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South Korea's Labor Market in the Context of  
Early and Late Industrialization

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## 1. The General Paradigm of Late Industrialization

The character of late industrialization is different from that of industrializations of earlier eras. Late industrialization, as the term is used below, has a timeframe set in the twentieth century (especially after World War II). It involves the transformation of a relatively limited number of countries from an agrarian or raw material base to an industrial one. The distinctiveness of late industrialization lies in its technological behavior.

As I have argued elsewhere, industrialization in the eighteenth century in Britain may be said to have occurred on the basis of invention, or the search, largely through trial and error, for better products and processes in the context of the small scale firm.<sup>1</sup> Industrialization in the nineteenth century in Germany and the United States may be said to have occurred on the basis of innovation, or the mass commercialization of invention through a process involving systematic problem solving, often in the context of the R&D laboratory of the modern industrial enterprise. While these two modes of industrialization differ, if only in their degree of scientific content and firm organization, they share in common one key characteristic: the generation of new technology. The generation of new technology was key insofar as it colored the way in which leading firms from the U.K., U.S., and Germany realized productivity improvements and competed for market share. By contrast, late industrializers have

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<sup>1</sup>See Alice H. Amsden, Asia's Next Giant: Late Industrialization in South Korea, Oxford University Press, forthcoming.

generated no new technology. The mode of late industrialization has been one of learning, or borrowing technology from more economically advanced societies. Borrowing requires creativity, just as innovativeness or inventiveness requires learning from others. Nevertheless, industrializing on the basis of learning rather than inventing or innovating involves a different form of competition, a different model of productivity improvement, and, in general, different characteristics of firm behavior and business-government relations from those of the past. With respect to the labor market, the focus of this article, the labor supply of late industrialization has tended to be "unlimited," as W. A. Lewis' classic article (1954) implied, and the labor force has tended to be more repressed (although hostility to organized labor is not unique to the twentieth century).

Because industrialization through learning appears to generate a specific set of dominant characteristics, these characteristics are common to what is otherwise an heterogeneous group of countries. The attributes of late industrialization appear in countries as disparate as South Korea (the example in this article), Taiwan, Brazil, Mexico, Turkey, India, and even Japan, although the Japanese experience is sui generis in certain respects.<sup>2</sup> Perhaps the most striking difference of all among latecomers is their economic performance. All are bound by having industrialized through learning, but their growth rates have differed sharply. Japan, South

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<sup>2</sup>One could not add the city-states of Hong Kong and Singapore to this list because they never transformed themselves from a raw material or agrarian base.

Korea, and Taiwan have tended to grow faster than the others for a more sustained time period.

I have suggested elsewhere that reasons for the superior performance of these three countries rest with differences in the way the basic learning paradigm has operated--due to the specificities of the three countries' history, geography, culture, etc.--and not to the operation of freer market principles.<sup>3</sup> Thus, for example, governments in all late industrializing countries have used the subsidy to get relative prices "wrong" in order to stimulate investment. But whereas the subsidy was typically dispensed as a giveaway in, say, Turkey and Mexico, it was dispensed according to the principle of reciprocity in Korea and Japan, in exchange for opaque performance standards. This lent a measure of discipline to the whole accumulation process. As for the labor market, although abundant labor reserves and political repression have characterized almost all late industrializations, Korea and Japan have distinguished themselves in two respects. First, in Korea in particular average real wages have possibly risen faster than in any previous or contemporary industrial revolution (with Japan a close runner-up). Second, while wage segmentation by gender and manufacturing industry is common to all late industrializations (and, presently, to advanced countries), segmentation has taken an extreme form in Korea (slightly more so than in Japan).

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<sup>3</sup>The typical explanation for the success of Taiwan, South Korea, and even Japan is that these countries conformed more to the free market model than other late learners. For the case of Korea, see Kim and Roemer (1979).

These labor market deviations from the late industrializing pattern have contributed to the dynamic character of the Korean and Japanese economies. Rapidly rising real wages from a very low wage base have allowed firms to reap high returns while driving the more prudent among them to invest in greater technological capability in the future. A segmented workforce has had the virtue (whatever its vices) of providing labor-intensive businesses with a cheap source of labor and capital-intensive businesses with a labor aristocracy that is motivated. It is the purpose of this article to characterize labor market behavior in Korea, against the background of earlier and contemporary industrializations.

