Wages, productivity and labour share in China[1]

1. Substantial wage growth

Over the past two decades, wages in China have been rising steadily; this has accounted for much of the global wage growth.[2] The poverty ratio has also declined from 88 per cent in 1981 to 11 per cent in 2010.[3] In 2015, about 60 per cent of Chinese workers were in the middle class.[4] Rising wages have thus contributed to reducing poverty and expanding the middle class.

Growth in urban real wages

Between 2008 and 2014, real wages in China's urban units[5] grew at a compound annual rate of 9.1 per cent. For employees in urban private enterprises – where wages are considerably lower than in the public sector – the real wage growth was even faster, at 10.7 per cent per annum. In nominal terms, the 2008 average monthly wage in China's urban units was 2,408 Yuan Renminbi (CNY) – 69 per cent higher than the average wage of CNY1,423 in urban private enterprises. Although the difference has narrowed in recent years, the wage level for urban units remained 55 per cent higher than that of private enterprises in 2014.

According to the International Labour Organization's (ILO) estimates, based on statistics from the National Statistical Bureau (NBS), the total annual growth rate for China's urban average real wages (both urban units and private enterprises) was nine per cent over the same period (see Appendix 1 for the methodology). China's real wages have thus grown at a faster rate than the average of developing G20 economies (figure 1).

Figure 1. Real wage growth indices in G20 countries, 2008-13 (2008=100)
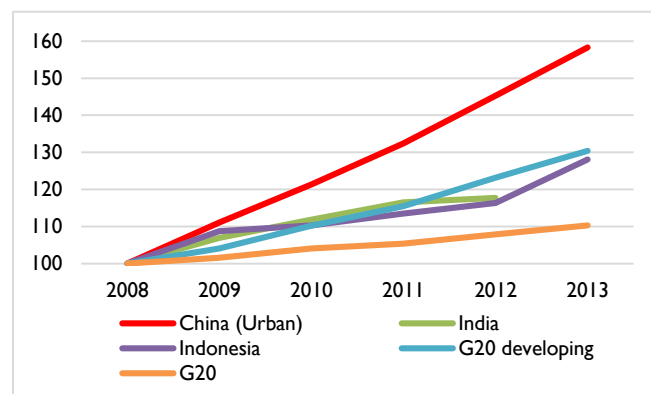
Source: Estimates based on NBS: National Data; and ILO: Global Wage Database.

As a result of its rapid wage growth, China's estimated average nominal wage (in both urban units and private enterprises) was higher than the average wage levels of other developing economies in Asia and the Pacific in 2014. Figure 2 provides information on nominal wage levels in US dollars for economies with broadly comparable data, compiled from Labour Force Surveys.[6]

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[2] ILO: *Global Wage Report 2014/15* (Geneva, 2015).
[3] World Bank: Poverty and Equity Database. Refers to poverty headcount ratio at $1.90 a day (2011 PPP) (% of population).
[4] ILO: ILO Trends Econometric Models, November 2015. The definition of middle class is those earning between $5 and $13 per day at purchasing power parity (PPP).
[5] Urban units refer to urban state-owned units, urban collective-owned units, cooperative units, joint ownership units, limited liability corporations, share-holding corporations Ltd., foreign funded units, and units with funds from Hong Kong (China), Macau (China) and Taiwan (China).
[6] This is a subset of countries included in the Global Wage Database, which also includes other wage indicators (such as wage indicators or wages in a particular sector) as a proxy for wage growth in the respective economy.

