

# Still making it

## An analysis of manufacturing labour costs in China

A report from The Economist Intelligence Unit





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# Introduction

**I**n the debate over global manufacturing competitiveness, the labour cost question looms largest. The rapid growth in Chinese wages is having an impact not only on firms currently manufacturing in China, but also on emerging economies seeking to grab a share of that manufacturing activity (like Vietnam and Bangladesh) and developed countries seeking to revive their own manufacturing sectors (like the US). Rising wages in China could threaten the country's status as a manufacturing powerhouse if they are not matched by comparable gains in productivity.

The debate is hindered by the lack of relevant data. As is the case in many emerging markets, assessing manufacturing labour costs in China is complicated. The pertinent data is disparate, infrequently updated and, in general, falls far short of international standards. Employment data have to be pieced together from surveys covering urban and rural areas separately. Estimates of earnings require the assessment of wage and non-wage components. There is no official measure at either the national or provincial level of hourly labour compensation costs—the benchmark used across OECD countries.

By methodically assessing the available data and drawing on some unique sources, The Economist Intelligence Unit (EIU) has developed robust estimates of labour compensation per hour in each of China's 31 provinces. We provide a national estimate based on appropriate weighting of this data. Our data also allow us to explore the relationship in China between growth in wages and labour productivity—a key concern for many companies. As well as charting historic trends, we have developed forecasts for manufacturing labour costs up to 2020. These are based on a panel data model that incorporates forecast variables from our China regional forecasting service, Access China.

We believe that the resulting dataset is a rich addition to the debate about international manufacturing costs and also a practical tool for helping manufacturing companies to develop their pricing strategies. It allows comparison of manufacturing labour costs across China's provinces from 2001 to 2020 and can also be used to benchmark costs in China against other leading manufacturing countries. The last substantive research in English on labour manufacturing costs in China, by the US Bureau of Labor Statistics (BLS), only extended to 2009 and did not provide forecasts. It also offered only a national estimate, rather than exploring the important cost disparities between China's provinces, most of which are substantial economies in their own right.

This paper highlights trends that emerge from the data and draws out implications for manufacturing firms. Among its key findings are:

- Manufacturing labour compensation per hour rose by an average of 11.9% a year (in local-currency terms) in 2001-12, a pace we expect will be maintained in the period to 2020. Earnings expansion will be underpinned by productivity gains and shortages in the labour supply, which will give workers room to negotiate strong wage increases.

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- Despite strong growth in manufacturing labour costs, China remains highly competitive in the international context. Manufacturing earnings per hour averaged US\$2.1 in 2012, compared with US\$35.7 in the US. We expect this gap to narrow, but Chinese labour costs will still be under 12% of those in the US in 2020.
- Internal disparities within China in manufacturing labour costs are narrowing, but still offer opportunities for firms looking to diversify capacity to cheaper locations. Provinces such as Jiangxi, Henan and Shandong stand out as attractive destinations for manufacturing, given their relatively low labour costs, large labour pools and developed infrastructure.
- Our data suggest that growth in manufacturing earnings has comfortably exceeded that in labour productivity in recent years, suggesting that China needs to transition more rapidly up the value chain. Price competitiveness alone will not be enough to maintain the country's global manufacturing predominance; it will also need to demonstrate greater aptitude in innovation.



