



Beyond Headcount: Large Corporate Employers, Job Quality, Productivity, and Structural Transformation in Indonesia

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ABSTRACT

Large corporations occupy a distinctive position in Indonesia's labour market because they combine large-scale employment with formal organisational structures, extensive value chains, technological capabilities, and substantial regional economic footprints. Yet corporate employment is frequently assessed through employee headcount alone, obscuring important differences in job quality, productivity, skill formation, technological exposure, and developmental spillovers. This qualitative literature review synthesises recent evidence published primarily between 2020 and 2026 to examine the developmental significance of large corporate employers in Indonesia. Drawing on labour economics, firm dynamics, structural transformation, digitalisation, human-capital, and state-owned-enterprise literature, the review develops an Integrated Large-Employer Employment Framework. The synthesis identifies four interdependent dimensions – employment quantity, employment quality, productivity, and adaptability – as more informative than headcount rankings alone. Large firms can serve as anchors of formal employment and training, but their employment effects differ substantially according to sector, capital intensity, business model, ownership, geographic network, and technology adoption. Digital transformation does not produce a uniform substitution of labour; instead, it reorganises tasks, changes skill requirements, and may simultaneously eliminate routine jobs and expand complementary employment

INTRODUCTION

Indonesia's development challenge is no longer adequately described as a simple need to increase the number of people in employment. As an increasingly urbanised, digitally connected, and service-oriented emerging economy, Indonesia must simultaneously generate sufficient employment, increase labour productivity, improve job quality, expand social protection, raise workforce skills, and facilitate movement from low-productivity informal activities toward more productive formal enterprises. The coexistence of modern corporations and a very large informal economy makes the scale and nature of corporate employment particularly important to the country's development trajectory (Sen, 2024; Santoso et al., 2022; Ablaza and Perales, 2025). Recent evidence characterises Indonesia's employment structure as a "job ladder" with a relatively narrow upper tier of formal employment and a much broader lower tier of informal work, with substantial disparities in earnings and access to employment protection.

The infographic that motivates this review presents several prominent Indonesian corporations—including Astra International, Indofood Sukses Makmur, Sumber Alfaria Trijaya, Bank Rakyat Indonesia, PLN, Pertamina, and Japfa Comfeed—as major employers. In its visible portion, the graphic reports corporate workforces ranging from tens of thousands to more than one hundred thousand employees. These figures should not be interpreted as directly comparable contemporary statistics without further verification because companies may use different reporting years, consolidation boundaries, definitions of permanent and non-permanent workers, and treatment of subsidiaries. Nevertheless, the infographic raises an economically important question: **what does having a very large corporate workforce actually mean for economic development?**

A high employee count can indicate a labour-intensive business model, an extensive geographic footprint, a vertically integrated value chain, or simply the large operating scale of the organisation. It does not necessarily imply high labour productivity or superior employment quality. Conversely, companies employing fewer workers may create large economic value because production is capital-, technology-, or knowledge-intensive. The global literature on "superstar firms" illustrates that very productive large firms may capture increasing market shares while maintaining relatively low labour shares, demonstrating that firm size, employment intensity, productivity, and distributional outcomes cannot be treated as equivalent concepts (Autor et al., 2020; De Loecker et al., 2020).

This distinction is especially relevant for Indonesia because its largest employers operate in highly heterogeneous sectors. A nationwide retailer requires thousands of customer-facing employees across geographically dispersed outlets. A food producer may combine plantations, factories, distribution and administrative functions. A commercial bank may employ fewer workers relative to assets because digital channels automate transactions. Electricity and oil-and-gas enterprises operate enormous physical infrastructures but are comparatively capital intensive. A diversified conglomerate may report employment spanning manufacturing, distribution, finance, mining and

services. Comparing such organisations exclusively through headcount therefore risks confusing business-model characteristics with economic contribution.

The second problem concerns job quality. Employment contributes more to inclusive development when workers receive adequate compensation, predictable contracts, workplace protection, social insurance, training opportunities and prospects for career progression. Indonesian evidence documents persistent formal-informal wage differences, while more recent research indicates that important groups of informal employees experience lower job satisfaction than formal workers (Santoso et al., 2022; Ablaza and Perales, 2025). Comparable evidence from other developing economies similarly demonstrates substantial heterogeneity in the quality of informal and formal jobs (Conover et al., 2022). Formal corporate employment can therefore have developmental significance extending beyond the number of positions created.

Third, large employers are crucial sites of technological change. Automation, artificial intelligence, cloud computing, digital payments, enterprise resource planning, e-commerce and data analytics increasingly reorganise how corporations produce goods and deliver services. However, technology does not produce a deterministic reduction in labour. Studies show that automation can displace particular tasks while increasing output, generating complementary occupations, changing skills demanded by employers and sometimes expanding total firm employment (Acemoglu and Restrepo, 2020; Dauth et al., 2021; Koch et al., 2021; Filippi et al., 2023). Digital transformation should therefore be analysed as workforce recomposition, not simply labour destruction.

Fourth, Indonesia's employment structure cannot be separated from structural transformation and supporting infrastructure. Electricity, logistics, digital connectivity, education systems, investment regulation and urban agglomeration influence where productive firms emerge and how many workers they can employ. This institutional perspective is consistent with analyses emphasising the reform foundations needed for Indonesia's growth acceleration (Negara and Ramayandi, 2020). Kassem (2024), for example, finds that electricity-grid expansion in Indonesia increased manufacturing firms, manufacturing workers and output while encouraging firm turnover, demonstrating how infrastructure can alter the ecosystem from which large employers emerge.

The pandemic further demonstrated that employment resilience matters in addition to employment scale. COVID-19 disrupted Indonesia's labour market, increased informality and generated large employment and income shocks (Olivia et al., 2020; Sparrow et al., 2020; Temenggung et al., 2021). Subsequent research indicates that digital literacy and social skills were associated with reemployment, while e-commerce provided some employment buffering even when earnings protection was incomplete (Dartanto et al., 2023; Ridhwan et al., 2025).

Against this background, this article asks five principal questions. First, why does employment intensity vary so greatly across large Indonesian corporations and sectors? Second, what does corporate employment at scale mean for formalisation and job quality? Third, how are employment scale and

labour productivity related? Fourth, how are digitalisation and automation transforming occupational structures and skill requirements? Fifth, what corporate and public-policy strategies could enable large employers to contribute more strongly to productive and inclusive structural transformation?

