women is very limited, due to the nature of employment in world market factories. Wage rates are considerably lower in the peripheries than in core countries; in 1977, the average hourly wage in the U. S. was $4.81, in South Korea, $.70, and in Indonesia, $.25 (Fuentes et al. 1983). Kreye (1980) also found that women's wages are 20 to 50 percent lower than men's wages in comparable jobs.

The impact of wage employment on the status of women is also minimized by the high rate of turnover in export processing industries, which is estimated at 5 to 10 percent monthly (Safa 1981). The instability of employment is increased by the fluctuating demand for the products of labor intensive industries (Green 1983), and plant closings and relocations (Sassen-Kobb 1983, 1985).

To date, two important questions have not been adequately answered. First, why do young women overwhelmingly constitute the labor force of the global assembly line? Employers prefer young, inexperienced, single women on the assumption that their youth makes them submissive to authority, their inexperience minimizes previous contact with labor organizers, and their unmarried status reduces the likelihood of pregnancy (Elson and Pearson 1981; Nash 1983; Tiano 1987).

The preference for female labor of the labor intensive industries is rationalized by beliefs that women have a high tolerance for monotonous work, an inherent dexterity that suits them for minute tasks, and docile natures that enable them to withstand the pressure of rapidly paced, closely supervised production (Enloe 1983; Cho 1985; Taplin 1986).

Second, why are Asian women especially preferred by MNCs as production workers? World systemic analyses have rarely focused on ideological or cultural aspects of the capitalist world economy (Lutz 1988). Depictions of Asian women workers as "hardworking", "well disciplined", and "docile" labor have their roots, not only in the western centered anthropological literature, but also
Asian women are preferred as world market factory workers because they offer the following combined advantages: having a history of high economic activity; being trained in the patriarchal family to show respect to authority figures, and to perform manual dexterity. Two more features contribute to the choice of Asian women as workers in world market factories. One factor is education, the other is the politico-military associations between the U.S. and Asian countries (Taplin 1986). The fact that many Asian women can not find adequate employment to match their levels of education makes global assembly work a more appealing job, while their education adds another incentive for MNCs to hire them as assembly workers and low level technicians.

The links between Southeast Asian governments and American based corporations and government agencies has further facilitated the use of Asian women in especially electronic assemblies. The U.S. government has promoted through its foreign policy an export-led industrialization, which has linked Southeast Asian countries to U.S.-based MNCs (Deyo 1987; Lutz 1988).

Though women workers in export processing industries comprise only a small proportion of all women workers employed in formal sectors (ILO 1985), global restructuring has indirect as well as direct effects on generating employment for women in periphery countries.

Recently, world-system and dependency theory focuses more on the employment patterns that characterize the "over-urbanizatin" in the peripheries (Timberlake 1985; Feagin and Smith 1987). There is good reason to believe that the tertiary sector in periphery countries is composed largely of the urban informal sector. Such jobs tend to be very labor intensive and are characterized by no or minimum wages and little or no legal protection (Portes and Walton 1981; Truelove 1987).

According to the arguments of informal sector, low wages in the periphery account for much of the surplus extraction to the core. These low wages are made possible by the laborers' reproductive costs being borne by the subsistence mode of production, or the informal sector. Goods and services can be acquired by formal sector workers at below market cost through transactions in the informal sector.

The real subsidy accrues to global capital. The low formal sector wages in the periphery is an important way in which surplus is extracted from the periphery by the core. To the extent that the reproductive costs of labor are borne outside of the formal market, wages can be kept low and profits high (Portes and Walton 1981; Portes 1985).

Capitalists and MNCs use the informal sector workers to avoid labor legislation and to keep labor costs low (Portes et al. 1987). By subcontracting industrial production to informal, homebased workers, employers can minimize
competitive risks, wages, and the threat of unionization, while maximizing their flexibility in hiring, their overhead costs, and their production processes.

However, the arguments of the informal sector have failed to note that these reproductive costs are predominantly borne by women. Regardless of whether it is argued that the support structures for the maintenance of low wages are from rural subsistence enclaves or the urban informal market, women's labor comprises a large portion of each mode of production (Ward 1984, 1990; Safa 1987; Tinker 1990).