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# Findings

## How have we arrived at our estimates?

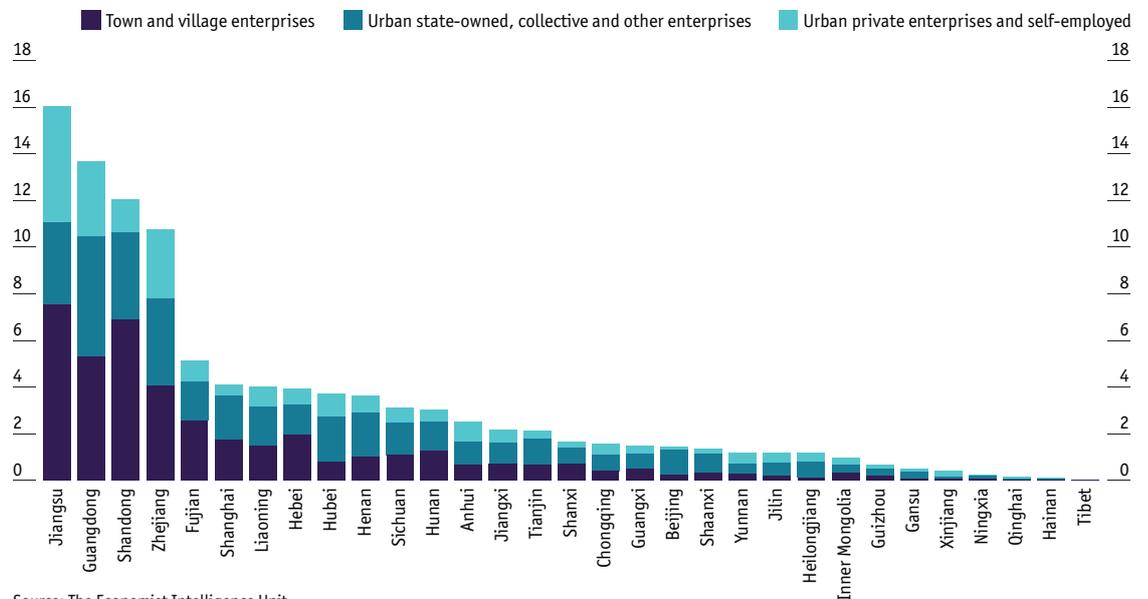
China's statistical authorities do not publish data on manufacturing labour compensation per hour at either the national or provincial level. We calculated our estimates by piecing together data from a variety of sources. Research in this field by the now discontinued International Labour Comparisons programme at the BLS has been invaluable in helping to develop our methodology.

The main challenge in accurately estimating manufacturing labour costs in China is combining urban and rural data sources. Statistics on urban manufacturing employment and earnings are relatively detailed, and are broken down between state-owned and collective enterprises and private and self-employed enterprises. However, this provides only a partial picture. A large number of workers in the manufacturing sector are employed by so-called town and village enterprises (TVEs), which are not included in the urban data. TVEs are registered in townships and villages, the lowest of China's de facto five administrative divisions, while urban manufacturing firms are located in prefecture- or county-level districts—the second and third rungs of the administrative structure.

According to calculations based on the latest year for which complete data are available, manufacturing TVEs had 41.2m employees in 2011, compared with 39.3m in urban state-owned, collective and other enterprises and 23.6m in urban private and self-employed enterprises. The large

**Manufacturing employment by enterprise, 2011**

(m)



Source: The Economist Intelligence Unit.

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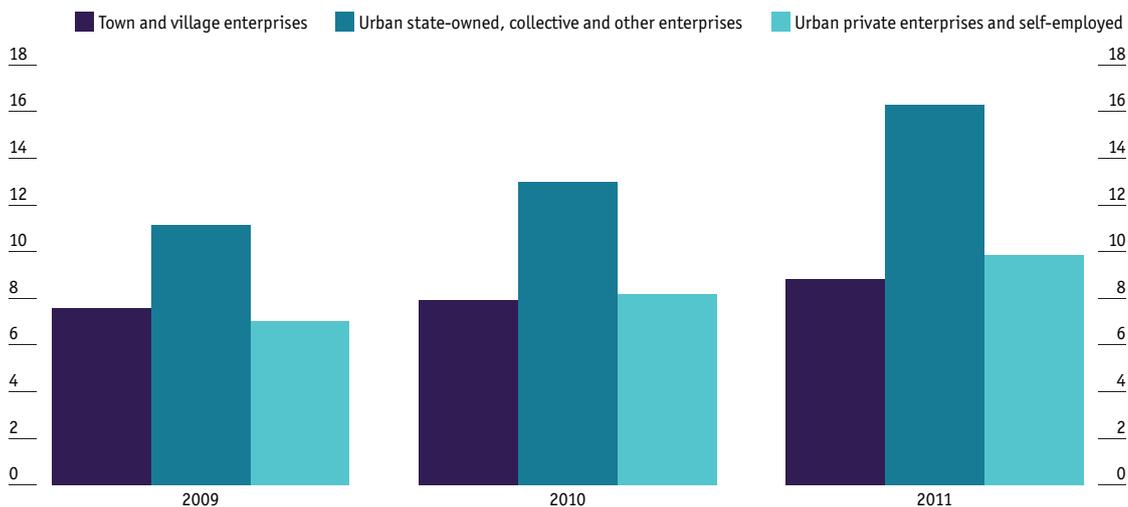
number of TVE workers reflects China's sprawling industrial manufacturing parks, many of which are located in rural areas, and the large number of small and medium-sized enterprises (SMEs) engaged in manufacturing activities. TVE employment is concentrated in developed coastal provinces that have sufficient infrastructure to support manufacturing in rural areas.

