

1978

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Citation of this paper:

Spinelli, Franco. "Italy and the Cost-Push Hypothesis: A Critique of Ward and Zis, Laidler and Hibbs." Department of Economics Research Reports, 7814. London, ON: Department of Economics, University of Western Ontario (1978).

20174

RESEARCH REPORT 7814

ITALY AND THE COST-PUSH HYPOTHESIS:

A CRITIQUE OF WARD AND ZIS,

LAILER AND HIBBS

by

Franco Spinelli

April, 1978

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Abstract

Using three different wage variables we first fitted wage equations with four alternative proxies for trade unions militancy. When entered with no lags nowhere does a strike variable turn out to be significant; when entered with a one-year lag in five out of ten equations the strike variable is not significant. At this stage we raised the following question: does the significance of the strike variables depend on a particular event, namely the 1970 wage explosion alone, or does it depend upon the fact that strikes are systematically correlated with wage inflation throughout the period? Our results strongly suggest that everything depends upon the 1970 observation and on that alone. As to the studies by Ward and Zis, Laidler and Hibbs we have found that if we include a dummy variable the cost-push hypothesis falls apart.

Introduction

The Italian experience has frequently been advanced in support of the cost-push hypothesis. Studies that come to this conclusion include two major papers by Modigliani and Tarantelli (1975, 1977). They use two particular proxies for trade unions pushfulness, namely the percentage of workers who renew their contracts at any moment in time and, more recently, the percentage of workers who review their contracts before the previous one expires. Spinelli (1977) and Spinelli and Zis (1978) have argued that these two proxies are analytically unsatisfactory and, if properly interpreted and weighted, empirically insignificant.

The second set of studies utilizes fairly standard measures of the trade unions pushfulness. Labini (1974) and Del Monte (1973) have argued that the number of hours lost in strikes helps to explain the rate of wage inflation. In his criticism of these studies Spinelli (1976) argues that "the significance of the strike variable entered with a lag and the improvement in the fit are to be associated with the 1970 observation and with that alone" and concludes that trade union militancy does not seem to systematically affect the rate of wage inflation. This study covers the period (1954-1973) and the question arises as to whether that conclusion is to be rejected in the face of more recent events, in particular the 1975 wage explosion. Furthermore, other economists, namely Ward and Zis (1974), Laidler (1976) and Hibbs (1977) have presented results, which, at least as far as Italy is concerned, seem to support the cost-push hypothesis.

The aim of this paper is twofold. First of all we want to extend our previous analysis to include the 1974, 1975 and 1976 observations.

Secondly, we want to look into the results that have been obtained by other economists. Our conclusions are easy to state. Contemporaneous strike activity, however defined, is never significant. Lagged strike variables are sometimes found to play a significant role but that is no longer the case when a dummy variable for 1970 is included. Such a modification undermines the results obtained by Ward and Zis, Laidler and Hibbs. Thus the conclusion reached in our previous study, that, on the whole, over the last twenty-five years, strike activity did not significantly and systematically affect the rate of wage inflation is confirmed.

Contemporaneous Strike Variables

On the basis of the data that are currently published we have three major wage variables:¹ minimum wages in manufacturing industries, minimum wages in total industry (both calculated on the basis of minimum wages as set by unions and employers and of a "normal" annual number of hours of work), and industrial earnings (which include "overtime", holidays--and of course are determined on the basis of the actual number of hours of work). Because of the way they are defined and, of course, because of the different sets of data they are based upon, these three variables do not show the same behaviour. A choice is hard to make and since we want to avoid any criticism we are going to use all these three variables. As a proxy for the excess demand variable we choose the standard rate of unemployment in the non-agricultural sector. It is also to be said that in the Italian economy the legal practice is to tie wages to the cost of living through escalator clauses; for this reason alone the rate of change in the cost of living has been added as an extra regressor.

