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Capacity Utilization and Prices Within Industries

Peter S. Yoo

The strength of the economic expansion during the past two years has renewed fears of accelerating inflation. As these fears have grown, people have turned to various statistics to substantiate any signs of rising inflation. Commodity prices, wages, sales-to-inventory ratios, civilian unemployment rates and capacity utilization rates are some of the statistics commonly used to predict the future path of inflation. These measures embody the basic idea of supply and demand: As the demand for scarce goods increases, their prices must also increase.

The staff of the Board of Governors of the Federal Reserve System measures capacity utilization as the ratio of industrial production to industrial capacity.[1] Since the denominator in this ratio normalizes industrial production by a measure of the potential industrial output of the economy, the ratio provides a cyclical measure of industrial output. The Board's measure of capacity assumes that a firm's or an industry's production capacity is fixed over some moderate time horizon, usually due to the quantity of the available plant and equipment stock. When firms attempt to produce beyond their "normal" levels, the cost of producing the additional output becomes increasingly expensive if the firm's production process exhibits diminishing returns-to-scale. The higher cost then translates into higher prices.

Most of the empirical researchers on this subject use total industrial capacity utilization and the consumer price index (CPI) or producer price index (PPI) finished goods-based measures of inflation. Since inflation is an aggregate phenomenon, their focus is undoubtedly justified. Yet, the economic analysis that links inflation to capacity utilization should apply to any product market, regardless of its size. Therefore, the relationship between price and capacity use should also be evident in industry level data—perhaps more so.

In this paper, I use two-digit standard industrial classification (SIC) industry measures of capacity utilization to explore the robustness of the relationship between capacity utilization and prices. The results suggest that such measures do not have a consistently strong and simple relationship with each industry's price data.

THE RELATIONSHIP BETWEEN PRICE AND CAPACITY UTILIZATION

Economists typically have used two frameworks to estimate the relationship between prices and the strength of economic activity. First is the supply curve, a relationship between prices and quantities. Shea (1993) finds that the supply curve of several four-digit SIC industries is upward sloping: Any increase in demand is met by a combination of additional output and higher prices. Over some moderate time frame in which firms have finite and fixed capacity, any increased production then implies higher rates of capacity utilization, which creates a positive relationship between price changes and capacity utilization.

The second and more common framework is a forecasting relationship between capacity and inflation. Such studies include Garner (1994), McElhattan (1978, 1985) and Finn (1995). Garner and Finn estimate simple linear equations in which the current rate of inflation is a function of previous periods' inflation and total industrial capacity utilization rates. McElhattan assumes there is a boundary point of total industrial capacity

[1] See *Federal Reserve Measures of Capacity and Utilization* (1978) and Shapiro (1992) for discussions about the construction of the series.

utilization, beyond which inflation increases or decreases, a concept analogous to the non-accelerating inflation rate of unemployment. Therefore, she regresses changes in inflation on previous changes in inflation and on lagged capacity utilization rates. All three of these studies find a statistically significant relationship between total industrial capacity utilization rates and inflation.

The accompanying figures show the relationship between price changes and capacity utilization for 23 two-digit industries and three aggregate groups: total, mining and manufacturing industries.[2] The price changes in the figures are monthly percentage changes in each industry's net output price level without their seasonal components. (I used regressions with 12 monthly dummy variables to remove the seasonal component from each industry's monthly percentage price changes.) The finished goods producer price index is the price index associated with total industrial capacity utilization rates. The sample covers the period of 1987-94.

The figures yield mixed signals about the relationship between capacity utilization and prices. Total industrial and manufacturing capacity utilization rates seem to track price changes from late 1990 to early 1993, but otherwise show no obvious relationship. The mining aggregate shows volatile price changes, but with little connection to changes in capacity utilization. The 23 two-digit industries show similar ambiguity. Some industries, such as paper and fabricated metals, show an extremely close relationship between capacity use and percentage price changes. The figures for these two industries indicate that capacity utilization rates and price changes moved in tandem from 1987 to 1994. Other industries, such as the leather industry, show no discernible relationships between capacity constraints and price changes. Still others, like stone, clay and glass products, show signs of positive co-movements for a portion of the sample period but not for the entire sample period.

REGRESSIONS

I now turn to linear regressions to examine the ability of capacity utilization rates to forecast price changes within the context of a simple linear relationship. Current price changes are functions of past price changes and capacity utilization rates in forecasting equations:

$$\pi_t = f(\pi_{t-i}, cu_{t-i}),$$

where π_t is the monthly percentage change in an industry's net output price level, the π_{t-i}'s are lagged price changes, and the cu_{t-i}'s are that industry's current and lagged capacity utilization rate. Unlike in Shea's study, estimates of the above relationship cannot be interpreted as supply curves, because capacity utilization and price changes are equilibrium values determined by the intersection of the demand and supply schedules. This causes an identification problem because it is impossible to determine whether prices increased because the demand schedule shifted out or because the supply schedule shifted in. Still, many people estimate such relationships and use capacity utilization rates as sufficient indicators of future price changes. Indeed, the media and other popular sources of business news usually promote the idea that high current rates of capacity utilization indicate imminent price pressures.

Most macroeconomic data series have persistence, that is, current and past values are significantly related. Therefore, a regression that attempts to estimate the relationship between capacity utilization and price changes should include lagged values of price changes to account for their persistence rather than attributing it all to movements in capacity utilization. Including past price changes then allows one to estimate the marginal information contained in capacity utilization about current and future price changes.

Unfortunately, determining the number of lags to include in a regression is a problem. Including too many lags can reduce the precision of the estimated coefficients or yield spurious significant correlations, whereas using too few lags will not capture all of the persistence in the data. The Schwarz information criterion provides a way to capture the amount of persistence in price changes. It weighs the gains in explanatory power against the number of additional variables

[2] I do not use the term inflation when referring to industry data because inflation is an increase in the overall price level, while an increase in an industry's price level is not.

included in the regression, analogous to an adjusted R^2 measure. I use this criterion because Geweke and Meese (1981) found that it outperformed most others in the consistency of lag-length selection.

