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## 2024 Guide to DNSP Economic Benchmarking Files

The Zip file *DNSP 2024 benchmarking-17Sep2024* contains the following folders and files:

### 1 DNSP Benchmarking Data Files 2024 AER

Includes the following files:

- *DNSP AUC calculation (2023).xlsx* – Assembles annual user costs for the three capital inputs;
- *DNSP consolidated benchmarking data (2023).xlsx* – AER’s database file assembles variables used in the MTFP and MPFP analysis at the DNSP level and at the industry level from the AER’s Economic Benchmarking Regulatory Information Notice (EBRIN) returns and the intermediate file listed above.
- *Benchmark tax liability calculation for DNSP AUC.docx* – this document details the changes in AUC calculation worksheet.

### 2 Stata Files

There are two sub-directories and the file

- *DNSP codes.txt* – This file contains the DNSP names and their respective codes.

#### 2.1 TFP Analysis folder

These files are under two sub-directories.

- Data management
- Index analysis

##### 2.1.1 Data management

These files are under three sub-directories.

- Input
- Programs
- Outputs

##### a) *Input*

- *DNSP consolidated benchmarking data (2023).xlsx* – AER database as detailed in Section 1.

##### b) *Programs*

- *crDNSPbench24-firm.do* – Reads from the file *DNSP consolidated benchmarking data (2023).xlsx* (specifically, the worksheet ‘Shazam DNSP Data’) and creates data files for use in Shazam (see section 3) and in Stata.

- *crDNSPbench24-ind1.do* – Reads from the file *DNSP consolidated benchmarking data (2023).xlsx* (specifically, the worksheet ‘Shazam Industry Data’) and creates data files for use in Shazam and in Stata.
- *crDNSPbench24-state1.do* – Reads the file *DNSP consolidated benchmarking data (2023).xlsx* (specifically, the worksheet ‘Shazam State Data’) and creates data files for use in Shazam and Stata.

### c) Outputs

- Folder ‘log’

*crDNSPbench24-firm.log*; *crDNSPbench24-ind1.log*; *crDNSPbench24-state1.log* are (text) log files generated by running their respective Stata programs with the same names.

- Folder ‘dta’ – DTA format files used as input for Stata programs (see section 2.1.2.a):
  - *dnspbench24-firm.dta* – Stata panel dataset for 13 DNSPs and 18 years sorted by DNSP and Year; generated by running the Stata program of the same name;
  - *dnspbench24-ind.dta* – Stata panel dataset for the aggregated industry and 18 years sorted by Year; generated by running the Stata program of the same name;
  - *dnspbench24-state.dta* – Stata panel dataset for 6 States and 18 years sorted by State and Year, generated by running the Stata program of the same name;
- Folder ‘csv’ – CSV format files used as input for Shazam programs (see section 3):
  - Files for individual DNSPs (*AGDdata.csv*, *ANDdata.csv*, *CITdata.csv*, *ENDdata.csv*, *ENXdata.csv*, *ERGdata.csv*, *ESSdata.csv*, *JENdata.csv*, *PCRdata.csv*, *SAPdata.csv*, *TNDdata.csv*, *UEDdata.csv*), and a pooled data file for all DNSPs (*DNSPdata.csv*). All the files were generated by running the Stata program *crDNSPbench24-firm.do*.
  - 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*). All the files were generated by running the Stata program *crDNSPbench24-state1.do*.
  - An aggregated industry data file (*DINDdata.csv*) generated by running the Stata program *crDNSPbench24-ind1.do*.

### 2.1.2 Index analysis

These files are under three sub-directories.

- Inputs
- Programs
- Outputs

#### a) Inputs

Contains the folder ‘dta’ resulted from the Stata data management programs (see section

2.1.1.c).

