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A Tale of Two Countries and Two Stages: South Africa, China, and the Lewis Model

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Abstract

The paper compares the economic progress of two countries, South Africa and China, in relation to the Lewis model. These economies are chosen because they have interesting similarities and also interesting differences. At the start of economic reform in China and with the advent of democracy in South Africa, both countries had surplus labour: they were at the first, labour-surplus, stage of the Lewis model. It is shown that, since then, South Africa has continued to experience surplus labour: the unemployment rate has risen. By contrast, China's labour market is shown to have tightened, and there is evidence that China has entered the second, labour-scarce, stage of the Lewis model. The difference lies in their growth rates. There are sections explaining why the South African economy has grown slowly and why the Chinese economy has grown rapidly, in relation to the growth of their labour forces. The Lewis model provides an enlightening framework for explaining how widely the fruits of economic development can be shared.

Key words: South Africa; China; Economic growth; Migration; Lewis model

JEL classification: E24; I30; J61; O15; O53; O55

1. Introduction

The Lewis model (Lewis, 1954) provides a good framework for explaining the ways in which the fruits of economic development are spread. Within a competitive market system, it is only when the economy emerges from the first, labour-surplus, classical stage of the development process and enters the second, labour-scarce, neoclassical, stage that real incomes necessarily begin to rise generally. Up to that point the benefits of economic growth can accrue in the form of the absorption of surplus labour and not necessarily in the form of generally rising real incomes.

In this article labour market aspects of two countries are examined: South Africa and China. These are both countries on which I have conducted research in separate research programmes.[1] A comparison is potentially fruitful. The two economies have both interesting similarities and interesting differences.

In the twentieth century China was a labour-surplus economy par excellence and South Africa, although historically labour-scarce, became a labour-surplus economy. Both have a large rural-urban divide; both have had similar policies towards rural-urban migration; in both countries rural-urban migration has increased and is in the process of changing form. Both have formal sector wages above the level that would be determined by labour market forces, although for somewhat different reasons. They differ, however, in their rates of growth of the economy and of the labour force, and hence in of the extent to which surplus labour is being productively absorbed.

[1] On a personal note, the seeds of this topic applied to South Africa were sown in my first publication over half a century ago (Knight, 1964). It seems appropriate to return to the topic in what might be my last. My interest in South Africa was renewed with the advent of democracy and good labour market surveys. This generated several articles on unemployment, which I regarded as South Africa's Achilles' Heel (e.g. Kingdon and Knight, 2004, 2006, 2009). At the same time China was opening up to foreign scholars, and research-oriented household surveys were emerging. My research attention turned increasingly to the Chinese economy, e.g. with books on the rural-urban divide (Knight and Song, 1999), the evolution of the labour market (Knight and Song, 2005) and the causes and consequences of China's rapid growth (Knight and Ding, 2012).

The progress of each economy can be assessed against the stages of development outlined in the Lewis model. Such an assessment was made in a brief chapter in a conference volume on BRICS 'engines of global growth' (Knight, 2009). The current article enlarges upon and updates the story.

2. The Lewis Model

The Lewis turning point comes through two possible mechanisms. One concerns the marginal physical product in the rural (or agricultural or informal) sector. As labour leaves the sector, so the ratio of land and natural resources to labour eventually improves sufficiently for the marginal product of labour to rise. The second mechanism is the possible improvement in the terms of trade between agriculture and industry as the supply of marketed food falls, or the demand for it rises, or both, causing the value of the marginal product of labour in agriculture to rise.

The supply price of rural labour is related to the marginal product or the average product of labour, depending on migrant objectives. Lewis assumed that the average product would be relevant until the marginal product exceeded it. A rising marginal product thus directly or indirectly increases the supply price of rural labour, and this is reflected in an eventually upward-sloping supply curve to the urban sector. Accordingly, further transfer of labour to the urban sector raises the market-determined real wage in that sector.

The process described above assists broad understanding of the way in which several of the currently developed market economies, and also some recently successful industrialising economies, such as South Korea and Taiwan, achieved generally rising living standards. However, as a description of the development process in currently relatively poor economies, the Lewis model requires several qualifications or amendments. Several of these adjustments are relevant to labour market developments in both South Africa and China.

First, there is unlikely to be a clear-cut distinction between the classical and the neoclassical stages, for two reasons: spatial heterogeneity and imperfect labour mobility mean that some areas experience labour scarcity before others; and the supply price of

rural labour is more likely to rise gently than to jump sharply, so that the supply curve to the urban sector will curve upwards gradually. The Lewis 'turning point' is likely to be experienced as a 'turning stage'.

The second qualification is that in many cases it is not possible to equate the rural sector with the agricultural or the informal sector; nor the urban with the industrial or formal. Rural industry or capitalist agriculture can be an important source of employment, and the urban informal sector can be an important source of surplus labour.

Third, there can be capital accumulation and technological progress in the rural sector, which raises the average product and hence possibly the supply price of rural labour before the labour outflow itself has its effect on the supply curve.

Fourth, the formal sector real wage may be determined by non-market forces at a level which is above the market clearing wage. The efficiency wage, labour turnover, and profit-sharing theories of wages, as well as institutional or bargained wage determination, are all contenders. This wage may either be set independently of the market-determined wage or bear some positive relationship to it.

A fifth possibility is that the development of the urban, or formal, or industrial sector leads to the creation of pressure groups that swing the balance of power towards those in that sector, to the detriment of those remaining outside it. This urban bias in economic policies can harm the rural sector and thus delay its benefiting from the fruits of economic growth.

Sixth, the growth of urban, or formal, or industrial demand for labour may be inadequate in relation to the growth of the labour force. If the difference between the labour force and formal sector employment increases, the economy moves away from the turning point instead of towards it.

Finally, the terms of trade mechanism might not operate at all. The terms of trade between agriculture and industry might be governed by institutional price-setting, or by world prices, or by a capitalist agricultural sector which does not contain surplus labour.

3. Trends in the South African Labour Market

It is arguable that the main problem facing South Africa is high unemployment. Its economic, social and political consequences threaten the country's future economic growth. Developments in the labour market hold the key to South Africa's prosperity or penury. It is an important question, therefore: is the economy moving closer to the Lewis turning point or moving away from it?

Before the transition to democracy, the labour market was firmly segmented. Most Africans lived in the rural areas but the majority of livelihoods were obtained in urban areas, in a racially discriminatory labour market. In the late nineteenth century, as the mines and farms were developed, South Africa was characterised by unskilled labour shortage. Indeed, this led to the importation of Indian and Chinese labour. However, by the late twentieth century, the lands allocated to Africans were heavily populated and had become labour reserves. The reserves contained much underemployment, and they supplied migrant labour to the capitalist sector. The relationship between these two sectors is analysed in Knight and Lenta (1980). Tenurial institutions and restrictions on urban settlement meant that much rural-urban migration was temporary and oscillatory – as we shall see, rather like China! With the advent of democracy, however, rural-urban migration accelerated and increasingly involved urban settlement.