I therefore estimate a linear equation in which current price changes are functions of: previous price changes; capacity utilization rates using monthly percentage price changes; and capacity utilization rates that have had their seasonal components removed.[3] The sample starts in 1986 and extends through 1994. To determine the number of lags of price changes and capacity utilization for each regression, I use the Schwarz information criterion, allowing up to 24 lags of both price changes and capacity utilization rates. Table 1 shows the results of the search, in which an entry of zero indicates that only contemporaneous capacity utilization rates are included.

Table 1 shows that most two-digit industry price changes have a simple relationship with lagged price changes and capacity utilization rates. Eleven of the 23 industries appear to be well-described by their previous month's price change and contemporaneous capacity utilization. Among those industries with more complex relationships, only two industries—lumber and electrical machinery—show any link between additional lags of capacity utilization and current price changes. Moreover, none of the industries shows a noticeable relationship between current price changes and either lagged price changes or capacity utilization beyond three months.

Given the results in Table 1, I estimate the simple forecasting equations for the 23 two-digit industries and three aggregated groups (mining, manufacturing and total industrial). Each industry's equation includes the number of lags indicated by Table 1. In addition, I calculate the sum of the coefficients of the capacity utilization variables to measure the cumulative relationship between capacity utilization and price changes.[4]

Table 2 shows the regression results from estimating the above equation over the sample period of January 1986 through December 1994, with t-ratios in parentheses.[5] Two of the three aggregate groups, total industrial and manufacturing, indicate that current price changes are positively and significantly related (at the 5 percent level) to previous price changes, with a percentage-point increase in the previous month's price change associated with 0.38 and 0.47 percentage-point increases in current prices, respectively. The same two groups also show positive and statistically significant relationships with contemporaneous capacity utilization. The estimates indicate that a percentage-point increase in capacity utilization is associated with a 0.04 percentage-point increase in prices in the current period and just over a 0.06 percentage-point increase in the long run. While the effect is significant and has the correct sign, the size is an order of magnitude smaller than that of lagged price changes.

The regression results for the two-digit industries also reveal a strong relationship between current and previous price changes. Seventeen of 23 regressions show statistically significant relationships between current and lagged price changes, with 16 of the 17 industries statistically significant at the 5 percent level and coal mining significant at 10 percent. Most of the statistically significant relationships between current and lagged price changes indicate a positive and sizable correlation. On average, a 1.0 percentage-point increase in the previous month's price change is associated with a 0.30 percentage-point increase in current prices. The coefficients of the previous period's price change vary from -0.40 to 0.52, and the cumulative sums for multiple lags of price changes range from 0.10 to 0.79.

The relationship between current price changes and capacity utilization, however, is not as clear. Among the forecast equations for two-digit industries that include only contemporaneous capacity utilization, seven—furniture and fixtures, paper products, printing and publishing, rubber and plastic products, primary metals, fabricated metals and miscellaneous manufacturing—indicate statistically significant and positive coefficients at the 5 percent level, with one—textile mill products—at the 10 percent level. Together, these eight industries produce 26.5 percent of industrial output. The magnitudes of the coefficients are not very large, ranging from 0.01 to 0.02, noticeably smaller than the

[3] The Board of Governors does not release capacity utilization in a seasonally unadjusted form. It does, however, release industrial production seasonally unadjusted. Because the published capacity measure does not have a seasonal component, I define seasonally unadjusted capacity utilization as seasonally unadjusted industrial production divided by capacity. This measure allows me to filter the seasonality of price changes and capacity utilization rates in a similar manner, so any distortions introduced by the filter will be minimized.

[4] I did not consider first-differencing the data because none of the price change series indicate a unit root and, moreover, it seems unlikely that prices are I(2) processes.

[5] I use Newey-West robust standard errors when calculating the t-ratios to correct any remaining serial correlation of the residuals and heteroskedasticity.

typical coefficient on previous price changes. These estimates indicate that a 1.0 percentage-point increase in capacity utilization is associated with a 0.01-to-0.16 percentage-point increase in prices in the long run. The forecast equations for the two industries with lagged capacity utilization rates included in the regressions (lumber products and electrical machinery) show very small, statistically insignificant, cumulative relationships with current price changes.

Of course, it is possible that the number of lags included in these equations is not sufficient to capture the dynamic relationship between prices and capacity utilization, especially if the Schwarz criterion underestimates the number of lags.[6] To check the robustness of the specification, I also select a common forecasting equation for each of the industries, using three lags of price changes and contemporaneous-plus-three lags of capacity utilization. The additional lags allow some latitude for possible misspecification, but do not impose a large penalty for the number of additional regressors.

Table 3 shows the regression results from estimating the forecasting equation with the additional lags over the same sample period. Forecast equations for six of the two-digit industries—coal mining, printing and publishing, chemical products, leather products, primary metals and miscellaneous manufacturing—as well as total industrial and manufacturing aggregates, show statistically significant coefficients (at the 10 percent level) for the added capacity utilization lags. The sums of the capacity utilization coefficients suggest that the conclusions about the relationship remain essentially unchanged. Nearly all of the sums equal the single coefficient shown in Table 2, and with the exception of stone and earth minerals, stone, clay and glass products, and primary metals, the significance of the total estimated relationship between capacity utilization and price changes remains unaffected by the change in the forecasting equation's lag structure.

