

Decentralization of Collective Agreements and Rising Wage Inequality in Israel

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This paper presents a systematic analysis of the decentralization of the Israeli system of collective bargaining and its contribution to the rise in earnings inequality. We quantitatively analyze all collective agreements that were signed between 1957 and 2003, and present the scale, scope, and timing of five dimensions of decentralization. The findings suggest that decentralization started in the mid-1970s when national agreements were less likely to be extended to nonunion employees; it was intensified in 1975–1980 when nationwide industrial agreements were supplanted by occupational and local agreements. Decentralization became fully consolidated by 1987 when peak-level agreements covering the entire private sector were no longer signed. We then present evidence (including time-series analyses that control for union density and macroeconomic indicators) that the process of decentralization, especially the decline in the use of extension orders and the proliferation of local agreements, explains a significant part of the sharp rise in earnings inequality in Israel during 1970–2003.

Introduction

THE LEVEL AT WHICH COLLECTIVE BARGAINING IS CONDUCTED IS AN IMPORTANT CHARACTERISTIC of any system of industrial relations, as it affects the outcomes of bargaining. In general, there is a continuum ranging from a highly centralized corporatist system, where wage agreements cover the entire or almost the entire workforce, to a highly decentralized system where numerous collective agreements are signed by various local unions, covering

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workers in specific firms or occupations within firms. Since the early 1970s, collective wage bargaining in Israel appears to have gone through a process of decentralization—from a highly corporatist policy of wage determination to a widely dispersed system of wage agreements. Nevertheless, except for a few studies that focus mostly on union density, little is known about the scale and scope of the decentralization process in Israel, its timing, and its specific manifestations.

Not only are studies documenting the process of decentralization of collective wage agreements lacking, but there is also an unfortunate lack of rigorous studies—in Israel as well as in other countries—that explore the effects of such decentralization on wage inequality. While the decline in union power and union density is often mentioned among the processes leading to rising inequality in industrialized countries, the relations between the level of centralization of wage agreements and earnings inequality are relatively unexplored. Yet ever since Karl Marx, who referred to centralized collective bargaining agreements as “combinations” (1963), theory suggests that there should be a strong relationship between the level at which collective bargaining agreements are conducted and the wage inequality. Specifically, the more centralized the wage bargaining process, the lower the expected level of wage inequality. As Marx puts it, “combination always has a double aim, that of stopping competition among workers, so that they can carry on general competition with the capitalist” (1963: 168).

This paper addresses these issues in Israel. It presents a systematic analysis of the decentralization of the Israeli system of collective bargaining and its contribution to the rise in earnings inequality during a 34-year period from 1970 to 2003. The paper is organized as follows. The first section provides a brief overview of the Israeli industrial relations system and the transformation it underwent in recent years. The second section quantitatively analyzes all collective agreements that were signed in Israel between 1957 and 2003, and presents the scale, scope, and timing of various dimensions of decentralization. The next section focuses on rising earnings inequality in Israel since 1970, and presents evidence that the process of decentralization, independent of declining union density, explains part of the rise. The final section summarizes the results and discusses their implications for Israel as well as for other countries.

The Israeli Industrial Relations System

From the establishment of the State of Israel in 1948 until the mid-1970s, the structure of labor relations in Israel was based on the corporatist model.

The General Federation of Labor (hereafter: Histadrut) unionized a large portion of the workers, the Labor Party was in power, and there were close ties between the Party and the Histadrut. Although the Histadrut was never fully comparable in substance to trade unions in a corporatist system (Shalev 1992),¹ this structure allowed wage policy in Israel to be based on cooperation among the state, national employers' associations, and the Histadrut as the representative of all workers (Shirom 1983).

Evidence for the consolidation of the corporatist structure until the 1970s is the high proportion (about 80–85 percent) of workers who were members of the Histadrut and those covered by collective wage agreements (Cohen et al. 2003). The strength of the Histadrut in those years stemmed from four main sources: (1) its political alliance with the Labor Party; (2) its being a major employer in the economy; (3) its control of the pension market; (4) its monopoly of the main health insurance in the economy (Cohen et al. 2003).

From the mid-1970s the corporatist structure of labor relations in Israel began to erode. Several processes are responsible for this erosion, some similar to those that have occurred in other Western countries—globalization, a shift from union to nonunion industries, and increased workers' heterogeneity (Sussman 1995). Additionally, in a process specific to Israel, the Histadrut gradually lost significant sources of power. At the political level, the Labor Party lost power in 1977. At the economic level, the Histadrut was forced to sell most of its holdings in the 1980s, thereby losing its position as the second-largest employer in the country. Finally, in 1995 the Histadrut lost its two remaining sources of power as an outcome of a new national Health Bill and the government's decision to open up the pension market to competition (Cohen et al. 2003; Grinberg and Shafir 2000). As a result of the aforementioned processes, the percentage of wage and salary workers who are members of the Histadrut (and the few unions not affiliated with it)² was sliced almost in half, from 79 percent in 1981 to 42 percent in 2000.³ The rate of coverage of the collective agreements also fell in those years to about 50 percent in 2000 (Cohen et al. 2003).

¹ The unique feature of Israeli corporatism is the national character of the Histadrut and the Labor Party, which led them to prefer Jewish over Arab workers. Consequently, Israeli corporatism coexisted, and in fact sustained, the segmentation of the labor market along national lines, where most Arabs were relegated to the secondary labor market (Shalev 1992).

² Until the early 1980s, less than 10 percent of union members belonged to trade unions that were not part of the Histadrut. In the 1990s the proportion increased as several large professional unions, most notably the elementary school teachers, left the Histadrut.

³ Union density among wage and salary workers in Israel is not readily available. In recent papers Cohen et al. (2003, 2004) exploited various sources of data and provided estimates for union density since the 1950s. In the quantitative analyses below, we rely on their estimates. Unfortunately, there are no similar estimates for coverage, or for union density in specific sectors or industries.

The erosion of the corporatist structure had two major implications for wage policy. First, from the late 1960s, the Histadrut's wage policy was split between the private and public sectors. This "split corporatism" (Grinberg 1991) implies that in the private sector, where weaker unions are concentrated, the Histadrut practiced wage restraint. By contrast, in the public sector, where strong professional unions and national workers' committees are concentrated, the Histadrut supported demands for wage rises in an attempt to secure the support of these powerful labor organizations. Second, there is some evidence that since the 1970s there has been a decline in nationwide collective wage bargaining, while at the same time the independent wage policies of occupational and local unions have strengthened. Brauer (1990) analyzed actual wage increases during 1968–1984 and compared them to the expected wage increases specified in the few economy-wide agreements that were signed during that period. On the basis of this comparison he concluded that since the late 1960s growing proportions of collective wage agreements were signed below the national level. Sussman and Zakai (1996) reached similar conclusions regarding the public sector and especially government employees (Sussman and Zakai 2004).

