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Spatialization, Foreign Direct Investment, and Labor Outcomes in the American States, 1978-1996*

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Abstract

Emergent trends in the globalization of the economy and the spatial restructuring of work portend many new challenges for workers around the world. Among the issues that have received insufficient attention is the impact of inward foreign direct investment (FDI) on labor in the U.S. Previous research has been inconclusive and plagued by a lack of empirical breadth and by insufficient theoretical explanations. In this article, we first outline a theory of spatialization as an extension of the social structures of accumulation framework to anticipate the likely consequences of FDI for workers. Second, we undertake an analysis of the forty-eight contiguous American states for the years 1978-96 of the consequences of inward FDI for labor's organizational capacity, labor dissent, and the economic standing of labor. Our analysis demonstrates that inward FDI has a consistent negative effect on these labor outcomes that differs for manufacturing and nonmanufacturing FDI. We suggest that our findings are consistent with spatialization theory and inform theoretical debates on globalization and labor in the contemporary U.S.

At the end of the twentieth century, few trends command more attention than economic globalization. Recent statistics on international trade, financial flows, and particularly foreign direct investment (FDI)[1] bespeak an unprecedented level of interconnectedness in the global economy (Berger & Dore 1996). As Graham

(1996) stresses, "During the past ten years, a massive surge in FDI has led to the deepest integration of the world's economy in history. FDI as a share of the world's total fixed capital formation rose almost 80 percent" (1). Increasingly, scholars of international political economy contend that FDI has surpassed trade and financial flows as the most important dimension of globalization. Sassen (1994) shows that in the 1980s FDI grew three times faster than export trade. Wade (1996) notes that FDI flows into the U.S. quadrupled during the 1980s and grew three times faster than output.

The remarkable aspect of recent patterns of economic globalization is the increasing interconnectedness of the advanced capitalist countries in North America, Western Europe, and Japan, with the U.S. economy leading the way (Ohmae 1995). Inflows and outflows of FDI among these advanced capitalist countries have spurred much of this economic integration (Wade 1996). In fact, 85% of worldwide FDI flows occur among the U.S., Western Europe, and Japan (Boyer & Drache 1996). The U.S., in particular, headquarters more multinational firms, originates more outflowing FDI, and, importantly, hosts more inflowing FDI than any other country in the world. Although capital flight or the outflow of FDI from the U.S. is well documented (Alderson 1997; Harrison & Bluestone 1988), the rapid growth of "inward FDI" since the 1970s is a less recognized feature of the U.S.'s position in the global economy (Bairoch 1996). Since about 1977, inward FDI has grown much faster than outward FDI, to the point that the U.S. is now host to more than 15,000 foreign affiliates (Lipsey 1992; Spero & Hart 1997). In addition, inflows of FDI into the U.S. have reached their highest level ever (Bairoch 1996), as FDI stock jumped from 3% of gross domestic product in 1980 to 7% in 1990 (Jungnickel 1993).

Political economists have devoted increasing attention to this aspect of the globalization of the U.S. economy. A rich tradition of research has examined corporate behavior in the multinational context (Pauly & Reich 1997), the political conflicts over FDI (Yoon 1990), the transfer of organizational culture (Florida & Kenney 1991), and the locational decisions of multinational corporations — what is commonly called "the theory of FDI" (Coughlin, Terza & Arromdee 1991; Dunning & Rugman 1984). However, much less research investigates FDI's distributional consequences. Specifically, scholars have not fully examined how the growth of inward FDI affects American workers.

Our goal in this article is to redress this omission. First, we review past research's unsettled assessment of inward FDI's effects on labor. Second, extending Gordon, Edwards, and Reich's (1982) social structures of accumulation framework, we frame our analysis with the theory of spatialization, which connects the globalization of the economy to the spatial restructuring of work and anticipates the likely consequences of FDI for labor (cf. Wallace & Brady forthcoming). Third, we conduct a pooled time-series analysis of the forty-eight contiguous American states from 1978 to 1996 to assess the effects of inward FDI

on three sets of labor outcomes: organizational capacity, labor dissent, and economic standing. Departing from previous research, we examine how inward FDI impacts *all* workers in the economy (not simply those working in foreign-affiliated firms) by examining aggregated labor outcomes. Finally, we discuss the implications of our research for theoretical debates on spatialization, globalization, and patterns in work and labor in the contemporary U.S.

Previous Research

Numerous studies examine the consequences of FDI for workers who are directly employed in foreign-affiliated firms. This research serves as a valuable source of knowledge on work conditions within foreign-affiliated firms and as the best starting point for an analysis of FDI's impact on American workers as a whole. However, the research suffers from inconclusive findings, a lack of empirical breadth, and insufficient theoretical explanations. Further, it provides little insight into the broader implications of FDI for workers who are not directly connected to foreign-affiliated firms. Extant research provides few firm conclusions about the conditions of labor, being sharply divided between optimistic, pessimistic, and mixed accounts of FDI's impact. We now briefly review each of these accounts.

Optimistic accounts by economists and public policy analysts assert that the growth of FDI in the U.S. is a positive development, providing many benefits to American workers. In a series of pieces, Edward Graham (1991, 1996) and Graham and Krugman (1991, 1993) contend that U.S. affiliates of foreign firms tend to pay higher wages, provide more generous compensation packages and better job security, and invest more in training per worker than comparable domestic employers (see also Krugman 1996; McCulloch 1993; Womack, Jones & Roos 1990).[2] In turn, numerous scholars claim that the nationality of corporations is becoming increasingly irrelevant and that state and local governments should make the attraction of FDI a key component of their economic development programs (Ohmae 1990, 1995; Reich 1992).

A second line of research on FDI and labor is more pessimistic about the impact of inward FDI on labor. Numerous ethnographic studies conducted from within foreign-affiliated firms present a less sanguine account of the working conditions in these firms (Drache 1996; Graham 1993, 1995, 1997; Milkman 1991a, 1991b, 1992; Perrucci 1994; Rinehart, Huxley & Robertson 1995, 1997). In her study of a Subaru-Isuzu plant in Indiana, Laurie Graham illustrates that the Japanese-owned firm invokes the rhetoric of "team" to construct a hegemonically anti-union, exploitative work arrangement. Graham highlights numerous practices that negatively affect labor in these plants: preemployment screening to filter out pro-labor sentiments, training and orientation to elicit worker compliance, and adverse health conditions. She is critical of optimistic scholars for their unquestioned

acceptance of company rhetoric regarding worker participation, work teams, and intellectual involvement (see also Fantasia, Clawson & Graham 1988) and for their failure to appreciate the reality of the physically demanding work on the shop floor in many foreign-affiliated firms. In addition, these researchers note that foreign-affiliated firms utilize temporary, non-unionized, immigrant and unskilled labor to reduce production costs (Graham 1997; Milkman 1991a). Although many of the optimistic accounts argue that foreign-affiliated firms do not discourage union organization, the pessimistic accounts find that unionization is vigorously resisted. Graham observes that over time the "team" concept erodes as worker safety, compensation, and labor-management relations deteriorate. These ethnographies and plant-level studies provide a starkly different portrayal compared to management rhetoric and optimistic accounts of FDI.

A third strand of research offers a mixed account of FDI for labor outcomes. Influential research on Japanese transplants in the midwestern U.S. by Florida and Kenney (1991) has derived mixed, sometimes inconsistent, conclusions, leading to an unsettled picture of the effects of FDI for labor (Florida 1995; Kenney & Florida 1993; see also Besser 1996). While impressive in many respects, this research remains ambiguous about FDI's effects on labor. On one hand, these authors identify several adverse outcomes for labor: worker exploitation and unrest, inconsistent wage structures, the use of contingent labor and outsourcing, anti-union campaigns, race and gender discrimination, and worsened conditions for workers in supplier firms. They pessimistically stress that Japanese transplants are part of a new industrial revolution: "Far from being romantic or naive, this view recognizes quite explicitly that the new industrial revolution exploits the worker more completely and totally than before" (Kenney & Florida 1993:17).

Simultaneously, however, Florida and Kenney convey several positive conclusions about FDI: the ease of worker adaptation to the Japanese model, the "intelligence-oriented" character of production, relatively high job security, and worker participation in management decisions. In addition, they argue that Japanese investment in the U.S. economy will revitalize its declining industrial sector. Florida (1995) summarizes this view by stating: "The evidence is clear: international investment stands ever more clearly as a key determinant of domestic productivity and of economic success in the global economy. The inflows bring good jobs as well as new technologies and management practices to the host country" (63). Although Florida and Kenney seek to provide a balanced view of FDI's impact on workers, the result is a set of seemingly contradictory conclusions and an unsettled assessment of how FDI affects labor.

Collectively, these various accounts display several limitations. First, the studies have adduced a set of inconclusive and contradictory results about the implications of FDI for labor. In part, the contradictory findings may be a result of the different methodological strategies of optimistic and pessimistic accounts. However, a broader empirical test is needed to more effectively assess FDI's effects on labor.

Second, these studies focus almost exclusively on the microlevel outcomes for workers employed in a single foreign-affiliated firm or patterns among workers across foreign-affiliated firms. What has been neglected is an understanding of how FDI affects labor in the region or state (for partial exceptions, see Perrucci 1994; Perrucci & Stohl 1997). More research is needed to examine the broader, macrolevel implications for workers in the economy as a whole. Third, scholars have disproportionately emphasized Japanese-owned affiliates even though Japan remains only the second-largest foreign investor and nearly two-thirds of inward FDI originates in Europe (Sassen 1991). Japanese affiliates also provide a unique cultural orientation that likely reflects particular practices of Japanese business (Lincoln & Kalleberg 1990) and is not generalizable to FDI overall. Fourth, scholars have failed to disentangle the differential effects of manufacturing versus nonmanufacturing FDI on labor. Research on FDI has been dominated by plant- and industry-level studies in the manufacturing sector. Few scholars have examined the nonmanufacturing sector at all, and none have undertaken a serious comparison between the two sectors. A study examining both sectors would scrutinize whether the manufacturing sector has unique beneficial "reindustrializing" effects (Kenney & Florida 1993; Reich 1992). Such a study is increasingly necessary, as nonmanufacturing FDI has recently surpassed manufacturing FDI (Sassen 1991) and as the manufacturing sector as a whole has declined in the U.S.