CONCLUSIONS

Two conclusions emerge from the analysis in this article. First, although the possibility of forecasting inflation based on the relationship between capacity constraints and prices is appealing, the evidence from two-digit industry data is weak. The simple forecasting results reported in this article have not identified strong, consistent relationships between prices and capacity constraints. Second, even among the industries with a statistically significant relationship, the size of the relationship is small. These results suggest that current price changes are the best indicators of future price changes, and that the forecasting information contained in the current period's capacity utilization rate is smaller in magnitude than the informational content of past price changes.

[6] Geweke and Meese (1981) found that although the Schwarz criterion was consistent in its estimation of lag-length selection, it can underestimate the lag length. They found the degree of underestimation to be very small, however.

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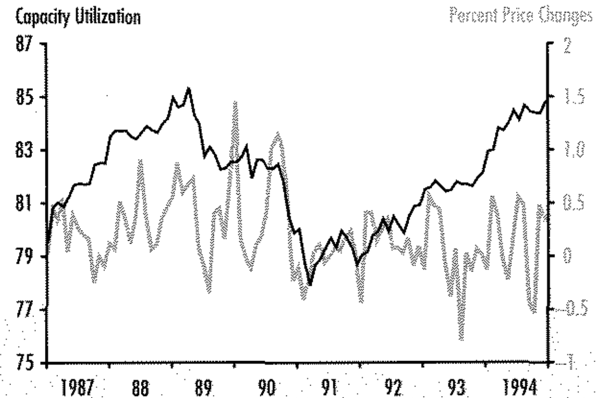
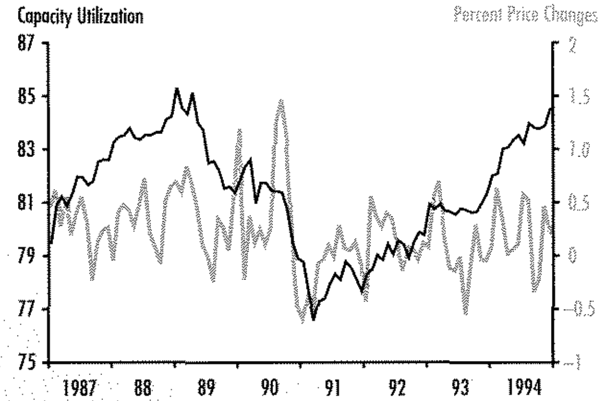
Capacity Utilization and Net Output Price Curves for Selected Industries

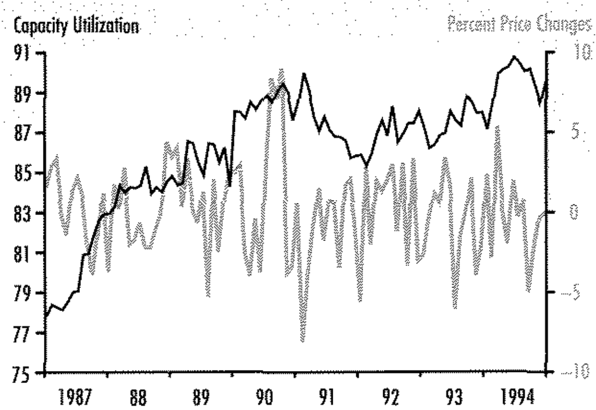
Total Industrial Capacity Utilization and Finished Goods PPI