Our provincial-level estimates are based on appropriate weighting of the separate urban and TVE data on manufacturing costs. There are a variety of problems with the available data, and we have had to make a number of assumptions in generating our estimates. Notably, comprehensive TVE statistics on manufacturing employment and earnings are only available for 2009-11. We have generated our estimates for TVE earnings prior to that period by adjusting urban earnings data to reflect the average differential between urban and TVE earnings in 2009-11. A full dataset for urban employment earnings is available for 2000-12.

Manufacturing earnings are higher in urban areas than in TVEs in nearly all provinces. Incorporating the TVE data means that our estimates are lower than comparable measures generated from calculations based on urban statistics published by the National Bureau of Statistics (NBS). However, we believe that they offer a more accurate assessment of manufacturing costs in the economy as a whole.

### Manufacturing labour earnings by enterprise

(Rmb per hour)



Source: The Economist Intelligence Unit.

We divided annual earnings by estimated annual working hours per employee to estimate hourly compensation. National census data is available at the provincial-level on the average number of hours worked per week for those employed in both urban and TVE manufacturing. We created an estimate for annual working hours by drawing on statistics from the Ministry of Human Resources and Social Security, which indicated manufacturing employees worked an average of 251 days (50.2 working weeks) a year prior to 2008 and 250 days a year (50 working weeks) from 2008.



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Provincial estimates were given appropriate weights to produce a national figure. Historic estimates are provided in local-currency terms, but cited US-dollar figures are based on the average Rmb:US\$ exchange rate for the relevant year.

### Defining earnings

We provide estimates of manufacturing labour costs per hour. This is comparable with the manufacturing “compensation costs” concept used by the BLS to assess labour costs across OECD countries. We base our measure of labour costs on earnings data published by the NBS for employees of urban manufacturing firms and TVEs. The NBS defines earnings as direct wages plus social insurance, housing

benefits, bonuses, overtime pay and subsidies. It is comparable to the measure used by the BLS, which incorporates pay for time worked (including overtime pay, bonuses and premiums), directly paid benefits (leave pay, irregular bonuses, pay in kind) and social insurance (contractual social benefit costs).

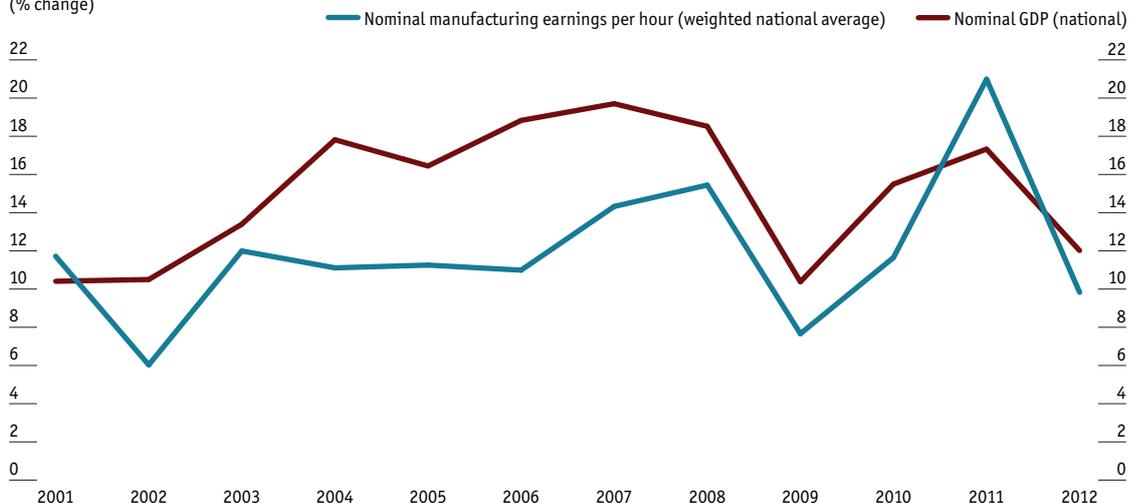
### How much have labour costs increased in China?