While Korean industrialization is a fascinating subject unto itself, the general interest of this article lies in the following: First, why real wages rose in Korea amidst what appears to have been abundant labor reserves cannot, I would suggest, be resolved single-handedly with the economists' traditional supply and demand tools. In part, Korean wages have risen rapidly because learning in Korea has been especially intense, higher wages being a reward to workers to exercise their intelligence at the workplace to facilitate technology transfer. Although labor economists have developed the concept of "implicit contracts," that involve higher wages in return for greater effort and "loyalty" to the firm, such a concept is an ad hoc addition to traditional theory. It also remains to be shown, as this paper attempts to do, precisely what the nature is of the effort being rewarded. Second, the puzzle leads to the issue of labor market segmentation, which may help economists think about segmentation elsewhere. Whereas labor market imperfections are often held responsible for the emergence of segmentation in economically advanced countries,

segmentation arose in Korea in what by all accounts is an almost "perfect" labor market. The reasons for the arrival of labor segmentation in Korea tell something about the nature of the skill set of late industrialization in general. Third, Japanese industrialization has aroused intense interest because of the competition it poses in world markets. It is, however, easier to understand Japanese industrialization when it is coupled with Korean industrialization, both comprehended in the context of late industrialization through learning.

A final caveat remains. This article is concerned with drawing relationships over long time periods and across countries, and the attempt to do both simultaneously makes it difficult to employ econometric methods of analysis. While the presumed determinants of Korea's rapid wage increases are discussed, no attempt is made to assign weights to their respective significance. In short, this article should be regarded as an effort in drawing parallels, with the aim of stimulating further discussion and research.

## 2. Labor Supply

Countries that have industrialized since World War II, by comparison with either England, the European emulators, or the United States, have done so on the basis of far larger labor reserves, or what W.A. Lewis calls an unlimited supply (1954). Greater labor reserves may be inferred from differences in population growth rates, international migratory flows, and obstacles to labor organization (one cannot infer surplus labor from unemployment rates because these are unreliable).

### a. Population



According to Kuznets' estimates for countries that are currently industrialized, the growth rate of population from the mid-1700s and onwards was rarely more than 1.5% (1966). One exception was the population of the United States which grew much faster because of inward migration. The population of Japan, on the other hand, was abundant throughout the period of industrialization despite a very slow population growth rate. From 1869 to 1940, the Japanese population is estimated to have grown at only about 1% per annum, and after the war, it grew by only about 1.1% (Patrick and Rosovsky, 1976). By contrast, in developing regions (excluding Latin America), the population growth rate steadily increased from about 1.5% in the 1940s to about 1.7% in the 1950s. In Latin America the average annual population growth rate was 1.9% in the 1930s, 2.3% in the 1940s, and 2.7% in the 1950s (Sanches-Albornoz, 1974). In the 1960s, population growth rates averaged 2.4% in "low income" countries, 2.5% in "middle income" countries (which include Korea and other late-industrializing countries), and 1.0% in industrialized ones (World Bank, 1979). All told, the typical colonial pattern produced abundant surplus labor. Minimal investments in health and sanitation by the colonial authorities enabled the population to grow; minimal investments in industry and agriculture dampened demand for labor's services; hence, the ultimate "distortion" brought about by colonial rule.

Given Korea's high population density and inequitable income distribution, a scarcity of labor never existed, even in the mines and plantations of the Japanese colonialists. During the colonial period the labor market behaved as one would expect; between 1910 and 1940, real wages

fell (Grajdanzev, 1944).<sup>4</sup> Further evidence of excess reserves came during World War II when the Colonial Office drafted 2,000,000 Koreans for wage employment in Japan's least remunerative industries (Japan had prohibited migration before the war). Although land reform in late 1940s Korea was labor-absorbing, by 1960 it was estimated that perhaps one-fifth of the industrial and agricultural work force, two million people, were unemployed (Reeve, 1963).

b. International Migration

By comparison with countries that industrialized relatively early in world history, Japan's industrialization marked a turning point after which countries experienced not only faster growth rates of population as they industrialized but far fewer opportunities to send their surplus populations abroad. Since the end of World War II, capital has become more mobile internationally, while labor has become far less so. Fewer than half a million Koreans emigrated permanently in the two decades following 1962, although temporary migration to the Middle East was heavy in the 1970s (S. Kim, 1982). According to Kuznets,

The significance of intercontinental, and presumably international, migration in the growth of countries of origin and of destination in the nineteenth and early twentieth centuries lends importance to the failure of Asia, Africa, and much of Latin America to participate--even before World War I--and to the sharp decline in these flows after World War I (1966: 56).

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<sup>4</sup>In Taiwan, by contrast, they appear to have risen. See Ho (1984).