Fifth, and most important, few researchers situate their studies within a broader theoretical framework that accounts for patterns of control, conflict, and resistance among American workers. Florida and Kenney's post-Fordist theory is a partial exception to this pattern, but it does not adequately account for the historically unique confluence of capital mobility and labor control strategies that characterizes the ascendance of the global economy. As a result of this theoretical shortcoming, scholars fail to assess how globalization fits into dominant patterns in the working world and how much globalization matters relative to other labor trends. In the next section, we advance a theory of spatialization that seeks to connect the globalization of the economy to broader, historical forces shaping the organization, stratification, and control of work in the United States.

Social Structures of Accumulation and Spatialization

Gordon, Edwards, and Reich (1982) advanced the social structures of accumulation (SSA) framework to understand the dynamics of capitalist development and capital-labor conflict in the U.S. According to SSA theory, capitalist development is characterized by long swings of economic expansion and contraction of about fifty years in duration. Each long swing represents the exploration, consolidation, and decay of an institutional environment favorable to the accumulation of

capitalist profits in a historical period. Gordon and his colleagues identify three successive SSAs in American history: proletarianization (the transition from self-employed artisan to wage worker); homogenization (the leveling of skill differentials through the technological restructuring of work); and segmentation (the restratification of the labor force along occupational, industrial, gender, and class lines). Each SSA is characterized by specific market arrangements, core technological systems, monetary and credit systems, patterns of state involvement, and institutional arrangements for managing class conflict. Further, each SSA contains a dominant control system that manages the contested terrain of conflict between workers and capitalists in a manner that is consistent with the other institutional features of the SSA. Edwards (1979) identified three major control systems: simple (entrepreneurial/hierarchical) control during proletarianization; technical control during homogenization; and bureaucratic control during segmentation.

Gordon, Edwards, and Reich's (1982) model does not speculate about historical developments beyond the early 1980s. While claiming that the segmentation SSA with its regime of bureaucratic control was undergoing a period of decay — a claim few social scientists would dispute today — they did not provide an outline of the new regime. Subsequent researchers have pondered whether, as Gordon and his colleagues suggest, the 1980s and 1990s represent the exploration phase of a new social structure of accumulation (Bowles, Gordon & Weisskopf 1990; Houston 1992; Kotz, McDonough & Reich 1994; Reich 1997). Wallace and Brady (2000) extend SSA theory by identifying the emergent SSA of *spatialization*, which involves the spatial restructuring of work. We follow their presentation for three reasons. First, unlike most theorists of the new SSA since Gordon, Edwards, and Reich (1982), these authors refocus the debate on capitalists' drive to assert control over labor and the differential class capacities that result from this pursuit. Second, spatialization explicitly acknowledges globalization as a significant determinant of labor outcomes. While Wallace and Brady agree with Gordon's (1994) contention that globalization by itself does not constitute a new SSA, they argue that globalization is an important component of a broader SSA. Third, Wallace and Brady link spatialization to the concomitant rise of a *technocratic control system* whereby managers act as technicians and experts to manipulate technology, information, and knowledge (cf. Burris 1993). Technocratic control is essential to facilitate the control and oversight of labor from great distances.

Spatialization centers on employers' constant quest for the optimal spatial arrangement of their business operations in order to simultaneously maintain the desired proximity to labor markets, natural resources and raw materials, and consumer markets.[3] No longer bound by conventional temporal or spatial constraints in the arrangement of work, employers utilize *spatial relocation* or threats of relocation to control workers and limit their demands. While extant research

on globalization as an element of spatialization emphasizes capital mobility within and beyond the U.S. (e.g., Grant & Wallace 1994), the theory also incorporates the global and multinational quality of existing capital within the U.S. (e.g., Grant & Hutchinson 1996). Thus spatialization takes many forms, including deindustrialization, capital flight, and redoubled efforts by multinational corporations (MNCs) to create networks, joint ventures, and transnational investments. A significant aspect of multinational activities is the surge in foreign direct investment, particularly the interpenetration of capital among the advanced nations of North America, Europe, and Japan. Spatialization theorists argue that employers' ultimate goal in pursuing spatialization is not spatial relocation itself, but rather enhanced capitalist class capacities and a mature system of flexible accumulation.

Primarily, spatialization and technocratic control enhance the class capacities of capitalists relative to workers. The new SSA empowers the managerial bureaucracies of multinational corporations to strengthen their control and power over labor while decentralizing production, a phenomenon that Harrison (1994) refers to as "concentration without centralization" (8). Gordon (1996) argues that growing corporate bureaucracies are the key source of power in employers' quest for control and suppression of labor. Thus technocratic control innovates and elaborates the bureaucratic system that existed under segmentation by allowing managers to impose a neo-Taylorist system of supervision from great distances while further augmenting their power. In addition, spatialization accelerates tendencies toward globalization and undermines the basis for the empowerment of workers by creating a "spatially dispersed, yet globally integrated organization of economic activity" (Sassen 1991:3). Under spatialization, workers are separated from coworkers in the host country — and perhaps multiple other countries in which a company owns facilities — by national, cultural, and linguistic divisions. These divisions reduce workers' class capacities by both undermining communication among workers and obscuring the bases for class solidarity. Thus the contours of the emerging SSA are based fundamentally on "the strengthening of capital relative to labor" (Lipit 1997:13).

Second, spatialization and technocratic control foster a mature system of flexible accumulation and flexible labor processes. Flexibility provides new advantages to employers and overcomes the rigid Fordist, bureaucratic regime by creating wage flexibility, employment flexibility, and functional flexibility (Rosenberg 1991; Wood 1989). Rubin (1995, 1996) argues that these new sources of flexibility have eroded the long-term social contract and job security of the capital-labor accord as management more vigorously resists unions, seeks to lower labor costs, and creates new forms of labor segmentation. As a result, flexibility has given rise to contingent, part-time, and temporary labor, waves of downsizing, and deindustrialization (Smith 1997). Wallace and Brady (forthcoming) argue that spatialization and technocratic control function as the key institutional forces that

lead to flexible accumulation and contribute to what Harrison (1994) calls the "dark side of flexible production" (12).[4]

In sum, spatialization theory suggests that heightened class capacities and flexible accumulation negatively affect labor, but a number of more specific causal mechanisms remain to be identified. Specifically with regard to FDI, the spatialization perspective suggests there might be numerous negative consequences of FDI for workers in the aggregate labor force as spatialization emerges, consolidates, and becomes the dominant SSA in contemporary U.S. capitalism.[5] First, higher levels of FDI are likely to diminish the *organizational capacity* of workers. The vast majority of foreign-affiliated firms are anti-union and tend to locate in areas where the threat of future union organization is remote. The literature on unionization as a deterrent to FDI provides a mixed account (cf. Perrucci 1994), as many states that are traditionally highly unionized often are also states that have been successful in attracting FDI. On the whole, however, foreign affiliates prefer to locate in rural "greenfield areas" where union presence is weak and where employers can instill an anti-union culture. Even when a strong institutional history of unionization exists in a company, large multinational foreign investors vigorously resist unionization in newer facilities. These demonstration effects of anti-union FDI are likely to be a powerful factor in dissuading the unionization of other workers in the state as suppliers to the foreign affiliate and other domestic employers deunionize. Further, such examples simply politicize the presence of unions and create a climate in which they are not likely to thrive. Besides the explicit anti-unionism of foreign affiliates, organizational capacity is likely to be negatively affected by FDI's search for a flexible workforce and the enhanced class capacities of employers relative to workers. Foreign-affiliated firms rely heavily on flexible labor processes and are controlled by powerful technocratic managers — both of which negatively influence unionization. In short, FDI is a key feature of spatialization that fosters flexibility, enhanced capitalist class capacities, and anti-unionism, and it should undermine the organizational capacity of the aggregate labor force.

Second, inward FDI is likely to diminish the formal expression of *labor dissent* among workers. Even though Graham (1995) and others have shown that informal, shop-floor expressions of labor unrest are common within foreign affiliates, formal expressions of dissent require greater risk to workers and more concerted efforts at mobilization. Foreign affiliates compound the risk factor and undermine the capacity to mount expressions of dissent both within and outside the foreign affiliate. By their very nature, foreign affiliates have demonstrated to workers that time and distance are not obstacles to the relocation of their facilities. Workers who express their discontent might reverse the flow of foreign investment and other related economic activity that state governments have worked so hard to attract. State political and business elites are likely to suppress expressions of worker discontent that might discourage investment in capital-

starved state economies. In addition, FDI reflects the "social distancing" of the relationship between capital and labor. In a foreign affiliate, ownership and upper management are not located in close geographical proximity to workers. In turn, decisions about workers' conditions and contracts are made by remote technocratic managers (Burris 1993) who do not regularly interact with workers and who cannot be held readily accountable. Capital's commitment to local workers and communities is attenuated by the ever-present threat of relocation and enhanced class capacities. In addition, the social distancing of the capital-labor relationship diminishes U.S. workers' recourse to federal agencies such as the National Labor Relations Board or the Federal Mediation and Conciliation Service to redress problems of pay and benefits, working conditions, or disciplinary issues. We suspect that the curbing of labor dissent in foreign-affiliated firms more broadly fosters a pro-business (i.e., anti-union) climate that delegitimizes the expression of worker grievances among U.S. workers in domestic firms. Thus the rise in FDI precipitates the muting of labor dissent throughout the workforce.

Finally, despite claims by optimistic researchers, FDI might plausibly lead to a decline in the *economic standing* of labor. Most inward FDI comes to the U.S. from advanced industrial countries, which have highly organized, highly paid workers. In turn, foreign affiliates often anticipate labor savings by locating strategically in the greenfield areas of the U.S. Foreign companies also locate in the U.S. to gain better access to consumer markets and to circumvent domestic content laws that require a certain percentage of a product be manufactured in the U.S. in order to avoid tariffs. As a result, foreign affiliates seek a compliant and flexible workforce that will not interfere with their goal of pursuing profit maximization. A few scholars trace the causal mechanisms whereby the rise in FDI fosters flexible accumulation and hence the decreased economic standing of workers (e.g., Alderson 1997). Budros (1997) finds that foreign consolidations, unlike domestic ones, significantly cause the adoption of downsizing programs — which are often used to dismiss expensive workers. Sassen (1991) argues that the rise in FDI polarizes the income and occupational distribution; causes a growth in temporary, part-time, and contingent workers in clerical, service, and goods-producing firms; and erodes systems of job security, health benefits, and social wages. Moreover, the economic standing of workers is generally threatened by the enhanced class capacities of capitalists that the rise in FDI and spatialization further encourage. As labor becomes weaker and management becomes stronger, efforts to raise the economic standing of workers are more prone to failure. Because FDI catalyzes and encourages the rise in flexibility and the enhancement of capitalist class capacities, we expect these effects to spill over beyond the walls of the foreign affiliate to the entire labor force. These observations lead us to expect a negative impact of FDI on labor's organizational capacity, labor dissent, and the economic standing of workers.

