

## Fixed Asset Data

Some dispersed fixed asset data are available in official statistics, but economy-wide fixed asset data are not and have to be constructed. This appendix provides details on the dispersed fixed asset data available and how they can be aggregated for SOUs. It also includes complete end-year fixed asset series for SOUs and non-SOUs separately (the paper presents the midyear sum of the two, i.e., the economy-wide midyear values).

### 1. Fixed asset data in the official statistics

#### *Available data on fixed assets*

While economy-wide data on the value of fixed assets in China are not available, the following fixed asset data, covering different parts of the economy, are: (i) fixed assets (original value, net value) of *budgetary* state-owned enterprises (SOEs), including an incomplete sectoral breakdown, for the years 1978 through 1996 in various issues of the *Statistical Yearbook*;<sup>1</sup> (ii) “state assets” of budgetary state-owned enterprises and state-owned administrative units, including an incomplete sectoral breakdown, for the years 1995 through 2001 in various issues of the *Fiscal Yearbook*, and with a less detailed sectoral breakdown for 2002;<sup>2</sup> (iii) fixed assets (original value, net value) of all directly reporting industrial and construction enterprises, including a subsectoral breakdown for industry and an ownership breakdown for industry and construction, for most reform years in various issues of the *Statistical Yearbook*;<sup>3</sup> (iv) original values of fixed assets in the tertiary sector in 1991 and 1992, with an ownership breakdown, reported in the *Tertiary Sector Census 1993*.<sup>4</sup>

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<sup>1</sup> The most recent data are in the *Statistical Yearbook 1998*, p. 35, for most years of the reform period, through 1996. The *Fiscal Yearbook* series has identical original and net fixed asset values, limited to SOEs in total and to industrial SOEs, for the years through 1996, with additional data for 1997 and 1998 (new coverage in 1998); after 1998 this table is discontinued. See, for example, *Fiscal Yearbook 1999*, p. 481 with data for 1952, 1957, 1962, 1965, 1970, 1975, and 1978-1998; the 1998 data include state-controlled enterprises in industry, transport, and domestic trade.

The same table in the previous two issues of the *Fiscal Yearbook*, 1997, p. 479, and 1998, p. 477, comes with a note to the effect that “all financial data on state-owned enterprises in this table and the tables below without exception refer to budgetary state-owned enterprises.” Since the data in the *Statistical Yearbook* are identical, this implies that the *Statistical Yearbook* coverage is also limited to budgetary state-owned enterprises. In the *Statistical Yearbook* the fixed asset tables are followed by the depreciation rates; in all likelihood, thus, the depreciation rates are also limited to the budgetary SOEs.

<sup>2</sup> The particular table (for example, *Fiscal Yearbook 1997*, p. 496) does not make explicit that the state-owned enterprises covered are only the budgetary ones, but a table a few pages earlier (p. 479) with data on original and net values of fixed assets over time in all state-owned enterprises and in the sub-category industrial state-owned enterprises (the data match those in the *Statistical Yearbook*) comes with a note that “all financial data on state-owned enterprises in this table and the tables below without exception refer to budgetary state-owned enterprises.” One possible caveat is that the first table is in the section titled “Enterprise Finances,” while the second table is in the section titled “Administration of State Asset,” but the second section still covers enterprises (plus administrative units).

<sup>3</sup> The time series on industrial net fixed assets in the *Statistical Yearbook* beginning with the year 1993 switched from end-year to average annual data; the end-year data continue to be reported in the *Industrial Yearbook* series.

<sup>4</sup> I am grateful for Thomas Rawski for recommending a Chinese source from which I obtained the idea of using tertiary sector census data.

The 1995 industrial census provides detailed fixed asset data according to ownership and subsectors, but not an industry-wide figure for fixed assets. The limitation to the directly reporting industrial enterprises remains,

The first and second group are limited to the state sector. The first group of budgetary SOEs is problematic in that it does not include the non-budgetary state-owned enterprises, and does not cover non-enterprises, i.e., administrative units. “Budgetary” state-owned enterprises (*yusuannei guoyou qiye*) appears a term that originated in the planned economy to denote those enterprises which surrendered their annual surplus to the finance departments and received their annual budget as well as investment funds from the finance departments. In industry, the (original value of) fixed assets of budgetary state-owned enterprises in, for example, 1995, is 2573.30b yuan RMB compared to that of *all* industrial SOEs of 3093.57b yuan RMB, which is 20.22% larger. Only for industry and in some years for construction are these values for *all* SOEs available, in the industry and construction sections of the *Statistical Yearbook* (third group above). Presumably, the category of all SOEs comprises all budgetary SOEs; the remaining other SOEs could be enterprises set up by budgetary SOEs as semi-independent units, could be too small for the Finance Ministry to be interested in their financial details, or could simply be SOEs established with the understanding that they operate independently of the finance departments. An additional, small issue is that agriculture in these statistics is likely to include agricultural services (a tertiary sector subsector); at least this is the case in the investment statistics up through 1995.<sup>5</sup>

The second group of budgetary SOEs and state-owned administrative units, with data for 1995 through 2001/02 from the *Fiscal Yearbook*, is problematic in that the variable “state assets” (*guoyou zichan*) is not further defined. In a comparison of these enterprise data on state assets with the enterprise data on fixed assets in the *Statistical Yearbook*, state assets appears to refer to the net value of fixed assets. The match is not perfect, but this could be due to the fact that the state asset data, as a note to the 1995 data explains, incorporate (1) the revaluation achieved in the process (campaign) to clean up production and appraise assets (*qingchan hezi*) and (2) land appraisal values (*tudi gujia yinsu*).<sup>6</sup>

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except that fixed asset data on one slightly extended classification (still incomplete in enterprise coverage) are also included.