Also like China, there is in South Africa a large urban-rural income divide, which provides powerful incentives for migration to the cities. Relatively unskilled wages in the formal sector – dominated by urban-dwellers - are well above market-determined levels, although the reasons for this are different from those in the Chinese case. The emergent African trade union movement was important in the liberation struggle and, when power was transferred, formed an alliance with the ANC. The government introduced labour market policies which were favourable to organised labour with respect to, for example, bargaining rights, minimum wages and employment protection. However, probably the majority of rural-urban migrants were little affected, being concentrated in the informal wage-employment or self-employment sector.

It is relevant to examine the location of South Africa's 'reserve army of labour' and its change over the period of democracy. Population density and size of settlement are normal criteria for the classification of people into rural and urban. However, this is particularly arbitrary in South Africa because there is a continuum in various dimensions. Based on official statistics, the rural population of South Africa rose from 18.4 million in 1993 to 19,4 million in 2000; thereafter it was fairly constant, being again 19.4 million in 2016. As a percentage of the total population, the corresponding figures were 46.5 % in 1993, 43.1% in 2000, then falling steadily to 34.7% in 2016 (Indexmundi, 2019). The pace of urbanisation was rapid after 1993 but the absolute number of rural people did not fall.

The former 'homeland' areas contain an urban-rural continuum, from 'dormitory townships', 'small towns', 'dense rural settlements', 'agricultural villages', to 'small farms'. Classifying by both enumeration area type 'traditional residential' and geographic type 'tribal and traditional areas' (i.e. excluding urban areas and commercial farms), they contained 15.9 million people, representing 82% of the rural population, in 2011 (Atkinson, 2014). The great majority were in 'dense rural settlements' – the result of the apartheid policy of resettlement in Bantustans and of sheer population pressure. As these settlements lacked an economic base, the scope that they provided for earning a living was limited. In addition, 2.9 million people lived in urban 'informal residential' enumeration areas. A growing economy would be able to draw on labour from these sources.

We divide our story into three periods: 1995-2003, when labour market outcomes deteriorated, 2003-2007, when economic growth picked up and the labour market improved, and 2007-2017, once more a period of dismal labour market performance. We shall consider each period in turn. Our primary concern is to analyse, as far as the available data permit, the growth of the labour force, productive employment, less productive employment, and unemployment during each period.

A distinction can be made between the formal sector (comprising firms that are formerly registered) and the (unregistered) informal sector. The insider-outsider theory of labour economists is helpful here: formal sector employees can be regarded as 'insiders' to the

system, and residual workers comprising those in the informal sector (which serves as a labour 'sponge') and the unemployed are 'outsiders'.

Table 1 shows in starkest terms what happened in the labour market in the near-decade after the advent of democracy.[2] The table reports two measures of labour force and of unemployment: broad and narrow. The narrow definition applies a job-search test whereas the broad definition accepts as being in the labour force and as being unemployed those who did not search for work in the four-week reference period but who report being available for work and say they would accept an offer of a suitable job. Kingdon and Knight (2006), investigating the issue, apply three tests of whether the searching and non-searching unemployed are distinct states. They conclude that the lack of search is due to discouragement and to constraints such as poverty, and that the broader measure is a better indicator of potential labour supply. The narrow measure is the 'official' measure but this analysis will concentrate on what is officially referred to as the 'expanded' measure, incorporating what we regard as discouraged work-seeking.[3]

The problem is that the economy is unable to absorb productively all the current labour or all the increment to the labour force. Between 1995 and 2003 the broad labour force grew by 6,3 million, by no less than 4.8% per annum. This remarkable increase was largely due to a sharp but understandable increase in the female participation rate, by 15 percentage points (Kingdon and Knight, 2009: 304). Over the same period, wage employment rose by only 1.3 million (1.8 % per annum), self-employment grew by 0.7 million (5.1% per annum) and broad unemployment grew by 4.3 million (over 9% per annum). Over that period the broad unemployment rate increased from 29% to 42%. South Africa has one of the highest rates of unemployment in the world, even on the misleading narrow definition.

Why was unemployment not eliminated by competitive market forces? Labour market rigidities – whether due to trade unions, or bargaining councils, or profit-maximising

[2] The limitations of and gaps in available statistics should be recognised. Some of these are explained in Kingdon and Knight (2009: 305-9, 313-4). Comparisons over time are complicated by changes in questions, definitions and sampling, and by reweighting in the light of new census data. This hazard is somewhat diminished because the purpose of the paper is not to examine year-to-year changes but to take a long run view of labour market trends.

[3] The official, narrow, measure of unemployment is in line with international practice but recent Labour Force Surveys have provided information on the broad measure, referring to the non-searchers as 'discouraged work-seekers'.

interventions by employers (the efficiency wage or labour turnover theories as to why wages might be set above market-clearing levels) have underlying responsibility. The growing divergence between labour supply and demand inevitably had a depressing effect on market-determined real wages. However, the wage sector, and in particular the formal wage sector, was relatively protected, so pushing the burden of adjustment onto the self-employment sector, especially that part which had relatively free entry. Whereas overall real wages fell by 1.6% per annum over the period 1995-2003 (and formal sector wages by 0.5% per annum over the period 1997-2003), self-employment incomes fell dramatically in real terms, by 11.4% per annum, and informal sector real wages by 7.8% per annum over those six years.

The sheer speed of divergence between the growth of the labour force and the growth of formal sector employment – nearly 4% per annum - put great strain on the necessary downward wage adjustment process. The wage rigidities of the formal sector exacerbated the problem by narrowing the segment of the labour market on which the burden of adjustment was placed. The growth of large parts of the informal sector – with underemployed people eking out a living – was a sign of labour market failure rather than of success. Given the constraints on opportunities for remunerative and attractive informal sector activities, the result was rising levels of unemployment.

South Africa has been an international outlier among developing countries in the small size of its informal sector The lack of informal sector employment is partly due to the legacy of apartheid, to institutional rigidities, and to lack of experience, skills and capital of would-be entrepreneurs and owner-operators. Kingdon and Knight (2004) found that the unemployed were substantially worse off and also substantially less happy than the informally employed: unemployment is not a matter of choice. The failure of more unemployed people to enter the informal sector is due to the difficulties and barriers that face them.

