

Wages in the Steel Industry: Take the Money and Run?

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Sharp increases occurred in the wages paid by integrated steel firms in the 1970s despite reductions in employment caused by the industry's decline. This article reviews several explanations suggested for this puzzling outcome and evaluates them using information on the size and timing of wage increases, on investment decisions, and on expectations about future inflation and demand growth. Overly optimistic expectations for demand growth and unexpected inflation appear to explain much of the data.

I. Introduction

The real wage of iron and steel workers rose very sharply in the 1970s, both absolutely and relative to the average real manufacturing wage. From 1970 to 1980, steelworkers' real wages increased 37 percent, and the premium over the average manufacturing wage increased from 140 to 188 percent. During the subsequent 11 years of industry contraction, steelworkers retained almost 30 percent of the real-wage increases gained from 1970 to 1980 and almost half the increased premium.¹

This pattern was observed in other unionized industries. During the late 1970s and 1980s, the union wage premium increased rather than narrowed, as had generally occurred in inflationary periods (Lewis, 1963,

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¹ Bureau of Labor Statistics (BLS), *Census of Manufactures* and *Annual Survey of Manufactures*, various years.

1986; Johnson, 1984; Freeman and Medoff, 1984). Premiums well above historical experience developed in several sectors, including durable manufacturing. The wage gap in these sectors increased during the expansions between 1975 and 1979 and persisted after the 1982 recession (Edwards and Swaim, 1986; Linneman and Wachter, 1986). As of 1988, relatively little downward adjustment had occurred despite large declines in union employment (Linneman, Wachter, and Carter, 1990; Wachter and Carter, 1989).

What makes the steel industry's experience of particular interest is that it began a massive contraction even as wages rose. Integrated firms' annual capacity totaled about 155 million tons in 1973 (Institute for Iron and Steel Studies, 1979). By 1980, these firms' capacity had fallen to 137.6 million tons and by 1992 to 75 to 80 million tons.² Industry employment, which had declined slowly but continuously from its high point of 544,000 in 1953 to 403,000 in 1970, dropped precipitously after production peaked in 1973. From 1970 to 1980, production employment fell by 46 percent, and by 1990, it had fallen to 120,000, 30 percent of its 1970 level.³

Simple models of labor markets cannot explain why steelworkers' wages rose. In such a model, wages would rise if the labor demand curve shifted out due to an increase in the output price or an increase in worker productivity (assuming an upward-sloping labor supply curve). Steel prices did increase relative to the consumer price index (CPI) during the 1970s, but this was not a price increase driven by continually increasing demand (see note 3). Productivity also increased but would have to have been accompanied by higher employment and output and lower output prices to explain higher wages, none of which were observed.⁴ Higher

² Figure for 1980 is from Institute for Iron and Steel Studies (1983). Figure for 1992 is author's estimate.

³ American Iron and Steel Institute (AISI), *Annual Statistical Report*, various years. These numbers reflect the totals for the American Iron and Steel Institute membership, which includes nonintegrated (growing) firms as well as integrated firms. Integrated firms contracted partly because U.S. steel consumption peaked in 1973 at 122.5 million net tons; in 1990 it was 97.8 million net tons, despite a 51 percent increase in real GNP during the same period. At the same time, competition increased from imports, which grew from an average of 2.5 percent of the market during the years 1960–1964 to an average of 19.6 percent during the years 1985–1989, peaking in 1984 at 25.5 percent, and from lower-cost domestic competitors known as *minimills*, which increased their market share from 2 to 3 percent in 1960, to 14 percent in 1980, to over 20 percent by the late 1980s (AISI; Miller, 1984; Basta, 1986; Hicks, 1992). The market share of domestic integrated steelmakers fell from around 95 percent in 1960 to around 60 percent in the late 1980s.

⁴ Even if backward shifts in steel demand reduced overall production and employment, steel prices still increased rather than falling, as would be the case if wage increases were productivity driven. Further, large productivity gains *followed* the wage increases of the 1970s; the average annual increase in the index of output per man-hour (all employees) over the years 1960–1970 was 1.64; over the years 1970–1980 it was 1.53; and over the years 1980–1989 it was 6.99 (BLS, as reported in AISI, *Annual Statistical Report*, various issues).

wages also would result if the labor supply decreased, perhaps because other jobs became more attractive, but the explanation is unlikely given the increase in the wage premium, the overall level of unemployment, and the number of steel workers laid off.

At least three different explanations of the puzzling behavior of the firms and the United Steelworkers of America (USWA) have been suggested. One of the models proposes that the wage pattern was a rational response to firms' and workers' recognizing that the industry was in irreversible decline. In this model, wages increased when the union adopted an endgame strategy aimed at increasing labor's share of the remaining quasi-rents.⁵

The other two explanations assume instead that steel firms and the union did *not* know their industry was declining. One story, designed to explain the behavior of the overall union wage premium rather than the steel industry experience in particular, holds that unexpected inflation, cost-of-living adjustments (COLAs), and contracts that were costly to adjust explain both why the premium increased and why it was slow to adjust. The other story explains that steelworkers' wages rose because in the early and middle 1970s the firms and the union held expectations for steel market growth rates that proved wildly optimistic.

The objective of this paper is to assemble information such as negotiated wage increases, investment decisions, and expectations about demand growth and inflation to evaluate these explanations of the wage pattern in steel. The analysis is qualitative and restricted to a single industry, which limits the generality of any conclusions, but the approach allows a deeper study of how different theories match practice in this particular case.

The episode is worth study because we know less about how labor and capital exit from industries than we do about how industries grow. As the different stories above illustrate, we do not know whether the wage pattern observed in steel resulted from foreseen or unforeseen decline. Studying when workers and managers appeared to realize that the market was declining, and how they then reacted, could give insight into how wages in other declining industries might behave.

The issue is also interesting because employment costs have been mentioned as a major cause for the steel industry's decline (representing

⁵ An efficiency wage model also has been used to explain steelworker wages. In this model, the efficiency wage premium increased, and thus wages increased, because employment tenure became less certain as the industry began contracting (Bulow and Summers, 1986). While the theory is not explicitly evaluated here, it resembles the endgame model in that wage increases are also caused by the industry's decline.

as they did about one-third of total costs). The endgame model predicts instead that wages increase *after* a permanent negative demand shock. In this paper I conclude that the observed wage, bargaining, and investment behavior can best be explained if market participants did not anticipate the decline in the market share of integrated steel firms. Thus, while increases in other costs also contributed to the industry's problems,⁶ it is likely that rising wages added to the size and speed of the contraction.

I first review the endgame model and the unexpected inflation explanation. I then present evidence on three issues: the contribution of inflation to steelworker wage rate increases, the optimistic expectations about the industry's future held in the early and middle 1970s, and the changes in behavior signaling that those expectations had altered. I conclude that neither an endgame effect nor unexpected inflation is as plausible an explanation as that the industry participants seriously overestimated demand growth when making important wage commitments.