Methods

We investigate the effects of inward FDI on labor with a pooled time-series analysis of the 48 contiguous American states from 1978 to 1996. The data for this analysis are gathered from a variety of publicly available statistical sources. The data file includes 19 years for each of the 48 states, resulting in a total of 912 observations.[6] Pooled time-series analysis is an appropriate and accessible method for measuring dynamic historical trends such as the increase in globalization and its effects on labor across the American states. The period under analysis exhausts the possible number of years for which state-level data on FDI are available. In addition, the period is ideal for our purposes because it spans the periods before and after the large surge in FDI that occurred in the late 1980s. Further, the time period incorporates considerable variation in both national and state political economic regimes.

Based on analyses with LIMDEP, Breusch and Pagan's Legrange Multiplier and the Likelihood Ratio tests informed us that ordinary least squares (OLS) would be inappropriate because of heterogeneity bias — the confounding effects of unmeasured time-invariant, state-specific variables — which is likely to plague OLS estimates with this type of data (Greene 1993).[7] Utilizing Hausman's Chi-Square Test, we determined that fixed-effects models (FEMs) are preferable to random-effects models for every model presented in this article. Consequently, we report the results of FEM analyses (also often referred to as the least squares with group dummy variables models). The FEM takes the general form

$$Y_{it} = \Sigma(\alpha_i D_i) + \beta_{it} X_{it} + \varepsilon_{it},$$

where Y_{it} represents the dependent variable in state i and year t; D_i represents a vector of state-specific indicator variables for each of the 48 states with individual specific constants α_i; X_{it} represents a vector of independent variables with coefficients β_{it}; and ε_{it} is the error term. In six of the models reported below, serious temporal autocorrelation existed which rendered the classical OLS error term inappropriate (as evidenced by a high rho). In these six models only, we estimated a first-order autoregression (AR1) to correct for this autocorrelation (Greene 1993). In the remaining models, the classical OLS error term was utilized. This fixed-effects strategy allows us to model the general effects of FDI, while respecting the intranational variation as called for in the study of globalization (Sassen 1998).

We now turn to a discussion of the variables in the analysis. In the appendix, we provide the descriptive statistics, descriptions, and sources for all variables used in the analysis. All variables are measured at the state level.

DEPENDENT VARIABLES

We evaluate three sets of dependent variables that we consider to be broadly representative of labor outcomes (Wallace, Griffin & Rubin 1989). Altogether, we assess six dependent variables, two each representing organizational capacity, labor dissent, and economic standing.

Our first measure of the organizational capacity of labor is *union organizational effort*, which is the percent of the nonunionized labor force that successfully petitions to hold a union representation election sponsored by the National Labor Relations Board (NLRB). This measure reflects the effort of workers to mobilize for union representation and petition for the right to collectively bargain with their employers regarding work conditions. Our second measure, the *percent change in union membership*, represents the annual rate of change in the number of workers represented by labor unions. This is a conventional measure of unionization and indicates the relative strength of labor organization in a state.

Our two measures of labor dissent tap formal expressions of labor unrest that we suspect are hindered by the presence of FDI. The *union election win rate* represents the percentage of NLRB-sponsored union representation elections that were won by pro-union forces. Waging and winning a union organization campaign necessarily represents the culmination of a substantial degree of formal labor unrest with employers. Further, the act of voting for a union constitutes significant symbolic protest against working conditions. The *worker grievance rate* is a measure of the number of unfair-labor-practice cases filed with the NLRB per 1,000 workers in the state. This measure taps the extent to which (typically) unionized workers mobilize to make a formal complaint of unfair labor practices against their employer. Although many workers may express dissatisfaction with working conditions, these two measures indicate a threshold of mobilization to express substantial dissent. Importantly, both of these activities are often undertaken against severe opposition by management and with substantial risk to workers.

Our first measure of the economic standing of labor, *real hourly earnings*, represents the hourly earnings of production workers after controlling for inflation.[8] Although this measure applies directly to production workers, it is conventionally viewed as a general measure of the economic standing of workers as a whole. *Labor's share* is the ratio of a state's total compensation over the gross state product and thus represents labor's share of total income in the state economy. This measure is comparable to measures of labor's share developed at the national or industrial level (Kalleberg, Wallace & Raffalovich 1984). These two measures capture somewhat different dimensions of workers' economic standing. While real hourly earnings captures only direct economic rewards via wages of production workers, labor's share encompasses not only wages but

also other types of compensation, such as health care and fringe benefits, for a wider spectrum of workers.

KEY INDEPENDENT VARIABLES

There are several considerations in the measurement of foreign direct investment. The first is that available state-level data on FDI take two forms: gross market value and the total number of workers employed by foreign affiliates. Several problems arise with the market value data, however. First, the series ends unexpectedly several years earlier than that for employment data. Second, the data are not differentiated into manufacturing and nonmanufacturing sectors throughout the period. Third, we cannot identify any suitable series on domestic investment in the state, which would be necessary to standardize the proportion of investment that is foreign-affiliated. The series on FDI-related employment, on the other hand, is not afflicted with any of these problems: the series exists for the entire period of our analysis; it retains the manufacturing-nonmanufacturing distinction throughout the period; and it can easily be standardized by the total number of workers in the state to derive a proportion of workers employed by foreign affiliates. The employment series contains an additional advantage. Because our focus in this article is on understanding the implications of FDI on labor outcomes, an employee-based measure is desirable and corresponds with the measurement of the six dependent variables. For all of these reasons, we opt for the employee-based FDI series.

Having resolved this first issue, our second consideration is how to operationalize the employee-based measures. Two viable alternatives present themselves: the lagged value of the percentage of workers in a state who are employed by foreign affiliates, or the annual percentage change in such a measure.[9] We contend that a lagged value operationalization is more theoretically valid for measuring the effects of FDI as a component of spatialization and globalization. First, because we are interested in the effects of FDI on labor, it is pertinent that we measure the actual percentage of workers employed in foreign-affiliated firms. To measure the extent of globalization in a state's economy, we need to assess what proportion of the employees are directly affected by foreign ownership. For our purposes, how quickly or slowly that proportion is changing is less relevant than the actual level of that proportion. Second, our interest in FDI as part of a broader, gradual process necessitates our measurement of the actual level rather than a rate of change. A rate of change between the previous and present year reflects only the immediate impact of one year's growth or decline, whereas the value in the previous year gauges the cumulative impact of the FDI. Hence our primary analyses utilize the lagged value of *FDI as a percentage of total employment*, which represents the percentage of all workers in a state employed in foreign-affiliated firms.[10] Despite the theoretical choice to use the

lagged values of FDI in our main analyses, we show the results of supplementary analyses using both the lagged values and rates of change for comparison purposes.

As suggested above, we partition the effects of FDI employment into its manufacturing and nonmanufacturing components throughout our analyses. We conduct these analyses to improve upon extant studies that focus only on foreign-affiliated manufacturing plants and to test whether manufacturing and nonmanufacturing FDI have different effects on labor outcomes. Hence we also include the lagged values of *manufacturing FDI as a percentage of employment* and *nonmanufacturing FDI as a percentage of employment*. We use the lagged value of these FDI measures in order to avoid potential issues of simultaneity between FDI and the dependent variables and to approximate the length of time that it might take for FDI to have an impact on labor.

CONTROL VARIABLES

We control for several variables identified by others as key determinants of labor outcomes (e.g., Fiorito & Greer 1982). By controlling for these determinants, our models gauge the effects of FDI net of other labor processes. Also, because we employ an FEM strategy, our models control for any other state-specific heterogeneity not captured by the independent variables.

In our analyses, we include several measures that we regard as controls for factors likely to be associated with state variation in labor outcomes. First, we include *union density*, lagged one year, to control for varying levels of strength in organized labor within a state. Next, we include the *percent change in real wages*, which is measured as the annual rate of change in real hourly earnings for production workers. Because it would be redundant to include this variable in the models estimating economic standing (Table 3), for these models we substitute the *percent change in productivity*, which is the annual rate of change in gross state product (GSP) per employee.[11] We also include a measure of the state's *unemployment rate* to control for fluctuations in the state's economy. The *high school graduation rate*, measured as a three-year moving average, is the percentage of adults over 25 years old with a high school degree.[12] This variable measures the educational quality and human capital of the labor force. Next we include *percentage urban*, which is the percentage of a state's population living in urban areas, a factor likely to be associated with several of the labor outcomes.

We also include another set of variables representing relevant aspects of the state's political economy confronting workers. We include a dummy variable if a state has *right-to-work* legislation in a given year. Right-to-work laws are key labor market institutions shaping prospects for organized labor that vary both temporally and spatially. In addition, we created a *Democratic index*, which is the mathematical average of the percentage of seats held by Democrats in the

lower and upper houses of a state legislature and whether a Democrat is governor (the latter is scored 1 for a Democratic governor and 0 for a Republican). Finally, we include a dummy variable for *gubernatorial election year*, because it is likely that, regardless of party, the incumbent in the governor's office will behave differently toward labor unions and corporate interests in gubernatorial election years. Further, during election years, labor dissent is more likely and the economic compensation of workers is more politicized.

Analysis

We begin by summarizing trends in FDI over the time period of the analysis. Figure 1 displays the geographic distribution of foreign-affiliated employment in the 48 contiguous states in 1977 and 1995, the first and last years we measure FDI's impact in our statistical analysis.[13] This figure shows that while foreign penetration is not large in magnitude, its levels have increased substantially in almost every state throughout the period. In fact, every state showed an increase between 1977 and 1995 in the percentage of employment in foreign-affiliated firms. Only six states (Delaware, New Jersey, New Hampshire, North Carolina, South Carolina, Vermont) had more than 2% of their workers employed by foreign affiliates in 1977. By 1995, however, all but four states (Montana, North Dakota, South Dakota, Nebraska) had exceeded 2%. Indeed, by 1995 many states had surpassed 3.5% in the amount of their workforce employed by foreign affiliates. The dramatic growth of FDI is most evident on the East Coast and is led by states like North Carolina and South Carolina, where over 6.5% of workers are employed in foreign affiliates. FDI grew most precipitously in the late 1980s, what is commonly called the "surge period" in FDI (Graham & Krugman 1995), and remained stable in the 1990s. The escalation in FDI was initially driven by manufacturing FDI, but since 1986 it has been driven more by nonmanufacturing FDI. Since 1986 the majority of employees in foreign-affiliated firms have worked in nonmanufacturing sectors (e.g., wholesale and retail trade, services, oil, mining, and finance).