<sup>5</sup> According to Liu Chengxiang et al. (2000), p. 79, the industry classification (*hangye huafen*) includes agricultural services in agriculture, while the economic sector classification (*chanye huafen*) includes agricultural services in the tertiary sector. Investment data for state-owned units show primary sector investment identical to agricultural investment from 1981 (first year for which the data are available) through 1995, but then primary sector investment falls short of agricultural investment by fifteen to nineteen percent in 1996 through 2000. This suggests that since 1996 the economic sector classification excludes agricultural services from agriculture. (For the data see *Investment 1950-2000*, pp. 42-47, 55.)

Two other small issues are the following. First, the 1993 tertiary sector census led to retrospective one-third upward revisions to 1993 tertiary sector value-added. The fixed asset values on SOEs in transport, commerce, and urban public utilities (as well as the implicit residual) were not retrospectively revised; nor do the values of the following years appear out of line with the growth trends in the other sectors. This would suggest the omission of needed revisions. On the other hand, tertiary sector data on SOEs could have been reliable all along. Second, the table on the original value of fixed assets of budgetary SOEs in the *Statistical Yearbook* comes with a note to the effect that since 1985 the previously industrial sector forestry is included with agriculture. This obviously does not affect the total across sectors, but affects sectoral analysis for (budgetary) SOEs.

<sup>6</sup> If the state asset data in the *Fiscal Yearbook* were not to reflect improved net fixed asset values, what then could they possibly be? The balance sheet of industrial SOEs contains five items: current assets, long-term investment, fixed assets, intangible and deferred assets, and “other assets” (see, for example, Finance Ministry, 1999, Vol. 1, p. 438). The *Industrial Yearbook 2002* (with data for 2001), pp. 59ff., is the first source with relatively detailed asset data for industrial SOEs (including state controlled enterprises): current assets account for 42.69% of total assets, long term investment for 4.87%, fixed assets for 46.87%, and an implicit residual captures the remaining 5.57%. State assets, thus, cannot include current assets (which are too large), but might contain long term investment (unlikely), and might contain the implicit residual of intangible, deferred, and other assets (also unlikely, except perhaps for intangible assets). The only other scope for deviation from net fixed assets is for one or more of the other three categories besides *net* fixed assets in fixed assets to be

The *Fiscal Yearbook* data, thus, appear to consist of improved net fixed asset values in as far as assets have been revalued (although revaluation may have proceeded gradually over time). On the other hand, the data are reported to include land appraisal values (not desired for the purpose here), which, however, as argued below, is either incorrect or only applies in a few instances. The coverage extends beyond the budgetary SOEs to include state administrative units, but non-budgetary SOEs are probably also not included, as with the first group. The fact that the *Fiscal Yearbook* data explicitly incorporate revaluations of fixed assets suggests that the *Statistical Yearbook* data on the first group, which do not come with such a note, may not incorporate revaluations.

The third group of directly reporting industrial and construction enterprises is problematic in that the coverage only extends to industry and (for most reform years) construction, and only to the directly reporting enterprises in these sectors. The directly reporting enterprises include all SOEs, which implies that the ownership breakdown of the data on the directly reporting enterprises includes fixed asset data on *all* SOEs.

The definition of directly reporting industrial enterprises changed in 1998. Directly reporting industrial enterprises in the years up through 1997 are industrial enterprises with independent accounting system at township level and above (which includes all industrial SOEs), and in the years since 1998 industrial SOEs (with independent accounting system) plus non-SOEs with independent accounting system and annual sales revenue in excess of 5m yuan RMB. A similar classification system (and change therein) applies to construction.

In the new classification in effect since 1998, the category SOEs is expanded to include state-controlled enterprises. Prior to 1998 the coverage of the SOE category comprised the traditional SOEs (organized according to the 1988 SOE Law), SOE-SOE joint (operation) enterprises, and solely state-owned limited liability companies. Since 1998, fixed asset data from the industry and construction sections of the *Statistical Yearbook* (and from the *Industrial Yearbook*) cover state-owned and state-controlled enterprises rather than only state-owned enterprises, i.e., the coverage is extended to newly included state-controlled (shareholding) enterprises. The change is usually also reflected in the title of the SOE category, now labeled “state-owned and state-controlled enterprises.” The distinction is relevant since 1993 when the first companies were established and “state control” in a shareholding company became a possibility. SOEs in the first group are likely to exclude the state-controlled shareholding companies throughout, the SOEs in the second group are likely to include them starting in 1998.<sup>7</sup>

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included—corrections to fixed assets, fixed assets under construction, and unresolved net losses on fixed assets—which is not likely for the last two. Fixed assets under construction are probably reflected in the item “capital construction funds” in the *Fiscal Yearbook* data, an item that is not included in the calculations below.

<sup>7</sup> The new definition of SOEs since 1998 is relevant for the first group in two respects. First, fixed asset data of the first group since 1993 are likely to be increasingly underestimates since they not only miss out on the non-budgetary SOEs but also on the increasing number of state-controlled shareholding companies. Second, the most recent, additional data of 1997-1998 (limited to SOEs in total and industrial SOEs) for the first group, published only in a table in the *Fiscal Yearbook*, exhibit the same statistical break in 1998 (and SOE data in 1998 cover only industry, communication, and domestic trade); the statistical break is noted below the table (*Fiscal Yearbook 1999*, p. 481). This is the second table in a section titled “Enterprise Finances.” The note also says that the new coverage is relevant for enterprise financial data in tables below (which no longer carry the note); the state asset data (“second group”) are on p. 498, in a new section titled “Administration of State Assets.”