The contribution of the article is to integrate bodies of literature that are usually examined separately. Rather than equating economic contribution with employment count, it proposes that large-employer performance should be interpreted through four interdependent dimensions: employment quantity, employment quality, productivity, and adaptability. This integrated perspective provides a more useful conceptual foundation for evaluating corporations whose employment footprints differ because of sector, ownership, technology and organisational architecture.

LITERATURE REVIEW

1. Firm Size, Employment Concentration and Productivity

Firm size has long occupied a central position in theories of industrial organisation and economic development because large firms can exploit scale economies, invest in sophisticated management systems, finance research and development, develop internal labour markets and coordinate complex supply chains. Yet contemporary evidence indicates increasing heterogeneity between frontier firms and the rest of the corporate population. Autor et al. (2020) associate increasing concentration with the expansion of highly productive “superstar” firms, while De Loecker et al. (2020) document rising market power and mark-ups in parts of the corporate sector. Akcigit and Ates (2021) connect declining business dynamism to weaker knowledge diffusion between frontier and lagging firms.

These findings caution against assuming that large companies necessarily create proportionally large employment. A firm can expand revenue, market share and productivity without equivalent growth in labour input. Conversely, a retailer or labour-intensive processor can sustain high employment even when value added per worker is comparatively modest. Firm employment should consequently be normalised against relevant characteristics – including output, revenue, value added, assets, outlets, geographic reach and technological intensity – before drawing conclusions about employment performance.

This distinction also matters in developing economies characterised by extensive informality. Formal firms operate alongside a very large population of informal enterprises and own-account workers. Amin and Okou (2020) show that informality may interact negatively with formal-firm productivity, while Jessen and Kluve (2021) demonstrate the difficulties involved in designing interventions capable of reducing informality. Employment growth inside productive formal firms can therefore potentially produce both direct and indirect effects by creating demand within supplier ecosystems and providing workers with routes into more protected labour arrangements.

The development literature further suggests that structural transformation depends not merely on moving workers between sectors but on reallocating labour toward activities capable of supporting sustained productivity growth. Participation in modern value chains can encourage

structural upgrading, although benefits depend on domestic capabilities, technology, institutions and linkages (Rohit, 2023). This implies that the significance of large employers should be examined according to the functions they perform within national and regional production networks.

2. Formality and Job Quality

Indonesia's labour market remains segmented. Sen (2024) distinguishes formal, upper-tier informal and lower-tier informal employment and finds that the country's job ladder remains wider at the bottom than at the top. Santoso et al. (2022) document formal-informal wage differences across cohorts, while Ablaza and Perales (2025) find that informal workers, particularly informal salaried workers in informal enterprises, display lower job satisfaction than formal workers.

The implication is that the developmental value of corporate employment cannot be measured through headcount alone. Two companies may each employ 50,000 workers yet differ substantially in permanent-contract shares, wage structures, training intensity, pension coverage, occupational safety, career pathways and gender inclusion. A meaningful employment evaluation therefore requires a multidimensional job-quality concept.

Evidence outside Indonesia reinforces this interpretation. Conover et al. (2022) find large differences in job characteristics between formal employment, informal salaried work and self-employment in Mexico, illustrating that informality itself contains heterogeneous employment relationships. Liu (2023), from another perspective, links occupation-level automation exposure to aspects of job quality. Taken together, these literatures suggest that future corporate workforce assessment should combine quantitative employment indicators with measures of security, compensation, benefits, autonomy, skill development and worker well-being.

3. Human Capital and the Quality of Employment Transitions

Human capital constitutes the bridge between employment creation and productivity. Indonesia has expanded education considerably, but matching education to labour-market requirements remains a persistent challenge. Indrawati and Kuncoro (2021) emphasise the strategic role of vocational and higher education in competitiveness and human-capital development. More recent evidence provides a nuanced assessment of vocational education.

Choi, Li and Ogawa (2023) find that vocational upper-secondary education is associated with improved access to several dimensions of decent work in Indonesia, although gender differences remain. Ariansyah et al. (2024) report that vocational graduates enter their first jobs faster and display particular forms of resilience during the pandemic, while Yoana, Auwalin and Rumayya (2024) find a lower unemployment probability among vocational graduates compared with general-secondary graduates, albeit with qualifications concerning recent graduates.

Corporate employers can therefore play a complementary role to formal education. Large firms often possess the organisational capacity to operate graduate recruitment, apprenticeships, technical academies, leadership development, digital-learning systems and internal job mobility. These

mechanisms matter because technologies alter skills faster than school curricula can always adjust.

Dartanto et al. (2023) provide particularly relevant Indonesian evidence: digital literacy and social skills were important determinants of reemployment during the COVID-19 period, although the role of skills varied across demographic and regional groups. This suggests that firms capable of continually reskilling employees may contribute to employment resilience in addition to current productivity.

4. Digital Transformation, Automation and Labour Recomposition

Digital transformation is broader than digitising existing processes. Verhoef et al. (2021) describe progression from digitisation toward more extensive digitalisation and business-model transformation, while Hanelt et al. (2021) emphasise that digital transformation involves systemic organisational change. Kraus et al. (2022) similarly portray digital transformation as a multidimensional management phenomenon rather than a stand-alone information-technology investment.

Technology influences employment through multiple channels. Automation can substitute for tasks previously performed by labour, but it can also lower costs, increase output, create new tasks and generate complementary employment. Acemoglu and Restrepo (2020) document displacement effects from robots in affected US labour markets, whereas Dauth et al. (2021) show that adjustment can involve occupational and sectoral reallocation rather than simple aggregate job destruction. Koch et al. (2021) find that robot-adopting firms can achieve productivity and output gains alongside net job creation. The broader review by Filippi, Bannò and Trento (2023) concludes that empirical findings differ substantially depending on the technology, unit of analysis and period examined.

Artificial intelligence introduces a similar tension. Acemoglu et al. (2022) find rapid growth in AI-related vacancy demand among exposed establishments while also identifying changes in non-AI hiring and skill requirements. Bankins, Hu and Yuan (2024) emphasise that AI can automate, augment and create work simultaneously, making organisational support and AI literacy increasingly important. Choi and Leigh (2024) likewise identify both creation and displacement of labour demand associated with AI diffusion.

Recent firm-level research strengthens the argument that digitalisation can complement rather than simply replace workers. Han et al. (2024) report employment expansion associated with corporate digital transformation; Li, Yang and Yin (2024) find that digital transformation is associated with upgrading workforce skill composition; and Huang (2024) reports employment-creation and human-capital upgrading channels. Bettiol et al. (2024) find productivity benefits associated with Industry 4.0 technology adoption. Cross-country evidence also shows that the employment effects of digital transformation vary with market size, industrial structure and labour-market composition, reinforcing the importance of context-specific interpretation (You et al., 2024).