As we have argued none of the suggested proxies for trade union militancy is satisfactory. However, we shall abstract from these objections and we shall utilize data on the hours lost, on the number of strikes and on the number of strikers. Moreover, following Labini's suggestions, we also experiment with the residuals of the regression of the number of hours lost on the rate of unemployment. These data cover the period 1953-1976 for the manufacturing industry and 1960-1976 for the whole industrial sector; as a consequence our results are obtained on the basis of two different time periods.²

In Tables 1, 2 and 3³ our strike variables are entered with no lag and we notice that nowhere do their coefficients turn out to be significant; our previous results are confirmed which suggests that the 1975 wage explosion does not add support to the cost-push hypothesis.

Lagged Strike Variables

It has been frequently argued that strike variables should enter the equation with a lag. In our previous study we said that since a detailed analysis of the timing of strikes and wage increases is not available, there is an 'ad hoc' element in this kind of approach; for instance we know that on various occasions we should have a lag of two years while on other occasions we even have a lead. However, we ignore this problem and fit our wage equations with the strike variables lagged one period. Tables 1' (equations 1 through 4), 2' and 3' (equations 1 through 3) give the results and we soon notice that although they are obtained on the basis of the equations which are "preferred" by cost-push theorists they are far from satisfactory. In five equations out of ten the strike variables turn out to be insignificant. Note that over

Symbols

- MIMW : minimum wages in manufacturing industry (ISTAT)
- IMW : minimum wages in the whole industrial sector (ISTAT)
- IE : earnings in the whole industrial sector (Ministero Del LaVoro)
- CL : Cost of living (ISTAT)
- DIS : unemployment in the non-agricultural sector (ISTAT)
- HLM : hours lost in strikes (manufacturing industry) (ISTAT)
- SM : number of strikes (manufacturing industry) (ISTAT)
- NM : number of strikers (manufacturing industry) (ISTAT)
- RHLM : residuals of the regression of HLM on DIS^{-1}
- HLI : hours lost in strikes (total industry) (ISTAT)
- SI : number of strikes (total industry) (ISTAT)
- NI : number of strikers (total industry) (ISTAT)
- DUMMY : dummy variable taking value 1 in 1970 and zero otherwise

TABLE 1
 Dependent Variable: MIMW
 Period : 1954 - 1976

Eq.No.	Constant	CL	DIS ⁻¹	HLM	RHLM	SM	NM	R ²	DW	SEE
1	-2.481 (-1.009)	1.076 (6.626)	26.446 (1.973)	.000017 (.8631)				.81	2.32	3.61
2	-2.687 (-1.103)	1.075 (6.624)	31.670 (2.681)		.0017 (.8654)			.81	2.32	3.60
3	-2.8199 (-1.1293)	1.0771 (6.51119)	29.2989 (1.5606)			.00033 (.1816)		.80	1.27	3.67
4	-2.488 (-1.014)	.9309 (3.991)	28.383 (2.2754)				.00044 (.877)	.81	2.18	3.60

TABLE 2
Dependent Variable: IE
Period: 1961 - 1976

Eq. No.	Constant	CL	DIS ⁻¹	HLI	SI	NI	R ²	DW	SEE
1	-14.052 (-1.628)	.8387 (4.3295)	79.022 (2.336)	.000019 (.8839)			.75	2.05	4.08
2	-11.653 (-1.31281)	.8729 (4.250)	64.9398 (1.3973)		.00092 (.4498)		.73	2.06	4.17
3	-13.8601 (-1.5700)	.6943 (2.237)	81.0986 (2.3509)			.00038 (.641)	.74	1.87	4.14

TABLE 3
Dependent Variable: IMW
Period: 1961 - 1976

Eq. No.	Constant	CL	DIS ⁻¹	HLI	SI	NI	R ²	DW	SEE
1	-7.5738 (-.770)	.9977 (4.5200)	49.899 (1.295)	.0000094 (.3838)			.71	2.99	4.65
2	-9.010 (-.9460)	.9417 (4.273)	84.328 (1.690)		-.00227 (-1.037)		.73	2.45	4.48
3	-8.255 (-.841)	.836 (2.423)	52.221 (1.366)			.00041 (.623)	.71	2.83	4.60

the period 1961-1976 the results are least impressive; in fact this is the period that would be expected to produce the most favourable results since it is characterized by acute industrial unrest.

