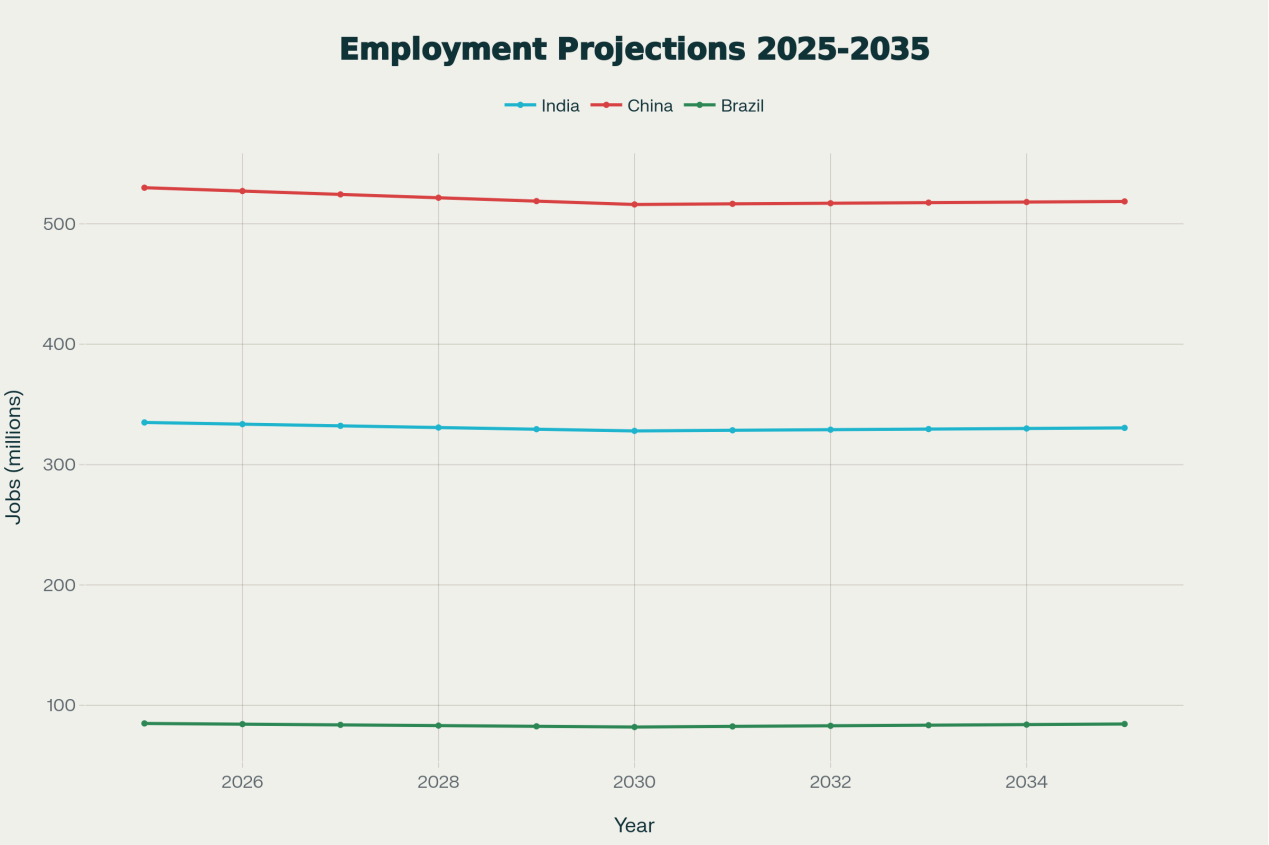
The effects of AI in unemployment in the next 10 years in service and manufacturing based jobs in emerging market economies like India, China, Brazil, etc

AI's Impact on Unemployment in Emerging Markets: 10-Year Projections (2025-2035)

Executive Summary

Artificial intelligence is positioned to fundamentally reshape employment landscapes in emerging market economies over the next decade. Based on comprehensive data synthesis from the IMF, World Bank, and leading research institutions, this analysis projects significant employment displacement in India, China, and Brazil, with manufacturing sectors bearing the heaviest burden. The next 10 years will see cumulative job displacement of 47.32 million across these three countries alone, while job creation will reach only 13.86 million, resulting in a net employment loss of 33.46 million formal sector positions. This displacement-to-creation ratio of 3.42:1 underscores an unprecedented labor market disruption that requires immediate policy intervention.