The relationship between digital technology and productivity is nevertheless unlikely to be immediate. Brynjolfsson, Rock and Syverson (2021)

argue that general-purpose technologies require complementary intangible investment, producing a potential productivity “J-curve.” In practical terms, technology expenditures without organisational redesign, worker training and process innovation may not rapidly generate productivity gains. This insight is important for Indonesian employers seeking to automate processes without degrading employment quality.

Remote-work feasibility also differs sharply between occupations. Dingel and Neiman (2020) demonstrate substantial occupational differences in the feasibility of working from home, and Barrero, Bloom and Davis (2023) document the persistence of remote and hybrid work arrangements. These patterns highlight another reason why sectoral comparisons based solely on employee totals are incomplete: banking, corporate services and digital occupations possess different locational and organisational possibilities from manufacturing, plantation, retail and infrastructure work.

5. Digitalisation and Firm Development in Indonesia

Indonesia-specific research provides evidence that digitalisation can support enterprise performance but that its labour-market consequences remain heterogeneous. Falentina et al. (2021) find performance benefits associated with internet use among micro and small enterprises in Yogyakarta. Trinugroho et al. (2022) show that adoption of digital technologies among Indonesian micro and small businesses varies according to firm and owner characteristics. These findings indicate that digital transformation occurs unevenly across the enterprise population.

Digital connectivity does not automatically produce better labour-market outcomes. Kusumawardhani et al. (2023) find that internet availability has heterogeneous effects on women’s labour-market outcomes in Indonesia and that some internet-enabled employment expansion remained concentrated in lower-skilled or informal work. Thus, digitalisation should be evaluated according to the quality as well as the number of opportunities it generates.

6. Infrastructure, Regulation and Firm Productivity

Large employers do not operate independently of the institutional and infrastructural environment. Kassem (2024) provides causal evidence that grid expansion in Indonesia increased manufacturing activity, employment and firm turnover. This is especially important conceptually because it shows that infrastructure does more than increase production at existing firms: it can change market entry and competitive selection.

Investment regulation also influences firm capabilities. Genthner and Kis-Katos (2022) find that tighter restrictions on foreign investment reduced productivity among affected Indonesian manufacturing firms despite compensating domestic capital. Matsuura and Saito (2023) demonstrate that foreign direct investment can influence skilled labour demand among Indonesian manufacturers. Gupta (2023) shows that trade-policy instruments such as tariffs and non-tariff measures can have heterogeneous implications for firm productivity. More recent Indonesia-specific evidence finds that tighter manufacturing FDI restrictions generated local employment gains through firm

entry, value-chain reorganisation and other spillovers, but did not produce corresponding local welfare gains (Gehrke et al., 2025).

The Indonesian minimum-wage literature further illustrates the trade-offs confronting firms and policymakers. Ni and Kurita (2020) find associations among provincial minimum-wage increases, firm employment, productivity, exporting and mark-ups, demonstrating why wage regulation should be analysed jointly with firm adjustment rather than only through workers' nominal earnings.

7. Structural Transformation and Sectoral Employment

Indonesia's transformation has involved declining relative dependence on agriculture alongside expansion in services, urban activity and modern industry, but employment transitions remain incomplete. Otsuka (2021) stresses the need for productivity-enhancing agricultural transformation, including mechanisation and farm restructuring. Halimatussadiah et al. (2022) show that agriculture played an important employment and stabilisation role during the pandemic. Urban development, meanwhile, increasingly shapes productivity and employment geography (Yudhistira, Brodjonegoro and Qibthiyyah, 2024).

The consequence is that employment policy cannot simply maximise employment within each incumbent sector. Labour-saving technologies in low-productivity activities can be development-enhancing when workers are absorbed into more productive occupations elsewhere. The central challenge is therefore to build sufficient productive firms and labour-market institutions to make such reallocation possible.

8. Ownership and State-Owned Enterprises

The presence of PLN, Pertamina and BRI in the motivating infographic illustrates the importance of state ownership within Indonesia's corporate employment landscape. State-owned enterprises differ from purely private corporations because they may combine profitability objectives with infrastructure, development, financial inclusion and public-service mandates.

Empirical studies of Indonesian SOEs underscore this multidimensional governance challenge. Apriyantopo, Aprianingsih and Kitri (2023) find that strategic orientation and structural factors influence SOE performance. Rasyid et al. (2023) examine privatisation and changes in SOE performance, while Sulastris, Isnurhadi and Muizuddin (2024) assess the relationship between stakeholder value and performance. More recent qualitative work also emphasises governance arrangements in Indonesian SOEs (Jahja, Mohammed and Lokman, 2026). Evidence from Indonesian SOEs additionally indicates that authentic leadership and psychological empowerment can support innovative work behaviour, highlighting the workforce dimension of organisational transformation (Indrayanti, Ulfia and Hidayat, 2025).

For employment analysis, the key implication is that SOE headcount cannot always be interpreted using the same optimisation logic applied to private firms. Workforce decisions may partly reflect network coverage, universal-service obligations, national strategic functions and historical organisational structures.

METHODOLOGY

1. Research Design

This study adopts a **qualitative literature review (QLR)** rather than a systematic literature review. The distinction is deliberate. The objective is not to identify every publication meeting a predetermined search algorithm, calculate pooled effect sizes, or generate a PRISMA-based evidence inventory. Instead, the review integrates conceptually relevant evidence from multiple literatures in order to construct an explanatory framework for understanding large corporate employment in Indonesia.

QLR is appropriate because the research problem crosses several disciplinary domains: labour economics, development economics, industrial organisation, human-resource development, digital transformation, technology and employment, infrastructure economics and SOE governance. A narrowly defined systematic query could exclude theoretically important contributions located outside a single keyword family.

2. Literature Identification

Peer-reviewed journal literature published primarily from **2020 through 2026** formed the principal evidence base. Literature identification was purposive and iterative. Search concepts included combinations of *Indonesia, employment, large firms, formal employment, informality, job quality, labour productivity, firm productivity, digitalisation, automation, artificial intelligence, vocational education, human capital, manufacturing, state-owned enterprises, structural transformation and labour-market resilience*.

Priority was given to articles indexed in major international databases and published by established academic publishers. Indonesia-specific studies were prioritised whenever available, while high-quality international research was incorporated when necessary to establish general theoretical mechanisms.

The resulting synthesis draws on more than 50 peer-reviewed journal articles, all of which appear in the reference list because they are substantively cited in the manuscript. Government statistics, corporate annual reports and international-organisation reports can supplement a subsequent empirical version of the article but are intentionally separated from the journal-reference count.

