Panel Data Analysis in M&E Training Course

Professional Development Training Course Outline

Category	Monitoring and Evaluation	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

In the dynamic field of Monitoring and Evaluation (M&E), Panel Data Analysis has emerged as a critical analytical tool for deriving actionable insights from longitudinal datasets. Panel Data Analysis in M&E Training Course equips M&E professionals with the expertise to analyze multi-dimensional data, uncover trends over time, and evaluate program impact, efficiency, and sustainability. By leveraging advanced econometric models, participants will gain the ability to make data-driven decisions, strengthen evidence-based policy formulation, and optimize resource allocation for development programs.

Through hands-on exercises and real-world examples, this course emphasizes the practical application of fixed-effects, random-effects, and dynamic panel models in M&E contexts. Participants will develop proficiency in data cleaning, transformation, visualization, and advanced statistical modeling, enhancing their capacity to track program performance, identify causal relationships, and provide robust impact evaluations for stakeholders.

Programme Curriculum

Panel Data Analysis in M&E Training Course

Introduction

In the dynamic field of Monitoring and Evaluation (M&E), Panel Data Analysis has emerged as a critical analytical tool for deriving actionable insights from longitudinal datasets. Panel Data Analysis in M&E Training Course equips M&E professionals with the expertise to analyze multi-dimensional data, uncover trends over time, and evaluate program impact, efficiency, and sustainability. By leveraging advanced econometric models, participants will gain the ability to make data-driven decisions, strengthen evidence-based policy formulation, and optimize resource allocation for development programs.

Through hands-on exercises and real-world examples, this course emphasizes the practical application of fixed-effects, random-effects, and dynamic panel models in M&E contexts. Participants will develop proficiency in data cleaning, transformation, visualization, and advanced statistical modeling, enhancing their capacity to track program performance, identify causal relationships, and provide robust impact evaluations for stakeholders.

Course Duration

10 days

Course Objectives

By the end of this training, participants will be able to:

1. Master Panel Data Structures for M&E research.
2. Apply Fixed-Effects and Random-Effects Models in program evaluation.
3. Conduct Dynamic Panel Data Analysis for longitudinal studies.
4. Use STATA, R, and Python for panel data processing.
5. Evaluate policy impact and program efficiency over time.
6. Detect and correct heterogeneity and endogeneity in panel datasets.
7. Apply difference-in-differences (DiD) techniques for causal inference.
8. Conduct robust sensitivity and reliability testing for M&E datasets.
9. Integrate multi-level and hierarchical models for complex evaluations.
10. Visualize trends and outputs using interactive dashboards and graphs.
11. Analyze social, economic, and development indicators using panel data.
12. Develop evidence-based recommendations for policy and strategic planning.
13. Interpret results to inform decision-making, accountability, and learning in projects.

Target Audience

1. M&E Officers and Managers
2. Data Analysts in Development Projects
3. Policy Analysts and Researchers
4. Program Evaluation Specialists
5. Economists and Statisticians
6. Development Consultants
7. Graduate Students in Social Sciences or Economics
8. Government and NGO Program Coordinators

Course Modules

Module 1: Introduction to Panel Data in M&E

- Overview of panel vs. cross-sectional data
- Importance of longitudinal analysis in M&E
- entities, time periods, and variables
- Benefits for program evaluation and policy impact
- **Case Study:** Tracking education outcomes over 5 years

Module 2: Data Management for Panel Datasets

- Data cleaning and structuring
- Handling missing values and unbalanced panels

- Merging multiple time-series datasets
- Data validation techniques
- **Case Study:** Health intervention data harmonization

Module 3: Descriptive Analysis of Panel Data

- Summary statistics for panel datasets
- Visualization of trends over time
- Cross-sectional vs. time-series patterns
- Identifying outliers and anomalies
- **Case Study:** Monitoring household income variations

Module 4: Fixed-Effects Models

- Concept and assumptions
- Estimating within-group variations
- Advantages and limitations
- Interpreting coefficients
- **Case Study:** NGO program impact on child nutrition

Module 5: Random-Effects Models

- When to use random-effects
- Model assumptions and diagnostics
- Comparing fixed vs. random-effects
- Practical implementation in STATA/R
- **Case Study:** Agricultural subsidy programs

Module 6: Dynamic Panel Data Models

- Introduction to lagged dependent variables
- Arellano-Bond estimators
- Addressing autocorrelation and endogeneity
- Practical coding examples
- **Case Study:** Tracking long-term employment outcomes

Module 7: Difference-in-Differences (DiD)

- Causal inference techniques
- Assumptions and model specification
- Estimating treatment effects
- Visualizing DiD outcomes
- **Case Study:** Evaluating microfinance program impact

Module 8: Panel Regression Diagnostics

- Testing for heteroscedasticity
- Serial correlation in panel data
- Multicollinearity checks
- Model fit and residual analysis
- **Case Study:** Health intervention monitoring

Module 9: Endogeneity and Instrumental Variables

- Identifying endogenous variables
- Selecting valid instruments
- Two-stage least squares (2SLS) estimation
- Practical examples in M&E
- **Case Study:** Evaluating education funding programs

Module 10: Multi-Level and Hierarchical Models

- Nested data structures in M&E
- Random intercepts and slopes
- Estimation and interpretation
- Model comparison techniques
- **Case Study:** Community health program evaluation

Module 11: Panel Data Visualization Techniques

- Time-series graphs for multiple entities
- Interactive dashboards for M&E
- Trend decomposition and seasonality
- Reporting to stakeholders effectively
- **Case Study:** Water supply project reporting

Module 12: Advanced Econometric Techniques

- Generalized Method of Moments (GMM)
- Handling complex panel structures
- Panel unit root and cointegration tests
- Applications in development studies
- **Case Study:** Long-term poverty reduction analysis

Module 13: Policy Impact Evaluation

- Measuring program effectiveness
- Linking panel data to policy outcomes
- Cost-effectiveness analysis
- Recommendations for decision-making
- **Case Study:** Evaluating national immunization campaigns

Module 14: Reporting and Communicating Results

- Writing M&E reports using panel data
- Translating statistical output to insights
- Effective storytelling for stakeholders
- Visual and interactive reporting tools
- **Case Study:** NGO project performance dashboard

Module 15: Capstone Project

- Designing a panel data analysis project
- Data collection, cleaning, and modeling

- Presentation of results and recommendations
- Peer review and feedback
- **Case Study:** Longitudinal monitoring of urban development projects

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Online	$2,000

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com