Rural–Urban Disparity and Sectoral Labour Allocation in China

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This study examines China's rural–urban segmentation and its causes in the context of economic reforms. Household survey and aggregate data indicate a V-shaped process in which rural–urban consumption and income differentials decreased between 1978 and 1985, but then have continually increased to historically high levels. This sectoral division is consistent with production function estimates based on provincial data that reveal higher labour productivity in urban/state-owned industries than in rural industries and agriculture. To explain the V-shaped change, we argue that the precedent of successful rural reforms raised farmers' relative earnings, but the remaining obstacles to an efficient sectoral allocation of labour have prevented China from eliminating dualism. Recent financial policies consisting of urban price subsidies and increased investment credits have also had influential distribution effects that are biased against the rural sector.

INTRODUCTION

The separation of rural and urban sectors has been a major feature of the Chinese economy. which has been studied extensively by economists.[1] Shortly after establishing the socialist regime in 1949, China started a development strategy that emphasised urban industries with capital intensive technology. Extracting agricultural surplus and retaining profits in industries were the key sources of capital accumulation. The centrally planned system. which had urban/state-owned enterprises and rural communes as its administrative foundations, was effective in ensuring such

an industrialisation process. Among the policy measures, restrictions on rural-to-urban migration made it possible to maintain low urban consumption and to increase industrial investments. Prior to the start of economic reforms in 1978, capital goods were excessively concentrated in the urban sector and a large fraction of the labour force was restrained from leaving agriculture.[2] As a result, urban workers' productivity, earnings, and consumption levels exceeded that of their rural counterparts.

As part of the reforms, a series of policies have been introduced to reduce the rural–urban division. Such policies include increases in procurement prices for agricultural products, the adoption of household responsibility systems, liberalising local markets, the relaxation of restrictions on labour mobility to cities, and capital investment in rural industries. There have been improvements in sectoral factor markets and rapid increases in farmers' earnings. One remarkable success is the development of rural industries, which have become a powerful source of economic growth.[3] Because of these improvements in the rural regions, economists and other China observers have speculated that the rural–urban productivity and income gaps have begun to narrow [*Oi, 1993; Zhang et al., 1994a*].[4,5]

This study examines China's rural–urban disparity from several angles using different data that were released by the State Statistical Bureau of China (SSB). First, we use national average per capita information to compare consumption levels of rural and urban residents. Next, we use comprehensive household survey data to examine differences in per capita disposable incomes. Contrary to the belief in a persistent, narrowing rural–urban gap since the reforms, the data indicate a V-shaped process in which the consumption and income differentials decreased between 1978–85, but then increased to historically high levels in the early 1990s. Dualism did still prevail in China after one and a half decades of economic reforms. Using 1987–92 Chinese provincial data, we also conduct production function analyses to examine labour productivity differences in state enterprises, rural industries, and agriculture. The results reveal substantially higher productivity in urban/state-owned industries than in the rural sectors, confirming the sectoral division found in consumption and income comparisons.[6]

We then proceed to investigate sectoral labour allocation as a determinant of disparity. We argue that the high concentration of capital in cities and of labour in the countryside, a result of the heavy-industry oriented development strategy, was the basis of sectoral insulation. Furthermore, labour mobility restrictions were an instrument for achieving development goals under the centrally planned regime. Consequently, the relaxation of rural labour mobility restrictions since the reforms and the start

of successful rural transformation raised farmers' relative earnings, reducing the disparity between 1978 and 1985. However, there are remaining institutional obstacles, both in the urban and rural sectors, that prevent an efficient labour allocation and therefore the elimination of dualism. In addition, the contractionary policies in the late 1980s and the recent financial policies consisting of urban price subsidies and increased investment credits have also had influential distribution effects biased against the rural sector. These new urban-biased policies have been powerful enough to cause an upward movement in the V-shaped trend since 1985.

DIFFERENCES IN CONSUMPTION AND INCOME

An analysis of consumption and income provides one kind of evidence on the rural–urban linkages of an economy. In the classical models of dualistic economic development, wages of workers in the modern sector are higher than workers' earnings in the traditional sector.[7] The development process involves continuous labour transfers from the low to the high income sector, and dualism will end when factors of production are rewarded with competitive prices. For labour, comparable earnings and consumption in the two sectors are often used as indicators for rural–urban integration. If severe gaps exist, they indicate sectoral segmentation.

However, one should be cautious in comparing rural–urban consumption and incomes. First, labour quality, including schooling, training, and experience, has to be adjusted when considering earnings in alternative sectors. Second, the comparison should be made in real, not monetary, terms. Third, any difference in the cost of living between urban and rural areas should be taken into account. Furthermore, the comparison should also reflect differences in the provision of subsidised public services, such as health care and housing across sectors. In practice, it is difficult to adjust for all these factors and we have to rely on available information. In what follows, we will first compare rural–urban per capita consumption expenditures. Then, we will utilise newly-published information by the State Statistical Bureau to examine sectoral income differences and contrast them with the trends in consumption expenditures. These analyses will cover an extended time period so that, if the above biases are systematic and time invariant, then the assessment will reflect relative changes before and after the reforms.

Table 1 presents nominal per capita consumption expenditures between 1952 and 1992. The figures, taken from the 1993 *Statistical Yearbook of China*, include the national average, separate statistics for rural and urban levels, and the ratio of sectoral expenditures. The data sources for

TABLE 1
PER CAPITA CONSUMPTION OF RURAL AND URBAN RESIDENTS, 1952–92

Year	National average	Rural residents	Urban residents	Urban/ Rural
1952	76	62	149	2.4
1953	87	69	181	2.6
1954	89	70	183	2.6
1955	94	76	188	2.5
1956	99	78	197	2.5
1957	102	79	205	2.6
1958	105	83	195	2.3
1959	96	65	206	3.2
1960	102	68	214	3.1
1961	114	82	225	2.7
1962	117	88	226	2.6
1963	116	89	222	2.5
1964	120	95	234	2.5
1965	125	100	237	2.4
1966	132	106	244	2.3
1967	136	110	251	2.3
1968	132	106	250	2.4
1969	134	108	255	2.4
1970	140	114	260	2.3
1971	142	116	267	2.3
1972	147	116	295	2.5
1973	155	123	306	2.5
1974	155	123	313	2.5
1975	158	124	324	2.6
1976	161	125	340	2.7
1977	165	124	360	2.9
1978	175	132	383	2.9
1979	197	152	406	2.7
1980	227	173	468	2.7
1981	249	192	520	2.7
1982	266	210	526	2.5
1983	289	232	547	2.4
1984	327	265	598	2.3
1985	403	324	727	2.2
1986	447	351	833	2.4
1987	508	389	991	2.5
1988	635	473	1281	2.7
1989	694	513	1394	2.7
1990	723	524	1477	2.8
1991	803	570	1676	2.9
1992	935	648	1983	3.1

Note: The units are nominal values in yuan except for the urban/rural ratio.