3. Analytical Procedure

The literature was interpreted through thematic coding rather than statistical meta-analysis. Seven principal coding domains were applied: **(1) firm scale and employment intensity; (2) employment formality and job quality; (3) productivity and firm dynamics; (4) human capital and skills; (5) digitalisation and automation; (6) ownership and governance; and (7) resilience and structural transformation**.

Themes were subsequently synthesised using cross-theme comparison. Particular attention was paid to apparently contradictory findings – for example, research showing technological displacement versus studies finding employment expansion following automation. Rather than treating such findings as mutually exclusive, the synthesis examines conditions explaining

heterogeneity, including sector, technology, workforce skill, firm size, market expansion and organisational adaptation.

4. Treatment of the Initial Infographic

The supplied infographic serves as **motivating material**, not as a standardised firm-level dataset. Employee figures depicted in corporate infographics may differ in year, scope and consolidation method. A company may report parent-company employees, consolidated group employees, permanent workers, total workers or combinations involving subsidiaries. Consequently, no causal or performance inference in this paper depends on the numerical ranking shown in the image.

A future quantitative extension should reconstruct harmonised employment data directly from annual reports and explicitly document reporting definitions. That extension could calculate indicators such as revenue per worker, value added per employee, assets per employee, employment growth, training expenditure per employee and workforce composition.

RESULTS

1. Large Employers Represent Distinct Employment Archetypes

The first major finding is that large Indonesian employers should not be treated as a homogeneous analytical category. Four broad archetypes emerge from the literature and the sectoral characteristics represented in the motivating material.

The first is the **distributed labour-intensive network**. Modern retailers are a prominent example. Employment expands with store networks, logistics centres, merchandising operations and local customer service. Geographic expansion is therefore closely connected to workforce expansion.

The second archetype is the **vertically integrated production and distribution corporation**. Food, agribusiness and diversified manufacturing groups may employ workers across plantations or sourcing systems, manufacturing facilities, warehousing, transport, distribution, administration and sales. Large employment arises partly because activities that might be outsourced elsewhere remain within the corporate group.

The third is the **skill-intensive service network**, typified by banking and finance. Such organisations historically require extensive branch employment but increasingly substitute digital transactions for routine branch activities while expanding cybersecurity, data science, technology, compliance and relationship-management occupations.

The fourth is the **capital-intensive infrastructure enterprise**, illustrated by electricity and oil-and-gas corporations. These organisations can manage enormous capital stocks and national networks with fewer employees per unit of asset value because generation plants, transmission systems, pipelines, refineries and digital control systems embody substantial capital intensity.

Figure 1 summarises the sectoral logic underlying differences in corporate employment intensity. The purpose is not to rank sectors, but to demonstrate that headcount reflects the technological and organisational architecture through which output is delivered.



Figure 1. Sectoral Archetypes of Large Corporate Employers

Figure 1 highlights why a league table of corporate headcount is economically incomplete. A retailer may employ more workers because service delivery is geographically distributed; an energy firm may create substantial economic value and indirect employment while directly employing fewer people because physical capital intensity is high. Headcount should therefore be interpreted against sector-specific technological and organisational requirements.

2. Large Corporations Can Function as Formal-Employment Anchors

The second theme concerns formalisation. Indonesia's narrow upper employment ladder means that formal corporate positions can play an outsized role in connecting workers to predictable wages, legal employment relationships, social protection and structured career systems. Sen's (2024) analysis of labour-market tiers and Santoso et al.'s (2022) wage-gap evidence reinforce the importance of formal status, while Ablaza and Perales (2025) add a worker-welfare perspective through job satisfaction.

Large firms have organisational advantages in this respect. They are more capable of operating standardised payroll systems, compliance departments, formal performance-management processes, occupational-health systems, training programmes and employee-benefit arrangements than micro informal enterprises. Their impact can also extend indirectly through supplier codes, franchise systems, logistics contracts and procurement requirements.

However, formal corporate status should not automatically be equated with high-quality employment. Outsourcing, temporary contracts, limited worker mobility, excessive work intensity or stagnant wages can occur within large organisations. Job quality must therefore be measured directly rather than inferred from corporate size.

The distinction between **direct** and **indirect** employment is also crucial. A corporation may reduce direct headcount by outsourcing security, logistics, cleaning, information technology or distribution while supporting substantial contractor employment. A simple employee count could interpret this as declining employment intensity even if the wider employment ecosystem remains large. Future corporate employment reporting would benefit from distinguishing direct employees, contracted workers and major value-chain employment.

3. Employment Quantity and Labour Productivity Are Related but Distinct

The literature strongly rejects an assumption that a firm employing more workers necessarily contributes more to productivity. Productivity represents output or value added relative to inputs, whereas employment measures labour quantity. The two can move together, separately or in opposite directions.

Indonesian manufacturing studies illustrate several channels through which productivity may change without proportional employment change. Minimum-wage adjustment can alter employment, exporting and firm behaviour (Ni and Kurita, 2020). FDI restrictions can affect technological and managerial resources and therefore productivity (Genthner and Kis-Katos, 2022). Access to foreign investment can alter skilled labour demand (Matsuura and Saito, 2023), while trade-policy exposure can affect firm-level productivity heterogeneously (Gupta, 2023).

Infrastructure creates another mechanism. Kassem's (2024) evidence shows that electrification expanded both manufacturing activity and employment while increasing firm entry and exit. The development effect therefore emerged not only through expansion of incumbent employers but through competitive firm dynamics.

Consequently, employment policy should not seek to maximise labour intensity indiscriminately. Artificially preserving low-productivity labour-intensive production may inhibit long-run wage growth. Conversely, productivity strategies that disregard workers may increase output without generating inclusive economic opportunities. The appropriate objective is **productive employment**: jobs capable of generating sufficient value added to support rising real compensation while enabling firms to remain competitive.

This relationship is represented in **Figure 2**, which treats employment quantity, quality and productivity as separate but interacting dimensions. Adaptability is added because the sustainability of employment increasingly depends on whether firms and workers can respond to technological and economic change.



Figure 2. The Employment Quantity-Quality-Productivity-Adaptability Nexus

The figure emphasises that high performance requires balance. Employment expansion without productivity can become economically fragile; productivity without employment opportunity can weaken inclusion; formal jobs without adaptability may be vulnerable to technological disruption. Sustainable large-employer contribution therefore depends on simultaneous progress across all four dimensions.

