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Inequalities in Access and Usage of Recruitment Platforms According to Qualification Level and Professional Experience: Evidence Based on Multi-agent Simulation Approaches

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Abstract

Labor market intermediation in Morocco has undergone a structural digital transformation since the mid-2010s. However, persistent mismatches between job offers and seekers raise concerns over systemic inefficiencies, especially in the private sector. This study proposes empirically tests an intelligent agent-based matching model designed to capture frictions in the Moroccan labor market, with a focus on platform-driven intermediation and competence-based inequalities. The model extends the Mortensen-Pissarides framework by integrating digital access proxies, qualification adequacy indices, and learning-based behavior. Data sources include national employment statistics from the Haut-Commissariat au Plan (HCP), recruitment figures from ANAPEC, and panel series extracted from major platforms (ReKrute, Emploi.ma, LinkedIn, Indeed) between 2015 and 2024. The estimation uses nonlinear least squares and panel regression techniques, with robustness checks. A heatmap visualization and a 3D matching surface are used to illustrate the nonlinear effects of tightness and human capital. This paper shows also that platform inequalities persist and even amplify exclusion for low-qualified and geographically peripheral populations. Targeted public policy is needed to align digital infrastructures with inclusive labor strategies.

Keywords: Matching Model; Digital Labor Platforms; Labor Market Frictions; Morocco; Competence Mismatch; Smart Intermediation; Agent-Based Estimation.