II. Two Alternative Explanations

The endgame model. The endgame model explains the large, discretionary increases in wages as the result of workers realizing that the industry was in decline. In response, the union tries to win a larger share of the remaining quasi-rents by raising wages. The union's bargaining leverage is increased by the industry's reduced rate of return; firms will not want to invest new capital, limiting their ability to substitute capital for labor in response to increased wages (Lawrence and Lawrence, 1985).

Lawrence and Lawrence (1985) illustrate their insight with a simple model in which an industry invests in infinitely lived capital, no substitution among factors is possible, and a monopoly union sets the wage taken by firms. The union could push wages up to capture all quasi-rents at any time; it does not because that would deter future

⁶ Over the years 1969–1978, the trend rate of increase in the cost per metric ton of carbon steel shipped was 11.25 percent for materials and energy and 9.56 percent for labor (from *World Steel Dynamics*, Paine Webber Mitchell Hutchins, Inc., September 1979, as reported in Beidleman et al., 1981, Table 3–7). Capital construction costs also rose, virtually doubling during the 1970s (*World Steel Dynamics, Steel Strategist*, June 1980; *Survey of Current Business, Statistical Supplement*, various issues). A report by the Council on Wage and Price Stability (COWPS, 1977) also emphasized labor and materials costs increases but found much of the latter the result of rising wages and stagnant productivity growth in coal and iron ore mining. Crandall (1981) points out that long-run changes in transportation and materials costs reduced the domestic industry's competitiveness relative to imports.

investment.⁷ When a permanent negative shock eliminates the possibility of future investment, however, the union increases wages to the point where firms just cover total variable cost, since no future investment will occur regardless. Because plants are homogeneous, the wage can be raised to the “shutdown point” without loss of jobs. If further shocks occur (lowering the wage that would cause shutdowns), wages may fall again to prevent plant closings.⁸ Lawrence and Lawrence (1985) thus predict that in industries with large investments in long-lived capital, permanent reductions in the demand for an industry’s product will reduce the elasticity of the labor demand curve, and wages might well rise rather than fall in response. As plants begin to close and jobs are eliminated, wages should drop again.

Lawrence and Lawrence (1985) consider a variety of complicating factors that might influence their results. They say that relaxing the assumption of a wage-setting union to allow for more bargaining power for firms would require a different analysis, a qualification that may be important for the steel industry, since the firms and the USWA might better have been modeled as a bilateral monopoly.⁹ They also point out that heterogeneity among workers, due to age or seniority, for instance, would complicate union strategy by causing differences in the probability of members’ unemployment. Nevertheless, Lawrence and Lawrence (1985) propose that the USWA recognized that the integrated steel industry was declining and responded by raising wages, since they had nothing to lose by abandoning their previous restraint.

Unexpected inflation. A series of papers investigating the union wage premium during the 1970s suggests instead that union wage premium

⁷ The reasoning here is not entirely clear. Since capital is infinitely lived, the union must care about future workers, whose jobs depend on additional investment, as reason for not appropriating all quasi-rents immediately after the original investment takes place. Simons suggested instead that organized workers in an industry where “huge investment is already sunk in highly durable assets . . . should consistently demand wage rates which offered to existing firms no real net earnings . . . [and] . . . should plan gradually to exterminate the industry by excessive labor costs, taking care only to prevent employment from contracting more rapidly than [the] original constituents disappeared by death and voluntary retirement . . .” (Simons, 1944, pp. 131–132). I thank Eli Schwartz for bringing Simons’s article to my attention.

⁸ When the authors consider a model where capital-labor substitution is possible, they find that the direction of the wage change is ambiguous when industry demand decreases. The labor demand curve shifts to the left but also becomes more inelastic [because firms will not substitute capital for labor since the current (fixed) capital stock exceeds the optimal amount]. If this latter effect is larger than the effect of the overall leftward shift of the labor demand curve, wages will rise as workers “harvest” the remaining quasi-rents.

⁹ The 12 largest firms, which together controlled most steel production, bargained as a group with the USWA, which represented most of the workers. The bargain reached between the USWA and the Coordinating Committee Steel Companies was imitated throughout the industry. Joint bargaining by the firms remaining in the committee ended in 1986.

gains were basically accidental, the result of unanticipated inflation plus the COLAs that helped protect real wages of union members in the 1970s, when the bulk of the premium increase occurred (Wachter, 1986; Wachter and Carter, 1989; Linneman, Wachter, and Carter, 1990).¹⁰ Wages failed to adjust quickly, once mistakes in expectations became evident, because labor law, which takes the stance that the two parties are part of a long-lived and continuing relationship, and which requires that a firm must bargain with the union, makes drastic changes in contracts very costly (Wachter, 1986). As a result, unanticipated inflation caused unionized firms to pay higher wages rather than incurring the transactions costs that major contract alterations would have required. Not until the cost of wage increases became greater than the cost of forcing changes in the contract did firms demand wage freezes and cuts.

III. The Effect of Unexpected Inflation

To evaluate the contribution unexpected inflation made to steelworker wages, I first separate negotiated general increases from COLA increases, using the hourly base wage rate for job class 1/2¹¹ rather than earnings. Earnings are affected not only by negotiated wage increases and COLAs but also by such things as the age composition of the work force and the capacity utilization rate (because of incentive pay). For instance, the rise in average hourly earnings might have been partly the result of the increasing seniority of remaining workers as younger workers were laid off, while the fall in earnings in the 1980s may have been partly the result of lower utilization rates reducing incentive pay. As a price, the hourly base wage rate for job class 1/2 is unaffected by these and other effects on actual earnings, such as the classification of particular jobs, the size of Sunday, overtime, and shift premiums, and the extent of incentive pay coverage.

Table 1 summarizes data on changes in the hourly base pay assigned to job class 1/2 from 1951 to 1989. In column 2, the total increase that occurred during the life of the contract is divided into negotiated general increases and the increases due to COLAs. The third column shows the size of each type of increase compared with the total wage at the end of

¹⁰ Freeman and Medoff (1984) found that all union workers did better during the inflations whether their contracts had COLAs or not, suggesting that union negotiators were able to win some protection from inflation for their members even without official COLAs.

¹¹ The base wage rate for a particular job was determined by the job's classification; in a system used throughout the industry, each job was sorted into one of about 33 different classes. Class 1/2 is the lowest class that existed for the entire period (classes 0 and 1 were combined with class 2 into class 1/2 in 1956).

