

Regulatory reform and labor outcomes in the U.S. electricity sector

Although employment reductions have been associated with deregulation of the U.S. electricity sector, reductions in earnings have not; in fact, premium and real weekly earnings for electricity-sector employees have risen

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The last 10 years have seen many States aggressively pursuing the restructuring of their electric utilities. These reforms were motivated by a number of Federal Energy Regulatory Commission (FERC) orders that encouraged competitive markets for wholesale electric power.¹ While the effects of these reforms on the product market (and competition) have been widely studied, there is a dearth of research examining the effect of regulatory reform on the U.S. electricity sector's labor market, which employs more than 300,000 highly skilled workers. This heavily unionized workforce operates and maintains the country's critical electrical infrastructure that both families and businesses rely on for their daily activities.

This study explains the effect of electricity deregulation on this sector's workforce by addressing several factors. After initially reviewing the recent history of the U.S. electricity sector's regulatory movement, the study briefly reviews some of the theoretical background on regulatory reform. Then, data is analyzed on employment, earnings, and unionization in the U.S. electricity sector—before and during the regulatory reform movement, which is still underway. These results are compared with similar results for other previously restructured industries.

The data for the electricity sector reveal employment reductions that are associated with regulatory reform. The findings also indicate that earnings have not been negatively affected by

this restructuring, unlike other sectors examined. In fact, when compared with the earnings of similar workers, the industry earning premiums for electricity-sector employees have actually increased, while the level of unionization in this sector has drifted down. These results are particularly significant, as this is the first deregulated industry to show such contrasting earnings and employment patterns.

Deregulation and competition

The electricity sector has historically been involved in the generation, transmission, and distribution of electricity. Generation involves the production of electricity at power plants. Transmission involves the delivery of electricity to distribution facilities over a system of high voltage power lines. Once the power arrives at the distribution center, it is "stepped down" to a voltage that can be distributed. The distribution system is then responsible for delivering power from the transmission system to homes and businesses using a network of wires and transformers.

Historically, the electric utility sector consisted of vertically integrated firms that were involved in the generation, transmission, and distribution of electricity. This internal firm structure was viewed as an efficient approach toward providing electricity service to customers. State governments, though, restricted state-wide entry into

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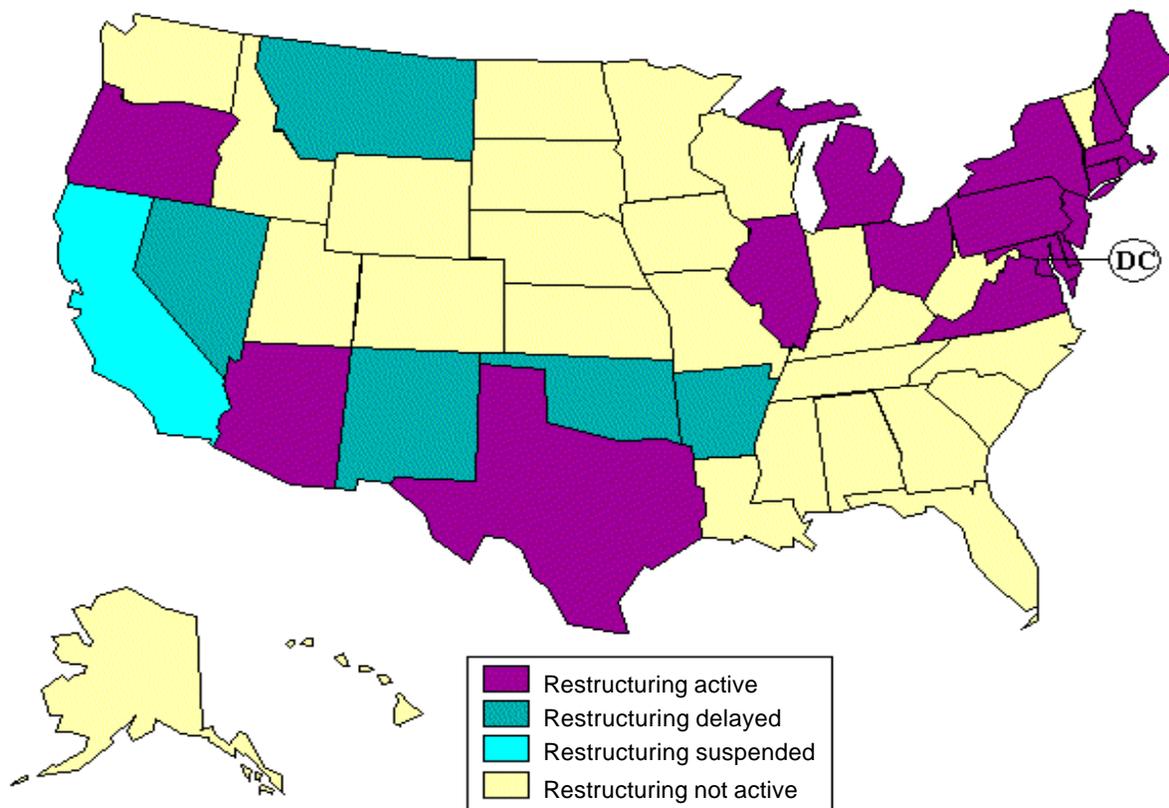
this sector and extended these state monopolies with a legal right (and obligation) to distribute electricity to the customers in their geographic area at prices typically set by State public service commissions. While the transmission and distribution components of electricity production are still considered natural monopolies (although transmission is subject to some limited regulatory reform), many have recently begun to recognize that the generation sector may benefit from a more competitive environment—through competition between generators. This enhanced competition is meant to create a business environment that promotes lower electricity prices and more efficient means of generation. In essence, consumers and businesses will be able to choose from a variety of competitive electricity suppliers. This separation of related services is similar to the regulatory reform models applied to other network industries, such as natural gas and telecommunications, in the past.

Current status of restructuring

The effort to restructure the U.S. electricity sector and develop markets for wholesale electric power has slowed significantly. This slowing is partly the result of the 2001 power crisis in California that some attribute, at least in part, to California's deregulation of their electric utilities.² Chart 1 shows the regulatory status of each State as of December 2002.