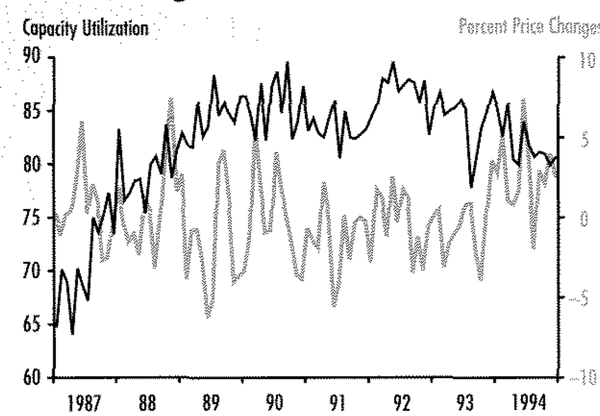
Manufacturing



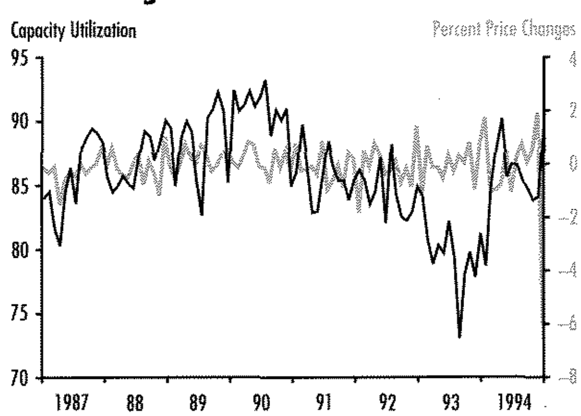
Total Mining



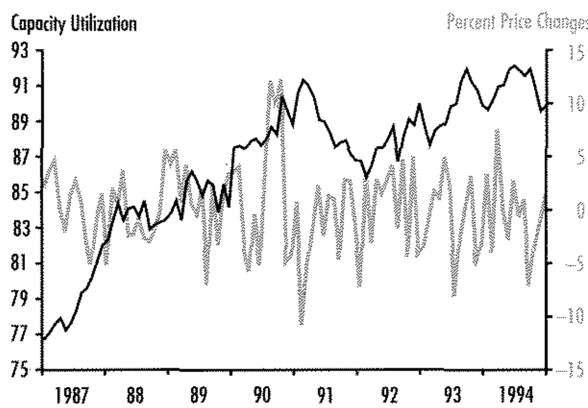
Metal Mining



Coal Mining

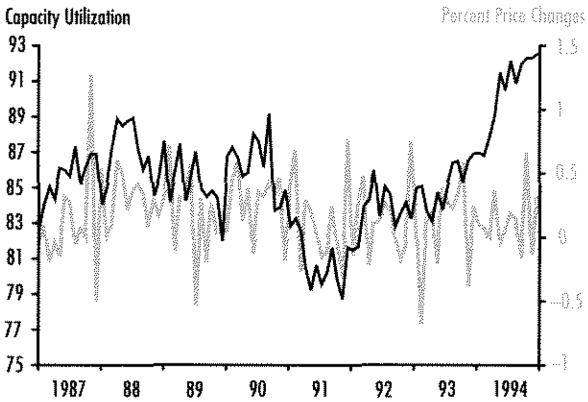


Oil and Gas Extraction

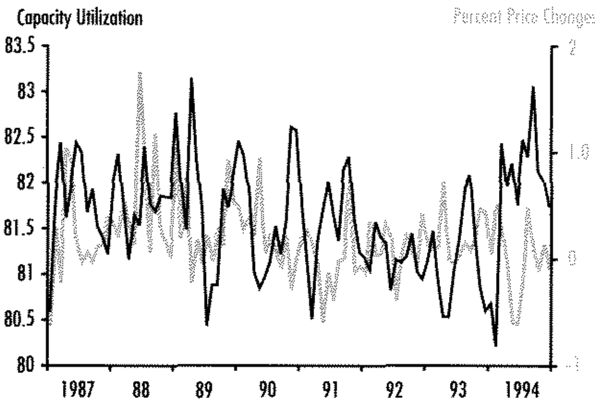


Capacity Utilization and Net Output Price Curves for Selected Industries

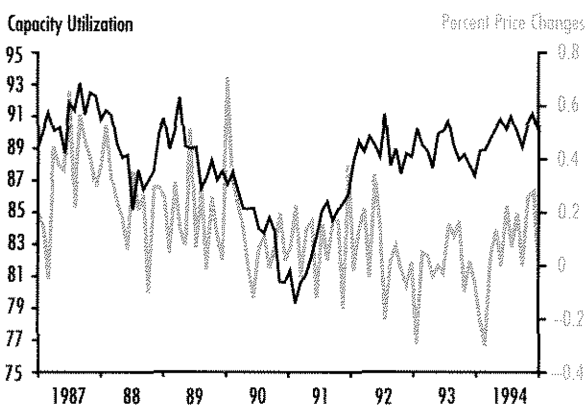
Stone and Earth Minerals



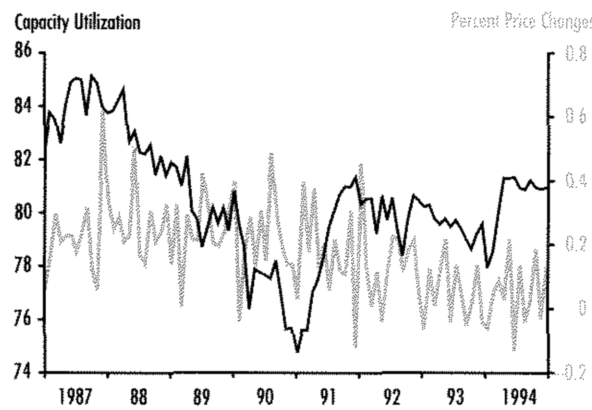
Foods



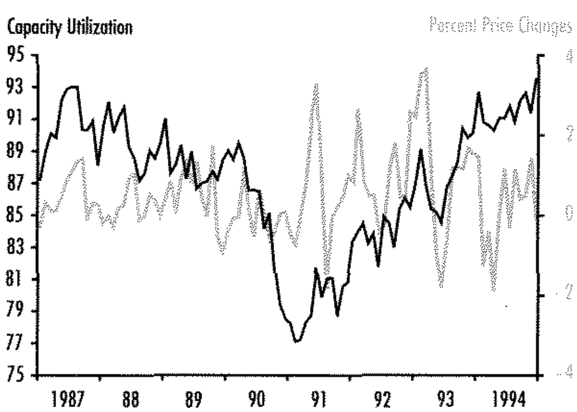
Textile Mill Products



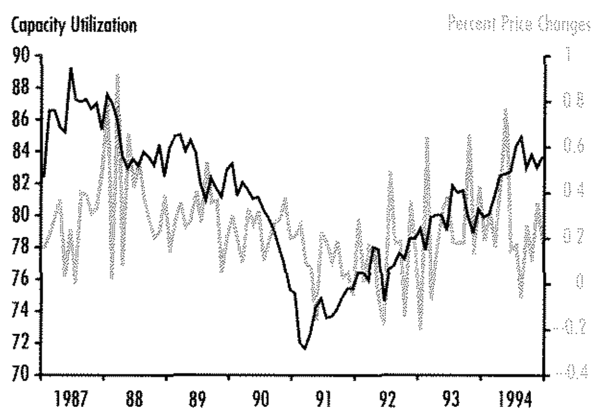
Apparel Products



Lumber Products

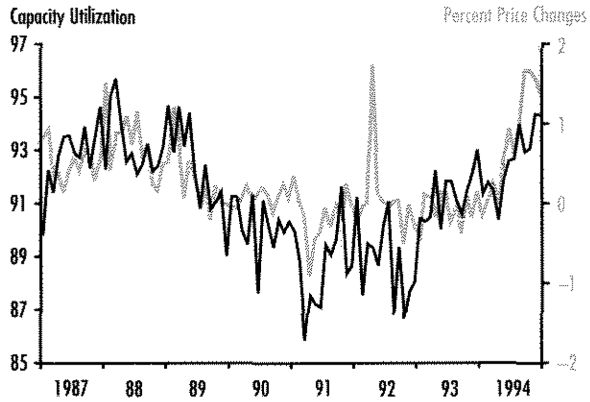


Furnitures and Fixtures

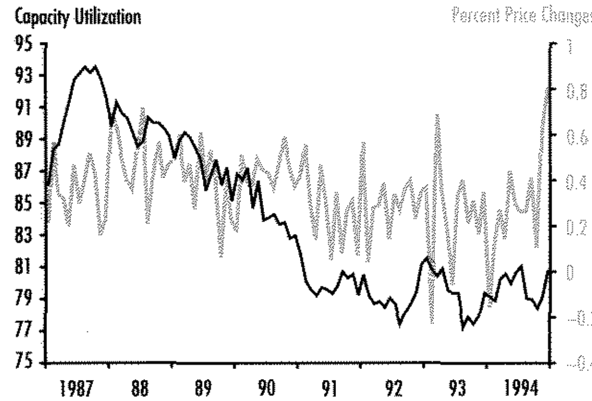


Capacity Utilization and Net Output Price Curves for Selected Industries