The EIU’s data confirm that China has seen rapid growth in manufacturing labour costs since 2000, a year prior to its entry into the World Trade Organisation (WTO). According to our weighted provincial figures, national average manufacturing labour earnings stood at an estimated Rmb13/hour in 2012, compared with Rmb3.4/hour in 2000. Annual growth in manufacturing earnings in 2001-12 averaged 11.9%. The rise in earnings was even steeper in US-dollar terms owing to the renminbi’s steady appreciation in value over the period. Manufacturing labour costs per hour reached US\$2.1 in 2012 at the national level, compared with US\$0.4 in 2000, on the back of average annual growth of 14.6%.

Although the upward direction in earnings is clear from the data, the growth trend has not been entirely smooth. There was a steady acceleration in average national earnings growth in the period

#### Economic growth and manufacturing earnings

(% change)



Source: The Economist Intelligence Unit.

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up to 2007, as manufacturing output jumped in the wake of WTO entry; expansion peaked at 15.4% in local-currency terms in 2008. Growth moderated as the global financial crisis hit manufacturing firms, but quickly revived as the economy recovered on the back of policy stimulus. However, an easing in earnings expansion in 2012, to 9.8%, pointed to the beginning of a slowdown in China's economy.

Historic data at the provincial level, meanwhile, point to a narrowing in manufacturing labour costs between different regions of the country. The earnings differential between China's manufacturing hubs on the eastern seaboard, largely in the Pearl and Yangtze River deltas, and emerging inland regions has narrowed. In 2000 the most expensive labour costs, found in Shanghai, were over three times those in Henan province, which ranked last. By 2012 the highest earnings, in Beijing, were 2.4 times greater than those in Jiangxi, the province with the lowest labour costs.

Narrowing labour costs reflect the emergence of the manufacturing sector outside China's core economic regions. This can be partly attributed to the government's policy support for the central and western parts of the country, as well as the attractiveness of these areas to firms concerned about high labour costs on the eastern seaboard. Workers in the central province of Anhui, which is close to Shanghai, saw their manufacturing earnings per hour increase more than six-fold between 2000 and 2012. Earnings rose six-fold in Inner Mongolia as the economy of the commodity-rich province benefited from strong domestic demand.

Manufacturing employees in the central provinces of Henan, Hebei and Shanxi saw their earnings rise significantly over the same period. Earnings growth in more developed manufacturing centres was sedate in comparison. Expansion in southern Guangdong province, which has among the largest number of manufacturing employees in the country but also started from a higher salary base, averaged 10.9% a year in 2001-12.

### Growth in manufacturing labour earnings per hour in select provinces, 2001-12 (% average annual change)

#### Fastest

Henan	17.1
Inner Mongolia	16.5
Anhui	16.2
Tianjin	16.2
Gansu	15.4

#### Slowest

Shanghai	12.5
Jiangxi	12.2
Fujian	12.2
Guangdong	10.9
Yunnan	10.6

Source: The Economist Intelligence Unit



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### Anhui's emergence

Anhui is part of central China, but its proximity to the prosperous Yangtze River Delta (YRD) has given it an advantage over other provinces in the central region. In 2010 two of Anhui's largest cities, Hefei (the provincial capital) and Maanshan, were classified with the YRD city cluster (comprising 30 cities). The inclusion of Hefei (the city furthest from the cluster's "dragonhead", Shanghai) demonstrates the growing importance of Anhui to the YRD region. With its large labour pool and improving infrastructure links to coastal ports, Anhui has become an obvious choice for manufacturers looking to relocate from the more expensive parts of the YRD. The decision of an Anglo-Dutch conglomerate, Unilever, to move production from Shanghai to Hefei was a totemic example of a high-profile foreign investor spurning the coast in favour of

lower-cost production bases inland. Despite early problems, such as difficulties in securing power supplies, Unilever had transferred all of its manufacturing to Hefei by 2005.