TABLE 1
SUMMARY OF CONTRACTS AND WAGE CHANGES FOR JOB CLASS 1/2*

Contract Period	Sources of Change in Wage During Contract			Percent Change	
				As Percent of Previous Total	in CPI During Contract [‡]
12/51-6/54 [†]	General	\$.21	100%	15.4%	1.8
	No COLA	<u>\$.00</u>	<u>0%</u>	<u>0.0%</u>	
	Total increase	\$.21	100%	15.4%	
7/54-6/56 [†]	General	\$.165	100%	10.5%	.9
	No COLA	<u>\$.00</u>	<u>0%</u>	<u>0.0%</u>	
	Total increase	\$.165	100%	10.5%	
7/56-6/59	General	\$.215	56%	12.3%	6.4
	COLA	<u>\$.170</u>	<u>44%</u>	<u>9.7%</u>	
	Total increase	\$.385	100%	22.0%	
6/59-6/62	General	\$.140	90%	6.6%	3.5
	COLA	<u>\$.015</u>	<u>10%</u>	<u>0.7%</u>	
	Total increase	\$.155	100%	7.3%	
7/62-5/65	General	\$.00	0%	0.0%	3.9
	No COLA	<u>\$.00</u>	<u>0%</u>	<u>0.0%</u>	
	Total increase	\$.00	0%	0.0%	
5/65-7/68	General	\$.16	100%	7.0%	10.9
	No COLA	<u>\$.00</u>	<u>0%</u>	<u>0.0%</u>	
	Total increase	\$.16	100%	7.0%	
8/68-7/71	General	\$.44	100%	18.0%	16.2
	No COLA	<u>\$.00</u>	<u>0%</u>	<u>0.0%</u>	
	Total increase	\$.44	100%	18.0%	
8/71-4/74	General	\$.75	66%	26.0%	17.9
	COLA	<u>\$.39</u>	<u>34%</u>	<u>13.5%</u>	
	Total increase	\$1.14	100%	39.5%	
5/74-4/77	General	\$.60	34%	14.9%	23.4
	COLA	<u>\$1.19</u>	<u>66%</u>	<u>29.6%</u>	
	Total increase	\$1.79	100%	44.5%	
5/77-4/80	General	\$.80	30%	13.8%	34.3
	COLA	<u>\$1.80</u>	<u>70%</u>	<u>32.0%</u>	
	Total increase	\$2.60	100%	45.8%	
5/80-3/83	General	\$.60	26%	7.1%	19.5
	COLA	<u>\$1.73</u>	<u>74%</u>	<u>20.4%</u>	
	Total increase	\$2.33	100%	27.5%	

TABLE 1 (continued)

3/83–Summer 1986
General: \$1.25 cut, restored over life of contract. (Workers at LTV give up restoration of final 45 cents.)
COLA: 6 cents accrued COLA given up, and COLA suspended through July 1984; COLA resumes, subject to offsets, from August 1984 to February 1986, when offsets are removed. For Bethlehem, U.S. Steel, and Inland workers: net effect is –2 cents. (Workers in other firms do better or worse due to individual negotiations.)
Percent change CPI 1983–1986: 8.8

Summer 1986: End of joint bargaining

Spring/Summer 1986 (February 1987 for USX)
From zero cuts to cuts of 8.09 percent, depending on the firm; profit-sharing plans instituted.
COLA suspended for life of agreement.
Percent change CPI 1986–1989: 12.9

Summer 1989 (Spring 1990 for USX)
Restoration of 1986 cuts, plus \$1.50 wage increase over life of contract.
COLA restored (in new, less lucrative, form).

SOURCES: BLS (1974); *Current Wage Developments*, various issues; AISI, *Annual Statistical Report*, various issues; *Survey of Current Business*, various issues. Data appendix available from author on request.

*Numbers reflect job class 2 before 1956.

†Reflects major contract negotiations plus reopeners. Grouping follows BLS (1974).

‡Index is for wage earners and clerical workers.

the previous contract. Column 4 shows the change in the CPI during each contract period.

The data show that wage changes during the 1970s were very large historically, verifying the pattern seen in the hourly earnings data, and column 2 shows that much of this increase was due to COLA payments. Inflation payments increased from about a third of the total wage rate increase during the 1971 contract to 66, 70, and 74 percent of the total increases during the following three contract periods.¹² Thus inflation, through COLAs, was the major source of increases in steel wage rates, despite substantial negotiated increases.

However, separating COLA increases from general increases does not separate unanticipated from agreed-upon wage increases, given that some of the COLA payments would be anticipated (Kaufman and Woglom, 1986). The point is most obvious for the 1971 contract, in which workers were guaranteed a minimum COLA; employees were to receive at least

¹² The COLA in 1971 gave a 1 cent increase for every .4 increase in the CPI. The formula was improved to 1 cent for every .3 increase in the CPI with the 1974 contract. Over the years, wage agreements added pay increments between classes, in addition to general raises, to maintain the proportional differences that were eroded by general inflation adjustments. As one reader pointed out, to the extent that these adjustments failed, wage changes in the lowest job class overstate the role of inflation. Another reader pointed out that the overall impact of inflation is also overstated if incentive pay was not fully adjusted for productivity gains.

25 cents for this purpose by May 1, 1974 (Bureau of Labor Statistics, 1974), which turned out to be 64 percent of the actual COLA that accumulated during the contract. Thus in 1971 firms could anticipate paying at least \$1.00 (the general increase plus the minimum COLA) of the eventual total increase of \$1.14 by the end of the contract.

Of the 1974, 1977, and 1980 contracts, only the 1977 contract appeared to be signed by agents who seriously underestimated future inflation rates. According to the *Wall Street Journal*, the steel companies were assuming an average annual inflation rate of about 7 percent when they negotiated the 1974 contract (*Wall Street Journal*, 4/23/74, p. 1.), which was also the rate Wachter (1974) used to evaluate it. The median of three private forecasts of the growth rate of the gross national product (GNP) deflator made late in January of 1974 for the next eight quarters was 5.8 percent.¹³ These forecasts were close to the actual average annual rate for 1974–1976 of 7.13 percent, implying that steel firms should have anticipated much of the wage increase caused by COLAs during the 1974 contract.

In the late 1970s, in contrast, both government agencies and private forecasters seriously underestimated long-term inflation rates. The Council on Wage and Price Stability (COWPS) (1977) evaluated the 1977 contract assuming 6 percent annual inflation, which was just over half the simple average of the annual inflation rates for 1977–1979 (10.81 percent). Forecasts of the average CPI expected over 1978–1979 made by the Congressional Budget Office (CBO) and by the administration were 5.8 and 6.0 percent, respectively, and the median of four private 2-year forecasts of the annualized growth rate in the GNP deflator made in the fourth quarter of 1976 was 5.67 percent. Even so, in 1977, steel firms could have anticipated paying at least half the COLAs that resulted.