Comprehensive reform began in a number of States from 1990 to 1997. These States include Massachusetts, Rhode Island, New York, Maine, Pennsylvania, Illinois, Connecticut, California, New Jersey, and Delaware. Several other States have recently implemented restructuring including Arizona, Ohio, Maryland, Michigan, New Hampshire, and Texas. There are also a number of States that have passed restructuring legislation and then suspended action. These States include

Chart 1. The current status of U.S. electricity-sector restructuring, December 2002



NOTE: This map is maintained and updated monthly by the Energy Information Administration on the Internet at http://www.eia.doe.gov/cneaf/electricity/chg_str/regmap.html.

Nevada, Montana, New Mexico, Oklahoma, and Arkansas. Large industrial customers were the driving force behind the regulatory reform movement. These heavy users of electric power were interested in decreasing the rates they pay, which competition was predicted to encourage. This demand from industrial users helps explain why much of the early restructuring effort progressed quickly in Northeastern and Midwestern States, given the concentration of industrial firms in these regions.

Another trend in the product market has been the merger and consolidation of investor-owned electric utilities. For instance, from 1997 to 2000 there were 23 mergers of investor-owned electric utilities with assets valued at \$0.5 billion or greater.³ Consolidating and increasing the size of firms is a common approach used by company owners to enhance their company's competitive advantage in a deregulated environment. Such business strategy can improve business performance by creating economies of scale. However, these economies are commonly achieved through the elimination of redundant activities (and possibly jobs). This is only one example of the many ways in which regulatory reform might affect the labor market for electricity workers. Such policy can also place downward pressure on earnings and unionization.

Regulatory reform and labor markets

There have been a number of studies that have investigated the effect of regulatory reform on labor markets in transportation and telecommunications.⁴ However, no detailed study has investigated this topic in the electricity sector.⁵ Although the effect of industry reform on employment, earnings, and unionization cannot be determined, *a priori*, with certainty (as demonstrated later), there are a number of economic theories that can help guide our expectations.

Many have found that increased competition in a labor market has a negative effect on employee earnings.⁶ This is typically attributed to the fact that regulation, and its restriction on competitive firm entry, allows for relative ease of unionization. Employees tend to have a significant bargaining advantage when negotiating with utilities, because the per-worker costs of unionization are low in industries with a few large firms. It is thought that the removal of the barrier to entry in these markets creates a major obstacle to unions as new, often nonunion, firms compete for customers in the previously protected industry. It has also been postulated that rate-of-return regulated firms, like electric utilities, have less incentive to contest the earnings demands made by unions because much of the costs are often passed on to consumers in the form of higher utility bills.⁷

The effect of regulatory reform on employment is more ambiguous. It seems that the method by which an industry's

workforce is transformed by deregulation is a function of how efficient the employees in that industry were before the reform movement. In a relatively inefficient industry, job cuts would prevail as firms attempt to become more competitive in the face of new firm entrants. If, instead, an industry were efficient in labor supply before regulatory reform, it seems less likely that job cuts would be required to address stepped-up competition. Even though the incentive to enhance efficiency influences industry employment patterns when firms face greater competition, union demands for job security limit the extent to which firms can easily lay off workers or employ nonunion replacement workers. The employment constraint that electric utility owners face is especially significant given the relatively large percentage of workers in this industry who are represented by a union. Another cause of this ambiguity may be the source of industry inefficiency. For example, if inefficiencies were due to the failure of the regulated firm to invest in plant and equipment, deregulation may lead to investment rather than job cuts.

Other industry experiences

Since the late 1970s there have been a number of highly organized industries that have undergone some type of regulatory reform. This section reviews four of these industries: trucking, railroads, airlines, and telecommunications. Such a review helps provide insight on the expected labor-market effects of electricity utility deregulation. Table 1, based on the Current Population Survey, presents data on percent unionization, total employment, and real weekly earnings for each of these industries.⁸ The post-deregulation period for trucking, railroads and airlines began in 1978, while this period began in 1983 for telecommunications. There are both common and distinct trends among these industries.

In the trucking industry,⁹ a large reduction in union membership has taken place since deregulation was implemented. While union membership fell by a modest 3 percentage points from 1973 to 1978, it has fallen 27 percentage points since the policy shift of regulatory reform. In contrast to this union employment pattern, deregulation has caused large employment gains in trucking overall, particularly from 1983 to 1988. Trucking employment gains have continued in this industry to the present. Real weekly earnings, however, declined during most of the post-deregulation period.

In the railroad industry,¹⁰ there has been little impact on union membership. The percentage of union workers in the railroad industry fell only from 79 percent in 1978 to 71 percent in 2001—a smaller decrease throughout the overall labor market. The relatively small union membership declines in rail are attributable in large part to the lack of new nonunion entrants into this naturally oligopolistic industry. The substantial em-

Table 1. Unionization, employment, and earnings in restructured industries, selected years

Industry	1973	1978	1983	1988	1991	1996	2001
Trucking¹							
Union membership rate .....	.49	.46	.38	.25	.25	.23	.19
Employment (in thousands)	997	1,111	1,117	1,544	1,617	1,907	2,113
Weekly earnings (1983/1984 dollars)	\$499	\$491	\$404	\$386	\$405	\$353	\$368
Railroad¹							
Union membership rate .....	.83	.79	.83	.81	.78	.74	.71
Employment (in thousands)	587	580	428	363	286	282	257
Weekly earnings (1983/1984 dollars)	\$475	\$491	\$507	\$490	\$494	\$470	\$432
Airlines¹							
Union membership rate .....	.46	.45	.43	.42	.37	.36	.39
Employment (in thousands)	368	465	464	683	696	800	1245
Weekly earnings (1983/1984 dollars)	\$499	\$498	\$455	\$420	\$443	\$435	\$453
Telecommunications²							
Union membership rate .....	.59	.55	.55	.44	.42	.29	.24
Employment (in thousands)	949	1,075	1,060	1,114	1,107	1,126	2,065
Weekly earnings (1983/1984 dollars)	\$399	\$442	\$457	\$447	\$458	\$488	\$679
All wage and salary employees							
Union membership rate .....	.24	.23	.20	.17	.16	.15	.14
Employment (in thousands)	75,519	84,968	88,290	101,407	102,786	111,960	120,708
Weekly earnings (1983/1984 dollars)	\$315	\$301	\$273	\$267	\$255	\$256	\$273

SOURCE: Union membership rates were provided by Barry Hirsch and David Macpherson at <http://www.trinity.edu/bhirsch/unionstats/>. Information on employment and earnings was taken from the Current Population Survey Files.