In both western historical experience and peripheral development, domestic service was the primary source of urban employment for women (Chaplin 1978). Overall, 16 to 20\% of the workers in periphery countries are in domestic types of work at any one time.

Women's involvement in the informal sector has its origins in women's domestic production within the home. The informal sector is quite large in the urban areas of periphery countries, encompassing 53 to 69\% of urban workers (International Center for Research on Women 1980). Women constitute the majority of workers, that is 46 to 70\% in this sector.

The growth of the women workers in the informal sector is the centerpiece of global restructuring (Ward 1990). Safa (1987) found that the increasing international competitive search for cost cutting has led to much subcontracting to the informal sector in garments, toys, and electronics. Now, one type of work segregation in Latin American cities involves the use of younger, single women in export-oriented manufacturing plants, with older, married women with children working in their households and in the informal sector. Recent data also indicate a relationship between declines in women's formal work in industries and the growth of informal assembly work in the home or factories (Truelove 1990). In Greece and Italy, for example, home based assembly work by women is a government approved development strategy (Hadjicostandi 1990).

Women's comparative disadvantage is greatest for women in peripheries where capitalist relations of production are least developed, since there have been the fewest opportunities for wage employment and the weakest bargaining power in the labor market. Patriarchal social relations are also strongest and most restrictive of female wage employment where precapitalist modes of production persist (Lim 1983; Bennholdt-Thomson 1984). Thus periphery women are the most subordinated group of workers, subject to "patriarchal capitalist" (Hartmann 1976) exploitation, and to world capitalist exploitation.

Gender was a determining factor in the structuring of employment opportunities from the very start of the capitalist industrial organization. The labor market segmentation by gender remains a constant characteristic of the contemporary work organization (Reskin 1984; Baron and Bielby 1985).
To note that occupations are sex-typed is not to explain why this is so. Women enter the capitalist labor market predetermined as inferior laborers (Elason and Pearson 1981). To the capitalist, the sex of the worker matters only when the difference between sex can be exploited to make greater profits. It is patriarchal relations, not class relations, that provide the bases for such differences (Barrett 1980; Walby 1986). Women's opportunity costs are lower based on the socially available alternative uses of their time. Therefore, they are more willing to accept the low wages, poor working conditions, and tedious tasks of secondary work.

It is clear that capital accumulation and global restructuring work on existing gender divisions and constantly transform them. With the arrival of the labor intensive global assembly line, young, married women in Asia and Latin America have become the new favored workers by the MNCs. The MNC employment provided production related jobs for women. This pattern of employment will lead to decrease the overall level of OSS by absorbing women worker into the traditionally male-oriented manufacturing sector (Roos 1985).

But, given the relation between MNC dependency and underdevelopment (Bornschier and Chase-Dunn 1985), and MNC's history of mobility, I argue that the MNC investment eventually may have mixed consequences for women workers. In the long run, global assembly women workers will face job instability and many women will be again displaced into the service or urban informal sectors. The long run effects of MNC investment, thus, will increase the degree of OSS in the peripheries.

RESEARCH DESIGN

Dependent Variable

Occupational Sex Segregation (OSS) is based on the index of dissimilarity, originally developed by Duncan and Duncan (1955). The segregation index denotes physical separation, which is marked by differential access to authority, unequal wages, separate job ladders, and exclusionary practices restricting mobility between positions labeled "male" and "female" (Edwards et al. 1975; Bielby and Baron 1985).

The index of dissimilarity yields a general estimate of the percent of females or males who would have to change occupations in order to achieve equal distributions by sex. If the values of index is zero, then no difference exists in the occupational distributions of males and females.

The index of dissimilarity can be measured as:

\[
\text{Index} = 100 \times \sqrt{\frac{\frac{1}{\sum f_i} \left| \frac{f_{yi}}{f_i} - \frac{f_{yi}}{f_j} \right|}{2}}
\]
where f=frequencies for ith sex (i=1, 2; 1=males, 2=females) and the jth occupational category (j=1 to 9; 1=professional, and related workers, 2=administrative and managerial workers, 3=clerical, and related workers, 4=sales workers, 5=service workers 6=agricultural, animal husbandary, forestry workers, and fishermen/hunters, 7=production, and related workers, transport equipment operations and related workers, 8=armed forces, and 9=other workers.