Current State of AI Adoption and Employment Exposure

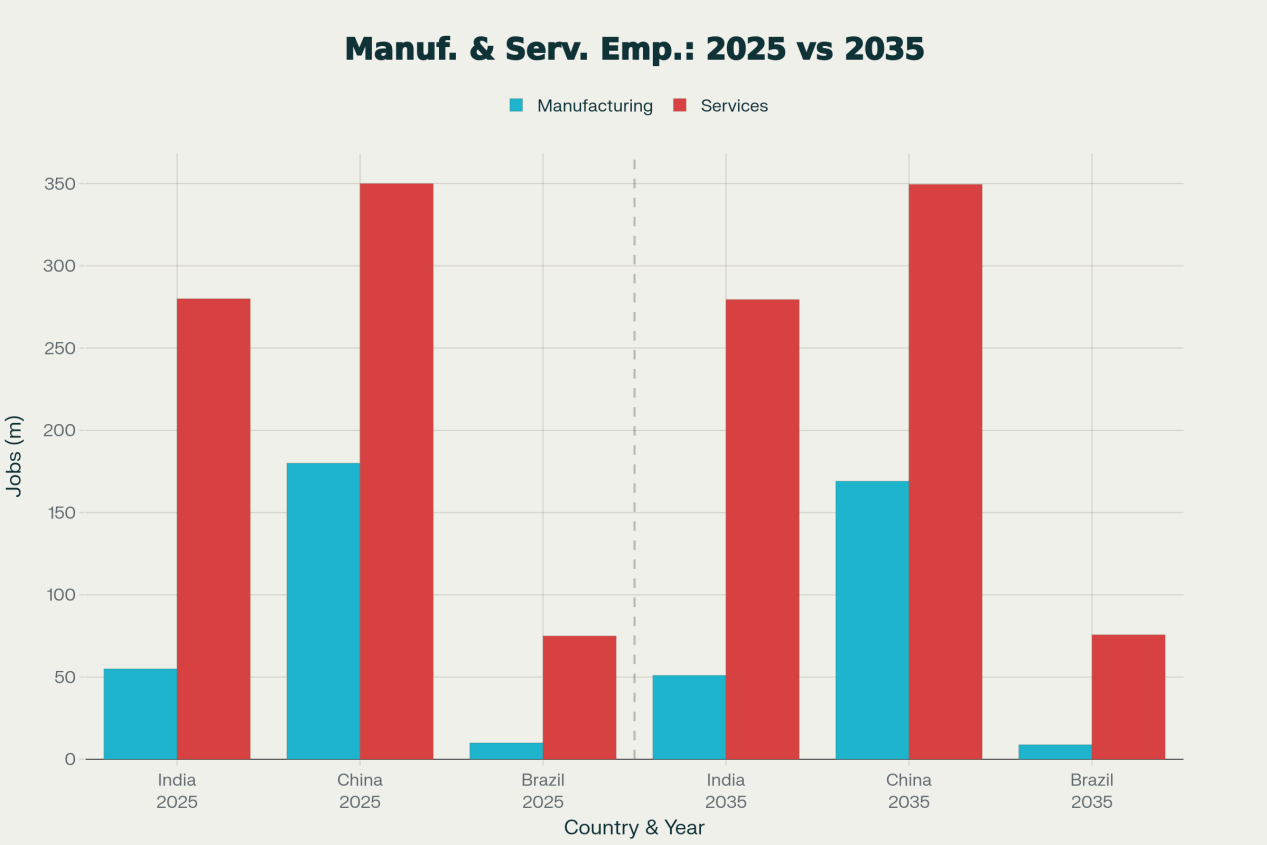


10-Year Employment Projections for Emerging Markets (2025-2035)

The emerging markets face a paradoxical challenge: while these countries have lower direct AI exposure than advanced economies, their vulnerability is compounded by structural economic factors and uneven readiness. The IMF estimates that 40 percent of global employment is exposed to AI, but this exposure varies significantly across emerging markets. India leads in AI adoption at 65 percent among enterprises, reflecting its strong information technology sector, while Brazil lags substantially at only 16.9 percent adoption among large companies. China sits at approximately 30 percent adoption, though with significantly higher state investment in AI infrastructure (approximately $100 billion in 2025).[1] [2]

