2022 Guide to DNSP Economic Benchmarking Files

The Zip file *DNSP benchmarking index analysis supporting files-19Sep2022.zip* contains the following folders and files:

### **Index analysis**

These files are under five sub-directories.

* DNSP Benchmarking Data Files 2022 AER
* DNSP-MTFP Tables-Charts
* Shazam Files
* Stata Data Management Files
* Stata Index Analysis Files

### DNSP Benchmarking Data Files 2022 AER

Includes the following files:

* *2021 AER VCR values.xlsx* – Calculates price series Customer Minutes Off-supply (CMOS) per DNSP based on Values of Customer Reliability (VCR);
* *DNSP AUC calculation (2021).xlsx* – Assembles annual user costs for the five capital inputs;
* *DNSP consolidated benchmarking data (2021).xlsx* – Database file assembles variables used in the MTFP and MPFP analysis at the DNSP level at the industry level from the AER’s Economic Benchmarking Regulatory Information Notice (EBRIN) returns and the intermediate files listed above.

### Stata Data Management Files

These files are under three sub-directories.

* Stata Input Data File
* Stata Data Mgt Programs
* Stata Data Mgt Outputs.

#### Stata Input Data File

* *DNSP consolidated benchmarking data (2021).xlsx* – Includes benchmarking data.

#### Stata Data Mgt Programs

* *crDNSPbench22-firm1.do* – Reads from the file *DNSP consolidated benchmarking data (2021).xlsx* (specifically, the worksheet ‘Shazam DNSP Data’) and creates data files for use in Shazam (see section 3 below) and in Stata (see section 4 below). The Stata data file is in Stata format and includes *dnspbench22-firm.dta* described in ‘Stata Data Mgt Outputs’ below. The Shazam data files are in CSV format and include:
  + Files for individual DNSPs (*AGDdata.csv*, *ANDdata.csv*, *CITdata.csv*, *ENDdata.csv*, *ENXdata.csv*, *ERGdata.csv*, *ESSdata.csv*, *EVOdata.csv*, *JENdata.csv*, *PCRdata.csv*, *SAPdata.csv*, *TNDdata.csv*, *UEDdata.csv*), and
  + A pooled data file for all DNSPs (*DNSPdata.csv*).
* *crDNSPbench22-ind1.do* – Reads from the file *DNSP consolidated benchmarking data (2021).xlsx* (specifically, the worksheet ‘Shazam Industry Data’) and creates data files for use in Shazam (see section 3 below) and in Stata (see section 4 below). The Stata data file is in Stata format and includes *dnspbench22-ind.dta* described in ‘Stata Data Mgt Outputs’ below. The Shazam data file is in CSV format and includes:
  + An aggregated industry data file (*DINDdata.csv*).
* *crDNSPbench22-state1.do* – Reads the file *DNSP consolidated benchmarking data (2021).xlsx* (specifically, the worksheet ‘Shazam State Data’) and creates data files for use in Shazam and Stata. The Stata data file is *dnspbench22-state.dta,* described in ‘Stata Data Mgt Outputs’ below. The Shazam data files are in CSV format, and include:
  + Files for each State (*DACTdata.csv*, *DNSWdata.csv*, *DQLDdata.csv*, *DSAdata.csv*, *DTASdata.csv*, *DVICdata.csv*), and
  + A pooled data file for all States (*STATEdata.csv*).

#### Stata Data Mgt Output

* *crDNSPbench22-firm1.log* – The (text) log file generated by running the Stata program of the same name;
* *crDNSPbench22-ind1.log* – The (text) log file generated by running the Stata program of the same name;
* *crDNSPbench22-state1.log* – The (text) log file generated by running the Stata program of the same name;
* *dnspbench22-firm.dta* – Stata panel dataset for 13 DNSPs and 16 years sorted by DNSP and Year;
* *dnspbench22-ind.dta* – Stata panel dataset for the aggregated industry and 16 years sorted by Year;
* *dnspbench22-state.dta* – Stata panel dataset for 6 States and 16 years sorted by State and Year.

### Shazam Files

These files are under three sub-directories.

* *Shazam Data Input Files*: Data files in CSV format which are read by Shazam programs;
* *Shazam DNSP Programs*: Shazam programs which carry out MTFP calculations and regression-based growth rates. They are included here as text files to aid readability. To run them in Shazam, the file extensions need to be changed to ‘.sha’;
* *Shazam Outputs*: The results from the Shazam program in text files.