Figure 2. Average nominal monthly wages in selected countries in Asia and the Pacific in US$ (2014 or latest available)
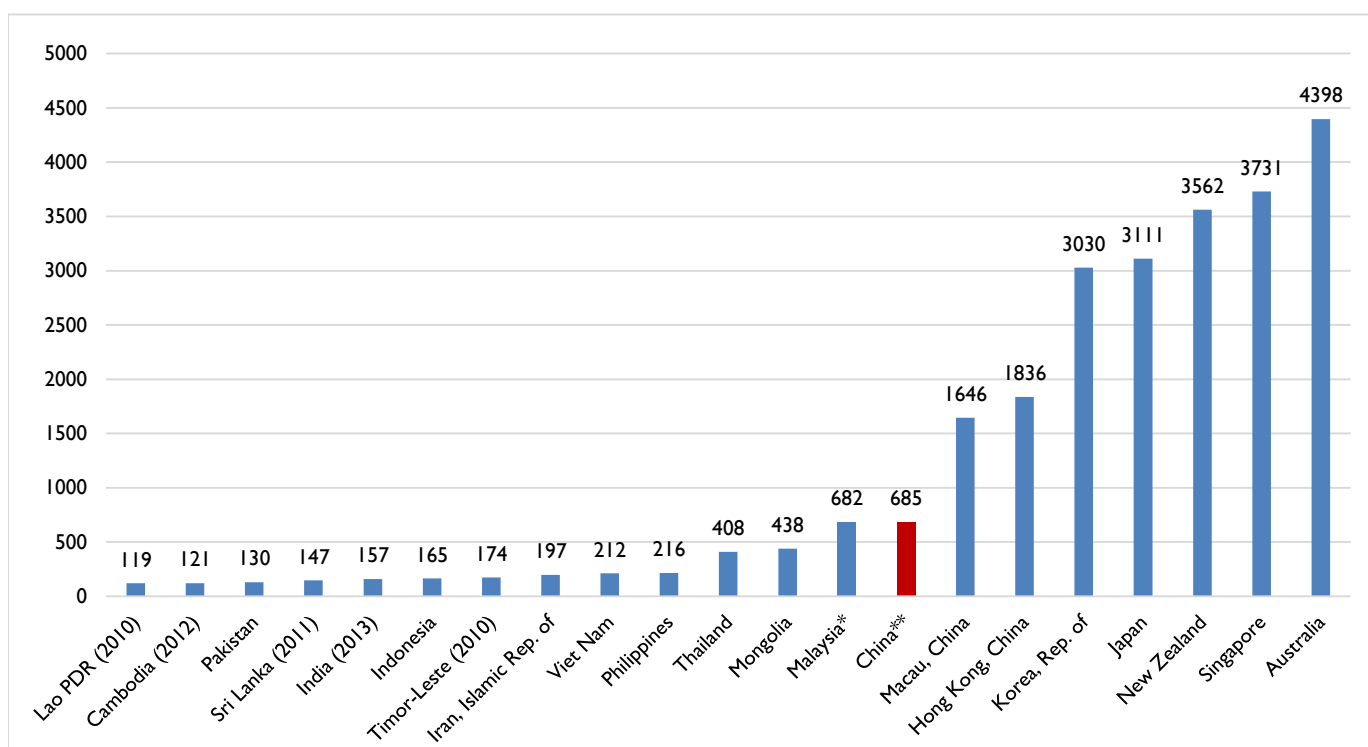

* Based on salaries and wages surveys
** Calculated as employment-weighted average of urban units and urban private enterprises (See Appendix I).
Source: ILO: Global Wage Database 2014/15, based on national statistics. World Bank: World Development Indicators; NBS: National Data.

Although China's real wage growth in urban units remained in double digits for most of the 2000s until 2009, its pace has slowed with the recent cooling of the Chinese economy. China's average real wage in urban units and private enterprises grew 6.2 per cent in 2014, down from 8.8 per cent in 2013 and 11.3 per cent in 2009 (figure 3).

Figure 3. Real wage growth rates in urban China, 2000-14
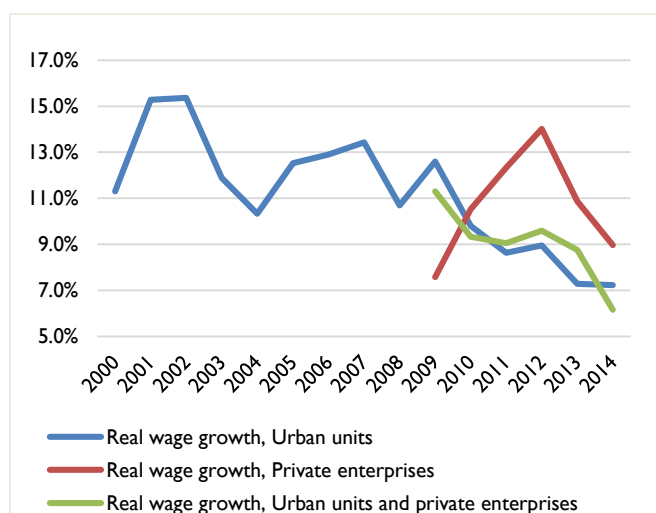
Source: ILO: *China Labour Market Profile* (Beijing, forthcoming).