The province is also reaping benefits as a producer of small cars—a favoured sector—and as a base for companies specialising in construction machinery used in infrastructure works and (increasingly) exported to developing markets. Dramatic improvements in infrastructure in recent years have also helped to make the province a viable manufacturing site. The arrival of a high-speed rail link between Hefei and Shanghai has made the commute between the two cities easier, and Hefei Xinqiao International Airport opened in 2013, replacing the city's aged Luogang International Airport. ■

### Has growth in manufacturing labour costs peaked?

We anticipate that manufacturing labour costs in China will continue to increase steeply, albeit at a more moderate rate than in recent years. At the national level, we expect that manufacturing labour earnings will reach Rmb31.9/hour by 2020, which, according to our exchange-rate forecasts, will then be equivalent to US\$5.2. This represents annual earnings growth of 12% in 2013-20 in local-currency terms. Underpinning this growth will be shortages in the labour supply, as the country's working-age population enters a decline, which will give workers room to negotiate strong wage increases. Productivity growth should also be bolstered by efforts to move up the value chain.

Among provinces, we anticipate that the gap between manufacturing earnings will continue to narrow. The EIU forecasts that by 2020 the earnings of factory workers in Beijing, which are anticipated to be the highest in the country, at nearly Rmb42.7/hour, will be 1.8 times greater than those in the southern island province of Hainan.

### Forecasting manufacturing labour costs

Our forecasts for provincial manufacturing earnings are based on an econometric panel data model that incorporates our historical estimates as well as forecast variables from our China regional forecasting service, Access China. We carefully selected strong independent variables for determining wage levels. These include lagged historical manufacturing labour cost per hour, along with forecasts for nominal GDP per capita, the producer price index

and the output gap (each of which Access China forecasts at the province-level). All our variables were then transmitted into either a logarithm or differentiated form before running a regression analysis. Out-of-sample evaluation indicated a good fit between our model and the observed values. A more detailed explanation for our forecasting methodology can be provided on request. ■





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### Growth in labour manufacturing earnings per hour in select provinces, 2013-20 (% average annual change)

