ERASMUS UNIVERSITY ROTTERDAM

ERASMUS SCHOOL OF ECONOMICS

MSc Economics & Business

ABUNDANT LABOUR AND INCOME INEQUALITY:
CASE STUDIES OF CHINA AND INDIA

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Exam number: 199731

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Date: January 2011

Abstract

This thesis studies populous countries as China and India which have had very high GDP growth rates in the last two decades but are confronted with very large populations that have to be economically activated. Moreover, in these countries there is a growing trade-off between economic growth and income inequality. We use China and India as case studies and first examine the extent of inequality in these countries. Thereafter, as the remedy against growing inequality, we focus on absorption of the pool of surplus labour in agriculture by expansion of the rural non-farm sector. Declining employment elasticities show that absorption by the urban, modern sector is not feasible. Emphasis lies therefore on the dualism that characterize the economic system of large labour-abundant developing countries: the coexistence of a large modern firm-led sector and a large traditional household sector, which differ heavily in mode of production and income generation. Agents of one setting do not easily move to the other setting, due to certain barriers of which kinship- and village-based ties are most important. We analyze the typical features of rural China and India and present a growth model that shows the persistence of dualism in the coming decades: firm settings will not easily dominate the traditional household settings.

Keywords

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0. Introduction

0.1 The problem

Populous countries as China and India have had very high GDP growth rates in the last two decades, but they are confronted with very large populations that have to be economically activated. Similar circumstances would apply sooner or later to such populous countries as Indonesia, Pakistan, Bangladesh, and to a lesser degree to Nigeria, Ethiopia and Egypt.

The transformation of these countries from a traditional, agriculture-oriented economy towards a modern economy is releasing and will continue to release an enormous surplus of rural labour. Moreover, the demographic transition in developing regions continues to add new entrants to the labour force. Highly related to this is the development of income inequalities within the countries. There is a growth-inequality trade-off between the modern, flourishing, urban part of the economy and the traditional, poor, rural part. Since some decades ago there has been a gradual but significant reallocation of agricultural workers into non-farm activity, illustrated by the development of township and village enterprises in China and small-scale modern industry and services in India, providing local employment opportunities for rural people. Later on, however, this trend has slowed down, while at the same time the same trend occurred in the urban, modern sector: lower urban employment growth and increasing number of urban unemployed. The situation of less employment opportunities for a growing number of rural workers while still having much less-productive labour in the agricultural sector, is depressing the level of rural incomes and is widening the income gap between rural and urban regions and within rural regions. Rural non-farm activity, however, is widely seen as remaining the solution for the twin problems of poverty and slowing employment growth.

Focal points of this paper are the income inequalities and the absorption of labour by rural non-farm activity together with the *organization* of economic rural non-farm activity. To what extent has the non-farm sector absorbed surplus labour and what are its effects on poverty and the income inequalities within the countries? How would the growth-inequality trade-off develop in future? Growing inequality is a future source of social instability and a threat to sustained economic growth.

Heavy emphasis lies on the influences of the high incidence of surplus labour and the growth-inequality trade-off and the way the regions are organized. China and India are best suited as case studies, because these populous developing countries are characterized by large

urban and rural populations which have their own mode of production in their own traditional or non-traditional setting. Their population groups are both very large and go separately in welfare striving within the boundaries of one country. Absorption of rural labour surplus in urban regions and in commercial and state firms is thus limited.

The central question is: what are the effects of a large rural labour surplus in populous developing countries as China and India, causing rising income inequality, on the rise of rural non-farm activities and on the organization of rural economic activity?

0.2 Outline

Chapter 1 examines the development of poverty and income inequality. Chapter 2 and 3 consider the question: what has been the development of rural employment creation and rural non-farm activity in the last decades? It ends with the statement that the pace of job creation is slowing and that employment elasticities are approaching zero, while labour release will continue in the coming years.

That is what chapter 4 is about: development of rural labour release and rural labour absorption in coming years. Absorption depends on population growth, participation rate development and on labour demand. Labour demand is in turn dependent on national GDP growth and on the extent of employment-creating potential of the rural non-farm sector. We will calculate labour surplus in different growth scenarios with different employment elasticities.

There is a strong rise of rural non-farm sector necessary as to decrease income inequalities. In chapter 5 we deal with the way how the rural household economies of China and India is organized. We consider how the typical multipolar character has influence on and will be influenced by the ongoing rise of rural non-farm sector and the income inequalities and that a multi polarity will work out differently than one-polar economic systems of most other developing and developed countries. Chapter 6 concludes.

1 Poverty and inequality

Economic growth is expected to go side by side with improving living standards, especially growth percentages with double digits, like China have had in the last decade. However, income growth is one thing, income distribution is another. Often, economies in transition seem to undergo a growth-inequality trade-off. Simon Kuznets was one of the earlier economists who stated that economic development is accompanied by income inequality. Poverty in absolute numbers is declining, but the gap between rich and poor is widening. Continued skewed distribution is a potential source of social instability, also threatening the economy. Rural areas with still a large part of employment in agricultural sector are subject to low living standards. Especially large developing countries habit large rural and urban populations which have their structural characteristics and own production modes, hampering the urban-rural trickle-down of economic benefits to be spread equally and at a fast enough rate.

Highly correlated with the incidence of poverty is the extent of job creation. Despite increased migration to urban areas, there has always been much low-productive surplus labour in rural areas, which will normally be released out of agriculture, as production grows in the process of economic transition. Large countries as China, India, Pakistan, Indonesia and Bangladesh and Brazil have seen much agricultural labour shed into non-agricultural sectors in the last decades, but still have high numbers of surplus labour in rural areas. Together with demographic development this depresses improvement of living standards in rural areas, makes it easier to widen the gap between rich and poor. Key is employment creation in other sectors than agriculture, absorbing the labour surplus and the new entrants to labour force.

Case studies are China and India, representing a group of regions with huge urban and rural populations. In this chapter I measure the rate of poverty reductions in absolute terms. Thereafter we show the rise in income equality in both countries, especially between urban and rural areas. Lastly we will see the extent of job creation in past decades and its relationship with GDP growth.

1.1 Absolute poverty

Table 1 shows the GDP growth of China and India, a growth which is much faster than other regions in the world. China saw the well-known double-digit percent increase in some periods and India approached that levels, due to economic policy changes in begin of the eighties

(China) and mid-eighties (India). China reached in 2008 a share of 7,1% in world GDP (1990 1,6%) and India 2% (in 1990 1,5%) (World Development Indicators).

Table 1 China and India: average annual growth rate of GDP (%)

year	China	India
1965-1980	6.5	3.5
1980-1990	9.3	5.6
1990-2000	10.4	5.5
2000-2008	10.2	7.5
1980-2008	9.9	5.8
2005-2008	11.2	8.3

Source: author's calculations with data from World Bank (WDI)

The average annual GDP growth is 9% in the eighties, and around 10% from the nineties onwards, averaging 10% in the period 1980-2008 (table 1). In the same period India had also a high GDP growth, but always 3 to 4 percentage points lower than China. Growth of real GDP per capita from 1978 onwards is for China most years higher than for India (Figure 1). In general, the per capita real GDP growth of India shows more volatility.

Figure 1 China and India: real per capita GDP growth (%)
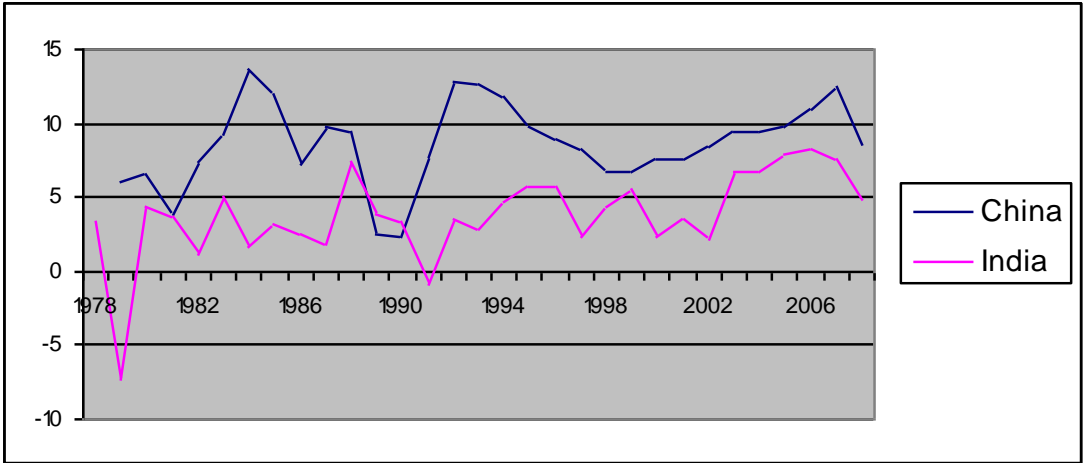
Source: author's calculations with data from National Bureau of Statistics (China) (various years) and Central Statistical Office (India)

GDP growth and the creation of millions of jobs per annum in both countries lifted many people out of poverty. For China we can see a great record in poverty reduction in absolute numbers.[1] World Bank defined extreme poverty to living on less than $1.25 per day in purchasing power parity terms. The proportion of people living on less than $1.25 per day

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[1] Khan (2004) shows that China's remarkable growth could have people thrown out of poverty much more than it did. "There have been periods of rapid growth when the incidence of poverty remained unchanged and overall poverty incidence continues to be higher than what it is in countries with comparable real income per capita." (Khan 2007).

is called the poverty headcount share (PHS) on $1.25 level. According to this generally accepted international poverty line, in 1981 a staggering 90% of China's rural population lived below the poverty line of $1.25 (PPP) per day, accounting for a number of 745 million persons (table 2). The decline of this proportion thereafter is enormous for China. In 2005 the rural $1.25 PHS was 26% of total rural population, accounting for a number of 'only' 198 million persons. In urban China poverty reduction according to the $1.25 line dropped from 45% from urban population (90 million persons) in 1981 to 1.7% (9 million persons) in 2005. On national scale the $1.25 PHS was around 16% in 2005, which means a poverty reduction of 6.7% per annum.

Poverty reduction measured by another widely used poverty line (proportion living on less than $2 PPP, expressing a 'less poor' level) is equally outstanding, but was of course less than measured by the $1.25 level. Table 2 shows an acceleration in poverty reduction from 1998 onwards. The poverty gap illustrates the depth of poverty. It is the average of the gaps between the living standard of people and the poverty line. Measured in this way, absolute poverty under the poverty line of $1.25 per day follows the development of the headcount index for both urban and rural regions.

Table 3 shows the same details of poverty reduction for India. The PHS was in 1978 69% of total rural population and steadily declined to 44% in 2005. In absolute terms, however, compared with China, its poverty reduction is disappointing. There was a small reduction from 346 million rural persons to 338 million persons, with even periods in which there was a rise. For urban India the PHS declined from 55% to 36% of urban population, resulting in a average annual decrease rate of 1.7%. However, the number of urban people living below the $1.25 poverty line had continually risen from 77 million in 1978 to 111 million persons in 2005. On national scale India this leads to a increase in the number of poor. There was less poverty reduction measured by the $2 PHS, whereby the number of poor also rose. The poverty gap of the $1.25 per day level has declined in India.

Differences between China and India in poverty reduction are outstanding as well. Compared with China, in 2005 the gap between both countries' rural PHS of $1.25 was 18 percentage points, while the difference with the $2 headcount share was 24 percentage points.

Table 2 China: headcount index and poverty gap in rural and urban regions 1981-2005

year	Rural					Urban				
	PHS -$1.25 PPP		PHS -$2 PPP		PG - $1.25	PHS -$1.25 PPP		PHS -$2 PPP		PG -$1.25
	%	mln	%	mln	%	%	Mln	%	mln	%
1981	94.1	745	99.4	788	46.9	44.5	90	91.6	185	9.3
1984	81.2	654	95.8	772	31.5	28.3	66	83.2	193	4.8
1985	84.2	681	96.5	781	34.6	-	-	-	-	-
1987	66.9	545	90.9	741	23.7	15.1	40	62.4	167	2.9
1990	74.1	610	93.1	767	26.6	23.4	73	62.6	195	5.1
1992	84.9	703	95.8	794	39.3	12.1	41	49.1	166	2.4
1993	70.4	583	92.5	765	23.9	14.3	50	46.3	162	2.9
1994	79.3	657	94.7	785	35.7	12.6	46	40.2	146	2.6
1995	74.7	618	92.2	762	31.9	9.0	34	35.0	132	1.8
1996	49.5	408	79.8	658	15.1	8.9	35	34.7	136	1.6
1997	66.6	549	90.3	743	26.5	8.4	34	32.7	133	1.7
1998	67.7	555	90.1	739	26.8	8.4	35	30.2	127	2.0
1999	50.9	415	79.6	649	16.3	7.1	31	28.1	123	1.4
2002	43.7	349	72.7	581	13.5	3.0	14	15.8	76	0.7
2005	26.1	198	55.8	424	6.5	1.7	9	9.5	52	0.5

Average annual change rate 1981-2005 on national scale (%) of										
PHS ($1.25 in 2005 ppp)	-6.7									
Number of poor living below $1.25 poverty line	-5.6									

Note: PHS (%) = Poverty Headcount Share: share of population living in households with consumption / income per person below the poverty lines; PG (%) = Poverty Gap Index.
Source: Author's calculations with data from PovcalNet, World Bank

Table 3 India: headcount index and poverty gap in rural and urban regions 1978-2005

year	Rural					Urban				
	PHS -$1.25 PPP		PHS -$2 PPP		PG - $1.25	PHS -$1.25 PPP		PHS -$2 PPP		PG - $1.25
	%	mln	%	mln	%	%	mln	%	mln	%
1978	69.0	346	90.9	455	24.5	54.8	77	82.6	117	18.6
1981	62.5	337	88.6	477	20.6	51.0	84	80.5	132	16.2
1983	57.8	323	86.8	485	18.1	48.3	84	78.9	138	14.6
1988	55.6	334	86.1	517	16.3	47.5	94	77.1	153	14.4
1990	53.9	341	85.6	542	15.3	43.5	94	74.3	161	12.6
1994	52.5	348	85.3	566	14.3	40.8	96	72.3	170	11.4
1996	38.8	269	83.5	580	10.8	49.4	126	70.2	179	13.0
1999	47.4	344	82.3	596	12.2	37.7	104	68.6	188	10.5
2002	46.4	350	81.6	615	11.7	37.5	111	67.8	200	10.6
2005	43.8	338	79.7	615	10.7	36.2	111	66.0	203	10.2

Average annual change rate 1981-2005 on national scale (%) of PHS ($1.25 in 2005 ppp)										
	-1.7									

Note: PHS(%) = Poverty Headcount Share; PG (%) = Poverty Gap Index.
Source: Author's calculations with data from PovcalNet, World Bank

Differences in consumption expenditures is another way of measuring poverty reduction. Following rising production growth, levels of consumption expenditures per capita have risen in India and China. Rural China had a rise of real per capita consumption of 585 yuan in 1990 to 1547 yuan in 2008, while urban China went from 1279 yuan in 1990 to 4429 yuan in 2008 (table 4). This gives high national average annual growth rates of per capita real consumption: 8.6% in the period 1990-2008 and 12.3% in 2004-2008. For rural India the level of real consumption expenditures per capita improved from 185 Rs at the end of the eighties to 196 Rs at the end of the nineties; for urban India these numbers are 250 Rs and 364 Rs, respectively. On national scale this resulted in an average annual growth rate of 1.8% in the period 1994-2008 and 3.2% in 2005-2008.

Table 4 China and India: per capita real consumption expenditures

	China			India			
	Urban	**Rural**	**National**	**Urban**	**Rural**	**National**	
year	yuan	yuan	yuan	Rs.	Rs.	Rs.	**year**
1990	1278.89	584.63	767.98	249.92	158.1	180.96	1987/88
1995	1828.07	742.42	1067.08	268.38	162.56	190.36	1993/94
2005	3504.91	1230.02	2412.33	326.8	181.56	223.10	2004/05
2006	3781.11	1341.77	2698.07	329.75	186.99	228.16	2005/06
2007	4159.37	1450.69	3091.81	345.39	192.03	236.69	2006/07
2008	4429.30	1546.91	3382.44	364.11	196.16	245.54	2007/08
Average annual growth (%)							
1990-2008	7.2	5.6	8.6	2.2	1.4	1.8	1993/94-2007/08
2000-2008	8.4	7.3	11.2	3.7	2.6	3.2	2004/05-2007/08
2004-2008	8.3	9.5	12.3				

Note: China in constant 1990 prices; India in constant 1978-88 prices
Note: China's consumption expenditures are on annual basis; India's consumption expenditures on monthly basis.
Source: author's calculations with data from NBS 2009 (various years) and NSSO (various rounds)

China's achievement in reduction of absolute poverty is reflected by the high average growth rates of per consumption expenditures. Similar conclusions can be made for India: levels of absolute poverty remained high while expenditures on consumption had grown on average much less than in China.

1.2 Income distribution

Income growth is one thing, income distribution is another. Here is another aspect of economic well-being: *relative* poverty. Did economic growth widen the gap between poor and rich? How did inequality develop in China and India? Benefits coming from economic growth

do not reach all segments of population equally. We will have a look at spatial inequality (interprovince, interstate) and rural-urban inequality.

The most used income inequality measure is the Gini index. The Gini index shows the concentration of per capita income or consumption (value of 0 means total equality, 1 means total inequality). The rise of income inequality has been high for China. In 1977 the Gini was 22, in 2004 it has risen to 47. In India economic growth also led to a greater concentration of income, but the rise is much lower than China's. Its development path even saw a lower Gini in 1990 than begin-eighties, while at that moment China's Gini had already increased from 22 to 39. The trade-off between economic growth and income inequality is confirmed by this data: a high GDP growth and a strongly risen Gini for China and a less high growth of GDP and a modest development of the Gini for India.[2]

Table 5 China and India: Gini index

year	India	China	year
1977	32.14	22.4	1985
1983	31.49	34.1	1991
1986	32.22	29.0	1995
1990	29.69	39.0	2000
1999	36.0	44.9	2003
2004	36.80	46.9	2004

Note: Gini of India by consumption; Gini of China by disposable income
Source: India: World Bank (India Database & World Development Indicators 2007); for 1999 Deininger & Squire, World Bank 2004. China: Chotikapanich et al (2005); for 2004 World Bank, World Development Indicators 2007

If we measure inequality by the gap of consumption expenditures between rural and urban regions, we see for China an urban-rural real consumption expenditure ratio that has since 1990 always been 2 or higher (figures 2 and 4). This urban-rural ratio is lower for India and has since 1990 always been between 1.5 and 2. This reflects a rather strongly skewed distribution in living standards between urban and rural areas. The development path of the urban-rural ratio of consumption expenditures is interesting. In India the urban-rural consumption ratio rose from 1.65 in 1993 to 1.86 (figure 3), in China the values are 2.19 in 1990 and 2.86 in 2008. This is in line with the average annual growth rates stated in table 4: from begin nineties onwards China's urban consumption expenditures grew on average faster than rural, although from 2004 to 2008 in China the reverse occurred.

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[2] India's Gini is based on consumption expenditures which is likely to be lower than Gini based on incomes. The inequality of India may well be higher than stated here.

This also shows the rather huge differences between the urban-rural disparities of the two countries in favour of India: while having a much lower urban-rural expenditure ratio than China, India also had a lower growth of the ratio.

