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FRBSF Weekly Letter

Bum Rap For OSHA?

Grisly statistic: some 4,760 American workers died at their desks or on the assembly line in 1977. But to put that figure in context, roughly 1.8 million Americans died off the job in 1977, which might suggest that the factory or office is actually a much safer place to be than the highways and homes of the nation. Still, one government agency is very concerned about those 4,760 Americans, especially because their deaths represented a 21-percent increase over the previous year.

This agency is the Occupational Safety and Health Administration (generally referred to as OSHA), which was established in mid-1971 to "assure a safe and healthful workplace" for all Americans. Such a charge is no simple matter, and OSHA's efforts to achieve this goal have sometimes antagonized both business people (who complain that OSHA undermines the efficiency of the nation's factories) and labor leaders (who complain that OSHA fails to ensure improved safety and health conditions).

When the Department of Labor report emerged with the 1977 statistics, the media found good copy in the 21-percent rise in fatalities reported for the year. "Big Increase in Work Deaths Mystifies Federal Officials," trumpeted one newspaper. *Business Week* spoke of the "atmosphere of gloom" that the new report had cast over OSHA.

Fatalities and injuries

Despite the validity of other complaints about OSHA operations, the agency may have taken a bum rap on that particular charge. To see what has actually happened in the nation's workplaces, we should first look beyond a one-year change in the number of fatalities.

While workplace deaths did rise in 1977 by 21 percent, most media reports failed to note that this rise followed an even larger 26-percent decline the year before. Moreover, we should look at a more relevant measure — the number of workplace fatalities as a percentage of the workforce — just as we look at the unemployment rate rather than the number of unemployed. Indeed, this fatality rate was lower in 1977 than in all but one other year of OSHA's existence.

In assessing OSHA's performance, we should remember also that a workplace fatality is a rare occurrence. A much more reliable indicator of the safety and healthfulness of our nation's offices and factories is the work-injury rate, or the number of workplace injuries related to the total number of workers or the total amount of worktime (see chart). The large number of work *injuries* (roughly 1200 times the number of workplace *fatalities*) makes this a more statistically reliable indicator. Also, since this measure is expressed relative to the size of the workforce, it allows us to eliminate the scale effect. It must be noted also that post-1970 data cannot be compared directly with earlier data, since the law that created OSHA liberalized the definition of "work injury," and also established a more comprehensive and mandatory system of data collection. Furthermore, the post-1970 data also include work-related illnesses, but these account for only about 3 percent of the total.

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Business-cycle effect

But even more importantly, to assess the performance of OSHA — or any other program for that matter — we must avoid the before-and-after fallacy. The relevant comparison is not between what occurred this year and last year, but between what *did occur* this year with the program and what *would have occurred* this year in the absence of the program. This suggests that if there are other factors systematically influencing the program's target variable, then these factors must be considered.

In the case of work injuries, there is a fairly well established, albeit little known, relationship between the rate at which workers get mangled on the job and the rate of business activity. Studies of the relationship between work injuries and the business cycle have appeared on and off in the economic literature at least since the 1930's, but generally in fairly remote publications.

The logic behind this pro-cyclical pattern in work injuries goes something like the following. During a cyclical downturn in a firm's new orders, the manager is uncertain whether the decline is temporary or will be sustained over a period of time, so he is somewhat reluctant to lay off workers whom he may soon have to rehire. Thus workers get laid off at a slower rate than the rate at which output declines, and there is a consequent slowdown in the general pace of production. But at the slower pace of output, there is more time for maintenance and repair of equipment. The result is fewer accidents. In addition, the workers who get laid off are typically the youngest and least experienced — a group which tends to be the most accident-prone. This shift in composition of the still-working population away from accident-prone individuals also tends to lower the work-injury rate.

During expansions, both these effects work in precisely the opposite direction. Managers are reluctant to rehire workers as rapidly as new orders increase, for fear they may have to turn around and fire them should the increase be only transitory. The result is an increase in the pace of production, more pressure on workers and less time for maintenance of machinery. Moreover, new hires are less experienced, and even the skills they do have may be a bit rusty due to an extended period out of work. Both of these effects combine to push up the rate at which workers get injured.

