AI in Africa: Adoption, Growth, and Convergence

Overview

This integrated research agenda examines how AI adoption can drive economic growth and convergence in African economies through three interconnected sub-projects. Using preliminary evidence from firm-level survey data of more than 500 Nigerian businesses and labor market data covering 7.2M+ African CVs, we investigate: (1) how AI reduces market distortions and enables convergence, (2) how information frictions shape adoption decisions, and (3) how labor market dynamics and global competition for AI talent affect adoption patterns. The research distinguishes between **direct adoption** (in-house AI development) and **indirect adoption** (procurement of AI-enabled services), with particular emphasis on trade in AI services as a mechanism for technology diffusion in emerging markets.

Research Team & Collaborators

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Three Sub-Projects

1 AI and Global Convergence: Reducing Market Distortions

Research Focus: How AI adoption can reduce market frictions and distortions in African economies, potentially enabling economic convergence with developed markets.

Key Framework: AI affects businesses through two channels—labor substitution and business expansion. The net employment effect depends critically on the distortion environment:

- **Low-distortion economies:** AI primarily replaces jobs as firms optimize labor-capital ratios
- **High-distortion economies:** AI enables job creation by relaxing constraints and facilitating business growth

Convergence Hypothesis: AI adoption may reduce productivity gaps between high- and low-distortion economies by disproportionately benefiting constrained firms.

Adoption Channels: Distinguishing between direct adoption (internal development) and indirect adoption (services procurement). Trade in AI services emerges when internal development costs exceed outsourcing costs plus transaction costs.

Preliminary Finding: Evidence of market expansion in high-AI-return sectors, with demand for non-AI skilled workers rising alongside AI adoption, suggesting complementarity rather than pure substitution.

2 Information Frictions and AI Adoption

Research Focus: How information barriers affect firm adoption decisions and how beliefs about AI productivity shape investment choices.

Methodological Innovation - Willingness-to-Pay (WTP) Approach: Novel method for measuring productivity beliefs that reveals both elasticity of output and total factor productivity. This approach works even for startups and SMEs without financial histories, making it particularly valuable in emerging market contexts.

Information Experiment Design: Three treatment groups to understand how different types of information shape adoption decisions:

- **Control group:** No additional information
- **General AI information:** Broad information about AI capabilities and benefits
- **Context-specific information:** Tailored information about AI applications relevant to specific business contexts

Key Questions: What is the role of context-specific versus general information in shaping beliefs about AI returns? How do information frictions interact with other barriers to adoption?

Preliminary Finding: 70% adoption rate among surveyed firms, but with substantial uncertainty about relevance and returns. Stronger impacts reported on sales and profit rather than sourcing or pricing, suggesting information gaps about specific use cases.

3 AI and African Labor Markets

Research Focus: Labor market dynamics, global competition for AI talent, and how human capital constraints affect adoption patterns.

Global Competition for AI Talent: Approximately 30% of Africa's AI-skilled workers are employed by companies headquartered outside the continent, highlighting the global nature of AI labor markets and potential brain drain concerns.

AI Wage Premiums by Sector: Substantial variation across industries suggests different returns to AI skills:

- Finance and technology sectors offer significantly higher AI wage premiums
- Wage premiums serve as proxy for marginal returns to AI adoption
- Sectoral variation informs understanding of where AI adoption generates highest returns

Human Capital Constraints: Access to technical talent identified as primary barrier to adoption, especially outside major tech hubs. Language localization also limits adoption—only 42 out of 2000 African languages currently supported by major AI platforms.

Labor Market Data: Analysis of 7.2M+ African CVs (Revelio database) with 22,761 AI-skilled workers identified in Nigeria alone, enabling detailed analysis of skill flows, wage dynamics, and employment patterns.

Preliminary Finding: Rising demand for non-AI skilled workers in high-AI-return sectors suggests complementarity between AI and human capital. However, constraints on access to complementary resources limit domestic firms' ability to capture AI productivity gains.

Cross-Cutting Preliminary Findings

These findings span multiple sub-projects and demonstrate the interconnected nature of the research agenda:

70%	**7.2M+**	**22,761**
AI Adoption Rate Among Surveyed Firms	African CVs (Revelio Database)	AI-Skilled Workers Identified in Nigeria

Nigerian Businesses Experience Stronger AI Impacts on Sales and Profits

Perceived Financial Impact of AI by Location
Ordinal scale from 'Not at all' to 'To a great extent'

Stronger impacts have been reported on sales and profit, rather than sourcing or pricing. Evidence of AI wage premiums serves as a proxy for high returns to AI adoption.

Human Capital and Technical Infrastructure Limit AI Adoption

Resources Needed to Integrate AI (Copy Sample)
Share of firms by location (multi-select)

Access to technical talent and infrastructure are the most cited barriers to AI adoption, especially outside major tech hubs. Language localization also limits adoption, with only 42 out of 2000 African languages currently supported.

The competition for AI talent is global

Flow of African AI-Labor (2021-Present)
Source: Revelio Labs Data
(Filtered to Value ≥ 300)

About 30% of Africa's AI-skilled workers are employed in companies headquartered outside the continent.

Sectoral variation in AI wage premiums suggests different returns to AI skill

Logged Salary by rics_k50 and AI vs Non-AI

Finance and technology sectors offer significantly higher AI wage premiums suggesting greater marginal returns to AI skill in these industries. Demand for non-AI skilled workers is rising in high-AI-return sectors, suggesting complementarity rather than pure substitution.

Integrated Project Plan

The three sub-projects are integrated through coordinated data collection and analysis phases:

Phase 1: Survey Development & Information Experiment Design

- **Survey instrument development:** Design surveys to measure direct and indirect AI adoption (Sub-Project 1) with information experiment embedded (Sub-Project 2) (January 2026)
- **Information experiment design:** Three treatment groups to understand how beliefs shape adoption decisions (Sub-Project 2)
- **IRB submission:** Complete institutional review board approval process (January 2026)
- **Productivity elicitation:** Adapt WTP methods to measure actual returns to AI adoption across different implementation approaches (Sub-Project 2)
- **AI service provider mapping:** Identify AI service suppliers to understand indirect adoption channels (Sub-Project 1)
- **Labor market data integration:** Coordinate Revelio database analysis with survey design (Sub-Project 3)

Phase 2: Geographic Expansion & Integrated Data Collection

- **Geographic expansion:** Extend data collection to Lagos, Nairobi, Stellenbosch, and Casablanca to capture variation in distortion environments (Sub-Project 1)
- **Pilot survey:** Test instruments and information treatments with subset of businesses (April 2026)
- **Full survey rollout:** Conduct comprehensive data collection across all target cities (May-September 2026)
- **Technology adoption mapping:** Document AI adoption patterns distinguishing direct and indirect channels (Sub-Project 1)
- **Labor market analysis:** Analyze AI talent flows, wage premiums, and skill complementarities across sectors (Sub-Project 3)
- **Case studies:** Conduct detailed case studies capturing technology diffusion pathways, information flows, and labor market dynamics across all three sub-projects