However, though the simple Phillips-curve type of equation performs rather well it does considerably underestimate the 1970 wage explosion by not less than ten percentage points. In Italy in 1969 there is an unprecedented level of industrial unrest and all the strike variables exhibit a clear peak. Therefore, the question arises as to whether the significance of the lagged strikes variables is systematic in the sense that they help to explain the 1963, 1970, 1973 and 1975 wage explosions (in which case the evidence we put forward would undoubtedly support the cost-push hypothesis) or whether it is simply to be attributed to the fact that these strike variables act as a dummy variable for 1970. Of course if this is in fact the case, then the cost-push hypothesis cannot be sustained. In order to investigate this problem we added a dummy variable taking a value of unity in 1970 as an extra regressor. From Tables 1' (equations 1' through 3'), 2' (equation 1') and 3' (equation 3') we notice that on only one occasion does the strike variable keep its significance.

Ward and Zis

These authors investigate the influence of trade unions on the determination of the rate of change of money wage rates in Belgium, France, Germany, Italy, Netherlands and U.K. In commenting on the results for Italy they write "our empirical findings....would seem to support the cost-push hypothesis. Only when the number of strikes is used as a measure of strike activity is the coefficient on the militancy variable insignificant. In all three other cases the militancy index is significant and correctly signed."

TABLE 1'
Dependent Variable MIMW
Period 1954 - 1976

Eq. No.	Constant	CL	DIS ⁻¹	HLM ⁻¹	RHLM ⁻¹	SM ⁻¹	NM ⁻¹	Dummy	R ²	DW	SEE
1	-0.823 (-0.396)	.9650 (7.044)	11.571 (1.007)	.00006 (3.259)					.87	2.86	2.94
2	-1.6989 (-0.8001)	1.0057 (7.1003)	29.0201 (2.8491)		.00494 (2.7988)				.88	2.72	3.09
3	-3.5132 (-1.5424)	.9703 (6.1058)	12.7299 (.8839)			.002967 (2.040)			.84	2.34	3.33
4	2.77167 (-1.2111)	.7236 (2.935)	28.777 (2.56136)				.000955 (1.82996)		.84	2.08	3.39
1'	-1.826 (-0.8783)	1.160 (7.0225)	22.642 (1.755)	.000009 (.2476)				9.8134 (1.6451)	.89	2.77	2.82
2'	-2.021 (-1.0393)	1.1312 (7.991)	24.8427 (2.6160)		.000054 (.0199)			11.0168 (2.1866)	.89	2.73	2.82
3'	-2.7541 (-1.6866)	1.029 (9.020)	6.5796 (.63500)			.00284 (2.73799)		10.9095 (4.4025)	.92	2.97	2.37

TABLE 2'
Dependent Variable: IE
Period 1961 - 1976

Eq. No.	Constant	CL	DIS ⁻¹	HLL ⁻¹	SL ⁻¹	NI ⁻¹	Dummy	R ²	DW	SEE
1	-7.487 (-1.104)	.7551 (4.9211)	44.7996 (1.5664)	.000056 (3.026)				.84	2.05	3.17
2	-15.640 (-1.870)	.7964 (4.2321)	67.147 (2.015)		.0023 (1.4242)			.77	1.66	3.895
3	-17.528 (-1.420)	.458 (1.405)	93.504 (2.770)			.00088 (1.448)		.77	1.50	3.88
1'	-9.1476 (-1.580)	.857 (4.608)	57.310 (1.825)	.000021 (.5322)			7.029 (.974)	.86	2.10	3.18

TABLE 3'
Dependent Variable: IMW
Period 1961 - 1976

Eq. No.	Constant	CL	DIS ⁻¹	HLL ⁻¹	SL ⁻¹	NI ⁻¹	Dummy	R ²	DW	SEE
1	-2.708 (-.308)	.9266 (4.674)	22.068 (.5973)	.000046 (1.9080)				.77	3.24	4.09
2	-11.031 (-1.240)	.9320 (4.6564)	33.9078 (.95675)		.00316 (1.816)			.77	2.73	4.14
3	-15.311 (-1.799)	.3393 (1.070)	74.694 (2.2779)			.00149 (2.535)		.80	2.98	3.77
3'	-11.075 (-1.131)	.6184 (1.388)	59.125 (1.5848)			.00094 (1.096)	5.183 (.8990)	.82	3.66	3.80

