2022 Guide to TNSP Economic Benchmarking Files

The Zip file *TNSP 2022 benchmarking supporting files-19Sep2022.zip* contains the following folders and files:

### 1. TNSP Benchmarking Data Files 2022 AER

Includes the following files:

* *TNSP AUC calculation (2021 update).xlsx* – Assembles annual user costs for the three capital inputs;
* *TNSP consolidated benchmarking data (2021 update).xlsx* – Database file assembles variables used in the MTFP and MPFP analysis at the TNSP level and at the industry level from the AER’s Economic Benchmarking Regulatory Information Notice (EBRIN) returns and the intermediate files listed above.

### 2. Stata Data Mgt Files

These files are under three sub-directories:

* Stata Input Data File
* Stata Data Mgt Program
* Stata Data Mgt Output.

#### 2.1 Stata Input Data File

* *TNSP consolidated benchmarking data (2021 update).xlsx* – Includes benchmarking data (see section 1 above).

#### Stata Data Mgt Program

* *crTNSPbench22-firm2.do* – Reads the file *TNSP consolidated benchmarking data (2021 update).xlsx* (specifically, the worksheet ‘TNSP Shazam Data’)*,* applies the minimum value of ENS and reliability weight cap, and creates data files for use in Shazam (see section 3.1 below) and in Stata (see section 4. below). It also produces aggregated industry data. The Stata data files are in Stata format and include *tnspbench22-firm.dta* and *tnspbench22-ind.dta*, which aredescribed in section 2.3 below. The Shazam data files are in CSV format and include:
  + Files for the individual TNSPs (*ENTdata.csv*, *PLKdata.csv*, *ANTdata.csv*, *TNTdata.csv*, and *TRGdata.csv*),
  + File for the pooled data (*TNSPdata.csv*),
  + File for the aggregated industry data (*TINDdata.csv*).

#### 2.3 Stata Data Mgt Output

* *crTNSPbench22-firm2.log* – The (text) log file generated by running the foregoing Stata program;
* *ENTdata.csv, PLKdata.csv, ANTdata.csv, TNTdata.csv*, *TRGdata.csv*, *TINDdata.csv, TNSPdata.csv* – Shazam input data files (used in section 3.1 below);
* *tnspbench22-firm.dta* – The Stata data file for the individual TNSPs, and for the pooled analysis of TNSPs (used in section 4. below);
* *tnspbench22-ind.dta* – Similar variables to *tnspbench22-firm.dta* except it represents the aggregated industry data (used in section 4. below).

### 3. Shazam Files

These files are under three sub-directories.

* *Data Input*: Data files in CSV format which are read by Shazam programs;
* *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’;
* *Output files*: The results from the Shazam program in text files.

#### 3.1 Shazam Data Input Files

* *ENTdata.csv* – Data for ElectraNet (ENT)
* *PLKdata.csv* – Data for PowerLink (PLK)
* *ANTdata.csv* – Data for Ausnet Transmission (ANT)
* *TNTdata.csv* – Data for TasNetworks Transmission (TNT)
* *TRGdata.csv* – Data for TransGrid (TRG)
* *TINDdata.csv* – Aggregated data for the industry as a whole
* *TNSPdata.csv* – Pooled data for five TNSPs stacked as panel data.

#### 3.2 Programs

* *TFP22-21ENT.txt* – Program for ENT
* *TFP22-22PLK.txt* – Program for PLK
* *TFP22-23ANT.txt* – Program for ANT
* *TFP22-24TNT.txt* – Program for TNT
* *TFP22-25TRG.txt* – Program for TRG
* *TFP22-26TIND.txt* – Program for the whole industry
* *TFP22-TPOOL.txt* – Program for comparative MTFP analysis.

#### 3.3 Shazam Outputs

* *TFP22-21ENT-out.txt* – Results for ENT
* *TFP22-22PLK-out.txt* – Results for PLK
* *TFP22-23ANT-out.txt* – Results for ANT
* *TFP22-24TNT-out.txt* – Results for TNT
* *TFP22-25TRG-out.txt* – Results for TRG
* *TFP22-26TIND-out.txt* – Results for whole industry
* *TFP22-TPOOL-out.txt* – Results for comparative MTFP analysis.

### 4. Stata Index Analysis Files

Contains Stata programs which duplicate results of the Shazam programs for the purpose of cross-checking. One program also calculates output indexes and MTFP when ENS is not included as an output. The files are included in the following two subdirectories:

* Stata Index Programs
* Stata Index Outputs.

The data input files *tnspbench22-firm.dta* and *tnspbench22-ind.dta* are included as one of the output files in section 2.3 above.

#### 4.1 Stata Index Programs

* *anTNSP22-firm1.do –* Calculates MTFP results for each individual TNSP and for the industry;
* *anTNSP22-pooled1.do –* Calculates comparative MTFP results for TNSPs from pooled data;
* *anTNSP22-firm-exens.do* – For a scenario in which there are only four outputs (i.e., excluding ENS) calculates MTFP results for individual TNSP’s and aggregate results for the industry.