We now turn to the results of our multivariate time-series analysis of FDI's effects on labor. In Table 1, we show the analysis of FDI's effects on the two indicators of organizational capacity — union organizational effort and percent change in union membership. Each set of analyses alternates three measures of FDI as a percentage of total state employment: total FDI, manufacturing FDI, and nonmanufacturing FDI. In this and subsequent tables, we report the unstandardized fixed-effects coefficients, the standardized coefficients (semistandardized when the independent variable is dichotomous), and the t-scores for each variable.

FIGURE 1: Percentage of Workers Employed in Foreign-Affiliated Firms in the Contiguous U.S.
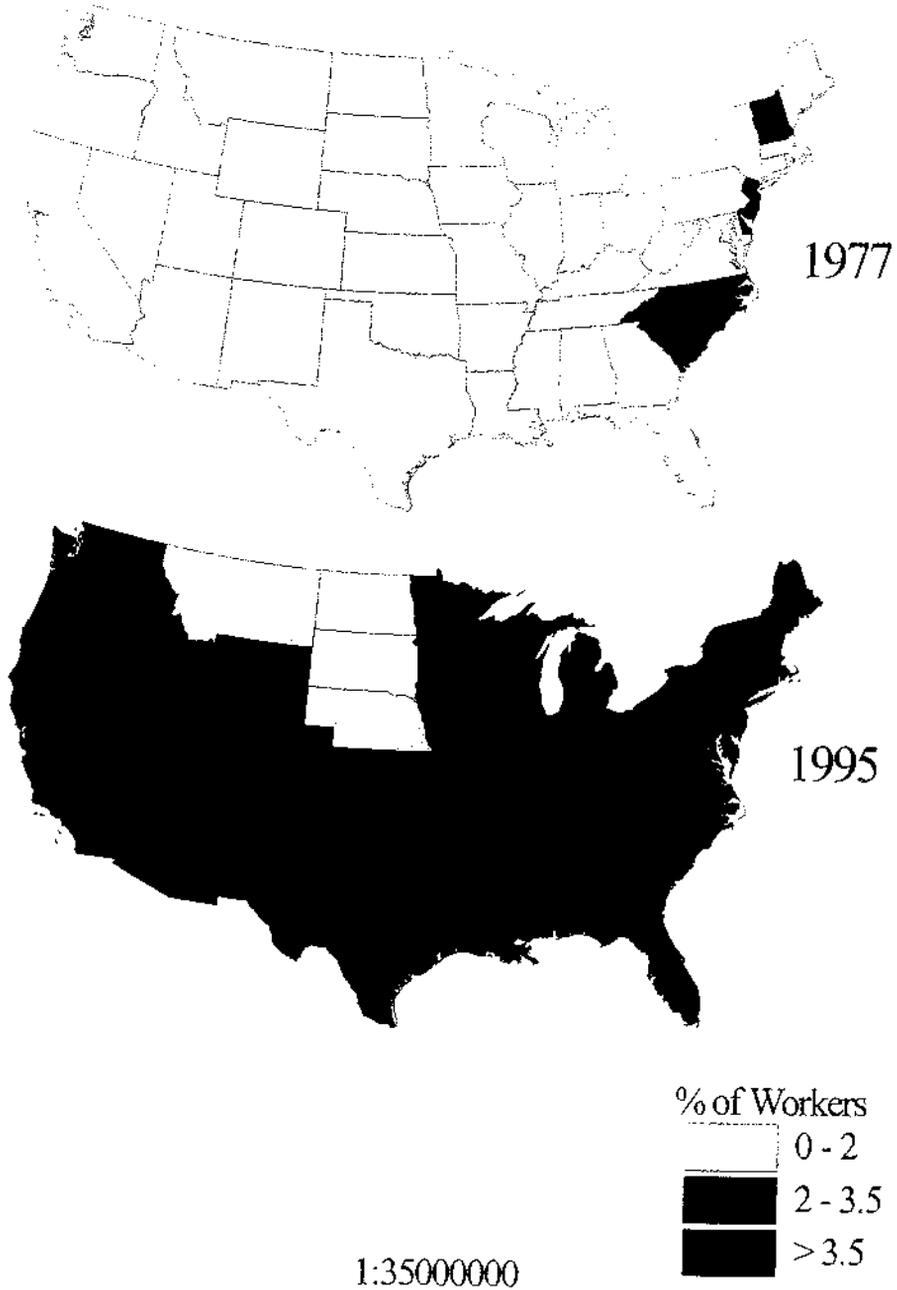

1977

1995

% of Workers
0 - 2
2 - 3.5
> 3.5

1:35000000

TABLE 1: Determinants of Organizational Capacity, 1978-1996

	Union Organizational Effort			Percent Δ Union Membership[a]		
Union density	.015**	.016**	.015**	-2.131**	-2.097**	-2.117**
(t-1)	.384	.410	.384	-1.465	-1.442	-1.455
	(4.393)	(4.630)	(4.262)	(-12.532)	(-12.369)	(-12.350)
Percent Δ Real wages[a]	-.004	-.005	-.005	-.185	-.197	-.210
	-.028	-.035	-.035	-.035	-.038	-.040
	(-1.289)	(-1.416)	(-1.381)	(-1.222)	(-1.191)	(-1.270)
Unemployment	-.027**	-.028**	-.026**	-.845**	-.901**	-.855**
rate	-.209	-.217	-.202	-.176	-.188	-.178
	(-6.591)	(-6.890)	(-6.295)	(-4.149)	(-4.442)	(-4.135)
H.S. graduation	-.022**	-.024**	-.023**	-1.000**	-1.072**	-1.082**
rate (ma)	-.666	-.726	-.696	-.813	-.871	-.879
	(-9.504)	(-11.212)	(-9.836)	(-8.596)	(-9.955)	(-9.471)
Percent urban	.009**	.008**	.010**	.269†	.218	.291†
	.737	.655	.819	.591	.479	.640
	(2.915)	(2.627)	(3.333)	(1.827)	(1.472)	(1.919)
Right to work	-.048	-.057	-.039	-5.389†	-5.858*	-5.395†
	-.178	-.212	-.145	-.537	-.584	-.538
	(-.834)	(-.990)	(-.671)	(-1.871)	(-2.034)	(-1.859)
Democratic index	-.0003	-.0003	-.0004	-.004	-.003	-.006
	-.022	-.022	-.032	-.009	-.007	-.013
	(-.818)	(-.798)	(-.932)	(-.207)	(-.160)	(-.270)
Gubernatorial	-.005	-.005	-.005	-.392	-.392	-.373
election year	-.019	-.019	-.019	-.039	-.039	-.037
	(-.383)	(-.369)	(-.354)	(-.571)	(-.569)	(-.541)
FDI as percent of total	-.023**			-1.083**		
employment	-.150			-.189		
(t-1)	(-2.731)			(-2.621)		
Mfg. FDI as percent of		-.013			-1.063*	
employment		-.062			-.137	
(t-1)		(-1.351)			(-2.228)	
Nonmfg. FDI as percent			-.040**			-.881
of employment			-.114			-.073
(t-1)			(-2.740)			(-1.208)
Rho	.116	.120	.117	-.031	-.033	-.033
Adjusted R²	.534	.531	.534	.170	.168	.168

Note: Unstandardized fixed-effects coefficients are listed first, followed by standardized or semistandardized coefficients. T-scores are in parentheses.

[a] Percent Δ is a rate of change, such that $\%\Delta = 100[(X_t - X_{t-1})/X_{t-1}]$.

† p < .10   * p < .05   ** p < .01 (two-tailed tests)

Turning first to the analyses of organizational effort (columns 1-3), we notice some anticipated patterns among the control variables. As might be expected, union density and percent of the state that is urbanized are positively and significantly associated with union organizational effort; unemployment and the rate of high school graduation are negatively associated. This indicates that unions are more likely to make the effort to organize the unorganized in states that already have a significant union presence, are highly unionized, have low rates of unemployment, and have relatively low human capital among the labor force. The analyses show no significant relationship between any of the other control variables and union organizational effort, although the negative coefficient for change in real wages has a t-score above 1.

All three FDI variables show the anticipated negative relationship with union organizational effort, although only total FDI and nonmanufacturing FDI show a statistically significant effect. Manufacturing FDI is not significant, although the negative coefficient is in the anticipated direction and the t-score is well above 1. Holding the other variables constant at their mean, total FDI is expected to decrease union organizational effort by about .150 standard deviations. With the average state workforce during the period (1,729,055 workers), a standard deviation increase in total FDI (1.754% of workers) results in about 698 fewer workers registered for unionization elections. This is a fairly large effect considering that the mean union organizational effort translates into about 6,207 workers in the average state workforce.[14] The growth of FDI in the nonmanufacturing sector is most important for curbing union organizational effort, perhaps because foreign affiliates in this sector exacerbate the historical problems that unions have had in organizing workers in services and nonmanufacturing sectors.

The analysis of the change in union membership (columns 4-6) yields a similar pattern of results. As in the previous analyses, percent urban is positively and significantly associated with changing membership (in two out of three models) and unemployment and high school graduation rates are negatively and significantly associated. Union density, however, shows a significant *negative* effect on changes in union membership. Though somewhat surprising, this result is consistent with previous research using similar model specifications (Griffin, Wallace & Rubin 1986), which find that higher levels of union density represent a "saturation effect" that curbs additional union growth (Bain & Elsheikh 1976).[15] In addition, the right-to-work dummy variable now shows a negative significant effect on changes in union membership, demonstrating that right-to-work laws retard union growth.