¹ The post-deregulation period for trucking, railroads and airlines began in 1978.

² The post-deregulation period for telecommunications began in 1983.

ployment declines (more than 55 percent decline in employment from 1978 to 2001) suggest that this continued collective bargaining power was not enough to protect employees' jobs. Nonetheless, railroad unions were able to negotiate less substantial earning declines than those that were prevalent in the trucking sector.

The labor market changes in the airline industry¹¹ also reveal interesting post-deregulation earning and employment patterns. Although unionization levels among airline workers have had some declines, the decreases have not been nearly as extensive as those in trucking. Post-deregulation changes in airline unionization levels more closely resemble that of rail. Past research attributes the small unionization decline in airlines to the industry's continued domination by a handful of large union carriers following deregulation.¹² The post-deregulation period has also been one of major employment increases for the airline industry.¹³ Some of these employment gains can be attributed to increased demand from passengers responding to discount fares offered along high-density routes following deregulation. Avoiding significant reduction in union membership during this trend of increasing air travel helped create a labor market environment that allows for the maintenance of high earnings. Indeed, the earning patterns presented in table 1 reveal that earnings for airline workers in 2001 were about the same as in 1983, declining only slightly following deregulation.

In contrast to the union membership trends reported for railroad and airlines workers, table 1 indicates that union membership in telecommunications¹⁴ has declined significantly since the 1984 divestiture of AT&T. Union membership rates in this sector fell from 55 percent in 1983 to 24 percent in 2001. Whereas employment growth had been moderate from 1983 to 1996, the telecommunications bubble from 1996 to 2001 is associated with significant employment increases. Employment in this sector climbed from 1,126,000 employees in 1996 to 2,065,000 employees in 2001.¹⁵ Real earnings followed a similar path as employment in this sector, increasing almost 40 percent over this same time period.¹⁶

Examination of data on all wage and salaried employees in the United States suggests that declining unionization reported for deregulated industries is part of an overall trend in the U.S. labor market. For instance, since 1973, the percentage of all employees in labor unions has fallen from 24 percent to 14 percent. The findings in table 1 also indicate that the overall U.S. labor force has expanded by 60 percent, and real earnings have fallen during much of this period. These economy-wide earnings and employment patterns more closely resemble those found in trucking compared with those of other deregulated industries.

By comparison, union membership in the electricity sector has also fallen over this time period but not as dramatically as the overall labor market. As the following text tabulation

shows, electricity-sector unionization has fallen from 47 percent in 1973 to 30 percent in 2001. However, the electricity sector continues to be significantly more unionized than the overall labor market.

Year	Union membership rate	Employment (in thousands)	Weekly earnings (1983/1984 dollars)
1973 .....	.47	321	\$ 522
1978 .....	.46	354	558
1983 .....	.44	433	572
1988 .....	.37	452	600
1991 .....	.38	448	592
1996 .....	.31	383	652
2001 .....	.30	360	726

Comparing earnings and employment trends in the U.S. labor market with trends in deregulated industries reveals clear and distinct effects from regulatory reform in these industries' labor markets. Predicting these changes is difficult. For example, whereas the major impact of restructuring in the trucking industry was a pronounced decline in unionization and earnings, the railroad industry experienced a major decline in employment while unionization and earnings remained steady. The telecommunications industry saw large employment gains in the post-deregulation period along with steady declines in unionization. The experiences of these industries shed some

light on what could take place in the electricity-sector labor market as a result of restructuring. However, it is not clear, *a priori*, what the precise impact will be on unionization, earnings, and employment.

Employment trends in the electricity sector

Data on the U.S. electricity sector,¹⁷ taken from the Bureau of Labor Statistics Covered Employment and Wages (CEW) survey, is used to investigate earnings and employment trends in the electricity sector following deregulation. Employment trends in chart 2 show that the number of employees in the electricity sector has fallen to about 339,000 employees (or about 24 percent) since 1990¹⁸—a change from the upward trend that had prevailed up until then. As mentioned earlier, 1990 is the year in which regulatory reform was implemented in various States. This post-deregulation employment decline represents more than 105,000 electric utility workers. Such a sectoral employment decline is not unique to the United States, as deregulation had a similar effect on the electricity-sector labor force in the United Kingdom.¹⁹

Chart 3 suggests that this employment effect differs by regulation status of States. Employment in the States classified as “restructuring active”²⁰ (called “deregulated” in chart 3)