*b) Programs*

- *anDNSP24-dnspind1.do* – Calculates MTFP results for each individual DNSP and the industry from 2006 to 2023.
- *anDNSP24-dnsppooled.do* – Calculates comparative MTFP results for DNSPs from pooled data, 2006 to 2023.
- *anDNSP24-dnsppooled-post2011.do* – Calculates comparative MTFP results for DNSPs from pooled data using a sample from 2012 to 2023.
- *anDNSP24-state.do* – Calculates MTFP results for each individual state, 2006 to 2023.
- *anDNSP24-statepooled.do* – Calculates comparative MTFP results for states from pooled data, 2006 to 2023.

*c) Outputs*

- Folder ‘log’

*anDNSP24-dnspind1.log; anDNSP24-dnsppooled.log; anDNSP24-dnsppooled-post2011.log; anDNSP24-state.log; anDNSP24-statepooled.log* are (text) log files generated by running their respective Stata programs with the same names.

- Folder ‘xlsx’

- *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.
- *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 18-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 2023.
- *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.

- *mtfp\_statepooled.xlsx* – Contains worksheets for the whole sample with index results for the pooled MTFP analysis of States (full 18-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.
- *weights.xlsx*– Spreadsheet with Input cost share weights and Output cost share weights for Industry.

## 2.2 Opex Cost Model

These files are under two sub-directories.

- Data management
- Index analysis

### 2.2.1 Data management

Includes the following three sub-directories.

- Inputs
- Program
- Outputs

#### a) Inputs

- *dnspbench24-firm.dta* – Is the same data file also used in the productivity index analysis for Australian DNSPs (see section 2.1.1c)
- *Quantonomics-AER-NZData-27May2024.xlsx* – Contains data for New Zealand;
- *Ontario ABR24 Data – 04July2024.xlsx* – Contains data for Ontario.

#### b) Program

- *m\_DNSPopex24.do.* – Joins New Zealand, Ontario and Australia data.

#### c) Outputs

- Folder ‘log’: *m\_DNSPopex24.log* – The (text) log file generated by running the Stata program of the same name.
- Folder ‘dta’: *DNSPopex24.dta* – Stata panel dataset for 13 DNSPs, 19 New Zealand DNSPs and 29 Ontario DNSPs and 18 years sorted by DNSP and Year (i.e., 2006 to 2023 for Australian and NZ DNSPs, and 2005 to 2022 for Ontario DNSPs). This is used in the program in section 2.2.2a.
- Folder ‘xlsx’: *OpexFnData.xlsx* – Excel workbook with separate three separate worksheets for the 13 DNSPs, 19 New Zealand DNSPs and 29 Ontario DNSPs and 18 years sorted by DNSP and Year.

## 2.2.2 Stata Econometric Analysis

Includes the following three sub-directories.

- Input
- Program
- Outputs

### a) *Input*

Contains the file *DNSPopex24.dta* (see section 2.2.1c)

### b) *Program*

- *anOpexReg24.do* – Estimates the models shown in Appendix C, sections C1 and C2, of the final report. It is run for the long and short sample periods respectively by specifying the period on line 10.

### c) *Outputs*

- Folder ‘log’: *anOpexReg24-long.log* and *anOpexReg24-short.log* – The (text) log files generated by running the Stata program *anOpexReg24.do*, creating estimates for the periods of 2006 to 2023 and 2012 to 2023.
- Folder ‘tsv’: *Reg-long.tsv* and *Reg-short.tsv* – The TSV files contain the regression results from the Stata program ‘*anOpexReg24.do*’ for both the long and short periods. This format allows for easy pasting of the data into workbooks.
- Folder ‘xlsx’
  - *monotonicity-long.xlsx* and *monotonicity-short.xlsx* - Excel readable files with the results of the monotonicity and elasticity for each observation of the long and short periods models. It is used in the workbook *Monotonicity and Elasticity - 16Sep2024.xlsx* (see section 5).
  - *Stats-long.xlsx* and *Stats-short.xlsx* - Excel readable files with the results of the efficiency scores and elasticity for each jurisdiction and Australian DNSPs for the long and short periods models. The purpose of these files is to facilitate pasting the results.
  - *outputdata-long.xlsx* and *outputdata-short.xlsx*- Excel readable files with the parameter values used in each model for the long and short periods.