Data Source: SSBa [1993].

computing these expenditures are the *Urban Household Survey* and the *Rural Household Survey* administered by the SSB, which has collected data annually since 1952. These surveys consist of large, national random samples and contain diary information on an exhaustive set of consumption items.[8]

It is helpful to analyse the data according to four historical periods: (1) 1952–57, the years of socialist restructuring; (2) 1958–60, the Great Leap Forward (GLF) movement; (3) 1961–77, the period of economic stagnation and the Cultural Revolution; and (4) 1978–92, the era of economic reforms. From 1952–57, the urban-rural consumption ratios were high, ranging from 2.4 to 2.6. During the GLF, China suffered from a major decline in food supply and the protective government policies toward cities enlarged the urban–rural consumption differences to the highest levels of 3.1 in 1959 and 3.2 in 1960.[9] In the subsequent years of economic stagnation, the consumption ratios ranged between 2.3 and 2.9, revealing an upward trend in the late 1970s. These figures show a significant gap between rural and urban consumption levels prior to the reforms. The emphasis on heavy industry development and the restrictions on rural-to-urban migration were largely responsible for this situation.[10]

Have economic reforms reduced sectoral consumption differences? The data reveal a V-shaped trend in which the urban–rural ratio declined in the early years of reform, reaching its lowest level of 2.2 in 1985, then steadily increased to 3.1 in 1992, comparable with the highest levels during the Great Leap Forward. These figures challenge the notion of narrowing rural–urban disparity in the post-reform era.

There are at least two difficulties in comparing rural–urban consumption expenditures in China. The first is the lack of regional commodity prices, especially for self-retained production by farm households. This problem of relative prices may cause systematic bias in evaluating the sectoral consumption ratios. However, if the regional price biases are time invariant, the above conclusions on the *changes* of rural–urban disparities will not be affected. The second concern is that the definitions of rural and urban have changed over time [*Chan and Xu, 1985; Goldstein, 1990*]. In 1984 particularly, the central government relaxed the criteria for population size and the proportion of nonagricultural residents to define a town. Consequently, the number of townships increased fourfold. At the same time, a large number of households were reclassified as urban. Such changes in definitions could affect rural–urban consumption ratios. The direction of the effects was uncertain, however, because those households that changed to urban status were likely to have above-average consumption levels among rural residents, but they were comparatively poor among urban households. The likely consequence was to lower the average

consumption expenditures for both urban and rural families. From a different angle, such reclassification could only cause a level shift in rural–urban ratios, but not changes in the ratios over time. In short, these two concerns do not alter the V-shaped observation.

The analysis of consumption expenditures does not reflect real purchasing power, however, because savings are omitted. For this reason, incomes are usually better indicators of rural–urban disparity. To calculate household incomes in China, it is necessary to be aware of the institutions that determine the sources of earnings. In cities, wages only represent a fraction of total income, which also includes welfare provisions such as housing, health services, in-kind transfers, and price subsidies. But the *Urban Household Survey* does not contain many of these non-wage earnings. In contrast, earnings in the *Rural Household Survey* are more inclusive. They contain labour market incomes from agricultural and non-agricultural sources, value-added from self-employed activities,[11] transfer incomes including remittances, and asset earnings. Because of the above differences in earning sources and survey coverage, the sectoral incomes inferred from the household surveys are not readily comparable. In a recent study, researchers at the SSB [*Zhang et al., 1994b*] made an effort to construct comparable incomes for rural and urban households. Supplementing the household surveys with information on urban non-wage earnings, their study was capable of dealing with the institutional ambiguities that affect the estimation of full incomes.

Based on Zhang *et al.* [*1994b*], Table 2 presents per capita disposable income (PDI) of urban residents between 1980 and 1992. The researchers defined the urban PDI with two components, pecuniary and non-pecuniary earnings, where the former was the wage income and the latter consisted of housing subsidies, medical services, in-kind compensations, and price subsidies. Although non-wage income allocations were not recorded in the *Urban Household Survey*, aggregate expenditures were available at city levels [*MOL, 1990-93*]. Zhang and his associates used the aggregate information to compute per worker non-wage allocations and thus obtained estimates for the 'hidden earnings'. The figures in Table 2 show that non-pecuniary earnings counted for a large share of urban disposable incomes (30.8 per cent) in 1980 and, despite a steady decline, still counted for about 19 per cent of total incomes in 1992. These non-pecuniary incomes are given by specific institutions to their employees and therefore are not available to rural migrants into cities. Later, we will discuss these urban welfare provisions as barriers to permanent rural-to-urban migration.

Table 3 reports price deflated urban and rural PDIs and their ratios. While the urban PDIs have adjusted for non-wage incomes, the rural PGIs are full earnings based on the *Rural Household Survey*. These figures

TABLE 2
URBAN PER CAPITON DISPOSABLE INCOME: NOMINAL YUAN

Year	Urban PDI[1]	Pecuniary PDI	Housing subsidy	Medical subsidy	In-kind transfer[3]	Price subsidy[4]	Non-income[2]
1980	620.2	429.4	74.3	39.9	22.0	54.6	190.8
1981	681.7	490.4	74.7	21.4	22.9	72.4	191.3
1982	721.5	525.3	74.5	22.0	24.7	75.0	196.2
1983	770.4	562.9	75.0	23.0	26.3	83.3	207.5
1984	870.3	650.1	81.0	21.6	30.4	87.1	220.2
1985	967.2	738.9	91.0	22.2	34.4	80.9	228.3
1986	1143.5	900.0	101.8	34.6	41.4	65.8	243.5
1987	1268.7	1002.2	106.7	41.6	45.8	72.3	266.5
1988	1477.7	1182.1	115.3	51.8	56.0	72.4	295.6
1989	1704.7	1375.8	121.9	54.7	63.0	89.2	328.9
1990	1922.0	1512.8	146.6	103.6	69.4	89.6	409.2
1991	2148.5	1700.6	159.8	123.0	77.2	87.9	447.9
1992	2484.2	2013.3	171.8	136.5	91.3	71.3	470.9

Notes: [1]   Urban PDI = Pecuniary PDI + Non-pecuniary PDI
       [2]   Non-pecuniary PDI = Housing subsidy + Medical subsidy + In-kind transfer + Price subsidy.
       [3]   In-kind transfer = 5% of living expenses of the residents, based on urban household surveys.
       [4]   Price Subsidy = Total government price subsidies over the total urban population.

Data Source: MOL [*1990, 1992*], Zhang *et al.* [*1994b*].

confirm a V-shaped trend from previous consumption analyses in which the urban-rural ratio declined in the first half of the 1980s, reaching the lowest level of 2.26 in 1985. Since then, however, the ratio has steadily increased to 3.05 in 1992. To visualise the changes in rural–urban disparity, we have plotted the consumption ratios from Table 1 and income ratios from Table 3 in Figure 1. Two conclusions become immediately apparent: (1) urban residents have had much higher levels of consumption and incomes in contemporary China;[12] and (2) the recent economic reforms have not reduced the structural division.[13]

SECTORAL LABOR PRODUCTIVITY

Comparisons of income and consumption levels are indicative of the economic welfare of rural and urban residents. Perhaps a more important implication is for the efficiency of resource allocation. When workers receive compensation based on marginal value product, but workers of comparable quality earn differential incomes across regions, inefficiency exists so that there is the potential to raise total output through spatially reallocating labour. However, if wages are not determined through

TABLE 3
PER CAPITA INCOME DISPARITY BETWEEN RURAL AND URBAN RESIDENTS

Year	Nominal Urban PDI	Deflated Urban PDI	Nominal Rural PDI	Deflated Rural PDI	Urban/ Rural Deflated PDI
1980	620.19	576.92	191.33	186.66	3.09
1981	681.71	665.08	223.44	219.92	3.02
1982	721.54	707.39	270.11	257.98	2.74
1983	770.36	755.25	309.77	309.15	2.44
1984	870.31	847.43	355.33	353.91	2.39
1985	967.20	864.34	397.60	383.05	2.26
1986	1143.49	1068.69	423.76	410.32	2.60
1987	1268.66	1174.68	462.55	445.79	2.64
1988	1477.70	1224.27	544.94	491.69	2.49
1989	1704.68	1465.76	601.51	536.22	2.73
1990	1921.96	1897.29	686.31	667.62	2.84
1991	2148.52	2044.26	708.55	700.04	2.92
1992	2484.24	2287.52	783.99	750.35	3.05

Data Source: Zhang *et al.* [*1994b*].