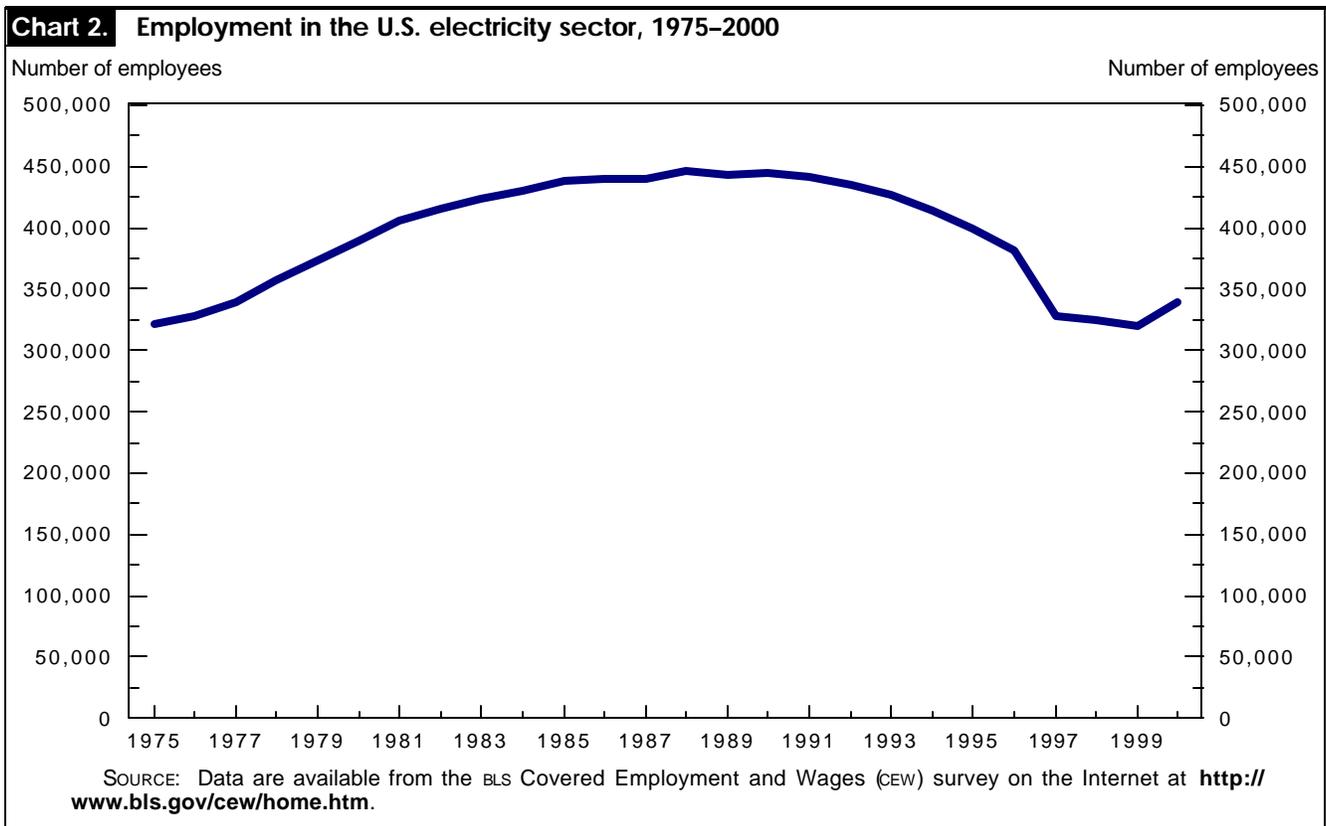
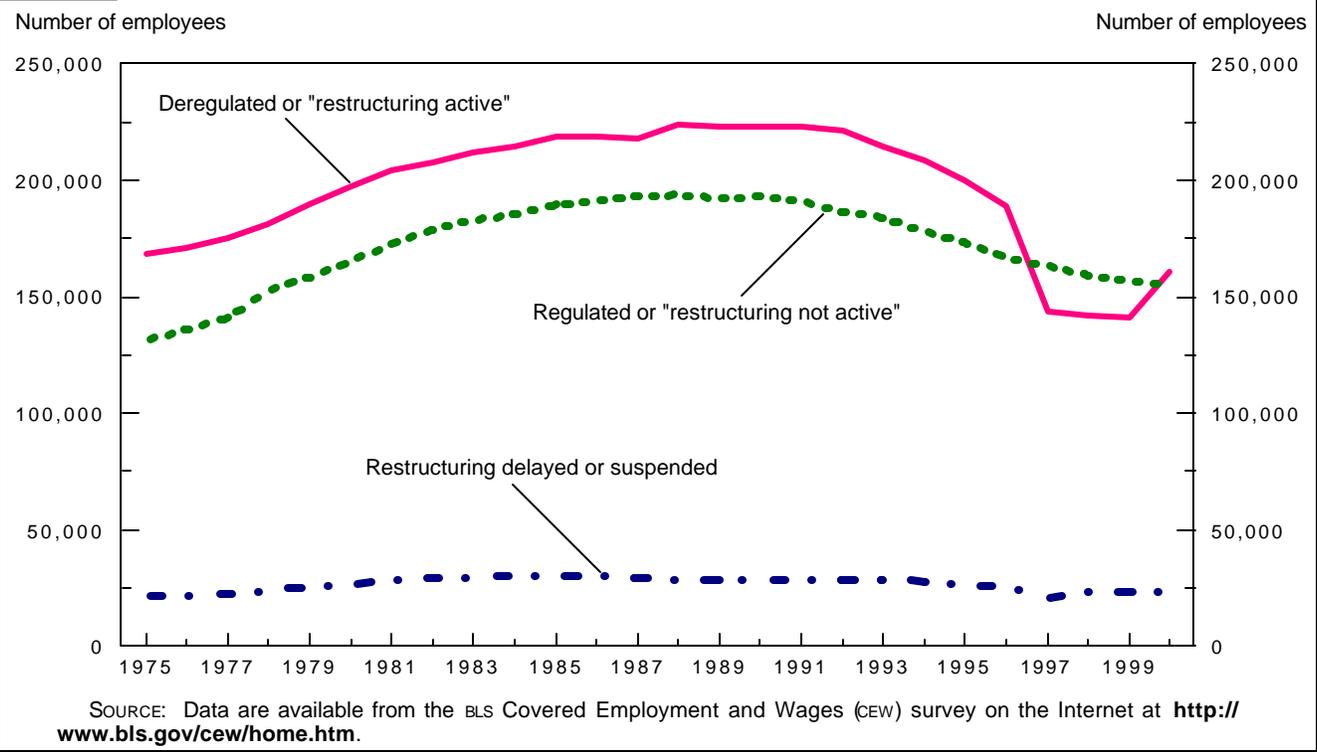


Chart 3. Employment by regulation status as of December 2002 in the U.S. electricity sector, 1975–2000



by the U.S. Energy Information Administration has fallen by nearly 29 percent from 1990 to 2000, compared with employment in the States categorized as “restructuring not active”²¹ (called “regulated”), which has fallen by about 19 percent over the same time period. This suggests that both regulatory reform, as well as the expectation of regulatory reform, have an impact on employment. The States that have delayed or suspended discussion of regulatory reform of their electric utilities show little appreciable change in employment.