Annual data for the period 1956-1971 are used and the manufacturing sector industry is taken into consideration. There are four proxies for trade unions militancy, namely the time lost, the number of strikes, the number of strikers and the Evans-Galambos index. In Table 4 (equations 1 through 4) we first duplicate the results obtained by Ward and Zis. Then (equations 1' through 3') we include the dummy variable and we notice that the three coefficients on the strike variables collapse. Therefore, on the basis of these results, the conclusion by Ward and Zis that "the relative contribution of the combined militancy index....in explaining money wage inflation was important throughout the period" is to be rejected.

Laidler

In his attempt to see whether empirical evidence can distinguish among the opposing views on inflation Laidler draws the conclusion that "strike activity appears to have had a systematic influence on inflation for Italy, the U.K. and the U.S. I cannot at this point rule out the probability that the sociological approach has an element of truth to it; that certainly would be an eclectic's interpretation of the results... ."

Of course we focus on the results for Italy. Using data on strikes and wages in the manufacturing industry Laidler, in an attempt to give empirical content to what he termed a "sociological" approach to inflation, mainly relies on the following equation

$$\text{MIMW} = a + b \text{DIS}_{-1} + \text{HLM}_{-1}$$

Over the period 1954-1970 this equation yields the results that are given in Table 5, equation 1. We notice the positive and relatively robust intercept, the nonsignificant unemployment variable and the strong coefficient on the cost-push variable; at first sight all this seems to lend

Dependent Variable: MIMW
 Period: 1956 - 1971

TABLE 4

Eq. No.	Constant	CL	DIS ⁻¹	EG ⁻¹	NM ⁻¹	HLM ⁻¹	SM ⁻¹	Dummy	R ²	DW	SEE
1	-2.9295 (-1.7302)	1.0853 (3.7323)	-10.7836 (-.93680)	7.0229 (5.0333)					.90	2.51	1.965
2	-2.8324 (-1.5562)	1.3010 (4.3100)	8.91811 (.90000)		.0020436 (4.52456)				.88	2.68	1.11
3	-1.11246 (-.579334)	1.17626 (3.83057)	7.82822 (.78156)			.0000627 (4.5300)			.88	2.74	2.11
4	-5.03652 (-1.74513)	1.3737 (2.8538)	10.1736 (.45843)				.00333 (1.1442)		.71	1.95	3.29
1'	-2.9536 (-2.04662)	1.2495 (4.8506)	12.3419 (.88751)	2.34685 (1.0114)				8.1353 (2.3472)	.93	2.34	1.67
2'	-3.01827 (-2.0019)	1.33786 (5.34779)	22.4172 (2.2984)		.000255 (.3207)			10.0342 (2.5551)	.93	2.17	1.74
3'	-2.8554 (-1.6461)	1.3271 (5.0738)	22.6952 (2.2324)			.0000064 (.25466)		10.2330 (2.53761)	.93	2.26	1.24

considerable support to the cost-push hypothesis.

Then in equation 2 we added our dummy variable and, although the proxy for the excess demand in the labour market does not perform any better, the t - statistics of the strike variable collapses from 4.8 to 1.9 which confirms that the last two regressors of the equation are strongly correlated with each other. Moreover, a couple of fairly general considerations are to be made. First of all the Italian reader is struck by the fact that there is no cost of living variable among the regressors. Of course there is a reason why Laidler disregards it: analytically he fears that by including it among the regressors he drifts away from a pure cost-push hypothesis (which he is trying to test) towards a monetarist model. To this we will object by saying that in Italy wages are institutionally tied to prices through escalator clauses so that the cost of living variable must appear among the regressors even when we set up a cost-push model. Further, the existing literature suggests that the unemployment variable should be entered with no lag and in a non-linear fashion.