Mirror image

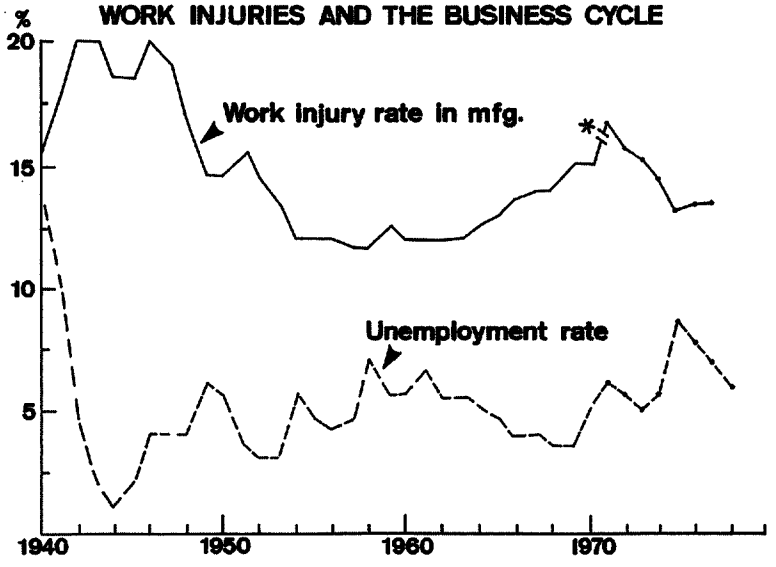
The work-injury rate is almost a mirror image of the unemployment rate — a reasonable business-cycle proxy — although the statistical relationship between the two series is not always stable (see chart). Roughly speaking, a one-percent (not percentage point) decline in the unemployment rate tends to generate a quarter-percent rise in the work-injury rate, according to our experience over the 1942-70 period. Thus the 9-percent drop in the unemployment rate between 1976 and 1977 (from 7.7 to 7.0 percent) should have led to a 2-to-3 percent rise in the work-injury rate, other things equal. In fact, the work-injury rate in manufacturing actually declined by 0.8 percent and the rate for the whole

private sector rose by only 0.8 percent. This suggests that there were almost 1 million fewer workplace injuries in the total private economy in 1977 than would have been expected based upon movements in the business cycle alone. This fact contrasts sharply with the impression left by the "21-percent increase" in workplace deaths headlined by the media.

Indeed, in all but two years of OSHA's existence, the work-injury rate fell by more than would have been predicted by the business-cycle effect. Thus, the work-injury rate in 1977 was roughly 3 percentage points lower than would have been expected from the 1971-77 movement of business activity. This translates into about 2.8 million fewer injuries than we would have expected in the total private economy in 1977 alone. Several factors may have contributed to this improvement, but in absence of evidence to the contrary, OSHA should certainly be able to take some credit for the increasing safety of the American workplace.

What about 1978? We already know that the unemployment rate last year was 14.3 percent below the 1977 figure because of a strong business expansion. This should have caused the work-injury rate to rise by about 3.5 percent if you believe our estimates. The data won't be available until almost year end, but they should show some increase. If the actual injury rate rises by less than 3.5 percent, or if there is an actual decline, OSHA may deserve a pat on the back.

Michael Gorham



*The work injury rate is the number of work injuries per one million hours worked 1940-1970 and per 100 full-time workers after 1970. The two time periods are not directly comparable because of a 1971 change in reporting and definition of a work-place injury.

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BANKING DATA—TWELFTH FEDERAL RESERVE DISTRICT

(Dollar amounts in millions)

Selected Assets and Liabilities Large Commercial Banks	Amount Outstanding 12/27/78	Change from 12/20/78	Change from year ago Dollar	Change from year ago Percent
Loans (gross, adjusted) and investments*	124,283	137	17,459	16.34
Loans (gross, adjusted)—total	100,951	40	18,440	22.35
Security loans	1,776	− 351	− 97	− 5.18
Commercial and industrial	29,080	− 1	3,638	14.30
Real estate	35,265	40	7,910	28.92
Consumer instalment	18,977	66	4,298	29.28
U.S. Treasury securities	8,475	67	− 955	− 10.13
Other securities	14,857	30	− 26	− 0.17
Deposits (less cash items)—total*	117,285	− 403	11,842	11.23
Demand deposits (adjusted)	31,553	− 293	2,123	7.21
U.S. Government deposits	309	− 287	− 413	− 57.20
Time deposits—total*	83,517	390	10,416	14.25
States and political subdivisions	7,229	62	561	8.41
Savings deposits	31,366	152	− 24	− 0.08
Other time deposits‡	42,472	220	10,459	32.67
Large negotiable CD's	20,628	146	5,732	38.48

Weekly Averages of Daily Figures	Week ended 12/27/78	Week ended 12/20/78	Comparable year-ago period
Member Bank Reserve Position			
Excess Reserves(+)/Deficiency (−)	− 11	+ 39	+ 58
Borrowings	− 108	− 13	− 25
Net free(+)/Net borrowed (−)	− 119	+ 26	+ 33
Federal Funds—Seven Large Banks			
Interbank Federal fund transactions			
Net purchases (+)/Net sales(−)	+ 694	+ 721	− 414
Transactions with U.S. security dealers			
Net loans (+)/Net borrowings (−)	+ 369	+ 398	+ 176

*Includes items not shown separately. ‡Individuals, partnerships and corporations.

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