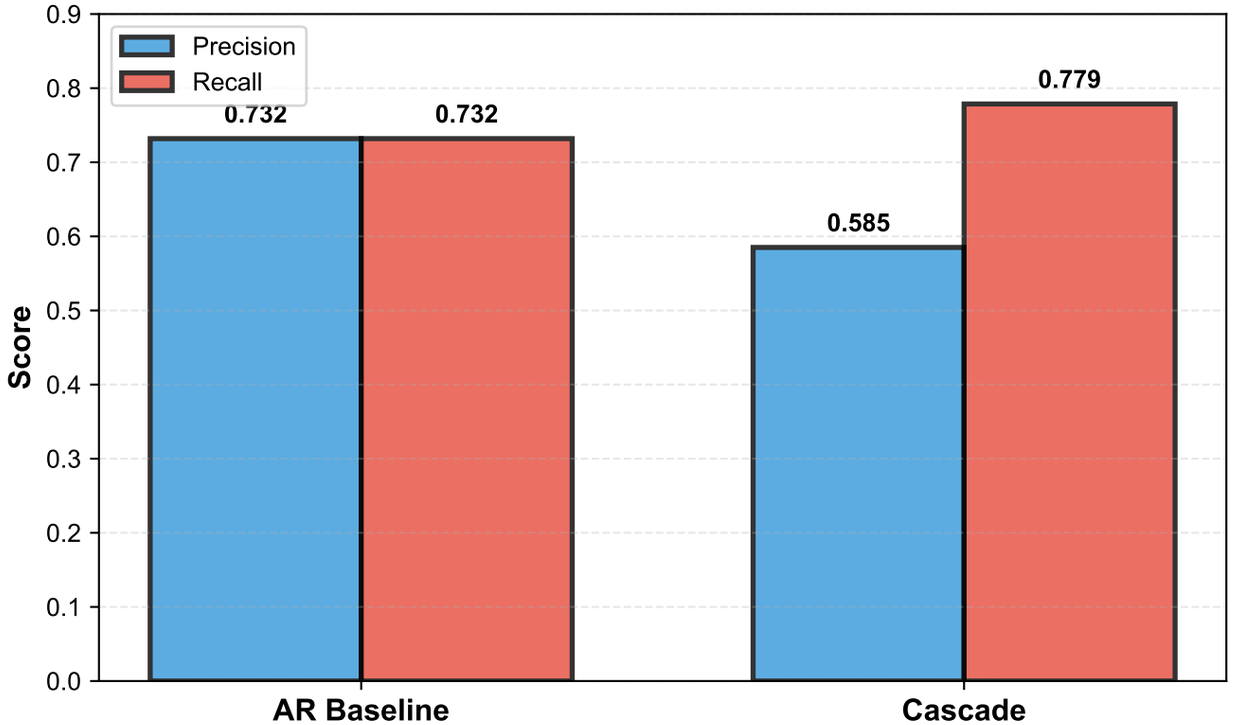
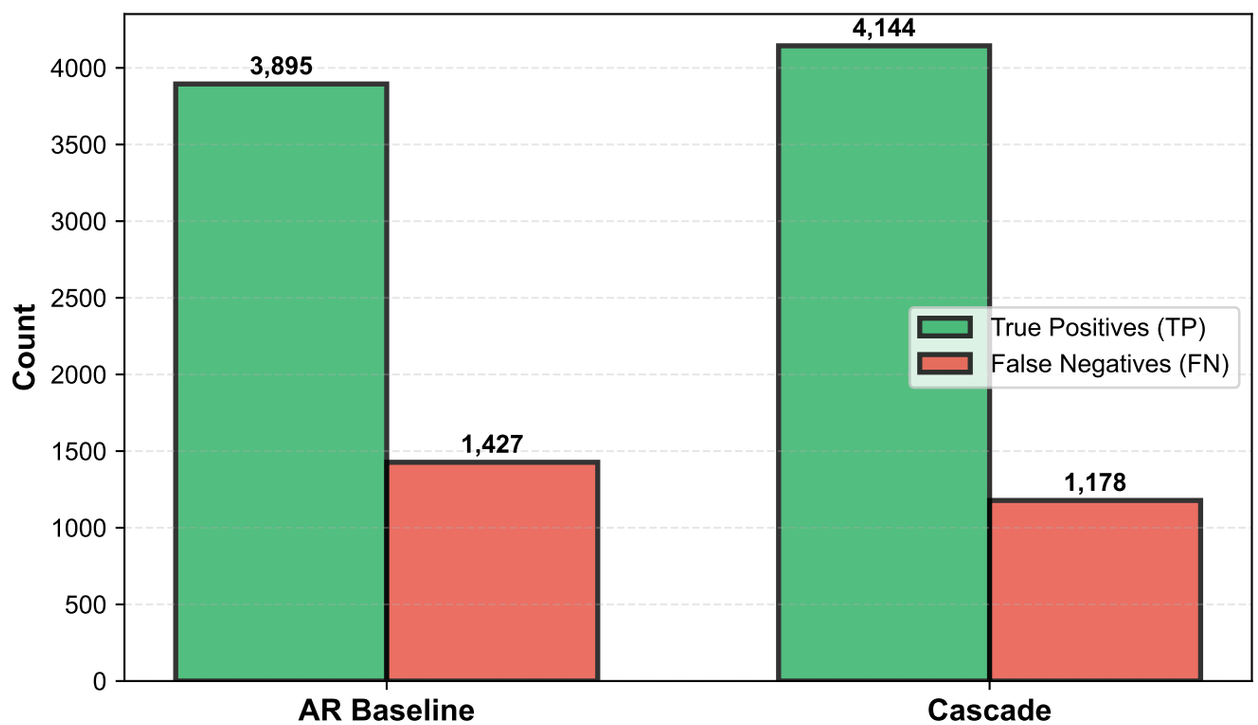
Cascade vs AR Baseline Performance Comparison (h=8 months, n=20,722)