4. Human Capital Is the Connecting Mechanism

The reviewed evidence identifies skills as one of the strongest bridges between employment quantity and productivity. Indonesia's challenge is not simply educational attainment, but whether qualifications translate into capabilities demanded by changing firms.

Indrawati and Kuncoro (2021) emphasise education and training as central to competitiveness. Choi et al. (2023), Ariansyah et al. (2024) and Yoana et al. (2024) demonstrate that vocational education influences employment access, resilience and elements of decent work, although benefits are not uniform across groups. These studies collectively imply that closer coordination between employers, vocational schools, universities and professional training organisations is necessary.

Large corporations can address part of the skills mismatch internally. Their scale allows them to spread fixed training costs across large workforces. They can establish occupational standards, develop competency certification, collaborate with schools, rotate workers across functions and create internal promotion pathways. This capability makes large firms potentially important institutions of post-school human-capital formation.

However, employer training will be most effective when it develops transferable rather than excessively company-specific skills. A resilient national labour market requires workers whose competencies remain valuable when industries restructure or employers contract. Evidence on displaced workers shows that post-displacement skill mismatch can generate persistent earnings losses, further underscoring the importance of transferable and adaptable capabilities (Neffke, Nedelkoska and Wiederhold, 2024).

Dartanto et al. (2023) provide evidence supporting this broader capability perspective: digital literacy and social skills were significant correlates of reemployment during pandemic disruption. Large-employer workforce development should consequently combine technical competencies with analytical, digital, communication and adaptive capabilities.

5. Digitalisation Produces Workforce Recomposition

A central result of the review is that digitalisation should not be reduced to a “technology versus jobs” narrative. The empirical literature instead points to simultaneous substitution, augmentation, scale expansion and skill upgrading. Routine tasks are especially susceptible to automation. Banking provides an intuitive example: mobile transactions can reduce demand for repetitive counter services while increasing requirements for software engineers, cybersecurity specialists, data analysts, digital-product managers and complex customer advisory roles. Manufacturing automation can reduce particular production tasks while creating demand for maintenance, programming, integration and process-management skills.

Acemoglu et al. (2022) find that establishments adopting AI adjust non-AI recruitment and required skills. Bankins et al. (2024) describe AI as simultaneously automating and complementing work. Research on enterprise digital transformation similarly finds employment expansion and workforce upgrading effects under some conditions (Han et al., 2024; Li et al., 2024; Huang, 2024). Recent manufacturing evidence further indicates that digital transformation can simultaneously substitute operational labour and increase demand for skilled and service employees through productivity, financing and business-scope channels (Qin et al., 2024).

The effect also depends on complementary investment. Brynjolfsson et al. (2021) show that general-purpose technologies may require substantial intangible investment before productivity gains become evident. Firms therefore need to redesign processes, retrain workers, change organisational structures and develop appropriate management capabilities.

Indonesian research on smaller enterprises reveals a similar complementarity. Falentina et al. (2021) associate digitalisation with improved micro- and small-enterprise performance, while Trinugroho et al. (2022) document heterogeneity in technology adoption. Digital technology alone is insufficient when workers lack complementary capabilities.

Figure 3 depicts the workforce-recomposition mechanism that emerges from this literature. Rather than assuming a direct progression from technology to unemployment, the model separates substitution, augmentation, scale and new-task channels.

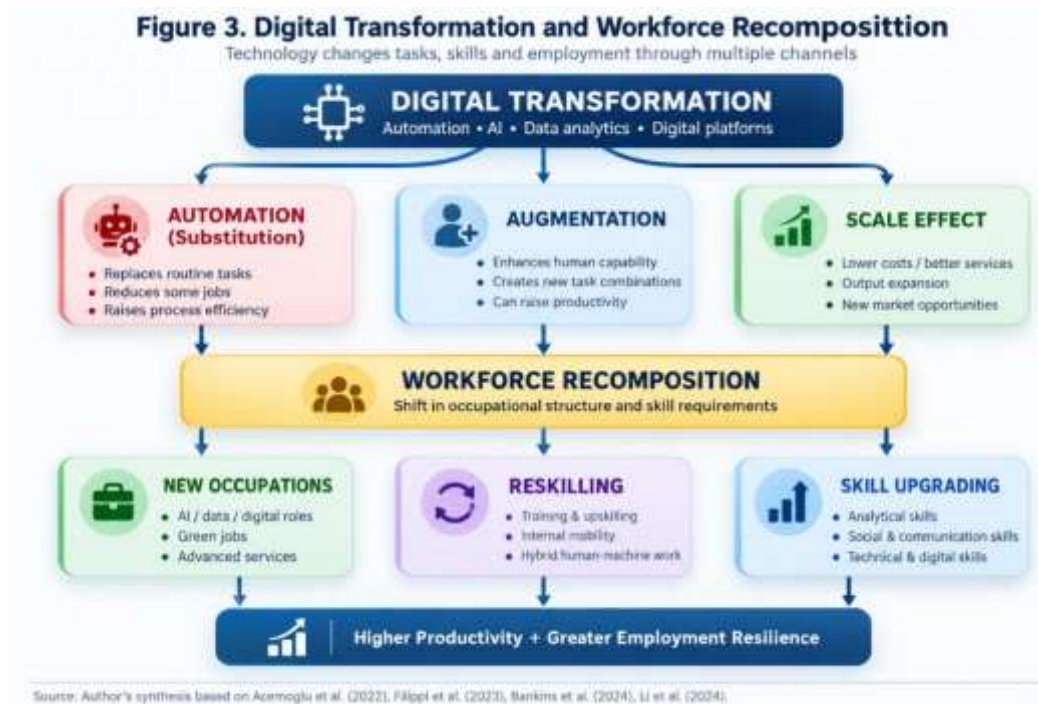


Figure 3. Digital Transformation and Workforce Recomposition

The practical implication is that a fall in a particular occupational category cannot automatically be labelled a net employment failure. The relevant questions are whether displaced workers move into new roles, whether total corporate and value-chain employment expands, whether productivity gains support higher wages, and whether employees have access to retraining.

6. Employment Resilience Became More Visible During the Pandemic

COVID-19 exposed substantial differences in workers' ability to retain employment and earnings. Indonesian research documents the pandemic's macroeconomic and labour-market consequences (Olivia et al., 2020; Sparrow et al., 2020), while Suryahadi, Al Izzati and Suryadarma (2020) show how the shock threatened to increase poverty. Temenggung et al. (2021) describe labour-market adjustment including increased informality, and Suryahadi, Al Izzati and Yumna (2021) assess the role of social protection during the crisis.