The weighted urban average real wage growth rates were lower than the rates for unban units and urban private enterprises in 2010 and 2014. This was mainly the result of rapidly expanding employment in private enterprises, where wages are relatively lower. Employment in urban private enterprises accounted for only 5.5 per cent of the total urban employment in 2000, but the share increased to around 25 per cent in 2014.[7] Therefore, the wage data for urban units can no longer be assumed to represent the wage levels in the entire urban area. The shift of employment from high-wage urban units towards private enterprises has moderated overall wage growth.[8]

Wages converging across the manufacturing sector

As the world's factory, China has a large number of workers employed in manufacturing. ILO (forthcoming)[9] illustrates that wages have been converging across sub-sectors of urban manufacturing units over the past decade, as those with lower wages witnessed higher wage growth. Real wages in manufacturing have grown by 176 per cent on average between 2003 and 2013. In particular, low-wage sectors have witnessed higher wage growth. These include textiles (242 per cent), furniture (210 per cent), processing of timber and wood (227 per cent) and food processing (216 per cent).

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[7] Calculated based on NBS: National Data.
[8] ILO: *Wages in Asia and the Pacific: Dynamic but uneven progress* (Bangkok, 2014).

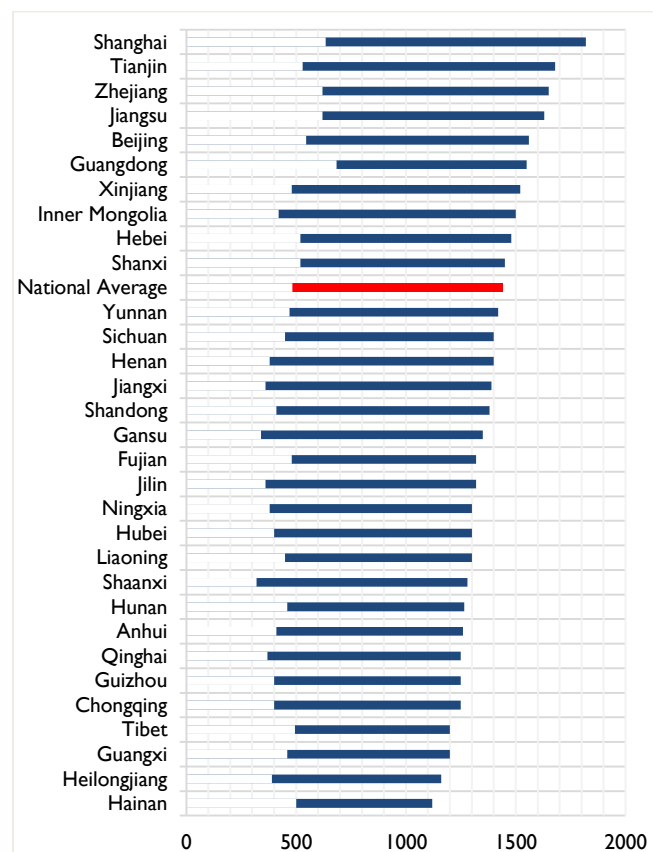[9] ILO: *China Labour Market Profile* (Beijing, forthcoming).

The balancing of sectoral wages can be partly explained by the competition for workers between enterprises. Enterprises in labour-intensive sectors which traditionally relied on cheap labour have had to increase their wages to attract and retain workers.

Minimum wages have increased steadily but less than average real wages

Minimum wage policies play an important role in reducing inequality and in supporting low-paid workers. [10] The Ministry of Labour and Social Security issued the "Regulation on Minimum Wages" in 2004 to reinforce the enforcement of minimum wage policy.[11] Since then, the minimum wages have been regularly raised in all provinces (figure 4).