The contrast between present-day migration and that of the period from the second half of the nineteenth century to the end of World War I is striking. An estimate of European migration during the period 1851-1920, when the population of all of Europe was far smaller than that of the developing world today, puts the number at more than 40 million. About half of those who migrated did so in the last three decades of the nineteenth century--a number equivalent to over 40% of Europe's natural population increase during those years (Woodruff, 1973).

c. Obstacles to Labor Organization

By comparison with countries that achieved industrial transformation earlier in world history, countries that have industrialized since World War II have generally tended to do so in the absence of a coherent trade union movement or of a parliamentary labor party. The weakness of trade union activity is partly tied to the demise of the skilled crafts, which says something of the skill base of late industrialization. Whereas skilled labor in earlier industrializing countries was at the vanguard of worker protest movements and trade union organization, a property of late industrialization is a relatively small role for the same type of manual skilled labor in any capacity--be it labor leader or scarce resource. Discussion here is restricted to the first, that of labor organizer.

In early industrializing countries, the extreme difficulties of effective general unionization--due to rapidly rising population, great labor mobility, very low real incomes, sharp economic fluctuations, and a hostile law--were chipped away by the class of skilled workers.

In England, "Effective trade societies were first confined to the skilled handicraft workers--the "aristocracy of labour." (Mathias, 1969: 364).

In Germany, "...former artisan resentment contributed to the foundation of a labour movement, particularly of the Lassallian sort (Kemp, 1985: 105). In the United States, "...Gompers and his associates...argued that unions had to "perfect" their organization and establish themselves on a "permanent" basis by providing their members with unemployment benefits, burial insurance, sick pay, and strike benefits. ...This mode of organization was far easier to establish with unions that represented skilled rather than unskilled workers" (Shefter, 1986: 259-60).

The part played by the artisan in late industrialization has depended on the country. In Japan, the role of artisans resembled more that of early industrializers than that of late ones (Sumiya, 1974). In India, industries that could use modern technology did so by way of import substitution, not the destruction of artisanal production, which expired long before the arrival of factory production in the face of coercion and competitive imports from more advanced countries. In Korea, an artisanal tradition was weak, and whatever traditional skills that developed which weren't beaten down--furniture manufacturing, tailoring, and tanning, for example--began to be undertaken in the "informal" sector. While the informal sector is estimated to have accounted for as much as one-half to two-thirds the size of nonagricultural employment in the late 1970s (Bai, 1982; Lindauer, 1984), no material for labor leadership emerged from it.

### 3. The Rate of Pay

Despite repression, unlimited labor supply, the absence of international migration, and a weak grouping of skilled workers, real wage rates in Korea soared, whereas they rose only desultorily in other late-industrializing countries. Table 1 compares real wages in Korea,

Table 1

Real Nonagricultural Wage Increases,  
Korea, Brazil, Argentina, Mexico and India, 1970-1984

| <u>Year</u> | <u>Korea<sup>a</sup></u> | <u>Brazil<sup>b</sup></u> | <u>Argentina</u> | <u>Mexico</u> | <u>Turkey</u> | <u>India<sup>c</sup></u> | <u>Taiwan</u> |
|-------------|--------------------------|---------------------------|------------------|---------------|---------------|--------------------------|---------------|
| 1970        | 100                      | 100                       | 100              | 100           | 100           | 100                      | -             |
| 1971        | 102                      | 110                       | 105              | 103           | 100           | 100                      | -             |
| 1972        | 104                      | 114                       | 99               | 104           | 99            | -                        | 100           |
| 1973        | 119                      | 119                       | 107              | 104           | 98            | 106                      | 107           |
| 1974        | 130                      | 119                       | 126              | 107           | 96            | 97                       | 98            |
| 1975        | 131                      | 127                       | 124              | 114           | 116           | 110                      | 110           |
| 1976        | 154                      | 129                       | 80               | 123           | 122           | 120                      | 126           |
| 1977        | 187                      | 134                       | 76               | 125           | 146           | 116                      | 138           |
| 1978        | 219                      | 142                       | 77               | 122           | 147           | 124                      | 151           |
| 1979        | 238                      | 134                       | 87               | 121           | 155           | 130                      | 163           |
| 1980        | 227                      | 130                       | 100              | 116           | 124           |                          | 166           |
| 1981        | 225                      | 118                       | 91               | 119           | 130           |                          | 171           |
| 1982        | 241                      | 115                       | 79               | 117           | 129           |                          | 180           |
| 1983        | 261                      | 97                        | 97               | 86            | 130           |                          | 188           |
| 1984        | 276                      | 84                        | 112              | 83            | 111           |                          | 191           |

Note: Base = 100. Deflated by consumer price index.

<sup>a</sup>Real earnings manufacturing sector.

<sup>b</sup>Average wages for skilled workers in construction. Data are from the Central Bank.

<sup>c</sup>Rupees per hour for industrial workers.

Source: As cited in Amsden (forthcoming).