FIGURE 1
RURAL–URBAN DISPARITY IN INCOME AND CONSUMPTION: RURAL = 1
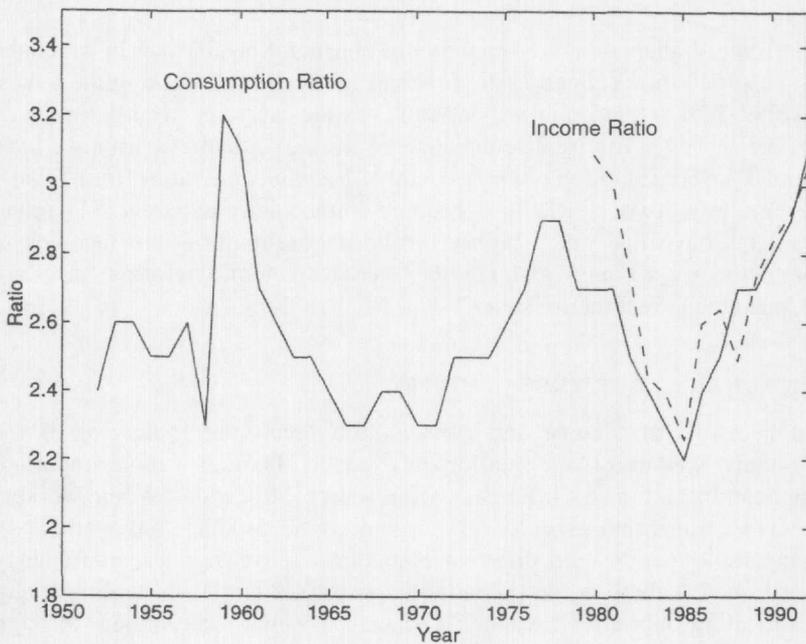
competitive mechanisms, income differences can no longer serve as good indicators of inefficiency. Direct measurements of labour productivity are necessary.

In China, there is a long history of wage intervention by the government [*Zax, 1994*]. Even today, wages of state enterprise employees often consist of five sources: basic compensation, seniority, schooling or training, administrative rank, and bonuses. In many situations, the amount of compensation to workers' attributes is arbitrarily set, so that earnings may not reflect productivity. Due to wage setting practices in China, labour productivity estimates can provide direct information on the sectoral misallocation of labour.

Previous researchers have studied sectoral productivity differences in China. For instance, Jefferson *et al.* [*1992*] estimated the marginal productivity of labour in state-owned and collective enterprises for the period 1980–88. They found that labour productivity was much higher in the state sector. However, the collective enterprises they defined included urban collectives and township-village enterprises (TVEs), therefore the estimates were not rural–urban comparisons. Nolan and White [*1984*] calculated average output per worker in agriculture and state industries for the period 1952–81, concluding that per worker output was substantially higher in these industries. Their study, however, did not estimate marginal productivity.

In what follows, we utilise the 1987–92 Chinese provincial data to analyse labour productivity in state industries, rural industries, and agriculture.[14] Although our focus is on rural–urban disparity, we treat rural industries and agriculture as separate sectors because they have fundamentally different input–output relationships. The basic empirical function takes the following Cobb-Douglas form:[15]

$$y_{it} = l_{it}^{\alpha} k_{it}^{\beta} m_{it}^{\gamma} e^{c + \Sigma \delta_t D_t} + \varepsilon_{it} \tag{1}$$

Where i indexes the sectors, y is a measure of output value, c is a neutral displacement parameter, (l,k,m) are sector-specific production inputs, D represents year dummies, and ε is a sector-specific stochastic term. Taking natural logarithms of this function, the equation for estimation is

$$lny_{it} = c + \alpha lnl_{it} + \beta lnk_{it} + \gamma lnm_{it} + \sum_{t=88}^{92} \delta_t D_t + \varepsilon_{it} \tag{2}$$

The data used for estimation are obtained exclusively from the *Statistical Yearbooks of China* [*SSBa, 1988–93*], thereby ensuring

consistency and comparability of computational results. For each sector, we use y to measure the gross output value. For the state and rural industries, we use total labour force, net value of fixed capital, and average value of circulating capital to measure labour input (l), capital input (k), and intermediate input (m). For agriculture, we use total labour force, total sown area, total number of small tractors, and disaster-affected area to measure labour inputs, land inputs, mechanisation, and weather adversity. The panel data include information for 30 provinces over six years.[*] The gross output value, net value of fixed capital, and average value of circulating capital are deflated to the base year 1987. We use the industrial output price index to deflate the output of state industries, the index of rural industrial output prices to deflate the output of rural industries, and the index of agricultural produce prices to deflate agricultural output. For capital values, the deflating index is the industrial capital goods price. All price indices are taken from SSBa [*1988–93*].

Table A1 provides average provincial information for all the main variables in the regressions. It shows that rural industries had an annual growth rate of 17.6 per cent, while state industries grew at 6.1 per cent and agriculture grew at 6.8 per cent. Clearly, rural industries were the major sources of economic growth in that period. The growth rates of labour inputs were about the same in rural industries, state industries, and agriculture, at 2.0 per cent, 1.8 per cent, and 2.0 per cent, respectively. The average productivity of labour (APL) in state industry rose slightly from 20,000 yuan/person in 1987 to 24,000 yuan/person in 1991. In rural industries, APL rose sharply from 6,000 to 13,000 yuan/person, and in agriculture, APL remained almost the same, around 2,000 yuan/person. Systematic differences in average productivity of labour existed among the three industries.

The OLS estimates of (2) are presented in Table 4. All coefficients, except for the number of small tractors in agriculture, are statistically significant with reasonable signs and magnitudes. For state industries, the intermediate inputs constitute the largest share of output value, which reflects the fact that state industries are concentrated on producing production goods which heavily utilise intermediate inputs. Note that the share of capital (0.20) is less than the share of labour (0.382) in state industries with a high capital–labour ratio. A possible explanation for this is that the efficiency of capital utilisation is still low despite years of reforms. For rural industries, we note that the share of intermediate inputs (0.282) is relatively low, which is consistent with the fact that rural industries primarily produce consumption goods. In addition, the capital share (0.736) is high, reflecting the fast growth of capital stocks and their efficient utilisation. The share of labour (0.094) is low, consistent with the fact that

TABLE 4
OLS PRODUCTION FUNCTION ESTIMATES

Independent Variables	State Industry	Rural Industry	Agriculture
Constant	0.023	0.726	−2.383
	(0.097)***	(0.059)***	(0.356)***
Labour	0.382	0.094	0.314
	(0.083)**	(0.031)***	(0.062)***
Capital	0.200	0.736	
	(0.082)***	(0.052)***	...
Intermediate Inputs	0.541	0.282	
	(0.060)***	(0.032)***	...
Sown Acreage	...	...	0.752
			(0.098)***
Small Tractor	...	...	0.018
			(0.049)
Disaster Area	...	...	−0.217
			(0.043)***

Notes: (1) The numbers in parentheses are standard errors. *, ** and *** represent 10%, 5% and 1% levels of significance.
      (2) Five-year dummies were also used in each regression.

the competitive wage rates in rural areas are lower than the protected wage rates in state industries. For agriculture, disaster-affected areas have a negative effect on output. We note that the share of sown area (0.752) is significantly higher than the contribution of labour (0.314). From the production estimates, we can compute the economy of scale for state industries, rural industries, and agriculture. They are 1.123, 1.112, and 0.849, respectively, which are all significantly different from one.[17]

Taking the partial derivative of (1) with respect to the labour inputs, an expression for sector-specific marginal productivity of labour can be expressed as

$$MPL_{it} = \frac{\alpha y_{it}}{l_{it}}$$

The marginal productivity of labour around the sample means may be obtained by substituting the estimated labour coefficients α, the predicted value of y_{it}, and the sample mean of labour inputs in this equation.