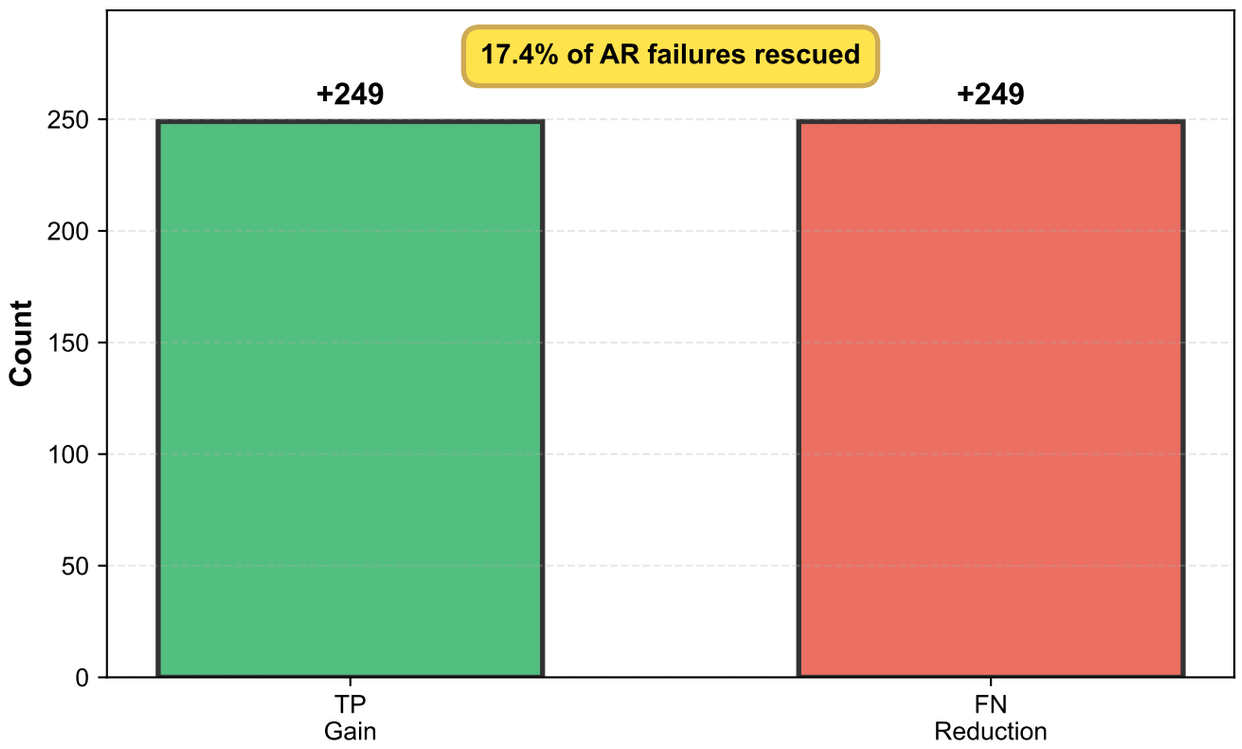
Panel A: Precision-Recall Tradeoff



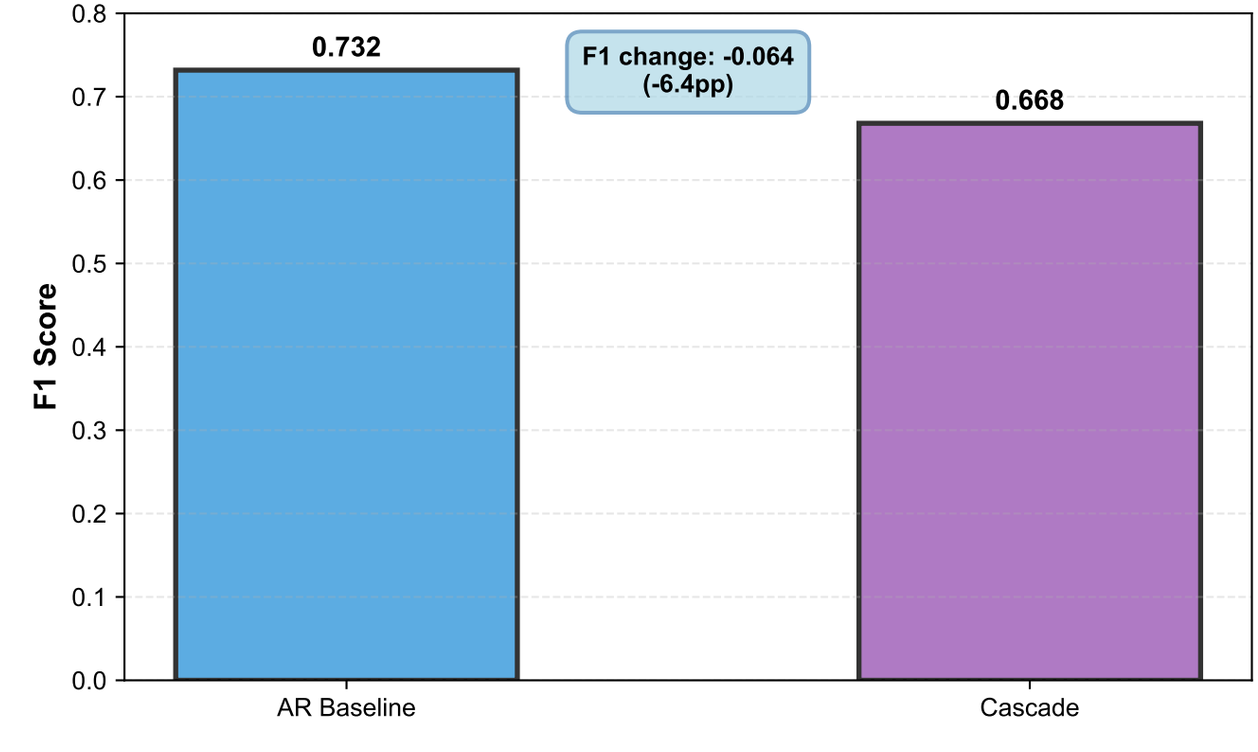
Panel B: True Positives vs False Negatives



Panel C: Cascade Improvement (249 Key Saves)



Panel D: F1 Score Comparison



Cascade framework successfully rescues 249 AR failures (17.4% rescue rate) through targeted Stage 2 intervention on uncertain cases. Recall improves +4.7pp (AR: 0.732 → Cascade: 0.779), capturing 249 additional crises 8 months in advance—rapid-onset shocks where persistence models fail. Precision trades off 14.7pp (AR: 0.732 → Cascade: 0.585), but these 249 key saves target the most critical cases: conflict escalations, economic collapses, displacement crises in Zimbabwe, Sudan, DRC. Success on hardest cases where early warning matters most. 5-fold stratified spatial cross-validation, h=8 months forecast horizon.