Brazil, Argentina, Mexico, Turkey, India, and Taiwan during the period 1970-1984. The 1970s were a period of rising real wages in all these countries, but in Korea they rose spectacularly. The index of real wages in Korea increased from a base of 100 in 1970 to 238 in 1979.<sup>5</sup>

Korea's wage behavior appears to be unrivaled in earlier industrial revolutions, although Japan's is almost as impressive.

In the case of England, Lindert and Williamson (1983) use new data and new methods of data manipulation to show that in the 70-year period spanning 1781-1851, their "best guess" of the increase in the real full-time earnings of all British workers was 155%, 99% in the case of blue-collar workers. In their most pessimistic scenario, the gains were 100% and 62%, respectively. However rosy Lindert's and Williamson's "best guess" estimate, it pales by comparison with Korea's. While it took English workers 70 years to raise their real earnings by roughly 150%, Korean manufacturing workers achieved a comparable gain in about 20 years (from 1955 to 1976). In just one decade, 1969-79, real wages in Korea rose by more than 250% (Lindauer, 1984, provides data on Korean wages).

The long-run trend in real earnings of workers in the United States, England, and the European emulators is estimated by E.H.P. Brown (1968). The most authoritative source for comparative purposes, Brown's data are for the period 1860-1913 for five countries: France, Germany, Sweden, the United Kingdom, and the United States. Among the five

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<sup>5</sup>Industrialization, of course, began before 1970 in all these countries, but one also notices faster wage increases in Korea than in India, Brazil, or Taiwan during the earlier period. Taking 100 as the base in 1957 (1959 in Taiwan), the wage index in 1969 reached 77 in Brazil, 123 in India, and 156 in Korea (Amsden, forthcoming).

countries, real average wages (expressed in composite units of consumables) grew fastest in the United States. Taking, therefore, the United States index at its trough and peak--approximately 45 in 1865, just after the Civil War, and about 130 in 1913, just before World War I--real wages increased in the United States by 2.9 in roughly 50 years. In Korea, however, real wages increased even faster, from trough to peak by 4.3 in roughly half as much time, 25 years (Lindauer, 1984).

Japan's best wage data are divided into two subperiods, 1900-1935 and 1950-1968, and refer to production workers in manufacturing establishments of 30 or more production workers (Minami, 1973). Ignoring gender differences, real wages for all production workers rose from about 120 Yen in 1900 to about 430 Yen in 1935, or by a multiple of 3.6 in 35 years. After World War II, they rose even faster, following labor unrest in 1947-49 and the onset of the prosperous postwar international division of labor. Real wages rose by a factor of 2.7 in 18 years, from approximately 400 Yen in 1950 to about 1200 Yen in 1968. Again, however, real wages in Korea rose even faster--by a scalar of 4.3 between 1955 to 1980 and by one of 3.6 between 1966 and 1980 (Lindauer, 1984). Wage rates in Korea, moreover, are understated in comparison with those of Japan. Whereas Korean data are restricted to firms with over 10 workers, Japanese data are restricted to firms with over 30. Yet smaller firms in Japan are believed to have begun paying lower wages than larger firms after the 1920s (Minami, 1973: 172-73).

#### 4. The Reasons Behind Rising Real Wages

Indirect labor, which includes managers, engineers, and technicians, is supposedly the scarcest type of labor in backward

countries. Thus, one would expect late industrializers to experience abundance and scarcity of direct and indirect labor respectively, the wages of the latter pulling up the overall average. The pattern of wage increase in Korea, however, flies in the face of expectation. As Table 2 indicates, in four subperiods from 1965 to 1984, the rate of wage increase was higher for production workers than it was for professional, technical, or managerial employees, notwithstanding excess supply, supposedly most characteristic of the direct labor market.

In the late 1970s, Korea allegedly reached a "turning point" (Bai, 1982), its supply of surplus labor vanishing, with the outflow of workers--mainly to the Middle East--amounting to as much as 27% of the male manufacturing work force (MOL, Various years). Table 2 confirms that wages increased in the late 1970s especially fast. Nevertheless, such scarcity proved short-lived with the collapse of the Middle Eastern construction market and a slowdown in Korea's growth rate. Thus, in the 20 years spanning 1965 to 1984, a tight labor market was the exception to the rule, yet real wages rose persistently.

#### The Demand Side

If Korea experienced faster real wage increases than did other late-industrializing countries, this is partly because its GNP grew faster. A rapid rate of capital accumulation provided the basis for rapid wage increases. S.W. Nam (1980) estimates an equation to explain the rate of change of nominal manufacturing wages in Korea during the period 1966-1977. He includes variables to represent the demand for labor (the rate of GNP over the previous year), the supply of labor (the lagged change in manufacturing employment), and inflation (the lagged change in prices).



