

A NEW DEVELOPMENT DATA BASE

The following article is the second in an occasional series introducing new data bases. The series intends to make new development data bases more widely available and to contribute to discussion and further research on economic development issues. The data bases included in the series are selected for their potential usefulness for research and policy analysis on critical issues in developing and transition economies. Some are drawn from micro-level firm or household surveys; others contain country-level data. The authors describe the data contents, criteria for inclusion or exclusion of values, sources, strengths and weaknesses, and any plans for maintenance or updating. Each data base is available from the author, at the address provided in the article.

A New Data Base on State-Owned Enterprises

Luke Haggarty and Mary M. Shirley

Privatization of state-owned assets was a central economic reform of the 1980s and 1990s. Lack of data has made it impossible to judge the extent to which privatization has diminished the importance of state ownership in the economy or changed the performance of state-owned enterprises. This article introduces a new data base on state-owned enterprises, the first since the mid-1980s, which partly fills this information gap. The Bureaucrats in Business data base provides time-series data for up to 88 countries on the share of state enterprises in the overall economy, investment, employment, and internal and external credit as well as their overall surplus or deficit and the size of transfers to and from national treasuries. The article presents the rationale for the data base, describes its seven measures of state enterprise size and performance, and explores possible uses of the information.

Privatization of state assets is one of the defining characteristics of economic change in the 1980s and early 1990s. Suleiman and Waterbury (1990: 4) take as their leitmotiv "the belief that the breadth of the phenomenon [privatization] reveals that we are witnessing a fundamental shift in industrial and financial ownership and in the management of economies." Yet although there is evidence that the incidence of privatization has increased dramatically, the lack of data on such fundamentals as value added, investment, or employment in state-owned enterprises has made it impossible to judge how important privatization has been in changing the role of state ownership in the economy.

To address some of these issues, the World Bank (1995) developed the Bureaucrats in Business (BIB) data base detailing the size, nature, and performance of state enterprises in industrial and developing market economies during 1978–91.¹ This data base is the most complete of its kind and is the only significant addition to the pool of state enterprise data since the early 1980s. Although it does not answer all of the questions posed above, it addresses many of them and produces some surprises.

Section I reviews the rationale for the data base and the choice of indicators. Section II compares the existing data bases with the BIB data base and explores

1. The BIB data base is freely available on the Internet at <http://www.worldbank.org/html/prdfp/bib/bibdata.htm>.

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its strengths and weaknesses. Section III discusses each of the seven indicators in more detail. Section IV illustrates potential uses of the data base. Section V concludes.

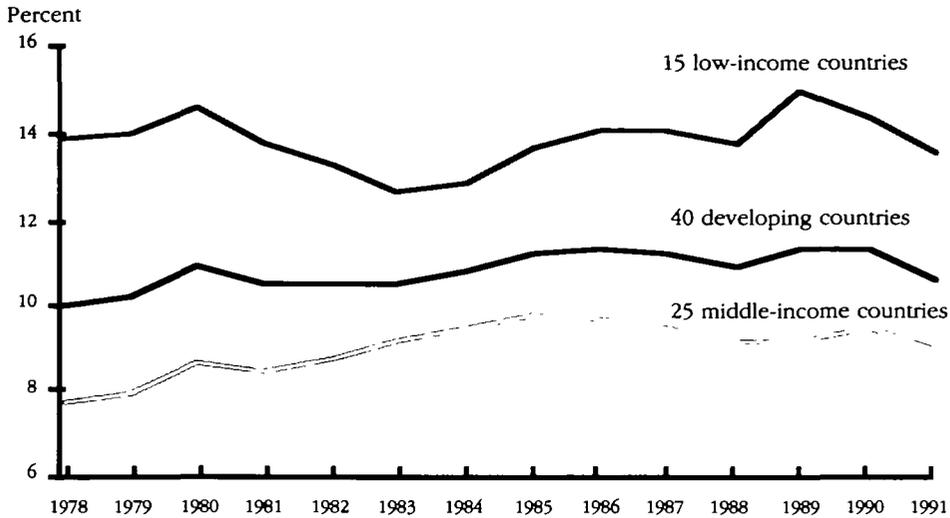
I. THE RATIONALE FOR DEVELOPING THE DATA BASE

An important motivation for developing the BIB data base was the need to assess the impact of privatization on state enterprises. The upsurge in privatization in the late 1980s and early 1990s was accompanied by an upsurge in rhetoric claiming that divestiture was minimizing the importance of state-owned enterprises as an economic issue. Two existing data bases on privatization (Candoy-Sekse 1988 and World Bank 1997) show nearly seven times as many privatization transactions in the eight years from 1988 to 1995 as during the previous eight years (1980–87). Although comparable data on the value of transactions are not available for 1980–87, the shift of sales to larger firms in higher-value sectors (from manufacturing and services to infrastructure and banking) suggests that the value of privatized industries increased substantially as well. It thus seemed that divestiture was reducing the economic importance of state ownership. But without data on the stock of state enterprises, we could not evaluate that trend.

To analyze the impact of privatization on government ownership, we collected data on three measures of economic size and importance: share in economic activity, investment, and employment. Despite some problems (described below), these indicators are useful for assessing the relative importance of state ownership by country or region. Surprisingly, the data suggest that the average share of state ownership in developing market economies did not change much over 1978–91 (figure 1).

We also wanted the data base to provide information on the performance of state enterprises and their contribution to economic growth. The upsurge in privatization spurred a sizable literature debating the effects of government ownership and privatization on efficiency and growth (see, for example, theoretical studies by Shapiro and Willig 1990; Sappington and Stiglitz 1987; Vickers and Yarrow 1988; and Yarrow 1986; and empirical studies by Galal and others 1994; Boardman and Vining 1989; Kikeri, Nellis, and Shirley 1992; Megginson, Nash, and van Randenborgh 1994; and Pollitt 1995).

The theoretical debate is inconclusive. Hence, Yarrow holds that “it cannot be expected that one form of ownership will be superior to the other in all industries and in all countries” (1986: 332). As for the empirical evidence, analysis has been hampered by lack of comprehensive information. Studies comparing public and private firms (reviewed in Yarrow 1986; Galal and others 1994; and World Bank 1995) generally favor private ownership in competitive markets. But these studies fail to adjust for differences not attributable to ownership (see Borcharding, Pommerehne, and Schneider 1982; Millward and Parker 1983; and Millward 1988). Studies of privatized firms (surveyed in Kikeri, Nellis, and Shirley 1992 and World Bank 1995) generally favor private ownership in com-

Figure 1. *State-Owned Enterprises' Shares in Gross Domestic Product, 1978-91*

Note: Values are unweighted averages.