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Figure 4. Nominal minimum wage increase between 2004 and 2014 (CNY)

Note: All rates refer to the highest minimum wage standards in each province. National Average is calculated as employment-weighted average of minimum wage levels in each province.
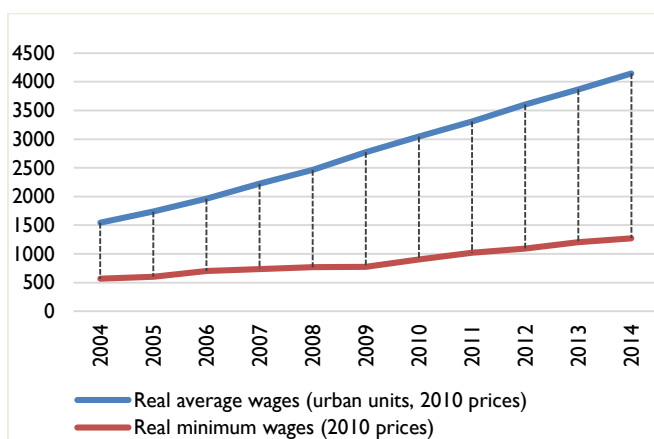**Source:** ILO: *China Labour Market Profile* (Beijing, forthcoming).

The average minimum wage in China, weighted by urban employment in each province, almost tripled in nominal terms between 2004 and 2014. China's 12th Five-year Plan set a target for the minimum wages to increase by 13 per cent per year between 2011 and 2015, and to increase household income by seven per cent.[12] After adjusting for inflation, China's average minimum wages increased by 120 per cent between 2004 and 2014, at a compound annual growth rate of 8.4 per cent. However, this growth was much slower than the real wage growth in urban units, which was 10.4 per cent per annum over the same period (figure 5). Indeed, the gap has widened between minimum wages and average wages in China over the past decade.

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[10] ILO: *Global Wage Report 2014/15* (Geneva, 2015).
[11] The Ministry of Labour and Social Security and the Ministry of Personnel were combined as the Ministry of Human Resource and Social Security in 2008.

[12] The State Council No.6 [2012], See:
http://www.miit.gov.cn/n11293472/n11293832/n11294042/n11302345/14772713.html [accessed 31 Mar. 2016].

Figure 5. Average real wages in urban units and real minimum wage levels in China, 2004-14 (CNY, 2010 prices)

Note: Minimum wages are calculated as employment-weighted average of the highest minimum wage standards in each province.
Source: ILO: *China Labour Market Profile* (Beijing, forthcoming).

The establishment of minimum wages has been China's main mechanism to address social inequality, especially given the absence of other effective policy tools. However, partly due to the comparatively low minimum wages, minimum wage policy can only have a limited effect on inequality without being complemented by collective bargaining. Collective bargaining offers more room for employers to negotiate higher labour productivity, and for employees to negotiate adequate compensation for higher labour productivity.

Meanwhile, research still suggests that minimum wages have a positive effect on facilitating structural transformation, or 'economic upgrading'. For instance, a higher minimum wage induces low-wage firms to shed labour, but does not affect high-wage firms as much – who are likely to hire additional workers when minimum wages rise.[13] Minimum wages thus have a 'cleansing effect', weeding out enterprises that do not meet the social (or environmental) standards of a higher-income economy and releasing human and financial resources for the enterprises that do play a role in such an economy.[14]

2. Does compensation follow productivity?

China's remarkable economic growth has been accompanied by an already significant structural transformation as workers have moved from low-productivity agricultural sectors to

higher-productivity industrial sectors, thus increasing the general labour productivity levels. Labour productivity is defined as output per unit of labour input; it measures the efficiency with which human resource inputs are used to produce goods and services.[15] Labour productivity only partially reflects the productivity of labour in terms of effort or capacities of workers, and depends to a large degree on the presence of other inputs (particularly capital) as well as on a host of other factors.[16] Linking wage growth to productivity growth is important for the government, as it ensures that economic growth benefits workers, that people can partake in the productivity gains, and that enterprises can increase their gross operating surplus along with the productivity growth.[17] Therefore, the draft outline of China's 13th Five-year Plan emphasizes that the labour productivity is targeted to rise from CNY87,000 per worker in 2015 to CNY120,000 per worker in 2020,[18] which requires the country to maintain the relatively high productivity growth rate at 6.6 per cent per annum during the current Five-year Plan period.