Table 2

Changes in Wage Rates Between Production and Professional, Technical, and Managerial Workers

| <u>Year</u> | <u>Production Workers</u> | <u>Professional, Technical, and Managerial Workers</u> |
|-------------|---------------------------|--|
| 1965-70     | 12.8                      | 6.6  |
| 1971-74     | 7.1                       | 6.1  |
| 1975-79     | 16.8                      | 15.3   |
| 1980-84     | 5.3                       | 2.5  |

Source: 1965-1979, Bai (1982); 1980-84, MOL.

The strongest explanatory variable is the demand for labor, or the previous year's change in GNP.

The period in question, 1966-77, was the Golden Age of Korea's industrial expansion. Output, exports, and productivity were all growing very rapidly. Not surprisingly, wages also rose. Even if the government did not intervene directly in wage determination, employers were under strong pressure from the government to share their gains with labor. The rate of real wage increase also tended to stay below the rate of labor productivity growth (except in 1976-79 and 1982) (MOL, various years). The wage strategy of big business amounted to gainsharing.

Nevertheless, ambiguity surrounds the determination of the impact of fast growth on real wage increases.<sup>6</sup> In Brazil, for example, it seems that the impact is weak. The average annual growth rate of the Brazilian economy during the period 1950-75 was as much as 6.7%. Yet while real wages increased for the majority of the period, they did so very slowly (Amsden, forthcoming).

#### The Supply Side

In order to arrive at an explanation for why real wages have risen more rapidly in Korea than in other late-industrializing countries, the following areas are explored: the low base from which wages in Korea have risen; the structure of Korean agriculture--a consequence of land

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<sup>6</sup>Nam's equation fails to explain why wages rose, notwithstanding the inclusion of a variable intended to measure labor supply. According to Nam, "the fit of the wage equation to the data is not excellent," although a similar model provides better correlation with the inclusion of a dummy variable for the period 1970-77 (1980: 79). Norton and Rhee (1980) estimate a wage equation with a dummy variable, GNP, and a price deflator (but no supply effect) and get an  $R^2$  of 0.88.

reform in the late 1940s; the unrivaled length of the work week; and market segmentation--by gender, firm size, and industry. The factors operative in Korea which help one to understand its rapid wage increases, moreover, also tend to have been operative in Japan during its period of rapid wage gains. The factors operating in both countries also go well beyond any simple "cultural" explanation.

a. Korea's Low Wage Base

Korea's wages grew fast but they started from an exceptionally low base. In a symposium in the mid-1960s on wage trends in developing countries, it was asked why the Far East had experienced no structural inflation similar to Latin America's. Three answers were forthcoming, all of which hinted at the extreme poverty characteristic of Far Eastern economies at the time.

First "the backwardness of these countries--even by the standards of developing regions--means that the industrial labor force tends to be unorganized and in no position to force wage rises when the cost of living increases..." (Smith, 1967: 27). Second, because of the small size of the industrial sector, industrial expansion does not place excessive demands on agricultural output. Third, the marginal product of labor in agriculture tends to be low because of high population density, so rural-urban migration does not reduce agricultural output. Inhabitants per square kilometer in 1960 were 109 in South Central Asia, 86 in Europe, 71 in East Asia, 48 in Southeast Asia, 14 in Southwest Asia, 11 in Central and South America, 10 in the Soviet Union, 9 in North America, and 8 in Africa

(Smith, 1967: 27).<sup>7</sup> Thus, from a low wage base in Korea, it was easier for employers to remain internationally competitive and yet raise wages, if only to improve the physical stamina and psychic motivation of their workers.

b. Land Reform and Small-Scale Agriculture

Rapid increases in productivity in Korean agriculture acted to drive up wages in modern industry. The "implicit wage" of male workers in agriculture exceeded the average wage in manufacturing until the late 1960s (Ban et al., 1982). According to Bai's estimates (1982), the male wage rate in agriculture exceeded that in modern industry until at least the mid-1970s.

Korean agriculture employed few proletarians (hence, the "implicitness" of the agricultural wage rate). Instead, the agrarian reform of the late 1940s invested land in the tiller, so a tenure system of small-scale, family farms evolved, which required few hired hands except at harvest. Given sharp increases in agricultural productivity as a consequence of government support, rural-urban migration and downward pressure on manufacturing wages can be assumed to have been less massive than it would otherwise have been. The labor retentiveness of Korean agriculture by comparison with less egalitarian land tenure systems is suggested by

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<sup>7</sup>One might add that neither of two tendencies operating towards a high wage level in Africa and Latin America operated in the Far East. In Africa, the relatively high pay scales of European civil servants in the British and French colonial services were adopted by locals during the period after independence. In labor-scarce Latin America, early European settlers earned European pay scales. By contrast, Korea experienced almost no inward migration from advanced countries, and the pay scales of Japanese colonial administrators may have become only a dim memory after the war and chaos that terminated Japanese rule.

