

Table 1. Advantages and Disadvantages of Different Approaches to Calculating Economy-wide Real Original Values of Fixed Assets

Approach	Advantages	Disadvantages
<i>Cumulative investment approach</i>		
Scrap rate of 0 or 1%	<ul style="list-style-type: none"> * 0% plausible given SOU effective investment data and benchmark values for fixed assets * 1% plausible given depreciation-based scrap rate values 	<ul style="list-style-type: none"> * Assumption of constancy is not plausible; in reality, scrap rates vary from year to year
Scrap rate based on depreciation	<ul style="list-style-type: none"> * Annual variability and levels are plausible 	<ul style="list-style-type: none"> * Limited basis for derivation: SOEs, industrial SOEs, SOUs * Ought to use calculated depreciation rates that reflect total depreciation relative to total original value of fixed assets (including those fixed assets already fully depreciated) because depreciation rate is applied here to total original value of fixed assets; the scrap rate is potentially biased upward * Scrap rates incorporate not only scrap values but also revaluation, which leads to excessive inflation of fixed asset values after 1992 (use alternative series 93-03) * Statistical break in 1997/98
Scrap rate based on investment	<ul style="list-style-type: none"> * Corrects for potentially underestimated investment data 	<ul style="list-style-type: none"> * Limited basis for derivation: industrial SOEs, SOUs * Scrap rates incorporate not only scrap values but also revaluation, which leads to excessive inflation of fixed asset values after 1992 (use alternative series 93-03) * Statistical break in 1997/98 and inconsistent series after 1997
Non-SOU effective investment based on non-SOU industrial gross output value real growth	<ul style="list-style-type: none"> * Year-specific growth rates 	<ul style="list-style-type: none"> * Questionable if all non-SOUs grow at the same rate as industrial non-SOUs, and if there is constant relationship between gross output value and capital in non-SOUs
Non-SOU effective investment obtained as residual	<ul style="list-style-type: none"> * If gross fixed capital formation were an accurate estimate of economy-wide investment, and SOU effective investment data were accurate, the resulting non-SOU values are the best possible 	<ul style="list-style-type: none"> * Potentially over- (or: mis-) estimates non-SOU values if gross fixed capital formation over- (or: mis-) estimates investment, and/ or if the SOU series that is subtracted from the economy-wide values is too small (in which case too large a share of economy-wide investment is subjected to the higher economy-wide rather than the SOU transfer rate) * Relies on estimated non-SOU transfer rate (could use SOU transfer rate -- too low)

Augmented economy-wide values (for SOU cumulative investment to reach the 1992 fixed asset benchmark value)	* May compensate for underestimated official investment	* If the SOU 1992 fixed asset benchmark value is incorrect or SOU and non-SOU effective investment values are not underestimated in each year by the same constant amount, the derived economy-wide values of fixed assets are over- or mis-estimated
Effective gross fixed capital formation	* Easy to use	* May over- or mis-estimate effective investment * Requires use of transfer rates derived from economy-wide effective investment and investment since 1981, and estimated transfer rates for earlier years

National income accounting approach

General	* Simple to implement * Likely to be the most comprehensive approach * Automatically yields mid-year values	* No pre-1978 values, which also implies that the full 1978 original fixed asset value (which contains fixed assets priced at the price levels of previous years) is deflated using the 1978 deflator * No economy-wide depreciation rate available * Reflects revaluations after 1992, possibly with delay * If “true” depreciation rates are used, then the original value of fixed assets is underestimated because it omits those fixed assets already fully depreciated; need to apply calculated depreciation rates that reflect actual depreciation relative to total original value of fixed assets * Lack of details on the coverage of official depreciation data, possibly poor quality
Approximate depreciation rate		* Economy-wide depreciation rate has to be assumed (approximated) based on depreciation rates calculated (or published) for subsets of the economy * Jump in the approximate depreciation rate in 1993 from 4.7% to 5.5% without corresponding rise in depreciation values; this raises questions about the accuracy of the NIA depreciation values (or the approximate [and official] depreciation rates)
Assumed 5% depreciation rate	* Smooths fixed asset series in comparison to case of approximate depreciation rate	* Constant depreciation rate over time is not plausible; smoothing is potentially incorrect

Construction of the real original value of fixed asset time series

Deflating scrap value by lagged deflator	* Bypasses questions about accuracy of earlier effective investment values	* Relies on scrap rates to identify time lag
Replacement of scrap value by lagged effective investment	* Easy to use * Ensures that all effective investment is at one point decommissioned	* Relies on perfect accuracy of economy-wide effective investment * Relies on scrap rates to identify time lag