The fourth group covers the tertiary sector in 1991 and 1992. The *Tertiary Sector Census* offers fixed asset data on (1) original and net fixed assets of tertiary sector enterprises, including a sectoral and an ownership breakdown; (2) original fixed assets of tertiary sector administrative units (*shiyexingzhengdanwei*), including a sectoral and an ownership breakdown (with net fixed assets implied by original fixed assets and what appears a cumulative depreciation figure); and (3) original fixed assets of the individual-owned economy (by definition not classified as enterprises). Enterprises, administrative units, and the individual-owned economy are the exhaustive three subcategories of the tertiary sector.<sup>8</sup>

The available data in these four groups allow the construction of fixed asset values for all state-owned units (SOUs), more reliably in some years than in others. They do not allow the construction of fixed asset values for non-SOUs. The following section constructs SOU fixed asset values for a few benchmark years.

### *Original values of fixed assets of state-owned units in selected benchmark years*

End-year fixed assets of all state-owned units (SOUs) are estimated for seven benchmark years: 1980, 1981, 1982, 1991, 1992, 1995, and 2000. The estimations are for all state-owned units, i.e., all enterprises rather than only the budgetary enterprises, plus the administrative units. The data are not available to make similar estimations for other ownership groups or sectors in total. Table 1 presents the summary results.

1980, 1981, and 1982 are chosen as early reform years. For 1978, the beginning of the economic reforms, no economy-wide investment data are available. Depending on the type of investment classification, investment data are available starting 1980, 1981, or 1982.

1991 and 1992 are chosen because of the availability of data on the tertiary sector, and because the problem of the coverage of SOEs in industry and construction data is not relevant. (Companies were only established beginning in 1993, so that the issue whether state-controlled enterprises are included in SOEs or not was not yet relevant in 1991 and 1992). The problem of revaluations is also not yet relevant.

1995 is chosen because it is the first year for which the *Fiscal Yearbook* published extensive, economy-wide SOU data on “state assets.” Unfortunately, “state assets” are not explicitly defined; they appear to be an improved measure of net fixed assets in that they incorporate (possibly yet incomplete) revaluations of fixed assets. But they are also—as argued below not credibly—reported to include land appraisal values; perhaps this occurs only for SOEs which have undergone a complete audit, such as at the occasion of listing on the stock market. The coverage of SOEs is probably limited to budgetary SOEs, and state-controlled shareholding companies are excluded. A second reason to choose 1995 is that industry data for 1995 are likely to be highly reliable thanks to the 1995 industrial census.

2000 is chosen as a final benchmark year. The same shortcomings apply as to the 1995 data, except that the industry data now include state-controlled shareholding companies, and the revaluation process should have been completed.

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<sup>8</sup> The distinction between the first two categories is the type of accounting system used. The individual-owned economy (less than 8 employees, in contrast to private “enterprises”) covers both registered and non-registered *getihu*. (*Tertiary Sector Census 1993*, p. 3873)

1980, 1981, 1982

The original values of fixed assets of state-owned units in 1980, 1981 and 1982 of 792.239b, 854.122b, and 926.494b yuan RMB are obtained as the sum across sectors as follows (also see Table 2).

Agriculture and construction: original value of fixed assets of budgetary state-owned enterprises (from the *Statistical Yearbook* table on the original value of fixed assets of budgetary state-owned enterprises): 16.75b and 13.64b yuan RMB in 1980, 17.18b and 17.46b yuan RMB in 1981, and 18.93b and 17.63b yuan RMB in 1982. For construction, unlike in later years, no data on *all* state-owned enterprises are available. In the case of industry, the values for *all* state-owned enterprises relative to those for budgetary state-owned enterprises are seven to eight percent larger. (In 1995 the first value is twenty percent larger than the second.) This implies that the value of original fixed assets of *all* state-owned enterprises in *construction* may not be much different from that of *budgetary* state-owned enterprises in the early 1980s.

Industry: original value of fixed assets of all state-owned enterprises (from the *Statistical Yearbook* industry section): 373.014b, 403.228, and 437.495b yuan RMB in 1980 through 1982.

Tertiary sector: tertiary sector values for the original values of fixed assets in 1980 through 1982 are obtained by augmenting the transport and commerce data on budgetary state-owned enterprises from the *Statistical Yearbook* of 94.33b and 40.96b yuan RMB in 1980, 99.42 and 45.41b yuan RMB in 1981, and 104.16 and 53.26b yuan RMB in 1982. The values are augmented by a multiplicative factor of 2.874087. This factor is the average 1991-1992 ratio of (i) the original value of state-owned fixed assets in the total tertiary sector less agricultural services to (ii) the original value of fixed assets in transport and commerce as published for budgetary state-owned enterprises in the *Statistical Yearbook*.<sup>9</sup>

1991, 1992

The original values of fixed assets of state-owned units in 1991 and 1992 of 2652.653b and 3076.845b yuan RMB are obtained as the sum across sectors as follows (also see Table 3).

Agriculture: original value of fixed assets of budgetary state-owned enterprises (from the *Statistical Yearbook* table on the original value of fixed assets of budgetary state-owned enterprises): 63.39b yuan RMB in 1991, and 70.31b yuan RMB in 1992.

Industry and construction: original value of fixed assets of all state-owned enterprises (from the *Statistical Yearbook* industry and construction sections): 1355.675b and 60.936b yuan RMB in 1991, and 1566.978b and 68.44b yuan RMB in 1992.

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<sup>9</sup> The *average* ratio 1991-1992 is obtained by summing the relevant 1991 and 1992 values prior to forming the ratio. Agricultural services are excluded from the numerator since they are in all likelihood included in the agriculture data. For the data see *Tertiary Sector Census 1993*, pp. 618, 1749.