The index of OSS was collected at three points in time, around 1960, 1970, and 1980 for this study (ILO, various years).

Sample

In cross national studies, sample size is always limited by the availability of data. In keeping with the emphasis on world-system/dependency effects, the sample includes both core and noncore countries. The name of 71 countries included in the analysis are:

Argentina, Australia, Austria, Belgium, Cameroon, Canada, Chile, Costa Rica, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Finland, France, Germany West, Ghana, Greece, Guatemala, Haiti, Honduras, Hong Kong, India, Indonesia, Iran, Ireland, Israel, Italy, Jamaica, Japan, Korea South, Kuwait, Luxemburg, Malawi, Malaysia, Mexico, Moroco, Nepal, Netherlands, New Zealand, Nicaragua, Norway, Pakistan, Panama, Paraguay, Peru, Philippine, Portugal, Puerto Rico, Singapor, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Syria, Thailand, Trinidad & Tobago, Tunisia, Turkey, United Kingdom, United States, Uruguay, Venezuela, Zambia, Zimbabwe, Bulgaria, Czechoslovakia, Hungary, Poland, and Yugoslavia.

Independent Variables

1. Multinational Corporation Penetration

A country's level of MNC penetration represents the most appropriate current dimension of the complex process of dependency. World-system/dependency theorists have argued that, between the mid-1960s and the mid-1970s, peripheral countries became less dependent in terms of classical dependence. On the other hand, for the same period, dependence on MNC investment has increased significantly (Evans 1979; Bornschier and Chase-Dunn 1985).

The measurement of MNC penetration is the total stock of foreign direct investment at the end of 1967 (the first year for which these data are available), and 1973, weighted by the total population as a proxy for the labor force and by the total energy consumption as a proxy for the total stock of capital of the penetrated country. The indicator is computed as follows:

$$\text{MNC PEN} = \frac{\text{total stock of foreign direct investment}}{\sqrt{\text{total energy consumption} \times \text{population}}}$$

The MNC investment effect on OSS is expected to increase the level of OSS. In study after study, Ward (1984, 1985, 1988, 1990) demonstrated that the flows
of foreign investment initially increased women's employment rate, but over time, women's economic status declined relative to men's in that resources are unevenly distributed between the genders.

The export oriented MNC employment has been relatively unstable over time because of the competitive nature of these industries (Safa 1987). Moreover, the unemployment problem in developing countries has remained relatively unaffected by these forms of labor intensive production. The MNCs have only attracted a new category of worker into the labor force - young, educated female workers-. Hence this form of labor intensive investment ultimately can contribute to the growth of OSS by increasing tertiary and informal sectors in periphery countries (Timberlake and Kentor 1983).

2. World-System Position

In addition to using the measure of MNC penetration to test the dependency hypothesis, a parallel analysis was conducted using the measures of world-system position circa 1960–65 (Snyder and Kick 1979), and circa 1970–75 (Kick 1987).

The world-system position can be collapsed into the capitalist “core” (block 1 by Kick’s model), the socialist “semi-periphery” (block 2), the capitalist “semi-periphery” (block 3) and the “periphery” (block 4 through 11). Dummy variables for socialist semi-periphery, capitalist semi-periphery, and periphery statuses are used, with core status as the reference category. Core and state socialist countries are expected to show the least degree of OSS.

3. Economic Development

Economic development is expected to have the most predictable impact on the integration of women into occupations traditionally reserved for women in the core countries.

The measure of development used in the analysis is GNP per capita in 1960 and 1970 (United Nations, various years). The measure of GNP is logged in the equations to reduce the skew in the variables.

Structural Intervening Variables

1. Female Labor Force Participation (FLFP)

The relation between FLFP and OSS has not been fully examined in cross national studies. FLFP is expected to have a mediating role through which the effects of MNC investment, and economic development on the degree of OSS work.

It is measured as a share of the total labor force, that is the number of female participants divided by the total number of participants and multiplied by 100. The share measure controls for access of males to the labor force and is more appropriate for the analysis to follow (Mason 1987). The source is the
ILO yearbook, and the FLFP data is collected around 1960 and 1970.

2. Female Share of the Service Sector Employment

For increase in women's employment, we must look to the tertiary and informal sector which has been expanding for periphery development. Schmink (1977) argued that the extraordinary growth of the tertiary sector observed for Latin America has been shaped predominantly by women's participation in the service and informal sectors under dependent development.