Corporate balance sheets also mattered. Siregar, Gunawan and Saputro (2021) show how the pandemic affected vulnerabilities across Indonesia's banking and corporate sectors, while Anas et al. (2022) analyse the subsequent economy under turbulent international conditions.

Different sectors exhibited different resilience mechanisms. Agriculture absorbed labour during the crisis and helped stabilise economic activity (Halimatussadiyah et al., 2022). Online economic activities expanded, although digital work often raised questions about employment security. Octavia (2022) documents how informal workers accessed work through digital networks during the pandemic. Complementary firm-level evidence shows that pandemic-induced digital investment was associated with greater employer-sponsored training and improved retention of regular workers, illustrating how digital

capability can strengthen workforce resilience during shocks (Gathmann et al., 2024).

Ridhwan et al. (2025) find that e-commerce acted partly as an employment buffer even though it did not fully offset negative earnings effects. This finding is significant because it shows that resilience must again be evaluated using multiple dimensions: preservation of employment alone does not guarantee preservation of income or job quality.

7. Corporate Employment and Inclusive Development Are Not Automatic

The review finds that employment expansion can have uneven distributional effects. Gender provides one example. Kusumawardhani et al. (2023) show that improved internet access did not automatically translate into substantially better female labour-market outcomes; some new opportunities remained informal or lower skilled.

Vocational education also produces gender-differentiated outcomes. Choi et al. (2023) find that benefits associated with vocational schooling vary by employment dimension and gender. These findings indicate that companies seeking inclusive employment cannot rely solely on overall hiring numbers. Recruitment, occupational segregation, promotion pathways, family-compatible work practices and equal access to training must also be considered.

Geography represents another dimension. Large retail, banking, telecommunications, logistics and infrastructure networks can distribute employment beyond the largest metropolitan centres. Urban agglomeration nevertheless remains important for productivity and specialised services, and Indonesia's urban potential depends heavily on connectivity and institutional quality (Yudhistira et al., 2024). Large corporations can therefore contribute to spatial inclusion when their supply chains and employment systems connect secondary cities and regions to national markets.

8. Ownership Influences Employment Objectives

The evidence also supports distinguishing state-owned from privately controlled corporations. Private firms generally face strong incentives to align workforce structures with profitability and competitive positioning. SOEs operate under these pressures but may also have explicit or implicit policy functions.

Apriyantopo et al. (2023) demonstrate that strategic orientation, ownership and other structural factors influence Indonesian SOE performance. Rasyid et al. (2023) find changes in aspects of performance associated with privatisation, while Sulastris et al. (2024) show that different stakeholder-value dimensions have heterogeneous relationships with SOE outcomes. Jahja et al. (2026) further emphasise governance issues surrounding Indonesian SOEs.

Thus, direct comparison of employee-per-revenue ratios between an SOE electricity utility and a private manufacturer may produce misleading conclusions unless the analysis recognises universal-service requirements, infrastructure maintenance, geographic obligations and public mandates. Employment-efficiency assessments should therefore separate commercial functions from public-service obligations and strategic national mandates.

DISCUSSION

1. Why Headcount Is an Inadequate Measure of Corporate Employment Contribution

The central conclusion emerging from the reviewed literature is straightforward: headcount is a useful descriptive variable but a poor stand-alone measure of employment contribution. A multidimensional framework is therefore required to distinguish employment scale from the quality, productivity and sustainability of the jobs created.

Suppose Corporation A employs 100,000 people and Corporation B employs 40,000. Without additional evidence, one cannot conclude that Corporation A makes the larger developmental contribution. Corporation B may pay higher wages, generate more value added per worker, finance more training, create more indirect employment, provide broader social protection or operate in an industry that enables productivity across the rest of the economy. Conversely, Corporation A may be especially valuable because its distributed workforce provides formal jobs to workers with secondary education across hundreds of locations.

The meaningful comparison is therefore multidimensional. Employment scale addresses **how many** people work within an enterprise. Job quality addresses **what kind of jobs** they have. Productivity addresses **how much value workers and capital jointly generate**. Adaptability addresses **whether those jobs and capabilities can survive technological and economic change**.

This framework reconciles apparently contradictory policy objectives. Governments often want both employment creation and productivity growth, yet productivity can sometimes reduce labour requirements per unit of output. The apparent contradiction disappears once dynamic effects are considered. Productivity raises competitiveness, enables output expansion and supports wage growth; if demand and complementary sectors expand sufficiently, total employment can also increase.

Technology provides a clear illustration. Acemoglu and Restrepo (2020) identify displacement effects from robot exposure, whereas Koch et al. (2021) find productivity gains and net job creation among robot-adopting firms. These results need not be inconsistent because the unit of analysis, market-expansion effects and technology adoption patterns differ. Filippi et al. (2023) explicitly find substantial heterogeneity across the automation literature.

Consequently, corporate employment evaluation should avoid both technologically pessimistic and technologically deterministic interpretations. The relevant issue is **how productivity gains are distributed and whether labour has access to complementary opportunities**.

2. Large Employers as Institutions of Formalisation

A second major interpretation is that large employers should be viewed as labour-market institutions rather than merely production units. Formal corporations establish wage structures, occupational hierarchies, performance criteria, workplace norms and training systems. When these organisations employ tens of thousands of workers, their internal employment practices can influence broader labour-market standards.

This role is especially important in Indonesia because the formal employment ladder remains relatively narrow (Sen, 2024). Large firms can provide workers with identifiable career ladders that are difficult to reproduce in fragmented informal employment. Even relatively entry-level corporate jobs may provide standardised training, social-security registration, documented work experience and pathways into supervisory roles.

Nevertheless, formalisation should not become a binary indicator used to conceal differences within formal work. The findings of Choi et al. (2023) show that even regular wage employment may not satisfy all dimensions of decent work. Employment policy must therefore progress from a simple formal/informal dichotomy toward a continuum incorporating wages, benefits, security, working time, training and mobility.

A future Indonesian corporate-employment index could consequently contain at least eight indicators: total direct employment; percentage of permanent workers; median compensation; social-insurance coverage; annual training hours; internal promotion rate; gender composition by occupational level; and employment growth relative to output growth. These indicators would make cross-company comparison more transparent and reduce the risk of treating payroll size as a proxy for development impact.

3. The Productivity-Employment Balance

Indonesia's long-run prosperity depends on productivity because sustained real-wage growth cannot be separated indefinitely from value creation per worker. Yet productivity policy that ignores employment transition can impose concentrated adjustment costs.