By 1980, long-term inflation forecasts were beginning to overestimate inflation. Forecasts of the average CPI expected over 1981–1982 made by the CBO and by the administration were 10.4 and 9.7 percent, respectively, and the median of four private 2-year forecasts made in the first quarter of 1980 was 9.14 percent (8.60 percent for the second-quarter forecasts). COWPS used a 7.5 percent annual rate to evaluate the 1980 contract, a lower rate but still greater than the actual 3-year average of 6.56 percent (Bureau of Labor Statistics, *Current Wage Developments*, May 1980).

¹³ I did not find private 3-year forecasts of the CPI for the 1970s. However, Stephen McNees of the Federal Reserve Bank of Boston kindly provided information about private 2-year forecasts of the GNP deflator for most of these years and about administration and CBO forecasts of the CPI for the later 1970s.

Before discarding unanticipated inflation as the major cause of the steel wage pattern, however, the role of the Experimental Negotiation Agreement (ENA) must be considered. The first ENA, signed in March of 1973, was an agreement between the USWA and the Coordinating Committee firms that set up a strict schedule for the 1974 contract negotiations. The two parties agreed that there would be no national strike or lockout and that if agreement was not reached on schedule, they would turn to arbitration. In return, the firms agreed that the 1974 contract would include, as a minimum, a COLA and a 3 percent increase in wages each year of the contract.

As part of the subsequent 1974 settlement, the union and the firms agreed to renew the ENA for the 1977 negotiations, thereby locking into the COLA and the 3 percent annual increases 3 years before the contract would be negotiated. This occurred again in 1977, when the parties renewed the ENA for the 1980 negotiations; again, the firms were locking into an agreement 3 years ahead of actual negotiations. It was only in 1980 that the firms did not renew the ENA for the next (i.e., the 1983) contract. Thus steel firms committed themselves to COLAS, as well as to minimum general increases, a year in advance of contract negotiations in 1974 and 3 years in advance of the 1977 and 1980 negotiations, making it more likely that unanticipated inflation was a major cause of the wage pattern.

Nevertheless, if steel firm forecasts were similar to those cited above, then firms must have anticipated much of the inflation-caused wage increases they would be paying during the 1974 contract and a significant portion of the increase during the 1977 contract at the time the contracts were signed. Despite this, firms were willing each time to commit to continuing the COLA and to minimum real-wage increases for the *next* contract. Not until the 1980 negotiations, after COLA payments had totaled at least twice what firms might have anticipated in 1977, did firms defer renewing the ENA for the 1983 contract.

In sum, the record shows firms making costly commitments 3 years ahead at the same time as they were signing what they must have anticipated would be expensive contracts. Thus, despite the undoubted role of inflation, the real question is why the firms became willing, early in the 1970s, to assume the costs and the risks of the ENA and why they renewed it in 1974 and in 1977.

IV. Expectations for the Industry in the 1970s

The Lawrence and Lawrence (1985) model explains the wage increases of the 1970s as the result of workers recognizing that their industry was in irreversible decline. However, there is evidence to suggest that industry

participants had no such expectations, at least until the late 1970s, and that their reasons for signing the ENA and the contracts of 1974 and 1977 were quite different.

The ENA and the 1974 contract. The firms and the union signed the no-strike agreement to avoid the costs associated with threatened or actual steel strikes. As each contract approached expiration, steel buyers increased their inventories and then cut their purchases as they worked the inventories off after a new contract was signed. Aside from creating costly triannual booms and busts in steel production, the hedge buyers were increasingly likely to buy imports during their inventory buildups. Both the union and the firms had an interest in keeping those sales by ensuring uninterrupted steel supplies (Drapkin and Morris, 1973; steel firm annual reports, 1973; USWA, 1974; Steiber, 1980; Barnett and Schorsch, 1983; Hoerr, 1988).

Further, although the minimum gains that ENA guaranteed for the 1974 contract were expensive, steel firms had not found taking strikes to be a successful strategy. Short strikes were unlikely to be successful (and were expensive because of the costs of shutting down and starting up steelmaking equipment), while long strikes, which might have won significant wage moderation, were generally not allowed by U.S. presidents because of their disruptive effect on the economy. Since wage gains expected by the workers and allowed by the government were likely to equal the annual 3 percent increase established by the United Auto Workers anyway, steel firms may well have decided that a no-strike agreement guaranteeing 3 percent annually was worth a try.

The negotiations in 1974 seemed to validate the ENA concept. The union won a generous labor contract, and firms avoided the hedge buying problem and ensured continued operation of their mills. When price controls were lifted on April 30, 1974, firms began raising prices, and their profits increased (Council on Wage and Price Stability, 1975). Also, during 1973 and 1974, prices of imported steel rose above those of domestic steelmakers as strong worldwide demand absorbed foreign production and as foreign producers experienced cost increases that reduced their competitive advantage (Federal Trade Commission, 1977).

The year 1974 ended with a settled contract and the highest profits in years, as the after-tax rate of return soared to 17 percent, over twice as high as the average return for the last 14 years (Federal Trade Commission, *Quarterly Financial Reports for Manufacturing Corporations*, various issues). The ENA was deemed a success: “. . . the parties and outside observers credited the no-strike guarantee with contributing to steel

industry prosperity . . .” (Steiber, 1980, p. 173). Fr. William Hogan, a well-known industry expert, pointed out that although the contract was expensive, “. . . far more significant is the . . . guarantee that there would not be a strike this year . . .” (*33 Magazine*, October 1974, p. 60).

The firms and the union agreed to renew the ENA, setting the same minimum guarantees, a COLA and 3 percent per year, for the 1977 negotiations, even though the talks were 3 years away. At this point, firms were anticipating strong demand growth. Domestic consumption had grown at a rate of 3.1 percent per year from 1960 to 1970, and forecasts for growth in steel consumption for both the United States and the world were optimistic. U.S. demand was expected to continue to grow strongly, although at a somewhat slower pace than in the 1960s.¹⁴

The 2 years of short supply and limited imports in 1973 and 1974 appeared to validate these projections and added urgency to forecasts of needed capacity expansion. Fr. Hogan projected that demand would be 132 million tons, plus imports, by 1980, implying a growth rate of at least 2.5 percent over the period 1973–1980. He felt that 25 million tons of new domestic capacity would be required to satisfy demand (*33 Magazine*, August 1974).

The firms responded by investing in more steelmaking capacity. In their 1974 annual reports, major capacity expansions were announced by Armco (12 percent), Youngstown Sheet & Tube (13 percent), and Jones & Laughlin (10 percent). National Steel’s 1974 annual report announced plans for an entirely new steelmaking plant to complement finishing facilities it had built in Portage, Indiana. U.S. Steel announced plans for an additional 5 million tons of capacity and also was considering building an entirely new plant at Conneaut, Ohio. In May of 1975, Republic Steel announced plans to expand capacity by about 9 percent; the firm’s president stated that “the outlook for steel is the best in more than two decades” (*Wall Street Journal*, 5/15/75, p. C4). The steel firms also made major investments to develop coal and iron ore sources to replace depleted mines and to expand capacity to support additional production (Barnett and Crandall, 1986; Hall, 1997).