As suggested earlier, it is likely that these employment declines are the result of significant consolidation and merger of electric investor-owned utilities underway since 1992. Many of these firms have publicly stated that the motivation for their mergers was the need to get bigger, and therefore, more competitive. Their hope was to achieve economies of scale by eliminating redundant activities across multiple utilities. For example, marketing and human resource departments may be eliminated at one of the firms, cutting employment and costs. It is also likely that larger utilities can obtain better pricing from their input suppliers.

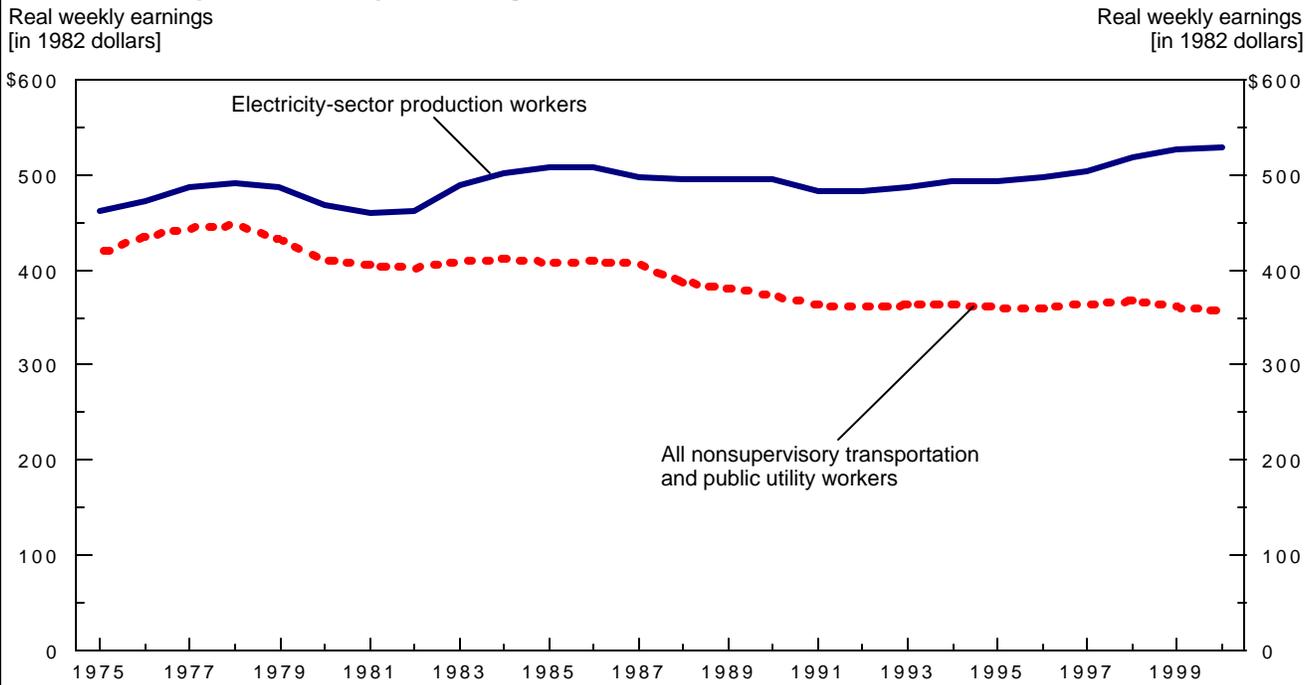
Unionization and weekly earnings

Earnings data taken from the BLS Covered Employment and Wages (CEW) program are used to examine earnings

trends in the electricity sector. The impact on real earnings in this sector, since the deregulation movement began, stands in sharp contrast to that of employment. Chart 4 shows that real earnings of production workers in the electricity sector have actually increased since 1992.²² From 1992 to 2000, real weekly earnings rose from \$482 per week to \$529 per week in this sector. This is an increase of almost 10 percent in real weekly earnings. Chart 4 also shows real weekly earnings for all nonsupervisory transportation and public-utility sector employees. Interestingly, while the electricity-sector employees saw an earnings increase, this broader sector experienced very little earnings change over the 1992–2000 time period. In fact, the general trends in these two data sets followed very similar paths until the early 1990s.

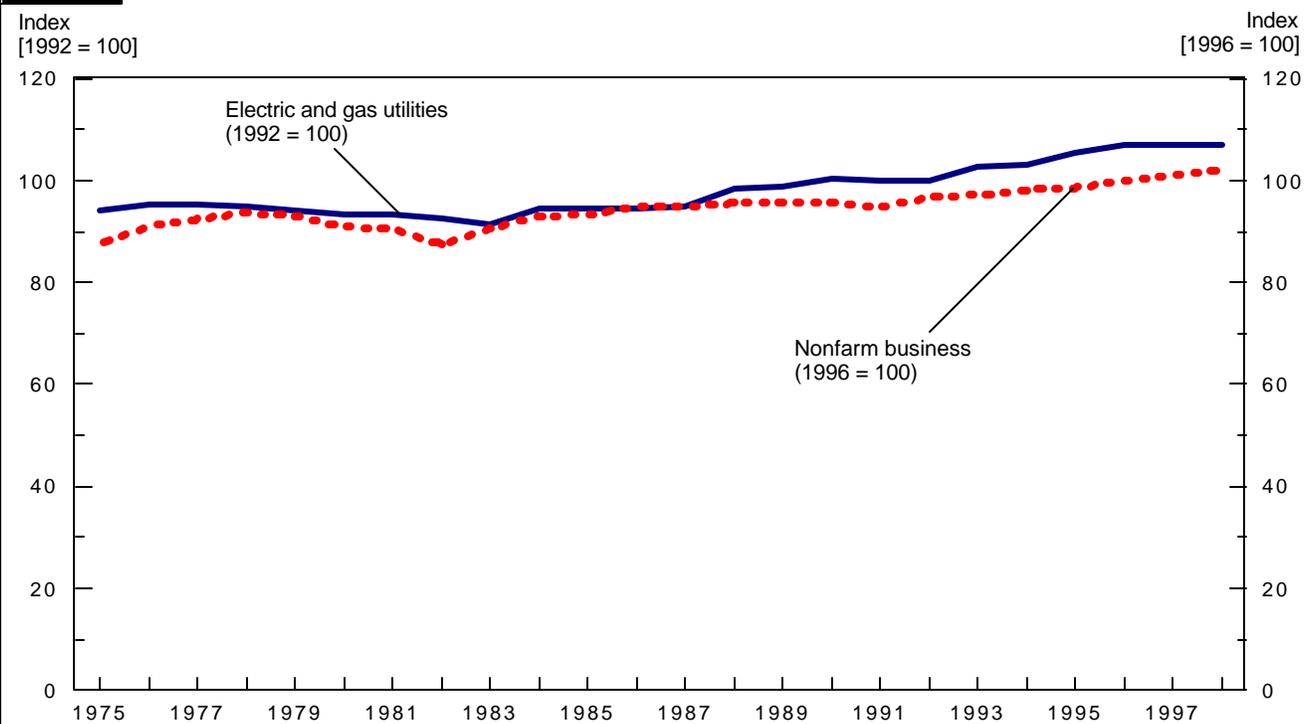
To determine whether this earnings discrepancy was due to individual-worker characteristic differences between the two cohorts, Current Population Survey data was analyzed from 1983 to 2000.²³ This analysis found no significant differences in education levels or hours worked for these two groups. Productivity data, only available for electric and gas utilities from BLS, was also compared with all nonfarm businesses. No substantial difference in productivity between these two groups was found to explain these earnings increases, as can be seen in chart 5.