Although the above conclusion is based on partial and indirect data rather than on a systematic analysis of wage agreements, we nevertheless believe that it is a fair description of a trend of decentralization. In other countries, the erosion of the corporatist structure manifested itself in the strengthening of narrower bases of unionism, which in turn, led to a decline in centralized wage bargaining (Freeman and Gibbons 1994; Katz 1993; Wallerstein, Golden, and Lange 1997; Western 1997). Since decentralization in European countries (e.g., Sweden, Denmark, Britain) was driven by processes similar to those that occurred in Israel (globalization, expansion in the number of professionals and of public sector employees, and changes in the organization of work), it is reasonable to expect similar decentralization in Israel as well.

Thus, theoretical considerations and empirical evidence, however partial, both point in the same direction: that from the late 1960s the Israeli system of collective bargaining underwent a shift from a centralized to a decentralized system. The outstanding questions are the specific dimensions of the decentralization and its scope, timing, and effect on the level of earnings inequality in Israel.

Decentralization of Collective Agreements in Israel

In this section we provide a systematic quantitative portrait of all wage agreements during the past 47 years. To this end we constructed a database

of wage agreements including all collective wage agreements that were registered with the Commissioner for Industrial Relations at the Ministry for Employment and Welfare between the years 1957 (the first year for which data are available as a result of the Collective Agreements Law) and 2003.⁴ Since registration with the Commissioner is a condition for an agreement to be defined as a “collective agreement,” it is likely that our data include *all* collective agreements. We analyzed all agreements that had a bearing on wage components (wage rises, working hours, advancement and ranking, work conditions, and pension), and excluded the few (less than one-half percent of all agreements) on issues such as work regulations that had only an indirect effect on wages, if at all. For each year during 1957–1976, between 146 and 440 agreements were signed. The number of agreements rose sharply after 1976. During 1977–2003, between 707 and 1321 collective agreements were signed each year. In total, the database includes 29,840 collective wage agreements that were signed between 1957 and 2003.

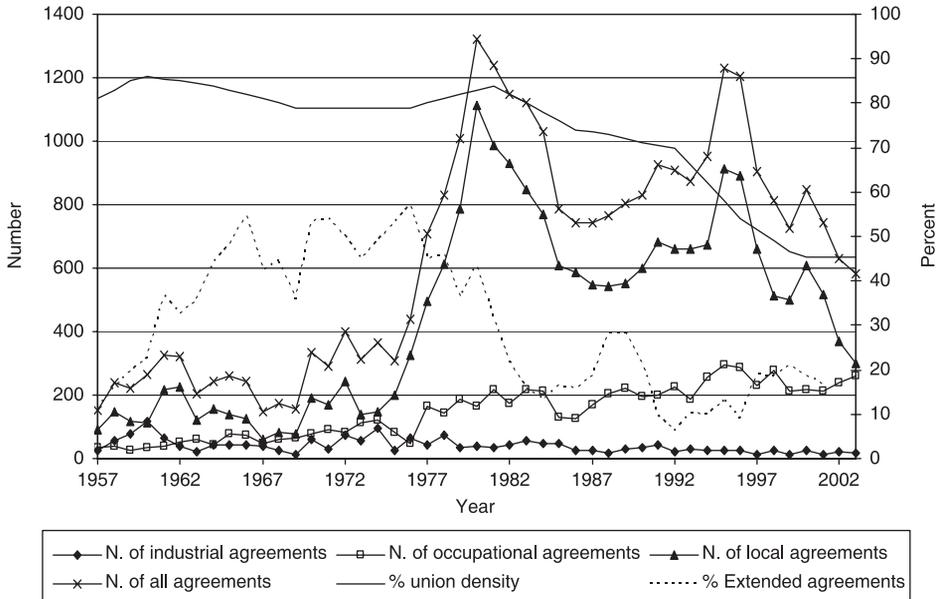
The rise in the number of agreements since 1977 (Figure 1) is perhaps the simplest, yet a very strong indication of the decentralization of wage bargaining in Israel. For example, between 1970 and 1990, the total size of the workforce increased by 65 percent. During the same period, union density declined by 10 percent, yet the number of collective agreements increased by 147 percent. Most of this growth was in local agreements (i.e., agreements between firms and local workers’ committees), although the number of occupational agreements increased as well. By contrast, the number of industrial agreements somewhat declined in the 47-year period. Part of the increase in the number of agreements is due to the formation of new unions, most of which split from larger unions. The proliferation of labor organizations, too, is another indication of the decentralization of the industrial relations system. These newly born unions signed their own agreements, thereby increasing the total number of agreements signed over the years.

For the quantitative analysis of wage agreements, we coded all agreements according to their level of centralization. The degree of centralization of each agreement was determined first and foremost according to the three levels at which the agreement was signed: (1) peak-level (the most centralized level), covering the entire private sector; (2) national, covering all workers in an industry or occupation (middle range); (3) and local (the most decentralized),

⁴ For 1957–1993 we obtained the lists of collective agreements from the official journal of the Ministry of Employment and Welfare (Work, Welfare and Insurance). For 1994–1995 we obtained the data from archival records in the Commissioner’s office. For the years 1996–2003 the data were published in the government’s official collection of regulations and laws (Yalkut Hapirusumim).

FIGURE 1

NUMBER OF INDUSTRIAL, OCCUPATIONAL, AND LOCAL WAGE AGREEMENTS, PERCENTAGE OF EXTENDED AGREEMENTS, AND PERCENTAGE OF UNION MEMBERSHIP AMONG WAGE AND SALARY WORKERS, 1957–2003



covering workers in specific firms. For national agreements, the degree of centralization was also determined by whether the signing union was an occupational (less centralized) or an industrial (more centralized) union. Industrial agreements were further classified as to whether or not they were extended by law to the nonunion sector. Taken together, the degree of centralization of collective wage agreements was examined for each year (the unit of analysis) according to five variables. The first three variables below can be viewed as proxies for Israeli corporatism; the other two variables are indicators for a second dimension of decentralization—the type of union (local, occupational, or industrial) signing the agreement. Below are the definitions of the variables.

- 1) Peak-level agreements: A dummy variable indicating whether or not a peak-level wage agreement was signed in a given year. Peak-level agreements, which determine a unified wage rise for workers across the entire private sector, are a primary expression of the existence of a corporatist wage policy.

- 2) Public sector agreements: A dummy variable indicating whether or not a public sector wage agreement was signed in a given year. Signing public sector agreements expresses “split corporatism,” which is, as mentioned above, a dimension of decentralization unique to Israel.
- 3) Extension of collective agreements: Percentage of industrial agreements in a given year that were extended to nonunion workplaces by the Minister of Employment and Welfare, who has the authority to extend labor agreements to all workers and employers within the relevant industries.⁵ Evidently, an agreement that has been extended covers a wider population including the nonunion workers, and is therefore more centralized than an agreement that has not been extended.
- 4) Occupational agreements: Percentage of national agreements signed each year by occupational unions as opposed to the percentage signed by industrial unions (national agreements are either occupational or industrial). Since the interests of industrial unions are usually broader than the interests of occupational unions, which are normally occupation-specific, we consider the percentage of national agreements that were signed by occupational unions to be another indication of decentralization, although not as extreme as local agreements.
- 5) Local agreements: Percentage of agreements signed each year by local workers’ committees⁶ out of all agreements (national and local). Since the local level is the most decentralized, the higher the percentage of local agreements in a given year, the more decentralized the system.