Source: World Bank (1995, statistical appendix)

petitive and monopoly markets but are based on relatively small samples. Galal and others (1994) find that privatization improved welfare significantly over a counterfactual in 11 of 12 cases, 9 of which were monopoly firms. In a study of 41 firms in 15 countries Megginson, Nash, and van Randenborgh (1994) find that privatized firms in competitive sectors increased their returns on sales, assets, and equity; raised internal efficiency; improved their capital structure; and increased investment (although no counterfactual is constructed). Empirical analyses of the macroeconomic effects of ownership are limited to country case studies.

II. A COMPARISON WITH EXISTING DATA BASES

Until development of the BIB data base, Short (1984) and Nair and Filippides (1989) had developed the most extensive data sets (table 1). Short's data base has the largest number of indicators and includes up to 78 countries, but coverage for many indicators is less.² Also, Short's data fall between 1960 and 1980, making them unsuited for addressing questions about the effects of privatization, because the significant increase in divestiture dates from the late 1980s. Another problem is that many of the indicators are presented as three- and four-year averages rather than as yearly figures. These averages mask significant policy

2. The indicators are state enterprise shares in GDP, gross fixed capital formation, output and investment by industrial sector, overall balances and their component parts, state enterprise financing by source, state enterprise budgetary burden, and share of gross domestic credit.

Table 1. *A Comparison of Data Bases on State-Owned Enterprises in Developing Countries*

(total number of developing countries with more than five years of observations)

<i>Data base and region</i>	<i>Value added</i>	<i>Investment</i>	<i>Savings-investment gap^a</i>	<i>Budgetary burden^b</i>
<i>Short (1984)</i>				
Total	33	51	37	33
Latin America and the Caribbean	9	23	22	17
Africa	14	16	8	8
Asia	10	12	7	8
<i>Nair and Filippides (1989)</i>				
Total	30	39	27	37
Latin America and the Caribbean	8	16	17	18
Africa	16	12	4	12
Asia	3	10	6	7
<i>World Bank (1995)</i>				
Total	65	70	63	65
Latin America and the Caribbean	22	28	26	24
Africa	31	27	27	32
Asia	12	15	10	9

Note: Although each data set has additional indicators, only the four most important are used for this comparison. Africa includes Sub-Saharan and North Africa; Asia includes South Asia, Southeast Asia and the Pacific, and Central Asia. Transition economies and industrial economies are excluded.

a. Overall balances of state enterprises before transfers.

b. Net financial flows from governments to state enterprises.

changes and can be misleading when trying to identify the timing of policy changes. They also make it difficult to extrapolate the data forward because it is impossible to compare overlapping years.

Nair and Filippides (1989) generally cover 1980–85 (although some countries and indicators also cover the 1970s) for up to 67 countries. The scope of their data base is narrower than that of Short, but similar to ours. Because Nair and Filippides present annual data, we were able to check whether the data were similar to our series and to incorporate consistent information into our data base.

The BIB data base covers a much larger sample of countries than the earlier data bases, providing seven measures of state enterprise size and performance for up to 88 countries (tables 2 and A-1). In addition to yearly data, it gives individual country averages for 1978–85, 1985–91, and 1978–91 (using three-year moving-average estimates to extrapolate for the years without data) as well as averages by region, income group, and individual country. The regions are Africa (all of North Africa and Sub-Saharan Africa), Asia (South Asia, Southeast Asia and the Pacific, and Central Asian nontransitional economies), and Latin America and the Caribbean. Averages weighted by gross domestic product (GDP) in current U.S. dollars are also given. The income groups were calculated according to the income categories in the World Bank's 1992 *World Development Indicators*: low income, those with a 1992 per capita income of \$675 or less; middle income, those with a 1992 per capita income of \$676 to \$8,355; and

industrial, those with a 1992 per capita income of \$8,356 or more (World Bank 1992). When we calculated world averages or averages by region and income level, we excluded countries that did not have at least six years of data. For example, we have GDP shares for 76 countries but world averages for only 40 developing countries and 8 industrial countries. In addition, we excluded the transition countries of Central and Eastern Europe and Asia because of data discontinuities. Before the transition these countries did not use accounting principles comparable with those in market economies, making it impossible to construct a time series similar to the rest of our sample.

Table 2. *Definitions and Country Coverage for Indicators in the Bureaucrats in Business Data Base*

<i>Indicator</i>	<i>Total number of countries</i>	<i>Number of developing countries with more than 5 years of observations</i>	<i>Unweighted 1978-91 average for developing countries with more than 5 years of observations</i>
Share in economic activity (percentage of GDP) ^a	76	40	10.9
Share in investment (percentage of GDI) ^b	88	55	4.6
Share in employment (percentage of total employment) ^c	30	21	10.4
Savings-investment deficit before transfers (percentage of GDP) ^d	64	46	-1.6
Net financial flows from the government (percentage of GDP) ^e	68	37	-0.3
Share of domestic credit (percent) ^f	39	36	11.1
Share of total external debt (percent) ^g	82	74	13.6

a. Aggregate value added of country's state enterprises expressed as a percentage of GDP at current market prices. Value added is calculated as sales revenues minus cost of intermediate input (or as sum of operating surplus and wage payments). The data base also provides share in economic activity expressed as a percentage of nonagricultural GDP.

b. State enterprise gross fixed capital formation (includes changes in stocks) as a percentage of gross domestic investment (GDI) at current market prices. The data base also provides share in investment expressed as a percentage of GDP.

c. Number of full-time state enterprise employees as a percentage of total employment. The data base also provides share in employment expressed as a percentage of formal sector employment for 13 developing countries.

d. State enterprise savings (sum of net operating and net nonoperating revenues) minus net capital expenditures (including stock changes) as a percentage of GDP. Operating savings are operating revenues minus intermediate inputs, wages, factor rentals, and depreciation, or gross operating profits. Net nonoperating revenues are revenues from such sources as earnings on financial assets minus nonoperating expenditures, such as losses on foreign exchange accounts.

e. Flows to state enterprises from governments, including government loans, equity, and subsidies, minus flows from state enterprises to government, including taxes and dividends, as a percentage of GDP.

f. Stock of domestic credit outstanding to state enterprises as percentage of gross credit outstanding to private sector, state enterprises, and governments. The data base also provides share of domestic credit expressed as a percentage of GDP for 39 countries, 3 of which are developing countries.

g. State enterprise total external debt outstanding and disbursed as percentage of total external debt (both calculated in U.S. dollars). The data base also provides share of external debt expressed as a percentage of GDP (converted to U.S. dollars at current exchange rate).