Table 2 presents similar data for the four years 2003-2007: there are sharp contrasts with the previous eight years. Unemployment actually declined, and the broad unemployment rate fell by 6 percentage points to 36%. This fall can be explained in terms of labour demand and supply. The period was one of relative economic boom. With GDP growth rising to 5% per annum over the four years, the annual growth of total

employment averaged 3.7% - i.e. 1.4 percentage points faster than in the previous period. The growth of adult population was 1.3% per annum, as was the growth of the broad labour force: the participation rate remained constant. The annual growth of the broad labour force was 1.5% slower than in the previous period. The sharp fall is surprising but might be partly due to the spread of HIV/AIDS. The fall in unemployment over the four years came from both the demand side and the supply side. The growth of employment exceeded the growth of the broad labour force by 2.4% per annum. In 2008, before the global financial crisis hit, it was possible to pose the question: has the South African labour market turned the corner?

Wage behaviour can be both cause and consequence of changes in labour supply and demand. Between 2003 and 2007 the mean real earnings of formal employees rose annually by 4.0% and those of the informal self-employed by 2.0%. The rise of formal sector wages in the face of high unemployment probably reflects the enhanced bargaining power of organised labour as corporate and government revenue rose. The rise in informal self-employed earnings (albeit small) is made more remarkable by the influx during this period of mainly Zimbabwean workers, who would have intensified competition for jobs even if they were not included in household surveys.

Table 3 covers the latest period, from 2008 to 2019. With real GDP growth averaging 1.5% per annum since 2008, it is clear that the South African labour market has not turned the corner. Whereas the adult population grew by 2.0% per annum over the 11 years, the rising labour force participation rate, particularly among non-searching job-seekers, raised the growth rate of the broad labour force to 2.9% per annum. By contrast, employment increased annually by 1.6%: there was again a diverging of labour demand and supply. Unemployment, particularly broadly-defined unemployment, increased. The broad unemployment rate rose from 28% to 37%, and even the narrow rate rose from 23% to 29%.[4] Non-searchers increased from 21% to 29% of the broadly unemployed. There was also an increase – by 12 percentage points - in the proportion who had been

[4] The broad unemployment rate in 2008 (28 %) is lower than that reported in Table 2 for 2007 (36 %). The former is based on the Quarterly Labour Force Survey (starting in 2008) and the latter on its predecessor, the Labour Force Survey. The new survey, which involved new census benchmarks and changes in the questionnaire, should be more accurate. The trends up to 2007 and from 2008 onwards should be reliable. (The narrow unemployment rate is the same in both years).

unemployed for a year or more. It seems that more of the unemployed became discouraged from job-search and that the average duration of unemployment probably increased. Despite the high rate of unemployment and its continuing rise, average real earnings in the formal sector grew by 2.6% per annum.

To answer the question posed in the Introduction 'Has South Africa moved towards or away from the Lewis turning point?', the evidence indicates that the South African labour market has moved in the wrong direction since the advent of democracy. Between 1995 and 2019, the broad unemployment rate increased by 8 percentage points and the narrow rate by 12 percentage points. It was only in the short period of economic boom - from 2003 to 2007 - that movement was towards the turning point. This brief episode highlights the importance of rapid economic growth for entry to the second stage of the Lewis model.

4. Trends in the Chinese Labour Market

This section is based on my research on China's labour market over twenty-five years. Along the way it produced a book with Lina Song *Towards a Labour Market in China*, published in 2005. Much of the book is concerned with the transition from the formerly centrally planned and controlled labour system towards the creation of a labour market. Here I concentrate on the development aspects rather than the transition aspects of this evolution.

Under central planning China was compartmentalised into an 'invisible Great Wall' between rural and urban areas. Despite it having been a peasant-led revolution, there was a large rural-urban divide in incomes (Knight and Song, 1999). The disbanding of the communes in the early 1980s and the restoration of incentives raised peasant incomes but, as urban reforms advanced, the ratio of urban to rural household income per capita grew, and it reached a peak of 3.32 in 2009. This reflects in part the unbalanced nature of political influence, however latent it might have been (Knight et al., 2006).

Throughout the twentieth century China's was a surplus labour economy *par excellence*. Even at the time of liberation – mid-century - almost all of the arable land was in use, and in the next half century the rural population and labour force more than doubled. In the

1980s the increase was absorbed mainly by rural industrialisation outside the planning system, but as urban reforms progressed the main absorption of the growing rural labour force was through rural-urban migration.

The remarkable growth of the Chinese economy – averaging ten per cent per annum over the reform period, and in particular the growth of the urban economy, required a great inflow of labour into the cities and towns. This need was accentuated by the slow growth of the urban-born labour force. The draconian one-child family policy, introduced in the late 1970s, began to slow down the growth of the urban-born labour force in the 2000s; its effect had been delayed by Mao's baby boom of the 1960s and 70s and its echo when the baby boomers reached reproductive age. There are now reported to be nearly 300 million rural-urban migrant workers in China. The phenomenon has been referred to as 'the greatest migration in human history'.

However, rural-urban migration has taken a particular form, reflecting tenurial institutions and government policy. In principle, the large gap between urban and rural income per capita provides a great incentive for migration, and there was apparently no shortage of would-be migrants. However, the Chinese government has controlled and curbed the inflow of migrants into the cities and towns, partly to protect the privileged urban people against labour market competition and partly to avoid the ills of excessive migration that are evident in parts of the developing world. Rural-urban migrant inflows have been regulated to meet the urban demand for migrant labour, and migrants have been allowed into the cities only on a temporary basis. Urban settlement of rural-urban migrants, and conferment of the rights of urban people, are made very difficult, although this has increasingly taken place in recent years, especially in the smaller cities. It is notable that both China and South Africa have experienced a process of circular migration; in both it continues but has become less dominant.

In the late 1990s the policy of retrenchment of urban workers from the state-owned enterprises – a policy that was forced on government by increased loss-making and the consequent fiscal costs – produced a reversal in the net inflow of rural-urban migrants. Many millions of workers in urban China lost their jobs, and open unemployment became a major problem for the first time. The true rate of urban unemployment rose from 4.2% in 1990 to 11.5% in 2010 (Knight and Xue, 2006). City governments, trying to protect

their residents, responded by curbing the employment of migrants (Knight and Song, 2005: ch.6). After the bloated public sector was deflated, economic efficiency improved and net rural-urban migration grew once again.

Rural-urban migrants were at a great and discriminatory disadvantage in the urban labour market. They had to take the least attractive jobs – the jobs that urban-born people did not want. Their wages were lower, and they had fewer of the rights that urban-born people possessed, such as rights to pensions, to health insurance and unemployment insurance, and so on (Knight and Song, 2005, ch. 5). Despite these disadvantages, millions of rural people saw migration as the way to improve their incomes. However, many of them returned home permanently after an urban spell, and those who kept coming back retained close links with their rural households. This situation is generally true even today although the degree of segmentation has gradually weakened over time.