international comparisons of the share of agricultural employment in total employment. Despite the limited availability of arable land, Korean agriculture's share of the labor force in 1980 was as high as 34%, compared with, say, 30% in land-rich Brazil. The Korean share was even higher than that in Taiwan, although both countries had experienced land reforms (World Bank, 1982). Consequently, both a lower-than-otherwise flow of rural-urban migrants and a higher-than-otherwise rural household income buttressed manufacturing wage rates.

c. Women Workers

Nonetheless, one can still say that Korea has industrialized (and continues to do so) with unlimited labor reserves. To the question of how agriculture may preserve a society of family farms yet provide industry with enough labor to keep wages at a socioeconomic subsistence level, W.A. Lewis provided this answer:

There are the wives and daughters of the household....

The transfer of women's work from the household to commercial employment is one of the most notable features of economic development (1954: 404).

Not only has Korea set world records with its growth rate in wages, it has also outcompeted other countries in its discrimination against women workers, although in some years (1984, for example), this dubious distinction fell to Japan. In 1980 the male-female wage gap was greater in Korea than in any other country for which data are available (ILO, 1981).

Almost 60% of the male-female wage gap in Korea has been attributed to differences in human capital between the sexes. It is estimated that 27.6% of the gap is due to differences in education and

31.8% to differences in experience (traditionally, women have been forced to leave paid employment when they marry). Thus, "...part of the wage differential between the sexes in South Korea seems to be rooted in 'before labor market discrimination' in addition to...'labor market discrimination,'...but both are closely interrelated" (Lee, 1983: 67). There are virtually no women in managerial or even entrepreneurial positions in the primary manufacturing sector (Grootaert, 1986).

The human capital explanation for the gender wage gap would lead one to expect discrimination to recede as women invested in more education and acquired more experience. Yet such is not the case:

During the past few decades, gender inequality in educational opportunities at all levels of schooling has...continuously decreased....The participation in the labor force of those with secondary and tertiary education increased at a much faster rate for women than for men with [a] decreasing proportion of primary school graduates....Moreover, the proportion of women in [the] 25-29 age group, who have the burden of childbearing and childrearing, has increased, which suggests improved women's labor-force attachment....In contrast, the male-female earnings gap remains large, without reduction (Y.H. Kim, 1970: 4).

d. The Length of the Workweek

In the length of its workweek, Korea has set still another world record. Even allowing for rapid increases in demand, Korea's workweek length exceeds expectation and has underwritten large increases in wage rates. For all persons employed in manufacturing in 1984, 73% of men and 62% of women worked at least 54 hours per week (Grootaert, 1986). By

contrast, in other countries the average for persons employed in manufacturing was much lower (ILO, various years).

The length of Korea's workweek can be understood historically. The Japanese colonial factory system was harsh, and Korean workers grew accustomed to a workweek similar to what then prevailed in Japan and, say, Germany at the turn of the century. According to one contemporary account,

The men in large-scale enterprises in 1939 [in Korea] worked on an average of 10 hours a day, and women and children 10 hours and 15 minutes, and 10 hours and 20 minutes, respectively....With respect to holidays, the usual arrangement is two rest-days a month, though in 1931, an investigation of enterprises with 10 workers and more revealed that 35% of these enterprises had no rest-days whatsoever (Grajdanzev, 1944: 184).

What is extraordinary about Korea is that long workhours have continued to persist well after the Second World War. This may be understood in terms of both the weakness of organized labor to shorten hours for a given wage rate and labor's willingness to take advantage of rapid industrial expansion through higher wages for endless toil.

e. Segmentation

Upward pressure on wage rates came especially from large-scale firms in basic industry. Table 3 shows the origins of Korea's segmented labor market. The rate of wage increase during the labor-abundant period 1965 to 1971 varied according to industry, ranging from a low of 175% in rubber products to a high of 415% in petroleum and coal products. The upshot was a large dispersion in manufacturing wages.

Table 3

Percent of Wage Increases  
in Selected Sectors of Manufacturing<sup>a</sup>  
(1965-1971)

| <u>Sector</u>             | <u>Increase of</u><br><u>1971 Over 1965</u> |
|---------------------------|---|
| Food                      | 336%  |
| Textile                   | 227   |
| Wood and Cork             | 222   |
| Paper                     | 288   |
| Leather                   | 215   |
| Rubber                    | 175   |
| Chemicals                 | 354   |
| Petroleum & Coal Products | 415   |
| Basic Metals              | 222   |
| Metal Products            | 296   |
| Machinery                 | 208   |
| Electric Machinery        | 363   |
| Transportation Equipment  | 313   |
| <b>Average</b>            | <b>269</b>                                  |

<sup>a</sup>Calculated from figures published in Sanop Saingsan Yunbo ("Annual Report on Current Industrial Production Survey") (Seoul: Economic Planning Board, 1972), pp. 68-81.