All three FDI measures have a negative impact on change in union membership, but the pattern is slightly different from that for union organizational effort. Both total FDI and manufacturing FDI show significant negative effects, while the nonmanufacturing FDI coefficient is not significant. This pattern is likely due to the historically strong presence of unions in the U.S. manufacturing sector and

the fact that foreign investment therefore has a more pronounced adverse effect on union strength in that sector. Holding the other variables constant at their mean, a standard deviation increase in total FDI decreases the percentage change in union membership by about .189 standard deviations. More generally, with a standard deviation increase in total FDI, the expected growth in union membership is lessened by about 1.895% and the expected decline is worsened by about 1.895%. Worker unionization would have grown nearly 2% faster, or declined 2% less quickly, had it not been for the increase in FDI. Overall, Table 1 demonstrates that FDI has significant negative effects on both dimensions of labor's organizational capacity.

In Table 2, we display the determinants of two dimensions of labor dissent, specifically, the union election win rate and the worker grievance rate. First, turning to the union election win rate (columns 1-3), we see that only two of the control variables achieve statistical significance and only at the .10 level: change in real wages and the unemployment rate are negatively associated with union wins in NLRB union representation elections. Both of these results are in a direction consistent with commonsense assumptions about union elections. Surprisingly, however, none of the other control variables are significant. In particular, neither union density nor right to work has any impact on union election win rates. However, both total FDI and manufacturing FDI show the expected negative significant effect. Notably, total FDI's effect is significant at only the .10 level and seems to be aggregating somewhat opposing effects of manufacturing FDI (strongly negative) and nonmanufacturing FDI (positive and nonsignificant). With a standard deviation increase in total FDI, the union election win rate is expected to decline by about .144 standard deviations. More generally, with a standard deviation increase in total FDI, the union election win rate is about 1.63% lower than it would have otherwise been. Clearly, NLRB union election outcomes are strongly influenced by foreign investment in the manufacturing sector. This potentially reflects both the direct influence of the anti-union stance in most of the foreign affiliates as well as an indirect influence that foreign affiliates have for union organizing in domestically owned firms.

A quite different pattern is evident for the worker grievance rate (columns 4-6), that is, the number of unfair-labor-practice cases filed by workers against employers with the NLRB per 1,000 workers in the state. Typically, but not always, these cases are filed in unionized settings; thus the measure is suggestive of formally expressed labor dissent. The analyses show that several of the control variables are significant in the anticipated direction: the worker grievance rate is positively associated with union density and the unemployment rate. The union density result is intuitively understandable, but the unemployment result is not. It seems unlikely that workers would escalate their expressions of labor dissent during times of high unemployment. However, it is plausible that employers would engage in more objectionable actions toward workers during times of high

TABLE 2: Determinants of Labor Dissent, 1978-1996

	Union Election Win Rate			Worker Grievance Rate		
Union density	.018	.043	.078	.464**	.459**	.441**
$(t-1)$	.011	.026	.047	.162	.161	.154
	(.087)	(.210)	(.381)	(2.834)	(2.788)	(2.695)
Percent Δ Real wages[a]	−.333†	−.329†	−.370†	−.067	−.087	−.077
	−.056	−.055	−.062	−.006	−.009	−.008
	(−1.675)	(−1.662)	(−1.860)	(−.524)	(−.681)	(−.603)
Unemployment rate	−.386	−.435†	−.473†	.805**	.749**	.859**
	−.071	−.080	−.087	.085	.079	.091
	(−1.577)	(−1.790)	(−1.905)	(3.529)	(3.268)	(3.765)
H.S. graduation	.126	.105	−.045	−.451**	−.587**	−.435**
rate (ma)	.091	.075	−.032	−.187	−.243	−.180
	(.902)	(.812)	(−.326)	(−2.926)	(−3.943)	(−2.882)
Percent urban	.260	.197	.206	−.018	−.056	.061
	.505	.383	.400	−.020	−.063	.068
	(1.467)	(1.108)	(1.132)	(−.097)	(−.297)	(.328)
Right to work	5.671	5.217	5.007	−13.759**	−14.566**	−13.071**
	.248	.228	.219	−.347	−.367	−.329
	(1.638)	(1.512)	(1.437)	(−4.194)	(−4.390)	(−4.013)
Democratic index	.039	.040	.039	−.013	−.014	−.015
	.075	.077	.075	−.014	−.015	−.017
	(1.570)	(1.643)	(1.576)	(−.615)	(−.665)	(−.715)
Gubernatorial	−.667	−.678	−.649	−.242	−.257	−.026
election year	−.026	−.027	−.026	−.006	−.006	−.001
	(−.806)	(−.821)	(−.784)	(−.580)	(−.619)	(−.488)
FDI as percent of total	−.934†			−1.337**		
employment	−.144			−.119		
$(t-1)$	(−1.881)			(−2.879)		
Mfg. FDI as percent of		−1.569**			−.674	
employment		−.179			−.044	
$(t-1)$		(−2.744)			(−1.223)	
Nonmfg. FDI as percent			.755			−2.591**
of employment			.055			−.110
$(t-1)$			(.862)			(−3.243)
Rho	−.043	−.048	−.043	.512	.528	.498
Autoregression				AR(1)	AR(1)	AR(1)
Adjusted R^2	.061	.066	.058	.614	.596	.628

Note: Unstandardized fixed-effects coefficients are listed first, followed by standardized or semistandardized coefficients. T-scores are in parentheses.

[a] Percent Δ is a rate of change, such that percent $\Delta = 100[(X_t - X_{t-1}) / X_{t-1}]$.

† p < .10   * p < .05   ** p < .01   (two-tailed tests)

unemployment and therefore might provoke a higher rate of worker grievances, especially among (unionized) workers who have some degree of job security. The high school graduation rate and right-to-work law also negatively affect the worker grievance rate.

Turning to the FDI variables, we find that all three of these indicators have the expected negative impact on worker grievances, but manufacturing FDI is not significant. Instead, nonmanufacturing foreign investment has the strongest impact on worker grievances. The total FDI measure also has a strong, negative effect. With a standard deviation increase in total FDI, the worker grievance rate is expected to decrease by about .119 standard deviations. More generally, with a standard deviation increase in total FDI, the worker grievance rate is about 2.34 less than it would otherwise be (based on the mean of 32.4).

Superficially, this result seems consistent with the optimistic view that foreign affiliates offer agreeable and cooperative employment conditions resulting in fewer worker grievances. However, two considerations undermine this interpretation. First, since most foreign-affiliated firms are anti-union, their workers are probably less likely to file NLRB grievances for fear of reprisal from their employers. This is consistent with the research of Graham (1995) and other pessimistic scholars who find that foreign transplants tend to deprive workers of a voice in speaking out against poor working conditions. Second, considering that the dependent variable refers to *all* workers, not just those in foreign-affiliated firms, the results suggest that the tendency for FDI to suppress the filing of NLRB grievances spills over into domestically owned firms. These results portray a different picture from that for the union election win rate and suggest that foreign affiliates in the nonmanufacturing sector, in particular, have an especially adverse effect on the ability of workers to mobilize grievances against their employers. Our overall conclusion from Table 2, however, is that FDI has a negative effect on both dimensions of labor dissent, although it takes somewhat different forms for the two measures of dissent.

Table 3 displays the effects of FDI on two measures of economic standing, percent change in real hourly earnings and labor's share of income. In both models, we substitute the control variable percent change in productivity for percent change in real wages. Among the determinants of the rate of change in real wages (columns 1-3), the change in productivity has a small, significant positive effect. Somewhat curiously, the unemployment rate has a positive significant effect while the high school graduation rate and percent urban have significant negative effects. These findings are somewhat surprising but are largely a function of the historical idiosyncrasies of the period of analysis (Isaac & Griffin 1989).[16] Despite this anomaly, our analyses of the key independent variables (FDI) remain relevant, since this period captures the era of growth in FDI in the U.S. and the emergence of the new spatialization SSA.

TABLE 3: Determinants of Economic Standing, 1978-1996

	Real Hourly Earnings			Labor's Share		
Union density	−.009	−.009	−.009	.108*	.122**	.090*
(t−1)	−.036	−.036	−.036	.142	.160	.118
	(−1.542)	(−1.641)	(−1.626)	(2.339)	(2.635)	(1.968)
Percent Δ Productivity[a]	.008**	.008**	.008**	−.184**	−.193**	−.193**
	.013	.013	.013	−.099	−.104	−.104
	(3.139)	(3.068)	(3.156)	(−6.010)	(−6.248)	(−6.395)
Unemployment rate	.020*	.019*	.021**	.116*	.096†	.149**
	.024	.023	.026	.046	.038	.059
	(2.504)	(2.394)	(2.610)	(2.110)	(1.740)	(2.700)
H.S. graduation	−.024**	−.026**	−.023**	.089**	.043	.103**
rate (ma)	−.114	−.124	−.110	.138	.067	.160
	(−2.938)	(−3.271)	(−2.816)	(2.817)	(1.465)	(3.374)
Percent urban	−.038**	−.039**	−.036**	−.003	−.014	.037
	−.490	−.503	−.464	−.013	−.059	.156
	(−4.754)	(−4.865)	(−4.577)	(−.082)	(−.340)	(.907)
Right to work	−.093	−.095	−.095	.904	.750	1.197
	−.027	−.028	−.028	.172	.143	.228
	(−.729)	(−.742)	(−.745)	(1.163)	(.959)	(1.545)
Democratic index	.001	.001	.001	.006	.006	.005
	.013	.013	.013	.025	.025	.021
	(.820)	(.733)	(.795)	(1.072)	(1.053)	(.887)
Gubernatorial	−.003	−.003	−.001	−.186	−.183	−.180
election year	−.001	−.001	−.0003	−.035	−.035	−.034
	(−.205)	(−.239)	(−.085)	(−1.004)	(−.983)	(−.977)
FDI as percent of total	−.029			−.404**		
employment	−.030			−.135		
(t−1)	(−1.637)			(−3.611)		
Mfg. FDI as percent of		−.006			−.103	
employment		−.005			−.025	
(t−1)		(−.274)			(−.788)	
Nonmfg. FDI as percent			−.077*			−1.005**
of employment			−.037			−.160
(t−1)			(−2.474)			(−5.167)
Rho	.765	.765	.763	.315	.328	.299
Autoregression				AR(1)	AR(1)	AR(1)
Adjusted R²	.662	.661	.666	.779	.775	.782

Note: Unstandardized fixed-effects coefficients are listed first, followed by standardized or semistandardized coefficients. T-scores are in parentheses.

[a] Percent Δ is a rate of change, such that percent $\Delta = 100[(X_t - X_{t-1}) / X_{t-1}]$.