Decentralization of Collective Wage Agreements: Corporatist Wage Policy. In the 1950s and 1960s, before the establishment of a unified employers’ association in the private sector, national agreements were signed between the Histadrut and a few associations representing employers in various industries. These agreements usually provided similar wage increases in all industries as part of the prevailing unified wage policy practiced by the Histadrut at that period. In 1967 a nationwide umbrella organization of

⁵ Since extension orders are usually issued only for industrial agreements, the proportion of wage agreements that were extended is calculated for industrial agreements only.

⁶ Technically, because of the Histadrut bylaws, municipal councils sign agreements on behalf of local unions.

employers' associations in the private sector was founded. This organization became the representative body of employers in negotiations over peak-level wage agreements that were signed with the Histadrut in subsequent years.

The first peak-level wage-increase agreement between the Histadrut and the employers' association was signed in 1970, and additional agreements were signed in most years until 1987. Although agreements between the Histadrut and the employers' association continued to be signed between 1987 and 1995, they no longer included a unified wage increase in the entire private sector. Rather, post-1987 agreements enabled significant flexibility in wage increases for particular industries and occupations (Fisher 1996). At the same time that peak-level agreements were disappearing, wage-increase agreements between the Histadrut and the main public employers (e.g., the Center for Local Government and Civil Service Commission) covering only the public sector were signed continuously between 1974 and 1998.

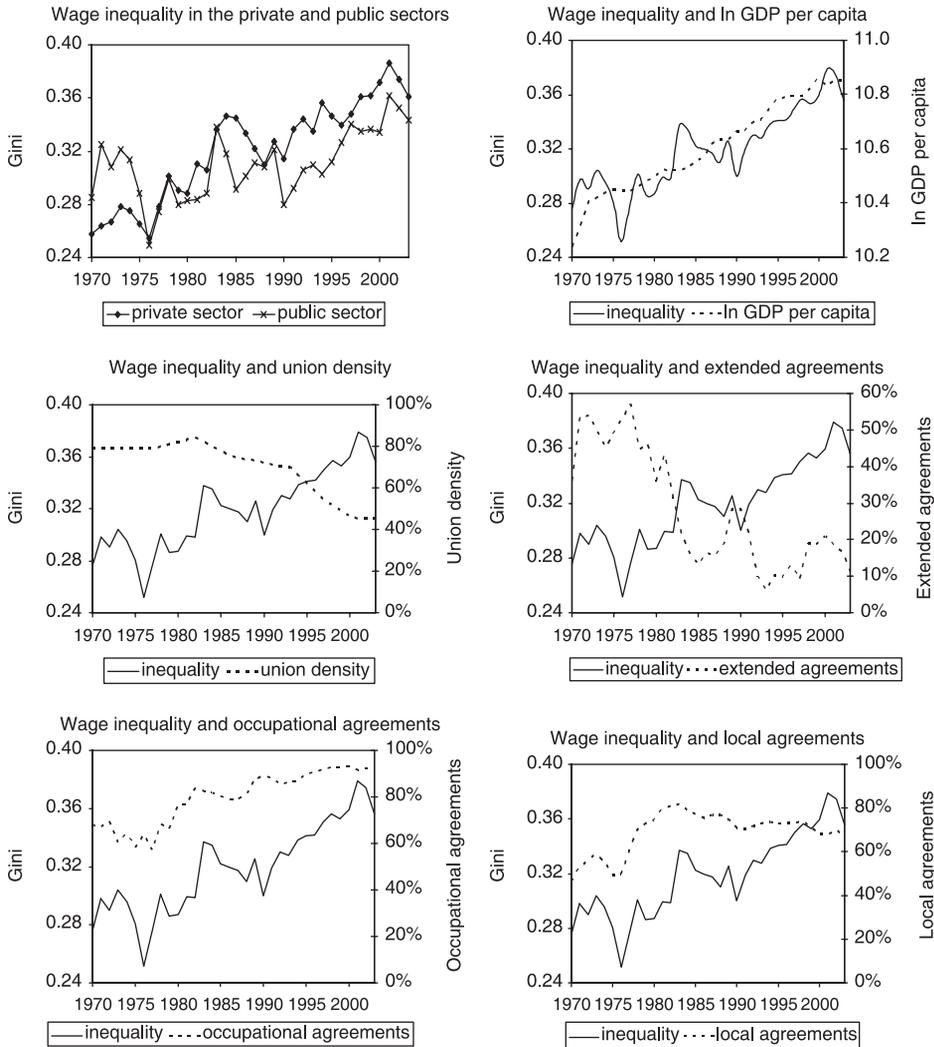
The trend in extension orders also confirms the hypothesis regarding the erosion of corporatist wage policy in Israel. Evidently, over time, the proportion of agreements that were extended to nonunion workers declined (Figure 1). For example, while twenty-eight of fifty-four agreements were extended in 1978 (52 percent), in 1986 only 20 percent were extended, and by 1992 only two out of twenty-eight agreements (7 percent) were extended. Thus, both the proportion and the absolute numbers of extended agreements declined over time.

Taken together, the findings presented above indicate an erosion in the corporatist wage policy since the mid-1970s, with the sharp drop in the proportion of national agreements that were extended to the nonunion sector. In 1974 split corporatism was institutionalized with the practice of signing sector-specific agreements for public employees. The collapse of the corporatist system was accentuated after 1987, when peak-level, wage-increase agreements were no longer signed, and most industrial agreements were not extended to the non-union sector.

Decentralization of Collective Wage Agreements: Bases of Unionization. At the same time that corporatist wage policy eroded, there was a sharp increase in the absolute number and proportion of collective agreements signed at the most decentralized level—the local level. Figure 1 describes wage agreements according to the type of union (local, occupational, or industrial) signing the agreement during 1957–2003. Until 1974 a similar number of wage agreements were signed at the national (occupational and industrial) and local levels. However, during 1975–1980 there was a sharp increase in the number (Figure 1) and the proportion (Figure 2) of agreements that were signed at the local level. This increase was most likely both

FIGURE 2

HOURLY WAGE INEQUALITY (GINI COEFFICIENT) AMONG SALARIED WORKERS AGED 25–64, AND DECENTRALIZATION INDICATORS, 1970–2003



the catalyst for, and the result of, a regulative change that was adopted by the Histadrut in 1977, allowing selective wage rises at the firm and/or occupation levels (Margalit 1994). Between 1980 and 2003 the proportions of the two types of agreements remained stable: local agreements constituted about 70–80 percent of all agreements, and national agreements constituted the remaining 20–30 percent.