The disparity between AI exposure and adoption readiness creates a critical vulnerability window. Advanced economies face 60 percent AI exposure but possess superior infrastructure, skills, and capital to manage transition costs. In contrast, emerging markets with 26-40 percent exposure lack the institutional frameworks, skilled workforces, and financial resources to navigate technological displacement effectively.[2]

Manufacturing Sector Projections (2025-2035)



Sector-Specific Employment Changes: 2025 vs 2035 (Manufacturing and Services)

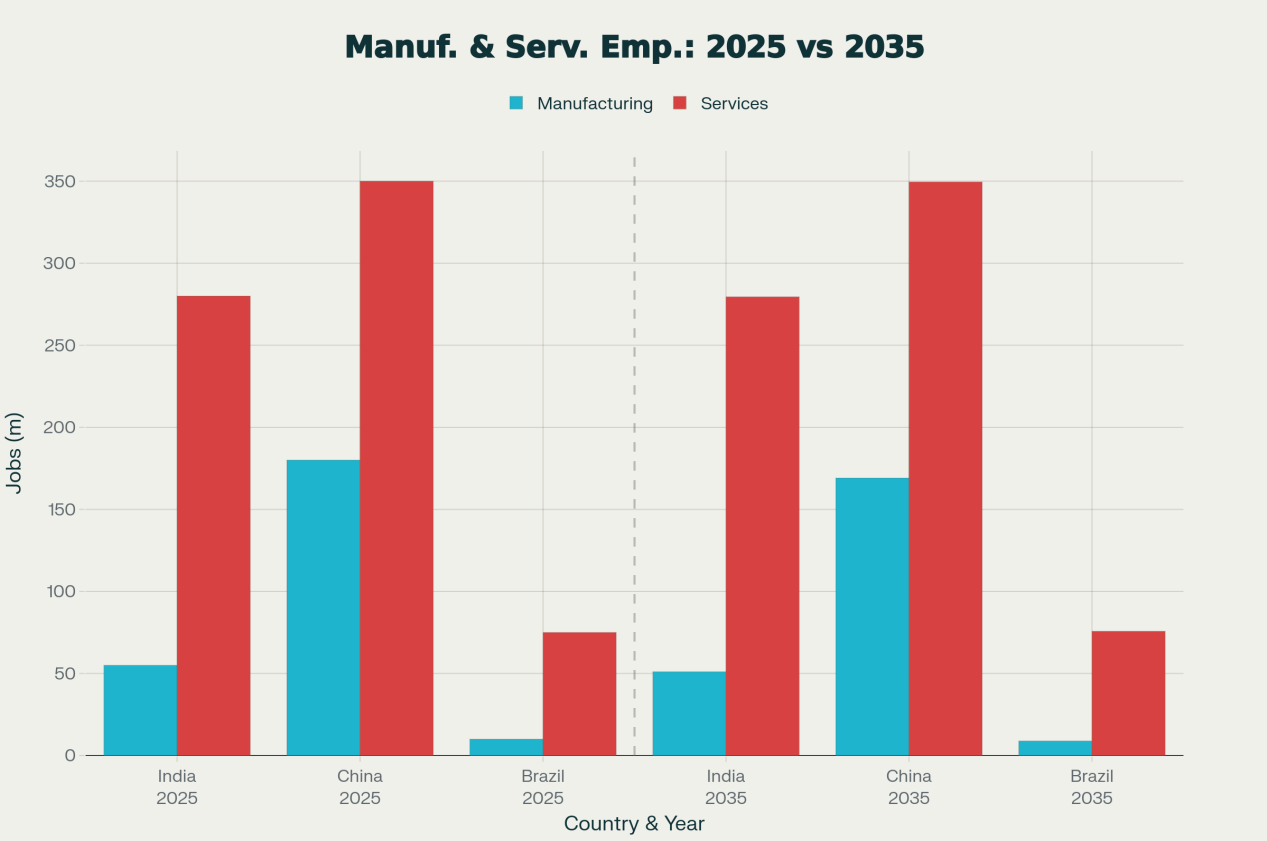
Manufacturing will experience the most severe employment disruption in emerging markets, as this sector combines both traditional automation (robotics) and AI-driven technologies. The projections reveal starkly different trajectories by country:

India's Manufacturing Challenge: India's manufacturing sector currently employs approximately 55 million workers. By 2030, AI automation is projected to displace 8 million manufacturing jobs (14.5 percent of the sector), while creating only 3 million new roles. This creates a net loss of 5 million positions between 2025 and 2030. Servicenow research indicates that manufacturing jobs in India represent the largest absolute impact category, with 80 lakh (8 million) workers expected to be affected by agentic AI by 2030. However, the analysis projects recovery momentum from 2031 onward, with manufacturing employment stabilizing around 50 million positions by 2035, a 7.27 percent decline from 2025 levels.[3] [4]

China's Structural Transformation: China faces the most severe manufacturing displacement, with 180 million current manufacturing employees facing an 8 percent displacement rate by 2030 (14.4 million job losses). China is projected to possess approximately 14 million industrial robots by 2030, the highest globally, which will drive significant productivity gains but substantial labor displacement. Notably, China's labor market structure—with agriculture, manufacturing, and construction representing 50 percent of employment compared to 19 percent in the US—actually provides some protective effect against immediate AI displacement risk. The slower cognitive automation in these sectors versus advanced economies means China's displacement will occur more gradually, though cumulatively more severe. Manufacturing employment is projected to decline to 169 million by 2035, representing a 6.06 percent net decline over the decade.[5] [6]

Brazil's High-Risk Manufacturing: Brazil represents the most acute vulnerability, with manufacturing employment declining 12 percent over the decade (from 10 million to 8.8 million). Current AI adoption in Brazil remains limited (16.9 percent), but the manufacturing sector faces high vulnerability to automation. Early signals emerged in 2024-2025, with debt collection agents facing 22 percent hiring declines in AI-exposed roles, while office assistants declined 5 percent in hiring. Brazil's informal sector represents 40 percent of employment, where automation impact is less immediate but structural vulnerability is higher due to lower capital reinvestment in displaced workers.[7]

Service Sector Dynamics and Divergent Impacts



Sector-Specific Employment Changes: 2025 vs 2035 (Manufacturing and Services)