Figure 2 China: annual per real capita consumption expenditures (yuan, constant prices)
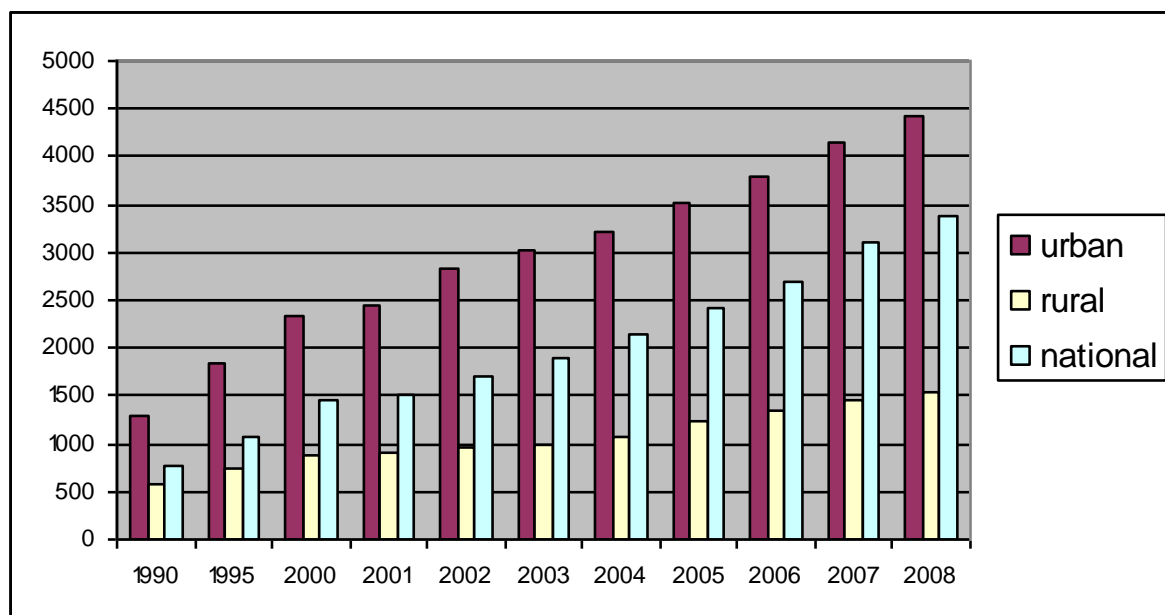
Source: author's calculations with data from NBS (various years)

Figure 3 India: monthly per capita real consumption expenditures (Rs, constant prices)
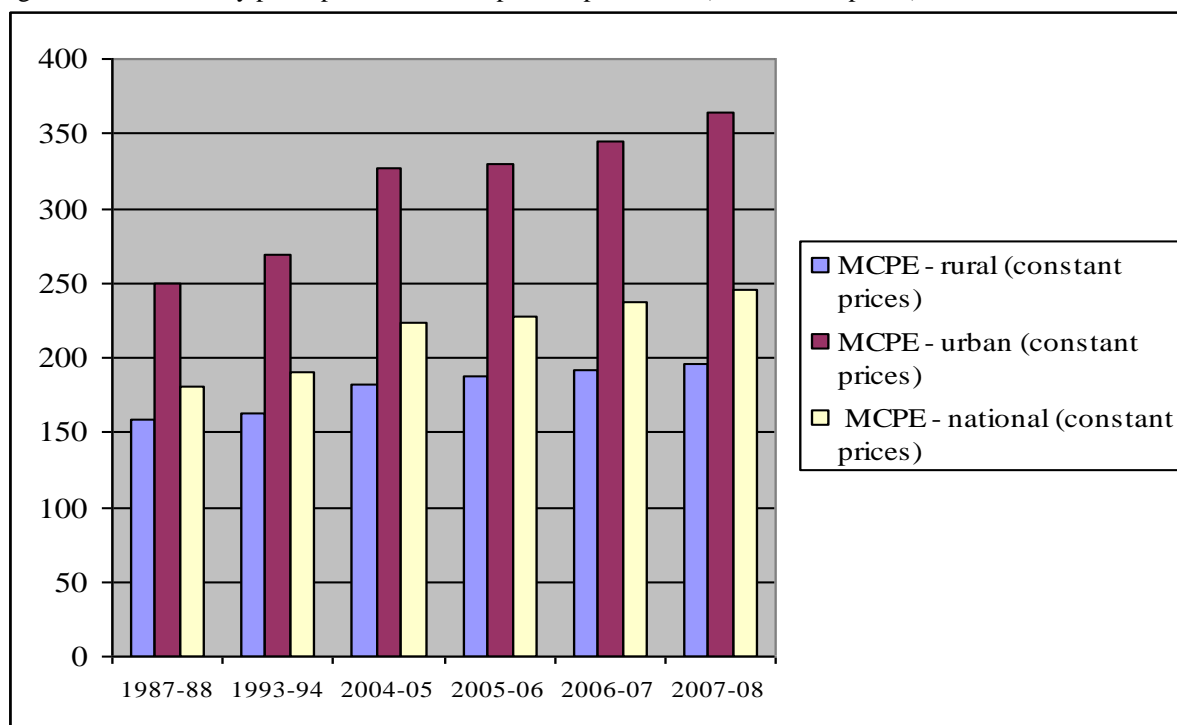
Source: author's calculations with data from NSSO (various rounds)

Figure 4: Real per capita consumption expenditures of China and India
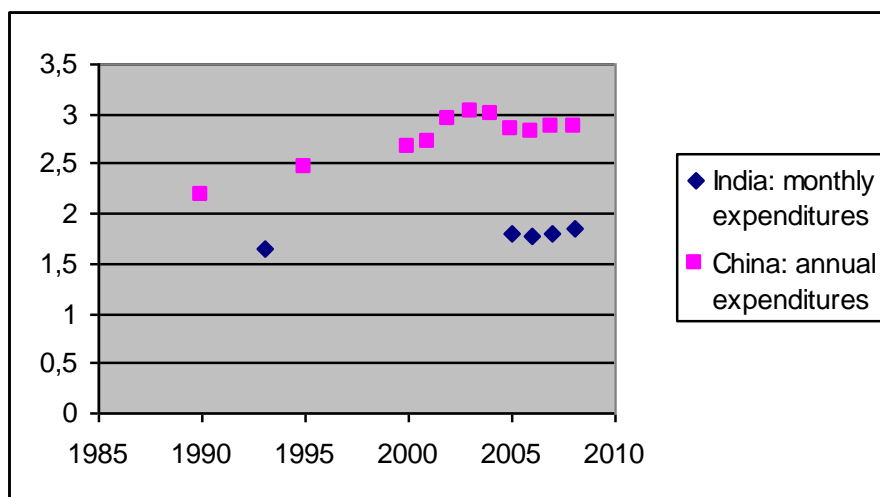
Source: author's calculations with data from NBS (various years) and NSSO (various rounds)

1.3 Interstate/-province inequality

With respect to income concentration, the same results appear when we compare different groups of provinces or states. Table 6 shows rural per capita net income in current prices for five of the richest provinces and five of the poorest provinces in China; the last row shows the richest-poorest ratio. We conclude that GDP growth was accompanied by a very skewed income redistribution between the richest and poorest provinces or states, and that this inequality was growing: in 1990 the ratio is 2.4 and from that year onwards the ratio has always been above that value, reaching a height of 3.2 in 2006. Dividing all provinces in central, (north)eastern and central regions, the gap is likewise visible (table 7): there is twice as much net income for eastern regions than for western regions.

Table 6 China: per capita net income of rural households of richest and poorest provinces (yuan)

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008
Five of richest provinces	6332	15299	21672	23211	24821	26450	28954	33110	36790	41420	46627
Five of poorest provinces	2650	5144	7390	7722	8221	8835	9641	10532	11465	13204	15187
Ratio (row 2 / row 3)	2.39	2.97	2.93	3.01	3.02	2.99	3.00	3.14	3.21	3.14	3.07

Note: richest provinces are Beijing, Tianjin, Shanghai, Jiangsu and Zhejiang; poorest provinces are Guizhou, Yunnan, Gansu, Qinghai and Xinjiang.
Source: own calculations; data from NBS (various years)

Table 7 China: per capita annual net income of rural households in Eastern and Western regions

	Eastern Region	Western Region	Col. 2 / col. 3
2005	6598.24	3517.75	1.88
2006	5854.98	3028.38	1.93
2007	5188.23	2588.37	2.00
2008	4720.28	2378.91	1.98

Source: NBS (various years)

In judging interstate inequality in India we make use of per capita consumption expenditures per state. In table 8 are details about monthly per capita consumption expenditures (MCPE) for major states. They are sorted in ascending order by urban-rural ratio. At one extreme are states as Punjab and Kerala which have rural MCPE that is 65-79% higher than rural average. At the other extreme are the states Odissa, Jharkhand and Chhattisgarh, which have a rural MCPE that is 23-28% lower than rural average. The urban case is somewhat less divergent. with extremes at 32% higher than average (Kerala) and around 25% lower than urban average (Uttar Pradesh, Bihar). There is also differentiation in urban-rural MCPE ratio between states, ranging from 1.28 (Prunjab) to 2.58 (Chhattisgarh).

Table 8 India: average rural and urban monthly per capita consumption expenditures in 2007-08 in major states

	rural		urban		
		Deviation from all-India rural average		Deviation from all-India urban average	urban-rural
State	Rs.	(%)	Rs.	(%)	ratio
Punjab	1273	64.90	1633	10.94	1.28
Kerala	1383	79.15	1948	32.34	1.41
Haryana	1034	33.94	1628	10.60	1.57
Rajasthan	801	3.76	1265	-14.06	1.58
Uttar Pradesh	680	-11.92	1121	-23.85	1.65
Gujarat	875	13.34	1471	-0.07	1.68
Tamil Nadu	834	8.03	1410	-4.21	1.69
Bihar	598	-22.54	1080	-26.63	1.81
Assam	799	3.50	1452	-1.36	1.82
Madhya Pradesh	634	-17.88	1190	-19.16	1.88
Andhra Pradesh	816	5.70	1550	5.30	1.90
Maharashtra	868	12.44	1709	16.10	1.97
Karnataka	819	6.09	1668	13.32	2.04
West Bengal	702	-9.07	1452	-1.36	2.07
Jharkhand	592	-23.32	1395	-5.23	2.36
Odissa	559	-27.59	1438	-2.31	2.57
Chhattisgarh	582	-24.61	1503	2.11	2.58
all-India: 2007-08	**772**		**1472**		

Note: MCPE is in current prices; cost of living is higher in urban sector, thus urban-rural gap will be narrower than stated. Source: author's calculations with data from NSSO, Household Consumer Expenditure in India 2007-08, 64th round

In figures 5 and 6 and table 8 are details about Gini indices of China and India, separately for rural and urban regions. For China we see a steadily rising trend. Both Gini's kept rising after 1981: from a value of 25 in 1981 to 36 in 2005 for rural China. The Gini for urban regions in China rose even faster: from 18 to 35.

Table 9 China and India: urban and rural Gini indices

year	China		India		year
	rural	urban	rural	urban	
			34.20	35.74	1978
1981	24.73	18.46	31.57	34.21	1981
1984	26.69	17.79	30.06	33.33	1983
1985	27.12	-			
1987	29.45	20.20	30.13	35.57	1988
1990	30.57	25.59	29.49	35.06	1990
1992	32.03	24.17			
1993	32.13	28.47			
1994	34.00	29.22	28.59	34.34	1994
1995	33.98	28.27			
1996	33.62	29.09	35.08	29.02	1996
1997	33.12	29.35			
1998	33.07	29.94			
1999	35.39	31.55	29.52	35.96	2001
2002	38.02	33.46	30.04	36.85	2004
2005	35.85	34.80	30.46	37.59	2005

Source: Author's calculations with data from PovcalNet, World Bank

Quite unlike China, India´s rural Gini indices remain relatively stable: 34 in 1981 for rural areas and 36 for urban areas, while in 2005 these values stood at 30 and 38, respectively. Before the 1990s India had higher intra-rural inequality than China, but after 1990 the reverse occurred. However, it is important to add that India's Gini is measured in terms of consumption expenditures, while China's is in terms of income. The high rural population and the high number of rural workers in India give reason to consider India's intra-rural inequality higher than stated above.

Figure 5 China: urban and rural Gini indices
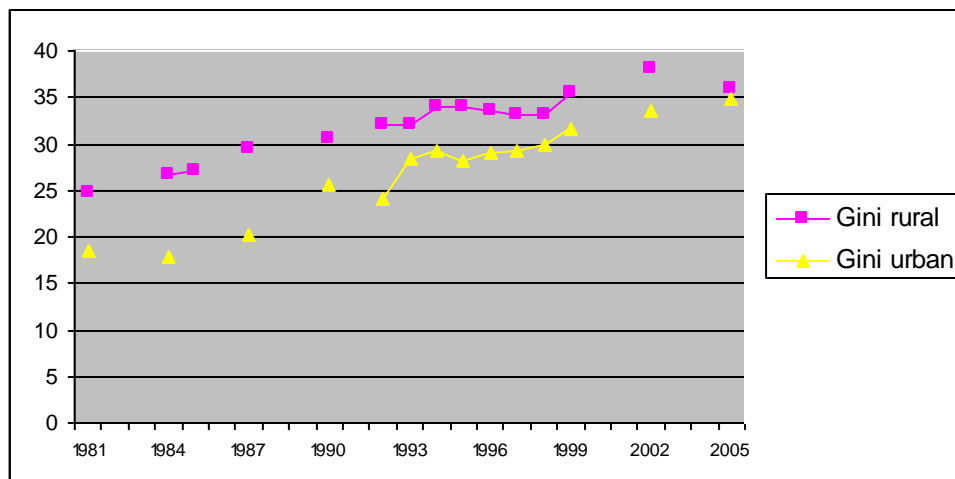
Source: Author's calculations with data from PovcalNet, World Bank

Figure 6 India: urban and rural Gini indices
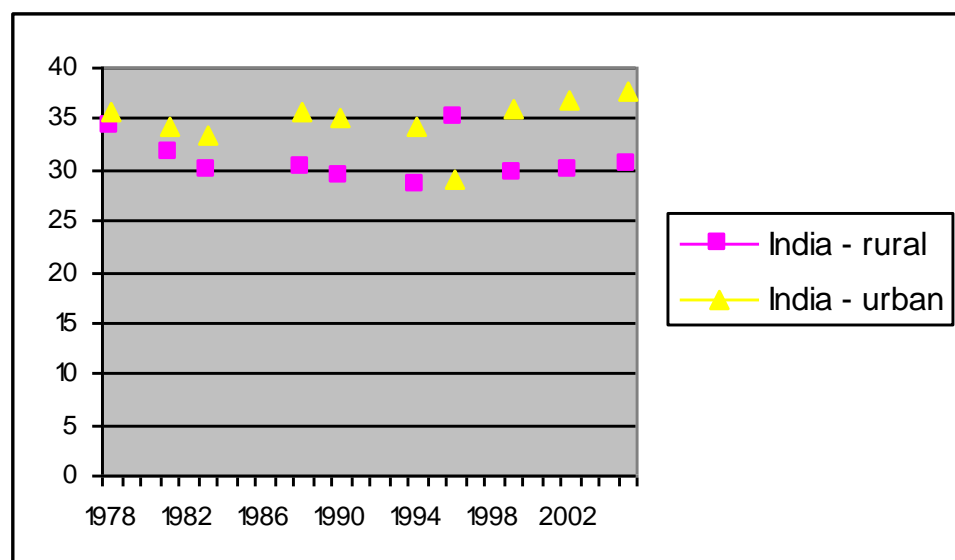
Source: Author's calculations with data from PovcalNet, World Bank

1.4 Conclusions

For both countries PHS declined. For China the number of poor decreased as well, but India faced increasing numbers of poor. Both China and India have had a high economic growth that was accompanied by rising inequality, measured by the Gini index and by the gap between rural and urban in consumption expenditures. Compared with China, however, India had a modest increase in Gini, while the urban-rural gap and interprovincial/state inequality is also much less.

2 Employment creation

Important with respect to the central question of this thesis is the development in employment creation power and the extent of success of the rural non-farm sector. In addition, we investigate whether the pace of job creation has slowed in China and India in recent years. This chapter examines macro-economic details at national scale, chapter 3 will bring out in picture the performance of the non-farm rural sector.

Interesting to see in the poverty reduction case is which sector has contributed most to the national GDP and how its share in GDP has developed. That is not the only thing: employment development in the different sectors matters as well. How much employment did production growth generate? Widely recognized is that the nature and extent of employment creation in periods of economic growth has a large impact on poverty. This chapter shows

- aspects of GDP growth and national employment growth, both at sectoral level.
- the development of national labour force and how it has been absorbed by urban and rural economies.
- the job-creating power the three sectors have had.
- how the rural non-farm sectors had developed with respect to income earned and jobs created.

2.1 GDP and employment growth per sector

Table 10 shows growth details of the three main sectors of China and India. In 1990-2008 agricultural production was for both countries less than the averages of 4.8% and 3% for China and India, respectively, in the period 1980-2008. For India average growth rates are highest for the services sector. For China the industry sector, with the highest initial level in 1978, has contributed most to national GDP.

Table 10 China and India: average annual growth rate of real GDP (%)

year	National		Agriculture		Industry		Services	
	China	India	China	India	China	India	China	India
1965-1980	6.5	3.5	2.4	2.7	9.8	4.0	13.0	4.3
1980-1990	9.3	5.6	6.2	3.4	9.5	6.2	12.2	6.6
1990-2000	10.4	5.5	3.8	2.7	13.5	5.5	10.9	7.3
2000-2008	10.2	7.5	4.2	3.0	11.3	7.5	10.7	9.3
1980-2008	9.9	5.8	4.8	3.0	11.5	6.1	11.3	7.4
2005-2008	11.2	8.3	4.7	3.5	12.3	7.6	11.6	10.6

Source: author's calculations with data from NBS (various years) and WDI

Figures 7 and 8 show the GDP distribution of total GDP of China and India. Share of agriculture in total GDP has decreased from 35% to 17% for India from 1980 onwards; for China, these percentages went from 30% to 11% of national GDP. Industry in China had a growth average of 11.5 % in 1980-2008, India 6.1%. China's economy has always been characterized by a high distribution to national GDP of industry: 40% in 1970; in 2008 almost half of total production. However, there is no obvious overall trend in its share, though it is rising since the nineties. In contrast, India's share of industry rose from 20% to 39% in the period 1970 to 2008.

The opposite can be said the case for services. The share of total GDP of services in India grew from a level of 37% in 1970 to 54% in 2008, with an average annual growth per decade that was much higher than in the preceding decade: from 4.3% in the seventies to 9.3% in the last decade. Services in China contributed in 2008 40% of national GDP. India's case is unusual: while the shift from agriculture to industry is slower than other countries had experienced, the services sector increased at a fast rate.