These were not the decisions of firms anticipating long-term decline in their industry. Instead, the willingness of firms to agree to ENA in 1973 and their willingness to extend it in 1974 for the 1977 negotiations can be

¹⁴ For example, OECD forecasts of U.S. steel consumption made in 1969 ranged from 160 to 190 million net tons for 1975 and from 180 to 223 million net tons for 1980 (OECD, 1974). Actual consumption was 89 million tons in 1975 and 95.2 million tons in 1980. See also the 1973 Annual Report of U.S. Steel, where the company forecasted 3 percent growth in steel demand.

seen as an effort to buy labor peace for 6 years while the industry expanded its capacity and raised prices to take advantage of strong growth in demand.

The firms continued their expansion plans during the 1975 recession, although some stretched out completion dates. National Steel, in explaining its decision to continue with its \$1 billion dollar investment in a new plant, stated that “. . . since the time of this decision one year ago, we have reviewed carefully developments in steel demand both in this country and worldwide. While the depressed year in 1975 has set back the most optimistic timetables for the growth of such demand, we remain convinced that anticipated demand will require substantial expansion of steel capacities . . .” (*Iron and Steel Engineer*, February 1977; National Steel, Annual Report, 1975, p. 4).

Firms also were encouraged because the import share of the U.S. market dropped in 1975, despite the worldwide slump in steel demand. The drop was attributed in part to rising costs for foreign steelmakers. Peter Marcus, vice president of Mitchell, Hutchins, Inc., found that U.S., European, and Japanese operating costs were in the “same range,” assuming a similar product mix and a 90 percent operating rate, and Bruce Old of Arthur D. Little indicated that his firm’s analysis found U.S. costs to be lower than those of European firms. While some steel executives warned about the possibilities of more imports as business activity improved, others were convinced that “. . . the era of cheap foreign steel has gone the way of cheap foreign oil, never to return. . . .”¹⁵

In a report examining steel price increases, which the industry stated were necessary because of rising production costs and pollution-control expenditures and to pay for new capacity, COWPS agreed that demand would probably increase, although they felt the industry overestimated the size and the cost of the necessary capacity expansions.¹⁶ However, COWPS thought the industry could compete with imports: “. . . it is probable that domestic steel expansion, if it occurred, could competitively capture most of the U.S. market growth of 1975–1980 on the basis of cost and price, in view of location and other cost advantages . . .” (Council on

¹⁵ Byron E. Calame, “Drop in Imports Makes Steelmen Wonder if Days of ‘Cheap Foreign Steel’ Are Over,” *Wall Street Journal*, 12/30/75, p. 22. The FTC study (1977) found that U.S. competitiveness did increase sharply during 1973 and 1974 but that the advantage was largely lost again during 1975 and 1976.

¹⁶ Council on Wage and Price Stability (1975). The COWPS study projected a possible need for 15 million tons by 1980, as opposed to the industry’s estimate of about 30 million tons by 1983. The industry claimed that using their adjustments for inventory depletion in 1973 and 1974 and over the same time period, COWPS would actually project a need greater than 30 million by 1983 (*Wall Street Journal*, 12/17/75, p. 14).

Wage and Price Stability, 1975, p. 2) COWPS concluded that “the steel industry’s real problem at the present is the same as the nation’s: recession and reduced national output and income . . .” (p. 3).

The 1977 contract. The 1975 recession was worse than expected, but while firms were more cautious about investments after 1975 and slowed the rate of their capital expenditure, they seemed still “. . . convinced that they will have to continue to expand their steelmaking capacity to avoid domestic shortages before the end of the decade . . .” (*Business Week*, 1/19/76, p. 50). Investors apparently shared the expectation that market growth would deliver more stellar years like 1974. In 1975, steel firms’ stock prices had held their value while the industrial average fell, reportedly because of the “. . . widespread hope of investors . . . that economic recovery will return [the steel industry] quickly to 1974’s high profit levels . . .” (*Wall Street Journal*, 8/22/75, p. 25). Early in 1976, the stocks of major steel firms had “. . . risen more than the general market from the 1974 low point and their percentage gains so far this year are twice as large as those of the popular market averages. U.S. Steel, for one, traded . . . at . . . its highest level since 1961. . . .”¹⁷ Steel stocks continued to rise through the first half of the year, and U.S. Steel floated a large debenture issue, reportedly as part of making a final decision about the new plant at Conneaut (Janeway, 1976).

The second half of 1976 was disappointing as capital spending failed to recover and steel imports increased. Some firms postponed investment plans, and two, the Lykes Corporation (owners of Youngstown Sheet & Tube) and Alan Wood Steel, experienced losses for the year.¹⁸ Analysts were concerned about the slowing recovery and about imports as well. Steel stocks fell back from the heights they reached in mid-1976 as expectations about 1977 shipments were revised downward from very enthusiastic projections to more moderate improvements over 1976. However, industry analysts seemed more concerned about the near term than about

¹⁷ Charles J. Elia, “Growth Assumptions Bolstering Steel Stocks Doubted by Analyst Fearing Long-Term Lag,” (*Wall Street Journal*, 3/12/76, p. 27). According to one analyst cited in the story, the conventional assumption for the long-run annual growth trend of industry tonnage remained 2.5 to 3.0 percent, although there was a “maverick” view from David Healy of Drexel Burnham & Co. Healy suggested that long-run demand might grow at much lower rates, “as low as zero to 1 percent annually,” for the rest of the decade. This remarkably prescient view was apparently ignored by the market and by other forecasters (see note 26).

¹⁸ Jones & Laughlin announced the doubling of their iron ore mine’s capacity, but National Steel postponed the finishing end of its new mill during the summer and in mid-December deferred the steelmaking part (*Iron and Steel Engineer*, February 1977; National Steel, Annual Report, 1976). Lykes postponed its investment in new steel furnaces at Campbell, Ohio, in the spring of 1976.

the long-term viability of the industry as a safe investment.¹⁹ At year's end, stock prices remained at or above their values at the start of 1976, generally maintaining appreciation above values of the early 1970s, even though the ENA guaranteed a labor cost increase estimated at 26 percent before the 1977 negotiations started.

As 1977 began, U.S. Steel's willingness to begin talks with the Environmental Protection Agency (EPA) about building the \$3.2 billion plant at Conneaut appeared to indicate its belief in strong demand and higher prices in the industry's future. The industry reported that it anticipated that imports would fall off after the first quarter of 1977 but was prepared for worse with petitions for relief pending before "the federal courts, the White House Special Representative for Trade Negotiations and the International Trade Commission" (*Business Week*, 1/10/77, p. 84). In February of 1977, one analyst stated that ". . . we believe economic reality will prevail . . . that the U.S. steel industry is a lower-cost producer than the South American or European mills and that a classic improvement in profit margins will follow higher capacity utilization . . ." (*Wall Street Journal*, 2/18/77, p. 29). Steel stocks remained fairly stable during the spring negotiations.