Tertiary sector: original value of fixed assets of total tertiary sector, less agricultural services. Agricultural services are likely to be included in agriculture (as they are in the investment data in 1991 and 1992). The original value of fixed assets in the tertiary sector less agricultural services in 1991 is 1172.651b and in 1992 1371.117b yuan RMB.

The tertiary sector census of 1993 provides data not only on the original value of fixed assets of state-owned units, but also economy-wide across ownership forms. Economy-wide, in 1991, the values for enterprises, administrative units, and individuals are 1726.099b (p. 560), 611.543b (p. 1673), and 114.484b yuan RMB (p. 3860). For 1992, the three values are 2027.487b, 717.315b, and 139.798b yuan RMB (same pages). I.e., the total tertiary sector original value of fixed assets is more than twice as high as the tertiary sector original value of fixed assets in state ownership.

1995

The original value of fixed assets of state-owned units in 1995 of 8147.639b yuan RMB is obtained as the sum across sectors as follows (also see Table 4).

Agriculture and transportation: original value of fixed assets of budgetary state-owned enterprises (from the *Statistical Yearbook* table on the original value of fixed assets of budgetary state-owned enterprises): 123.16b and 928.48b yuan RMB.

Industry and construction: original value of fixed assets of all state-owned enterprises (from the *Statistical Yearbook* industry and construction sections): 3093.570b and 134.486b yuan RMB.

Commerce: *Fiscal Yearbook* data on “state assets” in trade and catering of 439.32b yuan RMB (presumably in budgetary state-owned enterprises only), multiplied by the ratio of original to net fixed assets in budgetary state-owned enterprises in commerce according to the *Statistical Yearbook* data (214.25/163.10) to yield 577.096b yuan RMB. An alternative would be to, in addition, multiply this final figure by the ratio by which the original value of fixed assets of *all* state-owned enterprises in industry (and/or construction) exceeds that of *budgetary* state-owned enterprises in industry (and/or construction).

Implicit residual of “state industrial and commercial enterprises,” state financial enterprises, administrative units, real estate units, and implicit residual of the total: *Fiscal Yearbook* data on “state assets” (2279.49b yuan RMB = 415.54 + 443.03 + 960.57 + 41.99 + 418.36 billion yuan RMB), multiplied by the ratio of (total) original to net fixed assets in budgetary state-owned enterprises according to the *Statistical Yearbook* (4259.54/2950.48) to yield 3290.847 yuan RMB.

The underlying intention was to base the total outcome on the *Fiscal Yearbook* data—appropriately translated into *original value* of fixed assets data—with corrections to cover all state-owned enterprises in industry and construction. The *Fiscal Yearbook* data are preferred to the *Statistical Yearbook* data because the *Fiscal Yearbook* covers not only enterprises but also non-enterprise units, and it claims to use revalued fixed asset values. Data on capital construction units are excluded because these are likely to reflect the value of capital construction projects not yet completed (once completed, the value of these fixed assets

should be included in the data on one of the economic sectors); incomplete fixed assets cannot participate in the production of value added.<sup>10</sup>

One shortcoming of the *Fiscal Yearbook* data is that they are reported to include land appraisal values. But a sector-by-sector comparison in Table 4 suggests that if state assets are meant to capture revalued net fixed assets plus land values, the land value can only be minimal. The claim that land values are included could even be false; the *Fiscal Yearbook* state asset values in agriculture are slightly *below* the net fixed asset values in the *Statistical Yearbook* (which never come with a claim that fixed asset values have been revalued or land values been included); for any land value to be included, this would require a negative revaluation in excess of positive land values. But the revaluations supposedly are usually upward, and presumably by a large amount, to incorporate the high inflation of the late 1980s and early 1990s. The most likely scenario is that land values are only included in rare instances, such as when an enterprise underwent a complete audit prior to listing on the stock market.

An alternative calculation is to follow the same procedures as in the case of the 1980-1982 data. Industry and construction data on all state-owned enterprises from the industry and construction sections of the *Statistical Yearbook* are 3093.57b and 134.49b yuan RMB. The original value of fixed assets of budgetary state-owned enterprises in agriculture (from the *Statistical Yearbook* table on the original value of fixed assets of budgetary state-owned enterprises) is 123.16b yuan RMB. For the tertiary sector, applying the 1991/92 multiple of total tertiary sector (less agricultural services) fixed assets to fixed assets in transport and commerce (as published in the *Statistical Yearbook*), 2.874087, to the 1995 transport and commerce fixed assets of 928.48b and 214.25b yuan RMB (as published in the *Statistical Yearbook*) yields 3284.305b yuan RMB. The grand total then is 6635.525b yuan RMB. This is 18.56% lower than the figure derived from the *Fiscal Yearbook* data, a discrepancy that illuminates the potential margin of error in fixed assets estimates for 1995 as well as for 2000, when the alternative calculation can no longer be implemented.

2000

The original value of fixed assets of state-owned units in 2000 of 15115.626b yuan RMB is obtained as the sum across sectors as follows (also see Table 5).

Industry and construction: original value of fixed assets of *all* state-owned enterprises, including state-controlled enterprises at least in industry: 5729.50b and 221.139b yuan RMB (from the *Industrial Yearbook* and from the *Statistical Yearbook* construction section).

For all other sectors, it is assumed that the *Fiscal Yearbook* data are net fixed asset values. To obtain the original values of fixed assets, the net fixed asset values are multiplied by the ratio of original to net fixed asset values in (the sum of) industry and construction following the *Industrial Yearbook/ Statistical Yearbook* data covering all state-owned enterprises (and state-controlled enterprises at least in industry) in these sectors. The multiplicative factor is 1.523559 ( $[(5729.50+221.139) / (3763.88+141.868)]$ ).

