Business Cycles and Depressions
An Encyclopedia

Editor
David Glasner
Federal Trade Commission

Consulting Editors
Thomas F. Cooley
University of Rochester

Barry Eichengreen
University of California at Berkeley

Harald Hagemann
University of Hohenheim

Philip A. Klein
Pennsylvania State University

Roger Kormendi
University of Michigan

David Laidler
University of Western Ontario

Phillip Mirowski
University of Notre Dame

Edward Nell
New School for Social Research

Lionello F. Punzo
University of Siena

Anna J. Schwartz
National Bureau of Economic Research

Alessandro Vercelli
University of Siena

Victor Zarnowitz
Center for International Business-Cycle Research, Columbia University

GARLAND PUBLISHING, INC.
New York & London
1997
for example, by derivative control terms), will stabilize such dynamics as portrayed in equations (1) and (2). The incorporated stabilizing terms are also of more general importance, for example, in stabilizing unstable excess-demand functions (Flaschel and Semmler 1987).

Some Conclusions
Most of the price-quantity adjustment mechanisms considered in the literature are one-sided. Stability theory can be made more realistic if different adjustment processes are synthesized and their dynamics studied jointly. If, indeed, product markets (and possibly factor markets) reflect a composite dynamics, then the volatility of macroaggregates will depend crucially on the speeds of adjustment of both prices and quantities.

Willy Semmler

See also New Keynesian Economics: Price Rigidity, Wage Rigidity

Bibliography

Price Rigidity
Prices, once set, often remain unchanged or rigid despite changes in the underlying conditions of supply and demand. Rigid prices can therefore prevent the equilibration of supply and demand and can lead to inefficiency. Macroeconomic models often rely on rigidity in prices or wages to show how inefficient unemployment can arise and be combated by macroeconomic policy.

The potential inefficiency associated with rigid prices is the reason for the great interest in the topic. This potential inefficiency would exist as long as prices fail to adjust fully to shifts in supply and demand. It is not their rigidity but rather their failure to equate supply and demand that is the key economic characteristic of rigid prices.
One of the earliest and most influential statements that prices do not equilibrate supply and demand was made by Gardner Means (1935). Means asserted that some prices are "administered" and insensitive to the forces of supply and demand. Means attributed the severity of the Great Depression to administered prices that failed to adjust to a decrease in demand. Means's hypothesis has generated great controversy, partly because his work lacked a theoretical foundation (Deals 1975, Carlton 1989, Weiss 1977). Disagreements on the theoretical explanations for price rigidity and its consequences and on its empirical importance remain widespread.

Simple Theory and Consequences of Price Rigidity

The simplest explanation for why a price remains unchanged despite changes in underlying supply or demand is that changing prices is costly. The costs of changing prices are ignored in many economic models which assume that firms sell their product in a market and that somehow the "market" costlessly sets the price that equates supply and demand. If we drop the assumption that price formation is costless and assume instead that a transaction cost must be incurred every time a price is changed, then it is efficient for prices to change only occasionally. For example, changing price for items on a printed menu or in a catalogue is costs, since it costs money to print a new menu or catalogue. However, such explicit costs apply to relatively few commodities. More subtle types of transaction costs are likely to be relevant for other commodities. For example, when a firm decides what price to charge, its employees must usually gather and analyze some facts about the market. This decision takes time and consumes real resources.

Aside from the transaction cost that a firm incurs to change price, a price change can impose a cost on consumers. In some markets, consumers search over firms before purchasing and may expect observed prices to prevail for some time. Therefore, once they find a price to buy, they continue to return to the same firm unless prices change. Prices that remain constant for some time allow consumers to plan to better and economize on search. A firm may therefore be reluctant to increase its price for fear of inducing its customers to search. A firm may also be reluctant to change price for fear that doing so will upset the oligopolistic discipline in the industry.

If prices do not adjust fully when supply or demand changes, the quantity supplied may not equal the quantity demanded. There could be either excess demand, manifested as a shortage, or excess supply, manifested as unemployed resources. Macroeconomists often rely on models with rigid prices to generate unemployment. It seems unlikely that the transaction costs of changing price can cause significant macroeconomic dislocations. However, several researchers (see, e.g., the studies in Mankiw and Romer [1991]) have shown that it is theoretically possible for "small" transaction costs to generate "large" efficiency losses. They show that in a world of monopolistic competition, a firm's private gain (i.e., increased profit) from changing price can be much smaller than the social gain (i.e., increased consumer surplus) and so, in the presence of transaction costs, price can remain unchanged even in the face of inefficient allocations. The reason for the disparity between the private and social gain is (roughly) that the private gain depends on the gap between marginal revenue and marginal cost, while the social gain depends on the larger gap between price and marginal cost. Despite this theoretical possibility, the small static efficiency loss that empirical studies attribute to monopoly would suggest that the efficiency loss under monopolistic competition in the incentive to change price is also small from the distortion.

More Sophisticated Explanations and Consequences of Price Rigidity

There are at least three reasons in addition to those already discussed for price rigidity or, more precisely, for a price that hardly changes in the face of changing conditions. Each of these explanations relies on more sophisticated theory than the earlier ones and each has significant implications for efficiency and market organization (Carlton 1989, Mankiw and Romer 1991).