#### 4.2 Stata Index Outputs

* *anTNSP22-firm1.log* – Log file from running the program *anTNSP22-firm1.do;*
* *mtfp\_tnsp.xlsx* – Spreadsheet with index results for individual TNSPs. These are in separate sheets labelled 21 (ENT) 22 (PLK) 23 (ANT) 24 (TNT) 25 (TRG), and 26 (whole 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;
* *anTNSP22-pooled1.log* – Log file from running the program *anTNSP22-pooled1.do*;
* *tnsp\_pooled.xlsx* – Spreadsheet with index results for pooled MTFP analysis;
* *anTNSP22-firm-exens.log* – Log file of the program *anTNSP22-firm-exens.do*;
* *mtfp\_tnsp\_exens.xlsx* – Spreadsheet with index results for individual TNSPs and for the industry. Only includes output, input and TFP indexes.

### 5. TNSP–MTFP Tables-Charts

Excel workbook *TNSP-MTFP Tables-Charts-8Sep2022.xlsx*, into which the results of the foregoing Shazam and Stata programs are input. The workbook produces tables formatted so they can be copied into the report and charts ready to 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.

### 6. Stata Sensitivity Analysis

These files are under four sub-directories:

* *AER Data inputs*
* *Data Mgt*
* *Econometric analysis*
* *Tables & Charts.*

#### AER Data inputs

* *TNSP consolidated benchmarking data (2021 update) -TRG sensitivity testing O\_H lines.xlsx*: data provided by the AER for Scenario 1*.*
* *TNSP consolidated benchmarking data (2021 update) - Powerlink O\_H line capacity test.xlsx:* data provided by the AER for Scenario 2.

#### 6.2 Data Mgt

* *Programs: crTNSPbench22-firm-sens1.do* and *crTNSPbench22-firm-sens2.do* are utilized for setting up the data for sensitivity analysis Scenario 1 and Scenario 2 respectively.
* *Results*: Contains results of the data processing for sensitivity analysis Scenarios 1 and 2.
  + *crTNSPbench22-firm-sens1.log:* Log file from running *crTNSPbench22-firm-sens1.do*
  + *crTNSPbench22-firm-sen2.log:* Log file from running *crTNSPbench22-firm-sens2.do*
  + *tnspbench22-firm-sens1.dta* and *tnspbench22-firm-sens2.dta:* The Stata data files for the individual TNSPs used for sensitivity analysis Scenario 1 and Scenario 2, respectively.
  + *tnspbench22-ind-sens1.dta* and *tnspbench22-ind-sens2.dta:* Similar variables to *tnspbench22-firm-sens1.dta* and *tnspbench22-firm-sens2.dta,* except it represents the aggregated industry data.

#### 6.3 Econometric analysis

Contains Stata programs and results for calculating Input, Output and TFP indexes, and Partial Factor Productivity indexes.

* *Programs: anTNSP22-firm-sens1.do* and *anTNSP22-firm-sens2.do*, carry out index analysis for sensitivity analysis Scenario 1 and Scenario 2, respectively.
* *Results:* Contains results of Input, Output and TFP indexes, and Partial Factor Productivity indexes for sensitivity analysis scenario 1 and 2.
  + *anTNSP22-firm-sens1.log* and *anTNSP22-firm-sens2.log:* Log files from running the program *anTNSP22-firm-sens1.do* and *anTNSP22-firm-sens2.do,* respectively;
  + *mtfp\_tnsp-sens1.xlsx* and *mtfp\_tnsp-sens2.xlsx:* Spreadsheets with index results for individual TNSPs for Sensitivity Analysis Scenario 1 and Sensitivity Analysis Scenario 2, respectively. In each case, TNSP results are in separate sheets labelled 21 (ENT) 22 (PLK) 23 (ANT) 24 (TNT) 25 (TRG), and 26 (whole industry).

#### 6.4 Tables & Charts

Two workbooks contain worksheets with tables used in Appendix D of the TNSP report. The two workbooks are *sens1 - TNSP-MTFP Tables-sens1.xlsx* and *sens2 - TNSP-MTFP Tables-sens2.xlsx.* Each has the same format with the same-named worksheets as follows:

* + Sheet *ReadMe:* Includes instructions.
  + Sheet *Stata-TNSP:* Includes index outputs from Stata programs
  + Sheet *Index Tables:* Includes tables used in the Appendix D. Tables D.1 and D.2 are in the file *TNSP-MTFP Tables-sens1.xlsx*, while D.3 and D.4 tables are in the file *TNSP-MTFP Tables-sens2.xlsx.*
  + *Growth Contrib:* Includes industry-level growth rates and contributions of inputs and outputs (not used in Appendix D).