Once these two considerations have been taken into account the picture changes rather dramatically. From equation 3 we now notice that the unemployment and the dummy variables are both strongly significant and that the t - statistics of the strike variable practically falls to zero. The increase in the overall exploratory power of the model is also remarkable. All in all we would say that these results are perfectly in line with those we have been through so far and, if anything, they reinforce our previous conclusions.

Hibbs

Finally we turn to the paper by Hibbs who has recently come to the conclusion that, at least as far as Italy is concerned, the empirical

TABLE 5

Dependent Variable: MIMW

Period: 1954-1970

Eq. No.	Constant	CL	DIS ⁻¹	DIS ₋₁	HLM ₋₁	Dummy	R ²	DW	SEE
1	4.9218 (2.1068)			-.2233 (-.8055)	.0000827 (4.8033)		.71	1.53	1.97
2	5.8960 (1.9997)			-.2943 (-.9476)	.000066 (1.9236)	3.5285 (.5665)	.72	1.33	3.05
3	-2.1357 (-1.8993)	1.2981 (5.9636)	20.2997 (2.9852)		.0000015 (.007781)	11.5687 (3.5227)	.94	2.61	1.45

evidence tends to support the cost-push hypothesis.

His study covers the period 1954-1972 and pertains to the manufacturing sector. The cost of living variable is given by the average value of the rate of inflation for the last three years. As to the proxy for trade unions militancy we read "man days lost from strikes per number of employees has both a theoretical justification (being the volume of a three-dimensional profile that characterizes strike activity at any time) and obvious intuitive appeal as a comprehensive index of industrial conflict". He also writes that "On a priori grounds I expected strike volume (man days lost per number of manufacturing employers) and strike frequency (the number of strikes per number of manufacturing employees) to have the biggest effects on movements in wages-strike volume because it is the most comprehensive indicator of labor militancy and strike frequency because it represents the number of aggressive labor actions of whatever duration and size."

After what has been written by Fisher (1973) and Purdy and Zis (1974) these assertions are less than convincing. In one case (strike volume) the author gives a "geometrical" justification and he also relies on an "obvious intuitive appeal" that does not exist; in the latter (strikes per employees) there is nothing at all and we simply do not know where this variable comes from. Hibb's analysis does not provide any sensible answer to the several rather disturbing questions which have been raised over the last few years and he himself must have the feeling that his analysis is far from being firmly grounded in economic theory; in fact we read "Although the logic of these a priori hunches may be faulty they were strongly supported by the empirical results". When we look at the empirical results

we also realize that, at least for Italy, Hibbs is overstating the case for a sociological explanation of inflation.

In fact, although we have two strike variables, if we look at Hibb's Table 1a which gives the results for Italy, the second variable never appears among the regressors. The reason is easy to find. First let's duplicate the results obtained by this author using the two strike variables alternatively. Results are as follows:

$$W = -2.1805 + 1.17388 \text{ CL} + 15.4044 \text{ DIS}^{-1} + .3335 \text{ H}_{-1}$$

$$\begin{array}{ccccccc} & (-1.4729) & (2.2374) & (1.49621) & (4.51235) & R^2 = .78 & \\ & & & & & DW = 1.50 & \\ & & & & & SEE = 2.61 & \end{array}$$

$$W = -5.2154 + .6049 \text{ CL} + 30.7441 \text{ DIS}^{-1} + 10.6492 \text{ L}_{-1}$$

$$\begin{array}{ccccccc} & (-1.52184) & (.7467) & (1.87993) & (.903308) & R^2 = .52 & \\ & & & & & DW = 1.46 & \\ & & & & & SEE = 3.90 & \end{array}$$

where H = HLM/number of employees and L = SM/number of employees. The second equation in which the strike variable is not significant does not appear among the results for Italy (it does in the case of France and Great Britain). Thus, on the basis of the 'complete' evidence put forward by Hibbs and even on the basis of his preferred strike variables it seems as if no strong case could be made for the sociological view; we have two variables and one of the two performs very badly.