Chart 4. Real weekly earnings for electricity-sector production workers, compared with all transportation and public utility workers, 1975-2000



SOURCE: Data are available from the BLS Current Employment Statistics survey (National) on the Internet at <http://www.bls.gov/ces/home.htm>.

Chart 5. Multifactor productivity index, 1975-98



SOURCE: Data are available from the BLS Major Sector Multifactor Productivity Index on the Internet at <http://data.bls.gov/cgi-bin/surveymost?mp>.

Examination of chart 6 suggests that regulatory reform is also associated with electricity-sector earnings. Whereas earnings in States that are currently deregulated have historically been higher than those in currently regulated States, this premium has increased significantly in recent years.²⁴ In the pre-deregulation period from 1975 to 1989, the average real-earnings premium in the now deregulated States averaged \$48 per week. In the post-deregulation period, covering the years 1990 to 2000, this premium jumps to about \$87 per week.

Chart 7 shows union-membership rates in the electricity, telecommunications, trucking and airline industry, as well as the entire labor market. While the unionization decline in the telecommunications and trucking industries is apparent, the electricity-sector story is similar with some interesting intricacies. Overall, union membership in the electricity sector has fallen from 37 percent to 30 percent over the period of regulatory reform. Although 2001 was a continuation of the downward trend, there were slight increases in unionization that started in 1992 and 1996.

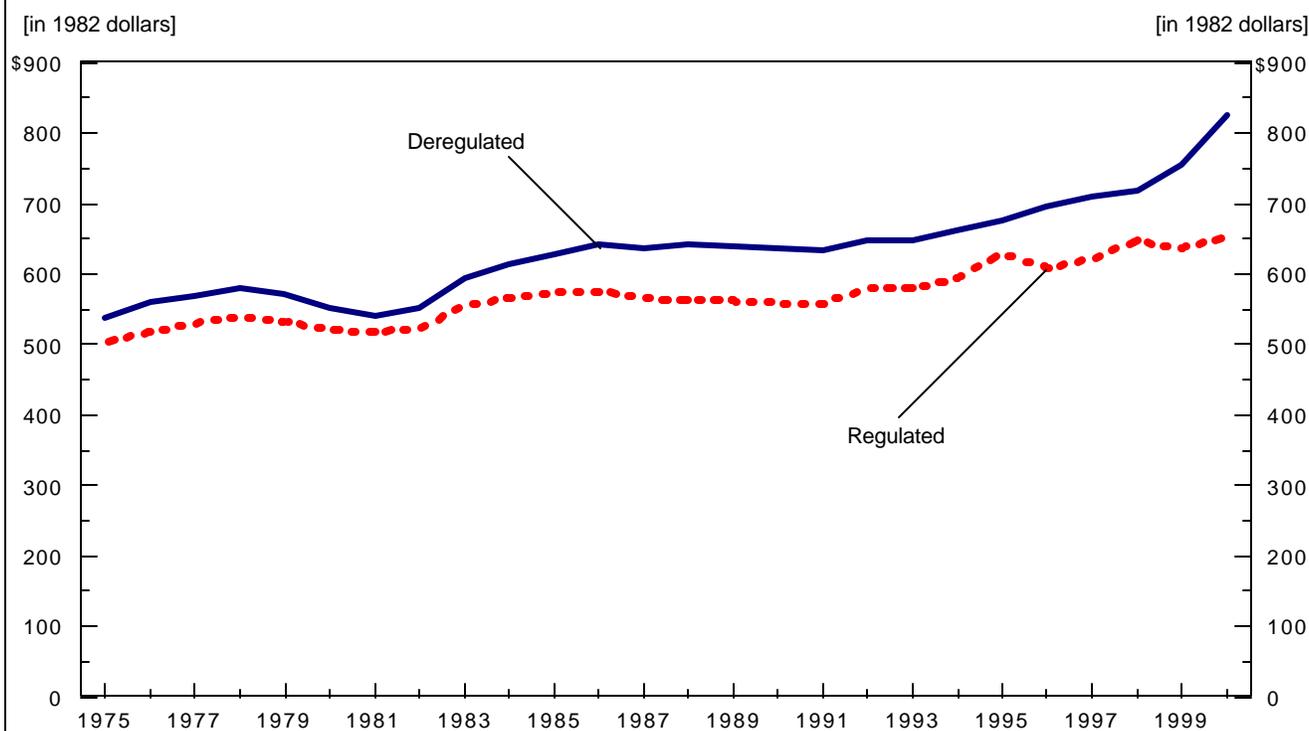
Collective bargaining

The majority of unionized U.S. electricity-sector employees belong to either the International Brotherhood of Electrical

