6

Gendered Paths of Industrialization

A Cross-Regional Comparative Analysis

Although feminization is widespread, many countries have proved immune to it. In fact, countries exhibit different gendered trajectories of industrialization, with the proportion of women in the workforce increasing in some countries, decreasing in others, and changing little in yet others. Moreover, even in countries that have followed similar gendered paths, women's share of manufacturing employment varies widely. Even when sector is controlled for, national variations remain. How can varying gendered paths and patterns of industrialization be explained? This chapter both describes and explains gendered paths and patterns of industrialization across twenty-seven sectors and ten countries in three regions: Argentina, Brazil, and Mexico in Latin America; Singapore, South Korea, and Taiwan in East Asia; and Indonesia, Malaysia, the Philippines, and Thailand in Southeast Asia.[1] I chose these ten countries because gendered employment data were available for them over a long period of time; they represent major industrializing countries in the three regions; and they have experienced a variety of gendered patterns of manufacturing employment.

The cross-national comparative analysis confirms many of the insights developed in the case study of Indonesia and shines additional light on the ways in which supply variables affect feminization. The growth of employment in labor-intensive sectors relative to capital-intensive sectors, as expected, explains much of the cross-national variation in gendered trends in industrialization over time. Employment growth has also had a positive

effect on women's share of employment, with women claiming more of the newly created jobs than men. Strong labor unions have a negative impact on women's share of employment. In countries with strong unions, feminization has been less impressive and women have had lower shares of employment. Reductions in fertility, in contrast, have had a positive effect on both feminization and women's share of employment. Education and labor force participation rates have had mixed effects.

Latin America presents a stark contrast to East and Southeast Asia, in both industrialization paths and union strength, which had profound consequences for women's employment opportunities. The Latin American countries in the analysis employed far fewer women than the Asian countries, a result not only of differences in the industrialization paths they pursued but also of distinct patterns of labor incorporation. Populism in Latin America created relatively strong unions, whereas the systematic exclusion and repression of labor by authoritarian regimes in Asia produced weak unions. The varying forms of labor incorporation had gendered consequences that are still evident today and suggest that docile unions facilitated the absorption of women into manufacturing work.

Trends in Feminization and the Employment of Women in Manufacturing

Patterns of feminization and women's share of employment in manufacturing show sharp interregional differences as well as intriguing intraregional variations. Although feminization has taken place in all three regions, it has been weakest in the Latin American cases (see Figure 6.1). Brazil began a mild trend of feminization in the 1970s, with women's employment increasing from about 20 percent in 1970 to around 25 percent in 1985. Of the three Latin American countries, Mexico has experienced the strongest feminization. In 1960 women claimed less than 15 percent of manufacturing jobs; their share of employment increased slowly until about 1985, reaching just over 20 percent; and by 1993 the female share of manufacturing employment had increased to 30 percent. Argentina remains stubbornly masculine, having masculinized modestly from a female share of employment of about 27 percent in 1964 to only 18 percent in 1994.

In contrast to the Latin American cases, all the East Asian countries underwent a strong wave of feminization in the 1960s and 1970s (see Figure

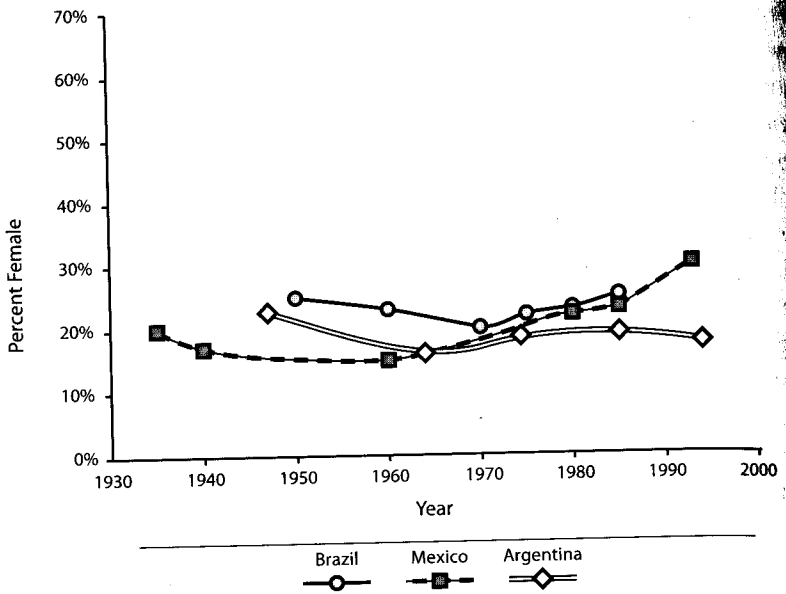

Figure 6.1. Women's share of manufacturing employment—Latin America. *Source:* See Statistical Appendix.

6.2). South Korea feminized until about 1975, with female employment reaching 49 percent; the trend in Taiwan lasted until around 1980, with female employment peaking at 50 percent. Thereafter, both countries masculinized. South Korea in particular experienced a precipitous decline: by 1990, women held only 37 percent of manufacturing jobs. Though less dramatic, women's employment in Taiwan shrank to 45 percent in 1990. Singapore revealed a similar pattern of feminization, but after a brief masculinization dip in 1980 it resumed feminization. Southeast Asia also underwent impressive feminization (see Figure 6.3). The Philippines showed a marked feminization trend, with a slow but steady increase in female employment from 19 percent in 1967 to 40 percent in 1993. Indonesia, Malaysia, and Thailand feminized at about the same rate as the Philippines.

