

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

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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

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

TABLE I
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

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 also cause a level shift in

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	21.0	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: MCL [1990, 1992], Zhang *et al.* [1994b].

subsidy.

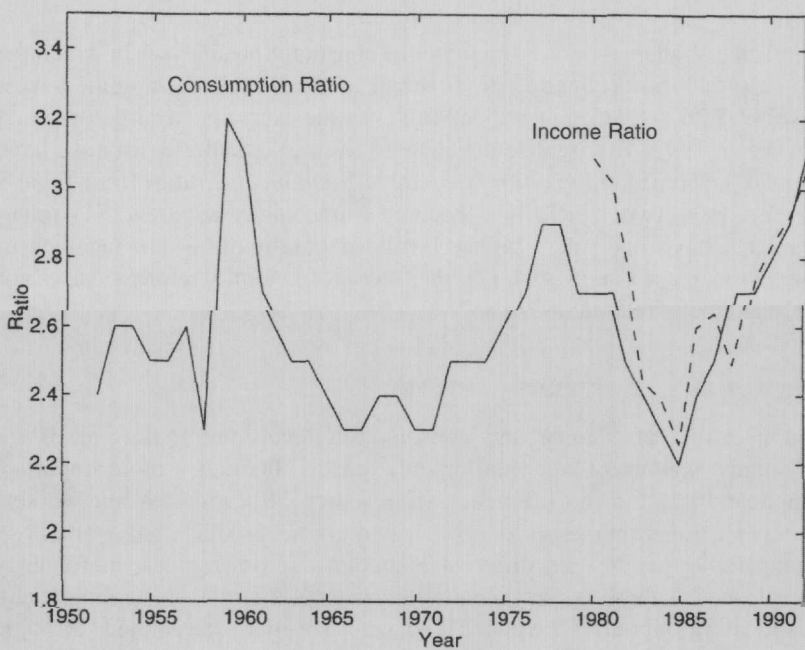
In-kind transfer = 5% of living expenses of the residents, based on urban household

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

$$y_{it} = l_{it}^{\alpha} k_{it}^{\beta} m_{it}^{\gamma} e^{c + \sum \delta_t D_t} + \varepsilon_{it} \quad (1)$$

$$\ln y_{it} = c + \alpha \ln l_{it} + \beta \ln k_{it} + \gamma \ln m_{it} + \sum_{t=88}^{92} \delta_t D_t + \varepsilon_{it} \quad (2)$$

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.¹⁶ 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 (0.097)***	0.726 (0.059)***	-2.383 (0.356)***
Labour	0.382 (0.083)***	0.094 (0.031)***	0.314 (0.062)***
Capital	0.200 (0.082)***	0.736 (0.052)***	...
Intermediate Inputs	0.541 (0.060)***	0.282 (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.

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	11.5
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:

- Urban Labour Force does not include the individual self-employers, which mainly worked outside the industrial sector.
- Rural Non-agriculture Labour Force 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 Yearbooks [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].

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.

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outside of their familial localities were 151.08 billion yuan, or 18 per cent of the total rural income in 1994.²²

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

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

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,

TABLE 7
GROWTH OF SOE'S OUTPUT, AVERAGE WAGES AND GROWTH OF REAL
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].

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	1969.16	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	1105.60	243.58

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.²⁹ 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.

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].

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

- 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 reserves and social welfare relief funds and cultural

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APPENDIX

TABLE A1
PROVINCIAL AVERAGES OF KEY REGRESSION VARIABLES

Year	Variables ¹				
Agriculture					
	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					
	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					
	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 acres, 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].