In recent years, the sustainability of wage growth has come under political scrutiny.[19] Rising wages have alarmed some observers who believe that this would result in China losing its competitiveness in the global market. However, whether higher wages lower competitiveness depends on how it affects real 'unit labour costs'. What matters for an economy is not the absolute wage level, but the wage level relative to the labour productivity. If rising wages are offset by even higher output per worker, wage growth will not hamper competitiveness. This is why it is important to examine wage growth in China relative to overall productivity growth.[20] It is worth keeping in mind also that competitiveness depends on total-factor productivity and not purely on labour productivity – for wage growth to undermine competitiveness one must assume that the productivity of other factors remains constant to or below increases in labour productivity.

As noted above, China's wage data covers employees in urban units and urban private enterprises; that is, only the urban sector. Labour productivity reflects the average output of all workers in the country, including the rural sector.[21] No relevant data is available from the NBS for the

[13] Y. Huang; P. Loungani; and G. Wang: *Minimum Wages and Firm Employment: Evidence from China*, Working Paper No. 14/184 (Washington, DC, IMF, 2014), p. 43.
[14] F. Mayneris; S. Poncet; and T. Zhang: *The cleansing effect of minimum wage. Minimum wage rules, firm dynamics and aggregate productivity in China*, CEPII Working Paper, No. 2014-16 (Paris, CEPII, 2014).
[15] Manuscript of ILO: KILM 9th edition.
[16] OECD: Measuring Productivity, OECD Manual, Paris, 2001
[17] ILO; Asia Development Bank (ADB): *ASEAN Community 2015: Managing integration for better jobs and shared prosperity* (Bangkok, 2014).

[18] See: http://www.mof.gov.cn/zhengwuxinxi/caijingshidian/xinhuanet/201603/t201 60307_1896180.html [accessed 10 Mar. 2016].
[19] See: http://www.ecns.cn/cns-wire/2016/02-22/199965.shtml [accessed 30 Mar. 2016].
[20] See: http://www.ecns.cn/cns-wire/2016/02-22/199965.shtml [accessed 11 Mar. 2016].
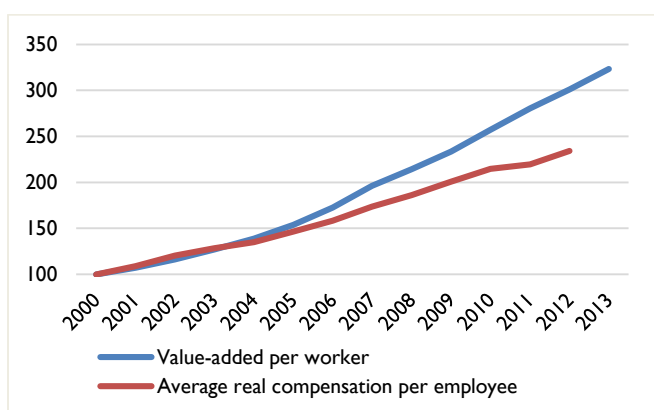[21] Labour productivity refers to all workers including self-employed persons, whereas average wages refer only to employees. It is still necessary to compare these two concepts, because changes in the labour share can be attributed almost entirely to changes in the relationship between average wages and labour productivity (for a detailed exposition of the relationship

average wages of the entire economy (including urban and rural areas). But the ILO's Global Wage Report 2014/15 notes that it may be more appropriate to compare increases in average compensation per employee with labour productivity growth, since compensation includes not only wages but also bonuses and allowances payable in cash or in kind.[22]

Following the methodology established in the wage report, average compensation per employee is estimated using national sources (Appendix II). Similarly, labour productivity is estimated, following the ILO methodology (see Appendix III for details).

Using the above methodology, we find that over the past decade, labour productivity in China has been growing faster than labour compensation (figure 6). Chinese workers' average output increased at a compound annual rate of 9.6 per cent between 2000 and 2012, while employees' average real compensation increased at an annual growth rate of 8.2 per cent over the same period. Labour productivity has continued to outstrip real compensation growth in China since 2003. The gap between the two tended to increase until 2012, the latest year for which both estimates were available. However, it is less clear whether this trend continued after 2012, as there is some indication that wage growth has outstripped productivity growth since then (see the next section on 'declining labour income share').