Source: World Bank (1995).

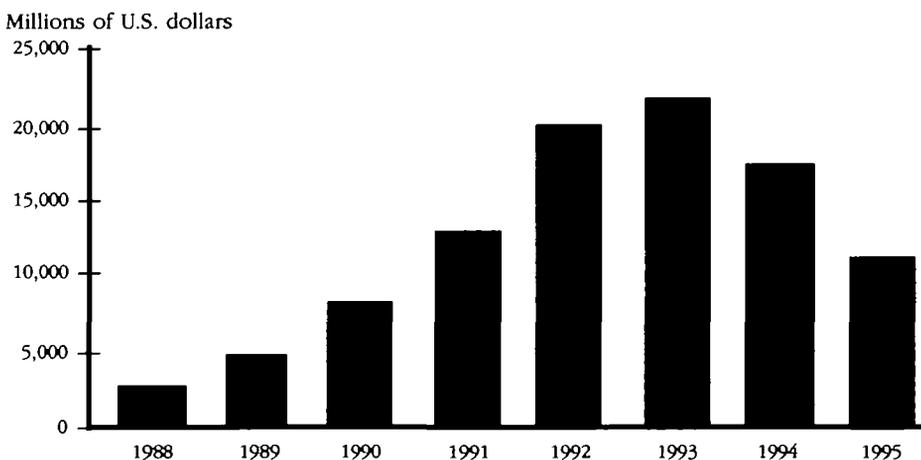
Time Period

Unlike the earlier data sets, the BIB data base covers 1978–91 and hence includes a period of intense privatization (1985–91), although the 1991 cutoff date means that recent privatization and reform efforts cannot be assessed. Our goal was to assemble a time series with at least five years of data for every indicator in at least 35 countries. The data end in 1991, the last year for which information was available for a meaningful number of countries when the data base was built.

The most important factor affecting state ownership since 1991 is the continued growth in the number of privatizations. According to one privatization data base (originally presented in Sader 1994 and updated in World Bank 1997) the value of privatization transactions in developing countries grew sharply from 1988 to 1993 and then fell in 1994 and 1995 (figure 2). While there was almost \$30 billion in sales during 1988–91 (the period covered by the BIB data base), there was almost \$70 billion in the subsequent period (1992–95). One might think, therefore, that any conclusions concerning the impact of privatization on the share of state enterprises in GDP would be flawed because the data exclude the recent period of intense privatization.

Although information on privatization flows is important for analyzing fiscal changes, private investment, and other issues, extrapolating changes in the stock of state enterprises from privatization data alone can be misleading, as the BIB data base has shown. If we compare yearly sales as a percentage of the privatizing countries' GDP in 1988–91 (the period covered by the BIB data base) and in 1992–95 (the subsequent period), we find that the figure scarcely increased, from 0.475 percent (1988–91) to 0.519 percent (1992–95). The value of trans-

Figure 2. *Values of Privatization Proceeds in Developing Countries, 1988–95*



Note: Based on data from 89 countries.
Source: World Bank (1997).

actions rose after 1991 because the number of privatizing countries grew—from 38 in 1988–91 to 64 in 1992–95. In both periods most sales were concentrated in a few countries, while most countries sold relatively few firms. Thus the top five privatizing countries in 1988–91 (Argentina, Brazil, the Republic of Korea, Mexico, and Mozambique) generated 77 percent of the value of transactions, while during 1992–95 the top five (Argentina, Brazil, China, Malaysia, and Mexico) were responsible for 57 percent of the value of total sales. Also, in some cases sales revenues may not be related to trends in state ownership. For example, India sold \$3.64 billion in nonfinancial state enterprise assets from 1991 to 1995, yet because both sellers and buyers were often part of the public sector, the impact on state ownership was negligible.

There are plans to update a subset of the sample focusing on larger countries and major indicators for the 1998 issue of *World Development Indicators* (published by the World Bank). Some countries (for example, India, Korea, and Mexico) publish annual information on their state enterprises with about a year's delay. Thus interested scholars can also selectively update the BIB data base. Assembling current information for a large sample is difficult, however. Many governments do not publish fully consolidated data on their state firms, and it can be difficult to put the data in comparable form because countries vary in their definition of state enterprises. Collecting and assembling data for the BIB data base took more than a year.

Definition and Sources

Following Jones (1975) we defined state-owned enterprises as government-owned or -controlled economic entities that generate the bulk of their revenue from selling goods and services. This definition limits the set to commercial activities for which the government is able to control management decisions by virtue of its ownership stake. This definition has several advantages. First, it provides an objective way of distinguishing state enterprises from other government activities that might be officially labeled state enterprises in some countries but that receive the bulk of their income from general revenues (social security systems, road maintenance agencies, or agricultural research institutes) or government transfers (public health or university systems). Second, by defining a state enterprise as a government-controlled as well as a government-owned entity, we included enterprises directly operated by a government department or indirectly owned through other state enterprises as well as enterprises in which the government owns a minority share but, given the distribution of the other shares, has effective control. (Effective control can be ascertained by examining who designates the majority of the board and appoints senior management.)

Although we attempted to correct for deviations, we did not always have the information needed to make an individual country's data consistent with our definitions; these cases are detailed in the footnotes and specific country notes in the data base. On average, our data tend to understate rather than overstate the

size of the state enterprise sector because governments rarely include enterprises that are not commercial, such as agricultural research institutes, on their lists of state enterprises. More frequently, they omit enterprises that clearly are state enterprises by excluding a particular legal form (for example, departmental enterprises), state enterprises owned by a local rather than the national government (for example, most water and many power utilities), and smaller state enterprises (in terms of size or demand for fiscal resources). In addition, we had to limit the sample to central or federal government enterprises, because data on enterprises owned by local governments are almost nonexistent. We excluded financial enterprises because we lacked the time and resources needed to deal with their differing character. Another limitation of the data is the lack of breakdown by sector. Despite considerable effort, we were unable to assemble sector information for a meaningful number of countries—an unfortunate outcome because many hypotheses about state ownership distinguish competitive firms from natural monopolies.