Table 5 reports the estimated marginal productivity of labour for the three sectors. Although data limitations made it impossible to examine the productivity changes in the entire post-reform period, the estimates for 1987–92 can still be compared with the previous consumption and income analyses. Several noticeable features have emerged. First, the labour productivity in urban/state industries is substantially higher than in

TABLE 5
SECTORAL MARGINAL PRODUCTIVITY OF LABOUR: REAL YUAN/PERSON

Year	State Industry	Rural Industry	Agriculture
1987	7708.5	588.9	476.2
1988	8125.9	708.4	476.7
1989	8086.4	705.6	447.8
1990	8048.6	652.8	524.5
1991	8467.1	880.6	555.7
1992	9346.2	1211.2	601.2

agriculture and rural industries. These productivity differences indicate misallocation of labour, a result of China's development strategy of emphasising a capital-intensive state industry. The recent reforms have not yet restored the efficiency of input utilisation. Second, labour productivity has been increasing in all three sectors. And third, in absolute terms, the productivity gap between the urban (state industries) sector and the rural (agriculture and rural industries) sector has also been increasing at a moderate pace. This result is consistent with the increasing rural–urban disparity in consumption and incomes.

It should be noted that the results in Table 5 do not imply that workers can instantly increase productivity many times through reallocation to urban areas. Because the measures of sectoral marginal productivity are calculated around the *sample means* of provincial labour force, we can not directly utilise them to compute output changes of labour reallocation across sectors. In fact, the marginal productivity of labour in urban/state industries falls significantly if the evaluation is at labour quantities above the sample mean. This result is consistent with the research findings of unemployment and underemployment in the urban/state sector. Moreover, our aggregate production estimates do not provide insights into the micro-level management of the urban/state sector. The ownership structure of the urban enterprises, their incentive mechanisms, the substitutability of productive factors, and the training of new employees all affect the capacity of absorbing rural workers. The provision of city infrastructure is another constraint. Therefore, it would be inappropriate to draw policy implications of sectoral labour allocation based on results in Table 5 alone.

While caution must be taken in interpreting these aggregate estimates, they nevertheless provide references on the fundamental forces that influence sectoral labour flows. The large productivity gaps suggest that there are strong 'pull' factors that lure rural workers to migrate and change employment. The productivity differences also indicate that there are barriers keeping the equilibration of labour across sectors. While the productivity analysis complements the findings on income and consumption

patterns, important economic questions remain. What are the key factors that have segmented the rural–urban sectors? What reform measures have contributed to the reduction in disparity in the early period of reforms? Why has inequality been increasing in recent years? These are the questions to which we now turn.

LABOUR MOBILITY RESTRICTIONS

We would like to argue that a series of policies implemented during the centrally planned regime (1949–78) has insulated China's sectoral factor markets. More specifically, we examine labour mobility restrictions that have traceable records and observable impacts on the patterns of allocation.[18] The basic argument is that, during the old regime, the combination of capital accumulation in cities and restrictions on rural-to-urban migration resulted in high capital-labour ratios in cities and low ratios in rural areas. This policy mix was at the root of sectoral disparity. The recent economic reforms have gradually loosened mobility restrictions and introduced sectoral market linkages. As a result, rural people have found temporary employment in cities and rural industries have grown rapidly, reducing the gaps in consumption and incomes. However, many institutions established in the pre-reform era have remained as obstacles for rural–urban integration. This section elaborates these arguments based on the observed patterns of labour allocation.

Policies in the Pre-Reform Era (1949–78)

In this section we provide a brief overview of policies towards labour in this period.[19] We emphasise that restrictions on rural–urban migration were policy tools to implement the heavy-industry-oriented development strategy, which centred on capital formation in industries at the expense of agriculture. The effective implementation of this strategy caused an unbalanced allocation of productive factors.

The main mechanisms for controlling labour migration in China were created between 1949 and 1957. By 1953, the government had established the household registration (*hukou*) system that clearly distinguished the agricultural and non-agricultural status. In the same year, the State brought all grain procurement and distribution under its direct control with a system of *Unified Procurement and Unified Sale* for grain and oil-bearing crops as a way to keep down agricultural procurement prices [*Sicular, 1988*]. To control urban food demand and to facilitate food distribution, the government also established a *food rationing* system for urban residents in 1956 that specified ration standards according to an individual's age, employment, and other demographic characteristics [*Chen, 1982*]. The

TABLE 6
SECTORAL ALLOCATION OF THE LABOUR FORCE 1952–92: MILLIONS

Year	Urban[1] Labour	Rural Labour	Rural Agriculture	Rural Non-agriculture[2]
1952	16.0	182.4	...	...
1953	18.6	186.1	...	...
1954	20.0	190.9	...	...
1955	21.2	195.3	...	...
1956	29.8	200.3	...	...
1957	31.0	205.7	...	...
1958	51.9	213.0	...	...
1959	52.8	207.8	...	...
1960	59.7	197.6	...	...
1961	51.7	202.5	...	...
1962	43.2	213.8	...	...
1963	43.7	220.4	...	...
1964	46.0	229.1	...	...
1965	49.7	235.3	...	...
1966	52.0	244.5	...	...
1967	53.1	253.7	...	...
1968	55.0	262.9	...	...
1969	57.1	274.0	...	...
1970	62.2	281.2	278.1	8.8
1971	67.9	287.5	283.4	10.2
1972	71.3	286.5	282.3	10.5
1973	73.4	292.6	288.6	10.5
1974	76.5	296.8	292.2	11.3
1975	82.0	299.5	294.6	12.1
1976	86.7	301.4	294.4	14.7
1977	91.1	302.5	293.4	17.3
1978	95.0	306.4	283.8	31.5
1979	99.7	310.3	286.9	31.9
1980	104.4	318.4	291.8	35.1
1981	109.4	326.7	298.4	36.9
1982	112.8	338.7	309.2	38.1
1983	115.2	346.9	312.1	43.4
1984	118.9	359.7	309.3	58.9
1985	123.6	370.7	311.9	67.0
1986	128.1	379.9	313.0	75.3
1987	132.1	390.0	317.2	81.3
1988	136.1	400.7	323.1	86.1
1989	137.4	409.4	332.8	85.0
1990	140.6	420.1	341.8	86.7
1991	145.1	430.9	350.2	89.0
1992	147.9	438.0	348.6	97.8

Notes:
[1]   Urban Labour Force does not include the individual self-employers, which mainly worked outside the industrial sector.
[2]   Rural Non-agriculture LabourForce mainly consists of the employment in Township and Village Enterprises (known as TVEs).