Figure 7 India: GDP distribution per sector (%)
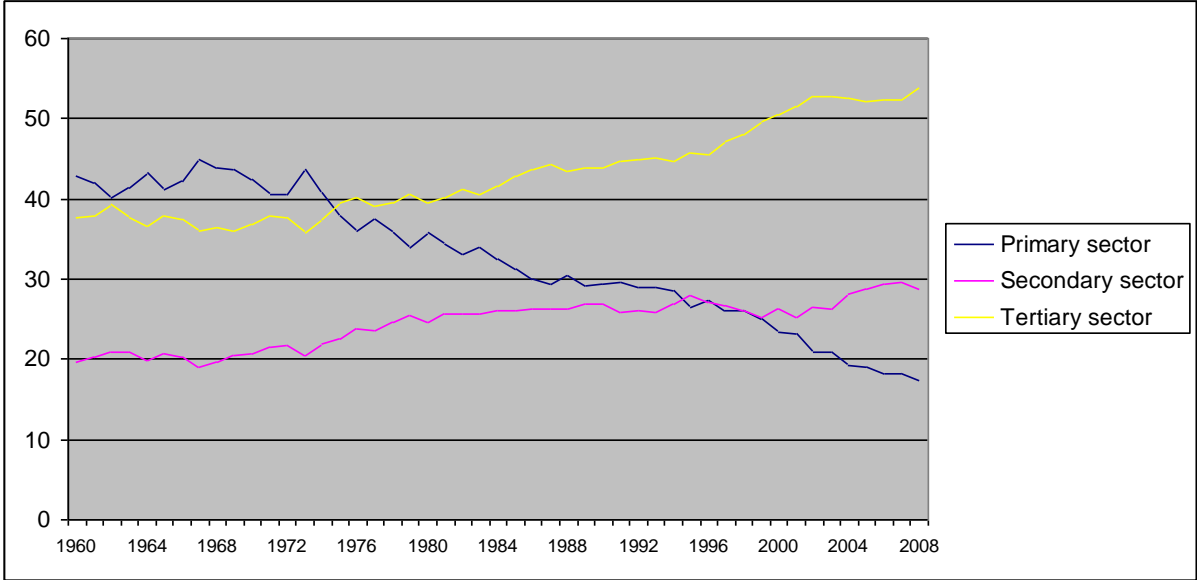
Source: calculations with data from World Bank (WDI)

Figure 8 China: GDP distribution per sector (%)
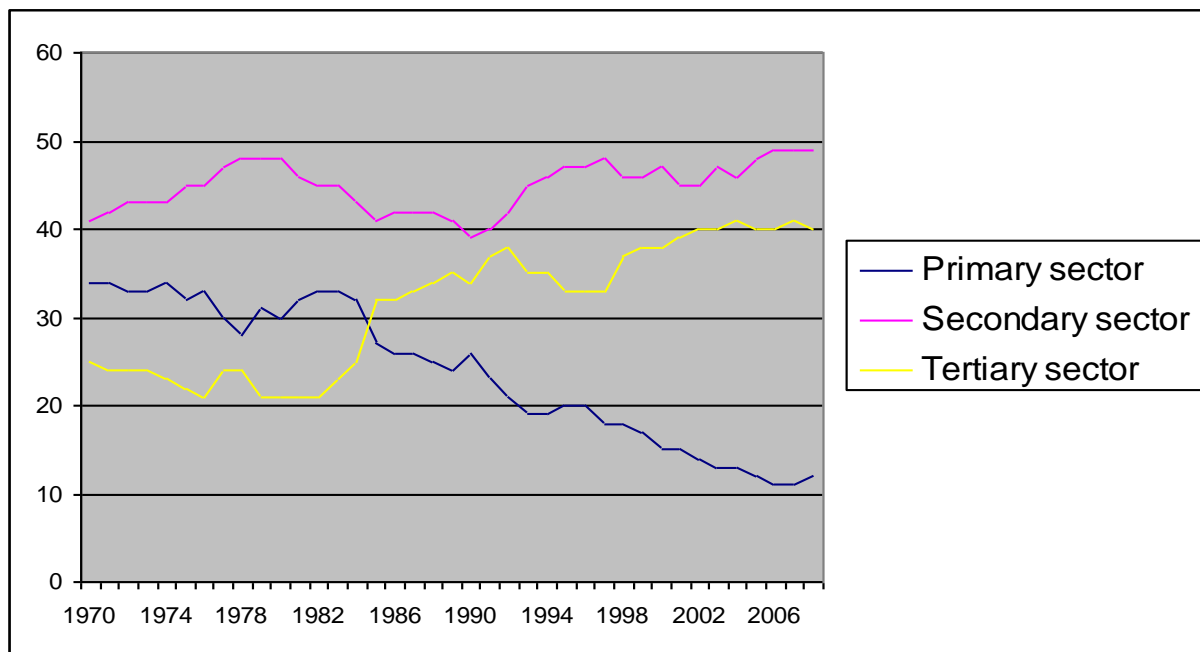
Source: calculations with data from World Bank (WDI)

Interesting in the light of this study's central question is the development of employment in the three sectors. Figures 9 and 10 show the distribution of employment of the three sectors of national employment. While the GDP share of agriculture in total GDP has roughly developed in the same way for both countries, its employment share in India has decreased at a much lower rate than in China, ending at a much higher level in 2008, 57% for India (40% for China).

Figure 9 India: employment distribution per sector (%)
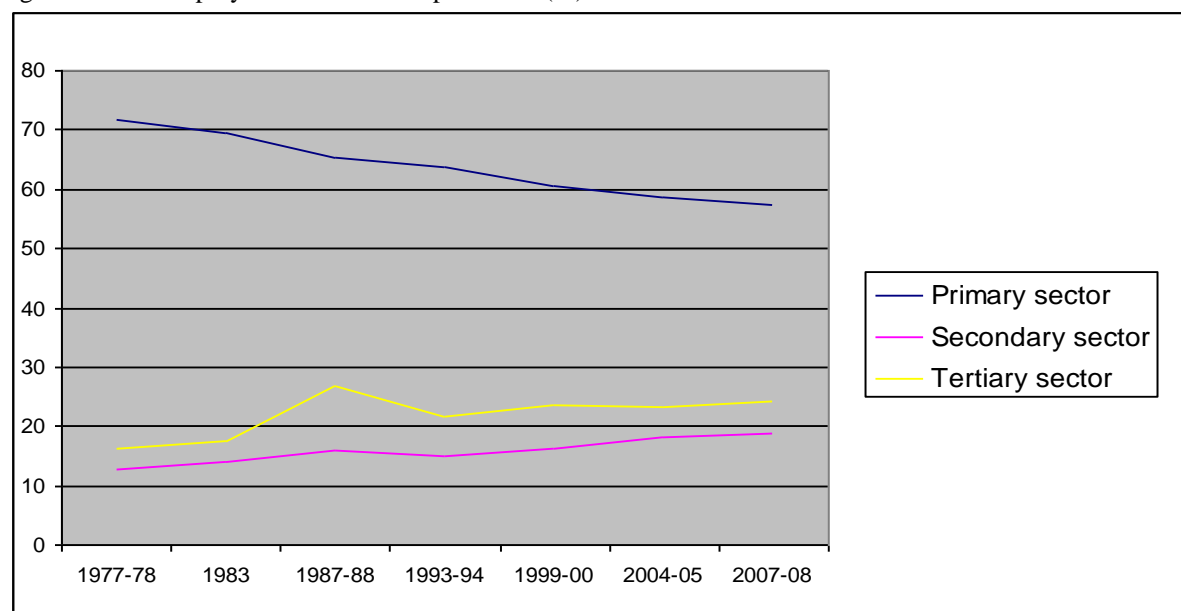
Source: calculations with data from NSSO (various survey rounds).

Figure 10 China: employment distribution per sector
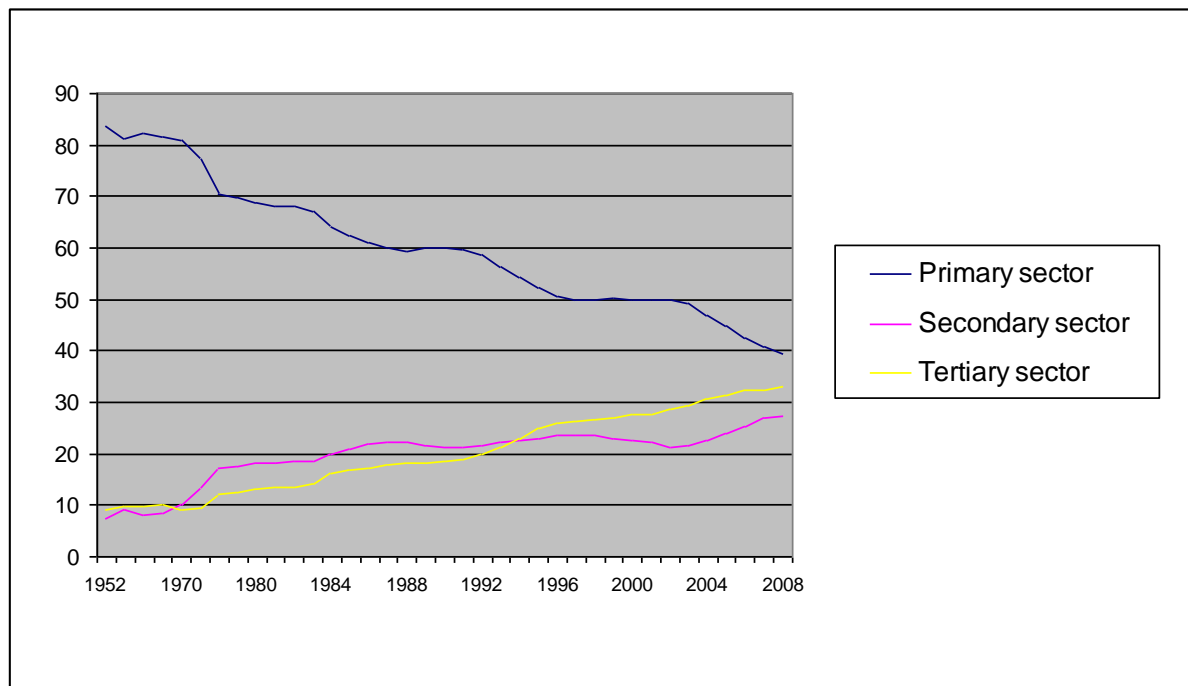
Source: author's calculations with data from NBS (China, various years)

The industry sector absorbed a higher percentage of employment in 1970-2008 in China: from 10% to 27% of total employment. India starting point was roughly the same, but its end point was 19% of national employment. Although India's GDP share of services was growing at a fast pace, this appeared throughout the whole period to be a rather jobless growth: the employment share of services grew from 16% to only 24% in the same period.

2.2 Rural and urban job creation

GDP growth is expected to go side by side with improving living standards. We have seen that poverty reductions in absolute terms have been significant, especially when measured by the poverty headcount share, and especially for China when measured by absolute number of poor living below the poverty line of $1.25 in purchasing power terms. We can look at the poverty case in another way, namely, by measuring the extent of job creation. The nature and extent of employment creation in periods of economic growth has a large impact on poverty. The incidence, growth and absorption of the labour surplus is important here.

What has been the extent of job creation so far? Table 11 shows details on labour force and employment and the rate of absorption by region. Total employment in China has increased with 73 million persons (per annum 7.3 mln) in 1990-2000 and with 54 million

persons (per annum 6.7 mln) in 2000-2008. For India, these numbers are for 1993-2000 19 million (per annum 2.7 mln) and for 2000-2008 58 million persons (per annum 8.2 mln).

Table 11 China: labour force and employment – magnitude and growth details

Millions	1980	1985	1989	1990	1995	2000	2005	2006	2007	2008
National labour force	429.0	501.1	557.1	653.2	688.6	739.9	778.8	782.4	786.5	792.4
Urban	110.7	130.5	147.7	176.2	198.3	250.6	293.8	301.5	310.1	319.7
Unemployed	5.4	2.4	3.8	5.7	7.9	19.1	20.5	18.4	16.6	17.6
Employed	105.3	128.1	143.9	170.4	190.4	231.5	273.3	283.1	293.5	302.1
Rural	318.4	370.7	409.4	477.1	490.3	489.3	484.9	480.9	476.4	472.7
National employment	423.6	498.7	553.3	647.5	680.7	720.9	758.3	764.0	769.9	774.8
Percentage										
National labour force	100	100	100	100	100	100	100	100	100	100
Urban	25.8	26.0	26.5	27.0	28.8	33.9	37.7	38.5	39.4	40.3
Unemployed	1.3	0.5	0.7	0.9	1.1	2.6	2.6	2.4	2.1	2.2
Employed	24.5	25.6	25.8	26.1	27.7	31.3	35.1	36.2	37.3	38.1
Rural	74.2	74.0	73.5	73.0	71.2	66.1	62.3	61.5	60.6	59.7
National employment	98.7	99.5	99.3	99.1	98.9	97.4	97.4	97.6	97.9	97.8

Note: there occurred a major revision in figures between 1989 and 1990, based on the 1990 population census
Note: unemployment derived by subtracting employment from labour force
Source: author's calculations with data from NBS (various years)

Table 12 China: change in the labour force (see table 11)

	Millions			Percentage of labour force			Annual average change (%)		
	1980-1989	1990-2000	2000-2008	1980-1989	1990-2000	2000-2008	1980-1989	1990-2000	2000-2008
National labour force	128.0	86.7	52.5	100.0	100.0	100.0	2.9	1.3	0.9
Urban		74.4	69.2	28.9	85.9	131.7	3.3	3.6	3.1
Unemployed		13.3	-1.4	-1.3	15.4	-2.7	-3.9	12.8	-1.0
Employed	38.7	61.1	70.6	30.2	70.5	134.4	3.5	3.1	3.4
Rural		12.3	-16.6	71.1	14.1	-31.7	2.8	0.3	-0.4
National employment	129.7	73.4	53.9	101.3	84.6	102.7	3.0	1.1	0.9

Note: there occurred a major revision in figures between 1989 and 1990, based on the 1990 population census
Note: unemployment derived by subtracting employment from labour force
Source: author's calculations with data from NBS (various years)

The second half of the table presents the change of labour force and how that change was absorbed in rural or urban regions, in millions of persons and in percentages. Later on, we will see how much has been absorbed by non-agricultural sector and how this sector contributed to poverty reduction. For now, it is sufficient to show that China's increase in labour force in persons (87 million in 1990-2000 and 53 million in 2000-08) has mainly been absorbed by urban regions. Rural regions absorbed 91 millions of people and 71% of China's labour force in the eighties, but they fell strongly back to 14 millions of persons and 14% of labour force in the nineties. Total rural labour force (employment) even declined with 17

million workers in 2000-08 with respect to the period 1990-2000. Driving force must has likely been the huge rural-urban migration flows. Indeed, the rate of urbanization has been high in China (see share of urban population). The table shows that in 1980 the share of urban labour was 26% of total labour force and that it increased to 40% in 2008.

However, unemployment in urban areas has increased from 0.2% of labour force in 1985 to 2.2% in 2008, reaching a level of 2.6% in 2000 and 2005, equivalent to 17-20 million unemployed persons.

With in mind the rising unemployment rate and the steadily decreasing rural employment from 1995 onwards, the high absorption of growing labour force in urban economy combined with the strong decrease in number of poor in China gives room for the conclusion that the high growth in the urban economy has had a rather strong role in poverty reduction.

In India the urban share of the labour force increased much less than in China, ending in 2008 on a level of 28% (table 13). The increase in total labour force in India was 21 million persons in 1993-2000 and an impressive 64 million in 2000-2008 and, unlike China, this increase was rather equally absorbed by urban and rural economies. Urban unemployment increased as in China from 0.5% of labour force in 1994 to 2.2% in 2008, accounting for 10.2 million unemployed persons.

Table 13 India: labour force and employment – millions and percentage

	1993/94	1999/00	2004/05	2007/08
Millions				
Labour force	383.0	404.1	465.0	467.7
Urban				
Unemployed	1.8	4.2	8.4	10.2
Employed	83.8	94.8	114.7	119.2
Rural employed	299.3	306.3	342.6	337.4
National employment	381.2	400.0	456.6	457.5
Percentage of total				
Labour force	100	100	100	100
Urban				
Unemployed	0.5	1.0	1.8	2.2
Employed	21.9	23.5	24.7	25.5
Rural employed	78.2	75.8	73.7	72.1
National employment	99.5	99.0	98.2	97.8

Note: unemployment derived by subtracting employment from labour force
Source: author's calculations of data from NSSO (various rounds)

In contrast to the period 2000-05 the number of employed persons in rural India has decreased in 2005-08, as in China, and increased only slightly on national scale, reflecting less employment opportunities.

Table 14 India: change in the labour force (see table 13)

	Millions			Percentage of labour force			Annual average change (%)	
	1993/94-1999/00	1999/00-2007/08	2004/05-2007/08	1993/94-1999/00	1999/00-2007/08	2004/05-2007/08	1993/94-1999/00	1999/00-2007/08
Labour force	21.2	63.5	2.7	100	100	100	0.9	1.8
Urban								
Unemployed	2.4	6.0	1.8	11.1	9.5	67.6	14.8	11.8
Employed	11.0	24.4	4.5	52.0	38.4	168.3	2.1	2.9
Rural employed	7.0	31.1	-5.2	33.0	48.9	-194.2	0.4	1.2
Employed	18.8	57.5	0.9	88.9	90.5	32.4	0.8	1.7

Note: unemployment derived by subtracting employment from labour force
Source: author's calculations of data from NSSO (various rounds)

2.3 Employment elasticities

Another way to analyze employment absorption is to calculate how much GDP growth has created employment. We can illustrate the employment-creating power of GDP with the help of *employment elasticities*, the proportionate change of employment divided by the proportionate change of GDP. We have calculated employment elasticities for China and India (Table 15 and 16). Employment elasticities have been calculated at a national scale and for the sectors agriculture, industry and services, for several periods. The used GDP and employment data are three-year averages.

National employment elasticities of both countries illustrate that GDP growth has created employment at a decreasing rate. In the eighties national employment elasticity was around 0.4 for India and 0.3 for China. In the nineties and begin twenties it declined to 0.1 for China. India faced low employment creation in relation to GDP in the second half of the nineties. reaching an employment elasticity of nearly zero in 2004-08.

The fast declining labour intensity of agriculture is obvious for both countries, if we neglect the unexpected rise in 1999/00-2004/05. In India it was even negative in two recent periods. Employment elasticities of the industrial sector (mainly manufacturing) were high throughout the eighties, after which they fell to values around 0.25 in the nineties. In 1999-2004 there was an upsurge to 0.66, followed by an low value of 0.12 in 2004-2008. The services sector in India generated much employment in the mid-1980s. Thereafter, the abovementioned jobless growth of the services sector in India is illustrated again here: low, once even negative, employment elasticities.

In the case of China, agriculture had employment creation similar to India's agricultural sector, reaching an elasticity of -0.61 in 2003-08. In the case of China's industry

and services sector, there is a continuing trend of decreasing employment intensity. The exception is an elasticity of 0.41 in industry in the period 2003-08.

Table 15 India: employment elasticities 1977/78-2007/08

	National	Agriculture	Industry	Services
1977/78-1983	0.49	0.52	0.86	0.68
1983-1987/88	0.36	0.33	0.94	1.87
1987/88-1993/94	0.42	0.49	0.21	-0.18
1993/94-1999/00	0.11	-0.03	0.29	0.23
1999/00-2004/05	0.39	0.91	0.66	0.28
2004/05-2007/08	0.01	-0.14	0.12	0.09

Note: in the calculations three-year averages for GDP and employment data has been used
Source: author's calculations

Table 16 China: employment elasticities 1978-2008

	National	Agriculture	Industry	Services
1978-1983	0.32	0.25	0.57	0.54
1983-1988	0.23	0.18	0.40	0.40
1988-1993	0.41	0.69	0.29	0.79
1993-1998	0.09	-0.28	0.14	0.49
1998-2003	0.10	0.17	-0.03	0.28
2003-2008	0.06	-0.61	0.41	0.25

Note: in the calculations three-year averages for GDP and employment data has been used
Source: author's calculations

Combining table 11-14 with details about labour force and the creation of the number of jobs and table 15 and 16 with employment elasticities, we can state that despite strong job creation, the employment intensity of growth has declined continually in China and India, reaching levels at an average of 0.2.

2.4 Conclusions

Although the share of agriculture in employment has decreased, illustrating that less-productive labour has moved from agricultural activities to work in non-agricultural sectors, the rate at which this transition has happened is rather slow: employment share of agriculture remains large in China and India, 40% and 57% of total employment, respectively. percentages which are very high compared with developed countries (5-10%). This suggests that low-productivity employment is still persistently present in rural areas. Of total workers, 75% is in rural areas in India; in China this share is two-thirds. OECD (2007) brings labour productivity in agriculture to the average levels in other countries and estimates labour surplus in 2007 at 170 million workers in China and 130 million workers in India, suggesting low productivity and low earnings.

We showed that the number of jobs created from 1980 onwards has been impressive. However, employment growth has slowed down, especially in rural areas of both countries, which is also illustrated by calculated employment elasticities at national scale. They show that GDP growth in China and India has created employment at a decreasing rate in the last decades and show the urging need for creating enough non-farm jobs at a fast enough rate. They show a tendency toward decreasing employment intensity in agriculture but also in industrial (manufacturing) and services activities, slowing down the reallocation of surplus labour in agriculture and preventing good improvement of agricultural labour productivity. This is hampering the battle against poverty.

3 Rural non-farm sector activity

Rising population numbers, declining arable land per capita and limits to labour absorption of the modern urban sector, foster the rise of rural non-farm activities. In this way incomes are generated more and more from other sources than agriculture, lifting up rural welfare levels. This expansion is necessary especially for India with its high absolute poverty rate, but also for China in view of the growing rural-urban disparity. The non-farm sector has important back- and forward linkages to modernized agriculture and urban enterprises and diversifies rural incomes. The potential of rural non-farm activities is the remedy against the twin problems of poverty and employment. In this chapter I measure the rising importance of the non-farm sector in India and China. Furthermore, some differences between the two countries are treated. Besides, we will made comments with regard to declining shares of rural non-farm employment, which will prepare us to Chapter 4.