In addition to variations in trends over time, the ten countries also differ in terms of women's *share* of employment. The Latin American countries remain the most masculine, with women claiming at most 30 percent of manufacturing jobs. East Asia is in the middle, showing high levels of

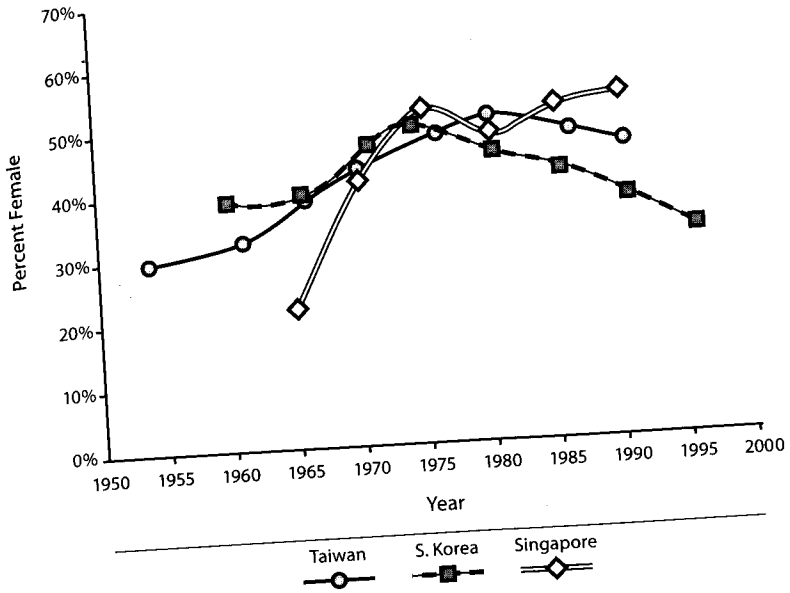

Figure 6.2. Women's share of manufacturing employment—East Asia. *Source:* See Statistical Appendix.

female employment at the end of the feminization trend—about 50 percent—and lower but still respectable percentages after masculinization, roughly 32 to 45 percent. Women claim the largest share of manufacturing work in Southeast Asia, with the Philippines being the lowest at around 40 percent and Thailand the highest with over 60 percent.

The Gendered Logic of Industrialization

Although most of the countries included in this study engaged in both export-oriented and import-substitution industrialization (EOI and ISI) strategies, the balance between them varied markedly. The Latin American countries pursued a course of industrialization that relied more heavily on ISI; East Asia, though having a potent ISI dimension, put more emphasis on EOI; and Southeast Asia was more similar to East Asia, although ISI and EOI did not deepen to the same degree. The timing of industrialization also differed markedly, with Latin America's industrialization taking off sharply during the Depression and World War II and East Asia's (re)start-

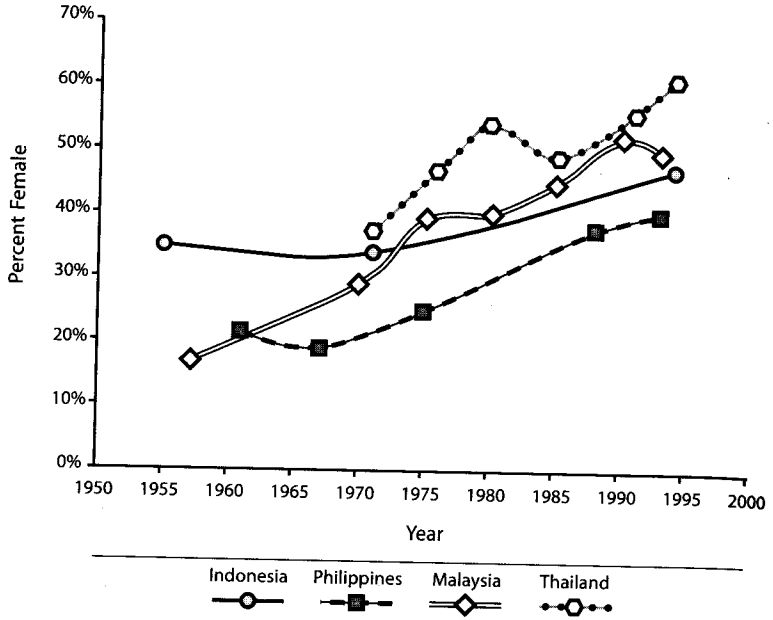

Figure 6.3. Women's share of manufacturing employment—Southeast Asia. *Source:* See Statistical Appendix.

ing after World War II.[2] Southeast Asia presents a more varied picture, although its period of impressive economic growth for the most part began in the 1970s or later.

The decade of the 1930s was a key historical juncture in Latin America, with the Depression and World War II acting as catalysts for the development of local industries to produce goods that could no longer be imported. Argentina, Brazil, and Mexico underwent primary ISI from the 1930s and 1940s until the mid-1950s and then proceeded to secondary ISI in the mid-1950s (Gereffi 1990; Kaufman 1979). Since employment growth was concentrated in capital-intensive industries, a masculinization trend was notable in the region during the 1950s and 1960s.

In the 1970s, Mexico and Brazil began to feminize.[3] Feminization was directly related to shifts in sectoral employment, which was in turn produced by changes in industrialization policy. In 1968, Brazil complemented its ISI program with diversified export promotion (Gereffi and Wyman 1990; Haggard 1990), and employment in labor-intensive sectors such as garments, footwear, and food processing expanded sufficiently to generate

some feminization. The degree of feminization was modest, however, because employment in many capital-intensive industries—iron and steel, transport, and nonelectrical machinery—expanded as well. Labor-intensive sectors were a more significant component of Mexico's industrialization, in contrast to Brazil's, in the 1970s, 1980s, and 1990s. Although employment in some capital-intensive sectors such as transport and nonelectrical machinery grew sharply as well, the Border Industrialization Program fostered the development of the infamous *maquiladoras*, and many of the industries that produced for export there were labor intensive. The combined effect of the North America Free Trade Agreement (NAFTA) and the devaluation of the peso in the wake of financial crisis in 1994 led to a skyrocketing of the *maquiladora* share of manufacturing employment from 7 percent in 1985 to 27 percent in 1996 (Cooney 2001). Mexico's feminization has therefore been much more dramatic than Brazil's. Unlike Brazil and Mexico, Argentina experienced deindustrialization in the 1970s, with industrial employment falling 26 percent between 1975 and 1980 (Drake 1996). Labor-intensive sectors that employed women stagnated or shrank, and as a result, women's share of employment declined in the 1970s and 1980s.