Date Source: Urban labour force and rural labour force were taken from China Statistical Yearbook [SSBa, 1993]. Rural agricultural and non-agricultural labour force from 1970–87 were taken from Johnson [1990: 39], and the figures for 1988–92 were taken from SSBa [1989–93].

rationed commodities included grain, soy beans, cotton cloth, edible oil, pork, and other necessities [*Walker, 1984*]. These policies formed the basis of labour mobility restrictions in China.

Although the government established labour allocation mechanisms, its control on sectoral mobility was rather loose in this initial period of socialism. In fact, there was large demand for labour by the newly established urban enterprises, which recruited rural workers through labour bureaus. As Table 6 shows, the urban labour force nearly doubled between 1952 and 1957, and over a slightly longer period (1949–57) the percentage of urban population increased from 10.6 to 15.4 per cent [*Chan and Xu, 1984*].

The economic situation during the Great Leap Forward (GLF) (1958–61) was chaotic, marked by large swings in sectoral labour allocation. To support industrialisation, about 41 million workers exited agriculture between 1957 and 1958, a 21 per cent decline [*Riskin, 1987*]. Among these workers, approximately 17 million worked in the iron, steel and other heavy industrial undertakings in the countryside, while close to 16 million migrated into cities to work in state industrial enterprises. Because of reductions in agricultural labour, sudden institutional changes, natural calamities, and a series of policy mistakes, Chinese agricultural production collapsed, resulting in a widespread famine. To reduce urban food demand and to increase labour inputs for agricultural production, the government sent ten million workers back to their rural homes in 1961 and thus reversed the labour flow of the GLF [*Bernstein, 1984*]. Rural-to-urban migration was then strictly prohibited.

Restrictions on rural–urban migration remained effective during the period of Cultural Revolution (1966–76). In contrast to the urbanisation experience of most countries, China engaged in a massive campaign of rustication movements (*xiaxiang* and *xiafang*) in which city youths and intellectuals were sent to live and work in the countryside. Between 1968 and 1975, a total of 12 million youth were persuaded and coerced to leave their urban homes [*Bernstein, 1977*].[20] In the opposite direction, it was difficult for rural residents to convert their status to urban status and migrate into cities. A rural resident could convert their household registration several ways: through enrolment in colleges or universities (*shangxue*), civilian job recruitments (*zhaogong*), and army recruitments (*canjun*). The civilian job recruitments were the largest source of agricultural to non-agricultural conversions, but they were strictly controlled by labour bureaus because the state had to provide the individuals with food rationing, housing, medical care, fuel, and other urban privileges. Through these institutional barriers, the government effectively controlled the sectoral allocation of labour.

The moderate urban population growth from 10.6 per cent in 1949 to 17.9 per cent in 1978 reflects the sectoral labour mobility restrictions. During the same period, capital investments in the urban sector far exceeded those in the rural sector. The resulting imbalance in factor proportions dictated higher labour productivity for city workers, which was a basis for the sectoral disparity in consumption and incomes.

Deregulation and Mobility in the Post-Reform Era (1978–present)

Due to the biased development strategies, the urban per capita income was 2.4 times the rural per capita income in 1978, and the urban-rural consumption ratio was 2.9.[21] Because of these gaps, the government gradually adopted a series of deregulation policies that opened access to urban employment and opportunities in local rural industries. Farm households responded to these policy changes and the newly created employment significantly increased their relative earnings. However, serious barriers still exist to the elimination of the rural–urban disparity.

The adoption of the household responsibility system (HRS) between 1979 and 1984 was the important first step to give households the freedom of allocating productive resources, including labour. Regulations governing occupational choice and internal migration were also gradually relaxed. In 1983, the government began to allow farmers to engage in long distance transport and marketing of their products in cities [CAY, 1987]. In 1984, the State started to encourage farmers to leave agricultural production and, where appropriate, to work in nearby small towns [FBIS, 1984]. A major policy reform took place in 1988, when the central government officially relaxed the controls over labour flows. It was announced that farmers could move to cities if they could provide their own staples and were financially capable of running a business [Forbes and Linge, 1990]. This was a landmark deregulation which removed the legal restrictions on rural-to-urban migration.

These policy changes allowed farmers to pursue better economic opportunities outside agriculture. First, the number of workers who temporarily worked in cities exploded. According to studies reported in BRLMS [1995], about 15.47 million rural people worked in cities between 1982 and 1987. In 1992, the daily population of temporary or 'floating' rural workers increased to 35.75 million, and in 1993, increased to 38.66 million.[22] Their average stay in cities was about 195 days [Shen and Tong, 1992]. At the national level, temporary employments have contributed greatly to the income of Chinese farm households. According to a recent study by Rural Research Group of Annual Analysis [RRGAA, 1995], the total earnings of an estimated 41.4 million rural labourers who worked

outside of their familial localities were 151.08 billion yuan, or 18 per cent of the total rural income in 1994.[24]

Second, nonagricultural activities within rural regions have absorbed more rural labour. Table 6 shows that, during the years of Cultural Revolution 1966–76, less than five per cent of the rural workers were engaged in non-agricultural activities. The national labour force was mostly concentrated in urban industries and agriculture. The relaxation of controls on farm household activities resulted in a jump in non-farm employment to 31.5 million in 1979, or 10.2 per cent of the rural labour force. Since then non-farm employment increased steadily into the early 1980s, grew faster since 1984, and reached 97.8 million in 1992. From 1977 to 1992 the number of workers in rural areas increased by 135.5 million, while the majority of the increase, 80.5 million, found employment in local industries, construction, transportation, commerce, and trade. In 1992, income from non-agricultural sources accounted for an average of 38.6 per cent of farm household earnings [*SSBa, 1995*].

Massive labour transfers to rural nonagricultural activities and urban employment have been the responses of rural people to better economic opportunities made available by these reforms. These sectoral reallocations of labour have raised the farm household earnings and helped to reduce the rural–urban disparity. However, to the present day, the economic environment for labour mobility is far from perfect. In what follows, we discuss briefly the barriers that still prevent the elimination of dualism.

Existing Institutional Barriers

In most developing countries, permanent and family migration of rural residents into urban areas has played a central role in long-term economic growth. In contrast, the patterns of China's rural labour mobility are rather unique because the massive floating population is primarily engaged in temporary jobs and rural industries have absorbed most workers. We argue that these special patterns of labour allocation reflect the existing policy interventions of the government. In particular, the urban welfare systems and the rural land arrangements still influence the sectoral integration.

Some constraints on labour mobility associated with the household registration system, such as the legal rights of residency and commodity rationing, have already been abolished. But urban residents still receive welfare privileges largely unavailable to rural migrants [*Yang, 1997c*]. State enterprises and other government agencies manage approximately 78 per cent of urban housing that is exclusively allocated among urban employees [*Cai, 1991*]. In addition, government work units provide health insurance/services and pensions primarily to permanent workers. These special welfare provisions prevented the rural workers from migrating with

other family members and forced them to have a short planning horizon [*BRLMS, 1996*].

High costs in child care and education at elementary and middle school levels also hinder family migration into cities. Inherited from the centrally planned system, urban work units have continued to run child care centres and kindergartens that only admit children of their own permanent employees. The operational expenses of elementary and middle schools come primarily from the education bureaus of urban districts, and in turn, the schools only admit students who have household registrations within the districts. It is not uncommon for schools to enrol students from elsewhere with admission fees and donations, but the charges are high.[24] Partly because of these potential expenses in child care and education, most rural temporary workers are males and they do not come with other family members [*Shen and Tong, 1992*].

