

Can Chinese Manufacturing Firms Cope with Rising Labor Costs?

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Issue

Due to rapid growth and robust labor demand, Chinese wages have increased rapidly in recent years. Real manufacturing wages doubled in just the past decade (Figure 1). This dramatic increase, combined with slowing external demand, is putting great pressure on Chinese manufacturing firms, but there is limited evidence on how firms are actually coping with these challenges.

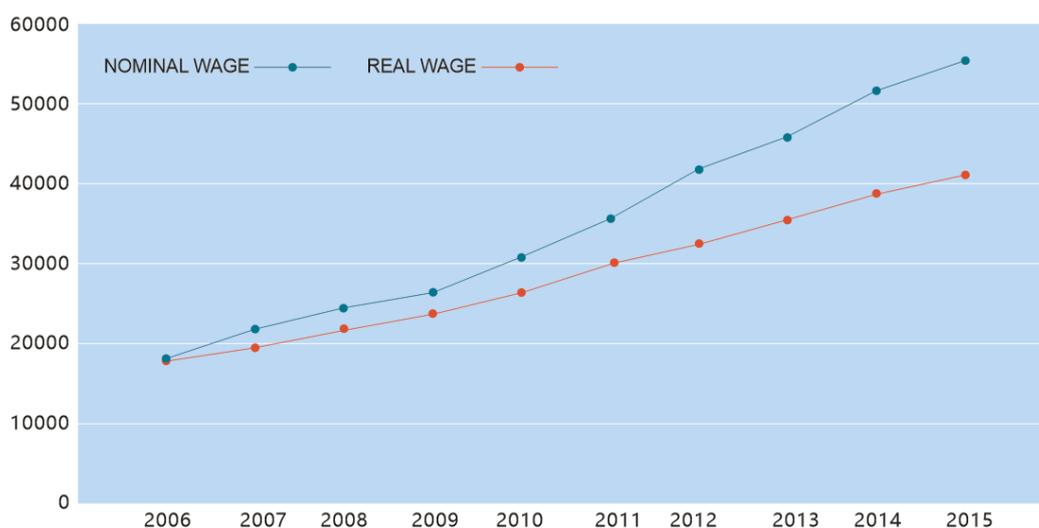


Fig. 1-1 Rise of Wage in Chinese Manufacturing (Yuan/Year)^{II}

[Relabel as Figure 1]

To what extent are Chinese firms successfully upgrading to produce higher value-added, more capital-intensive goods? Are they replacing labor with machines, increasing R&D investment, shifting production to cheaper regions in China or to other countries, or simply shutting down? What role has government played in supporting these efforts? Answering these questions can provide insights into the ability for China to sustain growth in the manufacturing sector and help policy-makers better understand the actual conditions facing manufacturing firms.

Assessment

We present new empirical evidence on these questions using data from the Chinese Employer-Employee Survey (CEES), which surveyed a representative sample of 573 manufacturing firms in Guangdong Province in 2015, and 1122 firms in Guangdong and Hubei

provinces in 2016. Guangdong is located on the coast adjacent to Hong Kong and is China’s most important industrial province. Hubei is the largest industrial province in central China. In each firm, a random sample of ten workers were also surveyed, yielding samples of 4838 workers in 2015 and 9103 workers in 2016. The sampling frame for firms was the 2014 industrial census, with firms selected from 20 county-level districts in each province. The firm response rate was over 80 percent. The surveys were conducted by the Institute for Quality Development Strategy of Wuhan University in collaboration with HKUST’s Institute for Emerging Market Studies, the China Data Center Tsinghua University, and the Institute of Population and Labor Economics of the Chinese Academy of Social Sciences.

Given the challenges of rising costs and weak demand, what has been the bottom-line performance of Chinese manufacturing firms as measured by profitability? According to the CEES data, the mean (median) profit rate of firms, defined as net-of-tax profits divided by sales revenue is 3.3% (2.4%) in 2015. Performance was quite variable, with about 20% earning negative profits in both 2014 and 2015. Private firms have higher profit rates and fewer loss-makers than state-owned enterprises (SOEs) or foreign firms. When asked about which factors were serious barriers to their firms development, the most frequent responses were labor cost (60%) and market demand (56%).

Based on the employee surveys, for those who worked in consecutive years, real wages in Guangdong increased by 5.8% from the end of 2013 to the end of 2014 and by 8.3% from 2014 to 2015. In Hubei, real wages increased by 5% from 2014 to 2015. The real wages of newly hired workers increased by 14.5% from 2014 to 2015, much faster than wages of continuing workers. This may be due to greater hiring of more skilled workers, or greater competition for new workers.