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<sup>10</sup> The fixed assets that are combined with labor in the construction industry—to produce these not yet completed new fixed assets—are included in the data on the construction sector.

The data on capital construction units are excluded because these are likely to reflect the value of capital construction projects not yet completed. *Statistical Yearbook* data on the original (or net) value of fixed assets of budgetary SOEs are not available for the years after 1995.

### *SOU benchmark year values vs. cumulative investment values of fixed assets*

The SOU original values of fixed assets derived above can be contrasted with those obtained via the cumulative investment method (Table 6). The match between the two types of data is better in 1980-1992 than in 1995 and 2000; but the comparison in 1995 and 2000 is hampered by the fact that the official fixed asset data contain revaluations, while the fixed asset values obtained through the accumulation of effective investment do not (see paper for details).<sup>11</sup> The fixed asset values obtained via the cumulative approach using investment-based scrap rates come closer to the benchmark values than those using depreciation-based scrap rates, and in 1980-1982 and 1991 and 1992 provide a very good match. The two approaches, benchmark values and cumulative approach using investment-based scrap rates, thus, validate each other.

## **2. Complete series of SOU and non-SOU fixed asset values**

Table 7 provides the economy-wide end-year fixed asset values that underlie the summary table on real original fixed asset values in the paper.

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<sup>11</sup> A further potential problem is the lack of definitions in the *Fiscal Yearbook* (on which the 1995 and 2000 benchmark values draw) on the exact meaning of the asset series.



**Table 1. Benchmark Year Original Values of Fixed Assets of State-owned Units (end-year, in b yuan RMB)**

	Value	Remarks
1980	792.239	approximation of tertiary sector data
1981	854.122	approximation of tertiary sector data
1982	926.494	approximation of tertiary sector data
1991	2652.653	pre-revaluation data; pre-shareholding company data
1992	3076.845	pre-revaluation data; pre-shareholding company data
1995	8147.639	lacking state-controlled enterprises; based on undefined "state assets" which
	[6635.525]	appear to be net fixed assets (with some revaluation, but possibly including some land values) [Value calculated using same procedure as in 1980-82.]
2000	15115.626	based on undefined "state assets" which appear to be net fixed assets (with some revaluation, but possibly including some land values)

Sources: Table 2 through Table 5 and text.

**Table 2. Original Values of Fixed Assets of Budgetary State-owned Enterprises, 1980, 1981, 1982, 100m yuan RMB**

	1980	1981	1982
Total	5311.1	5769.2	6258.8
Industry	3465.2	3748.5	4074.9
	[3730.14]	[4032.28]	[4374.95]
Agriculture	167.5	171.8	189.3
Construction	136.4	174.6	176.3
Transport	943.3	994.2	1041.6
Commerce	409.6	454.1	532.6
Urban public utilities	55.2	77.9	86.5
<i>Implicit residual</i>	<i>133.9</i>	<i>148.1</i>	<i>157.6</i>

All data are for “budgetary” state-owned enterprises (*yusuannei guoyou qiye*) except those marked with “[],” which are for all state-owned enterprises. All data are end-year values.

Some individual categories and Chinese labels:

Transport: transport, post, and telecommunications.

Commerce: commerce, grain [trade], foreign trade.

Urban public utilities (*chengshi gongyong shiye*): city communal facilities.

Sources: *Statistical Yearbook 1990*, p. 30; all state-owned enterprises in industry: *Statistical Yearbook 1981*, p. 260; *1983*, p. 292.

**Table 3. Original Values of Fixed Assets of Budgetary State-owned Enterprises and of State-owned Units in the Tertiary Sector, 1991 and 1992, 100m yuan RMB**

	<i>Statistical Yearb.</i>		Tertiary sector census of 1993							
	State-owned enterprises		State-owned enterprises		State administrative units		Sum enterprises + admin. units		Original/net value	
	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992
Total	17856.0	20545.6								
Industry	11377.5	13026.9								
	[1355.675]	[1566.978]								
Agriculture	633.9	703.1								
Construction	419.5	435.3								
	[60.936]	[68.44]								
Transport	2794.9	3350.5								
Commerce	1271.3	1434.0								
Public utilities	349.2	411.7								
<i>Implicit residual</i>	<i>1009.7</i>	<i>1184.1</i>								
Total tertiary			6547.5	7637.7	5268.3	6179.7	11815.9	13817.4	1.36	1.35
Agric. services			30.2	38.0	59.2	68.2	89.4	106.2	1.26	1.28
Geol. prosp.			111.6	127.5	362.5	390.3	474.1	517.8	1.36	1.42
Transport II			3419.7	3885.2	119.4	138.5	3539.1	4023.7	1.38	1.38
Trade, catering			1437.0	1688.3	9.8	11.5	1446.8	1699.8	1.34	1.34
Finance/ ins.			446.8	550.4	11.8	15.3	458.5	565.7	1.42	1.36
Real estate			374.3	456.0	184.2	214.7	558.6	670.7	2.44	2.34
Social services			473.8	587.0	159.8	201.7	633.5	788.7	1.38	1.35
Health etc.			23.2	26.9	533.2	628.5	556.4	655.4	1.35	1.34
Education etc.			84.7	99.4	1711.3	1975.0	1796.0	2074.4	1.22	1.21
Sci. research			22.3	29.2	448.4	519.9	470.7	549.1	1.99	1.89
State/ Party			27.0	31.3	1612.2	1950.1	1639.2	1981.4	1.18	1.16
Others			97.0	118.6	56.4	66.0	153.4	184.6	1.43	1.40

All data are for “budgetary” state-owned enterprises (*yusuannei guoyou qiye*) except those marked with “[],” which are for all state-owned enterprises. All data are end-year values.