The measure of female share of tertiary sector is constructed by dividing the number of females in services by the total number of females and males in the same category. Service sector incorporates government-, community-, business-, recreation-, and personal-services (ILO various years). Data is gathered around 1960 and 1970.

3. Fertility

Fertility is directly and indirectly linked to the gender inequality (Mason 1986, 1987). As Ward (1984) contended, "a major determinant of fertility is structure of opportunities for women, that is whether or not women have access to the new economic, and political resources generated by development (p. 47)". No one argues that world-system involvement alone causes high birth rates. The argument is that through a number of direct and indirect mechanisms, economic dependency delays and weakens the effect of development on fertility decline. As Ward (1984) argues, the female employment patterns afforded by dependent development will not produce fertility decline associated with women's employment in the core countries.

Fertility rate is expected to be negatively related to female labor force participation. Changes in FLFP can be seen as indications of shifts in the relative value of children's and women's labor (Nolan and White 1984).

Entwisel (1981) argued that "the comparability of cross national fertility studies is not affected by choice of fertility measure." Therefore, I use crude birth rate (number of live births per 1,000 mid-year population) data for 1965 and 1975 (UN various years).

Method of Analysis

As with most other quantitative, cross national research, this study uses panel regression analysis to evaluate the main hypotheses. In a panel analysis, the dependent variable at a recent point in time is regressed on itself and the independent variables at an earlier point in time.

This procedure yields an estimation of the effects of the independent variables on change in the dependent variable. It reduces the likelihood of reciprocal causality that is common to cross sectional analysis. Also, given the usually high corre-
lation between the dependent variables at the two points in time, panel regression assign maximum explanatory power to the lagged dependent variable. This yields a very conservative test of the effect of the independent variables on change in the dependent variable (Hannan 1979; Kessler and Greenberg 1981).

RESEARCH FINDINGS AND ANALYSES

Tables 1 and 2 present the results of panel regressions of OSS (occupational sex segregation) on level of economic development, the measures of dependency/world-system position, and the other structural intervening variables. The first column of each table presents estimates of the full model for 71 countries, and the other equations present adjustments based on the initial results. The equations are computed for changes over 20 years (1960-80) and for over 10 years (1970-80).

The results in Tables 1 and 2 are consistent for both the 1960-80 and 1970-80 period, except for the effect of MNC investment and FLFP (female labor force participation). The overall results demonstrate that level of economic development has a positive effect on the degree of OSS, while world-system/dependency measure exerts a negative effect on the OSS. These results hold for all equations in both periods, though significant levels found among the variables are different.

The data suggest that economic development has strong positive effect on the integration of women into the occupations traditionally reserved for women. Economic development strengthens OSS in the wage labor market by failing to utilize the traditional productive roles that women are playing (Tiano 1987), by reinforcement of already existent patriarchal values which restrict women's activities to domestic roles (Hartmann 1981), and by superimposing western values of what is appropriate work for women in developed into periphery countries (Boserup 1970; June and Nash 1980; Nash 1988).

The negative effect of total MNC investment on OSS is partially expected. The exploitation thesis of female labor in the world-system (Nash and Fernandez-Kelly 1983; Ward 1990) supports the result. That is, women in developing countries are often the target of core capital. They provide cheap labor and are absorbed into the bottom ladder of the production line for the world market factory (Tiano 1987). Women's employment in these MNCs may lessen the degree of OSS, since manufacturing is among the most sex segregated sectors (Rau and Roncek 1987).