How high have wages risen in China? According to CEES, the average monthly wage (including year-end bonuses) of manufacturing workers was 4126 yuan (or US\$635 using the nominal exchange rate) at the end of 2015. Comparing this wage level to those in other countries, the Chinese wage level remains far below the US (US\$3099 per month) but is nearly the same as in Brazil and significantly greater than in other emerging markets (Malaysia, Thailand, Mexico, Vietnam and India) (see Figure 2).

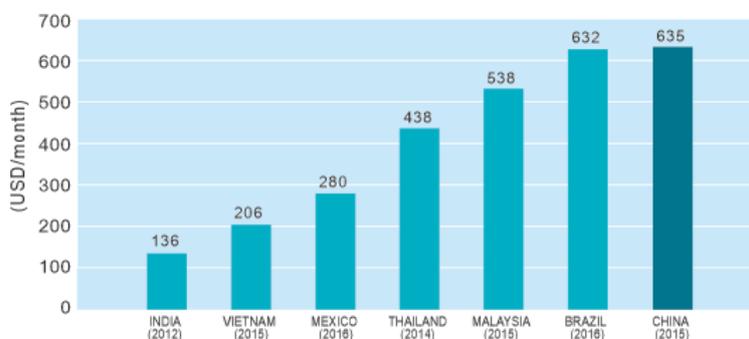


Fig. 5-2 International Competitiveness of Chinese Wages^v

[Relabel as Figure 2]

One consequence of the tight labor market in China is high worker turnover rates. The one-year

worker turnover rate was 26% in Guangdong from 2015 to 2016, based on tracking of workers across the two survey years. Worker turnover rates were higher (37%) for younger workers (below age 28) and migrant workers (30%). They were greater in foreign enterprises (29%), and lower in state-owned enterprises (22%).

How have firms responded? One possibility is that firms shut down their operations altogether. Based on how many firms could be found in 2015 and 2016 that were sampled from a list made in January 2014, we estimate that about 8% of firms exited each year.

Firms can also reduce employment and adjust the skill composition of their workforce. In Guangdong, manufacturing firms with continuous operations reduced employment by 2.2% on average in 2014 and by 6.6% in 2015, and in Hubei, employment in such firms fell by 3.3% in 2015 (Figure 3).