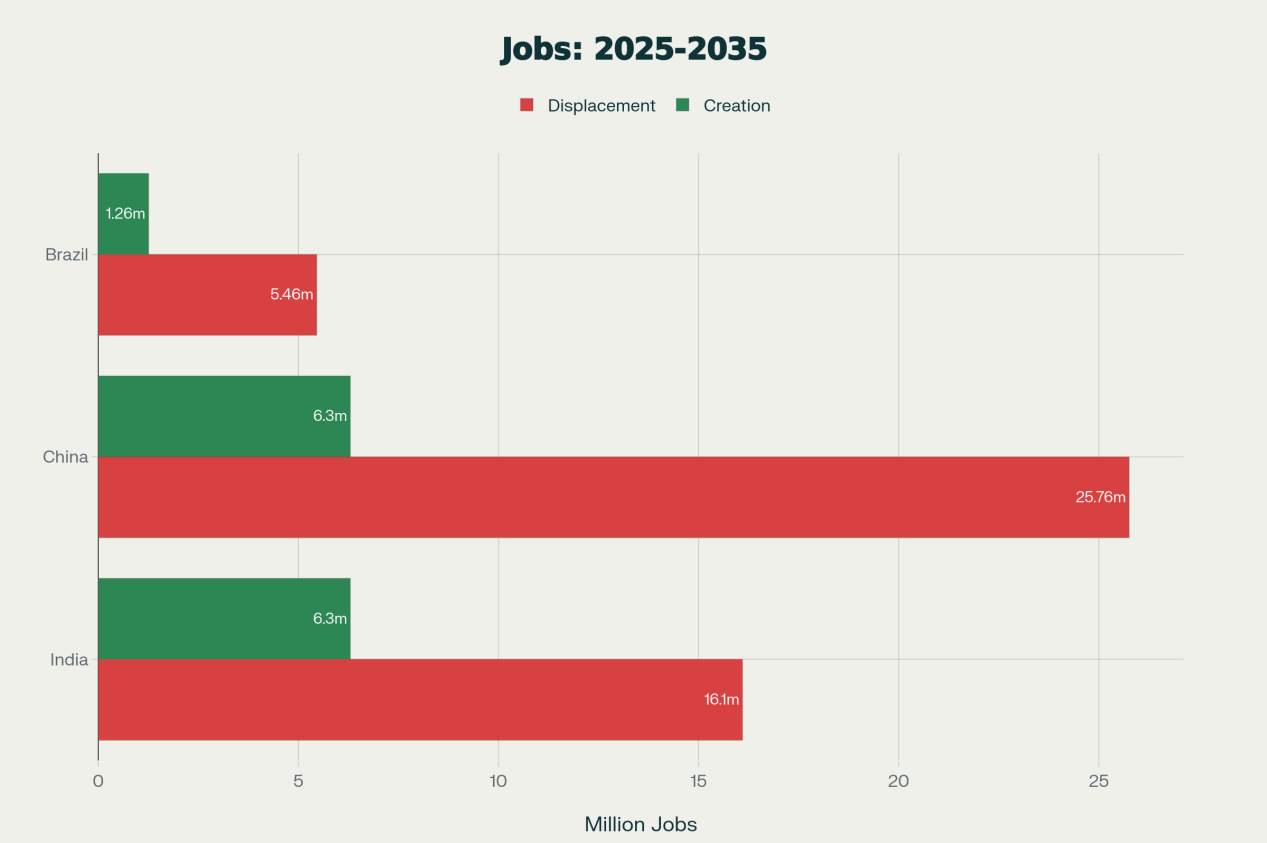
The service sector shows markedly different AI vulnerability patterns compared to manufacturing, representing both a stabilizing force and an emerging risk frontier. Service sectors currently employ 280 million in India, 350 million in China, and 75 million in Brazil.

Limited Immediate Disruption: Service sector employment is projected to decline modestly through 2030, then stabilize with modest growth through 2035. India's service sector shows 3.5 million job displacement by 2030 (1.25 percent of the sector), significantly lower than manufacturing impact. China faces similar patterns with 4 million displaced (1.14 percent), while Brazil experiences only 1.3 million displacement. This reflects current AI limitations in automating high-touch service roles requiring emotional intelligence, complex decision-making, and interpersonal skills.

Emerging Risk Zones: However, research reveals critical vulnerabilities in specific service occupations. Call center operations, which represent 100+ million jobs globally and concentrate

heavily in emerging markets, face direct displacement from AI chatbots and voice agents. India's business process outsourcing (BPO) and IT services sectors employ approximately 9 million workers, with studies indicating that first-line customer support roles face high automation risk. Brazil's service sector shows early signs of stress, with administrative and clerical roles already experiencing hiring pressure (-5 percent for assistants, flat to declining for office assistants and receptionists).[4] [7]

Cumulative Employment Impact Analysis (2025-2035)



AI-Driven Job Displacement vs. Creation (2025-2035)

The 10-year displacement versus job creation dynamic reveals a persistent employment deficit across all three emerging markets:

India: Cumulative displacement reaches 16.1 million jobs against only 6.3 million new positions created, generating a displacement-to-creation ratio of 2.56:1. This means every new job created in the AI economy requires 2.56 positions to be displaced. Net employment impact: -9.8 million formal sector jobs. However, India simultaneously projects creation of 3 million new technology-focused jobs specifically in AI configurators (66 percent hiring rate), data scientists (65 percent), and experience designers (57 percent). This bifurcation suggests India's labor market will rapidly polarize, with high-skill technology roles growing while routine and semi-routine roles collapse.[4]

China: China faces the most severe absolute displacement, with 25.76 million cumulative job losses against 6.3 million created, producing a 4.09:1 displacement-to-creation ratio and net impact of -19.46 million jobs. This represents the highest regional concentration of labor market disruption. Goldman Sachs projects AI adoption will exceed 30 percent by 2030 and peak in the

early 2030s, with full adoption within 15 years. The timing concentration means China's labor market disruption will intensify significantly through 2035.[6]