#### Fastest

Jiangxi	13.7
Guangxi	13.2
Fujian	13.1
Sichuan	12.9
Jiangsu	12.9

#### Slowest

Tianjin	9.2
Hainan	8.7
Beijing	7.7
Shanghai	7.6
Qinghai	7.4

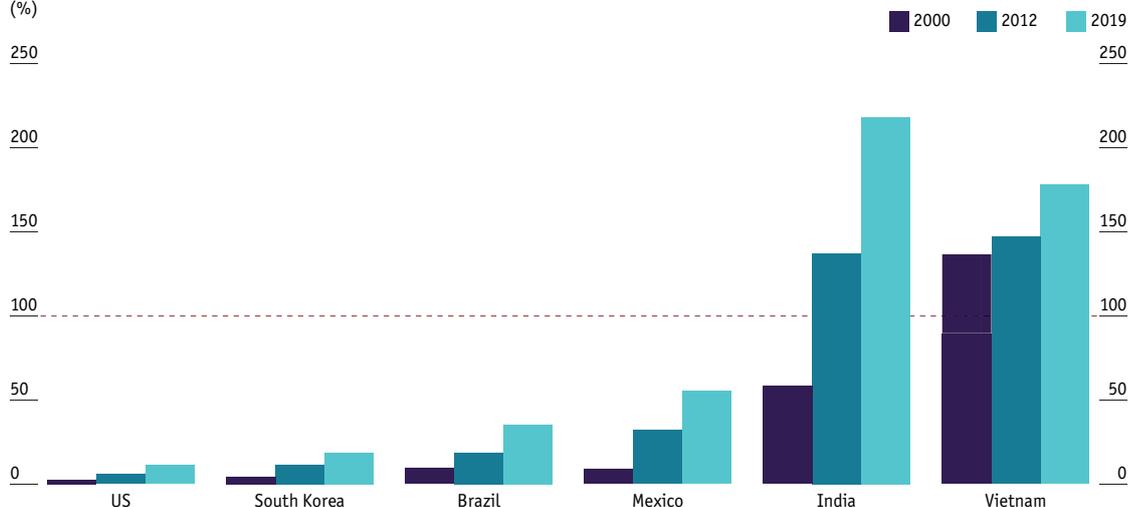
Source: The Economist Intelligence Unit

## How do labour costs in China compare with other countries?

Manufacturing compensation may have risen at a rapid rate in the 2000s, but, at US\$2.1/hour on average in 2012, workers in China still earned a fraction of the amount earned by their counterparts in developed economies. According to EIU national-level data (sourced from the BLS), equivalent labour costs in the US stood at US\$35.7 in 2012. Earnings were higher still in Europe, at US\$45.8 and US\$39.8 per hour in Germany and France respectively. Workers in the US and EU earn much more than those in China because they are much more productive in terms of output generated, a reflection of the more capital intensive nature of manufacturing in those regions.

### Manufacturing labour cost per hour in China as a proportion of those in other countries

(%)



Source: The Economist Intelligence Unit.

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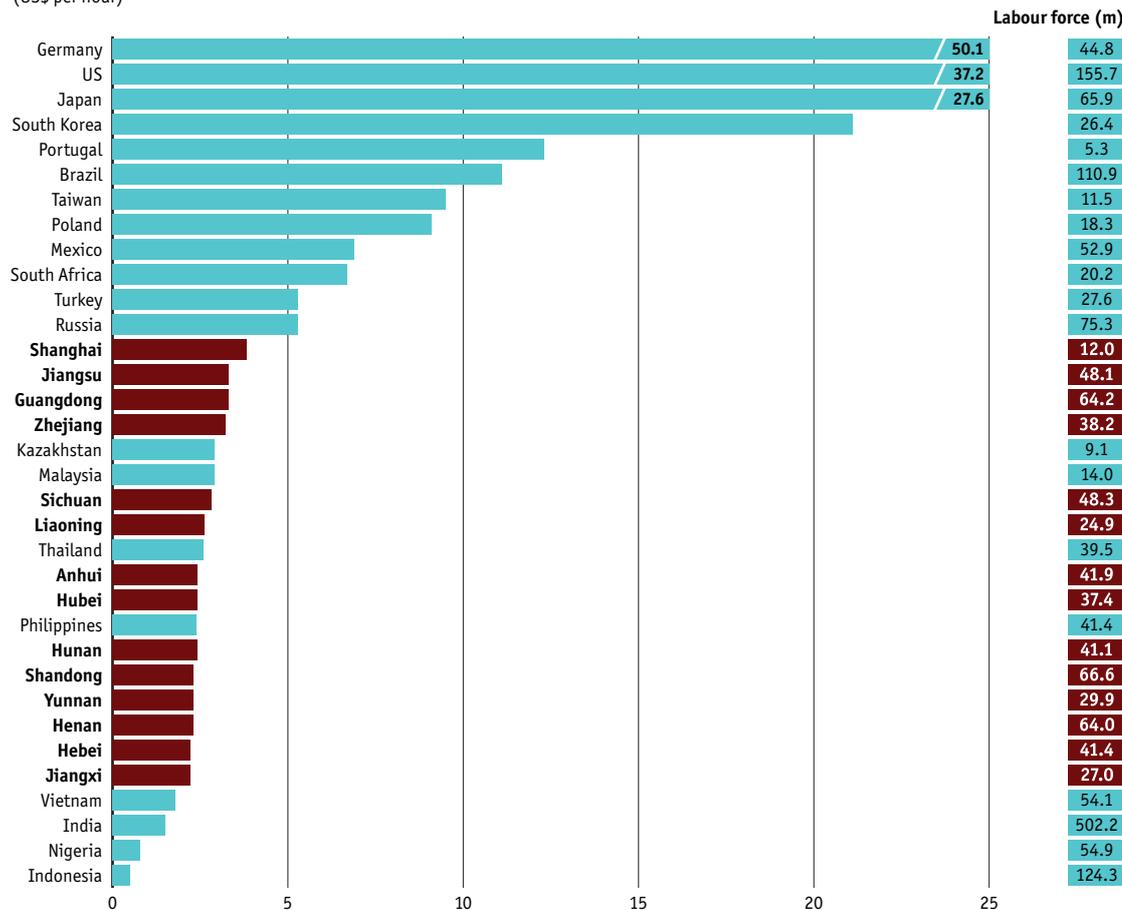
Manufacturing labour costs in China will grow at a much faster rate than in the developed world in the coming years, but will fall far short of convergence. For example, manufacturing labour costs per hour in China in 2019 (the final year to which our national-level forecasts extend) are still forecast to be just 11.2% of those in the US. They will also continue to lag behind costs in developed Asian economies with strong manufacturing sectors, such as Singapore, South Korea and Taiwan.