In contrast to the Latin American cases, South Korea, Taiwan, and Singapore pursued a more consistently export-oriented strategy of industrialization. South Korea and Taiwan engaged in ISI, but they began to focus on manufactured exports earlier than Latin America and combined secondary ISI with a strong export orientation. Both South Korea and Taiwan pursued primary ISI in the 1950s, but they aborted this industrialization strategy in the 1960s and shifted to primary EOI. Primary EOI lasted until the early 1970s, when both countries moved to secondary EOI and secondary ISI (Gereffi and Wyman 1990; Haggard 1990; Woo 1991). The trajectory of gendered employment in South Korea and Taiwan mirrored these changes in the industrialization strategies pursued (see Figure 6.2).

In South Korea the explosion of employment in labor-intensive sectors led to a wave of feminization from 1965 until 1975. With the shift from primary to secondary EOI in the 1970s, however, employment grew most rapidly in the more capital-intensive sectors, and a steady trend of masculinization ensued. Labor-intensive sectors continued to be important in the 1970s and even into the 1980s, dampening the degree of masculinization that occurred. In the 1980s, however, Korean manufacturers began to

export their labor-intensive industries to countries with cheaper la costs, in particular to Southeast Asia (Lee 1994; Lindblad 1997; Wie 199 Women's share of employment subsequently declined to 37 percent. A si ilar pattern occurred in Taiwan, but the masculinization trend in the 198 was weaker there, as Taiwan did not push the development of capital-i tensive sectors as aggressively as South Korea (Haggard 1990). As in Sou Korea, labor-intensive industries moved offshore to Southeast Asia in th late 1980s: between 1985 and 1990, Taiwan lost more than 150,000 jobs i textiles and garments, although employment continued to be generated i more capital-intensive sectors.

Singapore was the only country in the sample that followed an exclu sively export-oriented path. Its employment growth was most impressiv in labor-intensive industries, and as expected, women began to claim a larger share of manufacturing work. The shift from primary EOI to sec ondary EOI in the mid-1970s weakened the feminization trend, but Singa pore did not settle into a pattern of masculinization, because electronics continued to be the engine of employment growth (Rodan 1997). Consequently, feminization was stronger and more sustained than in South Korea and Taiwan.

Whereas the East Asian countries shifted from primary ISI to primary EOI fairly quickly, the Southeast Asian countries persisted with primary ISI for a longer period of time and began primary EOI later. Malaysia initiated primary ISI in the 1950s and commenced EOI in the late 1960s (Rasiah 1997). Between 1957 and 1970 women's share of manufacturing employment expanded by 11 percent. The absence of gendered employment data in the 1960s makes assessing the precise starting moment of the feminization trend impossible, but the steep slope of the feminization curve between 1970 and 1975 lends credence to the claim that the majority of the increase between 1957 and 1970 occurred after the export promotion program began. In the 1980s, Malaysia embarked on some secondary ISI and EOI, which led to the expansion of employment in some capital-intensive industries. Employment growth in electronics, however, dwarfed all other sectors, so feminization continued.

In the Philippines, primary ISI took place in the 1950s and 1960s, and under Marcos some primary EOI began in the early 1970s (Hutchison 1997). The beginning of the feminization trend cannot be pinpointed precisely,

given the absence of a data point between 1967 and 1975, but between 1961 and 1967 women's share of employment decreased, which suggests that the modest feminization occurring between 1967 and 1975 was a result of the expansion of employment in labor-intensive export industries in the early 1970s. Marcos never fully implemented the export promotion policy (Hawes 1992), however, so the degree of feminization was moderate in comparison to that of Malaysia. Between 1975 and 1988, feminization continued apace, as employment increased at a higher rate in labor-intensive sectors than in the capital-intensive sectors.

Indonesia and Thailand, beginning primary EOI later than Malaysia and the Philippines, pursued ISI (mostly primary but some secondary in the 1970s) from the 1950s until the mid-1980s, when both shifted to primary EOI (Hewison 1997; Jomo 1997). Thailand's gendered trajectory is surprising, as women's share of manufacturing employment increased about 20 percent during the ISI period, but it is less shocking once the overwhelming dominance of textiles, a labor-intensive sector, is taken into account. By 1980, almost half of employment in manufacturing was in textiles, and over half of the total increase in jobs between 1970 and 1980 occurred in textiles. Textiles went through a lean period in the early 1980s which led to some masculinization, but from the mid-1980s, feminization resumed as other labor-intensive sectors took off with the onset of primary EOI. Indonesia was similar to Thailand, since textiles generated much of the new employment between 1971 and 1980, although much less so than in Thailand, which accounts for the more modest slope of its feminization curve. Most of the feminization in Indonesia occurred from the early 1980s onward, when the country began to promote a variety of labor-intensive export industries.