First, price is only one of many dimensions of the terms on which goods are exchanged. The physical attributes and the delivery delay associated with a good matter a great deal to consumers. Since these other characteristics of the good can respond to changed supply and demand conditions, there may be no need for price to change significantly. For example, in response to an increase in demand, price may remain relatively unchanged, but consumers may have to wait a little longer for delivery.
Consumers may prefer to wait rather than pay a significantly higher price. Such an equilibrium can be efficient and should not be construed as inefficient just because customers are waiting for product delivery.

Second, sometimes a product's characteristics cannot be readily observed but are influenced by price. For example, all else equal, the average quality of job applicants rises with the wage offered since better workers apply for higher-wage jobs. In such a case, it may be impossible for price simultaneously to clear the market and to provide incentives for the efficient quality level. An imbalance of supply and demand may result, yet price will not change, because such a price change would adversely affect quality.

Third, because it is costly to let price alone clear markets (e.g., it is costly to set up the institutional structure necessary to have an exchange with brokers and traders whose function is to set market-clearing prices), firms use other mechanisms together with price to allocate goods to customers. One of the most common is for the firm's marketing department to choose which buyers should receive delivery first from among the buyers willing to pay the stated rigid price (the price may differ across buyers). Steady customers may be more likely to receive priority delivery when demand suddenly increases than transient customers (Carlton 1991).

Rigid prices can create an illusion when goods are allocated to buyers exclusively by price and the market-clearing price differs from the stated one. But it is possible for rigid prices to exist without there being a mechanism to allocate goods. One way a firm can allocate goods by setting up a system of price and demand, then buyers will be concerned with the reliability of supply. Moreover, sellers will be concerned with the steadiness (or predictability) of a buyer's demand, because a steady customer is easier (less costly) to supply than an unsteady customer. A seller and a buyer that will not supply each other for long periods, so that they can get to know and rely on each other. Rationing will sometimes occur, but it would be a mistake to conclude that the rationing is necessarily inefficient since the cost of organizing a market that clears exclusively through price may be high (Carlton 1991).

Evidence

There is considerable evidence documenting the rigidity of prices. Early evidence comes from Mills (1927) who showed that prices tend to fall into two broad categories—highly flexible or highly inflexible. Means (1935) reported data on the flexibility of prices during the Great Depression and showed that while some (e.g., agricultural) prices fell precipitously, other prices (e.g., those of certain manufactured items) did not. Sugler and Kindahl (1970) critized studies documenting price rigidity by showing that the price data (which were from the Bureau of Labor Statistics (BLS)) reflected lists rather than transaction, prices and so understated the degree of price fluctuations in actual transaction prices. Using data collected from surveys of buyers, they showed that transaction prices over the period 1956-66 were more flexible than the BLS price data.

Carlton (1986) reexamined the Sugler-Kindahl data and found the following:

1. Prices for many products (e.g., chemicals, steel, drugs) remained unchanged to buyers for more than one year. In several of these industries, there was concern about supply reliability.
2. The duration of price rigidity across products was positively related to the seller concentration of the market.
3. Buyers and sellers remained paired together for long periods even for what appear to be relatively homogeneous products.
4. There were many small price changes.

The main conclusion of the study are that price rigidity is indeed a significant phenomenon, it is likely that price alone does not allocate goods, so that sellers exercise discretion in deciding which buyers to supply. Because reliability of delivery is an important concern of buyers, buyers and sellers tend to remain together for several years, and the transaction cost of changing price is probably not uniformly high across all customers.

Several other empirical studies on price rigidity are listed in the bibliography. All the empirical studies confirm that price rigidity is
widespread and significantly affects how firms operate.

Dennis W. Carlton

See also New Keynesian Economics; Price-Quantity Adjustment; Wage Rigidity

Bibliography


Means, G. C. 1935. "Industrial Prices and Their Relative Inflexibility." Senate


Profit Squeeze

This strand of crisis theory argues that efforts by workers and others (e.g., third-world nationalist movements) to improve their economic position raise costs to firms and reduces profitability. Higher wages cut into profits; improved working conditions or alleviated work intensity constrain productivity, raising unit costs and squeezing profits. Improved terms of trade for primary commodities supplied by third-world countries redistribute profits from firms in the advanced countries. Declining profit rates trigger recessions and, if sufficient and sustained, long-run crises. While the basic argument was first advanced by Marx, interest was renewed in the 1960s, and it is currently one of the foremost neo-Marxist crisis theories.

Wage increases result from more frequent and more successful strikes due to economic circumstances or relatively autonomous increases in worker militancy, and from increased quit rates which pressure firms to raise pay to retain experienced employees. Critics note that average real wages change little over the cycle, rather than moving procyclically. But in an expansion, hiring of less skilled, less experienced, and younger workers (who typically earn less), increases, which should pull average wages down since we do not see countercyclical average wages, the underlying structure of wages must move upward in an expansion.

Productivity (hourly worker output) depends not only on efficiency, but on the quality of labor performance and the intensity of work effort. Collective or informal efforts by workers to improve the quality of worklife can lead to lower intensity—a reduced pace, or more time for breaks or safety checks—or can constrain the implementation of techniques which eliminate jobs or render them less interesting. Accelerated labor-management conflict impacts performance insular as open lines of