The decentralization trend within national agreements is similar. As shown in Figure 1, until 1976 the number of wage agreements signed by occupational and industrial unions fluctuated, and over the entire period (1957–1976) remained similar. However, starting in 1977 there was a sharp rise in the number (and proportion) of wage agreements signed by occupational unions and a decline in the number (and proportion) of industrial agreements. In 1957, 55 percent of all national agreements were signed by occupational unions. In 1977 the percentage rose to 80 percent. By 1988 it had reached about 90 percent, and remained at this level throughout the 1990s (Figure 2).

In short, since the mid-1970s there has been a substantial rise in the number and proportion of agreements signed by narrower bases of unionization—occupational and especially local unions—at the expense of agreements signed by industrial unions that represent wider interests and that cover broader groups of workers. All in all, the findings presented in Figure 1 suggest that starting in the mid-1970s the Israeli system of collective bargaining was transformed from a centralized system to a decentralized system. We now turn to explore the effect of this process of decentralization on rising earnings inequality in Israel during the period 1970–2003.

Decentralization of the Collective Wage Agreements and Rising Wage Inequality

Concomitantly with the decentralization of wage agreements, wage inequality has risen in all Western countries with the exception of Germany and Italy (Gottschalk and Smeeding 1997). The standard explanation for this rise in the advanced economies is skill-biased technological change (technological change that has brought about increased demand for high-skilled workers, but not for low-skilled workers). Less-skilled and blue-collar workers have suffered from immigration of unskilled workers to Western countries, from processes of globalization and privatization that resulted in plant relocations overseas, and from the weakening of labor unions (Gottschalk and Smeeding 1997; Morris and Western 1999). Most studies focusing on the effects of labor unions on rising earnings inequality have used union density as their measure of union power (Card 2001; Freeman 1993). They demonstrate that since unions reduce earnings inequality by reducing wage differentials among union members as well as between union and nonunion workers, the decline in union density has a positive effect on earnings inequality.

While union density no doubt affects inequality, the level of centralization may be as important if not more so for maintaining earnings equality. Wage agreements signed on the basis of broad-based unionization are expected to promote the wider interests of all workers and thus overcome internal competition among them, thereby reducing overall earnings inequality. By contrast, wage agreements that are signed by narrow-based unions create differential wage ladders and increase wage inequality among union members, which in turn raises inequality in the entire labor market.

Studies on the connection between the level of bargaining and earnings inequality have used different research strategies as well as different measures of centralization. Researchers have studied one country over time (Blau and Kahn 2002 Ch. 6; Hibbs 1991), or compared a cross-section of several countries at one or several points in time (Alderson and Nielsen 2002; OECD 1997; Rueda and Pontusson 2000; Wallerstein 1999; Western 1998). Depending upon the writer, various measures of centralization were used, ranging from trade union density and coverage, through researchers' subjective evaluation of the level of wage-setting or the cooperation between union and employers (Alderson and Nielsen 2002; Blau and Kahn 2002 Ch. 6; Hibbs 1991; OECD 1997; Rueda and Pontusson 2000; Wallerstein 1999), to whether or not wage agreements were extended to the nonunion sectors (Western 1998). Regardless of the methodology, the data, and the specific measures of centralization, all studies reached a similar conclusion: the higher the level of centralization, the lower the level of earnings inequality.

This being the case, we expect that the process of decentralization of collective wage agreements in Israel will also be positively related to the rise in wage inequality. However, unlike previous research that has employed subjective measures of centralization (e.g., Wallerstein 1999) or relied on only one indicator for it (e.g., Western 1998), our measures for the level of centralization in Israel are based on several indicators that are well quantified. Moreover, we devote much of the data analyses to test the net effect of decentralization on earnings inequality, a task that was somewhat overlooked by most previous research that focused on bivariate correlations.

Rising Wage Inequality in Israel. In order to measure wage inequality in Israel, we analyzed all available income surveys conducted annually by the Israeli Central Bureau of Statistics for the years 1970–2003. Income surveys are large, representative samples of the Israeli labor force, including high-quality data for earnings and other demographic and labor-force characteristics

for wage and salary workers.⁷ We use the Gini coefficient as the measure for inequality, and for each year we calculated it for the hourly wage among wage and salary workers 25–64 years old.

As shown in Figure 2, Israel has experienced a sharp increase in wage inequality since 1970,⁸ and the trend is similar in both the public and the private sectors. From 1970 to 2001 inequality in hourly wage grew by about 37 percent.⁹ A moderate trend of rising wage inequality occurred at the beginning of the 1970s, intensifying after 1975. From 1976 to 1985, the 10-year period when the Israeli economy went from high inflation to hyperinflation, the Gini coefficient increased sharply from a level of 0.252 to a level of 0.322. After 1985 inequality declined, but rose again in the 1990s, reaching in 2001 a higher level of inequality than in 1985. In 2002 and 2003 the inequality level decreased slightly. Both rising inequality and its decline are attributed respectively to the hyperinflation (during 1975–1985) and to the economic stabilization program (during 1985–1990) (Dahan 2002). However, the timing of both the rise and decline in inequality also appear to fit well with the rapid decentralization during 1975–1985 and with the slowdown in decentralization during 1985–1990.

Decentralization of Collective Wage Agreements and Rising Wage Inequality in Israel. Table 1 presents Pearson correlations between inequality, the five measures of centralization of wage agreements, union density, and three macro economic variables (GDP per capita and its squared term, unemployment level, and inflation) that are known or expected to affect inequality. As shown in Figure 2, GDP per capita captures a time trend. However, GDP and GDP squared are also expected to describe the effects of economic development according to the Kuznets (1955) curve.¹⁰ Unemployment is a proxy for the business cycle (Blinder and Esaki 1978), and inflation, at least in Israel, was found to depress the earnings of poor workers

⁷ There are some potential problems in using income surveys for the entire period 1970–2003. First, wage data for the high inflation years (1980–1985) may be less reliable than for other years. Second, since 1995 the sample has included smaller Arab localities and residents of East Jerusalem. Finally, in 1977 and 1986 no income surveys were conducted. These minor changes, however, do not alter the overall results. We estimated the models excluding the years 1980–1985, or 1995–2003, or 1977 and 1986, and the results were appreciably unchanged. The missing Gini coefficients for the 1977 and 1986 data were replaced by the average of the coefficients in the following and preceding years.

⁸ Between 1957 and 1970 (the first year for which we have inequality data) earnings inequality among households of wage and salary workers in Israel hardly changed (Dahan 2002).

⁹ Analysis of the wage inequality in Israel identifies similar trends to those that occurred in other countries: a rise in returns on education and experience, a rise in wage differences within education and experience groups, and broadening wage gaps between and within occupations and economic branches (Dahan 2002).

¹⁰ See Galor and Zeira (1993) for a discussion on the adverse effects of income inequality on economic growth.