Even against established emerging markets, China is likely to remain price-competitive in manufacturing labour costs for a number of years to come. Manufacturing labour costs in the country are still forecast to be lower than those in Brazil, Mexico and Turkey. As a proportion of earnings in these countries, earnings per hour in China are expected to stand at 35.2%, 55.2% and 75% respectively by 2019.

China really only loses significant ground in labour cost terms against relative manufacturing novices. Manufacturing labour costs are already higher in China than in India, Indonesia and Vietnam—countries often cited as well-placed to benefit from rising Chinese prices. This disparity will widen further in the coming years, as wage growth in these countries is kept down by strong expansion

### Manufacturing labour costs in select provinces and countries, 2014

(US\$ per hour)



Source: The Economist Intelligence Unit.



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in labour supply. In 2019 manufacturing labour costs per hour in China will be 177% of those in Vietnam and 218% of those in India, up from 147% and 138% respectively in 2012. Whether these countries can take advantage of this cost advantage will depend on their ability to develop effective supply chain infrastructures.

One factor in China's favour as it faces a changing global manufacturing environment will be its geographic size and internal disparity in costs. Even though manufacturing in some of its more developed provinces could become uncompetitive in the coming years (particularly in low value-added manufacturing, which is sensitive to labour costs), there will be provinces that can offer significant cost advantages. Manufacturing labour costs in Jiangxi, Henan and Hebei are all still expected to be under US\$4.5/hour in 2020. Given that they all have large labour pools and relatively developed infrastructure, these provinces could help to sustain China's competitiveness as prices reach much higher levels in traditional manufacturing hubs such as Guangdong, Jiangsu and Zhejiang.