† p < .10   * p < .05   ** p < .01   (two-tailed tests)

The results for FDI suggest that only the penetration of foreign affiliates in the nonmanufacturing sector negatively affects earnings in a statistically significant way. Although the effect is small relative to other significant determinants in the model, it is noteworthy, since it suggests that the earnings of all workers, not just those in foreign affiliates, are affected. The total FDI measure is not quite significant at the .10 level, and the manufacturing FDI measure does not come close to statistical significance. This analysis, then, clearly shows the advantage of the sector-specific analyses, for it reveals an effect that would have been overlooked by looking only at aggregate levels of FDI. Based on the near significant negative effect of total FDI, a standard deviation increase in total FDI decreases real hourly earnings by about .030 standard deviations. More generally, a standard deviation increase in total FDI reduces real hourly earnings by about five cents. With a 2,000-hour year (50 weeks at 40 hours), a standard deviation increase in total FDI reduces the average annual income (based on the mean of 12.85) for workers by about $100 ($25,800 vs. $25,700). While this effect seems small (almost negligible), three issues must be borne in mind. First, this effect represents $100 per year for every worker in the state, which in the aggregate is not a trivial loss of income for the workers in a state. Second, for consistency, we have calculated this effect using the statistically nonsignificant effect of total FDI in column 1; but the calculated effects for the much larger effect of nonmanufacturing FDI (column 3) would be about 2.5 times as great. Third, even so small a loss is at odds with the prevailing perception created by the optimistic camp that FDI increases the earnings of workers both within and outside the foreign affiliates.

The analysis of labor's share (columns 4-6) reveals similar patterns. Labor's share is negatively related to changes in productivity, which essentially indicates that the rewards of increased worker productivity fall disproportionately to employers. Labor's share is also positively related to union density, the unemployment rate, and the high school graduation rate. These findings are all consistent with our expectations. Unions provide a means of collective organization and a voice to help workers leverage a larger portion of income from their employers (Wallace, Leicht & Raffalovich 1999). Unemployment tends to disproportionately affect lower-skilled, lower-paid workers and simultaneously reduce employer profitability, thus increasing labor's share. The positive effect of high school graduation indicates that workers with higher reserves of human capital augment their share of labor income.

With respect to FDI, all three indicators are in the expected negative direction, but only total income and nonmanufacturing income are statistically significant. In fact, the standardized coefficients for FDI are among the strongest in the model. Labor's share is expected to decline by about .135 standard deviations with a standard deviation increase in total FDI. More generally, with a standard deviation increase in total FDI, labor's share is reduced by about seven-tenths of 1%.

Overall, the results in Table 3 point to the significance of FDI in the nonmanufacturing sector as a key for the two economic-standing variables: inward FDI in the nonmanufacturing sector adversely affects real hourly earnings and labor's share.[17] Our interpretation of this finding is that the growth of foreign-affiliated nonmanufacturing firms (including services, finance, oil, mining, and retail and wholesale trade) has been associated with lower earnings for workers over time.

We find little support for the pessimistic interpretation that foreign direct investment in the manufacturing sector negatively affects workers' economic standing. On balance, the effects of manufacturing FDI on real hourly earnings and labor's share are not statistically different from zero. Though not directly supporting spatialization theory, this finding seriously challenges optimists' arguments that manufacturing FDI has reindustrializing effects for the American manufacturing sector. Indeed, our nonsignificant negative effects contrast sharply with the virtually unanimous view among optimistic scholars that FDI economically benefits workers. The analyses in Table 3 produce no support for the argument that the economic standing of workers in a state's economy as a whole is raised by the higher-paying and better jobs that foreign-affiliated firms allegedly provide (Florida 1995; Graham 1991; Reich 1992).

One final set of analyses is worth mentioning. Mindful of the debates that have animated recent research on foreign investment in dependency research (see note 9), we repeated the analyses in Tables 1-3 adding percent change in FDI (total, manufacturing, nonmanufacturing) in addition to the lagged values that were included in the original models. As discussed earlier, we contend that the lagged value is theoretically more appropriate, because it represents the cumulative impact of foreign direct investment in a state. However, the percent change in FDI represents a more immediate, short-term effect, which arguably might supplant the importance of the lagged value. In Table 4, we replicate the models in Tables 1-3 including these two alternative measures together in the models. These models are identical in all other respects, so, to conserve space, we show only the coefficients for the lagged value and percent change measures of FDI in Table 4. The effect of the lagged values can be interpreted as net of any effects of the percent change in FDI and other independent variables.[18]

The basic theme in these results is clear and can be summarized as follows: The percent change in FDI measures produces a small, occasionally significant, positive effect on a few labor outcomes (but a significant negative effect on real hourly earnings).[19] However, the coefficients for the lagged values of FDI are sometimes lower in magnitude, but they remain generally unaffected in terms of their statistical significance and, when significant, are uniformly larger in magnitude than the coefficients for the percent change measures. A few plausible explanations for this pattern exist. First, while it is likely that the immediate effect of foreign investment does provide a small, short-term benefit to workers

TABLE 4: Comparison of Effects of Lagged Values and Rates of Change of Foreign Investment Variables

Panel A: Total FDI	Union Org. Effort	Percent Δ Union Membership[a]	Union Election Win Rate	Worker Grievance Rate	Real Hourly Earnings	Labor's Share
FDI as percent of total	−.021*	−.870*	−.636	−1.541**	−.073**	−.458**
employment	−.137	−.152	−.098	−.137	−.075	−.153
(t−1)	(−2.372)	(−2.018)	(−1.227)	(−2.886)	(−3.348)	(−3.854)
Percent Δ FDI as percent	.0004	.036†	.050*	−.012	−.002**	.002
of total employment[a]	.025	.060	.073	−.010	−.019	.006
	(.833)	(1.705)	(1.989)	(−.768)	(−3.418)	(.429)

Panel B: Mfg. FDI	Union Org. Effort	Percent Δ Union Membership[a]	Union Election Win Rate	Worker Grievance Rate	Real Hourly Earnings	Labor's Share
Mfg. FDI as percent	−.014	−.629	−1.321*	−.894	−.020	−.159
of employment	−.067	−.081	−.150	−.056	−.015	−.039
(t−1)	(−1.392)	(−1.306)	(−2.267)	(−1.484)	(−.811)	(−1.177)
Percent Δ Mfg. FDI	−.0001	.063**	.036*	−.010	−.0004	.005
as percent	−.009	.149	.075	−.012	−.006	.023
of employment[a]	(−.345)	(4.497)	(2.124)	(−.895)	(−1.168)	(1.205)

Panel C: Nonfg. FDI	Union Org. Effort	Percent Δ Union Membership[a]	Union Election Win Rate	Worker Grievance Rate	Real Hourly Earnings	Labor's Share
Nonmfg. as percent	−.321*	−1.002	1.258	−2.784**	−.145**	−1.048**
of employment	−.994	−.083	.092	−.118	−.071	−.167
(t−1)	(−2.102)	(−1.311)	(1.375)	(−3.116)	(−3.922)	(−5.024)
Percent Δ Nonmfg. FDI	.001†	−.008	.035†	−.006	−.001**	−.002
as percent	.082	−.018	.068	−.007	−.013	−.008
of employment[a]	(1.748)	(−.535)	(1.857)	(−.475)	(−3.371)	(−.400)

Note: Unstandardized fixed-effects coefficients are listed first, followed by standardized or semistandardized coefficients. Each pair of coefficients is based upon a model that also includes union density $(t-1)$, %Δ real wages or %Δ productivity, unemployment rate, high school graduation rate (ma), percent urban, right to work, democratic index, gubernatorial election year, and autoregression (where appropriate). T-scores are in parentheses.

[a] Percent Δ is a rate of change, such that percent $\Delta = 100\,[(X_t - X_{t-1})\,/\,X_{t-1}]$.

† p < .10   * p < .05   ** p < .01   (two-tailed tests)

represented by the percent change measures, this effect is far outweighed by the larger, cumulative effect represented by the lagged value measures. When foreign companies locate in a state, the immediate economic windfall may have some positive effects for workers. However, the lagged value demonstrates that over time, FDI has damaging cumulative effects on most labor outcomes. Second, while the lagged value more accurately reflects the effect of this component of globalization on labor outcomes, it is possible that the rate of change reflects merely the ebbs and flows of the business cycle. Many scholars have noted that FDI flows follow the business cycle: FDI increases during periods of economic expansion and declines during periods of economic contraction (Alderson 1997; Graham & Krugman 1995). This observation suggests that the positive effects of the rate of change variable are confounded with benefits that labor receives during high points in the business cycle. Regardless, even when controlling for the modest, positive effects of the rate of change in FDI, the strong negative effects of the lagged values of FDI remain.

Discussion

One consequence of the dramatic economic globalization in recent years is that the U.S. has experienced unprecedented inflows of foreign direct investment. Until now, researchers have not sufficiently examined how the rise in inward FDI affects American workers. Existing research on this topic has been sharply divided between optimistic, pessimistic, and mixed portrayals. Further, extant research has been restricted to workers employed in foreign-affiliated firms and has largely ignored implications for workers in the economy as a whole. We have addressed this problem in two ways. First, we extended Gordon, Edwards, and Reich's (1982) social structures of accumulation framework to explain and anticipate some of the likely consequences of FDI for workers in the new era of spatialization. Second, we utilized pooled time-series analysis to conduct the most extensive assessment to date of FDI's effects on aggregate labor outcomes. Specifically, we examined the impacts of total, manufacturing, and nonmanufacturing FDI on three sets of dependent variables: organizational capacity, labor dissent, and economic standing.

Taken as a whole, our analyses show a strikingly consistent pattern. We found that at least one dimension of FDI negatively affects all three sets of labor outcomes, more specifically, all six dependent variables. Total FDI affects five out of six labor outcomes (the exception being real hourly earnings); manufacturing FDI affects two out of six labor outcomes (percent change in union membership and union election win rate); and nonmanufacturing FDI affects four out of six outcomes (union organizational effort, worker grievance rate, percent change in real hourly earnings, and labor's share). While FDI is typically not the strongest

effect in the models, the effect is robust and remains after controlling for the percent change in FDI measure and other plausible control variables. Further, even the small effect we find is remarkable when one considers that the number of employees in foreign affiliates is actually relatively small, hovering between 1% and 6% of the labor force of most states for most of the years in the analyses. This suggests that the effects of inward foreign investment are not confined to the employees of foreign affiliates but spill over into a state's entire labor force. In short, by undermining workers' organizational capacity, their willingness to voice labor dissent, and their economic standing, inward FDI becomes part of a broader employer strategy of curbing the resistance of workers. Whether this is a consciously contemplated consequence of foreign investment or a fortuitous byproduct for employers, our results suggest that it is a consequence that makes a real difference for the experiences of workers in a state. Our results are thus more consistent with pessimistic portrayals of the effects of FDI, but they move beyond those portrayals in one important way: Our findings suggest that workers in the state as a whole, rather than those solely employed in foreign affiliates, are adversely affected by the growth in FDI.