#### Shazam Data Input Files

* + *AGDdata.csv* – Data for Ausgrid (AGD)
  + *ANDdata.csv* – Data for AusNet Distribution (AND)
  + *CITdata.csv* – Data for CitiPower (CIT)
  + *ENDdata.csv* – Data for Endeavour Energy (END)
  + *ENXdata.csv* – Data for Energex (ENX)
  + *ERGdata.csv* – Data for Ergon Energy (ERG)
  + *ESSdata.csv* – Data for Essential Energy (ESS)
  + *EVOdata.csv* – Data for Evoenergy (EVO)
  + *JENdata.csv* – Data for Jemena (JEN)
  + *PCRdata.csv* – Data for Powercor (PCR)
  + *SAPdata.csv* – Data for SA Power Networks (SAP)
  + *TNDdata.csv* – Data for TasNetworks Distribution (TND)
  + *UEDdata.csv* – Data for United Energy (UED)
  + *DINDdata.csv* – Aggregated data for the DNSP industry as a whole
  + *DNSPdata.csv* – Pooled data for 13 DNSPs stacked as panel data
  + *DACTdata*.*csv* – Data for the ACT
  + *DNSWdata*.*csv* – Data for NSW
  + *DVICdata*.*csv* – Data for VIC
  + *DQLDdata*.*csv* – Data for QLD
  + *DSAdata*.*csv* – Data for SA
  + *DTASdata*.*csv* – Data for TAS
  + *STATEdata*.*csv* – Pooled data for 6 States stacked as panel data.

#### Shazam Program Files

* + *D1mtfpEVO22.txt* – Program for EVO
  + *D2mtfpAGD22.txt* – Program for AGD
  + *D3mtfpCIT22.txt* – Program for CIT
  + *D4mtfpEND22.txt* – Program for END
  + *D5mtfpENX22.txt* – Program for ENX
  + *D6mtfpERG22.txt* – Program for ERG
  + *D7mtfpESS22.txt* – Program for ESS
  + *D8mtfpJEN22.txt* – Program for JEN
  + *D9mtfpPCR22.txt* – Program for PCR
  + *D10mtfpSAP22.txt* – Program for SAP
  + *D11mtfpAND22.txt* – Program for AND
  + *D12mtfpTND22.txt* – Program for TND
  + *D13mtfpUED22.txt* – Program for UED
  + *D14mtfpDIND22.txt* – Program for whole industry
  + *D41mtfpACT22.txt* – Program for ACT
  + *D42mtfpNSW22.txt* – Program for NSW
  + *D43mtfpVIC22.txt* – Program for VIC
  + *D44mtfpQLD22.txt* – Program for QLD
  + *D45mtfpSA22.txt* – Program for SA
  + *D46mtfpTAS22.txt* – Program for TAS
  + *D50mtfpDNSPpool22.txt* – Program for comparative MTFP analysis of DNSPs
  + *D51mtfpSTATEpool22.txt* – Program for comparative MTFP analysis of States.

#### Shazam Outputs

* + *D1mtfpEVO22-out.txt* – Results for EVO
  + *D2mtfpAGD22-out.txt* – Results for AGD
  + *D3mtfpCIT22-out.txt* – Results for CIT
  + *D4mtfpEND22-out.txt* – Results for END
  + *D5mtfpENX22-out.txt* – Results for ENX
  + *D6mtfpERG22-out.txt* – Results for ERG
  + *D7mtfpESS22-out.txt* – Results for ESS
  + *D8mtfpJEN22-out.txt* – Results for JEN
  + *D9mtfpPCR22-out.txt* – Results for PCR
  + *D10mtfpSAP22-out.txt* – Results for SAP
  + *D11mtfpAND22-out.txt* – Results for AND
  + *D12mtfpTND22-out.txt* – Results for TND
  + *D13mtfpUED22-out.txt* – Results for UED
  + *D14mtfpDIND22-out.txt* – Results for whole industry
  + *D41mtfpACT22-out.txt* – Results for ACT
  + *D42mtfpNSW22-out.txt* – Results for NSW
  + *D43mtfpVIC22-out.txt* – Results for VIC
  + *D44mtfpQLD22-out.txt* – Results for QLD
  + *D45mtfpSA22-out.txt* – Results for SA
  + *D46mtfpTAS22-out.txt* – Results for TAS
  + *D50mtfpDNSPpool22-out.txt* – Results for comparative MTFP analysis of DNSPs
  + *D51mtfpSTATEpool22-out.txt* – Results for comparative MTFP analysis of States.

### Stata Index Analysis Files

Contains Stata programs that duplicate results of the Shazam programs for cross-checking. One program also calculates Opex MPFP using a pooled sample for the period 2012 to 2021, which is used only when combining Opex MPFP with econometric results. The files are included in the following two sub-directories:

* Stata Index Programs
* Stata Index Outputs.

The data input file is included as one of the output files in section 2 above.

