# Project LaTeX Explainer and Navigational Guide

## Documentation Index for the Shaikh & Tonak Replication

### September 28, 2025

**Abstract**

This guide explains where to find every major piece of information in the project: methodology, code, data, generated reports, and build instructions. Use it as a map to quickly locate what you need.

# Contents

# 1 Project Structure Overview

| Path | Purpose |
|---|---|
| `Technical/data/` | All data sources: extracted book tables, unified historical database, and modern extension data. |
| `Technical/data/historical/book_tables/` | Book tables (replication targets), curated CSVs for Table 5.x. |
| `Technical/data/unified_database/` | Unified historical database (CSV/XLSX) with metadata/logs. |
| `Technical/src/` | All code (extraction, analysis, replication, validation, extension). |
| `Technical/src/analysis/replication/` | Scripts to reproduce Table 5.4 and related results. |
| `Technical/src/analysis/validation/` | Validation tools comparing sources and checking accuracy. |
| `Technical/docs/methodology/` | Core methodology in LaTeX (complete technical description). |
| `Technical/docs/latex/` | Focused LaTeX documents: code explainer, validation, this explainer, and bird's-eye view. |
| `Technical/docs/reports/` | Generated reports and summaries. |
| `.github/workflows/` | CI configuration for building PDFs (artifacts uploaded on push/PR). |

# 2 Data Inventory (Paths)

| Location | Contents |
|---|---|
| `Technical/data/historical/book_tables/` | Extracted book tables (many 'table_pXX_*.csv'), curated 'table_5_4*.csv'. |
| `Technical/data/historical/processed/` | Replication products (e.g., 'table_5_4_perfect_replication.csv', 'marxian_variables_calculated.csv'). |
| `Technical/data/unified_database/` | Unified database CSV/XLSX plus 'database_metadata.json', creation logs and summaries. |
| `Technical/data/modern/integrated/` | 'complete_st_timeseries_1958_2025.csv' and integration metadata. |
| `Technical/data/modern/final_results/` | Faithful series CSVs (1958–1989, 1958–2025) + metadata. |
| `Technical/data/modern/final_results/academically_sound/` | Academically sound and validation JSON. |
| `Technical/data/modern/final_results/KLEMS_integrated/` | KLEMS-integrated variants and validation. |
| `Technical/data/source_pdfs/keyPDFs/` | Source publications (NIPA, BLS, BEA, etc.). |

# 3 Key LaTeX Documents and What They Contain

| Document | Contents |
|---|---|
| `Technical/docs/methodology/SHAIKH_TONAK_METHODOLOGY.tex` | Complete methodology: variable definitions, data sources, formulas, validation metrics, quality checks. |
| `Technical/docs/latex/SHAIKH_TONAK_METHODOLOGY_WITH_CODE.tex` | Methodology plus the code side: implementation notes and code-oriented details. |
| `Technical/docs/latex/SHAIKH_TONAK_CODE_EXPLAINER.tex` | Code explainer: TeX formulas, and Python listings outside tables for clarity. |
| `Technical/docs/latex/SHAIKH_TONAK_VALIDATION_REPORT.tex` | Visual validation; compiles even if plots are missing. |
| `Technical/docs/latex/PROJECT_LATEX_EXPLAINER.tex` | This very guide to all project resources. |
| `Technical/docs/latex/PROJECT_BIRDS_EYE_VIEW.tex` | Story overview: replication story, comparisons, updates, implementation reasoning, and charts. |

# 4 Where to Find Data

- **Book Tables**: `data/extracted_tables/book_tables/`

- **Unified Historical DB**: `data/unified_database/`

- **Modern Extension Inputs**: `data/modern/`

- **Source PDFs**: `data/source_pdfs/`

# 5 Where to Find Code

- **Replication**: `src/analysis/replication/`

- **Validation**: `src/analysis/validation/`

- **Extraction**: `src/extraction/`

- **Core Utilities**: `src/core/`

- **Extension**: `src/extension/`

# 6 How to Build the LaTeX Documents

> **Build Commands**
>
> Use the project script in `Technical/scripts/` (requires `latexmk`):
>
> ```
> ./Technical/scripts/build-latex.sh          # defaults to Output/pdfs
> ./Technical/scripts/build-latex.sh --outdir Output/pdfs
> ```
>
> Builds all `.tex` in `Technical/docs/latex/` and `Technical/docs/methodology/` (outputs under `Output/pdfs`).

Continuous Integration builds PDFs automatically on push/PR via `.github/workflows/latex.yml` and uploads them as artifacts.

# 7 Quick Links (Paths)

- Methodology: `docs/methodology/SHAIKH_TONAK_METHODOLOGY.tex`

- Code Explainer: `docs/latex/SHAIKH_TONAK_CODE_EXPLAINER.tex`

- Validation Report: `docs/latex/SHAIKH_TONAK_VALIDATION_REPORT.tex`

- Bird's-Eye View: `docs/latex/PROJECT_BIRDS_EYE_VIEW.tex`

# 8 Troubleshooting

> **Common Issues**
>
> - Missing images: documents are robust to missing plots and will compile without them.
>
> - Package availability: `latexmk` and common LaTeX packages are required; CI installs TeX Live groups that satisfy them.
>
> - Clean build: run `latexmk -C` in the output directory for a fresh build.