TABLE 1
CORRELATION COEFFICIENTS BETWEEN INEQUALITY, MACRO-ECONOMIC FACTORS, UNION DENSITY, AND FIVE MEASURES OF DECENTRALIZATION,
1970–2003

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Inequality	—	0.943**	0.869**	0.862**	0.863**	-0.096	0.743**	-0.835**	-0.783**	0.843**	0.491**	-0.574**	-0.127
2. Private sector inequality		—	0.668**	0.902**	0.902**	0.025	0.808**	-0.764**	-0.855**	0.896**	0.647**	-0.583**	0.076
3. Public sector inequality			—	0.601**	0.604**	-0.196	0.437**	-0.727**	-0.500**	0.581**	0.217	-0.361*	-0.371*
4. Ln GDP per capita				—	1.000**	-0.271	0.820**	-0.872**	-0.783**	0.881**	0.501**	-0.749**	0.092
5. Ln GDP per capita ²					—	-0.274	0.821**	-0.876**	-0.783**	0.881**	0.497**	-0.751**	0.087
6. Inflation						—	-0.231	0.434*	-0.043	-0.092	0.376*	0.417*	0.287
7. Unemployment							—	-0.702**	-0.793**	0.857**	0.413*	-0.644**	-0.052
8. Union density								—	0.581**	-0.727**	-0.118	0.728**	0.217
9. Extended agreements									—	-0.863**	-0.635**	0.503**	-0.105
10. Occupational agreements										—	0.635**	-0.578**	0.071
11. Local agreements											—	-0.098	0.438**
12. Peak-level agreements												—	0.033
13. Public sector agreements													—

* $p < 0.05$.

** $p < 0.01$.

mainly because cost of living adjustment agreements in Israel, which were the only compensation for the inflation received by poorer workers, did not keep up with it (Achdut 1996; Dahan 1995).

Because most agreements are signed for 2 or 3 years, we transformed the values of the centralization measures for calculating the Pearson correlations and the time series data. The two dummy variables (peak-level agreements and public sector agreements) were coded as 1 for a given year if an agreement was signed in a given year or the two preceding years. Similarly, for the other three measures (percentage of extension orders, percentage of local agreements, and percentage of occupational agreements) the value for a given year t_i was computed over a three-year period: $t_{i-2} + t_{i-1} + t_i$. The results with and without these transformations are appreciably the same.

As shown in Table 1, the correlations between union density, all measures of decentralization and inequality are high and in the expected direction. Thus, wage inequality, especially in the private sector, is highly correlated with peak-level wage agreements that ceased in 1987. Likewise, the higher the percentage of agreements that were extended to nonunion workers and the lower the percentage of occupational and local agreements, the lower the inequality level. As expected, union density is negatively correlated with inequality, positively correlated with extended agreements, and negatively correlated with occupational and local agreements. Apparently, as union density declined the number of occupational agreements has risen, with the Histadrut losing power to occupational unions.

As shown in Figure 2, inequality grew sharply during 1975–1985, at the same time that there was a sharp decrease in extended agreements, and a sharp increase in occupational and local agreements. In the second half of the 1980s both decentralization and the rise in inequality slowed down. In the 1990s inequality again rose sharply, concomitantly with the sharp decrease in union density. Thus, it appears that in the first period (1975–1985), inequality increased together with the decentralization of collective agreements, while in the 1990s it was the decline of union density that went in tandem with rising inequality.

The data presented thus far—bivariate correlations and overlapping trends of inequality and indicators of centralization—are consistent with the hypothesis that decentralization contributed to rising inequality. However, such analyses do not eliminate the possibility that decentralization is a byproduct of other processes such as a decline in union density, inflation, and economic development, with no independent effect on earnings inequality. We therefore devote the remainder of this section to presenting evidence for the net effect of the decentralization of the collective bargaining process on earnings inequality.

TABLE 2
WAGE INEQUALITY (GINI COEFFICIENT OF HOURLY WAGE) IN SELECTED INDUSTRIES BY YEAR
LAST INDUSTRIAL AGREEMENT WAS SIGNED

Industry	Industrial agreement		Inequality level			
	Year of last agreement	Extended/not extended	1970	1978	1988	1996 ^a
All industries in private sector			0.258	0.302	0.310	0.340
Rubber and plastics	1978	Extended	0.297	0.273	0.311	0.343
Metal, electricity, and electronics	1988	Extended	0.244	0.300	0.280	0.339
Construction	1997	Extended	0.211	0.230	0.279	0.235
Diamonds	1998	Extended	0.200	0.252	0.301	0.226
Food	1998	Not-extended	0.231	0.280	0.265	0.321

NOTE: ^aThe last year for which detailed classification of industries is available.

One test for the independent effect of decentralization on rising inequality is based on analyzing specific industries. Table 2 presents inequality levels in 1970, 1978, 1988, and 1996 for five groups of industries in the private sector (rubber and plastics; metal, electricity, and electronics; construction; diamonds; and food), as well as the last year in which industrial agreements were signed in each industry and whether the agreement was extended to the nonunion sector. Between 1970 and 1978 the wages of workers in the five industry groups were determined by nationwide industrial agreements. Consequently, inequality levels in all industries were similar and grew only moderately during the 8-year period, relative to the growth in wage inequality in the entire private sector (top row). In 1978 industrial agreements were supplanted in the rubber and plastics industries by local agreements, but continued to be signed in the remaining industries. Ten years later, in 1988, inequality among workers in rubber and plastics had increased significantly, while it changed more moderately in the other four industry groups where industry-wide agreements governed wages well into the 1980s and 1990s. After 1988, industrial agreements were no longer signed in the metal, electricity, and electronics industries, while they continued to govern wage rates among workers in the construction, diamonds, and food industries. Moreover, these agreements were extended to the nonunion sector (the food industry being an exception). Consequently, the inequality level increased sharply among food, metal, and electronics workers, but not in the diamonds and construction industries, where agreements were continuously signed and extended. Evidently, signing industrial agreements that cover all workers in an industry prevents rising wage dispersion within such industries.

Next, we estimated time-series models aimed at testing the effect of decentralization on inequality, while holding constant union density and macroeconomic variables that are known or expected to affect inequality, at least in Israel. To be sure, the high correlations between the macroeconomic factors, union density, and decentralization measures (Table 1) make a time series analysis of only 34 years problematic, especially since we cannot assume that all variables in the equation are exogenous. In order to mitigate some of these difficulties, we include in the regression only the three continuous measures of centralization, together with union density, and four macroeconomic variables (obtained from the Statistical Abstract of Israel)—(ln) GDP per capita, (ln) GDP per capita squared, unemployment level, and inflation.¹¹ Union density, unemployment, and centralization measures are measured as percentages, on a scale from 0 to 100.¹² While admittedly crude, the results presented in Table 3 are perhaps the most rigorous tests for the independent effect of decentralization on earnings inequality.

The effect of unemployment is consistent with previous research on Israel, which found that it increases inequality as it depresses the wages of poor workers (Achdut 1996; Dahan 1995). Not surprisingly, the effect of unemployment is stronger in the private sector, which is more sensitive to the business cycle. The coefficients for GDP per capita in most models (e.g., column 5) are consistent with the Kuznetz curve, although the coefficients are not statistically significant. Apparently, the case of Israel supports Barro's (2000) conclusion that while the Kuznetz curve shows empirical regularity across countries, it explains only little variation in inequality within countries over time.