State administrative units (*guoyou shiye xingzheng danwei*) covers “state-owned facilities and administrative units.”

The ratio of the original to the net value of fixed assets covers (the sum of) state-owned enterprises and administrative units in the tertiary sector. For state-owned *administrative units* the net fixed asset values are derived as original values less what appears to be cumulative depreciation (*dangnian yi tiqu zhejiu de guding zichan yuanzhi*); for *state-owned enterprises* net values are directly available.

Some individual categories and Chinese labels:

Transport: transport, post, and telecommunications.

Commerce: commerce, grain [trade], foreign trade.

[Urban] public utilities (*chengshi gongyong shiye*): city communal facilities.

Agricultural services cover agriculture, forestry, husbandry, and fishery.

Geol. prosp. (*dizhi kanchaye, shuili guanliye*): Geological prospecting and water conservancy.

Transport II (*jiaotong yunshu, cangchu ji youdian tongxinye*): Transport, storage, and telecommunications.

Trade, catering (*pifa he lingshou maoyi, canyinye*): Wholesale and retail trade, catering.

Finance/ ins.: Finance and insurance.

Social services (*shehui fuwuyue*).

Health etc. (*weisheng, tiyu he shehui fuliye*): Health, sports, and social welfare.

Education etc. (*jiaoyu, wenhua yishu ji guangbo dianying dianshiye*): Education, culture/ arts, and broadcasting/film/TV.

Sci. research (*kexue yanjiu he zonghe jishu fuwuyue*): Scientific research and comprehensive technical services.

State/ Party (*guojia jiguan, zhengdang jiguan he shehui tuanti*): State organs, government and Party organs, and social organizations.

Sources: *Statistical Yearbook 1998*, p. 35; *Tertiary Sector Census 1993*, pp. 618-29, 1749-59; all state-owned enterprises in industry and construction: *Statistical Yearbook 1992*, pp. 420, 574; *1993*, pp. 419, 562.

**Table 4. Original Values of Fixed Assets of Budgetary State-owned Enterprises and of Other State-owned Units, 1995, 100m yuan RMB**

	<i>Statistical Yearbook:</i> fixed assets of state-owned enterprises				<i>Fiscal Yearbook:</i> “state assets”		
	original value		net value		100m yuan	%	%
	100m yuan	%	100m yuan	%			
Total	42595.4	100.0	29504.8	100.0	57106.4		100.0
State ind. and comm. ent.					36449.4	100.0	63.8
Industry	25733.0	60.4	17315.7	58.7	19467.3	53.4	34.1
	[30935.7]		[21363.9]				
Agriculture	1231.6	2.9	897.6	3.0	883.4	2.4	1.5
Construction	1113.5	2.6	780.6	2.6	891.5	2.4	1.6
	[1344.9]		[940.0]				
Transport	9284.8	21.8	6433.1	21.8	6658.6	18.3	11.7
Commerce	2142.5	5.0	1631.0	5.5			
Trade and catering					4393.2	12.1	7.7
Urban public utilities	959.9	2.3	739.1	2.5			
<i>Implicit residual</i>	2130.1	5.0	1707.7	5.8	4155.4	11.4	7.3
State financial enterprises					4430.3		7.8
Administrative units					9605.7		16.8
Capital construction units					2017.5		3.5
Real estate units					419.9		0.7
<i>Implicit residual</i>					4183.6		7.3

All data are for “budgetary” state-owned enterprises (*yusuannei guoyou qiye*) except those marked with “[],” which are for all state-owned enterprises. All data are end-year values.

The term “state assets” (*guoyou zichan*) is undefined in the source but appears to approximate net fixed assets.

Data in the *Fiscal Yearbook* come with a note that state assets incorporate (i) the revaluation achieved in the process (campaign) to clean up production and appraise assets (*qingchan hezi*) and (ii) land appraisal values (*tudi gujia yinsu*). The particular table (*Fiscal Yearbook 1997*, p. 496) does not make explicit that the state-owned enterprises covered are only the budgetary ones, but a table a few pages earlier (p. 479)—with data on original and net values of fixed assets over time in all state-owned enterprises and in the sub-category industrial state-owned enterprises (matching those in the *Statistical Yearbook*)—comes with a note that “all financial data on state-owned enterprises in this table and the tables below without exception refer to budgetary state-owned enterprises.”

Some individual categories and Chinese labels:

Agriculture in *Fiscal Yearbook*: *nonglinmuyu ye*: agriculture, forestry, husbandry fishery.

Transport: transport, post, and telecommunications. In *Fiscal Yearbook*: communication, transportation, post, and telecommunications.

Commerce: commerce, grain [trade], foreign trade.

Trade and catering: trade (including the grain and materials *xitong*) and catering.

Urban public utilities (*chengshi gongyong shiye*): city communal facilities.

State financial enterprises (*guoyou jinrong qiye*).

Administrative units (*xingzheng shiye danwei*).

Capital construction units (*jiben jianshe danwei*).

Real estate units (*fangchan jingguan danwei*): units in charge of housing property.

Sources: *Statistical Yearbook 1998*, p. 35; *Fiscal Yearbook 1997*, p. 496; all state-owned enterprises in industry: original value from *Statistical Yearbook 1996*, p. 415, net value from *Industrial Yearbook 2004*, p. 26 (since the *Statistical Yearbook 1996* only has average annual values for the net value of fixed assets); all state-owned enterprises in construction: *Statistical Yearbook 1996*, p. 458.