The agricultural literature illustrates the issue. Otsuka (2021) argues for productivity-enhancing transformation including mechanisation. Mechanisation can reduce labour requirements in particular agricultural activities, but development gains depend on whether workers move toward more productive non-farm employment. If modern corporations fail to expand sufficiently, displaced labour may simply move from agriculture into low-productivity informal services.

Large corporate employers therefore matter partly because they can absorb workers into more productive organisational environments. This does not imply that all employment must occur inside large firms. Their procurement systems, distribution networks, logistics requirements, franchises and supplier relationships can generate employment among smaller enterprises.

The policy objective should therefore be viewed as employment ecosystem development, not corporate payroll maximisation. This wider lens captures direct, indirect and induced employment effects across the firm's value chain and local economy.

Figure 4 presents this ecosystem logic by illustrating how a large corporation can generate employment through direct operations and through linkages extending across suppliers, distributors and local service providers. It distinguishes direct payroll effects from indirect and induced effects that propagate through value chains and local demand.



Figure 4. Large-Employer Employment Ecosystem

The figure also demonstrates why employment accounting must distinguish direct corporate employment from wider employment supported by the business ecosystem. A corporation that outsources logistics may report fewer employees without necessarily reducing employment throughout its value chain.

4. Digital Transformation Should Be Managed as a Labour Transition

Digitalisation creates a critical managerial responsibility for large employers. Because they possess capital, organisational capability and scale, large corporations are often among the earliest adopters of automation and AI. Their workforce policies can therefore influence the speed and social consequences of labour-market adjustment.

The appropriate approach is neither to prevent automation nor to assume that markets will painlessly relocate displaced workers. Instead, firms should establish **transition architecture** before implementing large-scale automation. This architecture should include occupational exposure mapping, skill inventories, retraining pathways, internal vacancy matching and transition support.

Brynjolfsson et al. (2021) suggest that complementary intangible investment is essential for obtaining returns from advanced technologies. Human-capital investment should be understood as part of this complementarity rather than as a separate social expenditure.

Research finding digitalisation-related labour upgrading (Li et al., 2024) reinforces this logic. When technology raises demand for educated and skilled workers, firms face a choice: continuously replace incumbent workers through external recruitment or retrain part of the existing workforce. The latter can reduce adjustment costs and preserve valuable firm-specific knowledge.

Large employers can institutionalise this approach through corporate academies, microcredentials, partnerships with universities and vocational institutions, apprenticeships, mentoring and digital-learning platforms. Since Dartanto et al. (2023) show that social and digital capabilities matter for labour-market resilience, programmes should cover interpersonal and adaptive skills alongside technical competencies.

5. Business Models Explain Much of the Difference Between Large Employers

The sectoral diversity visible in the motivating infographic reinforces a key analytical point: corporate headcount is heavily determined by the organisation's production function. Sector-specific benchmarks are therefore more informative than a single cross-industry employment ratio.

Modern retail depends on store-level staffing and last-mile operational presence. Food and agribusiness can incorporate labour-intensive upstream and distribution activities. Banking can increasingly migrate customer interaction toward digital infrastructure. Power utilities require engineers and maintenance personnel but employ extensive physical capital. Oil and gas operations are similarly capital intensive. Diversified conglomerates aggregate multiple employment models into consolidated headcount.

This heterogeneity suggests that cross-company ranking should use a dashboard rather than one variable. Relevant ratios include employees per trillion rupiah of revenue, employees per unit of value added, labour cost share, value added per employee, training intensity and employment growth. For retailers, employees per store or sales per worker may be informative. For utilities, employees per customer connection or infrastructure unit may be more appropriate. For banking, employees relative to customers, assets and transaction volumes can provide insight.

The objective is not to identify a single universally "best" employer. Different ratios capture different economic functions.

6. Large Employers and Indonesia's Structural Transformation

Corporate employment is also connected to structural transformation through sectoral and geographic reallocation. Infrastructure expansion can create new areas of economic activity, as illustrated by Kassem's (2024) evidence on electrification and manufacturing. Urban development can increase agglomeration benefits and deepen labour markets (Yudhistira et al., 2024).

Large corporations can accelerate transformation in at least four ways. First, they can introduce production standards and technology that increase productivity. Second, they can provide large-scale demand for trained labour. Third, they can integrate domestic suppliers into structured value chains. Fourth, they can diffuse management practices and skills through employee mobility and supplier development.

However, concentration risks must also be considered. The superstar-firm literature shows that productive large firms can capture growing market shares, and increasing market power can alter distributional outcomes (Autor et al., 2020; De Loecker et al., 2020). Industrial policy should therefore support productive scale without weakening competition, supplier development or business dynamism.

Akcigit and Ates (2021) highlight the importance of knowledge diffusion for business dynamism. In the Indonesian context, this suggests that large firms should ideally generate productivity spillovers rather than operate as isolated corporate enclaves.

7. SOEs Require a Dual Employment-Performance Lens

Large Indonesian SOEs require particularly careful evaluation because financial efficiency and public objectives may coexist. A power utility may maintain workers and facilities in lower-density areas because universal service requires national coverage. A state bank may maintain branches or service channels partly to promote financial inclusion. An energy enterprise may undertake strategic activities that private firms would evaluate differently. This does not mean employment efficiency should be ignored. Rather, SOEs should report their workforce performance in a way that separates **commercial activities, public-service obligations and strategic national functions**.

Such transparency would improve debate over whether high employee counts reflect necessary public-service capacity, historical organisational structures, or genuine inefficiency. Research on Indonesian SOEs consistently demonstrates the relevance of governance, ownership and strategic design to organisational outcomes (Apriyantopo et al., 2023; Rasyid et al., 2023; Sulastri et al., 2024; Jahja et al., 2026).

8. Resilience Should Become an Explicit Corporate Employment Metric

The pandemic revealed that stable employment during normal periods is not sufficient evidence of resilience. Companies differ in their capacity to maintain employment during demand shocks, reorganise production, move activities online and redeploy workers.

Dingel and Neiman (2020) demonstrate large occupational differences in work-from-home feasibility, while the subsequent persistence of remote and hybrid practices suggests lasting organisational change (Barrero et al., 2023). Firms concentrated in location-dependent activities such as retail, logistics, production, plantations or infrastructure face different resilience constraints from professional and digital-service businesses.

Employment resilience should therefore be assessed using indicators such as workforce retention during shocks, internal redeployment, training participation, digital-work capability and recovery speed. Together, these measures capture whether firms can preserve productive work while adapting their organisational and technological systems.

Indonesia's pandemic experience also indicates that public policy and corporate resilience are complementary. Social protection mitigates income losses when firms cannot preserve all employment (Suryahadi et al., 2021), while firm solvency and banking-system stability influence whether temporary shocks become permanent employment losses (Siregar et al., 2021).