Rural institutional arrangements also influence rural labour mobility decisions [*Yang, 1997b*], an area that has received less attention. Chinese farm families under the household responsibility system have the land-use rights but not the rights of alienation. If permanently leaving agriculture, they have to return the land to local authorities and consequently give up a stream of future land earnings. As a result, Chinese farmers seldom engage in family migration and have incentives to split familial labour supply to farm and non-farm employment. This division of time is a second-best solution, under the existing land arrangements, that takes advantage of higher non-agricultural wages and avoids the loss in land values. But this solution results in differential urban and rural labour earnings.

UNDERSTANDING THE V-SHAPED CHANGE

The preceding section has illustrated that the heavy industry-oriented development strategy and the restrictions on rural-to-urban migration during the centrally-planned regime have driven a wedge between sectoral productivity, consumption, and incomes. The relaxation of institutional barriers since the reforms and the greater economic freedom allowed to the rural population have resulted in massive labour transfers to rural industries and temporary urban employment. These new work opportunities have raised farm household incomes and have tended to reduce rural–urban disparities. However, there remain institutions created in the past which still prevent an efficient sectoral allocation of labour. Consequently, the increased labour mobility should effect a gradual decline in the rural–urban gap, but we would expect the disparity to stay at a certain level, reflecting the remaining institutional barriers. Note that factors influencing labour allocation are not the only determinants of rural–urban differences. This

section investigates other complementary causes of the observed V-shaped change.

A straightforward explanation for the declining disparity between 1978 and 1985 is that the rural transformation preceded the urban one, which formally started in 1985.[25] As early as 1978 or 1979, major rural reforms started to take place, including substantial increases in the purchase prices of eighteen farm products by an average of 22.1 per cent, the experiments of household responsibility systems (HRS), and the permission of village trade fairs.[26] These reform measures had induced positive supply responses and created production incentives, resulting in a 9.2 percent annual growth in real agricultural gross output between 1978 and 1984 [*Lin, 1992; McMillan 1989*]. During the same period, total industrial output grew at an annual rate of 5.5 per cent in real terms. The faster growth in agriculture, combined with labour mobility effects, contributed to the reduction in income and consumption ratios.

What factors have caused the increasing disparity since 1985? One possible explanation is that the major urban reforms started in 1985 may have greatly improved the efficiency of state enterprises. In particular, the use of wage bonuses and the adoption of managerial responsibility systems may have tapped the potential of workers and managers resulting in output gains that could support bigger earning increases in the cities. However, a careful comparison of the sectoral output and wage growth between 1986 and 1992 reveals inconsistency with this explanation. As Table 7 shows that, during this period, the average annual wage growth for employees of state-own enterprises (SOE) was 13.2 per cent, approximately in line with the 16.16 per cent of SOE's output growth. In the same period, however, the output value of the rural sector increased at a remarkable annual rate of 23.27 per cent. Since output growth came primarily from the rural sector

TABLE 7
GROWTH OF SOE'S OUTPUT, AVERAGE WAGES AND GROWTH OF RURAL
OUTPUT, 1986–92 (NOMINAL VALUES, LAST YEAR = 100)

Year	SOE's Output	SOE's Average Wages	Output of Agriculture and TVEs
1986	110.6	116.6	119.0
1987	118.3	109.3	125.0
1988	125.5	119.9	130.9
1989	119.2	110.9	113.0
1990	105.8	111.1	115.5
1991	114.5	108.5	122.7
1992	119.2	116.2	136.8

Data Source: SSBa [*1993*].

TABLE 8
PRICE INDICES AND GOVERNMENT DEFICITS, 1978–92

Year	National Retail Price	Urban Consumer Price	Rural Consumer Price	Total Government Deficit
1978	100.7	100.7	—	10.17
1979	102.0	101.9	—	−135.41
1980	106.0	107.5	—	−68.90
1981	102.4	102.5	—	37.81
1982	101.9	102.0	—	−17.65
1983	101.5	102.0	—	−42.57
1984	102.8	102.7	—	−58.16
1985	108.8	111.9	107.6	0.57
Average 1978–85	103.3	103.9	—	−34.27
1986	106.0	107.0	106.1	−82.90
1987	107.3	108.8	106.2	−62.83
1988	118.5	120.7	117.5	−133.97
1989	117.8	116.3	119.3	−158.88
1990	102.1	101.3	104.5	−146.49
1991	102.9	105.1	102.3	−237.14
1992	105.4	108.6	104.7	−258.83
Average 1986–92	108.7	109.9	108.6	−154.44

Note: For price indices, last year = 100; deficits are in 100 million yuan of nominal prices.

Data Source: SSBa [*1993*].

during this period, the catching-up of urban reforms may not explain the faster wage growth in the urban sector.

We suggest that the increased rural–urban differential since 1985 has been caused primarily by the government's financial transfer programmes in favour of the urban sector. As Table 8 illustrates, inflation became more prevalent in China between 1986 and 1992, when annual prices rose to 8.7 percent from 3.3 per cent in the 1978–85 period, and the average inflation rates in the later period were roughly equal across rural (8.5 per cent) and urban (9.9 per cent) regions. There has been consensus in the literature that increases in money supply by the Central Bank of China were the primary causes for the inflation between 1986–92 [e.g., *Naughton, 1991; Yi, 1992*]. This view is supported by the facts in Table 8 that on average the annual government deficit increased from 3.417 billion yuan in the first period to 15.444 billion yuan in the second period. The key issue here is how the government allocated the increased credits. If the money creation was

distributed to the rural and urban sectors proportional to their populations, people would share equal burden of the inflation.

Table 9 reveals a disturbing fact that the overwhelming shares of government investments were allocated to the urban sector. The state expenditures reported in the table consist of investments to SOEs, urban

TABLE 9
COMPOSITIONS OF GOVERNMENT EXPENDITURES 1978–92 (NOMINAL VALUES IN 100 MILLION YUAN)

Year	Total Expenditure	SOE Investment	Other Urban Expenditures	Urban Price Subsidies	Other Expenditures	Agricul-tural Invest-ment
1978	1056.29	581.76	87.03	11.14	299.41	76.95
1979	1213.14	567.52	99.81	79.02	376.82	89.97
1980	1145.97	463.52	112.21	117.71	370.41	82.12
1981	1056.24	345.69	116.41	159.41	361.05	73.68
1982	1137.09	361.77	128.48	172.22	394.74	79.88
1983	1299.00	436.58	153.68	197.37	424.71	86.66
1984	1541.32	575.85	182.11	218.34	469.09	95.93
1985	1769.81	672.28	195.32	261.79	539.38	101.04
1986	1969.10	735.87	235.19	257.48	616.26	124.30
1987	1979.91	658.63	242.75	294.60	649.77	134.16
1988	2169.14	655.36	292.35	316.82	745.87	158.74
1989	2405.19	640.09	340.03	373.55	854.40	197.12
1990	2663.62	712.20	386.22	380.80	962.64	221.76
1991	2910.81	753.51	434.35	373.77	1105.63	243.55
1992	3151.33	790.15	533.23	321.64	1237.27	269.04

Data Source: SSBa [1996].

expenditures, price/inflation subsidies to city residents, agricultural investments, and other expenses that do not have a rural–urban distinction, such as defence expenditures.[27] Notice that the investments to SOEs had always counted for more than 25 per cent of the total budget. Adding other urban expenses and price subsidies to SOE investments, the shares of expenditures to cities had ranged from 52 to 62 per cent of the total budget between 1986 and 1992. In contrast, the state investments in the rural economy had counted for less than 10 per cent of the budget during the same period despite the fact that rural population had counted for 73–76 per cent of the national population.[28] In 1992, when rural investment reached its peak at 26.904 billion yuan, the amount was only about 83.6 per cent of the urban price subsidies in that year! According to Brandt and Zhu [1995], the state-owned enterprises had successfully used the increased investment credits to subsidise wages for their employees, creating a direct income

transfer to urban residents.[39] Because the wages of rural workers were primarily supported with output growth while the wages of urban workers came in part from money creation, there had been consistently higher inflationary taxes imposed on rural earnings.