The coefficients presented in columns 2–4 of Table 3 suggest that both union density and each of the three decentralization measures affect inequality in the expected direction.¹³ The relevant coefficients in these models—for union density and for each of the three decentralization indicators—are statistically significant. This implies that even while holding constant union density and other variables, each of the decentralization

¹¹ We also controlled for other variables: immigration volume (percentage of new immigrants out of total population), industrialization (percentage employed in manufacturing), and percentage of females participating in the labor force. The results regarding the effects of the three decentralization measures and union density are similar to those presented in Table 3.

¹² Inflation is measured as annual percentage of change in the level of the price index, and it ranges from 0.7 percent in 2003 to 373.8 percent in 1984.

¹³ The models presented in Table 3 do not include the autoregressive correction for serial correlations. Since the results with and without the first order autoregressive (AR1) process are similar, and since we do not want to lose degrees of freedom, we present the results without the correction.

TABLE 3
ESTIMATES FOR THE EFFECTS OF DECENTRALIZATION MEASURES,^a UNION DENSITY,^a AND MACROECONOMIC FACTORS ON HOURLY WAGE
INEQUALITY (GINI COEFFICIENT), 1970–2003 (*t* VALUES IN PARENTHESES)

	Entire economy					Private sector				Public sector			
	1	2	3	4	5	6	7	8	9	10	11	12	13
Ln GDP	-2.204	2.184	1.766	-1.080	2.591	1.522	0.983	-0.469	0.346	6.722	7.405	2.725	8.821
per capita	(-0.53)	(0.51)	(0.40)	(-0.29)	(0.61)	(0.39)	(0.24)	(-0.16)	(0.10)	(1.17)	(1.28)	(0.54)	(1.49)
Ln GDP	0.109	-0.104	-0.084	0.049	-0.127	-0.068	-0.042	0.023	-0.016	-0.325	-0.358	-0.138	-0.431
per capita ²	(0.55)	(-0.51)	(-0.39)	(0.28)	(-0.62)	(-0.37)	(-0.22)	(0.16)	(-0.10)	(-1.18)	(-1.29)	(-0.57)	(-1.52)
% Inflation ^b	0.010*	0.006*	0.007**	0.005	0.052	0.013**	0.013**	0.010**	0.009**	0.001	0.001	-0.001	-0.000
	(3.12)	(1.91)	(2.16)	(1.51)	(0.81)	(4.09)	(4.33)	(3.65)	(3.07)	(0.14)	(0.20)	(-0.19)	(-0.84)
% Unemployment	0.001	-0.001	-0.001	0.001	-0.001	0.002	0.002	0.003**	0.003**	-0.003	-0.004	-0.001	-0.004
	(0.48)	(-0.56)	(-0.53)	(0.72)	(0.30)	(1.23)	(1.22)	(2.85)	(2.09)	(-1.42)	(-1.60)	(-0.41)	(-1.44)
% Union density	-0.001	-0.002**	-0.002*	-0.002**	-0.003**	-0.001	-0.001	-0.002**	-0.002**	-0.004**	-0.003**	-0.004**	-0.005**
	(-1.02)	(-2.09)	(-1.80)	(-2.46)	(-3.12)	(-1.14)	(-0.87)	(-2.11)	(-2.43)	(-2.71)	(-2.73)	(-2.97)	(-3.59)
% Extended agreements		-0.001**			-0.001*	-0.001*			-0.000	-0.001**			-0.001
		(-2.41)			(-2.00)	(-1.91)			(-1.61)	(-2.16)			(-1.69)
% Occupational agreements			0.001*		0.000		0.001		-0.001		0.002**		0.001
			(1.95)		(0.20)		(1.42)		(-0.84)		(2.27)		(0.83)
% Local agreements				0.001**	0.001**			0.001**	0.002**			0.002**	0.001
				(3.04)	(2.11)			(3.81)	(3.36)			(2.58)	(1.39)
C	11.53	-11.03	-8.97	6.29	-12.68	-8.14	-5.43	2.65	-1.46	-34.13	-37.78	-12.94	-44.57
	(0.53)	(-0.50)	(-0.39)	(0.33)	(-0.57)	(-0.41)	(-0.26)	(0.17)	(-0.08)	(-1.14)	(-1.25)	(-0.49)	(-1.45)
Adj. <i>R</i> ²	0.802	0.831	0.820	0.847	0.859	0.908	0.903	0.932	0.935	0.544	0.552	0.571	0.600
<i>F</i>	27.75	28.07	26.10	31.47	26.07	55.53	52.37	76.85	60.15	7.57	7.77	8.33	7.19
DW	1.68	1.84	1.90	1.43	1.67	1.91	1.93	1.72	1.83	1.53	1.74	1.30	1.54
<i>N</i>	34	34	34	34	34	34	34	34	34	34	34	34	34

NOTES: * $p < 0.10$; ** $p < 0.05$.

^aOne year lag.

^bThe coefficient was multiplied by 100.

measures, when entered alone to the regression, affects inequality in the expected direction. Column 5 presents the results for the full model. In the full model, the effects of union density, extension orders, and local agreements are statistically significant and are in the expected direction, but the effect of occupational agreements is no longer statistically significant. We estimated other specifications of the basic models with various lag structures and various measures of inequality,¹⁴ and altered the measurement of the centralization measures from percentage to absolute numbers.¹⁵ The pattern of results (not shown) remained appreciably the same in all specifications. In short, the results suggest that both the erosion in corporatist wage policy (as measured by the decline in the use of extension orders) and the substantial rise in the proportion of agreements signed by narrower bases of unionization—local and occupational unions—increased earnings inequality.

That the coefficient for occupational agreements is statistically significant in column 3 but insignificant in column 5 is in large part a statistical artifact of the high correlations between this variable and extension orders (-0.863) and local agreements (0.635), respectively. However, this finding may also be because this variable (the proportion of occupational agreements of all national agreements) is a weaker manifestation of decentralization than the other two variables. While industrial agreements normally affect more workers than occupational agreements, the latter type of agreements affects unionized workers in specific occupations across many employers, and as such it is a weaker measure for decentralization than either extension orders or local agreements. Another possible explanation for the lack of effect of occupational agreements is that the content of occupational agreements has changed over time, and that this change, rather than the rise in the number or percentage of occupational agreements, is the key variable explaining how occupational agreements enhance inequality. Indeed, this is the conclusion reached by Sussman and Zakai (2004), who analyzed occupational agreements of government workers between 1992 and 1999 and found that individual provisions for narrow groups of workers were responsible for widening the wage gap within this group of workers.

¹⁴ The results are similar when inequality is measured as the variance of the (ln) hourly wage among wage and salary workers and also when measured as the variance of the (ln) hourly wage among demographically comparable workers. Specifically, for each year we estimated the variance of (ln) wages among workers of the same gender, education, and experience. The variance of the residual (ln) hourly wage among such workers served as a measure of inequality. Thus, even among workers of the same productivity-related characteristics, we found that extension orders affect the level of inequality.