But let's see what happens to the H variable when a dummy is included among the regressors. We get:

$$W = -3.3464 + 1.27728 \text{ CL} + 22.8123 \text{ DIS}^{-1} + .11938 \text{ H}_{-1} + 9.66937 \text{ Dummy}$$

$$\begin{array}{ccccccc} & (-1.77116) & (2.8849) & (2.30250) & (.987355) & (2.12067) & \\ & & & & & & R^2 = .83 \\ & & & & & & DW = 1.20 \\ & & & & & & SEE = 2.75 \end{array}$$

The strike variable becomes non-significant while the coefficient on the excess demand rises in absolute value and becomes significant. This last result was also obtained in our criticism of the study by Laidler and it

seems to support the view that the dummy variable must enter the wage equation. But of course what matters here is the behaviour of the strike-volume variable; this is not systematically related to the rate of wage inflation.

Conclusions

Using three different wage variables we first fitted wage equations with four alternative proxies for trade unions militancy. When entered with no lags nowhere does a strike variable turn out to be significant; when entered with a one-year lag the cost-push hypothesis performs somewhat better but again, in five out of ten equations, the strike variable is not significant.

At this stage we raised the following question: Does the significance of some of the strike variables depend on a particular event, namely the 1970 wage explosion alone, or does it depend upon the fact that strikes are systematically correlated with wage inflation throughout the whole postwar period? Our results strongly suggest that everything depends upon the 1970 observation and on that alone.

We also looked into the evidence put forward by Ward and Zis, Laidler and Hibbs who have recently come to the conclusion that, for Italy, the sociological view seems rather well grounded. In dealing with these three studies we encountered another three cost-push variables and of course we fitted different time periods. However the answer is always the same: if we include a dummy variable the strike variable is no longer significant which suggests that market forces plus expectations take care of the 1963, 1973 and 1975 wage explosions.

What kind of general conclusion can we draw at this stage? It depends on one's tastes. To us what matters and what we should look for is a theory that can explain in a systematic fashion the behaviour through time of the rate of price and wage inflation and we would say that, in spite of the militancy of the trade unions movement, in Italy market forces dominate. Somebody else may well be interested in the explanation of the deviation of the inflation rate from its trend value and conclude that in 1970 trade unions pressure did affect the rate of wage inflation. Fundamentally we do not disagree with this approach; however, for the sake of argument we have to stress the fact that even on that occasion higher trade unions pressure did not translate into higher rates of price inflation.

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DATA APPENDIX

	<u>MIMW</u>	<u>IE</u>	<u>IMW</u>	<u>CL</u>	<u>DIS</u>
1953	2.180	2.530	2.790	1.950	11.38
1954	3.730	5.170	3.660	2.690	11.08
1955	4.420	4.390	4.760	2.810	9.640
1956	6.010	6.610	5.840	4.970	11.14
1957	4.410	4.600	4.530	1.930	9.160
1958	4.790	4.820	5.170	4.790	8.160
1959	1.370	2.350	1.230	-4.200	6.860
1960	4.530	4.890	4.690	2.650	5.080
1961	4.440	7.200	4.180	2.920	4.250
1962	10.66	15.04	11.25	5.100	3.680
1963	14.72	17.84	14.31	7.520	3.030
1964	14.01	11.97	17.43	5.930	3.270
1965	6.080	7.250	8.340	4.340	4.390
1966	3.850	3.750	3.760	2.000	4.680
1967	5.200	5.910	5.570	2.000	4.200
1968	3.610	4.550	4.550	1.270	4.200
1969	7.520	9.420	7.300	2.810	4.030
1970	21.59	22.74	20.68	5.080	3.670
1971	13.54	15.52	11.92	5.240	3.700
1972	10.45	11.89	9.230	5.620	4.250
1973	24.23	22.17	22.90	10.37	3.970
1974	22.43	24.44	19.70	19.44	3.280
1975	26.67	25.86	29.00	17.17	3.740
1976	20.50	16.20	20.40	16.52	4.460