3.1 Rural non-farm sector in general

Theoretically, the labour released from traditional agricultural activities and the shift to more remunerative work can be absorbed in three main ways: first, migration to existing cities, second, by development of modern-type agriculture, and third, by development of the rural non-farm sector. Consider its contribution to national employment, agriculture is the sector that will decline in the economic transformation process. It will shed out its surplus labour. Its relevance in macroeconomic context remains crucial in producing sufficient food for an growing population, for export activities, and for providing inputs for modern products. In addition, its modernized development creates additional employment in other rural sectors in rural areas.

A common view on the rural non-farm economy has been a low-productivity sector that is producing low-quality goods. However, in recent times its economic potential is more and more recognized allowing resources more and more devoted to its development. Across the developing world at this time the rural non-agricultural sector shows a roughly one quarter share of rural employment and a 40 percent share of total rural incomes (Haggblade et al. 2002), and the sector is expanding. These shares show clearly that the non-farm employment has a higher productivity rating of 1.6 (that is, 40% / 25%), as compared to farm employment, which has a productivity rating of 0.8 (that is, 60% / 75%). Non-farm employment is twice as productive and income generating as farm employment.

Rural non-farm activity includes all other than agricultural, which consists of mining, manufacturing, construction, trade and commercial transport, and financial and personal services. Traditional home-made handicrafts production is included as well as commercial large-scale agro-processing. Incomes accrue via wage work as well as self-employment. Servicing will typically grow fastest. Haggblade et al. (2002) notes that rural manufacturing accounts in general for 20-25 percent of rural employment, based on data from mainly 1980-1995. Meanwhile, services and trading activity are a larger source of income and employment in general in most developing countries.

The take-off stage of the rural non-farm sector is characterized by linkages exclusively linked to farming within the entirely countryside without connection with urban, modern sector (non-tradable, locally sold goods). Ongoing development would go along lines of an increasing weight of urban-rural linkages (subcontracting of light to medium durable goods). Rapid commercialization of agriculture will take place.

More in micro-economic terms, the existence of surplus labour in households has much to do with differentials between returns to household labour from traditional (mainly agricultural) activity and the returns from non-farm activity. If these differentials exist, we would expect labour transfer out of agriculture and other low-productivity work. If labour transfer does not occur (at substantial rates), households are apparently constrained in mobility, whatever be the reason. A common definition of surplus labour is (Fei and Ranis 1997): labour that has its marginal product (individual) below the average product (household), which the individual member consumes. In theory, labour transfer is induced to leave the traditional sector if the modern sector's shadow wage is higher than the average product of households.

Household members can decide to go to existing urban areas on a permanent basis. Alternative is temporary migration, mainly based on the seasonal cycle of the agricultural year. Early models as Lewis (1954) see an urban wage substantial set above the rural wage as the motor behind labour reallocation, due to economic rural-urban imbalances. It neglects difficulties as low rural education and skills, experiences of urban poverty and unemployment and the potential of a successful rural non-farm economy. The Todaro migration model describes decisions of rural households that lie at the basis of migrating to cities or not. It relies on urban real wage differentials (expected rather than actual) and on the probability to find a job in the urban sector. Household members must balance the risk of being unemployed or underemployed against the rural-urban income differential.

Worth to mention is rural urbanization, set in motion by the clustering of similar rural activities. Moreover, increasing widespread rural urbanization will, as a consequence, make commuting between rural residence and 'new' urbanized towns as a good alternative, as distance cannot 'make the difference' any more. Johnson (2002) suggests a policy attitude of locating most of the new non-farm activity "within commuting distance of the majority of village residents".

See for recent studies of details and prospects of the rural non-farm sector in general Kaur et al (2010), Lanjouw and Murgai (2008) and Haggblade and Reardon (2007). We continue to deal with our countries of subject, India and China. How have the rural non-farm sectors in those countries develop?

3.2 Rural non-farm sector in India

In India, total rural non-farm production was 32% of total national net domestic product in 1999/00, after which it rose to 36% in 2007/08 (Table 17). Rural secondary sector's share in national net domestic product was 42% in 1999/00 and rose to 46% in 2007/08, whereas the tertiary sector's net production grew from 27% to 33% of national net production.

Within the rural areas the share of agricultural and non-agricultural production in total rural production has also changed. Table 17 shows that in 1980 agriculture's net domestic product was 64% of total rural net domestic product and that it fell to 38% in 2005. At its turn, the non-farm sector's share of rural net production was 36% in 1980/81, 46% in 1999/00 and 58% in 2004/05. Within the non-farm sector, the tertiary sector had the highest rise in the same period: from 20% to 38%, whereas the secondary sector excluding mining and quarrying went from 14% to 24%.

Table 17 India: distribution of rural net domestic product (%)

	2004-05			1999-00			1980-81	
	Rural NDP Rs. Cr.	Share in rural NDP	Share of rural NDP in total NDP	Rural NDP Rs. Cr.	Share in rural NDP	Share of rural NDP in total NDP	Share in rural NDP	Share of rural NDP in total NDP
	current prices	%	%	current prices	%	%	%	%
Agriculture and allied activities	486781	38.3	94.0	402094	51.8	93.2	64.4	94.9
Primary sector	*486781*	*38.3*	*94.0*	*402094*	*51.8*	*93.2*	*64.4*	*
Mining and Quarrying	47014	3.7	66.3	14000	1.8	42.4	*	*
Manufacturing	150615	11.9	42.5	84928	11.0	41.5	9.2	31.8
Registered	89427	7.0	41.9	51199	6.6	40.5	3.2	20.4
Unregistered	61188	4.8	43.4	33729	4.4	44.3	6.0	45.2
Electricity, Water and Gas	8442	0.7	33.3	11028	1.4	45.4	0.6	40.0
Construction	100457	7.9	45.5	44341	5.7	43.3	4.1	45.6
Secondary sector	*306528*	*24.1*	*45.7*	*154297*	*19.9*	*42.4*	*13.8*	*
Wholesale and retail trade, rest. and hotels	190227	15.0	40.9	67045	8.6	27.1	6.7	30.3
Trade	174323	13.7	41.0	59721	7.7	26.3	*	*
Restaurants	15904	1.25	39.5	7324	0.9	35.9	*	*
Transp., storage and comm..	73804	5.81	33.4	31010	4.00	29.3	1.3	23.0
Real estate and bus. services	106838	8.41	26.9	50189	6.5	23.6	4.6	49.9
Community, pers. and soc. services	105540	8.31	28.2	70966	9.2	29.1	7.3	39.1
Tertiary sector	*476409*	*37.52*	*32.7*	*219210*	*28.3*	*27.1*	*19.8*	*
Total rural non-farm sector (excl. min. and quarr.)	735923	57.96	35.8	359507	46.4	31.5	35.6	35.0
Total	1269717	100	48.0	775601	100	48.3	100	59.0

Source: 2004-05: national account statistics 201, statement 80;
1999-00: national account statistics 2010, statement 78;
1980-81: Mukharjee and Zhang (2005)

Within the rural sector there has been a obvious shift of labour from agricultural activities to the non-agricultural sector. In table 18 is the distribution of rural employment by sector and by farm-non-farm distinction from 1977-2008. Share of agricultural employment in total rural employment has declined from 83% in 1977/78 to 72% in 2007/08. The manufacturing sector has the largest employment share in the non-farm sector (6.2% in 1977/78, 7.6% in 2007/08, up to 8.1% in 2004/05). Till 2004/05 the second largest is the

sector 'trade, hotels and restaurants', in the period 2004/05-2007/08 passed by the construction sector (5.8%). The total non-farm sector's share in total rural employment illustrates obviously the agricultural labour absorption: 16.1% in 1977/78 and 27.4% in 2007/08.

Table 18 India: share of rural employment by sector and in total employment (%)

	1977/ 78	1983	1987/ 88	1993/ 94	1999/ 00	2004/ 05	2007/ 08
Agriculture and allied activities	83.4	81.2	78.3	78.4	76.3	72.7	72.2
Primary sector	*83.4*	*81.2*	*78.3*	*78.4*	*76.3*	*72.7*	*72.2*
Mining and Quarrying	0.4	0.5	0.6	0.6	0.5	0.5	0.5
Manufacturing	6.2	6.7	7.2	7	7.3	8.1	7.6
Electricity, Water and Gas	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Construction	1.3	1.7	3.3	2.4	3.3	4.9	5.8
Secondary sector	*8*	*9*	*11.3*	*10.2*	*11.3*	*13.7*	*14.1*
Wholesale and retail trade and restaurants and hotels	3.3	3.5	4	4.3	5.1	6.1	5.8
Transport, storage and communications	0.8	1.1	1.3	1.4	2.1	2.5	2.7
Services	4.4	4.9	5	5.7	5.2	5.1	5.3
Tertiary sector	*8.5*	*9.5*	*10.3*	*11.4*	*12.4*	*13.7*	*13.8*
Total	100	100	100	100	100	100	100
Rural non-farm sector	16.1	18	21	21	23.2	26.9	27.4
Share of non-farm sector in national employment							
Secondary sector	*	*	*	55.07	56.18	58.45	57.98
Tertiary sector	*	*	*	44.26	43.22	45.74	44.01
Total non-farm employment in national employment	*	*	*	48.78	48.57	51.3	50.12

Source: 1993/94 to 2007-08: various years e.g. NSSO 2007-08 pg. A-164 of Appendix A and A-166 etc. and author's calculations. For years 1977/78 – 1978/88: Mukherjee and Zhang (2005).
* data not available via NSSO

Importance of the rural non-farm sector with respect to national employment is illustrated by the last row of table 18. From 1993/94 to 2004/05 the share of rural non-farm employment in national employment rose from 48.8% to 51.3%. Annual average growth rates are shown in table 18. Again we see positive and sometimes high growth rates of employment in the period. However, the rate of employment growth is decreasing. We can conclude that in most sectors the growth of employment is much lower in the period 1999/00 - 2007/08 than in the nineties (except 'construction' and therefore the secondary sector as a whole). If we take a more recent period, 2004/05-2007/08 the picture is even worsening more. The last row of the table show low and mostly negative average annual growth rates of employment. This indicates a more or less jobless growth**.**

Table 19 India: distribution of rural employment (%)

Annual average change	1993/94-1999/00	1999/00-2007/08	2004/05-2007/08
Agriculture and allied activities (A B)	1.21	0.44	-0.68
Primary sector	**1.21**	**0.44**	**-0.68**
Mining and Quarrying C	-1.38	1.13	-0.45
Manufacturing D	2.38	1.64	-2.55
Electricity, Water and Gas E	1.67	1.13	-0.45
Construction F	7.21	8.52	5.30
Secondary sector	**3.42**	**3.97**	**0.51**
Wholesale and retail trade and restaurants and hotels G H	4.60	2.77	-2.11
Transport, storage and communications I	8.77	4.36	2.13
Services J-O	0.12	1.37	0.83
Tertiary sector	**3.10**	**2.49**	**-0.21**
Total	**1.67**	**1.13**	**-0.45**
Rural non-farm sector	3.37	3.26	0.16

Source: various years e.g. NSSO 2007-08 pg. A-164 of Appendix A and A-166.

3.3 Rural non-farm sector in China

Rural prosperity increases as rural income increases. Table 20 shows the net incomes of rural households in China from 1978 to 2008. The net income is categorized in wage income, (that is, labour income earned in township and village enterprises (TVEs) and private and individual enterprises), income from household operations, property income and transfer income. Data before and after 1984 are not comparable due to differences in statistical coverage.

Non-farm income in the table is income from TVEs, private and individual enterprises and households operations in the secondary and tertiary sectors. After a low share in total net income around 1985 (26%) the non-farm sector's net income share increased continually to 49% of rural net income in 2008. Agriculture's share did the reverse. Rural enterprises (mainly TVEs) had the highest levels. The ratio of TVE income to non-farm income within households rose from 2.2 in 1985 to 3.9 in 2008.

There is no sectoral specification of TVE data available in China Statistical Yearbook, but within household operations we can made some comments about the development of secondary and tertiary activity. Both sector's incomes (in current prices, however) nearly doubled to 6% and 13% of total net income from household economic activity from 1985 to 2008. Tertiary sector even reached 16% in 2000.

Table 20 China: per capita net income of rural households by source (yuan)

	1978	1980	1985	1990	1995	2000	2005	2007	2008
Net Income	133.6	191.3	397.6	686.3	1577.7	2253.4	3254.9	4140.4	4760.6
By Source									
Wages Income - TVEs and private and individual businesses	88.3	106.4	71.7	138.8	353.7	702.3	1174.5	1596.2	1853.7
Net Income from Household Operations	35.8	62.6	296.0	518.6	1125.8	1427.3	1844.5	2193.7	2435.6
Agriculture and allied activities	**28.6**	**47.6**	**239.4**	**456.0**	**956.5**	**1090.7**	**1469.6**	**1745.1**	**1945.9**
Industry	*	*	2.2	9.2	13.6	52.7	61.1	76.9	81.6
Construction	*	*	7.4	12.2	34.5	46.7	47.1	60.7	67.4
Secondary sector	*	*	**9.6**	**21.3**	**48.2**	**99.4**	**108.3**	**137.6**	**149.0**
Transport, Postal and Telecommunication Services	*	*	8.5	13.5	27.8	63.6	84.2	94.5	103.8
Wholesale and Retail Trades and Catering Services	*	*	6.1	12.7	34.3	78.5	108.6	128.8	142.1
Social Services	*	*	3.3	6.6	17.2	28.1	32.6	38.8	41.9
Culture, Education and Health Care	*	*	*	*	*	6.9	10.1	14.3	16.9
Others	*	*	4.7	8.5	42.0	60.1	31.2	34.5	36.1
Tertiary sector	*	*	**22.6**	**41.2**	**121.2**	**230.3**	**256.5**	**296.6**	**323.8**
Property Income	*	*	*	*	41.0	45.0	88.5	128.2	148.1
Transfer Income	9.5	22.4	29.9	29.0	57.3	78.8	147.4	222.3	323.2

	1978	1980	1985	1990	1995	2000	2005	2007	2008
Share of non-farm sector's per capita net income in rural net income (sum of wage income and incomes of secondary and tertiary sector, thus excluding property and transfer income)									
%	*	*	26.1	29.3	33.2	45.8	47.3	49.0	48.9
Share of agricultural sector's per capita net income in rural net income									
%	*	*	60.2	66.5	60.6	48.4	45.2	42.2	40.9
Within household operations:									
Share of agricultural activity in net income from household operations									
%	79.9	76.2	80.9	88.0	85.0	76.4	79.7	79.6	79.9
Share of secondary activity in net income from household operations									
%	*	*	3.2	4.1	4.3	7.0	5.9	6.3	6.1
Share of tertiary activity in net income from household operations									
%	*	*	7.6	7.9	10.8	16.1	13.9	13.5	13.3

Source: NBS (various years)

Note: data before and after 1984 are not comparable due to difference in statistical coverage.

From 1980-2008 China's labour force had grown with ca. 2% per annum, while GDP had grown with much higher rates. This has led to a redistribution of labour from agricultural to non-agricultural activities. Table 21 reproduces some data from Table 11 but shows further specifications of rural enterprises.

Table 21 China: rural (non-)farm employment – millions and percentage of labour force

	1980	1985	1989	1990	1995	2000	2005	2006	2007	2008
Millions										
National labour force	429.0	501.1	557.1	653.2	688.6	739.9	778.8	782.4	786.5	792.4
Rural	318.4	370.7	409.4	477.1	490.3	489.3	484.9	480.9	476.4	472.7
TVE	30.0	69.8	93.7	92.7	128.6	128.2	142.7	146.8	150.9	154.5
Private enterprises	*	*	*	1.1	4.7	11.4	23.7	26.3	26.7	27.8
Self-employed individuals	*	*	*	14.9	30.4	29.3	21.2	21.5	21.9	21.7
Household workers	288.4	300.9	315.7	368.4	326.5	320.4	297.3	286.3	276.9	268.7
National employment	423.6	498.7	553.3	647.5	680.7	720.9	758.3	764.0	769.9	774.8
Percentage										
National labour force	100	100	100	100	100	100	100	100	100	100
Rural	74.2	74.0	73.5	73.0	71.2	66.1	62.3	61.5	60.6	59.7
TVE	7.0	13.9	16.8	14.2	18.7	17.3	18.3	18.8	19.2	19.5
Private enterprises	*	*	*	0.3	0.9	2.0	3.1	3.5	3.5	3.6
Self-employed individuals	*	*	*	3.5	6.1	5.3	2.8	2.8	2.8	2.8
Household workers	67.2	60.0	56.7	56.4	47.4	43.3	38.2	36.6	35.2	33.9
National employment	98.7	99.5	99.3	99.1	98.9	97.4	97.4	97.6	97.9	97.8

Note: major revision in figures between 1989 and 1990, based on the 1990 population census
Note: unemployment derived by subtracting employment from labour force
Source: author's calculations with data from NBS (various years)

Table 22 China: change in rural (non-)farm employment

	Millions			Percentage of labour force			Annual average change (%)		
	1980-1989	1990-2000	2000-2008	1980-1989	1990-2000	2000-2008	1980-89	1990-2000	2000-2008
National labour force	128.0	86.7	52.5	100.0	100.0	100.0	2.9	1.3	0.9
Rural	91.0	12.3	-16.6	71.1	14.1	-31.7	2.8	0.3	-0.4
TVE	63.7	35.6	26.3	49.7	41.0	50.1	13.5	3.3	2.4
Private enterprises		10.3	16.4		11.8	31.3		26.0	11.8
Self-employed individuals		14.4	-7.7		16.6	-14.6		7.0	-3.7
Household workers	27.4	-48.0	-51.7	21.4	-55.3	-98.4	1.0	-1.4	-2.2
National employment	129.7	73.4	53.9	101.3	84.6	102.7	3.0	1.1	0.9

Note: major revision in figures between 1989 and 1990, based on the 1990 population census
Note: unemployment derived by subtracting employment from labour force
Source: author's calculations with data from NBS (various years)

First, we see an urban share of labour force which was 26% in 1980 and 40% in 2008. Second, a shift within rural areas can be noticed, illustrated by a rise in employment of rural enterprises, that is Township and Village Enterprises (TVE) and private and individual enterprises. TVEs are considered as mainly communal organizations involved in non-agricultural work, such as light industry, textile and materials and machine making. Just after the start of China's reform policy in the end of the seventies there were 30 millions employed in rural enterprises, in 2008 205 millions. That is, in 1980 7% of rural labour force was in non-agricultural activity, after which it rose to 26% in 2008. Simultaneously, the employment in agricultural activities (household workers) fell from 67% to 34% of rural labour force. Table 22 shows that half the increase of the national labour force was absorbed by TVEs from 1980 to 1990 and that in the next two decades TVEs continued to absorb high numbers of workers (41% in 1990-2000, 50% in 2000-2008). The number of workers in agricultural activities rose from 1980 to 1990 but declined continuously thereafter, in 2008 ending with 20 millions workers lower than in 1980 (269 million).

TVEs flourished especially in the 1980s with an annual average change of 13.5%. The nineties and twenties saw lower but still positive annual average growth rates: 3.3 and 2.4 respectively. The other rural enterprise forms (private and individual) also had notable growth, from 16 million employed in 1980 to 47 million, going from 3.7% to 6.3% of China's total labour force. Due to lack of specific data of TVEs and private enterprises on sectoral levels we must focus on them as representing the rural non-farm sector. With regard to the employment-creating power of the rural non-farm sector, all three decades show positive average annual change rates, as did the period 2000-08. Employment growth in TVEs is however declining, from 3.3% in 1990-00 to 2.4% in 2000-08. Private enterprises show the same development.

What are differences between China and India when we consider growth of their rural non-farm sectors? Both countries have undergone substantial changes in composition. In 2008 India has an agricultural sector which habits 60% of national employment and about 70% of rural employment, whereas China has at much lower shares at that time, roughly 35% of national employment and 57% of rural employment in 2008. However, for both countries, rural non-farm sector has played a key role in economic transition and has likely been the driving force in bringing down rural poverty levels (see Ch. 1). Share of rural non-farm activity in income levels (net) in China rose from 26% in 1985 to 49% in 2008. In India, rural

non-farm sector's share in net domestic product (see Table 17) was 32% in 1999/00 and 36% in 2004/05.