**Table 5. Original Values Fixed Assets of Budgetary State-owned Enterprises and of Other State-owned Units, 2000, 100m yuan RMB**

	<i>Fiscal Yearbook</i>	<i>Ind./Stat. Yearbook: fixed assets</i>	
	"State assets"	Original value	Net value
Total	98859.2		
A. Enterprise state assets	68612.6		
(1) Ordinary ind. and comm. ent.	57554.4		
1. Industry	28986.2	57295.0	37638.8
2. Construction	1125	2211.39	1418.68
3. Geological prospecting	121.7		
4. Communication, transport	7292.8		
5. Storage	403		
6. Post and telecommunications	7459.4		
7. Commerce and catering	3763		
8. Agriculture	881.6		
<i>Implicit residual</i>	7521.7		
(2) Financial and insurance ent.	8303.9		
(3) Enterprises abroad	1195.7		
(4) Various construction funds	1558.6		
B. Non-enterprise state assets	30246.6		
(1) Administrative units	21653.7		
(2) Capital construction units	8592.9		

All data are end-year values.

The term "state assets" (*guoyou zichan*) is undefined in the source (*Fiscal Yearbook*) but appears to approximate net fixed assets. Enterprise data in the *Fiscal Yearbook* are likely to cover only budgetary state-owned enterprises. The same table in an earlier *Fiscal Yearbook*, that of 1997 (p. 496), carried a note saying that state assets incorporate (i) the revaluation achieved in the process (campaign) to clean up production and appraise assets (*qingchan hezi*) and (ii) land appraisal values (*tudi gujia yinsu*). The fixed asset values for industry from the *Industrial Yearbook/Statistical Yearbook* come with a note (in the *Industrial Yearbook*) that they, since 1998, include the state-controlled industrial shareholding enterprises (*guoyou konggu gongye qiye*).

Some individual category labels in Chinese: enterprise state assets (*jingyingxing guoyou zichan*); ordinary industrial and commercial enterprises (*yiban gongshang qiye*); geological prospecting (*dizhi kancha*); communication, transport (*jiaotong yunshu ye*); storage (*cangchu ye*); post and telecommunications (*youidian tongxin ye*); commerce and catering (*shangye ji canyin ye*); agriculture (*nonglinmuyu ye*); various construction funds (*gelei jianshe jijin*); administrative units (*xingzheng shiye danwei*).

Sources: *Fiscal Yearbook 2001*, p. 407; all state-owned enterprises in industry: *Industrial Yearbook 2004*, p. 26 (since the *Statistical Yearbook* only has average annual values for the net value of fixed assets); all state-owned enterprises in construction: *Statistical Yearbook 2001*, p. 467.

**Table 6. Original Value of SOU Fixed Assets (b yuan RMB in current prices)**

	Benchmark year values	scrap rate = 0%	Cumulative investment values	
			annual scrap rates are based on depreciation	investment
1980	792.239	668.323	623.609	730.267
1981	854.122	723.185	672.407	783.079
1982	926.494	786.314	727.077	844.968
1991	2652.653	2359.982	2134.675	2459.591
1992	3076.845	2736.093	2483.093	2876.617
1995	8147.639 [6635.525]	4584.221	4194.531	4814.043
2000	15115.626	10199.097	9206.816	10181.430

Benchmark year values are from Table 1. [Value of 1995 calculated using the same procedure as in 1980-82.] Cumulative investment values are derived as explained in the paper.

