Introduction

Markets in which the standard models of competition, monopoly, and monopolistic competition do not apply are among the most difficult subjects for economic analysis. The labor market in highly unionized and highly concentrated industries is a case in point. This study deals with wage determination in such labor markets.

The literature on the subject divides into untested, abstract bargaining models on the one hand and empirical studies relating wages to "bargaining variables" without the benefit of formal theory on the other. The present work attempts to bridge the gap. A wage equation is derived formally from a bargaining model and then tested on data for manufacturing industries in the United States.

This involves first finding a good bargaining theory. Thus, Chapter 2 starts with a discussion of bargaining theories. The theory of bargaining in Nash [1950, 1953] is chosen as being the most applicable. The next step is to build a model of the firm under bilateral monopoly—the situation in which one employer faces one union—based on Nash's bargaining theory. This is done in Chapter 3. Assumptions are made concerning the product-demand curve, production function, capital supply, supply of union members, and the utility functions of the employer and the union. These assumptions, plus two hypotheses from Nash's theory, determine the wage rate, employment, capital stock, output, price, and profits under bilateral monopoly. The comparative statics of the model are then examined in Chapter 4.

Since the principal objective of this study is the derivation and testing of a wage equation, it is the wage equation in the model of Chapters 3 and 4 which is of greatest interest. In Chapter 5 this equation is changed into a form in which it can be estimated.

The remainder of the book deals with empirical testing of the wage equation. Variable construction is discussed in Chapter 6, and the results of estimation and tests are reported in Chapter 7. The population used to test the equation consists of highly unionized two-digit manufacturing industries in the United States for which data were available. The ideal data for testing it would have been those on individual contracts between an employer and a union. However, when this study began, such data did not exist,[1] and constructing them would have involved considerable difficulty. Given the absence of individual contract data, the finest category for which data on all the necessary variables were available were two-digit industries in the manufacturing sector. The fact that they are used in many other studies[2] is evidence of the lack of a good alternative. The desire for comparability provides another good reason for using the two-digit industry data.

In Chapter 7 estimates of the wage equation are compared with Phillips curves estimated for the same industries. The form of this wage equation is such that it can be viewed as a Phillips curve to which some "bargaining variables" have been added. The conclusion reached in Chapter 7 is that this wage equation explains the quarterly movement of average hourly earnings in the test industries better than the Phillips curve. In other words, the additional bargaining variables significantly reduce unexplained variance. This statistical result in itself is not new. Other studies[3] have already shown that fits are improved by the addition of bargaining variables to the

1. Hamermesh [1970] is a recent study using individual contract data collected for the study.

2. See Eckstein and Wilson [1962], McGuire and Rapping [September-October, 1968], Pierson [1968], Throop [1968], and Wachter [1970].

3. See Eckstein and Wilson [1962], Kuh [1967], and Perry [1966].

Phillips curve. What is new is that the nature and form of these bargaining variables were carefully derived from a formal theory of bargaining.