Table 4 reveals the remarkable structural change in the Chinese labour market that has accompanied rapid economic growth over the reform period. On account of rising prosperity and the one-child policy, the labour force grew slowly, at 1.7% per annum, in the years from 1980 to 2017. However, growth of the labour force has been gradually declining: growth was only 0.04% in the period 2013-2017 and the rural labour force appeared to peak in 2016. The urban labour force rose from 25% to 53% of the total, and the rural labour force fell correspondingly by 28 percentage points. Urban employment increased annually by 3.7%, whereas the rural labour force increased at a slow annual rate (0.4%). Rural enterprise employment growth was no less than twice the increase in the rural labour force: the number of 'household workers' fell by 0.3% per annum.

Official statistics do not directly and clearly measure the urban-born labour force (with urban *hukou*) and the rural-born labour force (working in the rural areas or in towns and cities and but holding rural *hukou*), yet these measures are important to our analysis. Table 5 presents the relevant figures, based partly on official data for urban and rural employment and my own demographic projections of the urban-born labour force. The table covers the period 1990-2020. Before that time rural-urban migration was heavily constrained and it was only in 1990 that urban employment significantly exceeded the urban-born labour force. This is to be seen in the table. The residual between them (urban employment minus the urban-born labour force) serves as a proxy for the number of

rural *hukou* migrants working in urban China. The table records that this number increased from 42 million (25% of urban employment) in 1995 to 257 million in 2015 (64% of urban employment), and by extrapolation 320 million (70%) in 2020. Migrants as a proportion of the rural-born labour force increased from 8% in 1990 to 20% in 2005 and to 41% in 2015. By 2020 nearly half of the rural-born labour force were likely to be working in urban China.

A slightly different picture emerges from NBS direct estimates of rural *hukou* people working in towns and cities derived from representative rural surveys (the final row of Table 5).[5] The survey figure exceeded the residual figure by 24 million in 2000 and by 47 million in 2010 but fell short of it in 2020 (extrapolated from 2018) by 26 million. The number of rural-urban migrants grew most rapidly in the period 2005-10, when the growth of real GDP was particularly rapid, averaging 11.3% per annum. The slower increase in surveyed migrants after 2010 can be attributed to the drastic contraction of the age group 20-29 in rural China, structural change towards skill- and technology-intensive activities, and the deceleration of economic growth.

However, the choice of migrant measure does not affect the basic story that migrant numbers have continued to increase in the face of the static urban-born labour force. With the exception of college graduates or those coming from the armed forces – who are given urban *hukous* – rural-*hukou* migrants have been absorbed into the urban labour market partly by entering newly created jobs and partly by moving up the job ladder into the jobs that urban-born workers no longer occupied.

In about 2010 there were signs that China's traditional labour surplus was drying up and that scarcity of rural-urban migrant labour – at existing wages – had begun to appear in at least some parts of China. An inconclusive literature on the Lewis turning point emerged. The most significant contribution was made in a special issue on this topic in *China Economic Review* in 2011. The different authors did not agree on whether China had reached the turning point of the Lewis model. This is not surprising because of their different methodologies and data sets and because a turning stage rather than a single point is to be expected in such a large and diverse country characterised by poorly integrated labour markets. In their contribution Knight et al. (2011), using national data,

[5] NBS, Monitoring Survey Report on Off-farm Workers, annual (in Chinese).

found that migrant real wages began to rise more rapidly at about that time. However, they also adduced evidence that a substantial rural labour surplus remained. The authors attributed this apparent inconsistency to institutional and other restrictions which held back the remaining supply of the rural labour force. The passage of time would be needed to answer the question being posed.

When the supply of labour is in abundance, the market wage of relatively unskilled labour is held down by competitive forces. One test of whether an economy moves from the first to the second stage of the Lewis model is to be found in the behaviour of unskilled market wages, in particular the wages of rural-urban migrants. Table 6 shows how the migrant real wage increased over the period 2000-2018. Table 6 implies that migrant real wages grew over the periods 2002-07 by 8.0% per annum, 2007-2013 by 12.0% per annum, and 2013-18 by 6.3% per annum. These results are consistent with China entering the second stage of the Lewis model in the period 2007-13, when the increase in rural-urban migration was at its peak, but the deceleration of real wage growth in the next five years is unexpected.

Interpretation is complicated by minimum wage legislation. Minimum wages are likely to be important for rural-urban migrants, being normally at the bottom of the urban wage distribution. Provinces were required to set minimum wages for their cities and towns. The minima became important in the first decade of the new century. They appeared to increase most rapidly in real terms, by over 13% per annum, between 2003 and 2008 (Deng, 2017:330), when the government began demanding tougher enforcement. However, later the government became concerned about the burden of higher wage costs on enterprises, and no longer set minimum wage target increases; only 8 of the 31 provinces raised minimum wages in 2019. These policies cast doubt on a market interpretation of rapid migrant real wage growth in the 2007-13 period but might help to explain the slower growth after 2013. Migrant real wage behaviour does not provide a conclusive test of entry into the second stage.

What effect can the arrival of rural labour scarcity have on the urban-rural income ratio? On the one hand, it should drive up unskilled market wages in the cities. On the other hand, the reduced availability of labour in rural areas relative to the availability of land and other resources, should raise rural labour incomes. Therefore, the ratio might either

fall or rise. However, the fact that only part of the urban labour force is affected whereas the effect on rural households is likely to be widespread tips the balance towards a fall in the ratio. Moreover, if migrants (increasing in number) remit part of their (now higher) wages to their rural households, that also should reduce the urban-rural income ratio.

The ratio of urban household income per capita to rural household income per capita, having risen since the mid-1980s, peaked at 3.32 in 2009 and began to fall almost monotonically thereafter and was down to 2.66 in 2017. The national Gini coefficient of income per capita, having risen for many years, peaked at 0.490, and fell monotonically to 4.62 in 2015. Thus, not only did the urban-rural household income ratio fall but also the national Gini coefficient of household income per capita, as Table 6 shows. This relationship is likely to be causal because of the great importance of the urban-rural income ratio for the Gini in the Chinese case. In 2007, for instance, according to the China Household Income Project (CHIP) Survey of that year, the ratio of urban to rural household income per capita was 4.10 (using a broader definition of income). The urban Gini was 0.34 and the rural Gini was 0.36, whereas the national Gini, reflecting the wider income distribution, was no less than 0.49. Other forces tended to raise the Gini coefficient (both the urban and the rural Ginis of household income per capita continued to rise as the national Gini fell) and that might explain why the Gini edged upwards after 2015.