	<u>HLM</u>	<u>RHLM</u>	<u>SM</u>	<u>NM</u>	<u>EG</u>
1953	31514.0	167.0	672	2376.	.990000
1954	17858.0	23.60	1046	1118.	.832334
1955	6526.00	-131.0	1169	729.0	.618369
1956	6085.00	- 92.60	1044	669.0	.641774
1957	7490.00	-138.0	891	609.0	.557867
1958	10478.0	-149.0	1032	698.0	.655823
1959	40333.0	79.20	989	2379.	1.00350
1960	22448.0	-255.0	1455	1193.	.980565
1961	35753.0	-239.0	2234	1311.	1.44753
1962	113165.	424.0	2071	2728.	1.96867
1963	37800.0	-508.0	2328	2071.	1.54736
1964	52698.0	-285.0	2104	2603.	1.59279
1965	20384.0	-370.0	1871	1152.	1.15312
1966	72402.0	193.0	1639	1968.	1.45330
1967	26149.0	-344.0	1595	1305.	1.05980
1968	39927.0	-206.0	2254	2964.	1.60100
1969	202117.	1380.	2258	6560.	2.85403
1970	76180.0	51.40	2430	2731.	1.84869
1971	46549.0	-238.0	3455	2750.	2.17096
1972	70540.0	108.0	2925	3784.	2.13285
1973	114514.	498.0	2055	6299.	2.13158
1974	81286.0	3.760	3178	7765.	2.56469
1975	61682.0	- 78.00	2178	9989.	2.12509
1976	66461.0	101.0	1312	5620.	1.39647

	<u>H</u>	<u>L</u>	<u>HLI</u>	<u>SI</u>	<u>NI</u>
1953	11.6719	.248889			
1954	6.15793	.360690			
1955	2.05673	.368421			
1956	1.85745	.318681			
1957	2.04757	.243576			
1958	2.79861	.275641			
1959	10.2759	.251975			
1960	5.51955	.357758	31101.0	2050.00	1764.00
1961	8.33986	.521110	47134.0	3290.00	2056.00
1962	25.5048	.466757	139689.	3101.00	3805.00
1963	8.27858	.509855	48440.0	3432.00	3526.00
1964	11.9578	.477422	74441.0	3126.00	4104.00
1965	4.73716	.434813	26540.0	2244.00	1643.00
1966	16.8573	.381607	87354.0	1651.00	3565.00
1967	5.88544	.358992	28503.0	1870.00	1457.00
1968	8.80613	.497133	46045.0	2588.00	3490.00
1969	43.1505	.482067	228617.	2830.00	7793.00
1970	15.7105	.501134	84744.0	2739.00	3230.00
1971	9.40574	.698121	49649.0	4009.00	2903.00
1972	14.3930	.596817	87927.0	3379.00	5150.00
1973	22.9533	.411906	120230.	2422.00	6951.00
1974	15.6651	.612449	93272.0	3562.00	9232.00
1975	11.8596	.418766	77367.0	2478.00	11680.0
1976	12.5398	.247547	77491.0	1563.00	6645.00

Footnotes

* I am grateful to Carlo Dell'Aringa, David Laidler, Michael Parkin, Luciano Venturini, and George Zis for their suggestions and criticism. I am solely responsible for any errors.

¹Actually there is a fourth variable. Modigliani and Tarantelli have been using the ratio of total earnings of employees to an estimate of the number of equivalent full-time employees. There are two reasons why we do not think this variable is correct. First of all the numbers of hours of work varies over time and this variable tends to overestimate the rate of inflation during the upswing and to underestimate it during the depression periods. Furthermore the number of equivalent full-time employees is estimated by adding (in an arbitrary way) one-third of the so-called marginal employees to the number of full-time employees. For these reasons we ignored this variable.

²Over the latter period we dropped the variable that has been used by Labrini simply because over these years the rate of unemployment seems to be unrelated to the time lost in strikes. As a matter of fact, we obtained the following results:

period 1953-1976	HLM = -12012.2 + 304786 DIS ⁻¹	R ² = .27
	(-.4980) (2.8336)	DW = 2.14
		SEE = 38912
period 1960-1976	HLI = 36525 + 165656 DIS ⁻¹	R ² = .014
	(.39763) (.46366)	DW = 2.22
		SEE = 50341

and indeed we have been unable to notice any difference in the behaviour of HLI and RHLI in our regressions.

³We have used two different data sources: Ministero Del Lavoro for IE and ISTAT for all the remaining series. Data in Appendix.

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