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The evolving pattern of the wage–labor productivity nexus in China: Evidence from manufacturing firm-level data

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ABSTRACT

By employing a large dataset of nation-wide state-owned and non-state-owned manufacturing enterprises in the period 1998–2007, this paper analyzes the evolving pattern of the correlation and spread between wages and labor productivity in China's manufacturing sector and its influence factors. We find that although a significant positive correlation between wages and labor productivity in manufacturing firms exists, this positive nexus has become weak and loose. We also find that, since the 1990s, the labor productivity of Chinese manufacturing enterprises has gained a much greater growth rate than that of the wage level, and therefore the spread between wages and labor productivity has been widening over time. A variety of factors that have influenced the wage–labor productivity nexus of Chinese manufacturing enterprises are identified and discussed with regression models.

1. Introduction

In theoretical terms, wage and labor productivity are not only positively correlated, the ratio of wage to labor productivity, as indicated in the standard Cobb–Douglas production function, should also be constant and smaller than one (unity). The relationship between wage and labor productivity is therefore seldom an issue of study in the literature of labor economics. On the other hand, the close and positive correlation between wage and labor productivity in a mature labor market is so obvious

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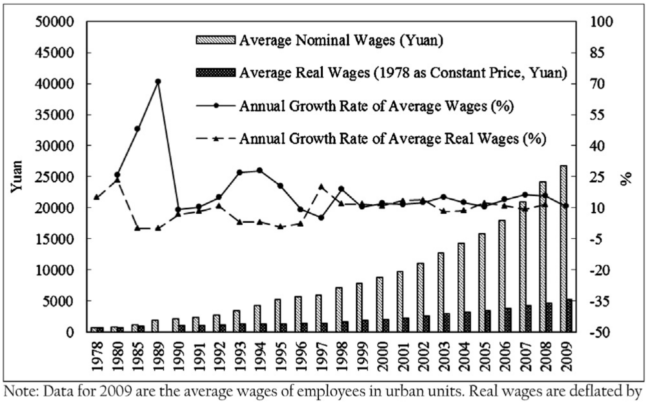

Note: Data for 2009 are the average wages of employees in urban units. Real wages are deflated by CPI (1978=100).

Sources: *China Statistical Yearbook*, 1998-2010.

Fig. 1. Wage growth in China's manufacturing sector.

that it is too easy to ignore why this is so. An implied assumption based on such ignorance is that wage growth should of course be kept at a pace with the growth of labor productivity, and institutional intervention by the unions and collective bargaining are needed to protect labor if wage growth falls behind labor productivity growth. This implied policy suggestion has exerted an important influence on public opinion, and hopefully policymakers in current China[1] and maybe other developing economies as well, because wage growth in the manufacturing industry has been falling behind labor productivity growth, as the statistics below show.

Fig. 1 shows that the level of wages in China's manufacturing sector has experienced rapid growth since the reform and opening up. The average nominal and annual wages of manufacturing workers in China rose from 597 yuan in 1978 to 26,810 yuan in 2009. In real terms, the average annual wage of manufacturing workers also rose from 597 yuan in 1978 to 5166 yuan in 2009, and from 1997 onwards, the annual rate of growth in wages has been stable at around 10%. Compared with other developing countries for the same period, it could be said that the wages of workers in China's manufacturing sector grow relatively fast (Lu, 2006b).

However, as Fig. 2 shows, both nominal and real value-added per worker in the manufacturing sector in China has been more than 10 times higher than the average wages, and while for the years 2005 and 2006 the growth of nominal value-added per worker was roughly the same as that of nominal wages, the former was much higher than the latter both in nominal and real terms in 2007 and 2008. The larger increase of labor productivity compared to wages in China's manufacturing sector is also identified in many other empirical studies (e.g., Szirmai et al., 2001; Wu, 2001; Lu, 2006a).

The declining labor share in GDP in post-1990s China also gives seemingly valid support to the belief that wages should increase faster. Since 1995, China's labor share has continued to decline. Luo and Zhang (2009), for example, find that between 1996 and 2006 China's labor share fell from 54% to 40%, lower than in most developing and developed countries. Bai and Qian (2009) also obtain a similar empirical result that, between 1995 and 2004, China's labor share dropped from 59.1% to 54.7%, of which the labor share in the industrial sector fell from 49.0% to 42.2%. The drop of the labor share is in

[1] For example, the *China Economic Times* published an article in 2010 stating that the growth rate of nominal wages should be equivalent to the actual labor productivity growth plus the rate of inflation, as long as labor productivity grows at the same or a slightly higher rate than that of wage growth ("Narrowing 'Price Scissors' between Wage Income and Labor Productivity," *China Economic Times*, August 11, 2010, see http://theory.people.com.cn/GB/12404443.html). Likewise, the government of Shanghai Municipality issued guidelines for enterprise wage growth in 2011, which explicitly proposed that enterprises "should establish a mechanism that keeps the wage growth of workers at a pace with labor productivity".