Figure 6. Indices of labour productivity and average real labour compensation in China, 2000-13 (2000=100)

Source: ILO estimates based on NBS: China Statistical Yearbook, various years; MoHRSS and NBS: China Labour Statistical Yearbook, various years.

3. Declining labour income share

The labour share shows how much of national income results to labour.[23] Under most circumstances, a decline in

labour share reflects a situation where labour productivity is growing faster than labour compensation.

As noted in the previous sections, the growth rates of urban real wages and average real labour compensation were relatively high in China over the past decade. However, high real wage/compensation growth does not necessarily imply a growing labour share, as this also depends on productivity growth. Following the standard method, China's labour share is calculated as the ratio of compensation of employees over gross value added (a measure of total output). From 2000 up to 2003, the labour share in China fluctuated around 53 per cent, but it has dropped considerably since 2003. It finally bottomed out at 47.0 per cent in 2011, and recovered to 49.4 per cent and 50.9 per cent in 2012 and 2013 respectively (figure 7).

Figure 7. Labour share or real unit costs in China, 2000-13
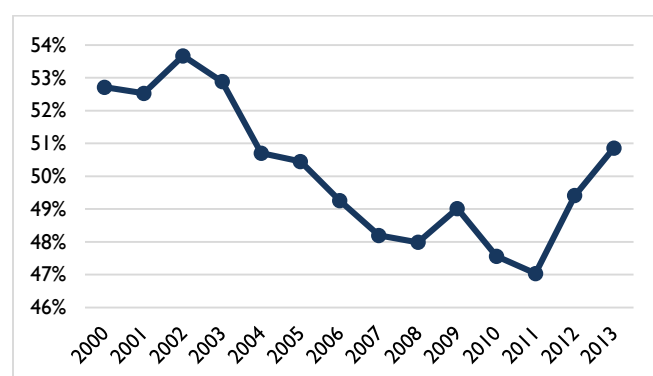
Source: ILO estimates based on NBS: China Statistical Yearbook, various years.

The considerable and continuous labour share decline from 2002 to 2011 shows that growth in compensation of employees has fallen behind labour productivity growth, and that Chinese workers' share in the expanding economy has declined.[24] The reasons for the decline have been debated, but typically include technological changes, globalization, financialization,[25] and weak labour market institutions – all of which contribute to a weakening of workers' bargaining power. Other explanations note the rapid structural transformation (from the agricultural to the non-agricultural sectors) where the capital share is often higher, or the restructuring of state-owned enterprises and increased monopoly power within industry.[26]

Since 2012, China's labour share has started to rise, and increased by 3.9 per cent within two years. It is yet unclear whether the uptick since 2012 was a temporary or a trend reversal, but regardless is worth further analysis.

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between wages, productivity and labour shares, see Appendix II in ILO: *Global Wage Report 2012/13*, p. 76).
[22] ILO: *Global Wage Report 2014/15* (Geneva, 2015).
[23] M. Luebker: *Labour shares*, ILO Technical Brief No.1 (Geneva, ILO, 2007).
[24] ILO: *Wages in Asia and the Pacific: Dynamic but uneven progress* (Bangkok, 2014).

[25] i.e., a process by which financial markets and leverage override capital and dominate the industrial sectors of the economy.
[26] C. E. Bai,; Z. Qian: *The factor income distribution in China: 1978-2007*, China Economic Review, No.21 (2010).

Appendix I: Estimates for China's urban wages

According to the NBS, urban employment in China is composed of three groups: these are employment in urban units; employment in urban private enterprises; and employment in individually-owned business.

Before 2008, the NBS only published the wage series for urban units. This term covers state-owned units, urban collective-owned units, cooperative units, joint ownership units, limited liability corporations, share-holding corporations, foreign funded units, and units with funds from Hong Kong (China), Macau (China) and Taiwan (China). However, employed persons in private enterprises and individually-owned business[27] were excluded from the wage series.

In 2008, the NBS started to release another wage series for urban private enterprise to fill this data gap. They showed big wage differences between urban private enterprises and urban units.