Although there were few signs that anyone expected long-term decline, USWA President I. W. Abel announced at the union's conference what now seems a very long-sighted bargaining goal for the 1977 negotiations: lifetime security. However, instead of being a response to expected decline, the goal was consistent with the aims the union had pursued since the early 1950s. The union understood that modernization meant productivity growth, higher wages, and fewer jobs but also had worked to gain some protection for those affected.²⁰

More recently, steel workers had experienced the recessions of 1970 and 1975 and the chronic unemployment and inflation of the mid-1970s.

¹⁹ For example: "The situation leads even bullish steel analysts to suggest that investors may have to look to 1978, rather than next year, to fulfill their hopes for a quantum jump in steel profitability" (Charles Elia, "Steel Industry Profit Forecasts for '76, '77 Cut by Some, Citing Inventories, Foreign Worries," *Wall Street Journal*, 10/25/76, p. 31). See also, "Heard on the Street," *Wall Street Journal*, 1/7/77, p. 23, and "Developments in the Iron and Steel Industry U.S. and Canada—1976," *Iron and Steel Engineer*, February 1977, p. D2). Stock price data are available on request from the author.

²⁰ *Business Week*, 5/24/76, p. 92. A retirement benefit for workers on more than 2 years' layoff, or laid off permanently by plant closings, was first initiated in 1956. Also with the 1956 contract, laid-off workers with at least 2 years of service became eligible for Supplemental Unemployment Benefits (SUB), up to 1 year of payments from their company's SUB fund to supplement unemployment insurance payments, so long as the fund held out. As of 1969, workers moved to a lower-paid job, because of technological change, for example, received some earnings protection through the Earnings Protection Program, again with payments contingent on available SUB funds. All these plans were improved in subsequent contracts (BLS, 1974; *Current Wage Developments*, various issues).

Along with other organized workers, they were interested in greater security as well as in higher wages.²¹ Although Abel did not present a detailed plan, his goal of lifetime security was interpreted as increasing protection for workers affected by business cycles and by technological change;²² it also went beyond the demands of the USWA's long-time rival, the UAW.

The lifetime security goal also was seen as a move in the political struggle taking place because of Abel's approaching retirement in May of 1977. The establishment candidate was Lloyd McBride, and challenging him was Edward Sadlowski, a younger and more radical candidate. Abel's lifetime security initiative focused attention on economic rather than political concerns of union members, an area where Sadlowski was relatively weak (*Business Week*, 9/13/76, p. 82; 1/24/77, p. 69). Nevertheless, Sadlowski fought hard, charging that the union establishment was too compliant with the companies and that the union should return to the more adversarial stance of its past. He disliked the ENA deal, saying that the right to strike should not have been bargained away without a referendum of the membership. In the wake of the bitter campaign, a hard line at the bargaining table was very probably a political necessity for the victorious union establishment rather than a reaction to anticipated decline.

Contract talks began on February 14, 1977, and ended on April 9, 1977. The agreement was judged expensive, likely to raise labor costs by over 30 percent over its lifetime, but similar to those signed by other large unions. Observers thought it a good bargain for the union, even though only a start had been made toward lifetime security through an expansion of the Supplemental Unemployment Benefits (SUB) Program and further liberalization of early retirement rules. Again, the new income guarantees were linked to business cycles and modernization: ". . . the cost . . . depends entirely on fluctuations in the economy and the speed with which steelmakers continue to phase out obsolete operations. . . ."²³ Observers

²¹ Philip Shabecoff, "Steel Union Seeks 'Lifetime Security' in Contract Parley," *New York Times*, 2/15/77, p. 1. The UAW made job security the "centerpiece" of its 1976 contract, and other unions were expected to make job and income security a major bargaining issue. The USWA pursued the goal in other industries where it acted as a bargaining agent (copper, aluminum, and cans) as well as in steel.

²² See, for instance, John Hoerr, "How 'Lifetime Security' Might Work," *Business Week*, 2/28/77, p. 28, and *Fortune*, April 1977, p. 71. The USWA convention also called for the government to pursue a full-employment economy and to pass the Humphrey-Hawkins Full Employment and Balanced Growth Act of 1976 (Adams, 1976).

²³ *Business Week*, 4/25/77, p. 28. See also COWPS (1977); David Ignatius, "Steelworkers Win Improvements to Income Security, Salary Boost of 80 Cents an Hour in Three-Year Pact," *Wall Street Journal*, 4/11/77; *Iron Age*, 4/18/77, p. 13; George J. McManus, "USWA, Steel Industry Peace has a High Price Tag," *Iron Age*, 4/25/77, pp. 25-27; and Donald B. Thompson, "Steel: Dissatisfaction Despite Hefty Gains," *Industry Week*, 4/25/77, pp. 19-26.

presumed that steel prices would rise to cover cost increases not paid for by productivity gains.

In addition, the USWA and the firms extended ENA for the 1980 negotiations, guaranteeing a minimum 3 percent increase in wages and benefits and continuation of the COLA in the 1980 contract. The firms' willingness to extend the ENA is puzzling in retrospect, particularly since it had failed to halt increases in imports. The CEOs who formed the executive committee of the industry bargaining group debated the issue but decided to renew the agreement, against the advice of the industry's chief negotiator, J. Bruce Johnston of U.S. Steel, and a few others (Hoerr, 1988, pp. 119–120). One participant explained that the CEOs considered that the strike insurance was still worth the cost of the contract commitment and that since most of the CEOs were steel mill engineers by training rather than financial analysts, they were perhaps less sensitive to cost issues.

In fact, according to some observers, the ENA had proved its worth, since without it the industry would have been struck. ENA's extension ensured 6 more years without a national strike and was good news for steel buyers. The desire to keep ENA alive, one observer wrote, was a powerful force in creating agreement so that arbitration (seen as the death knell for ENA) could be avoided (Donald B. Thompson, "Steel: Dissatisfaction Despite Hefty Gains," *Industry Week*, 4/25/77, pp. 19–26; A. H. Raskin, "Reluctance to Follow Steel on Arbitration," *New York Times*, 4/20/77, p. D1). Overall, reaction was fairly calm, including in the stock market, possibly because steel orders seemed to indicate continuing strong demand for steel (*Iron Age*, 4/18/77, p. 75).

