**DMIE MODEL — ETHICAL USE STANDARDS**

*(For the DMIE Calculator App)*
**Status:** *Methodologically Grounded*
**Version:** 1.0
**Prepared by:** Babylon19 / Into Binary Research Unit
**Model:** *DMIE — Diophantine Model of Informal Economy*

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## 1. INTRODUCTION

The **DMIE (Diophantine Model of Informal Economy)** is a mathematical estimation model designed to quantify informal economic activity using structured, integer-based equations and evidence-driven parameters.
Because economic modelling influences policy, interpretation, and public understanding, DMIE requires a clearly articulated **Ethical Use Framework**.

This document sets out the **principles, responsibilities, and limitations** governing the appropriate and responsible use of the DMIE Calculator App.

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## 2. PURPOSE OF THIS DOCUMENT

The Ethical Use Standards are designed to:

- Protect communities from harmful or misleading interpretations
- Ensure that the model is applied within academic, professional, and policy-support boundaries
- Maintain methodological integrity
- Promote responsible communication of model results
- Prevent the misuse or weaponisation of economic data
- Support transparent decision-making and explainable modelling practices

These standards apply to **all users**, whether academic, governmental, nonprofit, or private-sector.

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## 3. FOUNDATIONAL ETHICAL PRINCIPLES

### 3.1 Transparency

All users must:

- Clearly state that DMIE provides *estimates*, not absolute measurements
- Share model assumptions when presenting results
- Avoid overstating certainty
- Disclose any modifications to default parameters

**3.2 Integrity of Methodology**

Users must not:

- Alter model logic without documenting changes
- Mask uncertainties or extrapolate beyond the model's designed limits
- Manipulate outputs to justify predetermined conclusions

**3.3 Non-Harm Principle**

The model must never be used:

- To stigmatise communities
- To justify punitive policies against informal workers
- To rank or discriminate based on socioeconomic characteristics
- As evidence to criminalise survival-driven economic activities

**3.4 Fairness & Neutrality**

DMIE must be applied with:

- Equality across demographic groups
- Non-discriminatory language
- Recognition of the informal sector's structural and historical context

The model is intentionally designed **without demographic profiling inputs** to uphold this principle.

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## 4. ETHICAL MODEL INTERPRETATION

### 4.1 Understanding What DMIE *Is*

- A structured estimation model
- A research-based tool
- A methodological lens
- A Diophantine-equation-driven computational engine
- A support tool for academic, policy, and social-economic analysis

### 4.2 Understanding What DMIE *Is Not*

DMIE is **not**:

- A household-level income predictor
- A tool for individual profiling
- A dataset generator
- A substitute for field surveys
- A behavioural forecasting system

This clarity prevents model misuse and invalid assumptions.

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## 5. RESPONSIBLE USE GUIDELINES

### 5.1 When Presenting DMIE Results

Users must:

- Include uncertainty notes
- Avoid definitive or absolute statements
- Indicate that inputs heavily shape outputs
- Provide context around the informal sector’s complexity

- Specify the version of the DMIE model used

**5.2 When Integrating DMIE Into Reports or Policies**

Users must ensure:

- DMIE results are triangulated with independent sources (StatsSA, ILO, OECD, etc.)
- Policy proposals reflect human impact awareness
- Results are not used as the sole evidence for interventions
- DMIE outputs are contextualised within limitations of non-survey modelling

**5.3 When Teaching or Demonstrating the Model**

The following disclosures must be made:

- Equation constraints
- Assumption ranges
- Expected deviations
- The purpose & origin of Diophantine modelling

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**6. PROHIBITED USES**

The following uses violate the Ethical Standards:

- Using DMIE to justify austerity or punitive measures
- Using results to target groups, neighbourhoods, or informal workers
- Feeding outputs into AI systems that profile vulnerability
- Selling tailored outputs that imply demographic insights
- Using the model in political campaigns or propaganda
- Presenting outputs as “official statistics”

Such uses harm individuals and communities and undermine academic integrity.

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## 7. ETHICAL DATA HANDLING EXPECTATIONS

Even though DMIE **does not collect any personal data**, users must still:

- Avoid entering personally identifiable information into input fields
- Use aggregated or category-level data if modelling specific sectors
- Store exported results responsibly (local only; no cloud uploads without encryption)
- Respect POPIA, GDPR, and local data norms when integrating DMIE results into reports

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## 8. COMMUNICATION ETHICS

### 8.1 Clarity

Users must communicate:

- What DMIE can estimate
- What it cannot
- Where uncertainty arises
- The meaning of integer-constrained outputs

### 8.2 Avoiding Overconfidence

Never present results as:

- Absolute
- Perfectly accurate
- Predictive of future performance

### 8.3 Ensuring Public Understanding

Where results may be shared with general audiences:

- Provide analogies or simplified explanations

- Avoid technical jargon without definitions
- Ensure that communications do not distort findings

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**9. DEVELOPER & MAINTAINER RESPONSIBILITIES**

The DMIE Research Unit is committed to:

- Publishing versioned updates
- Documenting all methodological modifications
- Maintaining open-access parameter definitions
- Conducting regular reviews of ethical impact
- Providing accessible documentation
- Ensuring code transparency wherever feasible

The maintainers also reserve the right to revoke use in severely unethical contexts.

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**10. LIMITATIONS & DISCLAIMERS**

DMIE provides **structured estimates**, not final measurements.
All outputs must be treated as *analytical approximations* informed by:

- Integer-driven relationships
- Parameter constraints
- Contextual modelling rules
- Academic references

The model is sensitive to input assumptions and must never be used as the single authoritative source for complex economic decisions.

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**11. COMPLIANCE STATEMENT**

DMIE adheres to:

- International research ethics standards
- OECD data neutrality principles
- ILO guidelines for informal sector interpretation
- POPIA and GDPR data minimisation
- Academic integrity norms

Use outside these ethical boundaries is considered a breach of these standards.

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**12. APPENDICES**

**Appendix A — Ethical Risk Classifications**

- Misinterpretation Risk
- Policy Misuse Risk
- Data Misuse Risk
- Analytical Overreach Risk

**Appendix B — Recommended Citation Format**

A standard reference for academic writing.

**Appendix C — Version Disclosure Template**

To be used in publications using DMIE outputs.