It is an important question, therefore, as to whether the scarcity of migrant labour which emerged in about 2010 precipitated the decline in the urban-rural income per capita ratio, which began to fall consistently after 2010. The implication would be that the arrival of labour scarcity was a powerful market mechanism for reducing income inequality.

The CHIP surveys report that household real income per capita in rural areas doubled over the years 2007-13, increasing by 13% per annum. Wage income was the most important component of that growth, accounting for 35% of the increase in rural income per capita and growing by 12% per annum. Non-agricultural income grew by 13% per annum and net transfer income (including migrant remittances) by 29% per annum. Each of these rapid increases might have resulted from a growing scarcity of rural labour insofar as it improved the ratio of rural resources to rural labour and the opportunity cost

of migration. This evidence for the period from 2007 onwards is consistent with growing scarcity of unskilled labour.

Nevertheless, as with the growth of minimum wages, the strengthening of government fiscal policies against rural poverty complicates the story. Social benefits as a proportion of the final income of rural households increased from 0.7% in 2002 to 2.1% in 2007 and to 6.4% in 2013 owing to the expansion of social assistance such as pensions and minimum income guarantees, known as *dibao* (Gao et al., 2019, using CHIP data). Hoken and Sato (2019), also analysing CHIP, show that rural net transfer payments (transfers between households and both public and private sources, as a proportion of final income) grew from -4.0% in 2002 to 4.8% in 2007 and to 7.7% in 2013. Much of the increase in private transfers represented migrant remittances. This could reflect the tightening of the labour market but public transfers would not.

5. Why such different growth rates? South Africa

The contrast drawn between these two labour markets is mainly attributable to the difference in the growth rates of their economies. Over the two decades of democracy 1995-2015, for instance, real GDP growth in South Africa was 3% per annum; over the period of economic reform 1978-2015 real GDP growth in China was 10% per annum. The deeper question, therefore, is: how can their very different economic growth rates be explained?

I draw on the literature attempting to explain South Africa's economic growth rate in recent years. Consider the dire state of the economy in 1994. It had borne the burden of both trade and financial sanctions, political protest, and politico-economic uncertainty. The annual (real) growth rate of GDP over the previous decade 1985-94 was 0.8 % and of GDP per capita -1.3%. Standard estimates of total factor productivity (TFP) growth were actually negative (du Plessis and Smit, 2009: 38). The incentive of the private sector to invest was weak and public infrastructure investment was consistently neglected: it fell by 46% over the decade (Fedderke, 2009: 198) and its capital stock declined.

With the ending of trade and financial sanctions, the reduction in uncertainty and the new opportunities for talented people quickened the pace of economic growth. Over the decade 1995-2004 the annual growth of GDP was 3.1%. The ratio of investment to GDP

rose. According to the estimates made by du Plessis and Smit (2009: 38). TFP growth was positive and accounted for a higher proportion of growth than did factor accumulation. The increased importing of technology embodied in machinery and equipment and the transfer of technology by newly investing multinational companies are likely to have been important.[6] The pace of growth picked up, rising to 5.0% per annum in the years 2004-2008 – a period of boom in the world economy and boom in the prices of South Africa's commodity exports. However, an international panel argued that this rate was not sustainable and that the likely range of potential GDP growth was between 3 and 4.5% (Hausmann, 2008).

Indeed, even this forecast proved to be optimistic for the years after the great financial crash. Over the period 2009-2017 the growth rate averaged 2.0% per annum. [7] In some respects South Africa had become a mature economy. There was little prospect of deriving 'conditional catch-up' growth effects. These effects are a well-established international result that, other things being equal, income per capita in poor economies tends to converge towards that in rich economies. South Africa's economic growth in this decade is best judged against the growth achieved in its closest comparator group - the upper-middle-income countries as a whole. However, South Africa's annual growth rate (in US dollars) between 2009 and 2015 was 2.3%. This was 2.7% below that of the middle-income-country group, which averaged 5.0 % (World Bank, 2018).

What forces held back South Africa's growth rate? Growth was partly slowed down by the global financial crash of 2007-8 and its aftermath. The demand for the country's main exports, and their prices, were adversely affected. The value of exports, measured in dollars, was $85 million in 2008 but rose (by 0.5% per annum on average) to only $89 million in 2017. Even this required a fall in the real effective exchange rate of 19% between 2007 and 2017 (International Monetary Fund, 2018).

Employment in sectors of low productivity and low productivity growth potential has increased in recent years. Labour in informal employment or unemployment rose from 50% of the (broad) labour force in 2008 to 57% in 2019. The proportion of workers who

[6] Indeed, the probability that increases in physical and human capital generated technological progress renders the distinction between TFP growth and factor accumulation unreliable.
[7] Figures of real GDP growth are taken from du Plessis and Smit (2009) up to 2008 and from *South African Reserve Bank Quarterly Bulletin* Statistical Tables for recent years.

were employed in the, more productive, formal sector fell by 7 percentage points. Economic growth declined.

Our interest lies more in South Africa's potential growth rate than in its actual rate. An executive opinion survey provides some clues. Among the most problematic factors for doing business were: an inadequately educated workforce; policy instability, corruption and crime, i.e. sources of uncertainty (World Economic Forum, 2018). Consider these constraints on growth, starting with the country's deteriorated political economy over the last decade. This is not amenable to rigorous quantitative analysis. Nevertheless, *The Economist* magazine, for example, has provided a lengthy and fairly dispassionate assessment of the economic obstacles erected by corruption, 'state capture', public looting, and incompetent public decision-making, which were entrenched during the 2009-2018 presidency. [8] To give a simplistic example, an extra day a month of electricity cuts might reduce the growth rate of GDP that year by up to 3 per cent.

There has been a shortage of highly educated workers. This could be overcome at the micro level by an individual employer offering a higher wage but at the macro level market forces merely raised the cost of such workers. At the other end of the wage distribution, wages in the informal and self-employment sector were depressed by the surplus of workers. As a result, the Gini coefficient of wage inequality increased monotonically from under 0.56 in 1995 to over 0.68 in 2014 (World Bank, 2017). The poor quality of education in the majority of schools kept down the productivity of much labour. Looking at elements of the World Economic Forum's global competiveness index: South Africa was ranked 126th out of 138 countries on the quality of primary education, 134th on the quality of the education system as a whole, lowest (138/138) on the quality of maths and science education, and 112nd on the availability of scientists and engineers (World Economic Forum, 2017). The country is an international outlier in the quality of its education. Given the high variance of school quality, the averages understate the magnitude of the problem faced by relatively unskilled workers and their employers.