We have suggested that a broader theoretical framework is required to adequately explain these findings and to situate them within the larger pattern of events taking place in the global economy. Wallace and Brady's (2000) recent efforts to extend Gordon, Edwards, and Reich's (1982) model focus on the emergence of a new social structure of accumulation called spatialization, which centers on the spatial restructuring of work as a tool of labor control. Spatialization leads to what Harrison (1994) calls "concentration without centralization" — in other words, a more effective concentration of power and control in the hands of employers despite increasing decentralization of the processes of production. In this new SSA, capital is increasingly mobile owing to technological advances in communication and transportation that have eliminated previous spatial barriers in the location of business facilities and the organization of work. In addition to these changes, a global wave of economic liberalization reducing trade and investment barriers has facilitated a surge of foreign direct investment in the United States and other advanced capitalist countries. While providing new opportunities for profit making, several aspects of FDI are compatible with the larger goals of spatialization. We theorize that a host of causal mechanisms potentially mediate the relationship between FDI and negative labor outcomes: the social distancing of the relationship between capital and labor, the search for a pliable, acquiescent and flexible labor force, the vigorous anti-unionism of foreign affiliates, spatial disconnection and cultural divisions among workers, technocratic control, and enhanced class capacities of capitalists relative to workers.

Our research is thus part of a recent stream of empirical research supporting the spatialization argument. These articles have focused primarily on the political

economy of shifts in capital among the American states: the growth and decline of manufacturing employment (Grant & Wallace 1994), the increase in business failures (Grant 1995), changes in new business formation (Grant 1996), and changes in foreign-affiliated manufacturing investment (Grant & Hutchinson 1996). This body of research has generally advanced the claim that the U.S. states are locked in a "second war between the states" in which states compete to provide a favorable business climate for the location of business within their borders. These articles point to such determinants as the organizational capacity of labor, social wage policies, the fiscal capacities of states, and the political/electoral context of states as crucial in the decisions by business to locate, move, or prosper in particular states. The underlying assumption is that increasing spatialization has contributed to the "hypermobility of capital" (Bluestone & Harrison 1982), in which businesses attempt to achieve the optimal spatial arrangement of their facilities in order to take advantage of labor markets, natural resources, raw materials, and consumer markets. A major part of the equation is capital's desire to gain access to a reliable, low-cost, flexible labor force that offers minimal resistance to the prerogatives of capital (Alderson 1997). The logic of the spatialization argument suggests that locational decisions of capital reflect the spatial restructuring of work and are part of a grander strategy by capital to control labor that might ultimately have deleterious consequences for labor. Our research is the first to investigate empirically the macrolevel consequences of spatialization processes for workers; we build upon previous research, particularly by Grant and Hutchinson (1996), by investigating the consequences for labor of foreign investment in the American states. By demonstrating that inward FDI has almost uniformly negative consequences for a variety of labor outcomes, particularly as they spill over the walls of the foreign affiliates into a state's entire labor force, we have provided more evidence that a new social structure of accumulation of spatialization is emerging.

In addition, our analysis moves beyond past research on FDI in several important ways. First, we offer a broader and more comprehensive test of how FDI affects labor. Further, our analysis examines how FDI affects workers in the economy as a whole, not just in individual firms. Our use of aggregated statistics through pooled time-series analysis also allows us to gauge the effects of FDI net of other explanatory variables. We also avoid the limitations inherent in past research that concentrated only on Japanese investment, utilized surveys administered to managers, or neglected the broader implications for labor outside the foreign affiliates. Previous research that took a pessimistic view of FDI was principally based on ethnographic accounts. While this research has been helpful in bringing into focus some of the key problems of foreign affiliates, our study is the first to find quantitative evidence that FDI has broader, damaging effects for labor. Our research provides little support for the optimistic portrayals of FDI. These findings seriously challenge the notions that the nationality of a firm is

irrelevant and that FDI benefits workers. Further, this study finds no evidence that FDI provides reindustrializing effects for revitalizing the manufacturing sector. Though important differences exist between the effects of manufacturing and nonmanufacturing FDI, both sectors generally provide negative consequences for American workers. At the very least, as the first study to seriously compare FDI in the two sectors, we find no evidence to support the notion that industrial workers are rebounding because of FDI.

This study also informs research on globalization more generally. In recent years, many scholars have described and analyzed a new set of transnational interconnections that have been purported to be fundamentally transforming modern society and that have created an era of globalization (e.g. Albrow 1997; Waters 1995). Despite the contribution of globalization scholars, economists have often criticized this research for incorrectly overemphasizing trade with and capital flight to developing countries; neglecting larger patterns of increasing interconnectedness among advanced capitalist countries; and viewing inappropriate statistical measures without historical comparison (Bhagwati 1998; Gordon 1994; Krugman 1996; Sutcliffe & Glyn 1999). Our study answers these criticisms by providing quantitative evidence of how the dominant pattern in the globalization of the U.S. economy affects labor. Our results thus add to a growing consensus among sociological researchers that globalization has moderate negative effects on labor outcomes (Alderson 1997; Western 1997). Further, by all indications, globalization is on the rise, as the inflows of FDI continue to grow. Between 1996 and 1998, the total number of employees in foreign-affiliated firms jumped from 4.98 million to 5.86 million, an increase of nearly 18%. In 1998 alone, the U.S. nearly tripled previous records and received $201 billion of new investment (Fahim-Nader 1999). As the SSA swing of spatialization consolidates with the strong economy of the mid-1990s, FDI will most likely continue to grow and the negative effects of globalization may spread further.

Future research on these topics should proceed along several avenues. First, this research has established FDI as an important determinant of labor outcomes. For scholars to fully understand the decline of labor — in terms of organizational capacity, labor dissent, and economic standing — it is essential that FDI be incorporated into their explanations. Second, our research design does not allow us to test the specific mechanisms through which FDI negatively impacts labor. It would be useful to know which specific causal mechanisms mediate this relationship. While our theoretical discussion offers a number of potential mechanisms, we would like to see scholars investigate this matter further. Potentially, scholars could examine the processes within firms as well as in the region or community as a whole. Third, our analysis establishes only the direct effects of FDI on labor outcomes. An equally fruitful avenue of future research would examine the indirect connections between FDI and labor outcomes. For example, a wealth of research demonstrates that organizational capacity and labor

dissent also function as determinants of labor's economic standing (Leicht 1989; Leicht, Wallace & Grant 1993; Wallace, Leicht & Raffalovich 1999). It is plausible that the FDI's impact on worker earnings is even larger as it ripples through organizational capacity and labor dissent. We hope that scholars will begin to investigate these indirect effects and interrelationships in a more precise way.

We conclude by stressing a few words of caution toward public policy experts and others who advocate the pursuit of FDI as the road to economic revitalization (Reich 1992). While the potential windfalls of foreign investment may seem enticing to politicians, economists, and citizens, our research should temper their enthusiasm. The negative outcomes of FDI for American workers portend a set of broader challenges for these workers associated with a new wave in the social structure of accumulation in the global economy. This new wave, where globalization is a component of the broader process of spatialization, reflects a fundamentally new dimension of labor control in an era characterized by the restructuring of work and technocratic control. Globalization, spatialization, and technocratic control are among the most serious concerns facing American workers at the end of the twentieth century.

Notes

1. FDI involves a foreign firm's ownership and control of assets in a business enterprise in a host country, such that the controlling foreign firm (from the home country) transfers resources, interest, and physical and/or financial capital into the host enterprise.

2. These conclusions are largely based on surveys administered to managers of foreign-affiliated firms during the mid-1980s. The subjective position of management may bias the results, and the timing of data collection prior to the late 1980s surge in FDI may hinder its generalizability.

3. The onset of spatialization is made possible by the historical configuration of U.S. capitalism in the late twentieth century, specifically the confluence of four factors: (1) the increasing modularization of work tasks (i.e., the fragmentation of work into discrete components or modules and a highly integrated, spatial division of labor that allows different modules to be carried out in different locations); (2) advanced transportation technologies that expedite the transport of raw materials and finished products to their desired destinations; (3) advanced information systems and telecommunications that enable capitalists to coordinate and control disparate global operations and distance the relationship between management and labor; and (4) geopolitical arrangements that facilitate economic liberalization and globalization (e.g., NAFTA, EU, GATT).

4. Vallas (1999) critiques flexibility literature for failing to theorize the power, politics, and institutional forces that lead businesses to adopt flexible practices. Thus Wallace and Brady (forthcoming) answer this critique by attempting to identify a macrolevel cause of the rise in flexibility.

5. We conceptualize SSA theory as a broad, historical framework that provides a backdrop for understanding political economic dynamics of contemporary capitalism. Following Reich (1997), we contend that "as it was first formulated, SSA theory was above all an investigation of the qualitative distinctions that demarcate different periods, different stages of capitalism, with a particular focus on the transformative processes that led from one SSA to another" (2). As such, we hesitate to refer to our expectations of FDI's impact on labor as "hypotheses" in the traditional empirico-deductive sense but rather view them as propositions that help frame the theory's impacts.

6. We chose to exclude Alaska and Hawaii because of their anomalous position in the global economy. For example, Hawaii's economy is considerably more globalized because of its heavy reliance on tourism and its geographical proximity to Asia.

7. For example, OLS would conflate the effects of FDI with the characteristics of states that attracted the FDI initially (e.g., weak unions, low wages). Alternatively, our models control for such predispositional attributes across states with state-specific dummy variables.

8. All variables measured in dollars are in terms of real 1996 dollars after controlling for the regional consumer price index (CPI) for all urban consumers (U.S. Department of Labor).

9. This may strike some readers as a rather trivial point, but the controversy over the conceptualization and measurement of foreign investment and its impact on economic growth has recently sparked a spirited debate among researchers in the dependency literature (Dixon & Boswell 1996a, 1996b; Firebaugh 1992, 1996). While all of the particulars of this debate are not relevant to our research, we wish to be as clear as possible regarding our assumptions so as to avoid the possible misinterpretation of our results.