The main sources for state enterprise data from developing countries were individual country publications (described in detail in World Bank 1995), country reports from the World Bank and International Monetary Fund, and Nair and Filippides (1989). Other sources included World Bank (1994); World Bank, *African Development Indicators* (various years); and World Bank data. Industrial-country data were from CEEP, *Annales du CEEP* (various years) and OECD, *National Accounts Statistics* (various years). GDP was taken from World Bank (1994) and state enterprise and total credit, from IMF (various years).

Accounting Anomalies

Users of this—or indeed any—data base on state enterprises should keep in mind that many state enterprises fail to use the Generally Accepted Accounting Principles and that the accounting rules applied can vary from country to country and from enterprise to enterprise. Often smaller state enterprises are not audited by internationally accredited accounting firms, meaning that there may be no independent check on their record-keeping and reporting. Some of the indicators (such as state enterprise savings) are more vulnerable to the problems this presents than others (such as employment), and in general our measures are less vulnerable than the profitability measures widely used by other analyses. Because these problems are widespread and highly varied, we assume that they do not bias the data and do not unduly affect comparability, which is not to minimize the serious problems that accounting weaknesses create for objective analysis.

III. THE BIB DATA BASE INDICATORS

In this section we describe the seven measures of state enterprise size and performance in more detail and consider some of the issues raised by our findings. The indicators are defined in table 2. Appendix table A-1 gives country coverage.

Share in Economic Activity

This indicator was calculated as the state enterprise value added as a percentage of GDP and, because the size of the agricultural sector (in which state enterprises are normally minimal) varies substantially among countries, as a percentage of nonagricultural GDP. The exclusion of agriculture has a large effect on some predominately agrarian economies, such as many African economies. For example, the share of state enterprises in Mali more than doubles when agriculture is excluded—from 15 percent of total GDP to 34 percent of nonagricultural GDP in 1978.

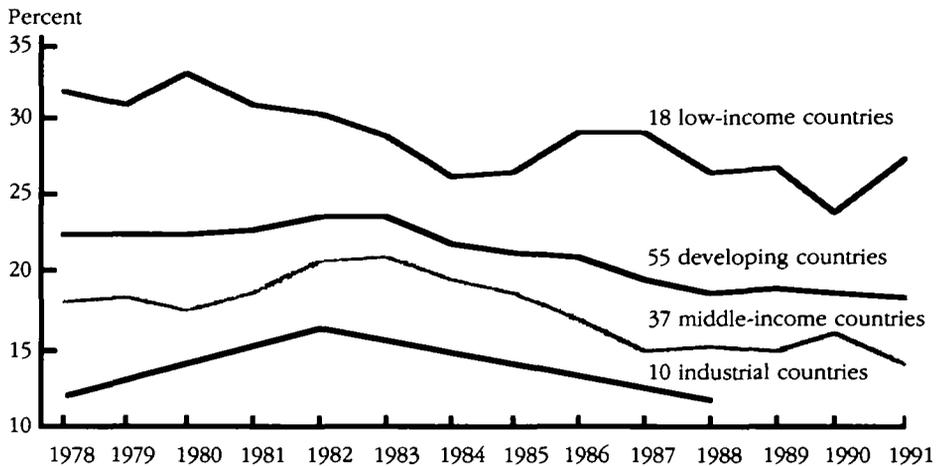
The average state enterprise share of GDP in 40 developing countries with market economies (11 percent) was almost unchanged from 1978 to 1991 (figure 1). During the same period, state enterprise share of GDP in 8 industrial countries fell from 9 to 7 percent. Employment shares were also steady. This surprising result in light of the extent of privatization led us to ask whether the trend in the share of nominal state enterprise value added in current price GDP is a meaningful measure of the change in the relative importance of state enterprises.

Many countries keep state enterprise price increases below cost increases, particularly for infrastructure prices, meaning that the sector's nominal value added may be understated. However, a number of countries increased state enterprise prices as part of their reform efforts in the second half of the 1980s, which could overstate value added. In other words, it could be that privatization did shrink the real share of state enterprises, but that price increases kept the nominal share from falling. For this to be true, state enterprise product prices would have to have risen faster than the average of all other prices in the economy. Evidence suggests that this did not occur. First, company information cited in the data base suggests that state enterprise price increases often failed to keep pace with inflation, as measured by the consumer price index. Second, countries that were decontrolling state enterprise prices were also liberalizing trade, which forced state enterprises in competitive markets to cut prices or at least restrain increases.

This indicator can shed light on other issues. For example, looking across income levels, we find that state enterprises were more important in the economies of lower-income countries, where they produced an average of almost 14 percent of GDP over the period studied, than in those of middle-income countries (9 percent; figure 1). The variance is large, despite the exclusion of the transition economies of Europe and Asia. At one extreme is Algeria, where state enterprises produced an average of 65 percent of GDP between 1978 and 1991; at the other is the United States with 1.6 percent.

Share in Investment

We calculated aggregate state enterprise investment as a percentage of both gross domestic investment (GDI) and GDP. The first calculation measures the

Figure 3. *State-Owned Enterprises' Shares in Gross Domestic Investment, 1978-91*

Note: Values are unweighted averages.

Source: World Bank (1995, statistical appendix).

importance of state enterprises compared with other investors, and the second measures the importance of state enterprise investment to the economy overall. The average share of GDI for 55 developing countries was 21 percent (figure 3), while the share of GDP was 4.6 percent. The variance is large: in 15 countries state enterprises accounted for more than one-third of all investment, including Egypt (59 percent), Zambia (55 percent), Venezuela (46 percent), Algeria (45 percent), India (41 percent), Turkey (36 percent), and Tunisia (35 percent).

Over time this indicator behaves differently than value added. State enterprise investment in a sample of 55 developing countries fell from 23 percent of GDI in 1978 to 19 percent by 1991, compared with 11 percent on average for a sample of 10 industrial countries (figure 3). Again, we can analyze patterns across income groups. State enterprise investment was 29 percent of GDI in low-income countries and 17 percent in middle-income countries. We can also identify regional differences: although the average state enterprise share of total investment fell steadily in most countries, and all regional averages dropped between 1978 and 1991, the fall was much sharper in Latin America (28 percent) than in Africa (16 percent) or Asia (8 percent). Because in Latin America state enterprises rely more on external debt to finance their investments than they do in other regions, the fall in investment may partly reflect the fall in the region's access to foreign credit during and after the debt crises of the mid-1980s.