South Africa's (gross) investment/GDP ratio is low by comparison with its comparator group, the upper-middle-income economies (19% versus 32% in 2017) (World Bank, 2018). This partly reflects not only the country's low (gross) saving/GDP ratio, which was

[8] *The Economist*, 26 April 2019, 'South Africa Special Report': 3-12.

16% in 2017 (World Bank, 2018) but also the low incentives of businesses to invest. Fedderke (2009: 185-92) stressed the uncertainty facing potential investors as a reason for weak incentives. Uncertainty can be caused by instability - whether it is macroeconomic, policy, or political instability - or may be created by labour disputes (according to the global competitive index, South Africa was ranked bottom (138th/138) on cooperation in labour-employer relations), corruption (115th on favouritism in decisions of government officials), or crime (133rd on business costs of crime and violence). The (narrow) unemployment rate in South Africa, at 27% in 2018, was higher than that in almost any other of over 100 reporting developing countries (World Bank, 2018c). This remarkable extent of unemployment contributed to a vicious circle that held back South Africa's economic growth by generating crime and social instability and thus weakening investor confidence. South Africa's unpropitious investment environment constrains its economic growth.

Dismal economic growth continues to the present. The National Treasury (2019:11) attributed this to policy inertia and uncertainty. It reported that the annual growth of real GDP of was 0.6% in 2016, 1.3% in 2017, 0.7% (estimate) in 2018, and its forecasts were 1.5% for 2019, 1.7% for 2020, and 2.1% for 2021 (2019: table 2.2). The forecast improvement in economic growth was based on the assumption that planned economic reforms would be implemented (2019: 11-2).

Over the decade 2009-2017 the growth of GDP averaged 2.0% per annum. In roughly the same period (2008-18) the growth of formal sector employment averaged 1.0**%** per annum and the growth of total (formal plus informal) employment also 1.0**%** per annum.[9] The difference of 1% per annum represents the growth of labour productivity - a benefit provided that it enhances the growth rate of GDP. Employment growth depends not only on output growth but also on change in the sectorial composition of the economy and the responsiveness of the labour/capital ratio to change in the capital cost/labour cost ratio. Various estimates of this elasticity of substitution have been made[10]. They are positive, as expected, but vary widely although most have a value below unity. The elasticity appears to be greatest in labour-intensive sectors such

[9] Excluding marketed agriculture, for which separate estimates are made.
[10] For instance, by Knight (1979), Fallon and Lucas (1998) and Fedderke et al. (2003).

as commercial agriculture. Nevertheless, the overwhelming determinant of productive employment growth is the rate of growth of the South African economy.

6. Why such different growth rates? China

I draw on the book *China's Remarkable Economic Growth*, which attempted to explain why China had grown so fast (Knight and Ding, 2012). The annual growth rate of real GDP in China averaged 10.2% in the decade 1980-1990, 10.6% in 1990-2000, and 10.3% in 2000-2007. Even after the global financial crash, China's growth rate was relatively unaffected, averaging 8.9**%** per annum over the decade 2007-2017. China is unique among large economies in maintaining very rapid growth for 40 years.

The approach to economic growth that economists conventionally adopt is by means of growth models and growth empirics. It was possible to analyse China's economic growth by means of a cross-country panel. [11] The actual annual average growth rate of China's real output per worker over the period 1980-2004 was 7.2% and the predicted growth rate 6.7%. Comparing China with sub-Saharan Africa, the difference in predicted growth rates was 5.6%. Capital accumulation accounted for no less than 54% of this difference. Other contributions came from China's slower population growth, higher level of human capital, conditional convergence gain, and more dramatic sectoral change.

A cross-province analysis for China produced the following insights.[12] Physical capital formation was the main explanation for the variation in growth rates among the 30 provinces. In particular, growth was sensitive to investment categorised as 'investment in innovation' and to foreign direct investment. Human capital formation, in the form of secondary school enrolments and higher education enrolments, also made a contribution. Rapid growth has involved a great structural transformation of the economy: a closed economy became an open economy enjoying the benefits of China's comparative advantage; there was a relative expansion of the private sector and contraction of the state sector; a great transfer took place of labour from agriculture to industry, from rural

[11] The methodology was to apply the panel data system GMM estimator to the augmented Solow model in order to investigate causal relationships (Knight and Ding, 2012: ch.4).
[12] The panel data system GMM estimator was used to estimate informal growth regressions (Knight and Ding, 2012: ch.6).

to urban activities. In each case resources were transferred from a less- to a more-productive sector. These structural changes were in turn added as explanatory variables to the baseline cross-province panel equation. All three contributed substantially to the growth of the economy.

An understanding of this remarkable success requires an analysis not only of the 'proximate' determinants of economic growth outlined above but also of the 'underlying' determinants, which may be more important. At the start of economic reform, China was very poor, and income per capita was on a par with that in Sub-Saharan Africa at the time. Under central planning the economy had suffered from bad policies and lack of incentives for economic efficiency. When the economic reformers within the Chinese Communist Party acquired power in 1978, they recognised that the CCP was unpopular and had lost political legitimacy, which they tried to restore through rapid economic growth and rising living standards. They embarked on a reform programme that was efficiency-enhancing and interest-compatible.

The first decade was largely one of rural reform. The decollectivisation of the communes and restoration of household production provided incentives for effort and investment, and permitted an explosion of township, village and private enterprises that met demand that the urban state-owned enterprises had neglected. It was 'reform without losers'. The second decade involved several simultaneous urban reforms that overcame vested interests and created markets, developed a private sector and accepted a relative decline of the state sector. After China's entry to the WTO in 2001 there was a great expansion of export-led GDP. This made China more vulnerable to the global financial crisis and its aftermath, but economic growth was protected by an expansive monetary and fiscal policy.

It is arguable that throughout the reform period the authoritarian leadership has been most concerned with the need for 'social stability', and that the most important policy to maintain social stability, and so to keep the CCP in power, was to achieve rapid economic growth, and to place this objective above all others. As the political constraints on economic reform were overcome, China gradually became a 'developmental state' (Knight, 2014). We define a developmental state as one in which government accords the highest policy priority to economic growth and adopts institutional arrangements and

incentive structures which will promote that objective. In China political control is centralised but economic management is decentralised. This creates a classic principal-agent problem. Central government solves the principal-agent problem by creating incentives for officials at all levels of government to pursue its own economic objectives. These objectives have primarily been the achievement of rapid economic growth.

There have been three forms of incentives: the system of state appointments, local fiscal powers for revenue retention, and powers of patronage. There are promotion and demotion arrangements at every level of government, which determine every state official's career path. Each level of government controls personnel at the level immediately below. Evaluation has been based on performance in achieving state objectives and targets, in particular economic growth in the relevant jurisdiction. These performance criteria convert many bureaucrats into entrepreneurs. There is evidence, surveyed in Knight (2014: 1339-40), that the personnel incentive system is effective. The decentralisation of fiscal responsibility and power means that local economic development benefits local revenue and thus local government expenditure. A web of patronage enables officials to get the loyalty and support of subordinates. Patronage extends beyond the state sector because private businesses have to maintain good relationships with government and party officials. The power of patronage stems from hierarchical control – the right to grant permissions and refusals – over much of the economy.

