

Derivation of the Approximate Economy-wide Depreciation Rates

The approximate economy-wide depreciation rate is constructed by observing the patterns between the different time series in Table 1 in the text.

- (1) Budgetary SOEs: the official depreciation rates for industry (second data column) are 0.1 to 0.5 percentage points higher than those for all SOEs (first data column).
- (2) Budgetary vs. all industrial SOEs: the actual depreciation rates (depreciation divided by midyear original value of fixed assets) of all industrial SOEs are 0.6 to 0.9 percentage points lower than the official ones for budgetary industrial SOEs; either the official depreciation rates are not implemented as stated, or the non-budgetary industrial SOEs have extremely low depreciation rates. For all industrial SOEs, the approximations based on those provinces for which depreciation and fixed asset data are available are likely to, given the 1991 and 2001 comparison data points, yield a reliable proxy for the national depreciation rates in years when those cannot be calculated.
- (3) Industrial SOEs vs. directly reporting industrial enterprises: the actual depreciation rates of all directly reporting industrial enterprises (which include all industrial SOEs) are 0.35 to 0.47 percentage points higher than the actual ones of all industrial SOEs.
- (4) The economy-wide depreciation rate of 2000, approximated from data on only five provinces, is 0.44 percentage points higher than the approximated depreciation rate of all industrial SOEs. It is based on end-year rather than midyear original fixed assets, which means it is an under-estimate of the actual depreciation rate.

The only province for which both end-year and midyear fixed asset values are available, Shaanxi, has an economy-wide depreciation rate of 4.86% based on end-year original fixed assets, and of 5.29% based on midyear original fixed assets. The depreciation rate of industrial SOEs in Shaanxi in 2000 is 4.91%, 0.38 percentage points less than the economy-wide depreciation rate based on midyear original fixed asset values.

The last pattern suggests that the economy-wide depreciation rate is likely to be above but close to the calculated depreciation rate of all industrial SOEs. But data on one province only (Shaanxi), for one year only, which suggest the need to increase the depreciation rates of industrial SOEs by 0.38 percentage points to reach the economy-wide level, appear too little evidence to justify making full adjustments to national data.¹

Constructing an approximate economy-wide depreciation rate for the reform period, this synthesized rate follows the calculated depreciation rate of all industrial SOEs in years when these rates can be calculated (data columns three and four), with a very small increase (rounding up) in 2001-02, and slight smoothing in 1999 and 2000 to reach the more reliable 2001 value. In the years 1978-84 when industrial SOE depreciation rates cannot be calculated, the reference rates are the official depreciation rates for budgetary SOEs and for budgetary industrial SOEs (considering their relationships with actual, calculated rates for *all* industrial SOEs in 1985-91). The approximate economy-wide depreciation rates are reported in the seventh data column of Table 1 in the text.

¹ An upward adjustment to the economy-wide depreciation rate by 0.01 percentage points in 2001 and 2002 to raise a rounded 5.14 and 5.04 to 5.2 and 5.1 seems plausible given the patterns observed in the case of Shaanxi.

The *calculated* depreciation rate (depreciation divided by the original value of fixed assets) is lower than the true average depreciation rate because the calculation relates ‘depreciation on those fixed assets not yet fully depreciated’ to ‘all fixed assets (including those already fully depreciated).’ This is necessitated by the fact that the value of fixed assets already fully depreciated is unknown. The resulting depreciation rate is appropriate in the context here because this depreciation rate, calculated from a subset of the economy, is in the following (below) related to economy-wide depreciation in order to derive the economy-wide original value of fixed assets (by design and as desired including those fixed assets already fully depreciated). It is unclear if the published official depreciation rates available for budgetary SOEs (industrial SOEs) through 1992 (1993) are the “true” depreciation rates, applied to the original value of those fixed assets not yet fully depreciated.