Share in Employment

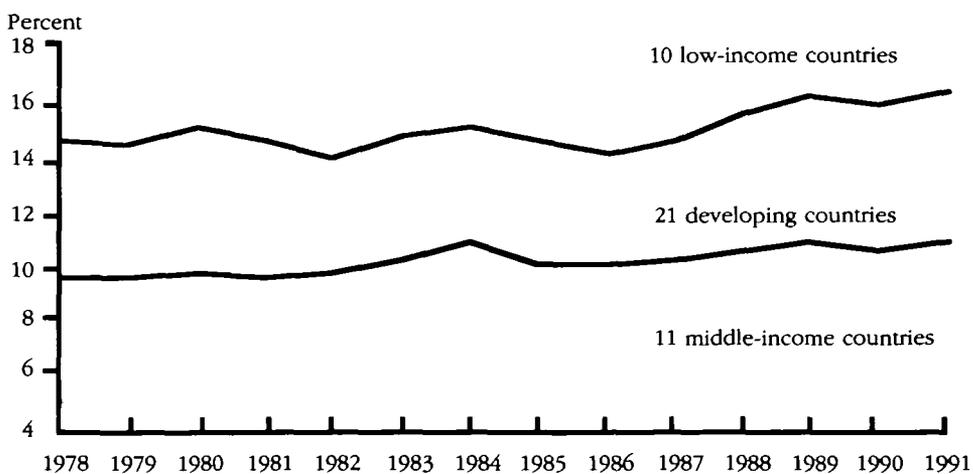
Share in employment was defined as full-time employees as a percentage of total employees. For 13 of the African countries in the sample we could report only formal or modern sector employment. The smaller denominator biases the

state enterprise employment shares upward: these 13 countries reported average employment shares of 22.8 percent compared with 15.3 percent for the 11 African countries that reported state enterprise employment as a percentage of total employment. The African average for this variable was based on a sample of nine countries that meet our time-series requirement. Five of those countries reported state enterprise shares of total employment, and four reported only formal sector shares. The weighted average for Africa, 16.4 percent, is closer to the average for countries reporting shares of total employment. The unweighted average, 20.6 percent, is closer to that of countries reporting only formal employment and hence is less comparable with the rest of the world.

The employment data support the premise that the share of government ownership in economic activity did not change: shares were virtually steady throughout the period (figure 4). Again, there is wide variance among countries at different income levels, although this is due partly to the upward bias in the African data.

Because many state enterprises are capital intensive, we would expect their share of employment to be small relative to that of private firms. And, indeed, in Latin America and Asia their share in employment was only about one-third the size of their share in GDP. In Africa, however, the state enterprise share of employment was similar to its share of GDP, even when countries reporting only shares of formal sector employment are excluded. It may be that state enterprises were less capital intensive in Africa than in other regions, more overstaffed, or both. The indicator does illustrate that even in Africa, state enterprises were not major employers. Indeed, only in 1 of our 43 sample countries—Guinea—did state enterprise employment exceed 50 percent of formal sector employment (68 percent).

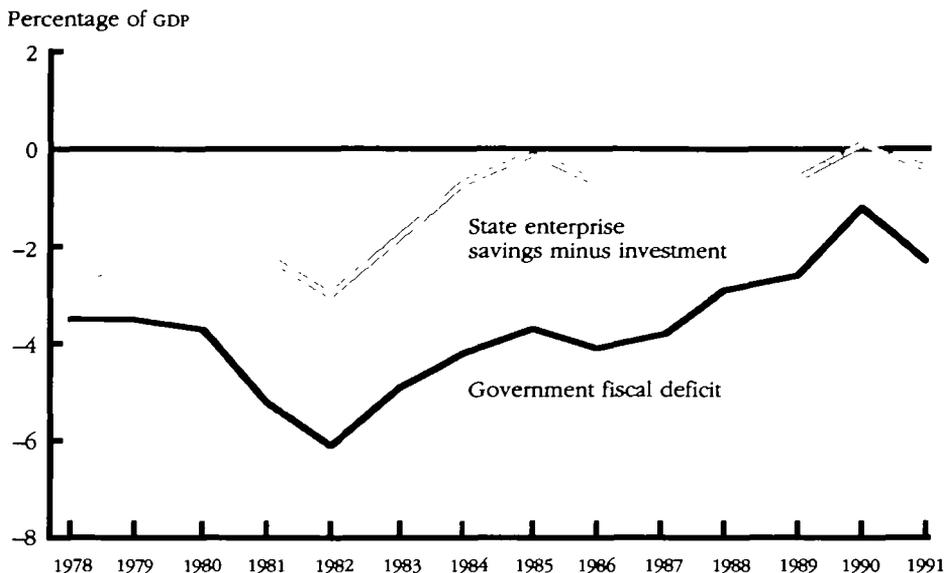
Figure 4. *State-Owned Enterprises' Shares in Employment, 1978–91*



Note: Values are unweighted averages.

Source: World Bank (1995, statistical appendix).

Figure 5. *Trends in State-Owned Enterprises' Balances and Government Fiscal Deficits, 1978-91*



Note: Sample is 38 developing market economies. Values are unweighted averages.

Source: World Bank (1995, statistical appendix).

Overall Balances before Transfers

The overall balance, or savings-investment deficit, tells us the extent to which the savings of state enterprises cover their net capital expenditures, that is, how much state enterprises demand from the rest of the economy to finance investment and service their debt. A temporary deficit caused by productive new investments would not be a problem, because such investments would provide the enterprise with the resources to repay its debt in the future. Although private firms tend to finance the bulk of their investments from retained earnings, large state enterprises, which make major infrastructure investments, need not do the same. A persistent deficit could signal a problem, however, and we would want to know the cause. Because many state enterprise sectors include some of the country's major revenue earners (petroleum companies, tobacco monopolies, gold mines), a zero balance or a very small surplus might also be cause for concern. Is there a deficit or small surplus because state enterprises are investing heavily in projects with high future returns, or because productivity is low, prices are set below costs, past investments are yielding low returns, or state enterprises are borrowing to cover current losses? We would also want to know how the deficit is being financed. Is it contributing to fiscal deficits, domestic debt, or foreign debt, each of which can cause problems?