The evidence highlights the great importance of huge capital accumulation for China's rapid economic growth. The GFCF/GDP ratio was as high as 30% in the early years of reform, rising to 40% in recent years (Knight and Ding, 2012: fig. 6.1). How and why was investment so high? Such an investment rate would have been unsustainable without a matching saving rate. There are several evidence-based explanations (surveyed in Knight and Ding, 2012: 160-5) of the very high saving, one of which is the difficulty of households and private businesses to obtain credit. The rate of return on capital was initially high and rose over time, assisted by rapid total factor productivity growth and abundant cheap, disciplined labour. Entrepreneurial expectations of rapid growth were important for high investment. The developmental state was crucial. Bureaucrats were rewarded for promoting investment and private business could take investment decisions confident that growth policies would be pursued. The Chinese economy has been in a

virtuous circle with sustaining feedback effects. High investment contributed to rapid economic growth, and rapid growth then produced buoyant expectations which in turn elicited high investment.

China's economic growth rate has begun to slow down, being 6.1% in 2019. This reflects the movement towards full employment of labour and other resources. It has become increasingly important to improve the efficiency of resource use. However, higher education enrolments were increased almost six-fold between 1998 and 2008 (Knight et al., 2017). This expansion and also public support for R&D, patenting and innovation might delay the deceleration of growth that is predicted on the basis of international experience. The growth rate might suffer from a negative shock, for instance, a financial crash resulting from its immature financial system or a loss of investor confidence owing to social instability. Rapid economic growth has produced serious societal costs (Knight, 2016). China's economic governance institutions can generate corruption and rent-seeking. According to the *World Governance Report* (World Bank, 2018d), in 2018 among more than 200 countries China was in the 8th percentile (from the bottom) on 'voice and accountability' (South Africa was in the 69th), and China was in the 46th percentile on 'control of corruption' (South Africa ranked surprisingly high: 57th albeit falling). China's remarkable growth rate up to now cannot be extrapolated into the future with confidence. However, with the labour force now shrinking, the economy is unlikely to revert to the first stage of the Lewis model.

7. Conclusions

The Lewis model is a helpful framework for analysing labour market trends in both South Africa and China. However, it requires modification: in neither country does the evidence correspond well to the theoretical model. In neither does the relative price mechanism that is hypothesised in the model operate: changes in agricultural prices have been determined more by reduced government price interventions and by trade liberalisation. In both countries we find powerful urban bias in economic policies and formal sector wages well above the market-clearing level. Their labour markets are characterised by segmentation and inflexibility.

Underlying the differences in their recent labour market performance is the disparity in the growth rates of the South African and Chinese economies. South Africa's relatively slow growth since the advent of democracy is associated with its having a relatively mature economy, with resources other than unskilled labour being fully employed, and low investor confidence – on account, perhaps, of the social instability and crime that stem from high unemployment and concern about the spread of corruption and the extent of social protection. Its comparative advantage in natural-resource-intensive activities such as gold, diamonds and minerals has not provided scope for the rapid expansion of exports. There is a danger that low business confidence and inadequate investment make things worse in the labour market, which by various processes of cumulative causation feeds through into self-fulfilling pessimism about the economy.

China's rapid economic growth is the result of a combination of many factors. These include the continued elimination of inefficiency that had been associated with central planning, the employment of previously underemployed resources including labour, the opening up of the economy to trade so as to exploit China's comparative advantage in unskilled-labour-intensive activities, huge infrastructure investment, and the investor confidence - promoted by the developmental state policies - which is self-reinforcing while the virtuous circle of growth continues.

In both countries formal sector workers are well protected against competition from rural people and the unemployed. In China, however, the slow growth of the labour force, in particular the urban-born labour force, has provided great scope for rural people to be absorbed productively into the urban economy. The second decade of the twenty-first century was the period in which shortages of unskilled labour have become more general and the Lewis turning point – really a turning stage - has been more widely experienced. If past trends can be extrapolated, the Chinese economy will henceforth occupy the second stage of the Lewis model.

South Africa presents a contrasting picture. The rapid growth of the labour force in relation to the slow growth of formal sector employment means that the growing residual labour force has gone into low-income self-employment activities or into unemployment. Much of the rural-urban migration has not led to productive absorption into the urban economy. There are some good reasons for optimism about the South African economy

relative to other economies at a similar stage of development. These include competent macroeconomic policymaking, a strong entrepreneurial class, sound infrastructure, and buoyant long term prospects for world mineral markets. However, South Africa's dismal labour market trends, with their implication of rising numbers in poverty, pose a threat to the success of the economy as a whole. They are South Africa's Achilles' Heel.

In the matters covered by this paper it is more likely that South African policy makers can learn from China's experience than the other way round. The analysis highlights the overwhelming need for policy makers to concentrate on policies to accelerate South Africa's rate of economic growth and for the powerful to avoid conduct that has the potential to retard it. Government must find a combination of policies that will secure an escape from the vicious circle that currently besets the economy.

Evidence from two sources indicates that China's inequality of household income per capita has fallen in recent years. The Gini coefficient has closely followed the urban/rural ratio of household income per capita. The recent decline in that ratio is at least partly due to a sharp rise in rural incomes and in the supply price of rural-urban migrant labour (Table 6; Knight, 2017: fig. 1). There is no equivalent evidence of improvement for South Africa: the Gini coefficient actually rose by 2 percentage points between 1996 and 2015 (World Bank, 2018a: v). Rather, the Gini has remained exceptionally high by international standards – being no less than 0.63 in 2015 - kept up at least partly by the extent of surplus labour and the poverty that accompanies it. Given that market forces will not reduce inequality from below, there is a need to provide or facilitate more resources – land, infrastructure, improved education, training, and loans – for surplus labour households in poverty.

Application of the Lewis model gets to the heart of the development process. It is an enlightening part of the tale of economic change in these countries. However, it is by no means the whole tale. The socioeconomic transformation that accompanied headlong economic growth brought with it a serious societal cost in China (Knight and Gunatilaka, 2011, Knight, 2014, 2016). Political transformation secured democracy, human rights and a less unfair society in South Africa. Falling unemployment, in both open and disguised form, and rising income are not the only determinants of people's well-being.