Looking at growth data of employment in both countries reveals that India has experienced much lower growth rates in non-farm sector in recent years. For both the nineties and twenties there is an annual average growth of the non-farm sector of 3.3%, but this growth has lowered in the period 2004/05 to 2007/08 to only 0.16% (Table 19). China's overall non-farm sector annual average growth in the nineties and twenties is like India, but did not loose its pace in the last years (2.7% between 2005 and 2008). Rural non-farm employment in percentages of total rural employment in China grew from 23% in 1990 to 43% in 2008 (Table 23). In India the share of the rural non-farm sector was 16% in 1977/78 and rose to 27% in 2008, compared to China an only moderate growth.

Figure 11 China and India: share of people living in urban areas (%)
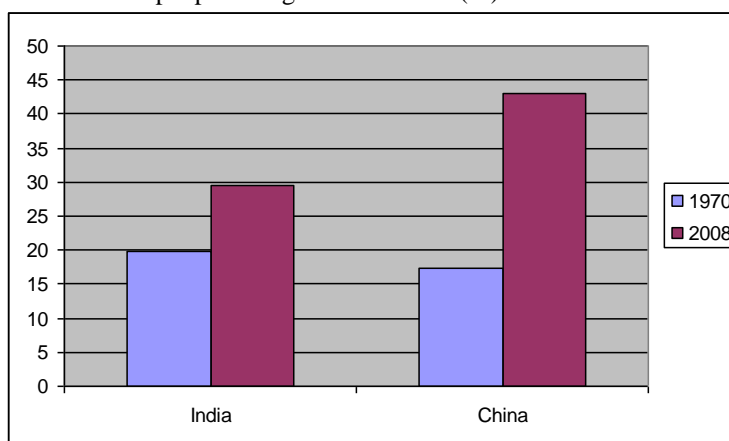
Source: World Development Indicators

3.5 Conclusions

We have seen the rise of rural non-farm activity in both China and India, both in terms of GDP and employment. Likely, it has played a key role in pushing back absolute poverty, particularly in China. However, there has obviously been a growth-equality trade-off showing up in rapid widening income gaps in both countries, especially in China (see Ch. 1). Moreover, we showed that the pace of job creation is slowing and that employment elasticities are approaching zero. Especially India had witnessed a slow-down in non-farm sector growth in recent years, ending in near-jobless growth.

To be able to lift more people out of extreme and less extreme poverty, China and India have to shed many more workers out of agricultural sector in years to come. However, the low employment-growth elasticities of the sectors and the economy as a whole mean that

GDP growth of both countries must be even higher than has been managed heretofore in order to be able to absorb the labour surplus and increase in labour force of the coming years.

4 Future outlook of rural labour absorption

Attaining significant increases in rural income and noticeable reductions in income inequality need a strong rise in rural non-farm activity as well as the shift of rural labour to the non-farm sector. Rural surplus labour holds wages and earnings depressed, which in turn depresses rural living standards and widens rural-urban income gap as national economy is growing. A solution to the problem is the transfer of surplus labour from rural farm to rural non-farm sector, which requires that the latter should grow firmly.

The numbers of unemployed in urban areas and of surplus labour in rural areas are large in populous countries as China and India. In this chapter we estimate the magnitude of the rural labour surplus. How will the development of surplus release take place? How much time will it take? It depends on the expected rate of growth of the rural non-agriculture economy and the power to generate enough jobs in the sector. We use projections of future working-age population so as to estimate labour supply in coming two decades. Together with labour demand projections we look to the capacity of rural labour market to absorb the labour surplus. Of course, this is subject to much uncertainty about GDP growth and employment elasticity of GDP growth. We will therefore give several scenario's.

We assume the following:

- Participation rate of rural labour force remains at the 2008 level, which we take to be the national participation rate in 2008: 74% for China and 58% for India, according to World Bank data
- All new entrants to the labour force seek work in the non-farm sector.
- Output of the non-agricultural sector grows by 7.5% in the central scenario.
- Employment elasticity is around the level of national employment elasticity in the central scenario, i.e. 0.2 for China and 0.1 for India (see Ch. 3). Other scenario's use higher elasticities.
- Assuming that in future ongoing urbanization process is especially fed by rural migrants, we hold the rural share in total population at the share in 2010 (China 56%, India 70%).
- Furthermore, because of the large numbers involved and expected growing absorption impossibility of urban areas, illustrated by rising unemployment in urban areas in recent years, we assume no further increase in rural-urban migration.

First, we estimate the magnitude of the labour surplus. Definition of surplus labour is labour that has a marginal productivity that is lower than its paid wage or shadow wage. The wage is defined by the average productivity of labour. In any case, surplus labour lowers overall-productivity of agricultural sector. Several studies find China and India have not yet completed the reallocation of surplus labour (see e.g. Ercolani and Wei 2010, OECD 2007).

We measure labour productivity as GDP per worker. In Table 23 are the labour productivities of agricultural and non-agricultural sector for China and India. The ratio of agricultural to non-agricultural productivity is for China 0.16 and for India 0.15. OECD (2002) use as benchmark the labour productivity of both sectors in other Asian countries as Indonesia and Malaysia, which is much higher than in China and India. Setting the productivity ratio at 0.3 or 0.4 we can calculate the disguised labour in agriculture in China and India. In the second half of Table 23 is the estimated labour surplus at the year 2008 in agricultural China and India.

Table 23 China and India: labour surplus estimates in 2008

	Labour productivity* (constant US$)			Labour surplus 2008 (millions) under two alternatives A and B**	
	Agr.	Non-agr.	Ratio	A	B
China	789	4872	0.16	184.8	142.9
India	473	3106	0.15	162.3	99.9
* labour productivity measured by GDP contribution per worker (WDI data) ** Labour surplus estimates for 2008 under alternative A (labour productivity in agriculture / non agriculture = 0.4), and alternative B (labour productivity in agriculture / non agriculture = 0.3)					

Source: WDI and own calculations

Setting the ratio of agricultural labour productivity / non-agricultural labour productivity at the value of 0.4, we estimate China's labour surplus at 185 million workers in 2008. The surplus is 142 million workers if we set the ratio at 0.3. For India the number of surplus workers is 162 million and 100 million, respectively, at the year 2008. OECD (2007) reported comparable numbers: 170 million for China and 130 million for India. As noted earlier, the value of this ratio for the developing countries as a whole is 0.5, according to Haggblade et al. (2002). The lower rates for China and India suggest that the problem of abundant or surplus labour is more acute in China and India than in the developing world as a whole.

At which pace would the large labour surplus be released out of agriculture? Therefore we need projections of labour demand and labour supply in rural areas, which depends on GDP and employment growth in non-farm sector. Table 24 shows a first scenario. The first

rows show labour demand. We assume in this table a non-farm GDP growth of 7.5%. Employment elasticities are set on very low levels, corresponding to the elasticity levels of industry and services sector shown in Tables 15 and 16 (Ch. 2) of the period 1998-2008: 0.2 for China and 0.1 for India. Under these assumptions we see an increase of 160 million non-farm jobs from 2008 to 2030 for China and 130 million for India. Looking to different periods gives annual increases of 4.1 million jobs in 2010-15, 5 million in 2010-2020 and 7.7 million in 2010-2030 for China. For India, this numbers are 3.4 million, 4.1 million and 6.3 million, respectively.

For estimating labour supply we use UN population projections and calculate working-age population and labour force numbers, holding rural population share and participation rate at 2008 levels (see above-mentioned assumptions). China's expected increase of rural labour force owing to growth of working-age population from 2010 to 2030 is 55 million persons. For India's this number is much more: 124 million persons between 2010 and 2030. The increase goes at a decreasing rate for both countries.

The last rows of the table show the future outlook for the potential growth in non-farm activity to absorb surplus labour: future labour demand minus future labour supply. For China, in the period 2010-2015 most new non-farm jobs (20.6 mln) are taken by new entrants (19.1 mln), leaving few room for labour surplus absorption, but in the next five-year periods more than half of the new jobs can be filled with surplus labour. Between 2010 and 2020 the rural non-farm sector can absorb 17 million surplus workers, but this accelerates after 2020, with a transfer of 99 million surplus workers out of agricultural sector. The 2008 labour surplus (estimated under alternative B with a sectoral labour productivity ratio of 0.3) of China will decrease between 2010 and 2030 from 141 million workers to 44 million workers.

For India, due to a huge increase of labour force (new entrants), absorption of surplus labour by non-farm sector is much more difficult. Under our assumptions there is even an increase in rural labour surplus, meaning the appearance of underemployment in non-agricultural sector or a strong growing rural-urban migration army. Between 2010 and 2015 there will be 16 million more new entrants than new non-farm jobs, feeding the labour surplus (including potential rural-urban migration workers). With 7.5% non-farm GDP growth and an employment elasticity of 0.1 the rural labour surplus will begin to decrease only between 2020 and 2025, ending at a surplus level of 97 million workers in 2030. Table 23 shows under alternative B a labour surplus of 99.9 million workers in 2008, indicating that in the next two decades a reduction in labour abundance is not feasible.

Table 24 China and India: projections of labour demand and labour supply (with 7.5% GDP growth and employment elasticity for China 0.2 and India 0.1) and development of labour surplus 2010-30 (in millions).

Labour demand		2010	2015	2020	2025	2030
Rural non-farm employment	China	211	232	262	304	366
	India	343	360	384	419	469
New non-farm jobs	China	6	21	30	43	61
	India	5	170	24	35	50
Labour supply National working-age population (15+)	China	1085	1130	1163	1191	1216
	India	840	923	1003	1077	1146
Rural working-age population (15+)	China	618	644	663	679	693
	India	588	646	702	754	802
Rural labour force	China	458	477	491	502	513
	India	341	375	407	437	465
	Period	**2010-15**	**2015-20**	**2020-25**	**2025-30**	
Increase of rural labour force (new entrants)	China	19	14	12	11	
	India	33	33	30	28	
Labour demand – labour supply New rural jobs – increase in rural labour force	China	1.5	16	31	50	
	India	-16	-8	5	22	
	2008 level					
Labour surplus	China	143	141	126	95	44
	India	100	116	124	120	97

Source: author's estimates; national working-age population: UN (2008)

There is much uncertainty about the projections. We can vary the expected rate of GDP growth as well as the employment elasticity of growth. Tables 25 and 26 show several scenario's with different assumptions, resulting in different release paths of surplus labour. Comparing the scenario with employment elasticity is 0.4 and holding non-agricultural GDP growth at 7.5% per year, gives a reduction of labour surplus with 20 million workers more between 2010 and 2015 than an employment elasticity of 0.2. Being even more optimistic about job creation power of GDP (0.6 elasticity) gives a labour surplus in the year 2020 numbering only 25 million workers in China. Doing the same exercise for the case India gives in 2020 a picture in which labour surplus has fully been absorbed in rural non-agricultural sector. In this period there are 146 million new non-farm jobs of which 33 million will be filled by new entrants. This leaves 114 million jobs of abundant or surplus labour, sufficient to outnumber the labour surplus somewhere in between 2015 and 2020, after which there will be room for rising wages (and reduction in income inequalities), because of labour shortage.

Table 25 China: projected job increase and labour surplus development at different levels of employment elasticity and non-agricultural GDP growth, 2010-2020

Job increase and labour surplus 2010-2015 (in millions)						
Non-agricultural GDP growth		5%		7.5%		10%
		Job increase	Labour surplus end of period	Job increase	Labour surplus end of period	Job increase	Labour surplus end of period
Employment elasticity	0.2	12.5	149.6	20.6	141.4	30.3	131.8
	0.4	25	137.1	41.3	120.8	60.6	101.5
	0.6	37.5	124.6	61.9	100.1	90.9	71.2
Job increase and labour surplus 2010-2020 (in millions)						
Non-agricultural GDP growth		5%		7.5%		10%
		Job increase	Labour surplus end of period	Job increase	Labour surplus end of period	Job increase	Labour surplus end of period
Employment elasticity	0.2	28.4	147.4	50.3	125.6	79.1	96.8
	0.4	56.9	119.1	100.5	75.4	158.1	17.8
	0.6	85.3	90.6	150.8	25.1	237.2	-61.3

Source: author's estimates

Table 26 India: projected job increase and labour surplus development at different levels of employment elasticity and non-agricultural GDP growth, 2010-2020

Job increase and labour surplus 2010-2015 (in millions)						
Non-agricultural GDP growth		5%		7.5%		10%
		Job increase	Labour surplus end of period	Job increase	Labour surplus end of period	Job increase	Labour surplus end of period
Employment elasticity	0.2	21	113	34	99.3	49.8	83.4
	0.4	41.1	92.1	67.9	65.3	99.7	33.6
	0.6	61.7	71.6	101.9	31.3	149.5	-16.3
Job increase and labour surplus 2010-2020 (in millions)						
Non-agricultural GDP growth		5%		7.5%		10%
		Job increase	Labour surplus end of period	Job increase	Labour surplus end of period	Job increase	Labour surplus end of period
Employment elasticity	0.2	47	119	82.7	83.1	130.1	35.7
	0.4	93.6	72.3	165.5	0.4	260.2	-94.4
	0.6	140.4	25.5	248.2	-82.4	390.4	-224.5

Source: author's estimates

The most pessimistic scenario is low non-farm GDP growth (5%) and low employment elasticity (0.2), resulting in 2010-20 in too few jobs to absorb even new entrants, both in China and India. Under our assumption of new entrants only seeking work in non-farm sector, here appears underemployment in the non-farm sector. In this scenario labour surplus will decrease only shortly after 2020. In scenarios that are even more pessimistic this returning point is delayed much later.

High GDP growth (10%) with low employment elasticity (0.2) immediately creates room for absorbing surplus labour, in the period 2010-20 resulting in 46 million surplus workers shifting to non-farm sector in China and 64 million for India. High growth (10%) and high employment elasticity (0.6) gives an eradication of labour surplus already between 2015 and 2020 for China. For India this point of reverse lies even earlier: before 2015.

The scenario of low non-farm GDP growth (5%) but high employment creation (0.6) in this sector produces roughly 40 million new jobs in China between 2010 and 2015 and 85 million between 2010 and 2020, bringing the labour surplus in 2020 back to 91 million workers. For India job growth is 140 million until 2020, resulting in 25 million surplus workers.

The impact of surplus labour is a depressing force on rural wages and rural living standards, keeping the rural-urban income gap high or making it wider. As said earlier, the remedy is a strong rise of rural non-farm sector, especially with respect to employment. A low non-farm GDP growth (5%) but with much jobs created results for India in a rural labour surplus level in 2020 that is four times lower than in 2008. For China in the same scenario, the surplus in 2020 has been decreased to two-thirds of the 2008 level, accelerating to zero within ten years thereafter.

The magnitude of the pool of surplus labour is higher in China than in India. The ratio of agricultural labour productivity over non-agricultural productivity being the same as in India (see Table 23), this is due to a higher rural worker population. With employment elasticity at roughly the 2008 level (China 0.2, India 0.1) we see that China's surplus will much earlier be absorbed than India's. However, under the different scenario's with identical assumed growth conditions India's rural labour surplus will be entirely released much earlier than China's.

Of course, there is much uncertainty about this. The scenario's are (only) illustrative for the speed with which eradication of income inequality by creating jobs can be reached. The speed of absorption and narrowing of income inequality is dependent on several factors: GDP growth, its employment creation potential, labour force growth and the power of the

upcoming rural non-farm sector, to mention the most important ones. For example, given continuing low employment elasticities in modern sector, high total economic growth will boost rural non-farm sector further, resulting in rapid labour absorption, higher rural incomes and expectedly a narrowing income gap. Low economic growth, combined with low employment creation, would keep surplus labour longer in agriculture and would result in slower growth of rural non-farm sector and a deteriorating effect on inequality development.

5 Dualism and characteristics of rural household settings

This chapter treats the dualistic structure of developing countries with large-sized population. Again we take China and India as examples. Leaving point is the notion that there are several distinct basic economic systems, in which people strive to higher welfare and within which groups of people are behaving differently. China and India are countries with a highly-present dualism between a modern and a traditional sector, and in this they contrast heavily with large *developed* countries. The central question of this paper circles around the effects of a large rural labour surplus and the rising income inequality on the dualistic structure of large labour-surplus countries. What is the uniqueness of the economic system of such countries? How will dualism develop under different future growth and employment conditions and different future labour surplus absorption rates?

5.1 The economic system of China and India

5.1.1. Multi poles system

We draw heavily on Cohen (2009) in the theoretical treatment of economic systems. In the path towards definition and features of different economic systems, we have to start with behavioural settings. A behavioural setting is "a physical site populated by interacting persons that became members of the setting by accident and/or choice"[3]. Economic behaviour is mostly shown by three settings, i.e. members generate value added from transformation for goods and services within in these settings in striving for highest welfare. The three settings of most interest are, therefore, households settings, firm settings and state settings. They differ from each other in having a *distinct central behaviour of their agents*. The household setting consists of traditional households and their behavioural characteristics. Typical intrinsically motives and behaviour are total earnings maximization (all benefits and costs within a kinship- or village-based entity are lumped), social sharing and family loyalty. This all is linked to the fact that the household is part of a larger social group. The coordination mechanism is thus sociological, the economy being in a whole of social relations. The firm setting consists of agents within firms, shops and markets and which are driven by self-interest. They show emphasis on property rights, commercial exchange and profit maximization behaviour. The employer-employee relationship is contractual. The coordinating mechanism is thus economic. A state setting's coordinating mechanism is political of character and is characterized by behaviour along lines of political returns, rent

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[3] Cohen (2009), pg. 3

seeking and maximization of power (including for instance state enterprises). Agents can participate in more than one setting, but adopt the behaviour of the setting in which their activity is most intense. Also, they can move from an in their eyes less attractive setting to a more attractive setting, if there are no barriers.

Different coordination types and behaviour have been created especially by the external environment of the settings. The household setting has its place typically within an environment of a homogeneous population, scarcity of resources, low level of welfare and a closed world. Firm settings operate in an "open world with high mobility". The state setting is characterized by an external environment with great differences between population groups with respect to human endowments and rank in society. The external environment is constraining settings, and agents of a setting adjust their behaviour and institutions to the shared common external environment.

In all countries these three types of economic behavioural setting coexist and interact via their agents, but differences exist in the extent of dominance of one of the three settings over the other two. This is the starting point of the idea of three distinct *economic systems*, in which each is characterized by a dominant setting, households, firm or state. Any particular dominance is the result of the socio-economic history of the region, which shaped the external environment, and of such factors as magnitude of agents within the settings, degree of agent mobility and absorption between the settings, and the break-down of barriers that hamper movement to the other setting. The dominance of one type of settings is manifested in the dominance of the behaviour attached to it and which ends in a typical economic system: the *household-intensive* system, the *firm-intensive* system and the *state-intensive* system (following the naming in Cohen 2009). The dominance of one type of settings means that all other settings adapt their behaviour more or less to the dominant type.

Examples of countries which correspond to household-intensive system are many rural regions in developing countries with high numbers of households connected to self-employment within family relationships, for example rural India and rural China. Market economies as US and Western European countries are examples of firm-intensive systems, while Russia is an example of a state-intensive system.

In a society there can be barriers between the different settings that are so intensive that agent mobility is prevented or hampered. Where these barriers are broken convergence would occur. Where these barriers between settings remain, convergence towards one dominant behaviour is not possible. In this case, different behavioural settings exist side by side in a country, both characterized by large numbers of agents. Absorption of agents in any

one setting is or has become very limited. Characterization of such a country as household-, firm- or state-intensive is not useful; they have a *multi-poles* economic system. This brings us at countries such as China and India, which are subject of our research.

In countries like China and India persuasive settings are important, because they play a significant role in coordinating the otherwise instable economic systems with large concentrations of agents in household, state and firm settings. Communication and coordination are important here to hold stability in this multi-poles system. Persuasive settings engage not in economic activity (transformation), but fulfil a role that is important for the three economic systems within a region. Agents participating in persuasion settings have the role of harmonizing the interests of the settings at the same time, with such an authority that they are supported by the leaders of the different settings.