In fact, more and more MNC industries have relocated form the core industrialized countries to the peripheral developing countries to recruit a readily available cheap labor force. However, it is curious that, while MNC investment exerts significant negative effect on OSS in the 1960-80 table, there are no significant effect of MNC investment on OSS for the 1970-80 time period. Of
| TABLE 1. PANEL REGRESSION ANALYSES OF OSS ON INDEPENDENT VARIABLES, 1960 – 1980 (N=71) |
|--------------------------------------------|--------|--------|--------|--------|
| | (1) | (2) | (3) | (4) |
| OSS 1960 | b | .612 | .615 | .610 | .608 |
| s. e. b. | | .092 | .095 | .092 | .091 |
| Log GNP 1960 | b | .063 | .030 | .033 | .033 |
| s. e. b. | | .085 | .014 | .011 | .011 |
| T | .742 | 2.109 *** | 3.040 *** | 3.055 *** |
| 2 (lg GNP) 1960 | b | -.003 | | | |
| s. e. b. | | .007 | | | |
| T | -.361 | | | |
| MNCPen 1967 | b | -5.0E-04 | -4.7E-04 | -5.1E-04 | -4.7E-04 |
| s. e. b. | | 2.6E-04 | 2.5E-04 | 2.7E-04 | 2.5E-04 |
| T | -1.905 * | -1.830 * | -1.895 * | -1.885 * |
| Core 1965 | b | -.036 | -.039 | -.048 | -.039 |
| s. e. b. | | .025 | .027 | .039 | .025 |
| T | -1.407 | -1.426 | -1.236 | -1.542 * |
| State- Soc. | b | -.063 | -.063 | -.064 | -.061 |
| s. e. b. | | .040 | .040 | .039 | .039 |
| T | -1.593 * | -1.579 * | -1.604 * | -1.572 * |
| MNCPen * Core | b | 2.5E-04 | 2.5E-04 |
| s. e. b. | | 6.3E-04 | 6.3E-04 |
| T | .399 | .396 |
| FLFP 1960 | b | -.001 | -.001 | -.001 | -.001 |
| s. e. b. | | -.001 | .001 | .001 | .001 |
| T | -.570 | -.790 | -.661 | -.670 |
| Female Service | b | .163 | .169 | .171 | .169 |
| s. e. b. | | .087 | .085 | .085 | .084 |
| 1960 | T | 1.878 * | 2.001 ** | 2.021 ** | 2.016 ** |
| CBR 1965 | b | -3.0E-04 | -2.9E-04 |
| s. e. b. | | .001 | .001 |
| T | -.257 | -.249 |
| Constant | | -.162 | -.051 | -.073 | -.074 |
| R^2 | | .776 | .776 | .776 | .775 |
| Adjusted R^2 | | .743 | .747 | .747 | .750 |

Note: * p < .1  ** p < .05  *** p < .001; b = unstandardized regression coefficient; s.e.b. = standard error of b; T = t value.
### Table 2. Panel Regression Analyses of OSS on Independent Variables, 1970–1980 (N=71)