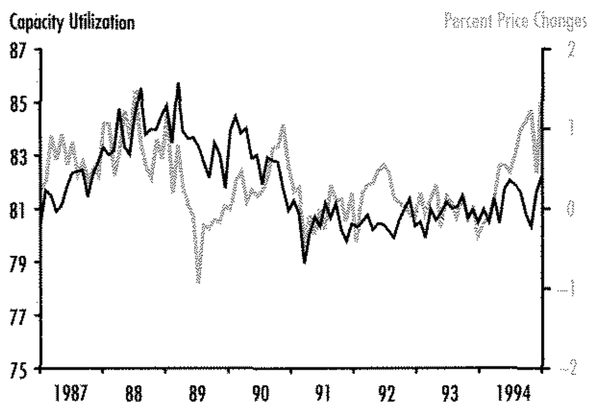
Paper Products



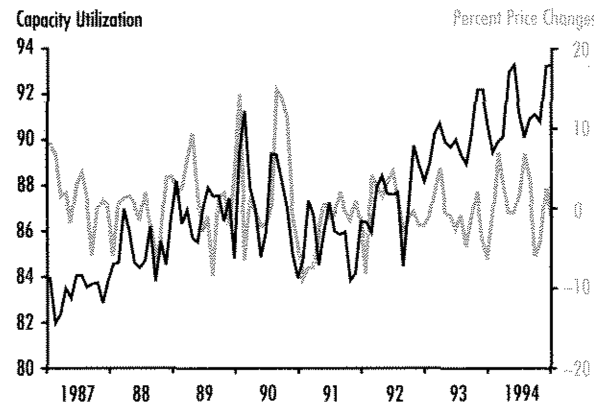
Printing and Publishing



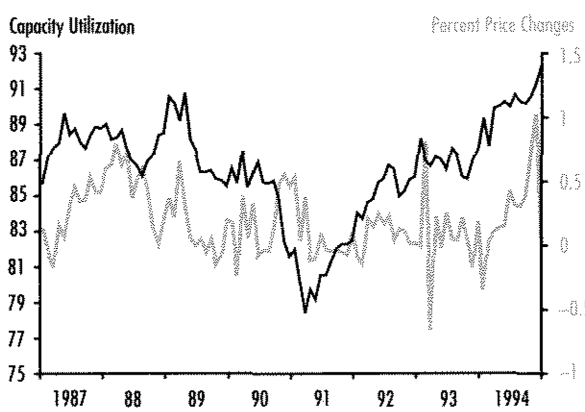
Chemical Products



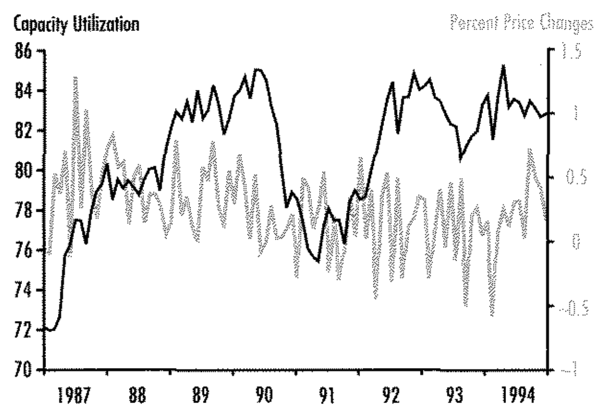
Petroleum Products



Rubber and Plastics Products

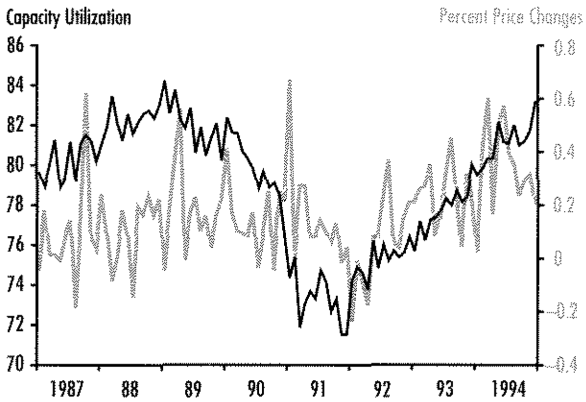


Leather Products

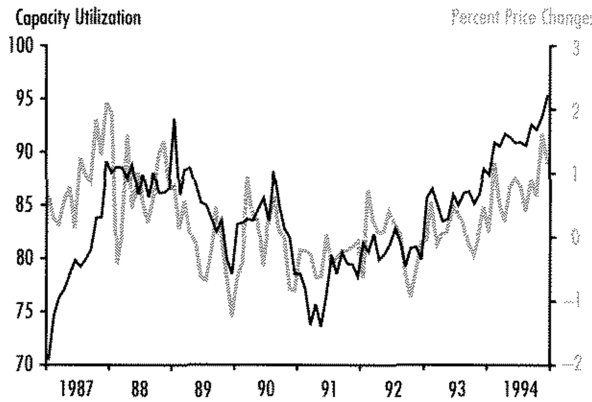


Capacity Utilization and Net Output Price Curves for Selected Industries

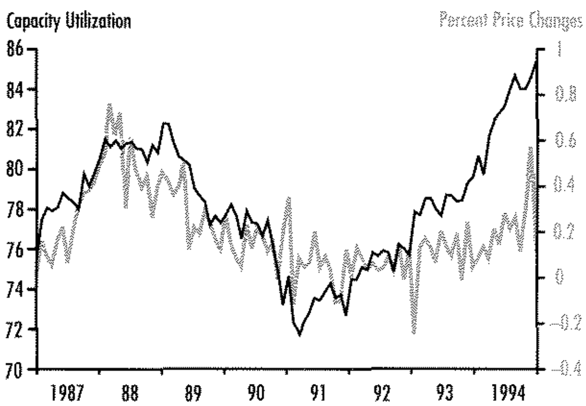
Stone, Clay and Glass Products



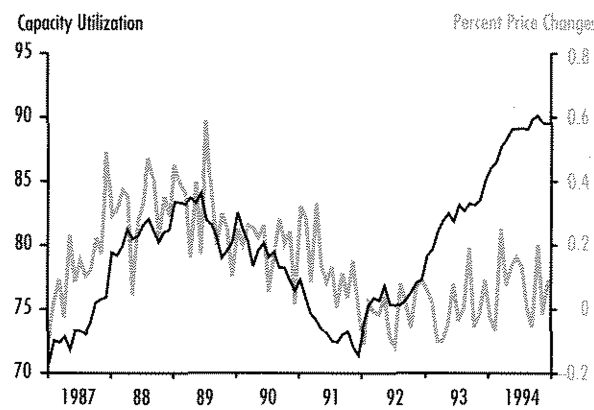
Primary Metals



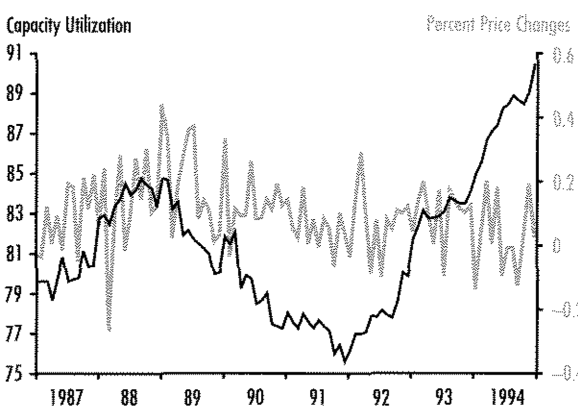
Fabricated Metals



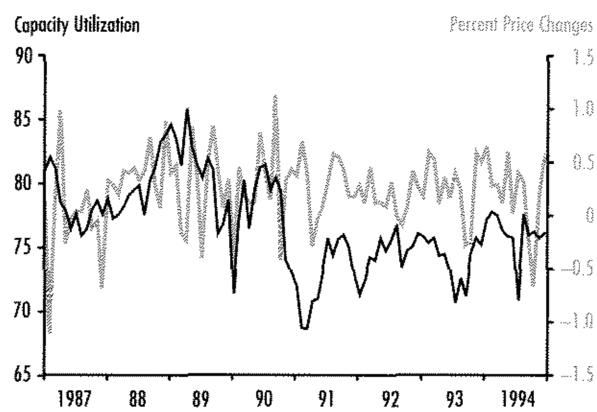
Non-Electrical Industrial Machinery



Electrical Machinery



Transportation Equipment



Capacity Utilization and Net Output Price Curves for Selected Industries