These monetary and financial transfer mechanisms in favour of urban residents have had opposite effects to the labour mobility improvements on rural–urban disparity. We believe that the effects of inflation and income redistribution between 1985 and 1992 were powerful enough to produce the upward portion of the V-shaped trend. This argument is consistent with the evidence that real output growth in the urban sector lagged behind the real output growth in the rural sector during the entire time period.

Discretionary policies of the central government may also have a powerful influence on the welfare of the people. After two years of double-

TABLE 10

EFFECTS OF CONTRACTIONARY POLICIES ON SOEs and TVEs 1988–91

Year	SOE Number	SOE Employment	SOE Output	TVE Number	TVE Employment	TVE Output
1988	9.91	4229	120.79	1888.16	9546	118.35
1989	10.23	4273	108.54	1868.63	9367	96.34
1990	10.44	4364	107.76	1850.40	9265	108.90
1991	10.47	4472	114.77	1908.88	9609	133.35

Note: Enterprise and employment numbers are in 10,000. Outputs values are in real prices, last year = 100.

Data Source: SSBa [1993].

digit inflation in 1988 (18.5 per cent) and 1989 (17.8 per cent), the government launched a series of contractionary polices that tightened investment credits to support the growth of new firms. Blamed for competing for raw materials with the state enterprises and producing low quality products, the government increased its control over rural industries. Table 10 illustrates the differential impact of the policies on the SOEs and the TVEs. During the period 1988–92, the total number of SOEs increased every year from 99.1 to 104.7 thousands; the total employment expanded continuously; and the real output grew at an average rate of 12.96 per cent per year. In contrast, the total number of TVEs were reduced in two consecutive years in 1989 and 1990; the total employment decreased accordingly; and the real output dropped by 3.66 per cent in 1989. These policy consequences would either directly or indirectly lower the earnings of the rural people, contributing to the upward shift in the rural–urban gap.

SUMMARY AND CONCLUDING REMARKS

The main objective of this study has been to examine whether economic reforms have reduced China's rural–urban segmentation, a major feature of the centrally planned system. We have found that per capita consumption and income levels are still much higher in cities and, in fact, these gaps have been increasing in recent years after a brief decline between 1978 and 1985. This sectoral division is consistent with production function estimates based on 1987–92 provincial data that revealed higher labour productivity in urban/state-owned industries than in rural industries and agriculture. Although the economic reforms have raised the nation's standard of living, they have not corrected the urban bias.

This study has emphasised the sectoral allocation of labour as an equilibrating mechanism that can improve rural–urban integration. However, the pursuit of a heavy-industry oriented development strategy before 1978 had insulated China's factor markets, causing much higher labour incomes in cities than in the countryside. Although economic reforms have relaxed mobility restrictions, we argue that the existing institutions, such as urban housing, other welfare provisions, and the rural land arrangements, are still responsible for dividing the two sectors and distorting labour allocation. Farmers still do not receive the full benefits of migration deregulations, and rural–urban differences continue to exist.

Our analysis also suggests a disturbing fact that, although the rural sector has been the engine of China's economic growth since the reforms, the urban sector has received fruits of the reforms disproportionate to its contributions. The distributive mechanism has been a combination of increased urban investments and subsidies and a relatively higher inflationary tax on rural earnings. This urban biased policy mix has gradually replaced the more visible, physical restrictions on rural-to-urban migration. What are the efficiency losses caused by these redistribution schemes? Are the transfer programs viable in the long run? What institutional changes are necessary to reduce the incentives of the Chinese government in pursuing the urban-biased policies? These questions are worthy of further investigation because they directly affect economic efficiency, welfare, and China's future political stability.

NOTES

1. For instance, Rawski [*1979*], Lardy [*1983*], Perkins and Yusuf [*1984*], Nolan and White [*1984*], and Riskin [*1987*] have documented the origin and the features of the Chinese dualistic economic structure. Johnson [*1990*] and Putterman [*1992*] discussed sectoral economic development in the light of recent economic reforms.

2. In 1978, the urban sector employed 95 million workers while the rural sector had approximately 306.4 million labour force (see Table 6). In contrast, the total value of fixed assets in the state-owned enterprises (primarily urban) counted for 448.82 billion yuan while the value of the fixed assets in agriculture was only about 94.98 billion yuan [*SSBa, 1993; Perkins and Yusuf, 1984*]. These numbers indicate a ratio of 3.2:1 in labour and 1:4.7 in capital between the rural and urban sectors.

3. Rural industries consist of township and village level enterprises (TVE) and private enterprises. Since 1984, the gross value of rural industries has increased by an average of 20 per cent per year, and in 1994, TVEs produced about 42 per cent of the nations' total industrial product and employed 120.18 million workers [*SSBa, 1995*].

4. Exceptions include Griffin and Zhao [*1993*], Johnson [*1995*], and Knight and Song [*1995*] who emphasised the continuing sectoral gaps in consumption and incomes.

5. Researchers have also studied other aspects of disparities. For references on provincial distribution of consumption and production, see Lyons [*1991*] and Tsui [*1993*]; for convergence of factor productivity across state and collective industries, see Jefferson *et al.* [*1992*]; for changes in the distribution of household incomes, see Griffin and Zhao [*1993*]; and for convergence of per capita production across China's provinces, see Chen and Fleisher [*1996*]. This paper focuses on rural–urban disparities.

6. Note that these results are based on data that were released by China's State Statistical Bureau. If there are systematic biases in the sectoral information, the above conclusions would be misleading. In what follows, we will discuss the data and their sources in detail.

7. See especially Lewis [*1954*] and Ranis and Fei [*1961*] for the basic and analytical framework of dualistic development. Although Lewis did not define the traditional (subsistence) and modern (capitalist) sectors as specific occupations, the former is often identified empirically with agriculture and the latter with industry. According to Lewis, the industrial wage could be significantly higher than compensation in the subsistence sector because of government regulations, a situation which mirrors the Chinese experience.

8. SSBb [*1985–95*] contain detailed descriptions of the survey designs and the questionnaires. Recently the rural sample covers 67,000 households and the urban sample consists of approximately 35,000 households. In spite of adjustments in the variables over the years, consumption information on eight categories of commodities, including food, clothing, housing, household equipment, health care, transportation, culture and education, and other commodities and services, has been collected. The State Statistical Bureau aggregated these individual consumption expenses to compute total household consumption. The values of self-produced commodities for the rural households are evaluated at market prices.

9. Lin and Yang [*1998*] indicate that the food entitlement to urban residents was a major reason for the great famine during GLF that resulted in 30 million excess deaths,primarily in rural areas.

10. See, for instance, Perkins and Yusuf [*1984*] on the rural–urban connections in the light of government expenditures and revenues between 1949 and 1978.

