
Appendix D: Estimating Industry-level Productivity for the United States

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OUR PRIMARY DATA ARE ANNUAL TIME SERIES of inter-industry transactions in current and constant prices, including final demands by commodity, investment and labour inputs by industry, and output by industry. The first building block is a set of inter-industry transactions produced by the Employment Projections Office of the Bureau of Labor Statistics (BLS). These data report intermediate inputs and total value-added (the sum of capital and labour inputs and taxes) for 185 industries from 1977 to 1995. A major advantage of this BLS inter-industry data is that it provides the necessary interpolations between benchmark years.

We aggregate the data from the *make* and *use* tables to generate inter-industry transactions for 35 private business industries at approximately the two-digit Standard Industrial Classification (SIC) level. These tables enable us to generate growth rates of industry outputs, growth rates of intermediate inputs, and shares of intermediate inputs as needed in Equation (2) of Chapter 2. They also provide control totals for value added in each industry, the sum of the values of capital and labour services and taxes.

Estimation of capital services and labour input follows the procedures described above for each industry. We collected information from three sources to estimate prices and quantities of capital and labour inputs by industry. An industry-level breakdown of the value of capital and labour input is available in the “gross product originating” series described in Lum and Yuskavage (1997) of the BEA. Investments by asset classes and industries are from the BEA Tangible Wealth Survey (BEA, 1998a, described by Katz and Herman, 1997). Labour data across industries are from the decennial Census of Population and the annual Current Population Survey. We use the prices and quantities of labour services for each industry constructed by Ho and Jorgenson (1999).

We also generate capital and labour services for a Private Household sector and the Government sector.¹ For private households, the value of labour services equals labour income in the BLS private household industry, while capital

income reflects the imputed flow of capital services from residential housing, consumers' durables, and household land as described above. For the Government sector, labour income equals labour compensation of general government employees and capital income is an estimate of the flow of capital services from government capital.² Note that the Government Enterprises sector is treated as a private business industry and is separate from the General Government sector.

Notes

- 1 The Private Household and Government sectors include only capital and labour as inputs. Output in these sectors is defined via a Tornqvist index of capital and labour inputs, so productivity growth is zero by definition.
- 2 The BEA includes a similar imputation for the flow of government capital services in the national accounts, but our methodology includes a return to capital, as well as depreciation as estimated by the BEA.