Explaining Sectoral Variations: Unions and Supply Factors

The type of industrialization affects gendered trends in the manufacturing sector as a whole through its effects on the expansion and contraction of sectoral employment. But if labor intensity and capital intensity are the only factors affecting women's employment, levels of female employment in a sector should be relatively constant across nations. As suggested in previous chapters, these variations in sectoral levels of female employment

require incorporating into the analysis factors other than the balance of employment in labor- and capital-intensive sectors—such as the potential impact of labor unions and labor supply factors.[4]

The Gendered Impact of Unions

Why do unions have a gendered impact? Simply put, unions are gendered institutions, as is evident in their memberships, their leaderships, and the policies that they pursue. Feminist labor historians have documented numerous instances of male workers striking to prevent the influx of female labor, and unions were at the forefront of many struggles to implement protective legislation for women. Protective legislation makes it more expensive and difficult (and sometimes impossible) for employers to hire women.[5] The motivations behind male opposition to women workers varied, but the most common included fear of downward pressure on wages, a sense of threatened masculinity, a fear that women would "pollute" and reduce the prestige of male occupations (Goldin 2002), and quite simply the desire to defend union members' jobs. Since battles over the gendering of work are often about the deskilling of jobs, the redefinition of job classifications, and maintaining jobs for members, male-dominated unions have obstructed feminization. The absence of strong unions removes a potential barrier to feminization, while strong unions have the potential to impede feminization.[6]

The impact of unions depends not only on their capacity to disrupt employer efforts to feminize but also on bargaining institutions. If wages are set through industry-wide bargains, especially if they apply to all workers regardless of their membership in a union, employers have less incentive to hire women instead of men, since women will receive the same wages as men for the same work. Some feminization may take place even in countries with strong unions if the sector is relatively new (and hence unorganized) or if employment growth takes place primarily through the establishment of new factories rather than the expansion of existing ones. Moreover, when industry is expanding rapidly, employers that previously relied primarily on men are more likely to tap into female labor as the supply of male labor at a particular level of education and wage rate diminishes. When employment is growing, strong unions slow down the pace at which women are integrated into the manufacturing workforce. Unions

may have a negative impact on female employment also when employment is contracting: that is, women may be laid off at a higher rate than men, resulting in masculinization.

To test these propositions statistically, it is necessary to devise an index that measures the relative power of unions in the ten cases. The union index combines three indicators. The first is the dominant *level at which collective bargaining takes place,* and the second is *union density.* Although both are common measures of union strength (McGuire 1999), union density on its own can be a misleading indicator of labor's power in developing countries (Rudra 2002); high levels of union density (as well as union concentration and centralization) may be a result of exclusionary corporatist policies and a poor indicator of union power. I therefore add a third indicator, *political inclusion,* which takes into account the extent to which the state embraces or permits labor mobilization.[7] Figures 6.4, 6.5, and 6.6 illustrate how union strength, as measured by this index, has changed over time.

Of the ten countries, the strongest unions are in Latin America. Populist leaders in an array of Latin American countries completed the initial in-

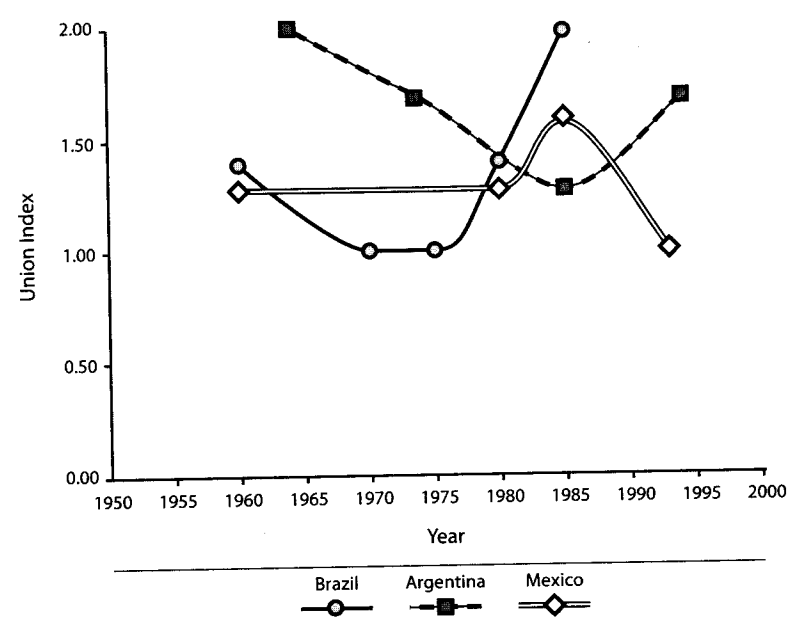

Figure 6.4. Union strength—Latin America. *Source:* Caraway 2006.

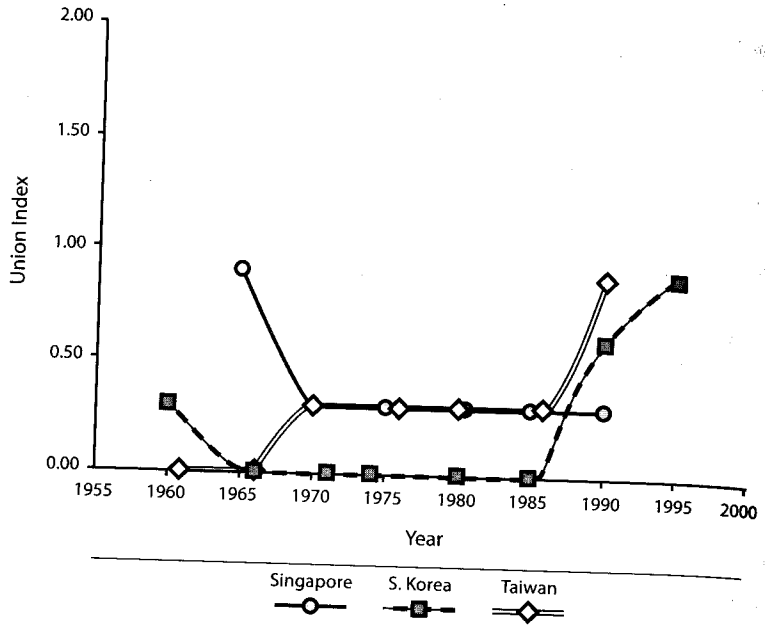

Figure 6.5. Union strength—East Asia. *Source:* Caraway 2006.