<table>
<thead>
<tr>
<th>Variable</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSS 1970 b</td>
<td>.676</td>
<td>.690</td>
<td>.675</td>
<td>.675</td>
</tr>
<tr>
<td>s. e. b.</td>
<td>.061</td>
<td>.069</td>
<td>.061</td>
<td>.061</td>
</tr>
<tr>
<td>T</td>
<td>10.994***</td>
<td>9.942***</td>
<td>10.971***</td>
<td>11.025***</td>
</tr>
<tr>
<td>Log GNP 1970</td>
<td>b</td>
<td>.026</td>
<td>.019</td>
<td>.024</td>
</tr>
<tr>
<td>s. e. b.</td>
<td>.072</td>
<td>.012</td>
<td>.007</td>
<td></td>
</tr>
<tr>
<td>T</td>
<td>.365</td>
<td>1.641*</td>
<td>3.258**</td>
<td>3.237***</td>
</tr>
<tr>
<td>(lgGNP) 2 b</td>
<td>- .004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>s. e. b.</td>
<td>.006</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T</td>
<td>-.699</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MNCPE 1973 b</td>
<td>-9.6E-06</td>
<td>-2.8E-05</td>
<td>-6.2E-05</td>
<td>-2.4E-04</td>
</tr>
<tr>
<td>s. e. b.</td>
<td>1.3E-04</td>
<td>1.2E-04</td>
<td>1.4E-04</td>
<td>1.2E-04</td>
</tr>
<tr>
<td>T</td>
<td>- .077</td>
<td>-.223*</td>
<td>-.452</td>
<td>-.195</td>
</tr>
<tr>
<td>Core 1975 b</td>
<td>-.034</td>
<td>-.030</td>
<td>-.047</td>
<td>-.029</td>
</tr>
<tr>
<td>s. e. b.</td>
<td>.020</td>
<td>.019</td>
<td>.033</td>
<td>.018</td>
</tr>
<tr>
<td>T</td>
<td>-1.412 m</td>
<td>-1.620*</td>
<td>-1.395 m</td>
<td>-1.569*</td>
</tr>
<tr>
<td>State-Soc. b</td>
<td>-.065</td>
<td>-.062</td>
<td>-.068</td>
<td>-.064</td>
</tr>
<tr>
<td>s. e. b.</td>
<td>.032</td>
<td>.032</td>
<td>.032</td>
<td>.031</td>
</tr>
<tr>
<td>T</td>
<td>-2.063**</td>
<td>-1.944**</td>
<td>-2.102**</td>
<td>-2.020**</td>
</tr>
<tr>
<td>MNCPE 1975 b</td>
<td>1.8E-04</td>
<td>1.9E-04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Core b</td>
<td>3.0E-04</td>
<td>3.0E-04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T</td>
<td>.592</td>
<td>.641</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLFP 1970 b</td>
<td>-.002</td>
<td>-.002</td>
<td>-.002</td>
<td>-.002</td>
</tr>
<tr>
<td>s. e. b.</td>
<td>.001</td>
<td>.001</td>
<td>.001</td>
<td>.001</td>
</tr>
<tr>
<td>T</td>
<td>-1.978*</td>
<td>-1.878*</td>
<td>-1.843*</td>
<td>-1.892*</td>
</tr>
<tr>
<td>Service b</td>
<td>.151</td>
<td>.143</td>
<td>.150</td>
<td>.148</td>
</tr>
<tr>
<td>Female b</td>
<td>.061</td>
<td>.062</td>
<td>.061</td>
<td>.061</td>
</tr>
<tr>
<td>1970 T</td>
<td>2.457**</td>
<td>2.284**</td>
<td>2.447**</td>
<td>2.425**</td>
</tr>
<tr>
<td>CBR 1975 b</td>
<td>-4.0E-04</td>
<td>-4.6E-04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>s. e. b.</td>
<td>.001</td>
<td>.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T</td>
<td>-.423</td>
<td>-.487</td>
<td></td>
<td></td>
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<tr>
<td>Constant</td>
<td>.119</td>
<td>.005</td>
<td>-.035</td>
<td>-.034</td>
</tr>
<tr>
<td>R²</td>
<td>.872</td>
<td>.871</td>
<td>.872</td>
<td>.871</td>
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<tr>
<td>Adjusted R²</td>
<td>.853</td>
<td>.855</td>
<td>.855</td>
<td>.856</td>
</tr>
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</table>

Note: * p < .1 ** p < .05 *** p < .001; b = unstandardized regression coefficient; s.e. = standard error of b; T = t value.
From the results of diminishing effect of MNC investment and increasing effect of FLFP on OSS in 1970–80 period, we can assume that the total MNC investment in 1967 has direct negative effects on OSS and indirect effects through the level FLFP in 1970. As Ward (1984) has found, MNC investment may have a short-term positive influence on FLFP. The increasing level of FLFP will lessen the degree of OSS.

I examine if FLFP mediates the influence of MNC investment on OSS. If MNC investment recruits a larger number of women relative to men to their labor force, this will result in a decrease of the OSS. The results of two interesting regression equations are:

\[
\text{FLFP 1970} = -26.072 \log \text{GNP (1960)}^{**} + 1.865 \log \text{GNP (1960)}^{2**} + 0.017 \text{MNC PEN} + 0.153 \text{Core} + 9.965 \text{State Soc.}^{**} - 0.016 \text{MNC PEN} \times \text{Core} + 36.545 \text{Service Female}^{***} - 0.399 \text{CBR}^{***} + 115.010
\]

\[
\text{FLFP 1970} = -22.212 \log \text{GNP (1960)}^{*} + 1.548 \log \text{GNP (1960)}^{2*} + 0.052 \text{MNC PEN}^{*} + 3.276 \text{Core} + 14.988 \text{State Soc.}^{*} - 0.425 \text{CBR}^{**} + 114.044
\]

(Note: *p<.1, ** p<.05, ***p<.001.)