Source: Ewing, 1973.



Yet another world record that Korea holds is the degree of wage dispersion in the manufacturing sector. In both 1973 and 1982 the standard deviation of wages (in logs) was greater in Korea than in 13 other countries examined, Japan taking second place (Krueger and Summers, 1986). Nor has such manufacturing wage dispersion become more compressed in Korea over time (Richardson and Kim, 1986). The capital-intensive industries have continued to pay more than textiles, wood, and miscellaneous manufacturing. Wage dispersion also varies across firm size, especially when one disaggregates by gender.

The dispersion in interindustry wages is largely accounted for by blue-collar workers. According to Lee, "The interindustry differentials among white-collar workers are lower than among blue-collar with only a few exceptions" (1983: 172). In part, blue-collar workers earn different wage rates in different industries because they have different marginal products, those in the capital-intensive industries probably being higher. However, it is unclear why capital-intensive firms pay a wage rate equal to their workers' marginal product rather than paying the all-manufacturing average.

Wage dispersion by industry and by firm size is present in most countries that are now industrialized or that are in the process of becoming so. In the former, segmentation arose in response to a complex of factors, including trade union pressures (See Osterman (1984) for references). In Korea, however, one cannot attribute much of the interindustry blue-collar wage differential to worker militance. The interindustry wage structure in Korea assumed its present form during a wave of repression, during which only remote threats of collective action were evident. Labor leaders and dissidents had been severely persecuted

during and after the Korean War in the 1950s, and in the early 1960s the entire labor movement felt the heavy hand of the military government (labor affairs were the jurisdiction of the Korean Central Intelligence Agency). In fact, the threat of collective action was greatest among those who remain the lowest, not highest, paid workers. The "factory girls" in textiles and apparel tend to be the best organized, most militant workers.

##### 5. The Skills of the New Labor Aristocracy of Late Industrialization

To understand the rise of segmented labor markets in a late-industrializing country like Korea, one must understand the labor policies of the modern industrial enterprise--in Korea's case, the diversified business group. The reason that the diversified business groups may have paid their blue-collar workers above the all-manufacturing average was that the skills of such workers were in scarce supply because they tended to be firm-specific. In the case of male workers, one year of "inside" experience (with the same employer) tended to raise wages on average by about 10%, whereas one year of "outside" experience (with a different employer) raised them on average by only about 3.8% (Lee, 1983). The interesting question then becomes what firm-specific "skills" were being rewarded.

One must start by understanding differentiation among firms. Experience in textiles dated back to the Japanese colonial period, so expansions and modernizations in the 1950s exposed textiles entrepreneurs to few problems. By contrast, even the huge, fixed-capital investments in the continuous-process industries that relied initially on turnkey technology transfers--cement, fertilizers, oil refining, and steel--created problems for managers, of trying to bring under control a process that the

foreign experts themselves understood only imperfectly. Neophytes that they were, Korean managers could never hope to manage in a tight, "Taylorist," top-down fashion, at least not initially, because no one at the top knew enough about the process to do so. Under these conditions, it was imperative to rely upon motivated workers, even if they possessed little more than formal schooling, to exercise the most fundamental skill of all--intelligence. In all of the new capital-intensive industries--continuous process and, a fortiori, fabrication-assembly operations and job shops of jumbo proportions-- production workers were motivated with relatively high wage rates, first to get the product out the door, and later, to improve quality. In short, they were motivated to adopt a reasonably scientific approach to problem solving in a milieu whose technology was tacit, implicit, and not yet procedurized.

For the purpose of gaining an appreciation of the skills of the new labor aristocracy, which were being rewarded with high wage increases during late industrialization, one may examine the personnel policies of one of Korea's premier producers, the state-owned Pohang Iron and Steel Company (POSCO).

a. The Personnel Policies of the Pohang Iron and Steel Company (POSCO)

POSCO maintains a three-tier wage structure. Managers are the highest paid and then comes a sub-class of blue-collar workers. Blue-collar workers in POSCO are divided into two categories: "regular" and "contracted out." In 1984 contracted-out workers numbered 8,700, or 24% out of a total work force of 25,700. Contracted-out workers are confined to menial tasks such as relining, cleaning, packing, preparing ingot molds, scarfing, and treating slabs. POSCO is estimated to save about 15% in wages by contracting this work rather than delegating it to

regular employees (PaineWebber, 1985). Regular employees are well-paid by Korean standards--about twice the manufacturing average, depending on the annual bonus--although POSCO claims that it never faced a labor shortage.