corporation of labor in the 1930s and 1940s. In Argentina and Brazil, this incorporation took place in the 1940s, and in Mexico, Lázaro Cárdenas brought the labor movement under his wing in the 1930s (Collier and Collier 2002). The level of inducements and constraints that the state offered to labor varied from country to country, but the common thread was that repression was no longer the primary means of controlling labor (Collier and Collier 1979). This model of incorporation corresponds to what Stepan (1978) referred to as inclusionary corporatism. The combination of the production of relatively high value-added goods with protected local markets sustained the populist bargain between the state, capital, and labor for many years. Although these populist coalitions later broke apart in Argentina (1966) and Brazil (1964), and the military dictatorships that came to power moved to exclude labor (O'Donnell 1973), the crucial point is that populism resulted in high levels of unionization, compared with those of other developing countries (Rama and Artecona 2002). In addition, the level at which bargaining is conducted is higher than in other developing countries (International Labor Office 1997; Kuruvilla 1996).

With respect to political inclusion, Argentine unions remained a political force even under repressive regimes. Although military governments in Argentina prohibited links between unions and Peronist parties and tried to weaken single-union bargaining, unions continued to be a political presence and were "unusually powerful" between 1955 and 1983 (Drake 1996; James 1988; McGuire 1997, 270–71). Unions were initially in a weaker position in Brazil. Although prohibited from having links to political parties for most of the period, electoral competition between 1945 and 1964 gave unions some leverage in the political arena (Kaufman 1979). After the military coup in 1964, as government intervention increased and collective protests became riskier, labor maintained its position to some extent because the "dictatorship promoted industrialization, maintained corporatist unions, and allowed limited political party and electoral activity" (Drake 1996, 31; Mericle 1977). In the late 1970s and 1980s the labor movement became more assertive and fostered the formation of the Workers' Party (Keck 1992). In Mexico, the labor movement developed a close relationship with the ruling party, the PRI, and received a variety of socioeconomic benefits in exchange for backing the regime during crises and for supporting the PRI in elections (Middlebrook 1995). From the 1980s on, however, union power eroded steadily as the PRI distanced itself from unions (Cook 1995).

Union density has also been relatively high in the Latin American cases. Argentine unions began with the highest levels of union density, but over time density decreased from about 40 percent in the late 1960s to just over 20 percent in the 1990s (Rama and Artecona 2002). In Brazil, union membership grew even after the dictatorship came to power, although it remained relatively constant at around 25 percent of the economically active population. In the late 1970s and 1980s union density began to rise (Keck 1992). Mexico's relatively high union density peaked in the 1980s at about 35 percent and then declined significantly in the 1990s (Rama and Artecona 2002).

Bargaining institutions are relatively centralized, although the extent of centralization varies, in the three Latin American countries. In Argentina, collective bargaining was conducted nationally at the industry level between employers and one officially recognized union as the bargaining agent, with bargaining agreements applicable to all workers in the industry, whether unionized or not, for most of the period under consideration

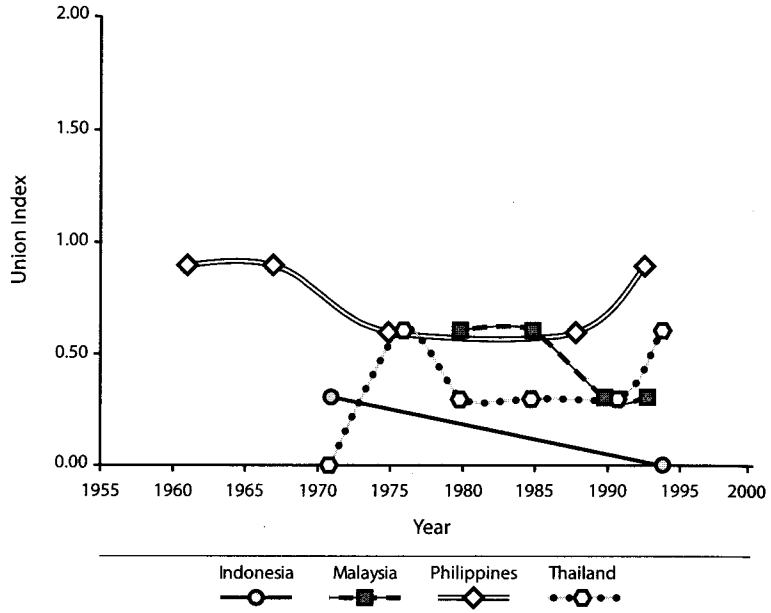

Figure 6.6. Union strength—Southeast Asia. *Source:* Caraway 2006.

(1950 to early 1990s) (Córdova 1984b; James 1988). Unions in Brazil, banned from having direct links to other unions, were structured by craft and industry within each state, so they were more fragmented than in Argentina. Although there was no unifying confederation to bring together disparate elements of the labor movement, unions were given a monopoly over representation of workers in their industry within a given geographic territory (Mericle 1977). The law prohibited enterprise (plant-level) unions, and with the exception of the years between 1964 and 1977, most negotiations took place on an industry-wide basis; collective bargains applied to all workers in the industry in the geographic unit, whether organized or not; and all workers in the industry or profession were required to pay a union tax. In Mexico, plant-level bargaining predominated, although some agreements covered entire branches of the economy, such as metallurgy and textiles, and coordination in bargaining between plants in the same federations resulted in highly centralized bargaining outcomes in sectors such as steel and automobiles (Bronstein and Córdova 1984; Córdova 1984b; O'Connell 1999; Roxborough and Bizberg 1983). Unions also frequently inserted security clauses in collective agreements which gave unions control over recruitment (Córdova 1984a), with obvious implications for feminization.