What can be said about persuasion settings in China and India? In China policymaking goes along the lines of strong hierarchy with one-party and top-down orders. Centralized power is a major instrument to overcome the coordination failures. Examples of persuasion settings in China is the Congress of the Communist Party. The party, representing in its party structure all interest groups, guarantees a broad basis of support, in order to implement its future five-year programs ultimately at grassroots levels. Local government is traditionally represented in this party structure. Other expressions of conflict managing are councils of experts that try to reach consensual decisions about social and economic problems. Moreover, China has a rather homogenous population that is described in literature as deeply rooted in a culture that has positive attitudes towards all other groups in society.

India is a parliamentary democracy. Policymaking is more democratic than China's top-down policymaking of one party. All major interest groups are represented by the parliament, fostering consensus in and economic and social decisions and conflicts. As in China, an instrument in managing good coordination and communication are councils of experts that aim at reaching consensus in decisions. As described in more detail later in this chapter, India has a very heterogeneous population, creating more difficulties in streamlining interests of the many societal groups by persuasion settings. In having this diversity, however, mass mobilization against settled or new institutions or policies is therefore not likely to happen.

5.1.2 Strength of household and firm settings

How, then, is the economic system of China and India to be described? How can we measure the relative significance or strength of a setting within countries or regions? We need to focus on two indicators: (a) the relative magnitude of agents in the alternative settings, and (b) the relative size of the economic transformation occurring in the alternative settings. The two indicators are given equal weights in a composite index of the dominance of one setting over other settings, i.e. the Index of Interactive Influence (see equation 1 later in this chapter).

What are indicators that show the relative significance or strength of household and firm settings within countries or regions? Because there are no available data of the intensity of interaction in household and firm settings, Cohen (2009) considers activities in the sectors agriculture and industry as a reliable approximation of activity in household and firm settings. We take over this approach and use as approximation the participation of agents and the intensity of their interactions. This is because of the widely held view in developing economics that the household mode of production dominates agriculture and the firm mode of production dominates industry.

How to handle the services sector? Cohen (2009) divides the shares of value-added and labour used in services sector between agriculture and industry, reasoning that services is an activity of formally-operating establishments as well as informally-operating households. We follow this approach below.

In Tables 27 and 28 are the two indicators mentioned above: (a) the labour ratio of agriculture / industry, and (b) GDP ratio of agriculture / industry, for both countries China and India. As we have seen earlier (see Figures 7 and 8) there has been a structural change in China and India. Share of agricultural labour has diminished in favour of share of labour in industry and services.

Table 27 China: indicators of relative strength of household settings and firm settings, approximated by agriculture and industry (%)

China	Labour ratio agriculture : industry	GDP ratio agriculture : industry	Average or index values
1980	79 : 21	38 : 62	**58 : 42**
1990	74 : 26	40 : 60	**57 : 43**
2000	69 : 31	24 : 76	**47 : 53**
2008	59 : 41	20 : 80	**40 : 60**

Note: Services share divided proportionately over agriculture and industry.
Source: author's calculations

In India agricultural share of labour went from 85% in 1977/78 to 75% in 2007/08, while the share of GDP of the agricultural sector diminished from 59% to 38%. Weighing the shares of agents and transformed GDP in the two sectors equally gives us an indication of the

strength of the household versus firm settings. This has been done in the last column of the tables. This average value is named the Index of Interactive Influence.

Table 28 India: indicators of relative strength of household settings and firm settings, approximated by agriculture and industry (%)

India	Labour ratio agriculture : industry	GDP ratio agriculture : industry	Average or index values
1977/78	85 : 15	59 : 41	**72 : 28**
1987/88	80 : 20	54 : 46	**67 : 33**
1999/00	79 : 21	47 : 53	**63 : 37**
2007/08	75 : 25	38 : 62	**57 : 43**

Note: Services share divided proportionately over agriculture and industry.
Source: author's calculations

How strong is the influence of the household and firm settings in China and India? Development of both shares happens in a competing way. Concentration of agent interactions in the household setting (agriculture) reduces in favour of agent interactions in the firm setting (industry), indicating diminishing dominance of the household mode of production and behaviour, in both countries. For India the average ratios go from 72 : 28 two decades ago to 57 : 43 recently. For China these ratios are 58 : 42 and 40 : 60. Besides reducing influence of household settings the recent level of the index value still means a moderate dominance of household settings over the firm settings for India as a whole.

For China a moderate dominance of household settings has been turned towards a moderate dominance of firm settings. However, the dominance do not reach the threshold level of 70% after which agent interactions on one certain setting is dominant in such a way that it will result in full agent assimilation of the dominated setting. Such a duality of two strong settings results in a multi-poles character of a region or country. In China and India is a large rural population besides a large urban population (see Figure 12). Given that the countryside is characterized by households and urban regions by cultures that are related to commercial firms and state, presence of both the household setting and the firm setting is strong. We, thus, can see China, India and equivalent countries as having a multipolar economic system.

It is important to note that India always have had and still has a higher dominance of households, witnessing the higher rural population share, the higher rural GDP share and the higher rural employment share compared with China. China can be positioned closer to a firm-intensive system than India. Another indicator is the share of urban population in total population. Figure 11 of Ch. 3 is repeated here. China has experienced a much higher urbanization growth rate than India, reflecting more influence of firm settings.

Figure 12 China and India: share of people living in urban areas (%)
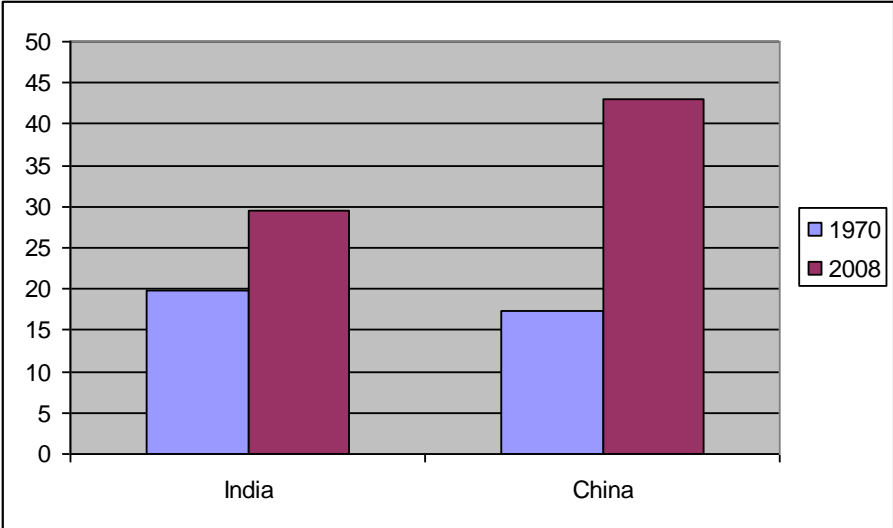
Source: World Development Indicators

In the following we shall place our focus on household settings as opposed to the alternative settings, including state settings. This is a simplification, but it is justified by the subject of the paper, the growing, labour-surplus-driven rural-urban income inequality, which will likely enhance economic activity in rural areas and strengthen household settings. It circles around the share of household settings in total agents and total transformations as compared to the part resting for alternative settings. For the sake of abbreviation, we shall call the other settings simply firm settings, although it is understood that these combine firms and state settings.

Worth to mention in relation to the division in household and firm setting is the dichotomy formal/informal sector. The dichotomy formal/informal sector has much been used in literature: the coexistence of persons living and working in a high-productive, modern sector and a group of persons living and working in a low-productive traditional sector. This dichotomy can be useful to detect influence of household and firm settings. This is because the informal sector is mostly linked to the household-type behaviour and mode of production, that is, to traditional activity, traditional technology, use of family workers and self-employment, while features of the formal sector are described as the use of modern technology in modern activity, reliance of wage work with written contracts, etc.

Rada (2010), which described informality as a "sector associated with low-productivity activities that are casual and where labour and other resources are underutilized", measures the size of the formal and informal sector and gets the following shares. For China, GDP of the formal sector in total GDP is 76.3% and for the informal sector is 23.7%.

Employment of the formal sector is 42.3% of total employment, informal sector 57.7%. For India the formal sector's GDP is 42% of total GDP, informal sector's 58%, whereas the share of employment of the formal sector in total employment is 4% and informal sector 96% (year 2000). This is in line with other studies. Table 29 and 30 shows the rural and urban formal and informal shares in employment.

Table 29 China: share of informal and formal employment, rural and urban

	Urban share		Rural share	
	Formal	Informal	Formal	Informal
1990	0.91	0.09	0.18	0.82
1996	0.88	0.12	0.28	0.72
2002	0.61	0.39	0.36	0.65

Source: adapted from Rada (2010)

Table 30 India: share of formal and informal employment, per sector

	1983-84	1986-88	1993-94	1999-00
Primary	0.99	0.99	0.99	0.99
Industry	0.78	0.82	0.83	0.85
Services	0.74	0.76	0.79	0.74
All sectors	0.92	0.92	0.93	0.93

Source: adapted from Rada (2010)

Informality is also highly presence in urban regions. Here, great part of the definition of household setting behaviour is in overlap with definition of informality: traditional mode of production and employment. The reference to informal-formal dichotomy is made here in order to show more strongly the incidence of dualism in these economies. And also to point to the expected rise in urbanization for China and India in the coming decades (China 50%, India 40%), feeding the urban informal, low-productive sector and fitting to a great extent household settings. However, our focus is on rural areas, in which households and their behaviour (thus, the household setting) dominate. It is here that the labour surplus is large and waits to be absorbed.

5.1.3 Characterization of household settings

What follows is a characterization of the household setting of China and India. Do they fit the description of household setting behaviour as given in literature or earlier in this chapter, i.e. importance of kinship relations and the behaviour shown? We will handle with some features which are typical for China's and India's rural society/organization.

Alesina and Giuliano (2007) presented a study to the power of family relationships in an economic system and found that in countries in which people saw family ties as very important the family is seen as an economic unit which is used as a provider of goods and

services while at the same time relying less on the market or government for income. With strong family ties there is also less labour mobility, a larger household size and a lower labour force participation.

In traditional China, the basic unit in society is the family. Although economic development by generating stronger urbanization and foreign relationships has made the family institution in total China more complex, we shall focus on traditional China, where family is certainly still central and where this institution is not (strongly) influenced by commercial business settings.

Family ties are strong in China. A very important characteristic of a Chinese family is the common budget. There is a pooling of all resources and possessions of all family members and "standard of living of one individual is dependent on the number of household wage earners and the number of dependents. The family provides long-term security and finances medical and school expenses for their children."[4] The family acts not only as a household but also as a commercial enterprise.

Whyte (1996) focuses on the role of social structures, especially family patterns, to investigate their role in China's economic development. Shortly said, his view that the family has been an engine of growth in China. This is contrary to the view in which family firms are considered as only right for an agrarian society and, consequently, as outmoded forms of economic organization nowadays. The strong family loyalty and the family's habit of pooling income "diluted individual incentives to work, save and invest". However, this view has been roughly replaced by the view of family as an engine of growth, especially from the beginning of the People's Republic of China onwards.

Starting from the socialist era onwards, Whyte's view is that the socialist era (starting in 1950s) in sum had stimulated and reinforced family loyalty, which resulted in the possibility that family-based joint effort could be mobilized to contribute to economic growth (pg. 51). Notwithstanding the forces accompanying collectivization that weakened family ties, there were opposite forces, such as the fact that collectives were kinship-based, that migration restrictions held family on the farm and that individually-earned work points in the work point system were totalled. In the reform period, where restrictions on private entrepreneurship were gradually loosed, it appeared that entrepreneurial drives survived the socialist, collectivization era and that family ties indeed had preserved their strength within economic activity. In the whole countryside and in rural private as well as in collectively-owned

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[4] Worden et al (1987): http://countrystudies.us/china/51.htm

enterprises (TVEs) communal and family concerns remain absolutely central. See for example the study of Weitzman and Xu (1993) about the collective ownership of TVEs and the spirit of *gemen* in TVEs, described as "buddy-ship commitment and loyalty" that replaces contracts or ownership. Combined with the thousands-year old Confucian tradition that sees the community as a big family, mutual trust and a sharing attitude remain key features.

The notion of family loyalty as a source of motivation and performance is derived from several customs observed in Chinese families, according to Whyte (1996). Motivation for studying and working with great efforts is fed by the fact that it is done for the sake of the family, albeit in non-familial work settings far from home. Continuity of family firms is most important, even in the line of generations to come and notwithstanding better paying opportunities. The Chinese family is patriarchal, having an authority based on the family position, which reduces conflict behaviour. Rivalry among brothers is encouraged by individual incentives within the family firms. Not all decision-making is in hands of one person, the family patriarch; there is also decentralized decision-making, with own responsibility and decision-making without family approval. However, the family ties endure.

These strong family ties together with the known entrepreneurial roots of Chinese families deeply anchored in Chinese culture, has given the Chinese economy a deep family-based dynamism and is seen as one of the factors contributing to China's economic growth. Important for the purpose of this paper is that Whyte also signals that the persistence of strong family ties throughout the economic modernization process happened to a greater extent in *rural* than in *urban* areas. In urban areas there are forces at work that suppress family-based entrepreneurship. This is illustrated by the fact that in Chinese cities family firms are at small scale in only services, such as family-run restaurants, whereas rural family enterprises are also engaged in industry or construction activity.

This supports the view of the very different commercial mode of production, mainly settled in urban areas and separated from the traditional mode of production, predominantly present in rural areas and where kinship relations and obligations and a sharing attitude is basic. Besides strong family ties there is the Chinese *hukou* system that give rural people a registration status and limits moving to urban areas.

We turn to the household settings in *India*. India is a hierarchical society. There are more than 500.000 villages in India. Each village is a unity, but connected with horizontal linkages to other villages and with urban areas. Within the village there is a great division in group, linked to each other and which are based on occupational activity, kinship, caste and religion. In some sense one can say that the village is the basic unit: India as a village-based

society. There is a deep loyalty to the own village. This has especially to do with family ties that has bound a lineage to a village from a long time past, preventing easy movement to another village. The villagers share the knowledge about their origins and the common use of village facilities, illustrating a strong interdependence of (economic) activity.

Another theme around which India's society is circling are the inseparable ties to groups where one is born in. This is also within villages. India is a hierarchical society. Here comes to the fore the Indian institution of the caste system. The caste system separates people from birth within many sorts of groups/subcastes, which is strictly based on kinship and in which is a strong hierarchy, ranking from upper castes to lowest groups. The caste system and caste-based interactions have occurred for a long time and is part of a system of far-reaching interdependence throughout regions.

The caste division is already present on village level. Economic occupation is strongly caste-associated. Definition of the many castes can be along several lines. One of them is the Varna scheme, a large division including various castes. There are four broad groups distinguished in the Varna scheme - Brahmins, Kshatriyas, Vis and Sudras - and those people outside the Varna scheme. Traditionally, Brahmins were the priestly and scholarly community. Kshatriyas were the ruling groups. Vis were the business man, associated with trading, moneylending, and retailing. Sudras were the working class, the peasants and artisans. Among those outside the Varna scheme, the so-called "untouchables" [5] (the present-day Dalits) were mostly associated with the rural, landless labouring community and the tribal groups (the present-day Adivasis [6]) were those "living on the fringes of or outside the settled agricultural society."[7] It is very difficult to climb up in the hierarchy, because it is kinship-based.

It is widely recognized that the caste system still is a great determinant of power and economic inequality in India. People in lower castes live in conditions of great poverty and social disadvantage. This has consequences for access to education and credits. Socially-disadvantaged groups (as the Dalits and the Adivasis) have lower probability of finding employment in rural non-farm activities, staying longer in agricultural sector (see for instance Gaiha and Imai 2007 and Lanjouw and Murgai 2009). Some 16% of population belongs to the

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[5] In governmental schedules the "Untouchables" have been known as Scheduled Castes.
[6] In governmental schedules called "Scheduled Tribes".
[7] Caste and Wealth Inequality in India, by Ajit Zacharias and Vamsi Vakulabharanam (2009), Working Paper No. 566.

low-ranked groups. Although there is improvement in the positions in national laws, the overall picture is one of great inequality, involving millions of low-ranked people.

Important for the purpose of this paper is that in urban regions the caste barriers have been broken down when economic development continued and urbanization grew, giving room for a commercial mode of production. However, in rural areas the caste system persist and prevent social and occupational mobility. It keeps rural agents within the influence of their kinship, caste and village, creating large differences between behaviour of agents of the urban economy and traditional households of the countryside, residing in villages. Notwithstanding the rise of the rural non-farm sector and the need of its continuance, giving rise to more connections with urban economy, ties to villages remain strong. Interactions between the agents of urban and household setting remain hampered, while intra-agent interactions in rural economy remain dominant.

Besides strong kinship-based and village-based ties there is the low education level in rural India that limits movement to the modern sector. Moreover, India's has a large rural informal sector which is characterized by a traditional mode of production. The large differences in household endowments and the kinship-based caste system make India to a very heterogeneous population in which movement towards the modern commercial setting is strongly thwarted. Persuasion settings are important to bridge the heterogeneous parts and to take the place of common communication grounds.

5.2 Future outlook of the dualistic system

5.2.1 Theoretical notions

Influence of one setting on the other is larger when agent interaction (illustrated by labour and transformed GDP) of one setting is larger than the other. Besides that is the role of openness and communication of a setting. In case of China and India, absorption of the labour surplus (see Ch. 4) is not likely feasible in the modern, formal sector. Also, witnessing the rising unemployment in urban areas it is reasonable to state that absorption of rural agents in the urban part of the country is bounded. This insufficient absorption capacity combined with the fact that numbers of rural agents are large leads to the statement that it is likely that the growing influence of firm settings will slow down.

As shown, rural non-farm activity is rising strongly in recent years and we stated the necessity of a further rise of rural non-farm sector in order to fight adequately growing inequality in China and India. What will be the influence of this trend on the dominance of the household setting in these regions? In which way is this shown in the informal entrepreneurial

setting of rural regions? Here I use two lines. The first line is with regard to the typical dualism of large countries like China and India, which has resulted in stable and large dualistic populations, and which may not result in the influences the typical path towards a firm setting economy observed in smaller countries. The second line is about the growing income inequality that has been turned up in China and India in the last decade (see Ch. 3) and which will expectedly continue to force a strong rise in non-farm activity and a flow of employment in non-farm activity. Otherwise, the labour surplus present in agriculture and the new entrants to the labour markets could not be absorbed (at a sufficiently high rate). This second line has consequences for the first line. The rural poverty and growth-inequality trade-off problem is likely to be solved within household settings, which will strengthen the influence of household settings or temper the firm setting influence.

The first line treats the existing significant and persistent dualism. Development theories tells us that resources will be allocated from low-productive to high-productive sectors, that is, from traditional rural sector to the modern, urban sector. The two-sector model of Lewis (1954) and its modification and extension by Fei and Ranis (1964) represent well the basic working of labour-surplus models and theories. In its elementary form, the focus is on the transfer of labour from the traditional (mainly agricultural) low-productivity sector to the modern high-productive industrial, urban-based sector. The possibility of the transfer is determined by the existence of surplus labour, which includes all those whose marginal product is lower than their paid wage or their shadow wage. In the community-based rural settings, wages are determined by the average product of labour rather than its marginal product, contrary to the modern-sector markets where labour is employed up to the point where its marginal product equals the wage rate. A higher modern-sector wage rate together with expansion of the sector induces rural labour to flow into modern-sector activities, in the context of Lewis' model to migrate to urban areas.

Dynamically, the initial process of economic development is driven by an on-going labour transfer to the modern sector. After the point where the pool of labour surplus has been absorbed, supply of rural labour is no longer infinitely elastic. The productivity gap will narrow, rural wages will rise, dualism in economy will disappear and the neoclassical labour market principle will yield. Emphasis of economic activity now lies on the modern urban industry.

The model shares our point of absorption or transfer of the rural labour surplus being a key issue in economic development. The message of the Lewis-Fei-Ranis model – the crucial interaction between the agricultural and the modern sector – resembles China's and India's

dependence on the release of the still-present rural surplus labour and the absorption of mainly the higher-productive rural non-farm sector.

However, some critical comments to the model are necessary with respect to the subject of this paper – labour surplus absorption as a means to reduce income inequality. For instance, physical reallocation of rural workers to existing urban areas/cities is due to deteriorating employment opportunities and poverty situations in cities no longer a good option. Also, there is the trend of a slowing-down of absorption by industry, as we have seen earlier in this paper. A more competitive environment forces to work more efficient and more capital-intensive. Another difficulty is that surplus labour is not unlimited available for the modern sector, because lack of education in rural areas makes rural capacities insufficient for much modern commercial production, which often requires mainly skilled labour.