Thus, the internal wage structure of production workers at POSCO reflects the external one at the national level. Production workers are divided into high-paid and low-paid categories that are analogous to those of the permanent and transitory employees in Japan.

In exchange for relatively high pay and the job security that comes with employment in a company that is expanding rapidly, POSCO expects attentiveness from its workers throughout their long hours on the job. A century ago, steel-making required strenuous physical effort on the part of production workers, as well as proficiency in the art of steel-making on the part of master steel-makers (earlier, iron-puddling would have been considered a skilled craft). The category of master steel-maker or "saint technician" still survives in POSCO, but largely as a vestige of the past. After a decade of operation, only one master technician and five submasters exist. Instead, steel- or iron-making for production workers involves process monitoring and control, as well as auxiliary operations such as overhead crane driving, etc. POSCO has 450 job categories, and the largest number of workers can be found at data-collection stations positioned at well-defined, set points in the process. Workers check sensors for temperatures in different process zones, note the chemical composition of gases, and register flow rates. For this, however, they must have a fairly good understanding of the physical and chemical reactions involved in iron- and steel-making--in order to ensure high quality--since steel production is not all in closed-loop control, and the acceptable limits of materials change.

To increase productivity, POSCO provides its workers with extensive training. In a single year, 1984, 9,924 workers out of 23,700 received training in one form or another (Amsden, forthcoming). Of interest even beyond the quantity of training though is the curriculum. The aim is to instill in all workers a general knowledge of POSCO's operations and operating principles (25 percent of total training). Only to a lesser extent is training oriented toward building in-depth, specialized skills. Emphasis is placed on quality control (17 percent of total), foreign languages (6 percent), as well as training abroad (10 percent).

A normal workweek at POSCO consists of 56 hours (8x7): 45 regular hours, and 11 overtime hours for which no premium is paid. Every worker is entitled to only one day of leave per month, plus one day for each year with the company. In 1977 labor turnover at POSCO was 4.4%, below the national average--of approximately 5.1%--in manufacturing. In 1984 labor turnover had fallen to only 1.2%, well below the national average of approximately 5.4% (MOL, 1985). Absenteeism in POSCO is not a problem. In 1984 absenteeism was only 0.07% of labor days. Low absenteeism and turnover are believed to be essential for high productivity. Although the overwhelming majority of POSCO's 23,700 workers cannot be described as possessing highly developed craft skills, steel-making remains something of an art and learning its technology makes in-house experience invaluable.

POSCO operates with the motto, "Resources are limited, but human creativity is unlimited." Limited resources, or scarcity, therefore, does appear to have influenced POSCO's wage policy by driving it to pay higher than average in order to attract the "best" workers. "Best" should be

understood in a general sense, however, rather than with reference to specific skills.

## 6. Conclusion

One may conclude by suggesting that if wages have risen at all in most late industrializing countries, then they have done so in response to the exigencies of learning. Employers have had to pay a workforce enough to induce it to exercise its intelligence, rather than any scarce specific manual skills, in order to import foreign technology effectively. That wages have risen especially rapidly in Korea, despite "unlimited" labor and political and trade union repression, may be attributed to particularly intense learning and special institutions, both of which also existed in Japan and help to explain its rapid rise in wages during learning-intensive growth.

Korea's special institutions gave rise to a very low wage level even by backward country standards, allowing wages to rise rapidly without impinging on competitiveness; a productive small-scale agriculture, which exerted upward pressure on urban wages; extraordinarily long hours of work, that compensated for higher annual labor costs; and extreme segmentation of the labor market by gender and manufacturing branch, sustaining simultaneously the competitiveness of labor- and capital-intensive industries.

That learning was especially intense in Korea (and Japan) arose from two sources. First, Korea relied less than almost any other late industrializing country on direct foreign investment as a source of technology transfer (Amsden, forthcoming). It behooved Korean-owned firms, therefore, to learn in order to survive. Second, industrialization in

Korea was more of a spurt than in, say, India, Brazil, or Turkey, whose big businesses have a longer history than Korea's. In Korea, it was necessary not only to accumulate experience rapidly, but also to create organizations out of thin air; and this required buying commitment on the part of both managers and labor.

It is noteworthy, however, that "implicit contracts" of higher wages in return for greater effort and "loyalty" notwithstanding, Korea's labor aristocracy and disadvantaged workers both engaged in massive strike activity in 1987. The persistence of a low level of wages, and political and trade union repression, offset twenty years of higher wage increases as motivating factors, suggesting that de Tocqueville's question of whether good times or bad times stimulate social protest remains complex.

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