In contrast to Latin America, East Asian governments have always excluded labor: the political environment in East Asia has been far more hostile to labor than in Latin America, and unions have had less room to maneuver politically. In Taiwan the Kuomintang implanted an exclusionary regime before the popular sector mobilized, but in Korea and Singapore the state repressed leftist labor movements (Deyo 1989, 1990; Koo 2001). Although the intensity and level of repression varied both across time and between countries, "labor has always been an object of control and exclusion and has never been considered a major political ally or constituency" (Koo 2001, 5–6). During most of the period from World War II to the late 1980s, state-backed unions had a monopoly of representation in Taiwan and Singapore and a near monopoly in South Korea. South Korea is unique in that a dynamic independent labor movement emerged in the 1980s and played an important role in the democratic transition. Democratization in South Korea and Taiwan in the 1980s and 1990s softened but did not overturn labor's relative exclusion (Chu 1996; Koo 2001, 2000). Union density presents a mixed picture in East Asia. Although union density was much higher in Singapore and Taiwan than in South Korea, this is because the ruling regimes chose a more corporatist method of controlling labor.[8] In Taiwan in particular, increases in density reflected rising membership from self-employed craftspeople who joined unions in order to obtain insurance.[9] Bargaining in all three countries took place primarily at the enterprise level, and in Singapore the range of issues subject to bargaining was extremely narrow.

Once again, Southeast Asia presents a more varied picture. In the worst periods of repression, labor exclusion was just as severe as in the East Asian cases. Even in the cases where labor was relatively free to mobilize, it was in a weak political position (Deyo 1997). For the most part, labor movements in the region were isolated from political parties. Union density was low, with unions in Malaysia and the Philippines organizing about 10 percent of the labor force, and in Indonesia and Thailand less than 5 percent (Rama and Artecona 2002). Collective bargaining took place primarily at the enterprise level, was weakly institutionalized, and covered few workers. Southeast Asian unions have much in common, but there have been important differences in the extent of political repression, both between countries and over time within countries.

In the Philippines the left was crushed in the 1950s, but an active and independent labor movement persisted in the 1950s and 1960s (Lambert 1990; Wurfel 1959). Ferdinand Marcos repressed the remaining elements of the labor movement after the declaration of martial law in 1972, adopting an exclusionary form of corporatism (West 1997). By the mid-1980s, however, the Philippines had developed the most radical and dynamic labor movement in Southeast Asia, and after Corazon Aquino came to power in 1986, formal restrictions on labor in the Philippines eased (Dejillas 1994). Labor unions in Indonesia in the 1950s and 1960s had close relationships to political parties (Tedjasukmana 1959), but the Suharto regime eviscerated the leftist unions in the late 1960s and forced all remaining unions into a state-backed federation in 1973. This exclusionary form of corporatism remained in place until Suharto's fall in 1998 (Hadiz 1997). In Malaysia the colonial regime killed off leftist leaders in the 1940s and 1950s, and after independence in 1957 the state neither embraced nor repressed the remaining moderate unions until it began to tighten controls over labor in the mid-1960s, making strikes more difficult and imposing strict limitations on the content of collective agreements (Grace 1990; Jomo and Todd 1994). In electronics, unionization was banned entirely until the late 1980s, and even then, only enterprise unions were permitted. In Thailand, unions were banned for most of the 1950s and 1960s, and political repression was especially severe under the regime of Field Marshal Sarit Dhanarajata, 1958–63 (Brown and Frenkel 1993). During a brief political opening in the early 1970s, labor organization exploded, but a military coup in 1976 resulted in a brief bout of repression, and conservative forces took over the labor movement. Since the 1980s, Thai governments have not had close relations with unions, but with the exception of a brief period following the 1991 coup, neither has the state cracked down on them (Hewison and Brown 1994; Mabry and Srisermbhok 1985).

A Statistical Test of the Impact of Union Strength and Supply Factors

To assess the impact of union strength on gendered patterns of industrialization, I conducted a series of statistical tests. The data set has 1,154 observations, spanning the late 1950s to the mid-1990s. Each observation corresponds to an industrial sector *j* for a particular year *t* in a country *i*. The models presented explain changes in women's employment or the female share of employment in sector *j* as a function of union strength, capital intensity, and country-level controls. The dependent variable, the share of female employment and feminization, is operationalized as the percent of female employment in a sector or the log of total female employment. The main independent variables include union strength, capital intensity1, capital intensity2, total employment, and sector dummies.[10]

In addition to these independent variables, I ran specifications that included variables affecting the supply of female labor. Cultural differences between countries could adversely affect women's capacity to participate in work outside the home, either directly through outright prohibition or indirectly through poor education and high fertility. I thus ran the model with three additional variables: fertility, measured as the total fertility rate; female labor force participation (FLFP), measured as the percentage of women in the labor force; and education, measured as the average years of schooling for women aged fifteen.[11] Fertility is expected to have a negative effect on feminization, since higher fertility makes women less appealing employees and limits the number of years that they are available to work. Conversely, education should make women more attractive to employers and encourage feminization. Female labor force participation rates are also expected to have a positive impact on feminization, since higher participation rates indicate that fewer cultural obstacles prevent women's involvement in economic activities. Fertility rates were in decline and education levels were improving in all of the countries, although the levels of fertility and education varied considerably among them. In most of the countries, female labor force participation rates also revealed a steady upward trend, though again, the rates differed from country to country.