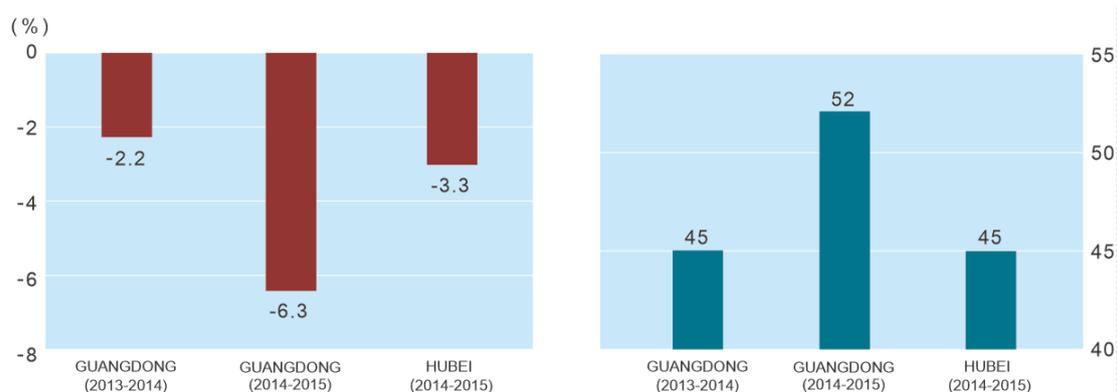


Fig. 5-9 Employment Changes

Fig. 5-10 Share of Firms with Employment Decreases

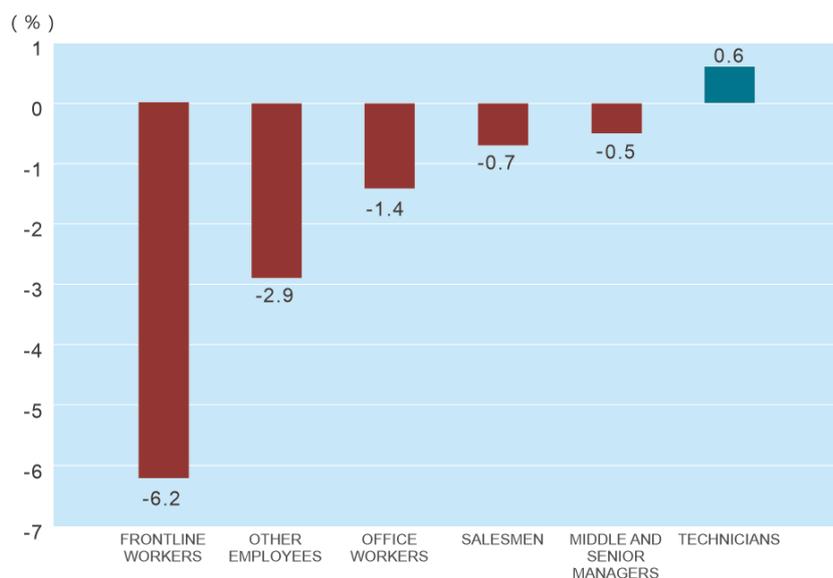


Fig. 5-11 Employment Changes by Occupation, 2014 to 2015

[Relabel as Figure 3, keep Fig 5-9 and 5-11]

Workforce reductions were greater for unskilled workers. Employment of frontline production

workers fell by 6.2% and that of “other” workers fell by 2.9%. Employment of skilled workers fell by much less (managers -0.5%, office workers -1.4%, and salesmen -0.7%), with employment of technicians even increasing slightly (0.6%) (Fig. 5-11). These patterns suggest that firms are increasing skill-intensity of their production processes.

Did firms upgrade to more capital-intensive technologies and/or produce higher quality goods. This requires making new capital investments, especially in labor-saving capital equipment such as automation machines or robots. In Guangdong, to encourage industrial upgrading, some governments provide subsidies for the purchase of robots and automation equipment. For example, Dongguan provides a 10% subsidy on the purchase of new robots.

To what extent are firms using robots or automation equipment? The CEES survey finds that 8% of firms have robots, including 10% in Guangdong and 6% in Hubei, and 40% of firms have automation equipment. Automation equipment accounts for 17% of all equipment (Fig. 4). SOEs and foreign firms are much more likely to have robots (both are 14%) than private firms (6%); and regular and processing export firms are much more likely to have robots (15% and 11%) than non-exporting firms (5%). Use of robots and automation equipment are also much more prevalent in the machinery, electronics, and metal sectors, and least prevalent in the textile sector.

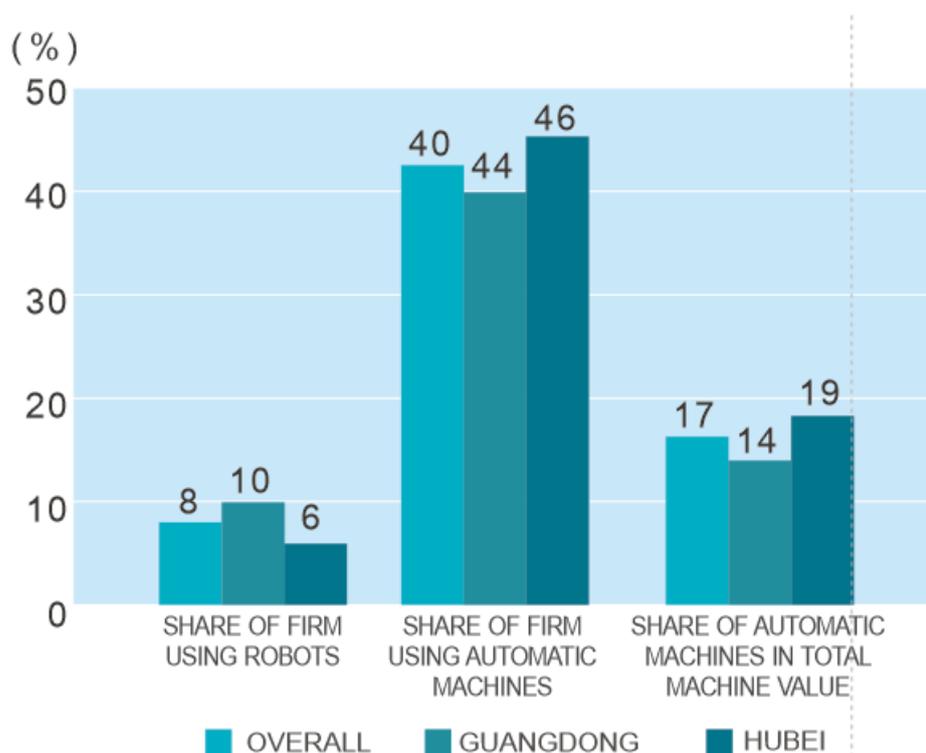


Fig. 6-2 Robot and Automation Equipment Use, 2016

[Relabel as Figure 4]