Both of the equations support the previous analysis of FLFP: the level of economic development has a curvilinear relationship (Nuss and Majka 1983; Pampel and Tanaka 1986); fertility rate shows significant negative effects on FLFP (Ward 1984; Mason 1986); and the female share of service sector employment has a positive relationship with FLFP. An expected strong positive relation between FLFP and state socialist countries are presented.

However, core position, and the interaction terms between core and MNC investment, do not show a significant relation with the level of FLFP. This may be due to the fact that the core position effect on FLFP in highly correlated with the effect of economic development. MNC investment in the core is negatively related with FLFP, though statistical significance of the variable is very weak.

Interestingly, MNC investment became significant when the female share of the service sector is excluded from the regression equation. This result partially supports the argument that the short-run positive effect of MNC investment on the overall level of FLFP in the 1970s may decrease OSS.

When I tested the effect of MNC investment in manufacturing on FLFP, the regression result supported the argument that MNC investment in labor intensive manufacturing generates a growth of FLFP.
The effects of MNC investment on OSS vary by world-system position due to the differences in the structure of capital penetration and the consequences of dependent development. One of the impediments of the world-system intrusion into the peripheries is the distorted development of modern industrialized sectors with substantially smaller manufacturing and much larger service sectors (Rau and Roncek 1987). Thus, women in periphery countries experienced the effects of both underdevelopment and limited access relative to men caused by the new economic resources introduced by the intrusion of the world capitalist economy.

The research results of the effects of world-system position on OSS confirm the hypothesis that core countries have a lesser degree of OSS. This favorable condition for women in core countries is mainly due to the demand for female labor in the growing service and clerical occupations, and a widespread ideology about women's equality with men (Reskin 1984; Roos 1985). The effects of socialist semi-peripheries show the expected negative relation with OSS, and both periods approach statistical significance.

The possibility of interaction between MNC investment and core position in the world-system was tested by constructing interaction terms (Core * MNC investment). Though no significant interaction effects were found, when the interaction terms were included in the equations, the effect of core position in the world-system became less significant because of the opposite effect of interaction terms (see, equations (2) and (4) of Tables 1 and 2).

These findings show that MNC investment does not have negative effects on the OSS of the core countries. This supports the fact that the characteristics of foreign investors in the core have high levels of technology and skill, economies of scale, and highly concentrated market structures. Thus, MNC investment in the core tends to increase the degree of OSS through giving males more chances to be employed in the highly capital intensive sectors.

Among the intervening structural variables, the female share of service sector employment shows a strong positive effect on OSS in every equation in Tables 1 and 2. It is important to note that what I have found is not simply a relationship between the growth of the tertiary labor force and of gender inequality in the labor market. Obviously, the growth of the tertiary goes together with a decline of the proportion of the labor force in agriculture. But it is not the movement of labor out of agriculture in itself that is related to growing gender inequality. What is important is that female labor is absorbed into the tertiary or urban informal sector rather than into the secondary manufacturing sector (Beneria 1981).

The relationship between the status of women and fertility has received increasing attention (Ward 1984; Mason 1987). The structure of opportunities generated by the sexual division of labor for women determines their fertility
behavior (Kabeer 1984). In my research, fertility rate fails to show any significant influence on OSS at either point in time in the full model (Table 1 and 2). This weak and nonsignificant effect of fertility on OSS may be due to the fact that the causal processes between economic development and fertility are highly correlated. In fact, without the fertility variable, the effects of economic development on OSS are strengthened for both periods.

DISCUSSION

One of the criticisms of the world-system/dependency theory is that the theories have paid insufficient attention to the way in which women are integrated into the world system. The relatively powerless position of women offers capital an ideal labor force whose value is lowest and whose profitability highest (Bergquise, 1984). Thus, the rapid growth of FLFP and the persistent pattern of OSS may have a close relationship with the expansion of the world economy as a whole.

The pattern of women's displacement from agricultural and industrial employment into the urban informal and service sector and the heightened demand for women's labor in MNC processing for export means that women are playing an increasingly important role in the world economy (Young et al. 1981; Ward 1988, 1990).

The major theoretical implication of my research finding is to emphasize the importance of the structure of dependency and world-system for the employment pattern of women in the labor market. Given the research findings, it seems safe to say that, at least during the 1960–70 period, high levels of external economic dependence went along with high levels of FLFP throughout the noncore countries. The results of regression analyses partially support the expectation that MNC investment exerts a significant effect on FLFP. The findings suggest that FLFP can be considered as an intervening process which influences sex linked occupational segregation.