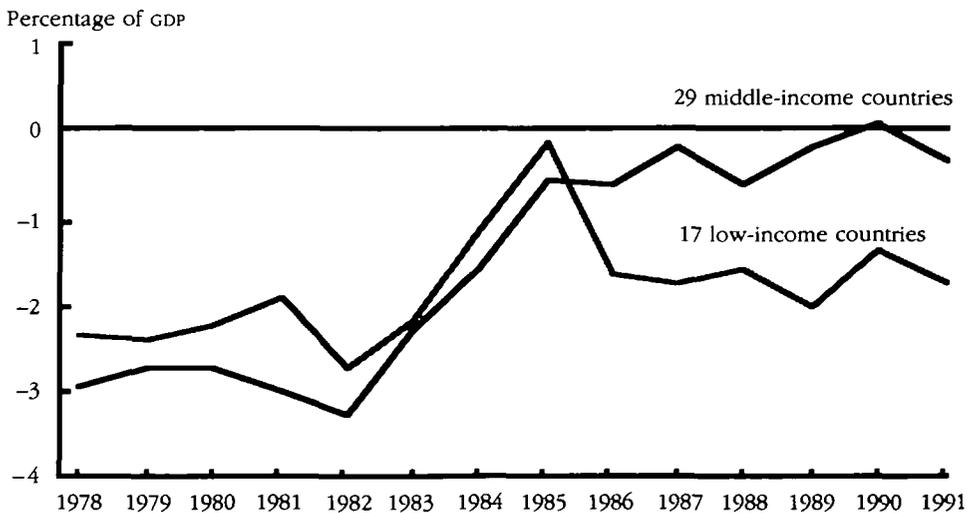
The average overall balance for a sample of 46 developing countries was -1.6 percent of GDP. Again, we see a variance across countries. Although the average deficit of the entire sample improved after the early 1980s (figure 5), it deteriorated

rated in low-income countries after the mid-1980s (figure 6). We could not ascertain the cause of the deficit from the aggregate information in the BIB data base. However, case studies of countries and firms in BIB find persistently higher deficits in enterprises where productivity is low; tariffs are administered in an erratic, ad hoc fashion; and public banks are forced to lend to state enterprises.

The savings-investment deficit moved closely in tandem with the government fiscal deficit, averaging about 35 percent of the fiscal deficit from 1978 to 1991 for 38 developing countries (figure 5). We interpreted this parallel movement as an important indicator of the impact of state enterprise performance on growth. Other studies find fiscal deficits unambiguously bad for growth (Easterly, Rodriguez, and Schmidt-Hebbel 1994; see also Fischer 1993).

In calculating state enterprise savings we eliminated all transfers, which include, for example, subsidies on the revenue side and dividends on the expenditure side. We did so because they would obscure the measure we were trying to capture: the resources that state enterprises require from the economy. We could not, however, exclude hidden subsidies—those that do not appear on any income statement or budget, including loans at below-market rates, nonpayment of interest charges, conversions of state enterprise loans into government equity, duty exemptions, procurement preferences, forgiven taxes or arrears between state enterprises, access to goods and services produced by other state enterprises at below-market prices, and use of land and buildings rent free. Country data suggest that these hidden subsidies are sometimes more significant than overt subsidies. In Kenya, for example, indirect subsidies during 1991–92 were three to four times larger than direct subsidies and increased as direct subsidies fell (Investissement Développement Conseil 1993: 17). Because these hidden

Figure 6. *Trends in State-Owned Enterprises' Overall Balances, 1978–91*



Note: Overall balances are savings-investment balances. Values are unweighted averages.

Source: World Bank (1995, statistical appendix).

subsidies generally add to the income of an enterprise (or lower expenses), they make the sector appear financially better off than it actually is.

Net Financial Flows from the Government to State Enterprises

Net financial flows from the government indicate the net burden of state enterprises on the budget or their contribution to it.³ In two-thirds of our sample countries state enterprises initially received more from the government than they paid. But net financial transfers to state enterprises declined over the period to the point where, by 1991, state enterprises were making transfers to governments equal to about 1 percent of GDP.

State enterprises have three ways of financing their deficits: transfers, domestic borrowing, and foreign borrowing. There were marked differences in the form of finance by country income level. State enterprises in low-income countries relied much more heavily on government transfers than did middle-income countries. In fact, in middle-income countries state enterprises made net transfers to governments (averaging 0.8 percent of GDP from 1978 to 1991), even when they ran a net deficit. These numbers are strongly influenced by the data from Chile and Venezuela, where large extractive state enterprises (copper and petroleum) made sizable net transfers.

Share of Domestic Credit

We compared state enterprise credit with total credit and calculated state enterprise credit as a percentage of GDP.⁴ These measures tell us how successful state enterprises are at capturing credit compared with other borrowers and how important that credit is in the economy. The state enterprise share of domestic credit is understated because governments frequently convert state enterprise domestic debt to equity.

Again, different patterns emerge among different groups of countries. Domestic credit was an important source of deficit financing in low-income countries, where state enterprises captured about 15 percent of gross domestic credit compared with about half that in middle-income countries. The average credit share of state enterprises for all developing countries (about 11 percent) fell only slightly over 1978–91, although it dropped more sharply in low-income countries (from 16 to 13 percent in a sample of 16 countries).

Share of Total External Debt

The third form of state enterprise financing is foreign borrowing. These numbers understate state enterprise foreign debt because they do not capture debt that is assumed or incurred by the government on behalf of state enterprises—a

3. This definition differs from that of Nair and Filippides (1989) in that we treat taxes paid by state enterprises as a transfer to the government.

4. Again, our definition differs from that of Nair and Filippides (1989), who use net rather than gross credit. By using gross credit we avoid the negative ratios that would arise if we used net credit and government deposits with the central bank exceeded central bank credit to the government.

relatively frequent occurrence. State enterprises in middle-income countries relied more on external credit (accounting for an average of 16 percent of total foreign debt) than did those in low-income countries (10 percent on average). After rising in the early 1980s, state enterprise foreign borrowing fell sharply as a share of total borrowing.

IV. POTENTIAL USES FOR THE DATA BASE

BIB used the data base to answer the questions posed at the outset of this article by analyzing trends in the magnitude and performance of state enterprises. But many other potential uses have yet to be exploited. One is to compare outliers with the rest of the sample. For example, in 11 countries the state enterprise share of GDP ranges from two to six times the average for developing market economies. How do these countries fare against the rest of the sample on other economic variables, such as those in Summers, Heston, and Nuxoll (1994)? Another is to analyze regional or income differences.