Model I tests the various hypotheses with a simple OLS regression of the natural log of the share of female employment in a sector on union strength, the supply variables, and sectoral dummies to control for sector-specific effects. The model explains 65 percent of the variation in women's share of employment, and unions have a negative and statistically significant impact (see Table 6.1). All the supply variables are statistically significant and have an impact in the expected direction, with the exception of education. Although statistically significant, the coefficient for education is negative. The model confirms all the hypotheses except that for education.

Another estimation strategy takes advantage of the cross-sectional panel structure of the data to explain the changes in patterns of women's em-

Table 6.1. Model I: Determinants of women's employment

	Without supply variables		*With supply variables*	
Variable	*Coefficient*	*S.e.*	*Coefficient*	*S.e.*
Union strength	−0.103***	0.007	−0.073***	0.007
Female labor force part.			.212***	0.04
Fertility			−0.039***	0.003
Years of education			−0.014***	0.003
Constant	0.391***	0.018	0.524***	0.032
R-square	0.659		0.723	
Adjusted R-square	0.652		0.716	
F-test	F (24, 1129) = 91.07		F (27, 1126) = 108.85	
N	1,154		1,154	

Source: See Statistical Appendix.
Note: Unstandardized coefficients; *p* values indicated by *, **, and *** for values less than 0.1, 0.05, and 0.01 respectively.

ployment. Table 6.2 presents two cross-sectional time series models with random effects for country and year which test the relationship between union strength and feminization. The models use the natural log of total female employment as the dependent variable. In Model II the independent variables are total employment, capital intensity, union strength, lagged (past) female employment, and the square of the lagged variable. The auto-regressive lag and the quadratic term were included, since past levels of female employment could have a strong impact on future female employment, and that effect might be nonlinear. Again, the coefficients for union strength and capital intensity (both measures) are negative and statistically significant. Total employment is also significant and has a strongly positive impact on women's employment. The coefficient for lagged female employment is negative but significant in only one of the specifications, while the quadratic term is positive and consistently significant. This indicates strong resistance to initial feminization but more rapid incorporation afterward—although that conclusion must be treated with caution, given the low significance of lagged female employment. Both fertility and education are statistically significant. The coefficient for fertility is negative, as expected, but the coefficient for education is negative as well, contrary to expectations. The FLFP rate changes signs and is significant only when the first capital-intensity measure is used.

Although Model II is helpful to an understanding of the impact of unions when employment is increasing, assessing the impact of unions when em-

Table 6.2. Models II and III: Determinants of women's employment

	Model II					*Model III*				
Total employment	0.716***	0.713***	0.721***	0.710***		1.142***	1.13***	1.142***	1.132***	
	(.023)	(.023)	(.021)	(.02)		(.016)	(.017)	(.016)	(.016)	
Capital intensity1	−0.143***		−0.153***			−0.069***		−0.074***		
	(.028)		(.029)			(.018)		(.018)		
Capital intensity2		−0.145***		−0.184***			−0.065***			−0.087***
		(.028)		(.026)			(.016)			(.016)
Lagged female employment	−0.102*	−0.095	−0.096	−0.083		0.302***	0.294***	0.305***		0.306***
	(.06)	(.060)	(.061)	(.061)		(.039)	(.038)	(.039)		(.038)
Lagged female emp squared	0.028***	0.028***	0.027***	0.027***		0.069***	0.070***	0.071***		0.070***
	(.004)	(.004)	(.004)	(.004)		(.006)	(.006)	(.006)		(.006)
Lagged total employment						−0.393***	−0.372***	−0.349***		−0.348***
						(.061)	(.062)	(.063)		(.063)
Lagged total emp. × lagged fem emp.						−0.067***	−0.068***	−0.071***		−0.070***
						(.008)	(.008)	(.008)		(.008)
Union	−0.313***	−0.277***	−0.311***	−0.291***		−0.05**	−0.044	−0.029		−0.023
	(.066)	(.069)	(.041)	(.041)		(.025)	(.033)	(.026)		(.026)
FLFP rate			.729***	−0.026				0.054		−0.297*
			(.231)	(.249)				(.141)		(.152)
Total fertility rate			−0.065***	−0.144***				−0.035**		−0.073***
			(.024)	(.026)				(.014)		(.016)
Years of education			−0.067***	−0.086***				−0.023***		−0.033***
			(.014)	(.014)				(.009)		(.009)
Constant	0.507	0.408	.804**	1.342***		−0.828**	−0.851**	−0.845**		−0.561
	(.324)	(.329)	(.332)	(.332)		(.334)	(.341)	(.342)		(.343)
R-square (within)	0.852	0.852	0.851	0.851		0.944	0.944	0.944		0.944
R-square (between)	0.9	0.92	0.944	0.972		0.991	0.992	0.993		0.997
R-square (overall)	0.871	0.872	0.877	0.880		0.955	0.955	0.955		0.956
N	918	918	918	918		918	918	918		918

Source: See Statistical Appendix.
Note: Unstandardized coefficients, standard errors in parenthesis; *p* values indicated by *, **, and *** for values less than 0.1, 0.05, and 0.01 respectively.

ployment is contracting is also important, and Model III captures this dynamic. Model III introduces a lag term of total employment and an interaction term between lagged total employment and lagged female employment, which permits speculation about the potential impact of a contraction of employment. The coefficients for both lagged total employment and the interaction term between lagged total employment and lagged female employment are negative and statistically significant regardless of the capital-intensity measure used in the analysis, indicating that a contraction in employment results in a loss of female employment. The decline in women's employment is smaller than the increases secured when employment expanded, however, which suggests that although women lose jobs during an economic contraction, their incorporation is resilient. In this model, the coefficients for lagged female employment and the square of lagged female employment are both positive and statistically significant, showing that the larger the share of women employed in the past, the larger it will be in the future. In other words, there is some path dependence at work in determining women's overall shares of employment. Yet the union variable is significant in only one of the four specifications of this model. The supply variables achieve good levels of statistical significance, with the exception of the FLFP rate when the first capital-intensity measure is used. Fertility and education have negative coefficients, and the coefficient for the FLFP rate switches signs between the two specifications.