## 3 Shazam Files

Shazam files are utilized for performing calculations in index number analysis. These files are under three sub-directories:

### a) *Inputs*

Data files in CSV format which are read by Shazam programs (discussed in section 2.1.1.c);

### *b) 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’;

- *DTFP24-01EVO.txt* – Program for EVO
- *DTFP24-02AGD.txt* – Program for AGD
- *DTFP24-03CIT.txt* – Program for CIT
- *DTFP24-04END.txt* – Program for END
- *DTFP24-05ENX.txt* – Program for ENX
- *DTFP24-06ERG.txt* – Program for ERG
- *DTFP24-07ESS.txt* – Program for ESS
- *DTFP24-08JEN.txt* – Program for JEN
- *DTFP24-09PCR.txt* – Program for PCR
- *DTFP24-10SAP.txt* – Program for SAP
- *DTFP24-11AND.txt* – Program for AND
- *DTFP24-12TND.txt* – Program for TND
- *DTFP24-13UED.txt* – Program for UED
- *DTFP24-14DIND.txt* – Program for whole industry
- *DTFP24-41ACT.txt* – Program for ACT
- *DTFP24-42NSW.txt* – Program for NSW
- *DTFP24-43VIC.txt* – Program for VIC
- *DTFP24-44QLD.txt* – Program for QLD
- *DTFP24-45SA.txt* – Program for SA
- *DTFP24-46TAS.txt* – Program for TAS
- *DTFP24-DPOOL.txt* – Program for comparative MTFP analysis of DNSPs
- *DTFP24-STATEPOOL.txt* – Program for comparative MTFP analysis of States.

### *c) Outputs*

The results from the Shazam program in text files.

- *DTFP24-01EVO-Output.txt* – Results for EVO
- *DTFP24-02AGD-Output.txt* – Results for AGD
- *DTFP24-03CIT-Output.txt* – Results for CIT
- *DTFP24-04END-Output.txt* – Results for END
- *DTFP24-05ENX-Output.txt* – Results for ENX
- *DTFP24-06ERG-Output.txt* – Results for ERG
- *DTFP24-07ESS-Output.txt* – Results for ESS
- *DTFP24-08JEN-Output.txt* – Results for JEN

- *DTFP24-09PCR-Output.txt* – Results for PCR
- *DTFP24-10SAP-Output.txt* – Results for SAP
- *DTFP24-11AND-Output.txt* – Results for AND
- *DTFP24-12TND-Output.txt* – Results for TND
- *DTFP24-13UED-Output.txt* – Results for UED
- *DTFP24-14DIND-Output.txt* – Results for whole industry
- *DTFP24-41ACT-Output.txt* – Results for ACT
- *DTFP24-42NSW-Output.txt* – Results for NSW
- *DTFP24-43VIC-Output.txt* – Results for VIC
- *DTFP24-44QLD-Output.txt* – Results for QLD
- *DTFP24-45SA-Output.txt* – Results for SA
- *DTFP24-46TAS-Output.txt* – Results for TAS
- *DTFP24-DPOOL-Output.txt* – Results for comparative MTFP analysis of DNSPs
- *DTFP24-STATEPOOL-Output.txt* – Results for comparative MTFP analysis of States.

#### 4 DNSP-MTFP Tables-Charts

Contains the Excel workbook *DNSP24-MTFPtables-charts-16Sep2024.xlsx*, which includes the results of the index analysis, generated using Shazam and Stata programs. 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.

#### 5 DNSP-Opex Cost Tables-Charts

Contains the Excel workbooks:

- *DNSP-OpexFn-16Sep2024.xlsx* – Collection of output tables and figures used in the report.
- *Monotonicity and Elasticity – 16Sep2024.xlsx* – Contains the data from *Monotonicity.xlsx* and correlation analysis and charts for the monotonicity and elasticity results.