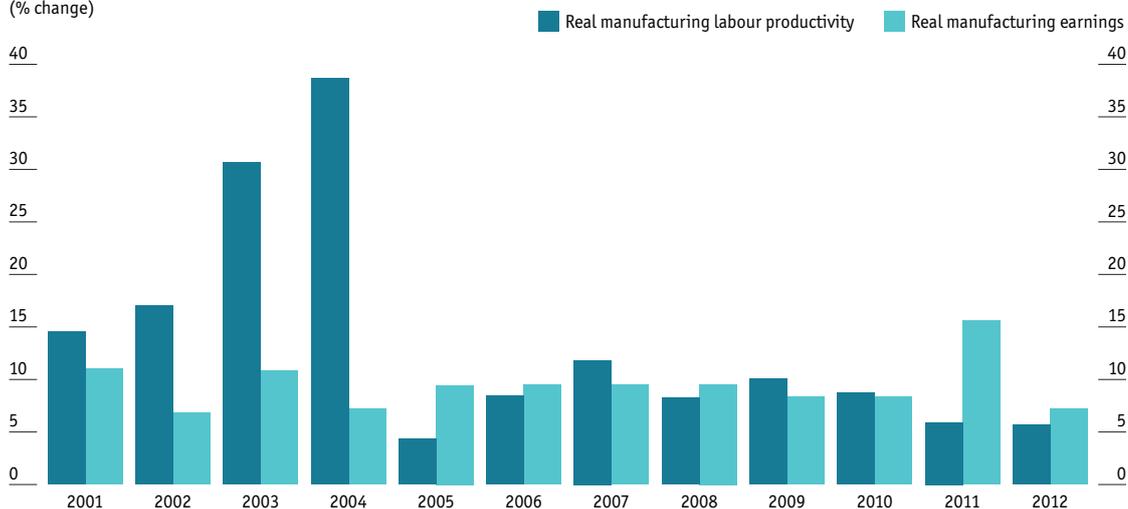
# China's productivity challenge

A key question for businesses will be whether the strong increases that we anticipate in manufacturing labour earnings in China will be matched by comparable gains in labour productivity. Enhanced output per worker should, in theory, lead to higher earnings. However, if earnings exceed productivity, it can undermine competitiveness. Firms would find it profitable to shed workers in an effort to bring earnings and productivity back into line.

Our data suggest that manufacturing labour productivity is declining in China. There was a surge in real productivity growth in the 2000s, as surplus rural labour absorbed by the manufacturing sector led to rapid improvements in output per person employed. Reforms to state-owned enterprises from the late 1990s also played a big role in lifting productivity. Productivity gains in general exceeded increases in earnings, giving companies an incentive to employ more workers.

However, our data suggest that the relationship between earnings and productivity growth has become less favourable in recent years. Real manufacturing productivity growth has been on a slowing trend since 2007, while expansion in real manufacturing earnings has remained elevated. In 2008-12, growth in earnings outpaced expansion in productivity in four out of five years. Incomplete data for 2013 also point to another steep rise in earnings in that year.

**Manufacturing labour productivity and earnings**  
(% change)



Source: The Economist Intelligence Unit.

Labour is not the only input into production, and our estimates do not distinguish between the contributions of labour, capital and total factor productivity. However, the figures still highlight a worrying trend. Excessive worker earnings growth could relate to the premium that companies in China's traditional manufacturing hubs are being required to offer to employees amid labour

## Estimating manufacturing labour productivity

The NBS does not publish statistics on labour productivity, but national-level data on manufacturing value-added output are available. We have generated an estimate for hourly output per manufacturing employee by using our data for manufacturing

employment and total hours worked, which is available up to 2012. Changes in hourly output and compensation have been deflated using the producer price index and consumer price index respectively. ■

shortages. Government policy may also not be helpful. Aggressive efforts to raise minimum wages and employer social insurance contributions have placed upward pressure on employee earnings. At the same time, social stability considerations mean there is a reluctance to allow underperforming companies to wind down.

Meanwhile, the failure to deliver strong productivity gains in recent years suggests that efforts to transition the manufacturing sector up the value chain have proceeded only fitfully. Capital investment may have been used wastefully, or diverted to unproductive areas. A period of volatile domestic and external demand has contributed to the stuttering performance of the manufacturing sector, but has also underlined the importance of developing more innovative manufacturing products and processes. Price competitiveness alone will not be enough to secure China's manufacturing future.

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# Access China

Access China is a unique service that will help your business to succeed in China. It is the only single source of data, analysis and forecasts for all 31 provinces and 287 of China's largest cities, providing you with a comprehensive understanding of the country today. More importantly, it will give you confidence that you will still understand China in 10 and 20 years' time.

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- Understand the market potential for your products and services in any location within China.
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**In brief**

China's president, Xi Jinping, is increasingly dominant within the current leadership. His authority has been boosted by a wide-ranging anti-corruption drive, but as investigations impinge on the patronage networks of retired senior leaders factional tensions will rise. On the back of policy stimulus, real GDP growth accelerated in April-June, and in 2014 as a whole is now likely to reach 7.5%. However, the economy is still undergoing a structural slowdown, and growth will weaken in 2015.

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