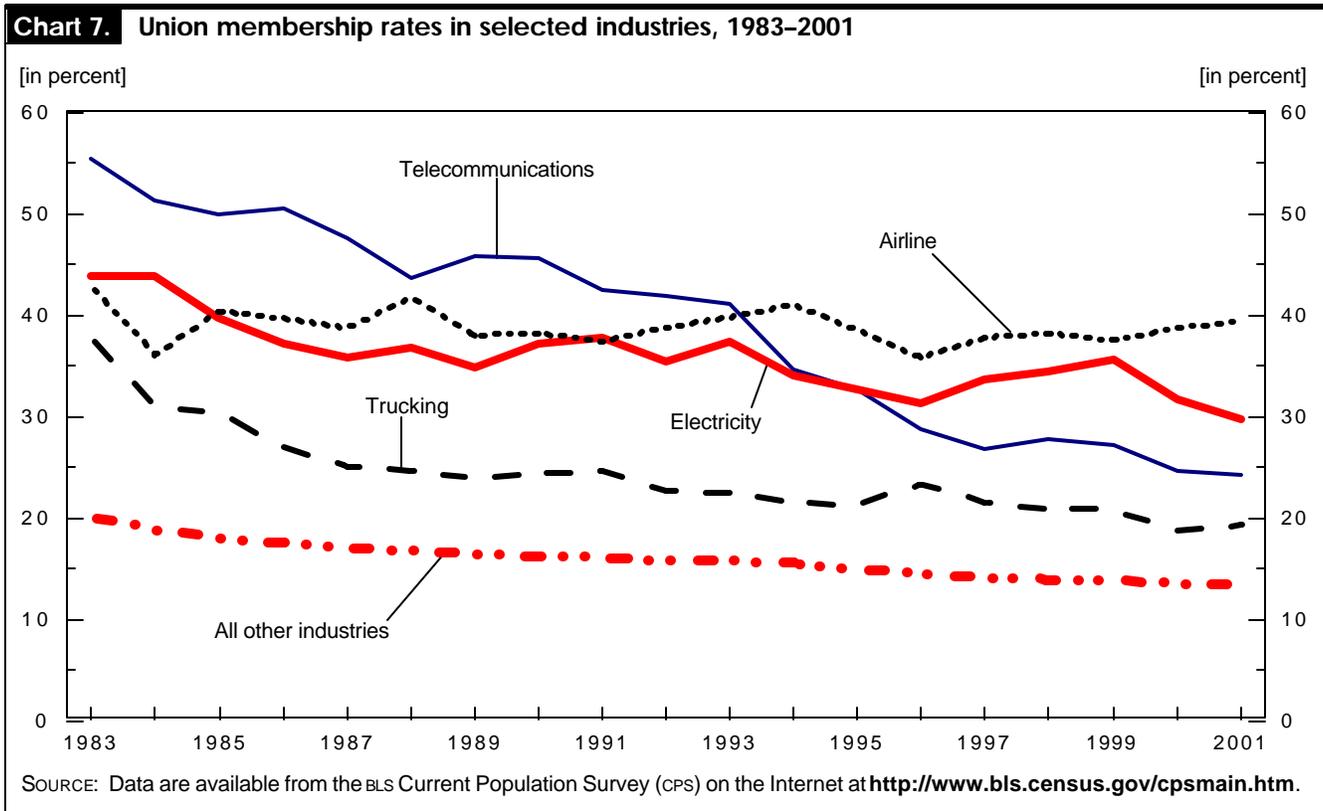
Workers (I.B.E.W.) or the Utility Workers Union of America (U.W.U.A.). The I.B.E.W. is by far the largest union, representing more than 83 percent of the organized utilities in the United States and Canada and 70 percent of the unionized Investor Owned Utilities.²⁵ They represent all types of electricity-sector employees including: meter readers, linemen, electrical installers, electricians, and many more. A summary of 2002 labor contract negotiations between the I.B.E.W. and electric utilities provide further evidence of contrasting earnings and employment patterns in this industry.²⁶ For instance, the I.B.E.W. and Arizona Public Service negotiated a 9.25-percent wage increase over a 3-year contract for approximately 1,800 employees in April 2002.²⁷ The I.B.E.W. and Dominion Resources settled on a 13.8-percent wage increase over a 5-year contract in September 2002 for 4,700 workers.²⁸ Wage increases of 9 percent over a 3-year period were negotiated for 1,500 workers at PSI Energy in May 2002.²⁹ General wage increases were also negotiated at Georgia Power for 3,800 workers in September 2002.³⁰ Georgia Power employees also agreed to incentive plans based on job performance. Lastly, workers at Florida Power Corporation agreed to 3-percent raises beginning in December 2002.³¹

Employment negotiations at these electric utility companies indicate that worker attrition was primarily achieved

Chart 6. Electricity-sector real weekly earnings by regulatory status, 1975–2000



SOURCE: Data are available from the BLS Covered Employment and Wages (CEW) survey on the Internet at <http://bls.gov/cew/home.htm>.



through early retirements. For instance, Ameren Corporation announced a voluntary retirement program for 1,000 workers in November 2002.³² Dominion Resources, as part of the contract discussed earlier, also offered an early retirement supplement. Utilities have been attempting to cut their employment, as well as labor costs, by encouraging early retirement of some of their highest wage earners. While doing this, they continue to offer wage increases to the employees that are retained.

Conclusions

Regulatory reform is well underway in the U.S. electricity sector. While the impact on the product market—namely prices and competition—has been studied in detail, little attention has been paid to the impact of this restructuring on the labor market. This article finds that significant employment decreases are sometimes associated with this regulatory reform. Overall electricity-sector employment has fallen by more than

24 percent since the regulatory reform movement began in 1990. By analyzing these data by State regulatory status, it is quite conclusive that these employment declines are strongly correlated with regulatory reform. Employment in States where restructuring is currently active saw a 29-percent employment decline, far larger than the 19 percent observed in States that have not yet undergone any regulatory reform.

This study also finds that at least through 2001 electricity-sector regulatory reform has not had any negative impact on earnings. Rather, employees in this sector have seen increases in both their real weekly earnings, as well as their earnings premium, compared with other utility workers. It is postulated that union contracts, and the fact that this reform is still underway, have helped to maintain earnings premiums. It is apparent that electric utilities have cut costs, and become more competitive, through employment declines as opposed to earnings actions. This is reinforced through the study of a handful of recently negotiated union contracts in this sector. □

Notes

ACKNOWLEDGMENT: The author is grateful to James Peoples, Keith Bender, and David McDermott for helpful comments.

