Journal of the Japanese and International Economies **15**, 50–67 (2001)
doi:10.1006/jjie.2000.0465, available online at http://www.idealibrary.com on IDEAL®

Downward Nominal Wage Rigidity in Japan[1]

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Received December 24, 1999; revised October 19, 2000

Kimura, Takeshi, and Ueda, Kazuo—Downward Nominal Wage Rigidity in Japan

This paper analyzes whether or not Japanese nominal wages exhibit downward rigidity. We posit a wage adjustment model in which, below a certain wage inflation rate, wages may or may not move as much as optimal or notional wages do. By using data on wages of 18 industries and aggregate time series data, we find that nominal wages were rigid downward until 1998, but not with the inclusion of years 1999 and 2000. That is, Japanese wages responded flexibly downward to the recession of 1997–1998, but with a lag. The interpretation of such results is not straightforward. But we provide some preliminary discussions of possible factors behind such a pattern of wage movements, focusing on the relationship between wage changes and the seniority-based wage system. *J. Japan. Int. Econ.*, March 2001, **15**(1), pp. 50–67. The Bank of Japan, Chuo-ku, Tokyo 103-0021, Japan. © 2001 Academic Press

Journal of Economic Literature Classification Numbers: E24, E31, J30.

Key Words: wage rigidity; low inflation.

1. INTRODUCTION

Inflation can ease adjustments in the labor market under downward rigidity of nominal wages. Central banks then should not aim at stabilizing aggregate prices perfectly. The purpose of this paper is to carry out an empirical analysis of the degree of Japanese wage rigidity, especially the possibility of nominal wages of

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0889-1583/01 $35.00

becoming rigid downward under low rates of inflation.[2] Since the end of the war, there have been few episodes of deflation. Only very recently low or zero rates of inflation have become a reality in advanced countries. Thus, empirical analyses on wage rigidity under zero inflation have just started. Some have recently analyzed data on U.S. wages to estimate the degree of downward wage rigidity. Results vary considerably depending on the data set used and on the model to describe the extent of wage rigidity.

To our knowledge, however, no attempt has been made to analyze the relationship between the degree of Japanese wage flexibility and the rate of inflation. Japan has been experiencing a period of near zero inflation in recent years. The average rate of inflation of consumer prices was 0.4% between 1995 and 1999. The domestic wholesale price index declined at an annual rate of about 1% during the same period. Such a long period of near zero inflation is rare in post-war industrial countries, making our empirical analysis of downward wage rigidity very relevant. Our analysis is based on time series cross-section data on wages and hours taken from the Japanese Wage Census and Monthly Labor Survey. In modeling the behavior of wages we take into account existing findings on Japanese wage determination as surveyed in the next section. We estimate industry wage equations with industry specific shocks as well as macro real shocks and expected inflation as explanatory variables. The estimation is carried out using a specification that allows differential adjustment speeds between upward and downward wage movements.

We find mixed results concerning the extent of downward rigidity of wages. Nominal wages exhibit some degree of downward rigidity when the sample period is cut off in 1998, but the rigidity disappears when years 1999 and 2000 are included. The full cross-section data are only available until 1998. Hence, the estimation including 1999 and 2000 is based on the aggregate time series information contained in the Monthly Labor Survey only and is in this sense provisional. Such results, however, seem to be consistent with the following casual observation on the behavior of Japanese wages. The serious recession which started in 1997 did not lead to large declines in nominal wages during that year. The continued weakness of the economy into 1998, however, caused sharp declines in nominal wages in 1999. Thus, nominal wages do seem to move downward albeit with a lag.

In the next section, after surveying existing work on downward wage rigidity and Japanese wage determination, we motivate the specification we use. In Section 3, we estimate wage equations and test the hypothesis of downward nominal wage rigidity. In Section 4, we discuss a structural aspect of the Japanese wage rigidity in the late 1990s, focusing on the relationship between wage changes and the seniority-based wage system. Section 5 presents concluding remarks.

[2] This paper is a revised version of Kimura and Ueda (1997). We have improved on the estimation technique and extended the sample period to cover more recent years, obtaining substantially different conclusions.