Development theory tells us that when economy is growing, the modern sector will displace informal-operating firms, because of their competitive and efficiency advantages. Redundant labour, especially the less-educated labour, will become unemployed, strengthening poverty and income inequality. This theory seems to be true in many (historical) cases and times in many countries, both in developing and developed world. However, in case of *large* developing countries there can be barriers that can hinder increased competition between the modern and traditional enterprise sector. China and India and comparable countries have an enormous population, both in urban and rural regions, both in formal and informal sectors. Dualism is strongly present. See above for shares of employment in informal and formal sectors. Share of self-employment is high, running up to 75% of total labour force. There is a mutual coexistence of the formal and modern sector on one side and the informal and traditional sector on the other. Shortly said, the traditional and modern enterprise world serve different populations, often spatially separated from one another and exhibiting different consumer and producer habits. From research under small enterprises taken in large countries in among others Pakistan and India Cohen (2009, pg. 266) found different profit rates that significantly differ from each other, feeding the idea that there is segmentation between different modes of enterprise, with a traditional, informal segment linked to local consumer markets at one side and a modern, formal segment serving the rest of the economy on the other.

This view on economic development and the reinforced segregation or dualism due to institutional barriers as well as the simple fact of very large magnitudes of agents that cannot be absorbed, are supported by several factors that can be witnessed in large economies in China and India. There remains a high share of informality. Moreover, the productivity gap

between agriculture an non-agriculture sector is widening in both China and India. Productivity of non-farm sector is already 6 times higher than the productivity of the farm sector (see later in Table 36 and 37).

There is a high level of unproductive or low-productive labour in agriculture (see Ch. 4). Especially the low and diminishing employment elasticities that the modern sector has witnessed in recent years, prevents sufficiently high absorption of surplus labour and let surplus labour and new labour market entrants flow into the informal sector/self-employment. The outcome is the high rural-urban income gap we already pointed to in Ch. 1.

Notwithstanding the mutual dependence in the sense of use of informal labour and delivering of cheap goods and services from the informal sector in general, mobility between the segments seems to be rather low, limiting the intensity of agent interactions and preventing a possible structural high trickle-down of economic benefits from the modern, high-productive sector to the low-productive sector.

The second line is with regard to the solution of the poverty/inequality problem *within the household settings*. Low employment elasticities show that the modern, urban, firm settings cannot absorb all the surplus labour. A strongly growing non-farm sector can absorb this labour, increasing rural incomes, with such a high growth rate that surplus labour would rapidly shed out of agriculture. Central point is here that rural labour (surplus or new entrants) will predominantly remain within rural regions, be it still in agriculture or absorbed by the rural non-farm sector. Rural labour will remain within the household mode of production, thus strengthening household setting influences in disfavour of firm settings.

Combining our first and second lines, we can state that the economic development of large labour-surplus countries will likely go along the line of reinforced or supported dualism of the economy. That is, the growth of modern sector (firm settings) will be different from 'normal', western or small countries and will go parallel to growth of the traditional, informal sector, such that its shares will remain stable. This statement is our central point of this part of the chapter.

5.2.2 The growth path

We try to quantify such a growth path. We use again the Index of Interactive Influence refereed to earlier in this chapter (Cohen 2009) and will examine its growth path.

A setting will grow in importance if the share of its agents and the share of goods most suitably transformed in this setting is growing, according to equation 1:

$$v_g = (\omega_1 A_g + \omega_2 C_g) \hspace{2cm} (1)$$

Setting Vg grows in importance over setting V_g' if the outcome of v_g at time point 1 is greater than its value on time point 2.

Ag is the share of agents in setting g, C_g is the share of goods and services demanded that are most suitably transformed in setting g, ω is the weight of the share. Setting V_g is going to prevail over the other settings and to replace them if this value reaches a threshold level, in literature estimated at 2/3rdor 3/4th. We already applied this index value above.

Quantification of this index has already been done earlier in this chapter. We approximated the parameter A_g and C_g as the relative shares of workers and GDP, respectively, in agricultural sector and industry sector, respectively. For China this index was 58 and 42 for household setting and firm settings, and steadily reversed to a value of 40 for household setting and 60 for firm settings in 2008. For India these index values were 72 and 28 at the end of the seventies, showing a clear dominance of households over firms and the dominance declining towards 57 and 43 in 2008, but still a bigger role for household settings relative to firm settings, as approximated by agricultural and industrial settings, respectively.

Let us first recalculate the Index of Interactive Influence for the years 2000 and 2008, taking now into consideration the rising importance of rural non-farm industry and services in rural economic activity in the last years. We do so by attributing some share of GDP and employment of the industrial to household settings, whereas earlier we calculated the index by attributing industry activity entirely to *firm settings*.

Which share of industry and services could we safely attribute to household settings? Here we make use of data about informal employment and informal production. For India, according to NSSO, 40% of national secondary *net domestic product* is informal; for services 50%. For employment, the shares of informal industry and services reach over 80%. For China, these shares are estimated around 50% –see Rada (2010). In literature and data sets manufacturing and some groups of services (governmental services, financial, insurance and real estate services) are considered as an entirely formal activity. Their contribution to industry and services is roughly 50%, but taking into account our *rural* focus we safely choose 20% for industry and 30% (more than proportionately) for services. The differences between the sectors is of course due to the higher-capital-intensive character of industrial activities. The chosen shares of 20% and 30% (or more than proportionate) are rough, perhaps arbitrary, but it is only to illustrate that the index value significantly changes in favour of

household settings if we take into account the growth of non-farm sector in the countryside. Tables 31 and 32 show the results.

Table 31 China: ratios of relative strength of household and firm settings (%) taking into account the rising non-farm sector

China	Labour ratio agriculture : industry	GDP ratio agriculture : industry	Average or index values
2000	75 : 25	39 : 61	**57 : 43**
2008	67 : 33	36 : 64	**52 : 48**

Note: services share divided proportionately over agriculture and industry; influence of rising non-farm sector taken into account, that is, industry consists partly of informal sector activity, indicating stronger household setting influences.
Source: author's calculations.

Table 32 India: ratios of relative strength of household and firm settings (%) taking into account the rising non-farm sector

India	Labour ratio agriculture : industry	GDP ratio agriculture : industry	Average or index values
1999/00	83 : 17	58 : 42	**70 : 30**
2007/08	80 : 20	50 : 50	**65 : 35**

Note: services share divided proportionately over agriculture and industry; influence of rising non-farm sector taken into account, that is, industry consists partly of informal sector activity, indicating stronger household setting influences.
Source: author's calculations.

Given a large, highly dualistic economy, with in agriculture a labour surplus present that could not be absorbed by modern sector, but needs to be absorbed by the informal, traditional sector, what is the growth path of labour and demanded goods of firm and household settings? We use a slightly altered version of the equations Cohen (2009) use in his model. We define A_f as the proportion of the number of agents belonging to firm settings in the total population and A_h as the proportion of agents in household settings. C_f and C_h are the shares of goods and services demanded that are most suitably transformed in firm and household settings, respectively, in total demand.

Let us specify the course of A_{ft} in equation 2. Starting point is the situation where *household settings are already there* and are *dominantly present*, fitting large countries as India and (to a lesser extent) China. The initial value of agents and transformed goods in household settings, L_{h0} and D_{h0}, will diminish as economy is growing, the initial values of agents and transformed goods in firm settings, L_{f0} and D_{h0}, will increase.

$$A_{ft} = L_{f0} [1 + (y_f *ee)]^t / L_0 (1+\pi)^t \qquad\qquad (2)$$

The share of agents in firm settings (A_f) is dependent on the initial value L_{f0}, the average growth rate of demand (y_f), the average output-employment elasticity of the modern sector (ee), the initial value of total number of agents (L_0) and the labour force growth rate (π). Earlier, we approximate the value of the share of agents in firm settings by taking the number of workers in industry and attributing a proportional part of the services labour to it. Household agents were approximated by the number of workers in agriculture and also attributing to it a proportional part of the services labour. We repeat this approach with the exception that we have a built-in possibility that some part of industry labour and a higher than proportionate part of services labour can be attributed to household settings. For that purpose, equation 2 becomes 3:

$$A_{ft} = [\rho_i\, L_{i0} + \rho_s\, L_{s0}] \, [1 + (y_f *ee)]^{\,t} / L_0 \,(1+\pi)^{\,t} \tag{3}$$

Here L_{i0} and L_{s0} are the initial values of *total* labour in the industry and services sector, respectively, and ρ_i and ρ_s the relative parts of total labour of the two sectors that must be attributed to the firm setting.

Share of agents of the household setting has a tendency to diminish. As economy is growing, surplus labour leaves agriculture, rapidly or not rapidly. According to the equation the share of agents in a setting is influenced by several factors. These are GDP growth, employment elasticity, share of the non-farm sector and labour force growth.

GDP growth – Share of agents in firm settings becomes higher when GDP growth is higher. The lower GDP growth, the more is firm setting's influence tempered. The modern sector is the sector with an open mind to foreign relations and that is be able to reap the fruits of higher world economy growth and higher exports. The higher economic growth, the more investments can be done by formal, modern sector and the more employment is created in this sector. Trickling-down of economic benefits to the traditional, informal sector slows down when economic growth is low, holding surplus labour longer in agriculture.

Employment elasticity – Employment elasticity, embodying labour productivity, shows the power of a sector to create jobs. A low employment elasticity favours household settings, because new entrants to the labour markets and surplus labour from agriculture face too few jobs in the modern sector and flow into self-employment.

Share of industry and services attributable to firm settings (ρ_i and ρ_s) – An increase of the rural non-farm sector leads to more activity and labour related to household settings, because

rural areas are characterized by traditional households exhibiting its typical behaviour. Especially the services sector, which is labour-intensive, inhabits a large part of informality. Expansion of rural non-farm sector is for a great part dependent on growth of total economy. It is likely that the effect of a higher overall GDP growth is less than the effect of the trickling-down towards rural areas, feeding rural non-farm sector. The first effect favours firm settings, but is more than offset by the second effect, strongly *tempering* influence of firm settings. This is certainly true when we also take into consideration the 'internal power' to grow of the rural non-farm sector (linkages to agriculture), independent of urban, commercial sectors.

Labour force growth – A higher growth of the labour force π is in favour of household settings, especially in combination with low employment elasticities of the modern sector. New labour market entrants will flow into self-employment within the informal, traditional economy. Rural areas are characterized by a higher natural population growth rate than urban areas, increasing rural labour force at a higher rate than urban. This strengthens household setting influences. Population growth higher than growth of labour force can be made visible in the equation by replacing GDP growth by growth of GDP per capita. This situation, e.g. ageing of a population, is in favour of household settings.

We turn to the second component of the Index of Interactive Influence that shows the strength of household and firm settings: demanded goods and services that are produced in each setting type. The relative strength of firm settings in the production sphere is expressed in equation 4. Approximation of firm setting's share of total demand is, as earlier described, the share of goods produced by industry, i.e. GDP. Equation 4 is formulated so as to incorporate the separate influences of economic transformations in industry and services, in the same way as we altered equation 2 into equation 3 above.

$$C_{ft} = [(\theta_i \, D_{i0} + \theta_s \, D_{s0}) \, (1 + y_f)^t] / [D_{a0} + (D_{i0} + D_{s0}) \, (1 + y_f)^t] \tag{4}$$

Here are C_f and C_h the shares of firm and household settings, respectively, in total GDP. D_{i0}, D_{s0} and D_{a0} are the initial GDP values of industry, services and agriculture, respectively, and θ_i and θ_s the relative parts of total labour of the two sectors that must be attributed to the firm setting. GDP growth is again represented by y_f.

According to equation 4 the share of demanded goods in a setting, here represented by GDP, is influenced by several factors. The share of GDP of household goods has a tendency

to diminish, whilst the GDP share of firm setting tends to do the opposite. The higher economic growth, the higher the growth of industry's GDP share, thus favouring firm settings.

In equations 3 and 4 above we gave the development paths of the interactive influence of firms settings (approximated by industry and services) with respect to concentration of agents, the A_f share; and concentration of production, the C_f share. Equations 5 and 6 give the two respective shares for household settings. By definition, A_h is 1 less A_f, and C_h is 1 less C_f.

$$A_{ht} = 1 - A_{ft} \qquad\qquad\qquad (5)$$

$$C_{ht} = 1 - C_{ft} \qquad\qquad\qquad (6)$$

Tables 33 and 34 show the growth paths under different growth scenarios and with different shares of rural non-farm sector (changing industry and services shares attributed to firm settings).

Table 33 China and India: growth path of relative strength of firm and household settings (%) with 0.1 employment elasticities

						China	India
	Employment elasticity					**0.1**	**0.1**
	Share of industry and services in labour attributable to firm settings					**80 : 41**	**80 : 25**
	Share of industry and services in GDP attributable to firm settings					**80 : 84**	**80 : 61**
	Labour force growth (av. ann.)			**2010-30**		**0.57**	**1.56**
				2010-40		**0.42**	**1.35**
				2010-50		**0.25**	**1.14**
	GDP growth rate Period	**2.5%**		**5%**		**7.5%**	
		Household settings	Firm settings	Household settings	Firm settings	Household settings	Firm settings
China	present	0.45	**0.55**	0.45	**0.55**	0.45	**0.55**
	2030	0.45	**0.55**	0.43	**0.57**	0.42	**0.58**
	2040	0.44	**0.56**	0.43	**0.57**	0.40	**0.60**
	2050	0.43	**0.57**	0.40	**0.60**	0.38	**0.62**
India	present	0.62	**0.38**	0.62	**0.38**	0.61	**0.39**
	2030	0.62	**0.38**	0.60	**0.40**	0.59	**0.41**
	2040	0.62	**0.38**	0.60	**0.40**	0.58	**0.42**
	2050	0.61	**0.39**	0.59	**0.41**	0.58	**0.42**

Source: Author's calculations; labour force data from UN population projections (2008).

Table 34 China and India: growth path of relative strength of firm and household settings (%) with 0.2 employment elasticities

					China	India
	Employment elasticity				0.2	0.2
	Share of industry and services in labour attributable to firm settings				80 : 41	80 : 25
	Share of industry and services in GDP attributable to firm settings				80 : 84	80 : 61
	Labour force growth (av. ann.)			2010-30	0.57	1.56
				2010-40	0.42	1.35
				2010-50	0.25	1.14
	GDP growth rate Period	2.5%		5%		7.5%	
		Household settings	Firm settings	Household settings	Firm settings	Household settings	Firm settings
China	present	0.45	**0.55**	0.45	**0.55**	0.45	**0.55**
	2030	0.44	**0.56**	0.41	**0.59**	0.39	**0.61**
	2040	0.43	**0.57**	0.40	**0.60**	0.35	**0.65**
	2050	0.41	**0.59**	0.36	**0.64**	0.30	**0.70**
India	present	0.62	**0.38**	0.61	**0.39**	0.61	**0.39**
	2030	0.62	**0.38**	0.59	**0.41**	0.58	**0.42**
	2040	0.61	**0.39**	0.59	**0.41**	0.56	**0.44**
	2050	0.61	**0.39**	0.57	**0.43**	0.55	**0.45**
	2050	0.61	**0.39**	0.57	**0.43**	0.55	**0.45**

Source: Author's calculations; labour force data from UN population projections (2008).

Varying share of agents in industry and services attributable to firms settings (lowering to 30 (China) and 20 (India)), while keeping its GDP share constant and employment elasticity low (0.1) gives Table 35, in which household settings gain in influence relative to Table 32.

Table 35 China and India: growth path of relative strength of firm and household settings (%) with lower share of industry and services attributable to firm settings attributable.

					China	India
	Employment elasticity				0.1	0.1
	Share of industry and services in labour attributable to firm settings				60 : 35	60 : 20
	Share of industry and services in GDP attributable to firm settings				80 : 84	80 : 61
	Labour force growth (av. ann.)			2010-30	0.57	1.56
				2010-40	0.42	1.35
				2010-50	0.25	1.14
	GDP growth rate Period	2.5%		5%		7.5%	
		Household settings	Firm settings	Household settings	Firm settings	Household settings	Firm settings
China	present	0.50	**0.50**	0.50	**0.50**	0.50	**0.50**
	2030	0.49	**0.51**	0.48	**0.52**	0.46	**0.54**
	2040	0.49	**0.51**	0.47	**0.53**	0.45	**0.55**
	2050	0.48	**0.52**	0.45	**0.55**	0.43	**0.57**
India	present	0.65	**0.35**	0.65	**0.35**	0.64	**0.36**
	2030	0.64	**0.36**	0.63	**0.37**	0.62	**0.38**
	2040	0.64	**0.36**	0.62	**0.38**	0.61	**0.39**
	2050	0.64	**0.36**	0.62	**0.38**	0.60	**0.40**

Source: Author's calculations; labour force data from UN population projections (2008).

5.2.3 Specific features of China versus India

Furthermore, we take some country-specific projections to assess China's versus India's growth path and future outcomes of the Index of Interactive Influence with respect to labour force growth rate, GDP growth rates and shares of industry and services.

Labour force development - Demographics is different for China than for India. See Figure 13 with data from the UN Population Database about labour force development in China and India. Decline of working-age population (age 15-64) is already taking place. Numbering now 970 million persons, it will continue to decline till 870 million persons. India's working-age population is increasing till 2045, to number 1,097 million persons, while it is now 780 million. Shares of working-age population in total populations follow another line. This share is already declining in China. The share now is 72% and is projected to be 69% in 2025 and 61% of total population in 2050, expressing ageing of the population. In India prospects are much more optimistic with respect to ageing. Share of working-age population in total population will increase from 64% now to 70% in 2040, after which it will decline.

With not much changing participation rates, this different situation in India has already been taken into account in Tables 33-35 above. It tends to give more influence of household settings in India.

Figure 13 China and India: projections of working-age population in millions and share in total population
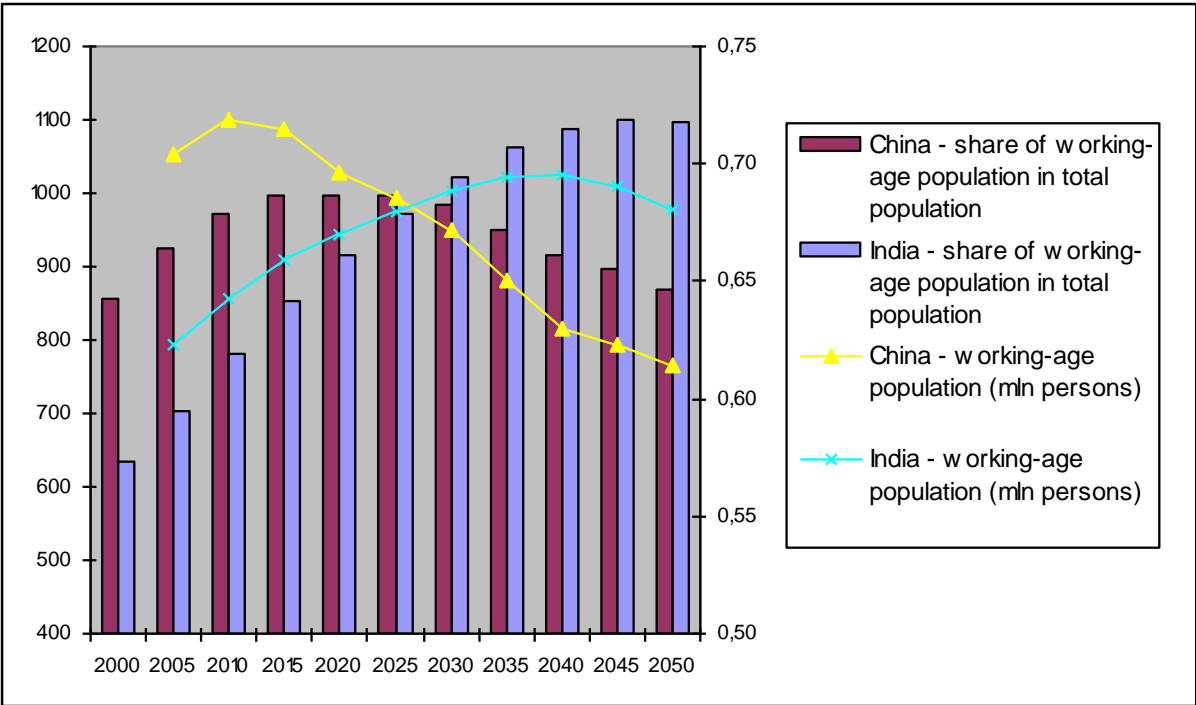
Source: UN population projections (2008).