10. The U.S. Department of Commerce measure of FDI that we employ characterizes a firm's employees as foreign-affiliated if a single foreign investor has acquired a stake of 10% or more in a domestic firm (Graham & Krugman 1995). At this level a large investor is assumed to have an effective controlling interest in the firm; however, in the vast majority of cases, the foreign investor owns far more than 10%. Although this measure has some problems (Bairoch 1996; Wade 1996), most analysts regard it as a solid indicator of the degree of foreign penetration in the U.S. economy. Graham and Krugman (1995) assert: "However, in the aggregate the danger of overstatement or understatement due to these problems is small[;] . . . the imperfections are not likely to loom very large. Broadly speaking, U.S. official data on FDI do give an accurate picture of the extent and trend of foreign investments aimed at establishing corporate control" (10-11).

11. The change in GSP per employee is a conventional measure of worker productivity used by economists (Krugman 1998). This measure follows their arguments that changes in labor conditions are largely a function of the slowdown in productivity growth since the 1970s (Krugman 1994, 1996). In this ratio of productivity, the GSP is the numerator and total employees in the state is the denominator.

12. The correlation between the high school graduation rate and the college graduation rate was very high ($r = .73$) and would produce collinearity if both were included in the model together. We chose the high school rate to follow convention in labor relations literature and because college degrees are less common among unionized and manufacturing workers. In analyses not reported here, we substituted the college rate, and our substantive results remained largely unchanged.

13. The lagging of the FDI measures for 1977 through 1995 accounts for the fact that the analysis itself runs from 1978 through 1996.

14. In these and subsequent calculations of FDI effects, we calculate the effects of only total FDI, even though the effects of manufacturing or nonmanufacturing FDI are typically larger. Hence the calculations can be taken as a conservative estimate of the effects of FDI on labor outcomes.

15. An alternate interpretation of this effect is that, net of other factors, states where strong unions had previously raised wages were most susceptible to competition from lower-wage, nonunion industries in the more anti-union climate (thus lowering overall union density in the state).

16. First, these effects are consistent with the correlations among these variables and thus accurately represent the patterns during this period of the analysis. For instance, in most states since the late 1970s, the high school graduation rate and percent urban have both steadily increased and the unemployment rate has declined while real hourly earnings have stagnated or declined. Second, during the period under analysis, the greatest wage concessions and earnings decline occurred within states that were highly unionized, urbanized, and highly educated (e.g., contrast Michigan with Mississippi). Also, in states where rigid, unionized labor markets predominated into the 1980s, rising unemployment pulled low-wage earners out of the workforce and resulted in higher *average* wages in the aggregate (thus the positive effect of unemployment on earnings). Third, our fixed-effects modeling strategy actually accentuates the effects described above, because in the FEM strategy each state is represented by a dummy variable and any across-state differences in unemployment, human capital, and urbanization are controlled. Thus, importantly, these coefficients are really the effects within states over time after controlling for interstate differences. Hence these findings that seem somewhat at odds with orthodox economic thinking are not so aberrant when considering the economic contours of the period since the late 1970s.

17. We considered whether it was possible that the growth in nonmanufacturing FDI is actually an indicator for the relative increase in the service sector and the deindustrialization of the workforce — which has been linked to the declining economic standing of workers. In analysis available from the authors upon request, we included the percentage of employees in manufacturing as a control for this explanation. The inclusion of this control had no effect on the substantive results of any of the analyses reported in this article. We chose to exclude this variable from our reported analyses because we found that the effects of this control were absorbed by other controls (e.g, the change in real hourly earnings and the change in productivity).

18. This specification is identical to a modeling strategy employed by Dixon and Boswell (1996a). By including both independent variables in one model we "purge," or control

for, the effects of percent change in FDI in order to derive a more stringent test of the effects of the lagged FDI variables.

19. One exception to this pattern in Table 4 is that *both* the lagged value and percent change measures of total and nonmanufacturing FDI exhibit negative effects on real hourly earnings. These results, along with the consistently nonsignificant effects of the percent change measures on labor's share, provide convincing evidence that FDI, on the whole, negatively influences workers' economic standing. Further, the consistency of effects between the lagged value and the rate of change provides prima facie evidence that the effects of the lagged value measure reported in Tables 1-3 cannot be interpreted simply as a denominator effect (Firebaugh 1992).

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APPENDIX: Descriptive Statistics, Descriptions, and Sources for All
Variables, 1978-1996

Variable	Mean	S.D.	Description	Source(s)
Dependent				
Union organiza-tional effort	.359	.269	Percent of nonorganized workforce registered for unionization election	National Labor Relations Board, *Annual Report of the National Labor Relations Board* (various years)
Percent Δ Union membership[a]	.077	10.029	Rate of change in number of union members	Bureau of the Census, *Current Population Survey*, March Demographic Supplement (1978-82); Barry T. Hirsch and David A. MacPherson, *Union Membership and Earnings Data Book: Compilations from the Current Population Survey* (Washington, D.C.: Bureau of National Affairs, 1983-96)
Union election win rate	44.279	11.343	Percent of union elections won by unions	National Labor Relations Board, *Annual Report of the National Labor Relations Board* (various years)
Worker grievance rate	32.368	19.701	Number of unfair-labor-practice cases filed with NLRB per 1,000 workers	National Labor Relations Board, *Annual Report of the National Labor Relations Board* (various years); Bureau of the Census, *County Business Patterns* (various years)
Real hourly earnings	12.850	1.711	Average hourly earnings for production worker (after inflation)	Bureau of Labor Statistics, "State and Area Annual Averages," *Employment, and Earnings* (previously titled *Employment, Hours and Earnings*) (May issue, various years)
Labor's share	57.462	5.242	Compensation as percentage of gross state product	Bureau of Labor Statistics, "State Estimates of Gross State Product, Compensa-tion, Proprietor's Income and Capital Charges," *Survey of Current Business* (various issues and years)

APPENDIX: Descriptive Statistics, Descriptions, and Sources for All
        Variables, 1978-1996 (Continued)

Variable	Mean	S.D.	Description	Source(s)
Key Independent				
FDI as percent of total employment $(t-1)$	3.010	1.754	Percentage of workers employed in foreign-affiliated firms (lagged one year) years); Bureau of the Census, *County Business Patterns* (various years)	Bureau of Labor Statistics, "Foreign Direct Invest-ment," *Survey of Current Business* (various issues and
Mfg. FDI as percent of employment $(t-1)$	1.538	1.291	Percentage of workers employed in foreign-affiliated manufacturing firms (lagged one year) years); Bureau of the Census, *County Business Patterns* (various years)	Bureau of Labor Statistics, "Foreign Direct Invest-ment," *Survey of Current Business* (various issues and
Nonmfg. FDI as percent of employment $(t-1)$	1.472	.833	Percentage of workers employed in foreign-affiliated nonmanufac-turing firms (lagged one year) Census, *County Business Patterns* (various years)	Bureau of Labor Statistics, "Foreign Direct Invest-ment," *Survey of Current Business* (various issues and years); Bureau of the
Percent Δ FDI as percent of total employment[a]	6.831	16.589	Rate of change in FDI as a percentage of all workers *Business* (various issues and years); Bureau of the Census, *County Business Patterns* (various years)	Bureau of Labor Statistics, "Foreign Direct Invest-ment," *Survey of Current*
Percent Δ Mfg. FDI as percent of employment[a]	6.184	23.685	Rate of change in FDI as a percentage of workers employed in foreign-affiliated manufacturing firms Census, *County Business Patterns* (various years)	Bureau of Labor Statistics, "Foreign Direct Invest-ment," *Survey of Current Business* (various issues and years); Bureau of the
Percent Δ Nonmfg. FDI as percent of employment[a]	9.944	22.072	Rate of change in FDI as a percentage of nonmanufacturing employment	Bureau of Labor Statistics, "Foreign Direct Invest-ment," *Survey of Current Business* (various issues and years); Bureau of the Census, *County Business Patterns* (various years)

APPENDIX: Descriptive Statistics, Descriptions, and Sources for All Variables, 1978-1996 (Continued)

Variable	Mean	S.D.	Description	Source(s)
Control				
Union density $(t-1)$	16.499	6.899	Percentage of workers unionized (lagged one year)	Bureau of the Census, *Current Population Survey*, March Demographic Supplement (1978-82); Barry T. Hirsch and David A. MacPherson, *Union Membership and Earnings Data Book: Compilations from the Current Population Survey* (Washington, D.C.: Bureau of National Affairs, 1983-96)
Percent Δ Real wages[a]	−.728	1.959	Rate of change in real hourly earnings (after inflation)	Bureau of Labor Statistics, "State and Area Annual Averages," *Employment, and Earnings* (previously titled *Employment, Hours and Earnings*) (May issue, various years)
PercentΔ Productivity[a]	.077	2.819	Rate of change in GSP per employee	Bureau of Labor Statistics, "State Estimates of Gross State Product, Compensation, Proprietor's Income and Capital Charges," *Survey of Current Business* (various issues and years); Bureau of the Census, *County Business Patterns* (various years)
Unemployment rate	6.431	2.088	Percentage of workforce unemployed	Bureau of Labor Statistics, *Geographic Profile of Employment and Unemployment* (various years)
H.S. graduation rate (ma)	73.582	8.149	Percentage of over-25 adults with high school degree (moving average of t, $t-1$, $t-2$)	Bureau of the Census, *Current Population Survey*, March Demographic Supplement (various years)
Percent urban	64.888	22.052	Percentage of population residing in urban areas	Bureau of the Census, *Current Population Survey*, March Demographic Supplement (various years)

APPENDIX: Descriptive Statistics, Descriptions, and Sources for All
Variables, 1978-1996 (Continued)

Variable	Mean	S.D.	Description	Source(s)
Right to work	.439	.496	I = state with right-to-work law	"50 States Legislative Climates Survey," *The Site Selection Handbook* (1977-84); *Industrial and Site Selection Handbook* (1985-96)
Democratic index	58.365	21.765	Index of Democratic control of governorship and legislature	Bureau of the Census, *Statistical Abstract of the United States* (various years)
Gubernatorial election year	.279	.449	1 = year of gubernatorial election	Bureau of the Census, *Statistical Abstract of the United States* (various years)

[a] %Δ is a rate of change, such that %Δ = $100\,[(X_t - X_{t-1})\,/\,X_{t-1}]$.

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