Scholars interested in specific countries could also use the data base to assess the impact of state enterprises on a specific economy. For example, in some countries state enterprises command high levels of credit relative to their value added. Outstanding credit to state enterprises in Bangladesh averaged 6.5 percent of GDP over 1978–91, even though their value added and investment averaged only 2.7 and 2.6 percent of GDP, respectively. Or scholars could consider trends in employment and value added to get a sense of movements in labor productivity. In Algeria, for instance, the share of state enterprises in GDP fell 31.1 percent from 1980 to 1989, while their share of employment fell only 8.8 percent. In Ghana state enterprise value added as a share of GDP fell more than 50 percent from 1986 to 1991, while employment shares rose almost two-thirds over the same period.

The data can also shed light on the role of the private sector in economies where direct information is limited. National accounts and other statistics often lump state enterprises and private firms into a nongovernment category. BIB data make it possible to separate state enterprise from private value added, investment, employment, or credit statistics.

V. CONCLUSIONS

The state enterprise statistics assembled in our data base represent a significant increase in coverage and time span over previous data bases. Nevertheless, serious gaps remain. Only two-thirds of the developing countries for which we have any observations have enough annual data to be part of the period averages. The omission of transition economies and financial state enterprises leaves out an important region and sector.

The problems we faced in filling these gaps were partly inadvertent but may also have been partly intentional. On the one hand, the fact that we

could find many more observations for middle-income than for lower-income countries suggests that the poor statistics in the latter are partly a result of underdeveloped and underfunded statistical offices. On the other hand, the fact that some middle-income countries also had very poor data and that many countries relied on hidden subsidies suggests that some governments may have intentionally underreported their state enterprises. One reason for this may be that state enterprises are an off-budget expense, less subject to scrutiny and control by the legislature. For example, an important and often overlooked consequence of Mexico's privatization program was the elimination of hundreds of state enterprises that were not functional, consisting principally of an act of creation and a bank account. Another reason may be that countries wish to avoid angering trading partners that might view state enterprise subsidies as an unfair trading practice. Regardless of the motive, the net effect is to make it difficult for researchers to collect reliable information about this important aspect of government activity. We hope that future researchers will begin to fill these gaps.

(Table A-1 begins on the following page.)

Table A-1. *Countries and Indicators in the Data Base*

<i>Country</i>	<i>Share of economic activity (percentage of GDP)</i>	<i>Share of gross domestic investment (percent)</i>	<i>Share of employment (percent)</i>	<i>Overall balances* before transfers (percentage of GDP)</i>	<i>Net financial flows from government (percentage of GDP)</i>	<i>Share of gross domestic credit (percent)</i>	<i>Share of total external debt (percent)</i>
<i>Low income</i>							
Bangladesh	x	x		x		x	x
Benin		x	x	x	x		x
Bhutan						x	
Burkina Faso					x		x
Burundi	x	x	x	x	x	x	x
Central African Republic	x	x		x	x		x
Comoros	x	x					x
Egypt, Arab Republic of	x	x	x	x	x	x	x
Ethiopia							x
Gambia, The	x	x	x	x	x		x
Ghana	x	x	x	x	x	x	x
Guinea	x		x		x		x
Guinea-Bissau					x		x
Guyana	x	x		x	x	x	x
Haiti		x		x	x	x	x
Honduras	x	x		x	x		x
India	x	x	x	x	x		x
Indonesia	x	x	x	x	x		x
Kenya	x	x	x	x	x	x	x
Liberia						x	x
Madagascar	x		x		x		x
Malawi	x	x	x	x	x		x
Maldives						x	

(Table continued on the following page.)

Table A-1. (continued)

<i>Country</i>	<i>Share of economic activity (percentage of GDP)</i>	<i>Share of gross domestic investment (percent)</i>	<i>Share of employment (percent)</i>	<i>Overall balances* before transfers (percentage of GDP)</i>	<i>Net financial flows from government (percentage of GDP)</i>	<i>Share of gross domestic credit (percent)</i>	<i>Share of total external debt (percent)</i>
Mali	x	x	x	x	x		x
Mauritania	x	x		x	x		x
Myanmar		x		x	x		
Nepal	x	x		x	x	x	x
Nicaragua							x
Niger	x	x		x	x		x
Nigeria	x	x		x	x		x
Pakistan	x	x					x
Rwanda	x			x	x		
São Tomé and Príncipe					x		
Sierra Leone	x	x	x	x	x		x
Somalia							x
Sri Lanka	x	x	x		x		x
Sudan	x					x	x
Tanzania	x	x	x	x	x		x
Togo	x	x	x	x	x		x
Uganda							x
Zaire	x	x	x	x	x	x	x
Zambia	x	x	x	x	x		x
Zimbabwe						x	x
<i>Middle income</i>							
Algeria	x	x	x		x		x
Antigua and Barbuda						x	
Argentina	x	x	x	x	x		x

Barbados		x			x		x	
Belize		x			x		x	
Bolivia	x	x		x	x			x
Botswana	x	x		x	x		x	x
Brazil	x	x		x	x		x	x
Cameroon	x			x				x
Cape Verde							x	x
Chile	x	x		x	x		x	x
Colombia	x	x		x	x		x	x
Congo	x	x		x	x			x
Costa Rica	x	x		x	x			x
Côte d'Ivoire	x	x		x	x			x
Djibouti							x	
Dominica	x	x			x		x	x
Dominican Republic	x	x			x		x	x
Ecuador	x	x			x		x	x
El Salvador	x	x			x		x	x
Fiji		x						x
Gabon				x				x
Greece	x	x						
Grenada	x	x		x			x	x
Guatemala	x	x			x		x	x
Jamaica	x	x			x		x	x
Korea, Republic of	x	x		x	x			x
Malaysia	x	x			x			x
Mauritius	x	x		x	x			x
Mexico	x	x		x	x		x	x
Morocco	x	x			x			x
Namibia		x		x	x			
Panama	x	x			x			x

(Table continued on the following page.)