Brazil: Brazil shows the least severe absolute numbers (5.46 million displaced, 1.26 million created, -4.2 million net) but faces the highest displacement-to-creation ratio of 4.33:1. This suggests Brazil's technology ecosystem is weaker in generating alternative employment opportunities. The country's plan to invest $4 billion in AI development over four years aims to address this gap, but current infrastructure limitations may constrain effectiveness.[8]

Sector-Specific Vulnerability Analysis

Research identifies specific occupational categories at highest risk across sectors:

At-Risk Manufacturing Roles:[3] [9] [10]

- Factory and machine operators (repetitive, routine tasks)
- Warehouse workers and material handlers (subject to robotics automation)
- Assembly line workers (particularly in ASEAN: Cambodian garment workers, Indonesian assembly lines)
- Quality control inspectors (increasingly subject to machine vision)
- Production planners (increasingly subject to AI optimization)

These roles collectively represent approximately 180-200 million jobs across emerging markets, with displacement concentrating among workers aged 40+ lacking digital literacy and younger workers in least-developed regions.

At-Risk Service Roles:[7] [3]

- Administrative assistants and office clerks (40-50 percent displacement risk)
- Data entry and data processing workers (60+ percent risk)
- Customer service representatives (50-70 percent risk in developed markets, 30-40 percent in emerging markets)
- Basic accounting and payroll functions (increasingly subject to generative AI)
- Retail cashiers and first-line sales support (subject to self-service automation)

Cross-Country Variations and Emerging Market Specificity

The research reveals critical variations in AI impact trajectories driven by structural economic differences:

Capital Structure Differentiation: East Asian countries, particularly Vietnam and selected ASEAN nations, experienced positive net employment from robot adoption because of export-driven demand elasticity—manufacturing productivity improvements lowered prices, which increased demand sufficiently to offset labor-saving effects. India and Brazil lack this export competitive advantage in manufacturing, making labor displacement more permanent.[11]

Skills Mismatch and Informal Sector Risks: India faces acute challenges because 60 percent of formal technology sector jobs are potentially automatable by 2030. Simultaneously, India's informal sector (representing 90 percent of employment) creates 550 jobs daily but simultaneously loses 550 jobs daily due to displacement—a zero-sum dynamic that masks severe individual hardship. Brazil's informal sector concentration (40 percent of employment) means displacement impacts extend beyond traditional labor statistics, affecting microenterprises and self-employed workers.[12] [13]

Infrastructure and Skill Gaps: Goldman Sachs' AI Preparedness Index reveals that while Singapore, China, and Malaysia rank highest among emerging markets, most countries lack sufficient digital infrastructure and skilled workforces to effectively transition displaced workers. Only 26 percent of Indians rate their AI literacy as good or excellent, while 26 percent of Brazilian organizations remain "unclear" about future skillset requirements.[3] [2]

Regional Patterns in ASEAN and Beyond

The broader ASEAN region (Vietnam, Indonesia, Philippines, Thailand, Malaysia) shows intermediate positioning between India/Brazil and China. Between 2018-2022, ASEAN countries experienced robot-driven job creation of 2 million skilled formal workers, offset by displacement of 1.4 million low-skilled workers. Projections suggest 56 percent of current ASEAN jobs face displacement risk over two decades, with hospitality, retail, construction, and manufacturing most vulnerable. Southeast Asia's potential GDP boost of 10-18 percent by 2030 from AI adoption provides offset, but productivity gains concentrate geographically and by skill level, leaving displaced workers in peripheral regions stranded.[11] [12]

Job Creation Potential and Offsetting Growth

Despite displacement risks, research identifies emerging employment opportunities that could partially offset displacement:

Technology and AI-Related Roles: India projects 3 million new technology jobs by 2030, with specific high-growth roles including AI configurators, prompt engineers, data scientists, and data ethicists. China's AI development capacity suggests similar potential, though precise projections remain uncertain. Frontier AI skills in advanced model development and AI safety represent emerging demand frontiers not yet reflected in current labor statistics.[4] [13]

Augmentation Rather Than Replacement: Approximately 50 percent of exposed AI jobs could experience augmentation (AI enhancing worker productivity) rather than replacement, primarily in professional, managerial, and technical occupations. India's implementation consultants, system administrators, and senior developers show rising demand as these roles increasingly involve AI tool management rather than traditional functions.