¹⁵ Unfortunately, our data do not include information on the number of workers covered by each agreement, nor do we know the proportion of workers covered by industrial, occupational, or local agreements.

It is unlikely that the decentralization process affected inequality alike in the private and public sectors. Extended agreements should depress inequality in the private more than in the public sector, because union coverage is significantly lower in the former than in the latter sector, hence extension orders raise the wages of more low-wage workers in the private than in the public sector. Likewise, since most local agreements are signed in the private sector, local agreements should also increase inequality in the private sector more than in the public sector. By contrast, since most occupational agreements are signed in the public sector, this variable should have a greater effect in the public than in the private sector. To test these hypotheses, we estimated the time series models separately for the public and private sectors (columns 6–13, Table 3). The results support most but not all of the expected effects specified above. As expected, the coefficient for local agreements is positive and statistically significant in the private sector (column 9), but not in the public sector (column 13). Similarly, the effect of the rise in the proportion of occupational agreements on inequality is limited to the public sector (column 11), but only when other decentralization indicators are not controlled for. However, unlike our hypothesis, extension orders affect inequality in both sectors, and not only in the private sector.

All in all, the results presented in Table 3 support the main argument advanced above, namely, that decentralization of collective agreements enhances earnings inequality, independent of the effects of union density, inflation, unemployment, and economic development.

Summary and Conclusions

Our findings lead to an unequivocal conclusion. The Israeli system of industrial relations in general, and its system of collective bargaining in particular, has been transformed from a centralized into a decentralized system. In all five indicators for the level of centralization, we found a clear trend towards decentralization. Starting in the mid-1970s national agreements were less likely to be extended to nonunion employees; in 1974 agreements limited to the public sector were institutionalized; during 1975–1980 national agreements (industrial and occupational) were supplanted by local agreements; starting in 1977 industrial agreements declined relative to occupational agreements; finally, beginning in 1987, peak-level agreements covering the entire private sector were no longer signed. In short, decentralization started in 1970, intensified in 1975–1980, and was fully consolidated by 1987. Evidently, the process of decentralization was not gradual, nor did it span 40, 30, or even 15 years. Rather, most of the decentralization occurred

during a relatively short period of 5–10 years between the mid-1970s and mid-1980s. Since 1987 there has been no further trend toward decentralization, nor can we detect such a trend before the early 1970s.

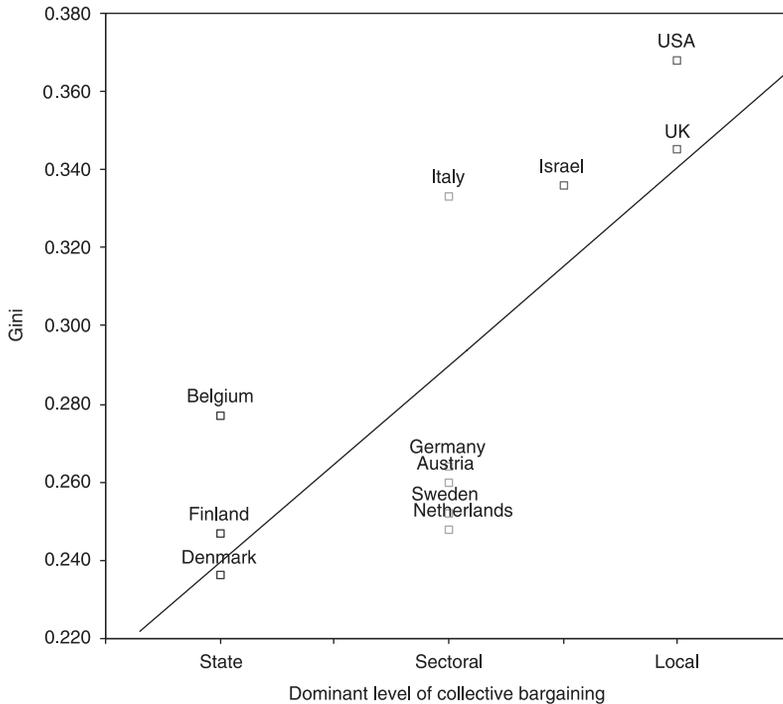
At the same time that the Israeli system of collective bargaining went through this process of decentralization, earnings inequality increased sharply. The timing of both the rise and decline in inequality appear to fit well with the rapid decentralization during 1975–1985, and with the slowdown in decentralization indicators during 1985–1990. We have provided evidence that both these processes are related, and that decentralization contributed to rising inequality, independent of union density, inflation, unemployment, and GDP per capita. Thus, in industries where the process of decentralization was slower, so was the pace of rising earnings inequality. A more stringent test for the independent effect of decentralization was obtained from time-series models including three measures of centralization, union density, and macroeconomic factors. The results of these models reveal that at least two (out of three) indicators for decentralization—extension orders and local agreements—are responsible for part of the rise in wage inequality in Israel.

We wish to emphasize that the process of decentralization of collective bargaining agreements in Israel was nearly complete by the mid-1980s, before the economic liberalization that started in 1985, and long before the major legal changes of 1995 that resulted in a sharp decline in union density and a major transformation of the Israeli industrial relations system. While most observers point to 1995 as the year in which the Israeli system was transformed, our results suggest that the process of decentralization was one of the first stages in the breakdown of the corporatist regime in the Israeli economy. However, that the process of decentralization came to an end in the late 1980s does not mean that the system has reached equilibrium. The breakdown of the Israeli corporatist system has been continued by other means, including rising unemployment and rising proportions of marginal workers: in 2002, when unemployment was 10.3 percent, 11 percent of the Israeli labor force were migrant laborers, and an additional 5 percent were temporary contract workers (Israel 2006). To be sure, these processes—which are more widespread in Israel than in most industrial countries—are not divorced from the process of decentralization. Rather, decentralization weakened workers' power and union density (Western 1997) and enabled employers to promote these labor market policies, which, in turn, have brought about even more diversification among wage and salary workers.

On a broader level, we believe that the Israeli results regarding the effect of the level of wage bargaining on earnings inequality can be generalized

FIGURE 3

DOMINANT LEVEL OF COLLECTIVE BARGAINING AND EARNINGS INEQUALITY IN SELECTED OECD COUNTRIES IN THE LATE 1990s



SOURCES: Dominant level of wage bargaining: Our estimation for Israel, and Eironline (2004) for other countries. Ireland was excluded because the collective bargaining that takes place at the state level does not deal with wage issues. Gini coefficient in 1997–2000: Luxemburg Income Study (2007).

to other countries. Figure 3 presents the relations between the level of collective bargaining in selected OECD countries and earnings inequality. Evidently, countries where the dominant level of bargaining is considered to be centralized at the state or at the sectoral levels (Austria, Belgium, Denmark, Finland, Germany, and Sweden) have lower inequality levels than countries where bargaining is conducted mostly at the decentralized, local level (Israel, UK, and United States). Likewise, the practice of extending collective agreements to nonunion workers was found to be prevalent in countries where inequality did not rise between 1979 and 1990 (Italy, Netherlands, Germany, and Sweden), but not in countries where inequality increased sharply during these years—UK, Canada, and the United States (Western 1998). It is therefore reasonable to expect that multivariate analyses in other countries will reveal similar results to those obtained in Israel.