Due to the lack of data for employees working in individually-owned business, it is only possible to estimate the average urban wages by combining the available wage series for urban units and urban private enterprises and taking the shares of employees as weights. Employed persons in urban units are all regarded as paid employees. The number of employees in urban private enterprises are calculated by subtracting the number of employers from the total employed persons in urban private enterprises. This combined series can show a wage trend closer to the real picture in China's urban area. Although wages have grown rapidly in both urban units and urban private enterprises, the shift of employment towards private enterprises (which pay substantially lower wages) slows the average wage growth (see table I-1 for the methodology).

Table I-1. Wages and wage growth in urban units and private enterprises, 2000-14

	2000	2005	2008	2010	2011	2012	2013	2014
Employment in urban units								
Employment in units (million, year-end)	116.1	114.0	121.9	130.5	144.1	152.4	181.1	182.8
Employment in urban private enterprises								
Employment in urban private enterprises (million, year-end)	12.7	34.6	51.2	60.7	69.1	75.6	82.4	98.6
Number of employers in urban private enterprises million, year-end)	2.5	7.2	10.7	12.6	14.8	16.5	18.3	22.3
Number of employees in urban private enterprises million, year-end)	10.2	27.4	40.6	48.1	54.4	59.1	64.2	76.3
Urban employment								
Number of employees in urban units and private enterprises (million, year-end)	126.3	141.4	162.5	178.6	198.5	211.5	245.2	259.1
Share of urban units	92%	81%	75%	73%	73%	72%	74%	71%
Share of private enterprises	8%	19%	25%	27%	27%	28%	26%	29%
Monthly average nominal wages								
Urban units (CNY)	778	1 517	2 408	3 045	3 483	3 897	4 290	4 697
Private enterprises (CNY)	..	..	1 423	1 730	2 046	2 396	2 726	3 033
Urban units and private enterprises* (CNY)	..	..	2 162	2 691	3 090	3 478	3 881	4 207
Monthly average wages, constant 2010 prices**								
Urban units (CNY)	940	1 737	2 463	3 045	3 308	3 604	3 867	4 146
Private enterprises (CNY)	..	..	1 455	1 730	1 943	2 216	2 457	2 677
Urban units and private enterprises* (CNY)	..	..	2 211	2 691	2 934	3 216	3 498	3 714
Real wage growth**								
Urban units	11.3%	12.5%	10.7%	9.8%	8.6%	9.0%	7.3%	7.2%
Private enterprises	..	..	..	10.5%	12.3%	14.0%	10.9%	9.0%
Urban units and private enterprises*	..	..	..	9.3%	9.1%	9.6%	8.8%	6.2%

* ILO estimate, based on average wages and number of employees in both types of enterprises.
** Nominal wages deflated with the CPI for urban households.
*** Growth of average monthly wages at constant 2010 prices.
Source: China National Bureau of Statistics (NBS) and ILO estimates based on NBS data.

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[27] Refers to persons who hold the certificates of residence in urban areas or have resided in the urban areas for a long time and have been registered at the departments of industrial and commercial administration and approved to be engaged in individual industrial or commercial business, including self-employed persons as well as helpers and hired laborers who work in individual households (NBS: *China Statistical Yearbook 2015*, p. 138).

Appendix II Calculation of China's average compensation per employee

Number of employees

As shown in Appendix I, number of employees in China's urban units and urban private enterprises is computable. The NBS and the Ministry of Human Resources and Social Security (MoHRSS) released the total employment in township and village enterprises in China Labour Statistical Yearbooks. By removing the employment in rural individually-owned business and the number of employers in rural private enterprises, we can estimate the number of employees in township and village enterprises while excluding individually-owned business. The sum of the number of employees in China's urban units and urban private enterprises, and the number of employees in township and village enterprises (excluding individually-owned business) equals the number of employees in both urban and rural areas, except those employed in individually-owned business. The NBS provides data for the number of engaged persons in individually-owned business and the number of owners of individually-owned business – the difference between the two comprises the number of employees in individually-owned business. Adding up the number of employees in both urban and rural areas (except employees in individually-owned business), and the number of employees in individually-owned business gives us the estimated total number of employees in China (see table II-1 below for the detailed calculation).

The result shows that the share of employees in China's total employment has increased gradually, and the share levels are close to those reported in the tables for composition by employment status in China Labour Statistical Year Books. However, the NBS stopped releasing employment numbers in township and village enterprises in 2014. The latest data available is for 2012 from China Labour Statistical Yearbook 2013.