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Table 1. Trends in the South African labour market, 1995-2003

	1995	2003	Change 1995-2003	
			000s	% p.a.
Adult population 15-65	24232	29917	5685	2.7
Labour force, broad	13667	19954	6287	4.8
Labour force, narrow	11628	16192	4564	4.2
Non-searchers	1999	3762	1763	8.2
Labour force participation rate (%)				
broad	56	67	11	
male	66	71	5	
female	48	63	15	
non-searchers	15	19	4	
narrow	48	54	8	
Wage employment	8231	9509	1278	1.8
Self-employment	1421	2111	690	5.1
Unemployment, broad	4015	8332	4317	9.6
Unemployment, narrow	1976	4570	2584	11.0
Unemployment rate (%)				
broad	29	42	13	
narrow	17	28	11	
Non-searchers as % of broad unemployed	50	45	-5	
Real earnings in wage employment	3191	2805	-386	-1.6
Real earnings in self-employment	6866	2610	-4256	-11.4

Source: Kingdon and Knight (2009: tables 11.1, 11.2, 11.3. 11.5).

Notes: 1995 data are derived from the OHS survey and 2003 data from the LFS survey. Real earnings are expressed in prices of 2000.

Table 2 Trends in the South African labour market, 2003-2007

	2003	2007	Change 2003-2007	
			000s	% p.a.
Adult population 15-65	28038	30413	1475	1.3
Labour force, broad	19631	20603	972	1.2
Labour force, narrow	15858	17178	1320	2.0
Labour force participation rate (%)				
broad	68	68	0	
non-searchers	13.5	11.3	-2.2	
narrow	57	57	0	
Total employment	11424	13234	1810	3.7
Unemployment, broad	8208	7370	-838	-2.7
Unemployment, narrow	4434	3945	-489	-2.9
Unemployment rate (%)				
broad	42	36	- 6	
narrow	28	23	-5	
Non-searchers as % of broad unemployed	46	46	0	
Real earnings in formal employment	2865	3349	484	4.0
Real earnings in informal self-employment	1052	1140	88	2.0

Source: Kingdon and Knight (2009: table 11.8).

Notes: The 2003 and the 2007 data are from the September issues of the LFS. Real earnings are expressed in the prices of 2000.

Table 3 Trends in the South African labour market, 2008-2019

	2008	2019	Change 2008-2019	
			000s	% p.a.
Adult population, 15-64	30801	38433	7632	2.0
Labour force, broad	18848	25717	6869	2.9
Labour force, narrow	17777	22968	5191	1.8
Non-searchers	1071	2749	1678	8.9
Labour force participation rate (%)				
broad	61.2	66.9	5.7	
non-searchers	3.5	7.2	3.7	
narrow	57,7	59.8	2.1	
Total employment	13655	16313	2658	1.6
formal	9439	11172	1733	1.5
informal	4216	5141	925	1.8
Average real earnings in formal sector	9142	12179	3037	2.6
Unemployment, broad	5193	9404	4211	5.5
Unemployment, narrow	4122	6655	2533	4.5
Unemployment rate (%)				
broad	27.6	36.6	9.0	
narrow	23.2	29.0	5.8	
Non-searchers, % of broad unemployed	21	29	8	
Long-term as % of narrow unemployed	57	69	12	

Source: Quarterly Labour Force Surveys, 2008 Q3 and 2019 Q2. Formal sector average real earnings (at 2008 prices) are derived from Quarterly Employment Statistics.

Notes: real earnings are expressed in 2008 prices.

Table 4 Trends in the Chinese labour market, 1980-2017

	1980		2017		Change 1980-2017	
	Million	%	Million	%	Million	% p.a.
Labour force	429.0	100.0	806.9	100.0	377.9	1.7
Urban labour force	110.6	25.8	434.3	53.8	323.9	10.4
Unemployed	5.4	1.3	9.7	1.2	4.3	1.6
Employed	105.2	24.5	424.6	52.6	319.4	3.7
SOEs and collectives	104.5	24.3	64.7	8.0	-39.8	-1.3
Other employed	0.7	0.2	359.9	44.6	359.2	17.8
Rural labour force	318.4	74.2	372.5	46.2	54.1	0.4
Enterprise employment	30.0	7.0	114.3	14.2	111.3	3.6
Household workers	288.4	67.2	258,2	32.0	-30.2	-0.3
Employment	423.6	98.7	797.1	98.8	373.5	1.7

Source: Knight and Song (2005), table 2.2; *China Statistical Yearbook 2018*, table 4.1.

Table 5 Chinese trends in urban employment, urban-born labour force, rural-urban migration, and rural-resident labour force

	1990	1995	2000	2005	2010	2015	2020
Urban employment	170	190	232	273	346	404	459
Urban-born labour force	128	136	143	148	151	147	139
Rural-urban migrants:							
As residual	42	54	89	125	195	257	320
As % of urban employment	25	28	38	46	56	64	70
As % of rural-born labour force	8	10	15	20	31	41	51
Rural-born labour force	519	544	578	610	663	666	654
Rural-resident labour force	477	490	489	485	468	409	334
Rural-urban migrants:							
Directly measured	n.a.	67	113	126	242	277	294

Source: Knight and Song (2005), figure 10.1; Knight et al. (2011), table 10; *China Statistical Yearbook*, various issues; NBS, Monitoring Survey Report on Off-farm Workers, annual (in Chinese).

Notes: The figure for directly measured rural-urban migrants in 2020 (294 million) is extrapolated from 2018 (286 million).

Table 6 Chinese Rural-Urban Migrant Average Real Wage per Month, Urban and Rural Household Real Income per Capita per Annum and their Ratio, Household Income per Capita Gini Coefficient, 2000-2018

	2000	2002	2005	2007	2010	2013	2015	2018
Migrant real wage p.c.:								
Yuan per month	749	776	986	1143	1690	2253	2669	3053
Annual percentage change		1.8	8.3	5.1	13.9	11.7	6.5	4.6
Urban real income p.c.:	7585	9337	12019	14785	19109	23866	26415	32199
Annual percentage change		11.0	8.8	10.9	8.9	7.7	5.2	6.8
Rural real income p.c.:	2910	3178	3834	4559	5919	8464	9941	12078
Annual percentage change		4.5	6.4	9.0	9.1	12.7	8.4	6.7
Urban/rural income p.c.:	2.61	2.94	3.14	3.24	3.23	2.82	2.66	2.66
National Gini coefficient	0.438	0.450	0.485	0.484	0.481	0.473	0.462	0.471

Sources: *China Statistical Yearbook*, various issues; NBS (online).

Notes: The migrant real wage is calculated using the urban consumer price index, and is shown at 2010 constant prices. The urban and rural real income per capita are calculated using the urban and rural consumer price indexes respectively, and are shown at 2010 constant prices.