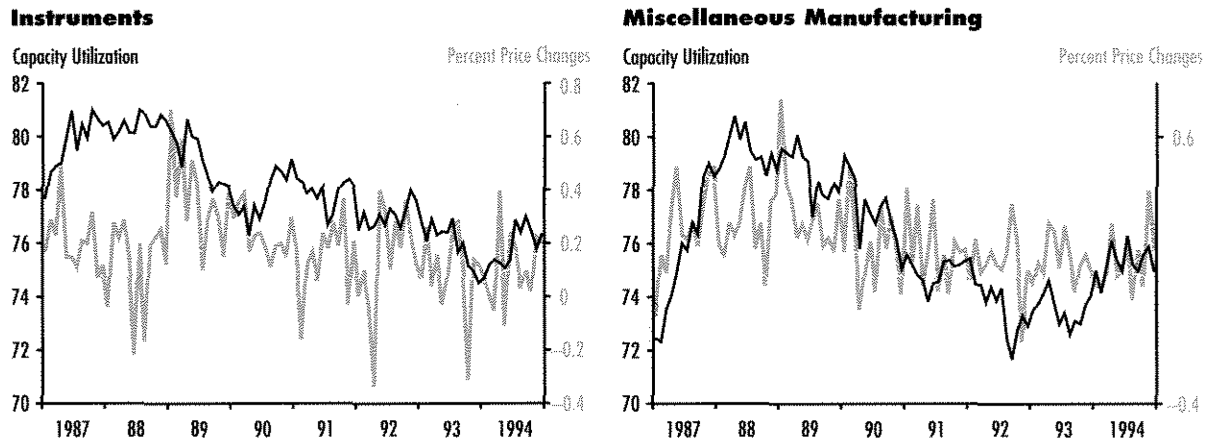


Table 1

Schwarz Information Criteria for Selecting the Number of Lags

Industry	Price Changes	Capacity Utilization Rates	Industry	Price Changes	Capacity Utilization Rates
Total industrial	1	0	Printing and publishing	1	0
Manufacturing	1	0	Chemical products	2	0
Mining	1	0	Petroleum products	1	0
Metal mining	1	0	Rubber and plastics products	2	0
Coal mining	1	0	Leather products	2	0
Oil and gas extraction	1	0	Stone, clay and glass products	1	0
Stone and earth minerals	1	0	Primary metals	1	0
Foods	1	0	Fabricated metals	3	0
Textile mill products	3	0	Non-electrical industrial machinery	3	0
Apparel products	3	0	Electrical machinery	1	3
Lumber products	1	2	Transportation equipment	1	0
Furniture and fixtures	2	0	Instruments	2	0
Paper products	2	0	Miscellaneous manufacturing	1	0