11. More specifically, the value-added in farming and non-farming activities is equal to the gross value of total produce minus operation costs of various productions, the depreciation of productive assets, taxes, the value of procurement quota, and other production expenses. Self-retained commodities are computed for their market values.

12. In most countries, especially during their early stages of industrial development, the welfare of urban residents exceeds their rural counterparts. ILO [*1995*] reported urban–rural income ratios for 36 countries, including the years 1985, 1990 and 1995. The ratios for the majority of the countries were below 1.5. In 1985, there were only four countries in which the average urban earnings were more than two times the rural earnings. There were five countries in 1990 and three countries in 1995 which had ratios of two or more. Although caution must be

given to cross-country comparisons, the rural–urban division in China is very serious indeed.

13. The number of non-farm specialist households have increased in recent years. If SSB excludes these households from the rural sample, the rural–urban disparity would be inflated. In practice, however, SSB does include non-farm specialist and part-time farming households in the rural sample [*He and Pan, 1990*].

14. The decision to utilise this time period primarily reflects data availability and consistency. The State Statistical Bureau of China has released input–output data for all three sectors since 1986, but starting in 1993, the statistical yearbooks have changed the reports of several economic variables for the rural enterprises, such as replacing gross sales information with value-added measures. Therefore, we use data between 1987–92 for statistical analyses. Throughout the analysis, we examine China's economic situations up to 1992 for the sake of data consistency.

15. Most aggregate production analyses on China's industries use the Cobb-Douglas form. We choose this specification to facilitate the comparison of our results with existing studies, although other functional forms, such as the more general translog specification, would also be appropriate.

16. Except that there were 29 provinces in 1987 because Hainan province was established in 1988.

17. The estimated scale parameters for state industries and rural industries are both larger than one, consistent with the results of Jefferson *et al.* [*1992*], although the magnitudes of their estimates were slightly smaller (1.07 and 1.04 respectively). The economy of scale in agriculture is consistent with micro production studies, such as Putterman and Chiacu [*1994*] and Yang [*1997a*].

18. Sectoral capital investments are also crucial in determining the extent of rural–urban disparity. However, capital formation is closely related to the structure of interest rates, price setting practices, accounting systems, and the measurements of capital are less directly comparable than labour across sectors. In this study we concentrate on labour allocation.

19. See Chan and Xu [*1985*], Riskin [*1987*] and Chang [*1994*] for additional references.

20. Cadres and intellectuals were sent to May Seventh Cadre Schools in rural areas. Different from the rusticated youth, who expected to live permanently in the countryside, cadres were on programmes of variable length and many of them returned to cities after the training.

21. The income ration is based on urban disposable incomes and rural net earnings from household survey data SSBa [*1988: 799*].

22. The term, 'floating population', is commonly used in China, referring to those who do not have permanent household registration in the places they live or work.

23. For reference of household studies, see Cook [*1996*] and Hare [*1996*].

24. Systematic reports on admission fees and donations are rare because schools do not want to release this information to the public. Based on personal experience in 1996, I learned that, for a high school student from Shanxi who tried to attend a school in Beijing, the admission fees ranged from 5,000 to 40,000 yuan among the few possible alternatives. These fees are very high because the annual per capita disposable income of Beijing residents was only about 6,235 yuan in 1995 [*SSBa, 1996*; figure unavailable for 1996].

25. Limited urban reforms had already started prior to 1984 [*Johnson, 1990*]. For instance, the state-owned enterprises experimented with various financial systems, including profit-contracting and a schedule of four taxes, to replace the old profit retention programme. A comprehensive reform package, that included reducing the role of government agencies, reforming the planning system, the adoption of a double-tier price system, the separation of government from enterprise functions, and the responsibility system to urban enterprises, was not formally introduced until 1984.

26. More specifically, the price increases included 20 per cent for grain, 25 per cent for fats and oils, 15 per cent for cotton, 26 per cent for pigs, and 20–50 per cent for 14 other products [*Johnson, 1990*]. And, due to the great success of HRS in the poorest areas, the system was supported by the government and adopted in the nation in a sweeping fashion. By the end of 1980, 14.4 per cent of all households had adopted the system; by the end of 1981, 45.1 per cent; by the end of 1982, 80.4 per cent; and by 1984, about 99 per cent [*Lin, 1990*].

27. SSB [*1996*] breaks down government expenditures into eleven categories. To simplify

presentation, we group expenditures on capital construction, circulating funds, and funds for technical updates and new product promotion as SOE investments. Other urban expenditures in Table 9 include expenses on government administration, geological prospecting, and administrative expenses of industry, transportation and commerce. Other expenditures include outlays on national defense, pensions and social welfare relief funds, and cultural, education, science and health care. The remaining two categories are agricultural investments and urban price subsidies.

28. There is one additional factor that may have constrained raising agricultural output after 1984 even with a higher level of investment. In absence of new technology or large lumpy investments, the returns to many agricultural investments have been low, which in turn helped keep investment, and hence labour marginal productivity in agriculture, low. These factors, combined with other causes, also contributed to the post-1985 rural–urban rising gap. I thank Dwight Perkins for making the point.

29. Brandt and Zhu developed a positive, general equilibrium model to explain the cyclical behaviour of output growth and inflation in post-reform China. They used an assumption for the model that the government wants to equalise the benefits of the growth process between the state sector and the more rapidly growing non-state sector. See their study for more factual descriptions on output growth, investment credits, and wage changes in the state and non-state sectors.

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APPENDIX

TABLE A1
PROVINCIAL AVERAGES OF KEY REGRESSION VARIABLES

Year	Variables[1]				

Agriculture

Year	Output	Labour	Sowing Area	Small Tractor	Disaster Area
1987	4675.7	30870.0	217434.4	4713.0	2039.0
1988	4769.4	31455.7	217303.6	5319.0	2394.0
1989	4620.5	32440.5	219830.9	5848.0	2443.0
1990	5562.1	33336.4	222543.1	6231.4	1752.2
1991	6042.7	34186.3	224378.7	6528.6	2751.4
1992	6509.7	34037.0	223510.6	6604.0	2589.3

Rural Industry

Year	Output	Labour	Capital Input	Intermediate Inputs
1987	2934.1	4702.5	999.8	1134.6
1988	3673.4	4893.9	1085.7	1355.8
1989	3523.3	4712.5	1099.3	1398.1
1990	3647.4	5455.1	1182.3	1590.4
1991	4448.1	4767.0	1285.4	1919.0
1992	6607.9	5148.8	1552.1	2439.2

State Industry

Year	Output	Labour	Capital Input Inputs[2]	Intermediate
1987	8250.1	4086.0	5242.4	2215.0
1988	9001.1	4229.0	5312.5	2254.2
1989	9049.7	4272.6	5202.5	2430.5
1990	9201.0	4364.4	5730.8	2833.9
1991	9917.8	4471.9	6237.1	2865.7
1992	11068.3	4521.2	6592.7	6060.1

Notes:
[1] Output unit = 100 million yuan, labour unit = 10 thousand persons, sowing area unit = 10 thousand mu, small tractor unit = 10 million watts, disaster area unit = 10 thousand acre, capital input unit = 100 million yuan, intermediate input unit = 100 million yuan.
[2] The definition of intermediate inputs became more inclusive in 1992. In regression analysis, we assume that the relative changes are proportional across different provinces so that the year dummy variables would capture the effects of the change in variable definition. The estimated regression coefficients are therefore not affected.

Data Source: SSBa [*1987–93*].