In recent years, the Chinese government has greatly emphasized the importance of innovation for maintaining international competitiveness. Three indicators of R&D investment are R&D intensity, defined as spending on R&D as a share of sales revenue, R&D personnel as a share of total

employment, and the share of firms with R&D expenditures. In 2015, mean R&D intensity (R&D spending/revenue) was 1.8%, the average share of R&D personnel was 6.2%, and 45% of firms had R&D expenditures. There is much more R&D in SOEs than in foreign or private firms and much R&D is concentrated in designated high-tech firms. Firms types with greater R&D intensity also produce more patents. The share of firms with patents during the 2012-2015 period is highest for SOEs (67%), regular trading firms (59%), and high-tech firms (87%). One encouraging indicator that R&D spending is yielding tangible results is that the share of new products in sales rose from 7.7% in 2013 to 8.3% in 2014, and to 9.0% in 2015.

On the negative side, we also find evidence that new fixed capital investment has slowed markedly in recent years, perhaps due to the uncertain market environment. Investment as a share of sales revenue declined from 25% in 2013 to 21% in 2014 to 19% in 2015. More disturbingly the CEES survey found that the share of firms making R&D expenditures also declined in 2015, especially among foreign-invested firms.

How have government policies impacted firms? Local governments provide an array of subsidies to attract and support firms, some related to policies set by higher levels of government. These reflect an active government stance toward supporting industry. According to CEES, the majority of firms (52.8%) received subsidies (including tax reductions and refunds). The average subsidy rate (amount of subsidies as a share of sales revenue) is 2.6% in 2015, which is nearly equal to the average profit rate of 3.3%. The likelihood of receiving subsidies is much greater for SOEs (83%) than for foreign and private firms (50% and 49%).

In the past, some have raised concerns that private firms have difficulty gaining access to bank loans. However, according to the CEES data the frequency of bank borrowing surprisingly is not greater for SOEs (44%) compared to private firms (54%). It is lowest for foreign firms (23%).

Another policy issue that has been debated recently is whether the burden of social insurance contributions is raising labor costs excessively. According to national regulations, contributions by firms and workers should equal more than 40% of workers' wages to finance pension, health care, unemployment, injury, maternity, and other social insurance benefits. However, CEES finds that social insurance contributions as a share of wages were only 17%. Since the wage bill itself accounts for about 18% of all production costs, social insurance contributions actually accounts for less than 3% of total costs. The difference between the high required contribution rates stated in regulations and the lower actual contribution rates are due to lower effective contribution rates set by cities, including by using reference wages below actual wages to determine required contributions, incomplete social insurance coverage of workers, and other forms of evasion. Thus the actual burden of labor regulations may not be as costly as many have argued. At the same time, these findings raise potential concerns about lack of enforcement and differential enforcement of regulations.

Recommendations

In an increasingly challenging environment of rapidly rising labor costs and high rates of worker

turnover, China's manufacturing sector is making efforts to adapt. A large fraction of firms are using automation equipment, and some have adopted robots. The mix of workers is becoming more skilled over time. Investment in R&D is being led by state-owned enterprises, exporters, and high-tech firms. New products account for an increasing share of sales. The government is supporting many firms with subsidies.

However, the response to this challenging environment has been far from painless. A large number of firms are exiting or reducing employment, especially of frontline workers. The worker turnover rate is high, and a great many workers are engaged in repetitive work. Investment in fixed capital and R&D has recently stalled. One fifth of firms have been earning negative profits even though the government provides many with subsidies.

To support adjustment to rising labor costs by the most productive firms, it is important for China to allow for open market competition and create a level playing field. There is concern that subsidy provision and enforcement of regulations is not the same in different regions and towards different firms. Favoring state-owned enterprises or restricting competition also undermines this goal.

Successfully coping with rising labor costs often requires new investment and spending on R&D. It is thus important for supporting institutions such as banks, patent offices, and courts that enforce intellectual property rights protection operate in a professional manner to meet the needs of firms and minimize transaction costs. In the end, it will be the efforts of Chinese firm managers and workers themselves that will determine the future of Chinese manufacturing.