#### Stata Index Programs

* *anDNSP22-dnspind1.do* – Calculates MTFP results for each individual DNSP and the industry from 2006 to 2021;
* *anDNSP22-dnsppooled.do* – Calculates comparative MTFP results for DNSPs from pooled data, 2006 to 2021;
* *anDNSP22-dnsppooled-post2011.do* – Calculates comparative MTFP results for DNSPs from pooled data using a sample from 2012 to 2021;
* *anDNSP22-state.do* – Calculates comparative MTFP results for 6 States from pooled data, 2006 to 2021.
  + 1. *Stata Index Outputs*
* *anDNSP22-dnspind1.log* – Log file from running the program *anDNSP22-dnspind1.do*;
* *mtfp\_dnspind.xlsx* – Spreadsheet with index results for individual DNSPs and the industry. These are in separate sheets labelled 1 (EVO) 2 (AGD) 3 (CIT) 4 (END) 5 (ENX), 6 (ERG), 7 (ESS), 8 (JEN), 9 (PCR), 10 (SAP), 11 (AND), 12 (TND), 13 (UED), 14 (DNSP industry). In addition to output, input and TFP indexes, and opex and capital MPFP indexes, results include partial productivities for individual inputs, contributions of individual outputs and inputs to TFP growth, and growth rates of individual outputs and inputs;
* *anDNSP22-dnsppooled.log –* Log file from running the program *anDNSP22-dnsppooled.do*;
* *anDNSP22-dnsppooled-post2011.log* – Log file from running the program *anDNSP22-dnsppooled-post2011.do*;
* *mtfp\_dnsppooled.xlsx –* Contains worksheets for the whole sample and sample period after 2011. The full sample is in the worksheet ‘fullsample’ with index results for the pooled MTFP analysis of DNSPs (full 16-year sample). In addition to output, input and TFP indexes, and opex and capital MPFP indexes, results include partial productivities for individual inputs, contributions of individual outputs and inputs to TFP growth, and growth rates of individual outputs and inputs. The sample period after 2011 is in the worksheet ‘post2011sample’ contains index results for the pooled MTFP analysis of DNSPs for the sample period from 2012 to 2021;
* *anDNSP22-state.log* – Log file from running the program *anDNSP22-state.do*;
* *mtfp\_state.xlsx –* Spreadsheet with index results for each State. These are in separate sheets labelled 1 (ACT) 2 (NSW) 3 (VIC) 4 (QLD) 5 (SA), 6 (TAS). In addition to output, input and TFP indexes, and opex and capital MPFP indexes, results include partial productivities for individual inputs, contributions of individual outputs and inputs to TFP growth, and growth rates of individual outputs and inputs.

### DNSP–MTFP Tables-Charts

Excel workbook *DNSP22-MTFPtables-charts-5Sep2022.xlsx*, into which the results of the foregoing Shazam and Stata programs are input. The workbook produces tables and charts formatted so they can be copied into the report.

The first sheet of this Excel workbook, ‘ReadMe’, explains the structure of the workbook and how to use it. The second sheet, ‘Labels & Codes’, defines each of the codes used in the Shazam and Stata output files which are the input files to this Excel workbook.

### **OpexCostFn**

These files are under three sub-directories.

* Excel Tables & Charts
* Stata Data Mgt
* Stata Econometric Analysis

### Stata Data Management

Includes the following three sub-directories.

* Input Data Files
* Stata Programs
* Stata Outputs.
  + 1. *Stata Index Outputs*
* *dnspbench22-firm.dta* – Is the same data file also used in the productivity index analysis for Australian DNSPs;
* *Quantonomics-AER-NZData-18Jun2022.xlsx* ­­– Contains data for New Zealand;
* *Quantonomics-AER-OntarioData-Update-4Sep2022.xlsx* – Contains data for Ontario.

#### Stata Programs

* *m\_DNSPopex22.do* ­­– Joins New Zealand, Ontario and Australia data.

#### Stata Outputs

* *m\_DNSPopex22.log* – The (text) log file generated by running the Stata program of the same name;
* *DNSPopex22.dta* – Stata panel dataset for 13 DNSPs, 19 New Zealand DNSPs and 37 Ontario DNSPs and 16 years sorted by DNSP and Year (i.e., 2006 to 2021 for Australian and NZ DNSPs, and 2005 to 2020 for Ontario DNSPs). This is used in the program in section 2.1;
* *OpexFnData.xlsx –* Excel workbook with separate three separate worksheets for the 13 DNSPs, 19 New Zealand DNSPs and 38 Ontario DNSPs and 16 years sorted by DNSP and Year.

### Stata Econometric Analysis

These files are under two sub-directories:

* Programs
* Outputs-Half Period
* Outputs-Full Period.

#### Programs

* *anOpexReg1.do* – Estimates the models shown in Appendix C of the draft report.

#### Outputs-Half Period

* *anOpexReg1-half.log­ ­*– The (text) log file generated by running the Stata program *anOpexReg1.do,* creating estimates for the period from 2012 to 2021;
* *LSECD.xls, LSETLG.xls, SFACD.xls, SFATLG.xls* – Excel readable files with the results of the regression models of the same name. There are some formatting problems with the models. The purpose of these files is to facilitate copying the results into *DNSP-OpexFn-5Sep2022.xlsx,* and hence the document. However, some statistics or parameters need to be input into this Excel workbook by hand.

#### Outputs-Full Period

* *anOpexReg1-full.log­ ­*– The (text) log file generated by running the Stata program *anOpexReg1.do,* creating estimates for the period from 2006 to 2021;
* *LSECD.xls, LSETLG.xls, SFACD.xls, SFATLG.xls* – Excel readable files with the results of the regression models of the same name. There are some formatting problems with the models. The purpose of these files is to facilitate copying the results into *DNSP-OpexFn-5Sep2022.xlsx,* and hence the document. However, some statistics or parameters need to be input into this Excel workbook by hand.

### Excel Tables & Charts

* *DNSP-OpexFn-5Sep2022.xlsx* – Collection of output tables and figures used in the report.