Development of industry vs. services share in rural areas – Turning to our index value, a higher industry and services share attributable to household settings would mean a successful rise of non-farm activity in rural areas. If governmental policies are redirected to this, especially in a way that it generates a good number of jobs, then household settings would gain in influence. This is demonstrated in Table 35, by enhancing the industry and services shares with respect to agents that can be attributed to household settings.

Famous is the so-called *urban bias* of governments in developing countries (see Lipton 1977). It means a growth strategy that favours investments in and resources to largely the industrial sector, by extracting or diverting resources away from the rural or agricultural sector. In case of China there are several authors that point to an industry-biased strategy, visible in e.g. low prices of input goods of industrial sector and favoured financing (e.g. Wang and Kuijs 2006, Bezemer and Derek 2008, Gao 2010). Evidence from data can be seen in the high GDP growth of Chinese industry in the nineties side by side with low employment generation. High growth had been generated by a strong rise in labour productivity, reflecting high capital accumulation. Table 36 gives the labour productivities of the three sectors in China.

These data show an increasing gap between the labour productivities of agriculture and the non-farm sector (industry and services). The industry-agriculture productivity ratio (constant prices) in 2008 is nearly 7 times; services 5 times. This is contrary to standard development economic theories that forecast a narrowing of the two productivities (e.g. Lewis 1954). The rising productivity differential is a sign of the slow-down of labour movement form agriculture to non-agricultural sectors. Especially the large industry-agriculture productivity gap points to market imperfections and government intervention, specifically an emphasis on industrial development with its large use of capital, not simultaneously stimulating services.

More emphasis on services and commercial agriculture would offset this skewed allocation of resources. In so far China's urban bias means a stimulus of the industrial, *urban* modern sector, neglecting industry in township and village enterprises and services in rural areas, then a shift of more resources towards rural services sector and *rural* industry (TVEs) would lead to faster labour reallocation out of agriculture. The rural-urban income gap would narrow, without a strengthening of the modern firm setting.

Table 36 China: labour productivity gap and growth by sector

	Labour productivity					Average annual growth of labour productivity							
	Agr.	Non-agr.	Ratio	Ind.	Serv.		Agr.	Ind.	Serv.		Agr.	Ind.	Serv.
1978	231	781	0,30	730	853								
1983	290	939	0.31	849	1057	**1978-83**	4.7	3.1	4.4				
1988	348	1335	0.26	1171	1533	**1983-88**	3.7	6.7	7.7	**1978-88**	4.2	4.8	6.0
1993	370	1697	0.22	1730	1664	**1988-93**	1.2	8.1	1.6				
1998	485	2426	0.20	2816	2084	**1993-98**	5.6	10.2	4.6	**1988-98**	3.4	9.2	3.1
2003	547	3570	0.15	4537	2853	**1998-03**	2.4	10.0	6.5				
2008	789	4872	0.16	5954	3980	**2003-08**	7.6	5.6	6.9	**1998-08**	5.0	7.8	6.7

Source: author's calculations with data from WDI and National Bureau of Statistics (various years)

Table 37 India: labour productivity gap and growth by sector

	Labour productivity					Average annual growth of labour productivity							
	Agr.	Non-agr.	Ratio	Ind.	Serv.		Agr.	Ind.	Serv.		Agr.	Ind.	Serv.
1978	274	1058	0.26	964	1130								
1983	292	1119	0.26	991	1219	**1978-83**	1.2	0.5	1.5				
1988	307	998	0.31	1003	995	**1983-88**	1.0	0.2	-4.0	**1978-88**	1.1	0.4	-1.3
1993	341	1445	0.24	1288	1555	**1988-93**	1.8	4.2	9.3				
1998	407	1973	0.21	1649	2197	**1993-98**	3.0	4.2	7.2	**1988-98**	2.4	4.2	6.8
2003	411	2409	0.17	1828	2858	**1998-03**	0.2	2.1	5.4				
2008	473	3106	0.15	2265	3760	**2003-08**	4.8	7.4	5.6	**1998-08**	1.9	4.0	6.9

Source: author's calculations with data from WDI and National Sample Survey Organization (NSSO), various rounds

India's growth story is one of a highly expanded services sector. Its GDP share is the highest in total GDP (55%), while labour employed is also higher in services than in industry. However, employment elasticities in services decrease gradually, reaching a level near zero (see Table 15).

The labour productivity ratio of agriculture to non-agricultural sector was 0.24 in 1993-94 and went to 0.15 in 2007-08. Industrial labour productivity in 2008 was 5 times the agricultural labour productivity, while services labour productivity was nearly 8 times the agricultural labour productivity. Both have risen, again illustrating slow absorption of surplus labour.

Employment generation in the *rural* non-farm sector will accelerate labour reallocation. The rural-urban income gap would narrow, strengthening the traditional, household setting.

GDP growth projections - Table 38 shows projections of GDP growth rates in US$ and in real terms. India's potential of real GDP growth is projected to be higher than China's. Till 2050 India's annual growth rate will stay above 5%, while China's would steadily decrease to around 2.5% in 2050 (Goldman Sachs 2003). According to equation 2 and 4, higher growth rates of GDP should enhance firm setting influences more in India than in China. However, given absorption limits of the modern sector, it is more realistic to consider GDP growth not in isolation, but in combination with the accompanying growth of the rural non-farm sector and India's higher growth of labour force. The higher GDP growth, the higher also urban-rural trickle-down grades of economic benefits. The higher (rural) labour force growth, the higher the number of agents that enter the rural labour market. Consequently, in India firm settings influence will be tempered strongly in both cases.

Table 38 China and India: projections of GDP growth rates

	China	India		China	India	China	India	China	India
	GDP (US$)			GDP		GDP per capita		Real GDP	
				av. ann. growth rate		av. ann. growth rate		av. ann. growth rate	
2015	4754	1411							
2020	7070	2104	2015-20	8.3	8.3	7.7	7.1	5	5.7
2025	10213	3174	2020-25	7.6	8.6	7.3	7.5	4.6	5.7
2030	14312	4985	2025-30	7.0	9.4	6.8	8.3	4.1	5.9
2035	19605	7854	2030-35	6.5	9.5	6.5	8.9	3.9	6
2040	26439	12367	2035-40	6.2	9.5	6.3	8.8	3.9	6
2045	34799	18847	2040-45	5.6	8.8	5.8	8.2	3.5	5.6
2050	44453	27803	2045-50	5.0	8.1	5.3	7.6	2.9	5.2

Source: Goldman Sachs (2003)

5.2.4 Persistent dualism and behavioural spread

The outcomes of the model show the persistent dualism. Several forces influence the future development of dualistic shares, of which the driving force is the rise of rural non-farm activity, which is in turn driven by low employment elasticities and which is in the model represented by a higher share of total industry and services that can be attributed to household settings.

China is most near to the threshold level of two-third in favour of firm settings, while household setting in India under the same conditions (but e.g. differing in labour force) has much more influence, for a great deal, of course, determined by the initial position. However, less optimistic and more realistic scenarios keep firm setting's share stable between 50 and 60% for China and under 50% for India. This is in agreement with our labour surplus calculations in Ch. 4, where the labour surplus under pessimistic growth and labour demand projections is still far from exhausted after several decades for countries.

Another indication for tempered firm settings influences in the coming decades is the limit to the urbanization rate, reaching the boundary of 50% for China and 40% for India after several decades, while in small developing countries the urbanization rates exceed these boundaries significantly.

Although welfare levels of the traditional rural sector agents are gradually lifted up as rural economy is growing, the behaviour component of dualism, reflecting the *different behaviour* of agents in both settings, will persist. Here appear the barriers that limits agents interactions and mobility. These barriers prevent the ultimate dominance of one setting over the other, in our context, a dominant prevalence of firm setting in large economies as China and India. Reallocation of agents from traditional household sector to the modern, high-productive sector has always been hampered by certain barriers: specific to China and India are the strong kinship-based ties to family and village, the *hukou* system in China and caste system in India, and low education levels and skills in especially India. However, the situation is exacerbated by low labour-surplus absorption of modern sector, giving rise to expansion of the non-farm sector in rural areas, within household settings. The influence of household settings remains large and firm setting influence is tempered under most scenarios that are realistic for China and India, e.g. lower projected GDP growth rates (per capita), low employment elasticities and continuing growth of labour force in case of India.

Household behaviour goes along the lines of how to generate income for their household members and how to deal with job scarcity in urban or modern sector. Household behaviour along solidarity structures, such as income sharing and mutual help at the social-group level, will be strengthened. This behaviour continues to be communicated to the firm settings in inter-settings interactions, however without getting overruled by firm setting behaviour due to restrictions by persistent or even reinforced labour immobility between the settings. *Inter*-setting interactions become limited and so does mutual influence. Consequently, *intra*-setting interactions get reinforced.

Village-based and kinship-based economies as rural China and rural India and their behaviour give a unique dimension to the rising income inequality and poverty policies of China and India. Persuasion settings will continue to play an important role, streamlining the interest of the different groups within the boundaries of one country.

5.3 Concluding remarks

Whether rural-urban income inequality would rise or diminish, development of the rural non-farm sector is the key solution to absorb the large labour surplus, witnessing absorption limits

of modern, urban sector. Speed of absorption and narrowing of income inequality dependent on several factors, such as development of labour force and economic growth:

- Given continuing low employment elasticities in modern sector, high total economic growth will boost rural non-farm sector further, resulting in rapid labour absorption, higher rural incomes and expectedly a narrowing income gap.
- Low economic growth, combined with low employment creation, would keep surplus labour longer in agriculture and would result in slower growth of rural non-farm sector and a deteriorating effect on inequality development.

Of course, growth perspectives are also conditional to the possibility of rural non-farm sector development on a strong base. This is subject to government efforts to improve essential conditions, such as more resources towards agriculture so as to modernize its production, an upgraded education level, provision of public goods in the countryside and improvement of physical and financial infrastructure.

We showed in Ch. 5 the persistence of dualism: the coexistence of a traditional household setting and a modern firm setting, with their own behaviours. Core assumption is the need that rural non-farm sector will grow firmly in order to absorb labour surplus. Rural economic activity will likely predominantly expand within the circles of a traditional mode of production, in which kinship- and village-based ties are still very important. Behavioural spread of modern settings within large developing countries is thus limited, contrary to mainstream economic theory. Several barriers prevent agent mobility and reinforce intra-setting interactions.

Governmental actions to reduce the rural-urban inequality gap in order to reach sustainable economic growth, must be adapted to the unique dimension of rural households in their strong kinship-based ties that bind agents to their families and villages.

6. Conclusions

The central question we examined is: what are the effects of a large rural labour surplus in populous developing countries such as China and India on income inequality, the development of rural non-farm activities and for the organization of rural economic activity?

In large developing countries one can witness a strong growth-inequality trade-off. We showed in Ch. 1 that in China and India economic growth is high and absolute poverty is mainly decreasing, but also that this is accompanied by a strong rise in income inequality. The rural-urban income gap in income is widening. It is well-known that in countries as China and India there still is a large number of surplus workers in agriculture, depressing agricultural wage incomes.

Employment creation in non-farm sectors is important. We showed in Ch. 2 that there has been much employment creation throughout the last two and three decades up to now. This has resulted in a declining GDP share of agriculture and a steady reallocation of agricultural employment towards industry and services. However, measured by employment elasticities we recognized that employment creation has been slowed, even to levels of 0.1 and 0.2 in the second half of the last decade. This applies for all sectors. This is mainly due to a steady rise of labour productivity in the modern industry and services and a widening productivity gap with agriculture. This prevents surplus labour moving into higher-productive sectors.

We calculated in Ch. 4 the magnitude of labour surplus in agriculture, getting numbers between 100 million and 200 million surplus workers in both India and China. This high numbers depress agricultural wage incomes.

The remedy towards the twin problems of poverty and employment is the potential of rural non-farm activities. Stepping into diversifying activities, i.e. rural non-farm activities, has always been present, but the rise of this sector is going on. We showed in Ch. 3 that it has reached levels of 25-30% % of rural production and rural employment. In China around 2008 rural non-farm income in already 49% of total rural income. An continuing strong rise of rural non-farm sector could be a safe haven in reaction on the little employment creation power of urban and, of course, the agricultural sector.

In Ch. 5 we treated some theoretical notions about economic systems and coupled the labour surplus absorption problem to the highly-present dualism in large-populated countries as China and India. We brought out the unique character of such countries: there coexist two segregated populations: a modern, commercial, high-productive sector and a traditional, low-

productive, household-oriented sector. They represent two very different modes of production and sets of behaviour. Agents of one setting show the same behaviour in welfare striving and economic activities, shortly said, profit maximization in firm settings and income sharing motives in household settings.

We described that, contra to economic development theories and development evidence witnessed in western countries and smaller developing countries elsewhere, especially in heavily-populated dualistic economies the traditional sector will continue to coexist with the modern sector and that it is likely to grow separately from the modern sector. Due to low employment elasticities in modern sector, large numbers involved and certain barriers to move, surplus labour and new entrants remain in the traditional, informal, household setting, characterized by low-productivity and self-employment. Most important barriers to move are the strong family-based ties that bind agents to their families and villages.

We presented a growth model, with in the centre of analysis the low employment elasticity of modern sector and a rise in rural non-farm sector, which will temper modern sector influences and relatively enhance the household setting's influence and behaviour. Likely, dualism would continue to persist: the modern, commercial sector in large labour-surplus countries will not easily overrule the traditional sector, certainly not within the near future of some decades.

This has regressive effects on income inequality in the long run for populous countries as China, India, Pakistan and Bangladesh. Governmental actions to reduce the rural-urban inequality gap and to reach higher levels of sustainable economic growth, need to be adapted to the unique dimension of rural households in their strong kinship-based ties that bind agents to their families and villages.

References

Ajit, Z. and V. Vakulabharanam (2009), *Caste and Wealth Inequality in India*, The Levy Economics Institute, Working Paper No. 566, May 2009.

Alesina, A. and P. Giulian (2007), *The Power of the Family*, National Bureau of Economic Research, Working Paper No. 13051, April 2007.

Bezemer, D.J. and H. Derek (2008), *Agriculture, Development and Urban Bias, World Development*, Elsevier, vol. 36 (8), pg. 1342-1364, August 2008.

Cohen, S.I. (2009), *Economic Systems Analysis and Policies, Explaining Global Differences, Transitions and Developments*, Palgrave Macmillan, London.

Ercolani, M.G. and Wei, Z. (2010), *An Empirical Analysis of the Lewis-Ranis-Fei Theory of Dualistic Economic Development for China*, Discussion Papers 10-06, Department of Economics, University of Birmingham.

Fei, J.C.H. and G. Ranis (1964), *Development of the Labour Surplus Economy: Theory and Policy*, Homewood, Illinois: Richard A. Irwin, Inc.

Fei, J.C.H. and G. Ranis (1997), *Growth and Development from an Evolutionary Perspective*, Blackwell.

Gaiha, R. and K. Imai (2007), *Non-agricultural employment and poverty in India: An analysis based on the 60th Round of NSS*, Economics Discussion Paper EDP-0705, The University of Manchester.

Gao, Y. (2010), *Urban Bias, Rural-Urban Income Gap and Agricultural Growth: the Resource-Diverting Effect of Rural-Urban Income Gap in China*, Monash University, Department of Economics, Discussion Paper 34/10.

Goldman Sachs (2003), *Dreaming with BRICs: The Path to 2050*, Global Economics, Paper No. 99.

Haggblade, S, P. Hazell and T. Reardon (2002), *Strategies for Stimulating Poverty-Alleviating Growth in the Rural Non-farm Economy in Developing Countries*, World Bank, EPTD Discussion Paper No. 92.

Haggblade, S, P. Hazell and T. Reardon (2007), *Transforming the Rural Non-Farm Economy: Opportunities and Threats in the Developing World*, Oxford University Press, New Delhi.

Heitzman, J. and R. L. Worden (eds.) (2005), *India: A Country Study*, Washington: GPO for the Library of Congress.

Johnson, D.G. (2002), *Can Agricultural Labour Adjustment Occur Primarily through Creation of Rural Non-Farm Jobs in China?*, Urban Studies 39 (12), pg. 2163–2174.

Kaur, S., V.S. Klukarni, R. Gaiha and M.K. Pandey (2010), *Prospects of Non-Farm Employment and Welfare in Rural Areas*, invited contribution to: Routledge Handbook of South Asian Economics.

Khan, A. R. (2004), *Growth, Inequality and Poverty in China: A Comparative Study of the Experience in the Periods Before and After the Asian Crisis*. Issues in Employment and Poverty, Discussion Paper 15, ILO, Geneva.

Khan, A. R. (2007), *Asian Experience on Growth. Employment and Poverty*, Geneva: UNDP and ILO.

Kuijs, L. and T. Wang (2006), *China's pattern of growth: moving to sustainability and reducing inequality*, China & World Economy, Vol. 14 (1), pg. 1-14, February 2006.

Lanjouw, P. and R. Murgai (2008), *Poverty Decline, Agricultural Wages, and Non-Farm Employment in Rural India 1983–2004*, Washington DC: The World Bank Policy Research Working Paper 4858, March 2008.

Lewis, A. W. (1954), *Economic Development with Unlimited Supplies of Labour*, in Manchester School, Vol. 22 (2), pp. 139-191.

Lipton, M. (1977), Why poor people stay poor: urban bias in world development, Temple Smith and Harvard, Cambridge, MA.

Mukharjee, A. and Zhang, X. (2005), *Rural Non-Farm Development in China and India: The Role of Policies and Institutions*, DSGD Discussion Paper No. 24

National Bureau of Statistics (NBS) (various years), China Statistical Yearbook, Beijing: China Statistics Press.

NCEU (2007), *Report on Conditions of Work and Promotion of Livelihoods in the Unorganised Sector*, National Commission for Enterprises in the Unorganised Sector, August 2007, New Delhi: http://nceus.gov.in/Condition_of_workers_sep_2007.pdf.

NCEUS (2008), *Contribution of the Unorganised sector to GDP - Report of the Sub Committee of a NCEUS Task Force*, National Commission for Enterprises in the Unorganised Sector.

National Sample Survey Organization (NSSO), various rounds, Employment-Unemployment Situation in India, Government of India, New Delhi: Ministry of Statistics and Programme Implementation.

Organization for Economic Development and Cooperation (2002), *China in the World Economy. The Domestic Policy Challenges*, Paris: OECD.

Organization for Economic Development and Cooperation (2007), *Labour markets in Brazil, China, India and Russia and Recent Labour Market Developments and prospects in OECD countries*, Employment Outlook (Chapter 1), OECD Publishing, Paris.

Rada, C. (2010), *Formal and Informal Sectors in China and India: An Accounting-Based Approach*, Department of Economics, Working Paper 2009-02, University of Utah.

UN (2008), United Nations Population Division. World Population Prospects: The 2008 Revision Population Database, available at http://esa.un.org/unpp/index.asp?panel=2.

Weitzman, M. and C. Xu (1993), *Chinese Township-Village Enterprises as vaguely defined Cooperatives*, Discussion Paper No. 155, Centre for Economic Performance, June 1993

Whyte, M.K. (1996), *The Social Roots of China's Economic Development*, in Walder, A.G. (ed.), China's Transitional Economy, Oxford University Press, Oxford.

Worden, R.L., A.M. Savada and R. E. Dolan (eds.) (1987), *China: A Country Study*. Washington: GPO for the Library of Congress, 1987.

World Bank, Development Research Group, PovcalNet: the on-line tool for poverty measurement developed by the Development Research Group of the World Bank: http://iresearch.worldbank.org/PovcalNet/povcalNet.html, 2010.

World Bank, World Bank Development Indicators, World Bank: Washington, DC.