V. Evidence of Changing Expectations

In the months following the April 1977 contract agreement, new information became available for distinguishing cyclic from secular problems. Although demand was increasing in the economy, imports rose sharply rather than falling off, as the industry had anticipated; the domestic industry was not capturing the additional sales. U.S. production and capacity utilization peaked in May, and for the rest of the year firms struggled in a very competitive market.

The firms asked Washington for protection from imports, claiming that foreign steel was being dumped in U.S. markets. Different studies were done to assess the competitiveness of the industry and thus the validity of its claim. The government studies found that European steel was not cost competitive in the U.S. market but that Japanese steel was, although the

amount of the advantage, COWPS estimated, was only about 5 percent (Council on Wage and Price Stability, 1977; Federal Trade Commission, 1977). COWPS concluded that imports were being deeply discounted, at a rate that foreign steel companies would be unable to sustain.

However, COWPS was not encouraging about the future, reporting that the aggressive price competition from imports was likely to continue so long as world steel demand failed to revive. Further, the study found that the United States had become much less competitive because of rising labor and materials costs and that these costs showed little signs of moderating. Efforts by the industry to reduce labor and materials costs by substituting capital were unlikely to be successful because of the ballooning cost of capital construction (Council on Wage and Price Stability, 1977).

There is evidence that some firms began reassessing or were forced to reassess their positions during 1977. Inland Steel, one of the most profitable steel firms, postponed the second half of its expansion plans in May. In June, Alan Wood Steel, which had never recovered from the 1975 recession, filed for bankruptcy. In the same month, the Lykes Corporation began an internal study of their steel operations (Youngstown Sheet & Tube) in response to increased losses (*Business Week*, 10/3/77, p. 83). In August, Bethlehem announced major cutbacks at Lackawanna and Johnstown, where there had been a severe flood in July and where they had just been clearing ground for new furnaces. In September, Lykes concluded its study of alternatives by announcing the closing of its Campbell works in Youngstown, Ohio (Lynd, 1982).

The stock market reacted sharply; steel stock prices dropped during the summer, losing nearly 30 percent in price for the year by September. But there was certainly no unanimity even then that the industry was about to undergo additional long-term decline. Although ratings for Bethlehem Steel and Youngstown Sheet & Tube bonds were downgraded in 1977, none of the other major firms were affected.²⁴ In fact, some analysts and industry executives hoped that the plant closings of 1977 had been a painful but necessary step to eliminate small or obsolete capacity and that the industry was now more competitive, ready to take advantage of the next steel shortage.²⁵

²⁴ The situation was different in 1982, when the bonds of all the major firms were downgraded (*Moody's Industrial Manual*, various issues; Congressional Budget Office, 1987, Table 4).

²⁵ According to one analyst, the "seeds had been sown for a chronic shortage" (Charles J. Elia, "Steel Setbacks Will Force Cuts in U.S. Capacity That Will Lead to Rebound, Analysts Believe," *Wall Street Journal*, 9/8/77, p. 43). See also *Business Week*, 1/9/78, p. 58, and Edmund Faltermayer, "How Made-in-America Steel Can Survive," *Fortune*, 2/13/78, p. 122.

There is some evidence that the union shared these hopes. In commenting on how rising labor costs were pushing firms to replace labor with capital, James Smith, an assistant to Lloyd McBride, was reported as “hoping that increased demand for steel in future years will stabilize employment in the industry” (David Ignatius, “Celebrated Steel-Labor Romance Wanes as Ailing Industry Adopts a Harder Line,” *Wall Street Journal*, 10/21/77, p. 4). Although rejecting saving jobs as a good reason for trade protection, the FTC (1977) also was fairly sanguine about future employment in the industry, anticipating that growing demand was likely to maintain or increase domestic production, even if imports increased.²⁶

However, some firms began to change their behavior. Armco Steel, already more diversified than most, highlighted its 1977 annual report with its message of diversification and changed its name to Armco. National moved into the financial sector in 1979 by buying a savings and loan. U.S. Steel announced plans for a major investment in the petrochemical industry in 1978 and in the early 1980s acquired Marathon Oil. These firms began emphasizing the necessity that all segments of their businesses, including steel, show a profit.

The two largest firms broke with tradition by changing the nature of their leadership when David Roderick became CEO of U.S. Steel in 1979 and Donald Trautlein became CEO of Bethlehem Steel in 1980. Both men were accountants who focused on profitability and appeared to have less of an emotional attachment than their predecessors to the idea of making steel. Roderick canceled plans for the plant at Conneaut, Ohio, and began closing plants in 1979 (Hoerr, 1988). At Bethlehem, Trautlein concentrated first on cutting staff and reducing overhead and then began to close plants at the end of 1982 (Strohmeyer, 1986).

The firms' assessment of the ENA changed as well. The firms did not renew the ENA during the 1980 contract talks, although they continued to discuss the possibility of a modified version with the USWA after the contract was signed. In January of 1982, the bargaining team for the Coordinating Committee, J. Bruce Johnston of U.S. Steel and George Moore of Bethlehem Steel, presented to the committee a study comparing production costs in the United States with those in Canada, Japan, and West Germany. After seeing these numbers, the CEOs abandoned the idea of even a

²⁶ Steel demand forecasts were lower by 1978–1980 but continued to overestimate actual demand considerably. See a summary of private and public projections in Office of Technology Assessment (1980), Table 66. The *lowest* forecast of steel consumption in 1985 cited there was over 30 percent greater than actual 1985 consumption.

modified ENA and agreed to have Johnston and Moore request an early reopening of the contract (Hoerr, 1988).

The union did not appear to anticipate the potential scope of the industry's decline until well into the 1980s. The USWA was concerned when plants started closing in the 1970s, but its concern did not lead it to allow wage cuts that undercut the master contract. The union was committed to maintaining uniform wages throughout the industry, keeping a "level playing field" that prevented firms from bringing wages into the competition among themselves even if that meant some workers lost their jobs, an attitude that was not unusual among unionists (Hoerr, 1988; Slaughter, 1983).

When Bethlehem requested wage concessions in 1975 to save its steel fabricating business, the employees of which were covered by the master contract, the union refused, and Bethlehem closed the plants and discontinued the business (Strohmeyer, 1986). Late in November of 1976, struggling Alan Wood Steel requested a 15 percent wage cut, but the union refused.²⁷ As late as 1980, Kaiser workers, who had voted to accept a wage cut, retracted the offer under pressure from the union, according to Kaiser management. The union stated that the workers' retraction "avoids challenges to the legality of the local's vote" and "maintains union integrity" (Bureau of Labor Statistics, *Current Wage Developments*, October 1980, p. 2).