Table 2

Regression Summary, Variable No. of Lags – Price Changes by 2-Digit Industries: 1/86-12/94

	π_{t-1}	π_{t-2}	π_{t-3}	Sum π's	cu_t	cu_{t-1}	cu_{t-2}	cu_{t-3}	Sum cu's	R^2
Aggregate Groups										
Total industrial	0.38**				0.04**					0.23
	(3.74)				(2.17)					
Manufacturing	0.47**				0.04**					0.35
	(4.24)				(2.58)					
Mining	0.19				0.03					0.04
	(1.62)				(0.51)					
Mining Industries										
Metal mining	0.39**				–0.03					0.17
	(5.33)				(1.03)					
Coal mining	–0.40*				–0.01					0.09
	(1.70)				(0.40)					
Oil and gas extraction	0.19				0.02					0.04
	(1.56)				(0.32)					
Stone and earth minerals	–0.34**				0.01					0.12
	(4.04)				(1.16)					
Manufacturing										
Foods	0.25**				–0.02					0.06
	(3.05)				(0.41)					
Textile mill products	0.07	0.27**	0.28**	0.62**	0.01*					0.27
	(0.76)	(3.70)	(3.09)	(5.70)	(1.67)					
Apparel products	0.05	0.24**	0.25**	0.54**	0.00					0.16
	(0.60)	(2.95)	(3.46)	(5.53)	(0.66)					
Lumber products	0.46**				0.10**	0.10	–0.21**		–0.02	0.34
	(4.83)				(2.10)	(1.48)	(3.99)		(0.72)	
Furniture and fixtures	–0.12	0.22**		0.10	0.02**					0.17
	(1.25)	(2.00)		(0.67)	(3.13)					
Paper products	0.40**	0.22**		0.61**	0.06**					0.50
	(3.98)	(2.80)		(5.04)	(3.32)					
Printing and publishing	–0.08				0.01**					0.11
	(0.69)				(3.42)					
Chemical products	0.39**	0.36**		0.74**	0.04					0.53
	(4.10)	(3.68)		(8.81)	(1.55)					
Petroleum products	0.40**				0.15					0.18
	(3.52)				(0.94)					
Rubber and plastics products	0.18	0.37**		0.54**	0.02**					0.30
	(1.34)	(4.24)		(4.54)	(2.61)					
Leather products	–0.05	0.28**		0.23*	–0.00					0.09
	(0.63)	(2.98)		(1.81)	(0.42)					
Stone, clay and glass products	0.26**				0.01					0.10
	(2.75)				(1.51)					
Primary metals	0.52**				0.02**					0.39
	(5.07)				(3.07)					
Fabricated metals	0.11	0.35**	0.23**	0.69**	0.01**					0.58
	(1.04)	(3.73)	(2.92)	(6.10)	(3.26)					
Non–electrical machinery	0.21**	0.32**	0.26**	0.79**	0.00					0.44
	(2.72)	(4.08)	(3.26)	(12.81)	(0.93)					
Electrical machinery	–0.00				0.01	–0.04**	0.01	0.02	0.00	0.06
	(0.04)				(0.66)	(2.00)	(0.21)	(1.18)	(0.45)	
Transportation equipment	–0.08				0.01					0.01
	(0.70)				(0.63)					
Instruments	0.07	0.18		0.25*	0.02					0.08
	(0.97)	(1.62)		(1.70)	(1.49)					
Miscellaneous manufacturing	0.14				0.02**					0.16
	(1.62)				(3.07)					

t-ratios in parentheses. * denotes significance at 10 percent. ** denotes significance at 5 percent.

Table 3

Regression Summary, Fixed No. of Lags – Price Changes by 2-Digit Industries: 1/86–12/94