The findings related to unions, fertility, and education were robust across the three models. The impact of FLFP rates was mixed because it was highly sensitive to the specification of the models, and substantively, its impact vacillated between positive and negative. The negative relationship between education and feminization is surprising and suggests that higher levels of education do not necessarily facilitate women's entry into manufacturing work. It is likely that education is a threshold variable—employers seek out a certain minimal level of education, but more education beyond that does not make women workers more appealing employees. Of course, women with higher levels of education are better equipped to find more remunerative employment in other parts of the economy and may choose to avoid the drudgery of a factory job in favor of less taxing work elsewhere.

The effect of the union variable was strongest in Model I and Model II

and weaker in Model III. Part of the reason for this weakness may be related to a hierarchical modeling problem. Union strength was assessed at the country level rather than at the sectoral level, since union data rarely correspond precisely to the ISIC categories for classifying employment in manufacturing. Data for the three indicators in the union index could be found for some sectors but not for others. The differences between country and sectoral measures of union strength for most of the Asian countries are minimal during the bulk of the period under examination, but for the Latin American cases, especially Mexico, the differences could be substantial. Sectoral measures of union strength would probably have produced stronger results for the union variable in these cases. For example, the textile industry in Mexico was surprisingly masculine—women's share of employment was only 25 percent in 1985—given that strong feminization had occurred in other labor-intensive sectors. This fact becomes less puzzling, however, when the strength of unions in the sector is taken into account. The textile sector is one of the most highly unionized in Mexico and has negotiated collective agreements that cover the entire industry (Zazueta and de la Peña 1984).[12] The sectors that feminized most strongly were in the *maquilas*, where unions were comparatively weak.

To assess further the robustness of the union variable, I ran Models II and III using employment in all manufacturing rather than sectoral employment. In the previous analyses, each case was one sector in one year in one country. In these models, each case is one year in one country. Since the union variable is no longer tied to sectoral employment data, these models are not affected by a hierarchical modeling problem. Models IV and V are identical to Models II and III except for the omission of the capital-intensity variable, which was tied to sectors. In spite of the much smaller sample size (fifty-one cases), the coefficients for the union variable are statistically significant and the effect remains negative (see Table 6.3). The coefficient for union strength is also larger than in the sectoral model.

Conclusion

Differences in gendered patterns of industrialization can be explained by the balance of employment between labor-intensive and capital-intensive sectors, employment growth, the strength of labor unions, and fertility. The trend over time—feminization versus masculinization—is best explained

Table 6.3. Models IV and V: Determinants of women's employment, county-based

Variable	*Model IV*	*Model V*
Total employment	1.13***	1.13***
	(.038)	(.033)
Lagged female employment	−0.153	.851
	(.467)	(.826)
Square or lagged female employment	.006	-0.076
	(.019)	(.079)
Union	−0.552***	−0.325***
	(.076)	(.083)
Lagged total employment		−1.928*
		(1.117)
Lagged total employment × lagged female employment		0.111
		(.089)
Constant	−1.47	5.972
	(2.812)	(3.961)
R-square (within)	0.965	0.963
R-square (between)	0.967	0.989
R-square (overall)	0.954	0.971
N	51	51

Source: See Statistical Appendix.
Note: Unstandardized coefficients, standard errors in parentheses; *p* values indicated by *, **, and *** for values less than 0.1, 0.05, and 0.01 respectively.

by the balance of employment between sectors. Since primary EOI encourages employment growth in labor-intensive sectors relative to capital-intensive sectors, there is a strong relationship between EOI and feminization. As EOI matures, however, masculinization usually ensues, since employment usually expands more rapidly in capital-intensive sectors. ISI, in contrast, usually, but not always, leads to masculinization, since it tends to generate more employment in capital-intensive sectors. In addition, the data demonstrate that employment growth has consistent and dramatic positive effects on women's share of employment.

This finding about the positive impact of employment growth ties in nicely with the arguments about stickiness, spillover, and snowballing made in Chapter 4. Employment growth not only increases demand for labor but also facilitates the unsettling of established gender divisions of labor. Employers that expand production can shift women into previously male jobs without firing male workers, and when job growth occurs in new industries, employers have far more flexibility in determining the gendered allocation of work. They can hire women without displacing men—though the extent to which they can do so depends on the strength of unions as well.

Although the overall trend of gendered employment can be explained by the type of industrialization pursued, women's share of sectoral employment varied considerably between countries. Union strength and fertility explained some of these differences, and both variables had consistent and substantively interesting effects on cross-national patterns in women's employment. Strong unions resulted in lower shares of female employment and slowed the pace of feminization, and a high fertility rate negatively affected feminization and women's share of employment.

Perhaps most important, the analysis offers support for the contention that demand-based explanations and labor market institutions have a stronger overall effect on feminization than cultural factors do. The weakness of the female labor force participation variable in particular suggests that cultural limits on such participation are malleable. In other words, increased demand for female labor, combined with weak unions, allows women to be pulled rapidly into the labor market in spite of cultural obstacles. Labor-excluding authoritarian developmental states in Asia and inclusionary populist politics in Latin America created distinct gendered legacies. Latin America had lower shares of female employment in manufacturing not only because it followed a different path of industrialization but also because it had stronger unions.