The union leadership's response to Lykes' decision to close its Youngstown plant was moderate (Lynd, 1982). The capacity involved in this and other shutdown decisions in the late 1970s generally was considered less competitive because of size, location, or aged equipment. The union called on the industry to keep facilities from becoming marginal by investing in steelmaking sites, but if the union assumed that the firms' difficulties were mostly elimination of noncompetitive capacity, then they would see no need to moderate their contract demands or to allow concessions at a local level that would undermine the master contract.²⁸ In sum, instead of changing its strategy in response to decline, the USWA followed a long-held, consistent policy of higher wages, more security for

²⁷ The union offered a temporary loan, which the company refused. After Alan Wood declared bankruptcy in June of 1977, the union again offered temporary concessions, suggesting they either expected business to improve or were willing to let the plant close to preserve the master contract (*Business Week*, 6/27/77, p. 27; 8/15/77, p. 44).

²⁸ *Wall Street Journal*, 10/7/77, p. 25. See Deily (1988, 1991) for evidence that the industry was disinvesting from and closing less competitive facilities. Youngstown workers blamed their layoffs on Lykes for not modernizing their plant rather than on industry decline. One worker reportedly asked McBride how the union planned to handle the unemployment that would be caused elsewhere when the new plant at Conneaut (they continued to assume) was built (Lynd, 1982).

displaced workers, and maintenance of uniform wages across the industry into the 1980s.²⁹

The tremendous pressures of the early 1980s forced change on the union. Unemployment in the industry reached 21 percent early in 1982 (Hoerr, 1988), and capacity utilization fell to 50 percent in June, below 40 percent in October, and was at 33 percent in early 1983 (Bureau of Labor Statistics, *Current Wage Developments*, various issues). Requests for wage relief began increasing at union headquarters, but the union had formed no new overall wage strategy for basic steel (Hoerr, 1988). Instead, locals began negotiating concessions with many smaller companies, and the union ceded the decision about whether to cut wages to the district level, although companies granted concessions first had to send their books to union headquarters.

According to Hoerr (1988), the union took this piecemeal approach because its leadership, particularly President McBride, was still not thinking in terms of a future in which many plants would be permanently closed, despite the recommendations of some of his staff.³⁰ As late as February of 1983, McBride was referring to the industry's difficulties as a "temporary cash flow problem" that would end with the recession (Bureau of Labor Statistics, *Current Wage Developments*, February 1983, p. 1). Nor did the membership seem to understand the situation; though willing to make some concessions "in order to keep jobs," they were resistant to any deep cuts, seeming to think them unnecessary (Hoerr, 1988).

The union's behavior eventually changed, as it searched for a new course in a declining industry. It responded first by trying to help the firms in the most trouble, abandoning its basic tenet of "taking the wages out of the competition," and ended by finally agreeing to reopen the 1983 contract early and granting temporary wage concessions in the master contract. It was not until December of 1983, under the new leadership of Lynn Williams, that the union formed an explicit policy to deal with decline, one that reiterated support for uniform wages in an attempt to prevent districts from competing against each other.

²⁹ In contrast to this consistency in basic steel, the union changed its strategy toward satellite operations such as fabricators and warehouses in 1979. After acknowledging that unionized operations faced a \$5 an hour cost disadvantage relative to nonunion operations, and fearing the loss of thousands of jobs, the union's Wage Policy Committee urged bargainers to narrow or eliminate the difference (*Business Week*, 11/26/79, p. 64).

³⁰ In 1982, USWA economist Edmund Ayoub was recommending against piecemeal concessions, reasoning that there was overcapacity in the industry, that some plants would have to close, and that the union should let the weakest firms die (Hoerr, 1988).

VI. Conclusion

The timing of steel wage increases is not consistent with a theory predicting that wages rose in response to workers and firms learning that the industry was declining; in fact, the opposite appears to have occurred. The industry was expecting strong growth in the early 1970s when firms and workers agreed on the contracts of 1971 and 1974 and committed themselves to the minimum concessions for the 1977 contract guaranteed by ENA. Wages fell in the early 1980s when it was clear to all that the industry was in trouble.

According to the simple endgame model, wages fall when plants begin to close. However, plants were closing for 5 years before workers agreed in 1982 to discuss concessions, and employees accepted only temporary concessions in March of 1983. If workers knew that their industry was in decline in the 1970s, then they waited a long time after significant reductions in employment and capacity before moderating wage demands. If workers continued to demand wage increases in 1977 and 1980 and resisted significant concessions in 1982 because they thought the industry's difficulties were temporary, then the wage increases of the 1970s were not an endgame in response to predicted decline.³¹

Explaining the increase in wages as the result of major and persistent forecasting errors is not very satisfactory, yet there is abundant evidence that the firms, steel analysts, and the stock market continued to anticipate strong demand growth through the mid-1970s. Mistaken inflation forecasts also played a role, particularly in the period 1977–1979, when future inflation was universally underestimated. Demand growth continued to be greatly overestimated throughout the decade, but expectations about how much of that growth would be satisfied by domestic as opposed to foreign suppliers did change in the late 1970s (Tribendis and Clark, 1979).

When expectations about the industry's future changed, so did the behavior of both parties. Firms abandoned the ENA, began pressing for concessions, closed plants, accelerated their use of contracting out, and in 1986 disbanded their joint bargaining committee. The union broke with its traditional behavior first by allowing local wage concessions, second by even discussing an early reopening of the master contract in 1982, and third by agreeing to some industry-wide wage concessions. The extensive income protection programs, however, cannot be taken as a change in traditional behavior. Most of the programs began before the 1970s in response to needs other than those caused by industry decline. Even the

³¹ One rumor circulating during the concession negotiations in 1982 was that the firms were trying to get concessions quickly before recovery weakened their case (Nyden, 1984).

lifetime security programs of 1977 are more likely to have been an extension of the union's long-term drive to increase the security of their members' income and employment rather than a reaction to incipient decline.

Instead, it seems more likely that the union adopted an endgame strategy in the 1980s rather than the 1970s, as is suggested by Wachter and Carter (1989) for unions in general. The union may have taken a hard line toward wage concessions in the 1980s because it realized that even drastic wage cuts would be unlikely to save the jobs of many of its steelworker members.³² As it turned out, with the 1989 contract, most surviving workers had regained all wage and benefit concessions made in the 1980s (though not real-wage losses incurred when the COLA was suspended), retained the profit-sharing schemes developed for the 1986 contracts, and won new increases.

The actions of the firms and the union were arguably rational, given their beliefs at the time; they adopted the ENA when forecasts of future demand were optimistic and profit prospects looked strong. The rising labor costs that resulted probably hastened and increased the scope of the industry contraction but are unlikely to be observed in other declining industries unless those industries err as drastically in predicting demand and have long-term commitments like the ENA. The steel industry's experience may well be unique.

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³² However, the union continued to adjust its strategy. The uniform wage policy gave way to one of parity in 1986, in which the different firms received concessions that kept their unit labor costs very similar. Increased emphasis was placed on controlling contracting out, and new assurances were developed that workers would retain some claim on their original firm even if the plant were sold.

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