Table A-1. (continued)

Country	Share of economic activity (percentage of GDP)	Share of gross domestic investment (percent)	Share of employment (percent)	Overall balances ^a before transfers (percentage of GDP)	Net financial flows from government (percentage of GDP)	Share of gross domestic credit (percent)	Share of total external debt (percent)
Papua New Guinea		x					x
Paraguay	x	x		x	x		x
Peru	x	x	x	x	x		x
Philippines	x	x	x	x	x	x	x
Portugal	x	x					
Senegal	x	x	x	x	x		x
Seychelles			x	x	x		x
Solomon Islands						x	
South Africa	x	x					
St. Kitts and Nevis		x		x		x	
St. Lucia		x				x	x
St. Vincent and the Grenadines		x		x	x	x	x
Swaziland							x
Thailand	x	x	x	x	x	x	x
Trinidad and Tobago	x	x	x	x	x	x	x
Tunisia	x	x	x		x		x
Turkey	x	x	x	x	x		x
Uruguay	x	x		x	x		x
Vanuatu						x	
Venezuela	x	x		x	x	x	x
Western Samoa						x	

<i>High income</i>				
Australia			x	
Austria	x		x	
Belgium	x		x	
Denmark	x		x	
France	x		x	
Germany	x		x	
Ireland			x	
Italy	x		x	
Japan			x	
Netherlands			x	
Norway			x	
Spain	x		x	
Sweden			x	
Taiwan (China)	x		x	x
United Kingdom	x		x	
United States	x		x	

Note: For detailed definitions of the indicators, see table 2.

a. Savings-investment balance.

Source: Authors' calculations.

REFERENCES

The word "processed" describes informally reproduced works that may not be commonly available through library systems.

- Boardman, Anthony E., and Aidan R. Vining. 1989. "Ownership and Performance in Competitive Environments: A Comparison of the Performance of Private, Mixed, and State-Owned Enterprises." *Journal of Law and Economics* 32(1):1-33.
- Borcherding, Thomas, W. W. Pommerehne, and Friedrich Schneider. 1982. "Comparing the Efficiency of Private and Public Production: The Evidence from Five Countries." *Zeitschrift für Nationalökonomie* supplement 2: 127-56.
- Candoy-Sekse, Rebecca. 1988. *Techniques of Privatization of State-Owned Enterprises*. Vol. 3, *Inventory of Country Experience and References*. Technical Paper 90. Washington, D.C.: World Bank.
- CEEP (Centre Européen de l'Entreprise Publique). Various years. *Annales du CEEP*. Brussels.
- Easterly, William, Carlos Alfredo Rodriguez, and Klaus Schmidt-Hebbel, eds. 1994. *Public Sector Deficits and Macroeconomic Performance*. New York: Oxford University Press.
- Fischer, Stanley. 1993. "Role of Macroeconomic Factors in Growth." *Journal of Monetary Economics* 32(December):485-512.
- Galal, Ahmed, Leroy Jones, Pankaj Tandon, and Ingo Vogelsang. 1994. *Welfare Consequences of Selling Public Enterprises: An Empirical Analysis*. New York: Oxford University Press.
- IMF (International Monetary Fund). Various years. *International Financial Statistics*. Washington, D.C.
- Investissement Développement Conseil. 1993. "Kenya: Study of Subsidies and Other Financial Flows in Favor of Major PEs." Paris. Processed.
- Jones, Leroy. 1975. *Public Enterprise and Economic Development: The Korean Case*. Seoul: Korean Development Institute.
- Kikeri, Sunita, John Nellis, and Mary Shirley. 1992. *Privatization: The Lessons of Experience*. Washington, D.C.: World Bank.
- Megginson, William, Robert Nash, and Matthias van Randenborgh. 1994. "The Financial and Operating Performance of Newly Privatized Firms: An International Empirical Analysis." *Journal of Finance* 49(2):403-52.
- Millward, Robert. 1988. "Measured Sources of Inefficiencies in the Performance of Public and Private Enterprises in LDCs." In Paul Cook and Colin Kirkpatrick, eds., *Privatization in Less Developed Countries*. Sussex, U.K.: Wheatsheaf Books.
- Millward, Robert, and D. M. Parker. 1983. "Public and Private Enterprise: Comparative Behavior and Relative Efficiency." In Robert Millward, D. M. Parker, L. Rosenthal, M. T. Summer, and N. Topman, eds., *Public Sector Economics*. New York: Longman.
- Nair, Gouindan, and Anastasios Filippides. 1989. "How Much Do State-Owned Enterprises Contribute to Public Sector Deficits in Developing Countries—and Why?" Working Paper 45. World Development Report Office, World Bank, Washington, D.C. Processed.
- OECD (Organisation for Economic Co-operation and Development). Various years. *National Accounts Statistics*. Paris.

- Pollitt, Michael G. 1995. *Ownership and Performance in Electric Utilities: The International Evidence on Privatization and Efficiency*. Oxford: Oxford University Press for the Oxford Institute of Energy Studies.
- Sader, Frank. 1994. "Privatization Techniques and Foreign Investment in Developing Countries, 1988–93." Foreign Investment Advisory Services, World Bank, Washington, D.C. Processed.
- Sappington, David E. M. 1991. "Incentives in Principal-Agent Relationships." *Journal of Economic Perspectives* 5(2):45–66.
- Sappington, David E. M., and Joseph E. Stiglitz. 1987. "Privatization, Information, and Incentives." NBER Working Paper 2196. National Bureau of Economic Research, Cambridge, Mass. Processed.
- Shapiro, Carl, and Robert D. Willig. 1990. "Economic Rationales for the Scope of Privatization." John M. Olin Program for the Study of Economic Organization and Public Policy Discussion Papers 41. Woodrow Wilson School of Public and International Affairs, Princeton University, Princeton, N.J. Processed.
- Short, Peter. 1984. "The Role of Public Enterprise: An International Statistical Comparison." In R. H. Floyd, C. S. Gray, and R. P. Short, eds., *Public Enterprise in Mixed Economies: Some Macroeconomic Aspects*. Washington, D.C.: International Monetary Fund.
- Suleiman, Ezra N., and John Waterbury, eds. 1990. *The Political Economy of Public Sector Reform and Privatization*. Oxford: Westview Press.
- Summers, Robert, Alan Heston, and Daniel A. Nuxoll. 1994. "Differential-Productivity Hypothesis and Purchasing-Power Parities: Some New Evidence." *Review of International Economics* 2(October):227–43.
- Vickers, John, and George Yarrow. 1988. *Privatization: An Economic Analysis*. Cambridge, Mass.: MIT Press.
- World Bank. Various years. *African Development Indicators*. Washington, D.C.
- . 1992. *World Development Indicators*. Washington, D.C.
- . 1994. *World Tables*. Baltimore, Md.: The Johns Hopkins University Press.
- . 1995. *Bureaucrats in Business: The Economics and Politics of Government Ownership*. New York: Oxford University Press.
- . 1997. *Global Development Finance 1997*. Washington, D.C.
- Yarrow, George. 1986. "Privatization in Theory and Practice." *Economic Policy: A European Forum* 32(April):323–77.