REFERENCES

- Achdut, Lea. 1996. "Income Inequality, Income Composition and Macroeconomic Trends: Israel 1979–1993." *Economica* 63:1–27.
- Alderson, Arthur S., and Francois Nielsen. 2002. "Globalization and the Great U-Turn: Income Inequality Trends in 16 OECD Countries." *American Journal of Sociology* 107(5):1244–99.
- Barro, Robert J. 2000. "Inequality and Growth in a Panel of Countries." *Journal of Economic Growth* 5(1):5–32.
- Blau, Francine D., and Lawrence M. Kahn. 2002. *At Home and Abroad: U.S. Labor Market Performance in International Perspective*. New York: Russell Sage Foundation.
- Bliner, Alan S., and Howard Y. Esaki. 1978. "Macroeconomic Activity and Income Distribution in the Post-War United States." *Review of Economics and Statistics* 60(4):604–9.
- Brauer, David A. 1990. "Does Centralized Collective Bargaining Promote Wage Restraint? The Case of Israel." *Industrial and Labor Relations Review* 43(5):636–49.
- Card, David. 2001. "The Effect of Unions on Wage Inequality in the U.S. Labor Market." *Industrial and Labor Relations Review* 54(2):298–315.
- Cohen, Yinon, Yitchak Haberfeld, Guy Mundlak, et al. 2003. "Unpacking Union Density: Union Membership and Coverage in the Transformation of the Israeli Industrial Relations System." *Industrial Relations* 42(4):692–710.
- , ———, ———, et al. 2004. "Past, Present, and Future: Union Density in Israel." *Labor, Society and Law* 10:15–49 (Hebrew).
- Dahan, Momi. 1995. "The Effect of Macro-Economic Variables on Income Inequality in Israel." *Bank of Israel Survey* 69:21–47 (Hebrew).
- . 2002. "The Rising of Economic Inequalities." In *The Israeli Economy, 1985–1998*, edited by Avi Ben-Bassat, pp. 610–56. Cambridge, MA: MIT Press.
- Eironline, European Industrial Relations Observatory on line. 2004. *Industrial Relations in the EU, Japan and USA, 2002*, <http://www.eurofound.europa.eu/eiro/2004/01/feature/tn0401101f.html>.
- Fisher, Hannah. 1996. "Structural and Functional Adjustment of Trade Unions in the Modern Era." In *The New World of Work in an Era of Economic Change*, edited by Rubi Natanzon, pp. 1–15. Tel-Aviv: Friedrich Ebert Fund (Hebrew).
- Freeman, Richard. 1993. "How Much Has De-Unionization Contributed to the Rise in Male Earnings Inequality?" In *Uneven Tides: Rising Inequality in America*, edited by Sheldon Danziger and Peter Gottschalk, pp. 133–63. New York: Russell Sage Foundation.
- and Robert Gibbons. 1994. "Getting Together and Breaking Apart: The Decline of Centralized Collective Bargaining." In *Differences and Changes in Wage Structures*, edited by Richard B. Freeman and Lawrence F. Katz, pp. 345–70. Chicago: University of Chicago Press.
- Galor, Oded, and Joseph Zeira. 1993. "Income Distribution and Macroeconomics." *Review of Economic Studies* 60(1):35–52.
- Gottschalk, Peter, and Timothy Smeeding. 1997. "Cross-National Comparisons of Earning and Income Inequality." *Journal of Economic Literature* 35(2):633–87.
- Grinberg, Lev L. 1991. *Split Corporatism in Israel*. Albany: SUNY Press.
- and Gershon Shafir. 2000. "Economic Liberalization and the Breakup of the Histadrut's Domain." In *The New Israel: Peacemaking and Liberalization*, edited by Gershon Shafir and Yoav Peled, pp. 103–28. Boulder: Westview Press.
- Hibbs, Douglas A. 1991. "Market Forces, Trade Union Ideology and Trends in Swedish Wage Dispersion." *Acta Sociologica* 34(2):89–102.
- Israel. 2006. *Statistical Abstract of Israel, No. 57*. Jerusalem: Central Bureau of Statistics.
- Katz, Harry. 1993. "The Decentralization of Collective Bargaining: A Literature Review and Comparative Analysis." *Industrial and Labor Relations Review* 47(1):3–23.
- Kuznets, Simon. 1955. "Economic Growth and Income Inequality." *American Economic Review* 45(1):1–28.
- Luxemburg Income Study. 2007. *LIS Key Figures: Income Inequality Measures*, <http://www.lisproject.org/keyfigures/ineqtable.htm>.
- Margalit, Elkana. 1994. *Trade Unions in Israel: Past and Present*. Tel-Aviv: Ramot (Hebrew).

- Marx, Karl. [1847] 1963. *The Poverty of Philosophy*. New York: International Publishers.
- Morris, Martina, and Bruce Western. 1999. "Inequality in Earnings at the Close of the Twentieth Century." *Annual Review of Sociology* 25:623–57.
- OECD. 1997. "Economic Performance and the Structure of Collective Bargaining." In *Employment Outlook*, pp. 63–92. Paris: OECD.
- Rueda, David, and Jonas Pontusson. 2000. "Wage Inequality and Varieties of Capitalism." *World Politics* 52(3):350–83.
- Shalev, Michael. 1992. *Labor and the Political Economy in Israel*. Oxford: Oxford University Press.
- Shirom, Arie. 1983. *Introduction to Labor Relations in Israel*. Tel-Aviv: Am Oved Publishers (Hebrew).
- Sussman, Zvi. 1995. "From Collective Agreements to Personal Contacts: Wages, Industrial Relations and the Histadrut." *The Economic Quarterly* 42(1):17–35 (Hebrew).
- and Dan Zakai. 1996. "The Decentralization of Collective Bargaining and Changes in the Compensation Structure in Israel's Public Sector." Discussion Paper No. 96.04. Jerusalem: Bank of Israel, Research Department.
- and ———. 2004. "Wage Gaps in the Public Service in Israel in the 1990's." Discussion Paper No. 2004.02. Jerusalem: Bank of Israel, Research Department (Hebrew).
- Wallerstein, Michael. 1999. "Wage-Setting Institutions and Pay Inequality in Advanced Industrial Societies." *American Journal of Political Science* 43(3):649–80.
- , Miriam Golden, and Peter Lange. 1997. "Unions, Employers' Associations, and Wage-Setting Institutions in Northern and Central Europe, 1950–1992." *Industrial and Labor Relations Review* 50(3):379–400.
- Western, Bruce. 1997. *Between Class and Market*. Princeton: Princeton University Press.
- . 1998. "Institutions and the Labor Market." In *The New Institutionalism in Sociology*, edited by Mary C. Brinton and Victor Nee, pp. 224–43. New York: Russell Sage Foundation.