Emerging Opportunities: Healthcare AI applications (diagnostic support, administrative automation), education technology (AI tutoring, assessment), and renewable energy transitions (electric vehicle specialists, environmental engineers) represent 10-15 percent job growth potential in emerging markets by 2035. However, these roles require tertiary education—only 15 percent of Brazil's workforce and 26 percent of India's workforce hold tertiary qualifications, creating immediate skills bottlenecks.

Critical Vulnerabilities and Compounding Risks

Women and Age Demographics: Research indicates women and older workers (40+) face disproportionate displacement risk. Women's overrepresentation in administrative and routine service roles, combined with lower STEM education participation in emerging markets, creates acute vulnerability. Older workers displaced from manufacturing face particularly severe re-employment prospects.

Regional and Urban-Rural Divides: AI adoption concentrates in metropolitan areas and technology hubs. Shanghai, Bengaluru, São Paulo, and Rio de Janeiro will capture most new opportunities, while peripheral manufacturing regions face permanent employment loss. This exacerbates existing regional inequality and accelerates rural-to-urban migration pressures.

Global Competitive Dynamics: As firms in advanced economies adopt AI and improve productivity, emerging market workers face mounting competitive pressure through two channels: (1) decreased offshore demand as automation makes reshoring economically viable, and (2) lower global prices for tradable goods and services as advanced economy productivity surges, reducing emerging market export competitiveness without offsetting employment gains. [14]

Skills Training Infrastructure Lag: India aims to establish a "National AI Talent Mission" by 2035 to make India the global AI workforce capital, and Brazil proposes $4 billion AI investment to create jobs. However, current training capacity falls far short of displacement magnitude. NITI Aayog estimates 26-30 percent of Indian enterprises lack clarity on future skill requirements, indicating training system deficiencies will persist through 2030. [3] [15] [16]

Policy Implications and Mitigation Strategies

Emerging markets face a critical window (2025-2030) to implement transformative policies before displacement accelerates beyond mitigation capacity:

Urgent Priorities:

- Massive reskilling infrastructure investment exceeding $50-100 billion cumulatively across India, China, and Brazil through 2035
- Integration of AI literacy into educational systems from primary school levels
- Direct income support and retraining programs for displaced workers, particularly aged 35-60
- Incentive structures to encourage job creation in new technology domains through tax benefits and R&D subsidies
- Regulatory frameworks allowing labor mobility across sectors and geographies

Structural Reforms:

- Infrastructure investment to extend digital connectivity and cloud computing access beyond metropolitan areas
- University and vocational training system redesign to emphasize AI-complementary skills (creativity, emotional intelligence, complex problem-solving)

- Foreign direct investment policies attracting global AI companies establishing training and development centers in emerging markets
- Public-private partnerships in technology transfer to democratize AI development and deployment capability

Conclusion

The next 10 years will witness unprecedented labor market transformation in emerging economies. While AI offers significant productivity and GDP growth opportunities—potentially $13 trillion in additional global economic output by 2030—the employment transition will be disruptive, unequally distributed, and potentially destabilizing absent proactive intervention. India faces 16.1 million cumulative displacement, China faces 25.76 million, and Brazil faces 5.46 million. The ratio of job displacement to creation (averaging 3.42:1) vastly exceeds historical technological transitions, while emerging market infrastructure and institutional capacity to manage transition remains inadequate.[17]

Manufacturing employment will contract 6-12 percent in emerging markets by 2035, while service sector employment remains relatively stable but increasingly bifurcated between high-skill augmentation roles and rapidly shrinking routine service positions. The critical differentiator between successful and failed transitions will be the speed and scale of reskilling investment, educational system transformation, and proactive labor market policies implemented between 2025 and 2030. Countries failing to act decisively risk converting technological productivity gains into socioeconomic instability through persistent unemployment, rising inequality, and inadequate labor market adaptation.

Data Sources: [18] [11] [14] [12] [19] [20] [21] [3] [22] [23] [24] [1] [25] [26] [8] [27] [28] [29] [30] [2] [15] [9] [31] [4] [32] [10] [13] [33] [34] [35] [36] [5] [7] [37] [6] [16] [38] [39] [17]

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