Average compensation per employee

In terms of the rural employment, there is no relevant wage data from the NBS; however, this data essential in estimating the income levels for urban and rural employees as a whole, and for comparing labour compensation with labour productivity in China. Although there is no direct source from the NBS, it is possible to calculate the average labour compensation for the entire economy by dividing the total labour compensation with the estimated total number of employees,[28] and then using the consumer price index (CPI) to convert the data into real terms (see table II-2). There is a debate about whether the CPI or the GDP convention factor is the most appropriate tool to be used to deflate the wages/labour compensation. The Global Wage Report selected the CPI to estimate real wage growth, as CPI can reflect changes in the purchasing power of consumers more accurately when the standard of living is being assessed (see ILO: *Global Wage Report 2014/15*, box 4 for more details). The CPI from China's national source is used here to calculate the real compensation of Chinese employees.

Table II-1. Number of employees in China, 2000-12

Unit: 10,000 persons	**2000**	**2005**	**2008**	**2009**	**2010**	**2011**	**2012**
Total employment	72 085	74 647	75 564	75 828	76 105	76 420	76 704
Employees in urban units and urban private enterprises	12 634	14 141	16 250	16 952	17 863	19 849	21 147
Employment in individually-owned business	5 070	4 901	5 776	6 585	7 008	7 945	8 628
Owners of individually-owned business	2 571	2 464	2 917	3 197	3 453	3 756	4 059
Employees in individually-owned business	2 499	2 437	2 859	3 388	3 555	4 189	4 569
Employment in township and village enterprises	12 820	14 272	15 451	15 588	15 893	16 186	10 150*
Employment in rural individually-owned business	2 934	2 123	2 167	2 341	2 540	2 718	2 986
Employers in rural private enterprises	149	389	441	486	534	510	554
Employees in rural private enterprises	990	1 977	2 340	2 577	2 813	2 932	3 185
Total number of employees	24 869	28 338	31 952	33 102	34 236	36 996	39 051
Share of employees in total employment (%)	35	38	42	44	45	48	51

* Data for 2012 does not cover employment in private sectors.

Source: ILO estimates based on NBS: *China Statistical Yearbook*, various years; MoHRSS and NBS: *China Labour Statistical Yearbook*, various years.

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[28] Labour compensation refers to the total payment of various forms to employees for the productive activities they are engaged in. It includes wages, bonuses and allowances, which employees earn in cash or in kind (NBS: *China Statistical Yearbook 2015*, p. 102).

Table II-2. Average real compensation per employee in China, 2000-12

	2000	2005	2008	2009	2010	2011	2012
Compensation of employees (100 million yuan)	52 299	93 297	150 702	167 098	190 968	222 528	256 677
CPI (1978=100)	434	464	523	519	536	565	580
CPI (rebased, 2010=100)	81	87	98	97	100	105	108
Compensation of employees (100 million yuan, 2010 prices)	64 603	107 794	154 565	172 604	190 968	211 146	237 372
Total number of employees (10,000 persons)	24 869	28 338	31 952	33 102	34 236	36 996	39 051
Average real compensation per employee (yuan, 2010 prices)	25 977	38 038	48 375	52 143	55 780	57 072	60 786

Source: ILO estimates based on NBS data.

Appendix III Calculation of China's output per worker

To compare labour compensation and labour productivity, the output per worker is calculated based on the national data from China Statistical Yearbooks. Labour productivity can be calculated as the ratio of GDP (at constant 2010 prices) over total employment.

The calculation steps are: 1) to convert the gross domestic product at constant prices into the same base year (2010 prices); and, 2) to divide by the number of employment (see table III-1).

Table III-1. Labour productivity in China, 2000-13

	2000	2005	2008	2010	2011	2012	2013
GDP (100 million yuan, 2010 prices)	150 552	239 859	338 364	408 903	447 696	482 382	519 455
Total employment (10,000 persons)	72 085	74 647	75 564	76 105	76 420	76 704	76 977
Labour productivity (yuan per person, 2010 prices)	20 885	32 132	44 778	53 729	58 584	62 889	67 482

Source: ILO estimates based on NBS data.