9. An Integrated Large-Employer Employment Framework

The synthesis developed here can be consolidated into an **Integrated Large-Employer Employment Framework (ILEEF)**. The framework begins from the premise that firms operate within contextual conditions—including labour-market institutions, infrastructure, education, digital connectivity and

regulation. Corporate characteristics then determine employment mechanisms. Those mechanisms generate employment outcomes, which in turn influence broader development.

The complete analytical model is illustrated in **Figure 5**. The model provides a framework for future empirical comparison of large Indonesian employers while avoiding simplistic interpretation of headcount.



Figure 5. Integrated Large-Employer Employment Framework (Ileef)

ILEEF highlights two feedback processes. First, successful employment and productivity outcomes strengthen firm competitiveness and can enable further expansion. Second, workforce skills and supplier capabilities generated by large firms can improve the wider business environment, enabling new enterprise formation and structural transformation.

6. Implications

A. Implications for Corporate Management

The first managerial recommendation is to replace simple workforce-size reporting with a **workforce value dashboard**. Such a dashboard should combine employment quantity, productivity, job quality and skill development.

Second, companies implementing digital transformation should conduct formal workforce-impact assessments. Digital investment proposals should specify not only expected cost reductions but also occupations affected, tasks automated, new capabilities required, internal redeployment possibilities and training budgets.

Third, workforce development should be treated as productive investment. Evidence on digital transformation indicates that technologies

generate greater returns when accompanied by complementary organisational and human-capital capabilities (Brynjolfsson et al., 2021; Hanelt et al., 2021).

Fourth, large corporations should strengthen supplier-development programmes. If leading firms can diffuse standards, management systems and digital capabilities across suppliers, the employment benefits of corporate scale extend beyond direct payroll.

Fifth, corporate boards should monitor workforce resilience. Stress testing should ask whether critical operations can continue under major disruptions and whether workers can move across occupations or locations when particular business units contract.

B. Implications for Labour and Industrial Policy

For policymakers, the primary implication is that job-creation targets should increasingly distinguish between any employment and productive formal employment. This distinction helps align employment policy with long-run productivity, earnings and resilience objectives.

Fiscal incentives for investment could place greater weight on combinations of productivity, worker training, formalisation and sustainable employment rather than gross headcount alone. A highly labour-intensive but low-productivity investment may generate short-term employment without creating sustainable wage growth.

Education-industry coordination is equally important. The mixed but generally meaningful findings on vocational education suggest that programmes should respond dynamically to actual occupational demand rather than relying on static curricula (Choi et al., 2023; Ariansyah et al., 2024; Yoana et al., 2024).

Digital transition policy should include reskilling. Automation and AI policy cannot be separated from labour policy because displaced and augmented tasks occur within the same organisations. Public support for training can reduce adjustment costs when skills have broader social benefits that individual firms may underinvest in.

Competition policy is also relevant. Productivity-enhancing corporate scale can benefit development, but excessive market concentration may weaken business dynamism and the diffusion of gains. Policy should therefore combine support for productive firms with competitive entry, supplier development and knowledge diffusion.

C. Measurement Agenda

A stronger evidence base would require harmonised company-level indicators. At minimum, annual corporate reporting should identify total consolidated employment and the reporting boundary, distinguish permanent, non-permanent and contracted workers, and report gender composition by management level. It should also disclose average and median compensation, training expenditure and training hours, occupational composition, turnover and retention, social-protection coverage, and employment growth relative to revenue and value-added growth. Reporting these measures in a consistent time series would make it possible to evaluate job quantity, job quality and productivity together rather than relying on one-year headcount rankings.

Such harmonised data would permit more meaningful longitudinal research than one-year rankings. A particularly useful measure would be value added per employee, accompanied by employment growth. Companies could then be categorised according to whether both productivity and employment are rising, productivity is rising while employment contracts, employment expands without productivity improvement, or both dimensions deteriorate.

4. Limitations and Directions for Future Research

This review is qualitative and conceptually integrative; it is not designed to provide exhaustive coverage or meta-analytic estimates. The use of heterogeneous studies across sectors and countries limits direct causal generalisation, and the motivating infographic cannot support firm-level comparisons because reporting years, consolidation boundaries and workforce definitions are not harmonised.

Future research should construct longitudinal firm-level datasets from audited annual reports, harmonise direct and contracted employment definitions, and combine workforce measures with revenue, value added, wages, training and productivity indicators. Such work could test whether the ILEEF relationships hold across ownership types and sectors and could examine how digital adoption changes employment composition over time.

CONCLUSIONS AND RECOMMENDATIONS

The existence of Indonesian corporations employing tens of thousands of workers deserves analytical attention because large firms occupy a critical position between individual workers, markets, technology and national development. Yet the central finding of this review is that **employment scale should be treated as the beginning of analysis rather than the conclusion**.

Large employers differ fundamentally according to their sectors, production technologies, ownership, capital intensity, geographic networks and value-chain structures. A retailer, bank, agrifood group, manufacturing conglomerate, electricity utility and energy company cannot be meaningfully compared by headcount alone.

The article therefore proposes four dimensions for evaluating large-employer contribution: **employment quantity, employment quality, productivity and adaptability**. Quantity captures the scale of labour absorption. Quality captures wages, employment security, benefits, training and career opportunities. Productivity captures whether employment generates sufficient economic value to support sustained competitiveness and wage growth. Adaptability captures whether workers and organisations can respond to technological and economic disruption.

Digital transformation makes this framework increasingly important. Automation and artificial intelligence may eliminate particular tasks, but contemporary evidence does not support a universal one-directional relationship between technology and employment. Technology can simultaneously substitute labour, complement workers, create occupations, expand output and increase demand for advanced skills. The policy challenge is therefore to manage transition rather than resist technological change.

For Indonesia, large corporations can play a particularly important role as anchors of formal employment, vocational skill formation, supplier development and regional economic integration. Their developmental contribution is greatest when productivity improvement is translated into better jobs, transferable skills, resilient workforces and wider economic linkages.

The appropriate national ambition is consequently not to maximise corporate headcount. It is to build a labour market in which firms of different sizes generate **more productive, better protected, more inclusive and more adaptable employment**, while enabling workers to move progressively upward through Indonesia's economic job ladder.

FURTHER STUDY

This research still has limitations, so further studies on the topic Beyond Headcount: Large Corporate Employers, Job Quality, Productivity, and Structural Transformation are needed to improve this research and add insights for the writer and readers.

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