The relation between dependence and gender inequality is a function of the kind of modern sector that absorbs the women's labor force (Safa 1987; Semyonov and Shenhav 1987). Under the import-substitution policies prevalent from the 1950s and 1960s, women's poor economic position was reinforced by the arrival of capital intensive and heavy industries. With the limited job market and high unemployment rate in many peripheral countries, usually men were given job preference (Nash 1988; Ward 1990).

During the late 1960s and into the 1970s, some women have become the favored workers in the labor intensive global assembly lines. To the extent that the MNCs contribute to the growth of demand for cheap female labor, the level of OSS will decrease in the periphery countries. This process may be ref-
lected in the pattern of FLFP in 1970s, which showed a significant negative effect on the degree of OSS.

This study helped confirm a relationship between economic development and FLFP predicted by many theories. The findings show a U-shaped relationship between GNP per capita (logged) and FLFP in which industrialization initially lowers FLFP, but in advanced industrial countries increases FLFP. Support for this curvilinear relation confirms the marginalization thesis of women in development concerning the loss of status of women in the shift from home-based economies to industrial economies.

It is quite likely that a development effect on FLFP comes from growth of the service sector (Nuss and Majka 1983). My research result showed that, as more women were absorbed into the service sector, the OSS increased (see Table 1 and 2). Within the periphery, however, women are frequently unable to find work within the paid service sector given high levels of male unemployment. Thus, the majority of women workers are absorbed into the informal sector in urban areas.

Recently, the urban informal sectors have been considered as are active and vital element for the urban economy of developing countries (Portes 1985; Safa 1987). At the world-system level, Saffioti (1980) has noted that under conditions of unequal exchange in developing countries, there is a tendency toward the recreation of pre-capitalist activities in the form of service or informal sector work. In all countries, this work is performed predominantly by women. Women are now contributing to capital accumulation through their informal sector participation that has enabled the capitalist class to pay lower wages to family members employed outside home (Portes 1985; Truelove 1990).

Women’s informal economic activities are underestimated because of the cultural factors derived from patriarchal kinship norms and the difficulty of conceptualizing women’s informal sector activities in a positive manner (Aguirar 1986).

There is uniform agreement that countries with high fertility rates are less likely to recruit women into the labor force. My major concern is the relation between women’s economic status represented by the degree of OSS and their fertility behavior under the influence of dependency and the world-system. To the extent that dependency hinders economic development, Hout (1980) points out that the political economy of the family remains unchanged, the costs of children will not rise, and fertility will not decline.

The insignificant effects of fertility on OSS of this research are explained, in part, by the high correlation between economic development and crude birth rate; in other words, some of the fertility effects on OSS were assumed to be shared by the effects of economic development.
CONCLUSION

This analysis clearly shows that industrial shifts brought by economic development and the world-system intrusion, and the incorporation of women into the cash economy proved to have important consequences for OSS.

The predicted relationship between economic development and OSS appears to be supported in this research. Core and state socialist countries show a significantly less degree of OSS. The intrusion of MNC investment was hypothesized to have a short-term negative and a long-term positive effect on OSS. However, the results unexpectedly show the negative relationships of MNC dependency are stronger for the longer term period, 1967–80, than for 1973–80. This result is partly because the short-term test is more conservative in panel regression analysis. Another possible explanation is that the pattern of MNC investment may have changed influences by the new international division of labor (Fröbel et al. 1980).

Of the intervening variables, the effects of FLFP show an overall negative relationship with OSS, and are proved to mediate the effects of MNC investment on OSS. The female share of the service sector has strong positive effects on OSS. Fertility did not show any significant effects on OSS in either point in time.

These findings support that sex segregation in the labor market is a global phenomenon. Future research on this topic needs to explicitly consider the role of economic dependency and demand for female workers. Differences in the degree of development of the capitalist mode of production and patriarchal attitudes limiting the employment opportunities open to women should be explored within the world-system framework.

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INHEE HAHM received her Ph.D. in sociology from Emory University, and is a lec-
turer at the Department of Sociology, Ewha Womans University. Her research interests
are in the areas of women and development, sociology of gender, and sociology of family.