¹ These regulatory orders include the following: 1978 PURPA Act, which mandated that utilities must purchase electricity from nonutilities at their avoided cost; 1992 EPACT Act, which opened the transmission system to nonutilities; 1996 FERC Order 888 and 889, which established wholesale electricity markets for competition.

² Paul Joskow explains many of the reasons for this slowdown in "Electricity Competition in the U.S. where do we go from here?" a presentation available from the MIT Center for Energy and Environmental Policy Research (November 2001) on the Internet at <http://econ-www.mit.edu/faculty/pjoskow/papers.htm>.

³ J. Anderson, "Making Operation Sense of Mergers and Acquisitions," *The Electricity Journal*, 1999, Vol. 12, No. 7.

⁴ A number of these studies can be found in the following: James Peoples, *Regulatory Reform and Labor Markets* (Boston, MA, Kluwer Academic Publishers, 1997). The following article also provides a good review of the literature in this area: Clifford Winston, "Economic Deregulation: Days of Reckoning for Microeconomists," *Journal of Economic Literature*, September 1993, Vol. 31, pp. 1263–89.

⁵ See David McDermott, "Employment and other trends in the electric services industry," *Monthly Labor Review*, September 1999, pp. 3–8. McDermott mentions a general employment decline in the U.S. electricity sector.

⁶ For airlines: Nancy Brown Johnson, "Airline Workers' Earnings and Union Expenditures under Deregulation," *Industrial Labor Relations Review*, October 1991, Vol. 45, No. 1, pp. 154–65; and Pierre Cremieux, "The Effect of Deregulation on Employee Earnings: Pilots, Flight Attendants, and Mechanics, 1959–1992," *Industrial and Labor Relations Review*, 1996, Vol. 49, No. 2, 223–42. For railroads: Clifford Winston et al, *The Economic Effects of Surface Freight Deregulation* (Washington, DC, The Brookings Institution, 1990); Wayne K. Talley and Ann V. Schwartz-Miller, "Railroad Deregulation and Union Labor Earnings," in James Peoples, ed., *Regulatory Reform and Labor Markets* (Boston, MA, Kluwer Academic Publishers, 1997); and Michael Belzer, "Commentary on Railroad Deregulation and Union Labor Earnings," in James Peoples, ed., *Regulatory Reform and Labor Markets* (Boston, MA, Kluwer Academic Publishers, 1997). For trucking: Nancy L. Rose, "Labor Rent Sharing and Regulation: Evidence from the Trucking Industry," *Journal of Political Economy*, December 1987, Vol. 93, No. 6, pp. 1146–78; Barry T. Hirsch and David A. Macpherson, "Earnings and Employment in Trucking: Deregulating a Naturally Competitive Industry," in James Peoples, ed., *Regulatory Reform and Labor Markets* (Boston, MA, Kluwer Academic Publishers, 1997); and Clifford Winston et al, *The Economic Effects of Surface Freight Deregulation* (Washington, DC, The Brookings Institution, 1990).

⁷ This theory is described in the following: Ronald G. Ehrenberg, *The Regulatory Process and Labor Earnings* (New York, Academic Press, 1979).

⁸ CPS data are available on the Internet at <http://www.bls.census.gov/cps/cpsmain.htm>. Summary of CPS data on unionization is available from the Hirsch/Macpherson reference used in table 1.

⁹ Census Industry Code 410.

¹⁰ Census Industry Code 400.

¹¹ Census Industry Code 421.

¹² CPS data are available on the Internet at <http://www.bls.census.gov/cps/cpsmain.htm>. Summary of CPS data on unionization is available from the Hirsch/Macpherson reference used in table 1.

¹³ It is expected that employment declines will be seen in the future as a result of the dramatic events in this industry since the terrorist attacks of 2001. The precarious financial position of many airlines has led to union, earnings, and employment pressure.

¹⁴ Census Industry Code 441.

¹⁵ CPS data are available on the Internet at <http://www.bls.census.gov/cps/cpsmain.htm>.

¹⁶ *Ibid.*

¹⁷ Standard Industrial Code 491.

¹⁸ This trend was discussed in the following: David McDermott, "Employment and other trends in the electric services industry," *Monthly Labor Review*, September 1999, pp. 3–8. These data have been updated.

¹⁹ David Newberry and Michael Pollitt, "The Restructuring and Privatization of the CEBG: Was it worth it?," *Journal of Industrial Economics*, 1997, Vol. 45, No. 3, pp. 269–304.

²⁰ These States include: Arizona, Connecticut, Delaware, District of Columbia, Illinois, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Texas, and Virginia.

²¹ These States include: Alabama, Alaska, Colorado, Florida, Georgia, Hawaii, Idaho, Indiana, Iowa, Kansas, Kentucky, Louisiana, Minnesota, Mississippi, Missouri, Nebraska, North Carolina, North Dakota, South Carolina, South Dakota, Tennessee, Utah, Vermont, Washington, West Virginia, Wisconsin, and Wyoming.

²² Electricity-sector production workers were used because total electricity-sector weekly earnings actually increased by a significantly larger amount. It is possible that this large increase is due to bonus or stock payments related to the mergers in this industry. Production workers are a more appropriate measure of the actual impact of regulatory reform on worker earnings.

²³ CPS data are available on the Internet at <http://www.bls.census.gov/cps/cpsmain.htm>.

²⁴ Likely due to higher costs of living and union participation in the deregulated Northeastern States.

²⁵ Data are available on the Internet at <http://ibew.org>.

²⁶ The author reviewed utility contracts in 2002 from *Labor Relations Week* published by the Bureau of National Affairs.

²⁷ *Labor Relations Week*, May 22, 2002.

²⁸ *Labor Relations Week*, September 12, 2002.

²⁹ *Labor Relations Week*, June 27, 2002.

³⁰ *Labor Relations Week*, October 10, 2002.

³¹ *Labor Relations Week*, January 2, 2003.

³² *Labor Relations Week*, November 7, 2002.