**Table 7. End-year Real Original Value of Fixed Assets Values (b yuan year 2000 RMB)**

	Scrap value deflated using deflator of				Scrap value as real eff. inv. less		
	current period [7*]		earlier period [7', 7'']		lagged real effective investment [8]		
	B-C.4	B-C.3	B-C.4	B-C.3#	B-C.4#	B-C.3	GFCF
1953	208.754	153.883	208.754	153.883	208.754	153.883	205.707
1954	257.086	196.956	257.066	196.941	253.770	186.848	251.117
1955	307.481	226.628	307.486	226.633	304.694	224.814	302.304
1956	378.818	262.106	378.736	262.046	374.325	279.274	373.033
1957	449.111	308.829	449.281	308.944	447.371	345.713	446.727
1958	554.448	368.982	554.688	369.145	553.492	438.651	556.928
1959	679.739	462.828	679.910	462.946	673.187	545.587	682.940
1960	804.643	565.859	804.865	566.011	801.427	664.028	819.452
1961	877.083	625.097	877.241	625.205	871.944	716.204	890.282
1962	919.742	667.864	919.451	667.650	926.512	747.432	943.273
1963	978.750	697.205	977.934	696.607	991.497	786.346	1007.042
1964	1061.352	747.781	1060.072	746.853	1081.176	841.641	1095.470
1965	1166.523	820.810	1164.752	819.535	1202.608	923.875	1216.345
1966	1269.640	888.105	1267.722	886.727	1320.044	1000.473	1332.658
1967	1337.184	936.656	1335.134	935.185	1397.226	1045.810	1406.754
1968	1391.595	978.741	1389.945	977.551	1470.571	1082.198	1473.765
1969	1480.581	1042.241	1479.581	1041.508	1574.451	1145.943	1575.053
1970	1633.838	1181.407	1632.960	1180.760	1730.480	1258.655	1731.750
1971	1793.929	1420.350	1792.693	1419.444	1876.114	1368.144	1879.898
1972	1934.907	1593.972	1934.007	1593.332	2025.249	1478.331	2029.526
1973	2112.664	1783.018	2112.082	1782.640	2207.217	1617.219	2211.517
1974	2305.890	1970.371	2305.604	1970.242	2400.718	1753.768	2402.266
1975	2534.770	2177.644	2534.592	2177.608	2625.966	1915.503	2624.352
1976	2740.210	2365.024	2740.045	2364.998	2831.125	2066.406	2824.891
1977	2986.111	2605.855	2985.623	2605.551	3072.769	2254.601	3062.684
1978	3283.096	2893.361	3282.127	2892.637	3363.515	2484.514	3350.828
1979	3638.465	3164.890	3637.019	3163.746	3696.092	2742.769	3680.574
1980	3996.112	3437.741	3992.433	3434.657	4045.966	3003.745	4023.047
1981	4332.220	3712.167	4324.496	3705.609	4372.220	3253.924	4340.807
1982	4692.761	4022.195	4675.727	4007.675	4730.436	3531.217	4687.366
1983	5099.497	4360.550	5068.408	4334.005	5130.122	3834.394	5073.822
1984	5563.069	4736.067	5504.047	4685.682	5605.095	4205.888	5535.636
1985	6071.213	5416.086	5978.021	5336.680	6088.214	4680.027	6010.618
1986	6699.934	6051.443	6572.522	5941.276	6683.765	5288.336	6594.671
1987	7412.935	6784.206	7244.276	6636.416	7355.626	5969.996	7247.774
1988	8212.049	7588.574	7999.237	7401.095	8123.529	6752.296	7992.513
1989	8942.578	8452.779	8691.737	8230.110	8818.716	7445.543	8676.957
1990	9636.395	9250.663	9305.870	8946.293	9401.186	8080.292	9299.008
1991	10393.854	10272.976	9973.950	9875.386	10050.015	8778.269	10004.134
1992	11302.182	11356.528	10771.918	10844.352	10856.750	9537.230	10848.645
1993	12380.354	12581.333	11690.338	11906.015	11704.331	10427.205	11684.957
1994	13633.243	13978.028	12732.580	13081.095	12695.031	11444.521	12660.801
1995	15068.557	15559.269	13889.921	14372.342	13785.647	12612.575	13779.510
1996	16822.785	17461.024	15288.098	15902.602	15178.716	13966.057	15211.547
1997	18730.785	19518.756	16744.256	17509.862	16571.773	15474.863	16628.758
1998	20788.578	21723.294	18270.331	19180.715	18091.334	17080.627	18102.174
1999	23002.303	24071.191	19867.833	20934.384	19703.382	18849.662	19706.116
2000	25350.680	26528.516	21536.210	22751.903	21544.963	20535.097	21538.270
2001	27753.237	29004.437	23217.348	24574.727	23342.356	22253.687	23312.683
2002	30483.789	31760.658	25234.772	26712.522	25320.531	24493.951	25196.410
2003	33595.187	34838.637	27669.337	29152.280	27770.151	26976.571	27389.065



The case abbreviations refer to Table 5 in the paper. “B” refers to SOU effective investment, “C.3” to non-SOU effective investment of 1986 extended backwards in time based on industrial non-SOU gross output value real growth rates, and “C.4” prior to 1986 to the difference of gross fixed capital formation and SOU investment; since 1986 the non-SOU effective investment values are the difference between official economy-wide and official SOU effective investment. “GFCF” refers to effective gross fixed capital formation in all years.

SOU effective investment values 1953-1979: sum of effective capital construction and effective technological updating and transformation (with the latter estimated); 1981-2003: official data on effective investment of SOUs; 1980: transfer rate obtained as ‘sum of newly increased fixed assets [effective investment] through capital construction and through technological updating and transformation, divided by investment in capital construction and in technological updating and transformation,’ times SOU investment. (This indirect method is chosen for 1980 because the 1980 value of effective technological updating and transformation, unlike in earlier years, excludes “other” SOU effective investment, and the official data on SOU effective investment don’t start until 1981.)

First year SOU effective investment values (for 1953) are based on the perpetual inventory method with an average (nominal) annual growth rate of 1953-58 and a scrap rate of zero. The same method is used for non-SOU values when these are calculated as residual of gross fixed capital formation and SOU values (C.4). First year non-SOU values (for 1953) when these are calculated based on industrial non-SOU gross output real growth rates is the sum of 1949-1953 values, where the summation occurs in real prices (C.3).

In the case of “C.4,” the in some of the equations underlying original value of fixed assets is derived using depreciation-based scrap rates, in the case of “C.3” using investment-based scrap rates.

Depreciation-based scrap rates are based on official SOE fixed asset values and depreciation rates in the years 1952-92, and on linear interpolation for the years 1993-2002 between the 1992 scrap rate and an approximate 2003 industrial SOE scrap rate of 2.5% (obtained from industrial SOE fixed asset values and depreciation rates). The linear interpolation is done due to the potential revaluations in this period. For the scrap rates and the underlying fixed asset values see the appendix on scrap rates (the underlying depreciation rates are reported in the paper).

Investment-based scrap rates are based on official industrial SOE fixed asset values combined with (prior to 1981 to some degree estimated) investment values in all years except 1966-74, when approximate SOU fixed asset and investment values are used. Values for 1993-2002 are based on a linear interpolation between the 1992 scrap rate and the 2003 industrial SOE approximate *depreciation-based* scrap rate of 2.5%. The linear interpolation is done due to the potential revaluations in this period. Since by 2003 official underreporting of investment should be very minor, the investment-based scrap rate should equal the depreciation-based scrap rate in 2003. The original investment-based scrap rate after 1997 is inconsistent due to diverging coverage in the underlying data. For details see the appendix on scrap rates and/or the paper.

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