	π_{t-1}	π_{t-2}	π_{t-3}	Sum π's	cu_t	cu_{t-1}	cu_{t-2}	cu_{t-3}	Sum cu's	R^2
Aggregate Groups										
Total industrial	0.34**	–0.05	–0.10	0.19	–0.01	0.18**	–0.15**	0.02	0.04**	0.21
	(2.93)	(0.46)	(1.19)	(1.48)	(0.17)	(1.97)	(2.06)	(0.45)	(2.90)	
Manufacturing	0.46**	–0.20*	0.03	0.28**	0.05	0.08	0.02	–0.12**	0.04**	0.35
	(2.69)	(1.88)	(0.30)	(2.32)	(1.21)	(1.14)	(0.28)	(2.64)	(3.07)	
Mining	0.13	0.07	–0.05	0.15	0.28	0.13	–0.41	0.00	0.00	0.06
	(0.97)	(0.90)	(0.52)	(1.06)	(1.07)	(0.38)	(0.83)	(0.01)	(0.02)	
Mining Industries										
Metal mining	0.47**	–0.22*	–0.02	0.24**	–0.04	0.01	–0.06	0.05	–0.04	0.21
	(5.93)	(1.93)	(0.20)	(2.12)	(0.48)	(0.06)	(0.66)	(0.43)	(1.52)	
Coal mining	–0.42*	–0.12	0.05	–0.49	–0.06	0.02	0.01	0.05**	0.02	0.15
	(1.88)	(1.18)	(0.54)	(1.55)	(1.36)	(0.77)	(0.20)	(2.58)	(0.71)	
Oil and gas extraction	0.12	0.07	–0.09	0.09	0.86**	–0.56	–0.16	–0.15	–0.01	0.08
	(0.90)	(0.91)	(1.00)	(0.61)	(2.46)	(0.95)	(0.27)	(0.42)	(0.13)	
Stone and earth minerals	–0.32**	–0.03	0.06	–0.28	–0.02	0.03	–0.00	0.01	0.02*	0.14
	(3.24)	(0.29)	(0.70)	(1.37)	(1.35)	(1.62)	(0.01)	(0.38)	(1.78)	
Manufacturing										
Foods	0.21**	0.09	–0.06	0.24*	–0.02	–0.04	0.10	–0.02	0.02	0.07
	(2.44)	(1.04)	(0.40)	(1.89)	(0.27)	(0.49)	(1.09)	(0.30)	(0.34)	
Textile mill products	0.07	0.27**	0.26**	0.61**	–0.00	0.01	0.01	–0.01	0.01*	0.29
	(0.80)	(3.58)	(3.00)	(5.33)	(0.21)	(0.81)	(1.12)	(1.05)	(1.90)	
Apparel products	0.04	0.24**	0.25**	0.53**	0.00	–0.01	0.01	0.01	0.00	0.17
	(0.49)	(2.92)	(3.60)	(5.19)	(0.12)	(0.67)	(0.31)	(0.59)	(0.82)	
Lumber products	0.48**	–0.13	–0.04	0.31**	0.10**	0.11*	–0.14**	–0.09	–0.02	0.37
	(4.00)	(1.09)	(0.41)	(2.16)	(2.27)	(1.68)	(2.06)	(1.62)	(1.08)	
Furniture and fixtures	–0.22*	0.15	0.04	–0.02	–0.01	–0.01	0.02	0.02	0.02**	0.24
	(1.74)	(1.52)	(0.35)	(0.15)	(0.54)	(0.58)	(1.14)	(1.46)	(4.33)	
Paper products	0.35**	0.17**	0.05	0.56**	0.03	0.05	0.01	–0.00	0.08**	0.52
	(3.36)	(2.24)	(0.60)	(3.53)	(1.25)	(1.59)	(0.23)	(0.07)	(3.32)	
Printing and publishing	–0.12	–0.03	0.10	–0.05	0.03*	–0.06**	0.00	0.05**	0.01**	0.25
	(1.00)	(0.35)	(1.00)	(0.26)	(1.97)	(3.51)	(0.05)	(3.17)	(3.29)	
Chemical products	0.42**	0.47**	–0.15	0.74**	0.07*	0.07	–0.09**	–0.02	0.02	0.57
	(4.97)	(4.53)	(1.61)	(9.42)	(1.80)	(1.26)	(2.58)	(0.64)	(1.08)	
Petroleum products	0.43**	–0.21**	0.10	0.32**	0.27	–0.30	0.34	–0.29	0.03	0.17
	(3.31)	(2.19)	(0.83)	(2.74)	(1.27)	(0.76)	(0.56)	(0.73)	(0.19)	
Rubber and plastics products	0.11	0.32**	0.07	0.49**	0.00	–0.02	0.03	0.02	0.03**	0.34
	(0.67)	(4.47)	(0.58)	(4.21)	(0.15)	(0.64)	(0.60)	(0.76)	(3.34)	
Leather products	–0.09	0.27**	0.11	0.29**	0.01	0.01	0.03	–0.05**	–0.01	0.17
	(1.06)	(3.19)	(1.57)	(2.66)	(0.46)	(0.49)	(1.31)	(2.95)	(1.15)	
Stone, clay and glass products	0.20**	–0.00	0.25**	0.45**	–0.01	–0.00	0.00	0.01	0.01*	0.17
	(2.37)	(0.03)	(2.44)	(2.86)	(0.25)	(0.08)	(0.10)	(0.88)	(1.71)	
Primary metals	0.41**	0.01	0.15	0.58**	0.07**	–0.00	–0.01	–0.04**	0.01	0.45
	(4.60)	(0.08)	(1.36)	(4.61)	(3.10)	(0.18)	(0.32)	(2.08)	(1.24)	
Fabricated metals	0.09	0.39**	0.24**	0.72**	0.04**	–0.03	–0.00	0.01	0.01**	0.60
	(0.91)	(4.67)	(3.10)	(5.56)	(2.10)	(1.36)	(0.22)	(0.80)	(2.61)	
Non–electrical machinery	0.21**	0.31**	0.27**	0.79**	–0.01	0.02	–0.01	0.00	0.00	0.45
	(2.61)	(4.34)	(3.51)	(10.91)	(0.58)	(1.10)	(0.77)	(0.01)	(0.81)	
Electrical machinery	–0.03	0.13	0.20**	0.30**	0.01	–0.03**	0.00	0.02	0.00	0.11
	(0.25)	(1.33)	(2.76)	(2.09)	(1.07)	(2.02)	(0.01)	(1.09)	(0.52)	
Transportation equipment	–0.08	–0.20**	0.03	–0.25	–0.01	0.01	–0.02	0.03	0.01	0.07
	(0.75)	(2.28)	(0.45)	(1.31)	(0.34)	(0.35)	(0.77)	(1.18)	(0.99)	
Instruments	0.05	0.17	0.09	0.31**	0.02	–0.03	0.01	0.02	0.02	0.10
	(0.68)	(1.51)	(1.38)	(2.20)	(0.86)	(1.22)	(0.39)	(0.86)	(1.61)	
Miscellaneous manufacturing	0.14	0.11	–0.16	0.10	0.03*	–0.01	0.02	–0.02*	0.02**	0.25
	(1.50)	(1.31)	(1.58)	(0.78)	(1.92)	(0.47)	(0.89)	(1.74)	(3.17)	

t-ratios in parentheses. * denotes significance at 10 percent. ** denotes significance at 5 percent.