

## Exploring education and labor market outcomes: insights from diverse global contexts

**Genalie Albarico\***

Cebu Technological University - Barili Campus  
Cagay Barili Cebu  
Email: genalie13@gmail.com

**Regina P. Galigao**

Cebu Technological University-Main Campus  
Corner M.J. Cuenco Avenue and R. Palma Street  
Cebu City, Philippines  
Email: reginpgaligao@gmail.com

**Abstract:** This study investigates the relationship between education and labor market outcomes across various countries, focusing on the ways educational systems shape employment opportunities, job quality, and income levels. Through the analysis of educational factors such as attainment levels, institutional types, training participation, and certifications, the research examines how disparities in access to quality education contribute to unequal labor market participation, particularly among marginalized populations. It also highlights successful strategies from different nations that align education with workforce demands to promote economic equity and growth. The findings reveal that higher educational attainment is strongly associated with better employment prospects, reduced unemployment, and higher income, as evidenced in Germany's robust vocational training programs and Kenya's efforts to improve opportunities for women. However, persistent gaps in educational access and quality, particularly in rural areas and underserved communities, continue to limit equitable labor market outcomes, as seen in countries like Nigeria and Mexico. Programs such as Germany's dual education system and certifications provided by TESDA in the Philippines demonstrate the potential of aligning education with industry needs to enhance employability and address skill mismatches. This study underscores the importance of improving access to quality education, fostering vocational training and apprenticeship opportunities, and addressing systemic inequities to create inclusive and resilient labor markets. By implementing these strategies, countries can harness the potential of education to foster long-term economic growth and address global inequality.

*Corresponding Author\**

Keywords: Education, Labor market, Socioeconomic

Date Submitted: July 29, 2024

Date Accepted: August 12, 2024

Date Published: November 20, 2024

## INTRODUCTION

Education plays a pivotal role in shaping labor market outcomes by determining employment opportunities, income levels, and economic mobility within societies. As recent studies highlight, higher education enhances individuals' skill sets and productivity, granting access to better job prospects and higher earning potential (Gallagher, 2022). However, the persistent gaps in access to quality education and disparities in educational attainment often exacerbate inequities in labor market participation, particularly for marginalized communities (OECD, 2023).

Globally, the alignment of education systems with labor market needs varies significantly. For instance, programs like the College-to-Jobs project emphasize the mismatch between higher education curricula and workforce requirements, particularly in underserved populations. This disconnect underscores the necessity for policies that foster integration through initiatives such as career mentoring, internships, and real-time monitoring of

educational and employment trends (Roden, 2023). Additionally, regional factors play a crucial role; while some nations achieve economic growth by aligning educational programs with market demands, others struggle with skill mismatches and barriers to quality education, limiting equitable labor outcomes (Sultani & Usmonjon, 2024).

Addressing these challenges requires concerted efforts by governments, educational institutions, and employers. Strategies such as ensuring equal access to education, investing in lifelong learning programs, and tailoring workforce development initiatives can bridge these gaps. Such measures not only foster inclusive growth but also enhance economic resilience, paving the way for sustainable development (Popo-Olaniyan, 2022). This research aims to explore these dynamics, offering insights into effective educational practices and policies that support equitable labor market outcomes.

#### *Statement of the problem*

The objectives of this research are:

- 1) To explore how variations in educational systems across countries influence labor market outcomes, including employment rates, job quality, and income levels.
- 2) To examine the disparities in access to education and how these disparities translate into unequal labor market opportunities, particularly for marginalized groups.
- 3) To identify the best practices and strategies from various countries that successfully integrate education and labor market policies to promote equitable economic growth.

## METHODOLOGY

#### *Research design*

The study utilizes a data mining approach to investigate the relationship between education and labor market outcomes. This approach focuses on analyzing large datasets to identify patterns and correlations between key variables. By examining educational factors such as attainment levels, types of institutions, training participation, and certifications, the study seeks to reveal their impact on labor market indicators, including employment status, job quality, and income levels. The research design ensures a comprehensive analysis of diverse global contexts to uncover actionable insights.

#### *Locale of the study and respondents*

The study spans global contexts, encompassing both developed and developing nations to provide a diverse understanding of how education shapes labor market outcomes. Countries such as Kenya, Germany, Nigeria, the United States, and the Philippines serve as key examples in the analysis, offering varied perspectives on the interplay between education and employment. The respondents are indirectly represented through data extracted from educational databases and labor market surveys, which reflect the characteristics and outcomes of individuals and groups across these regions.

#### *Research instruments*

The study employs a combination of datasets, surveys, and analytical tools to achieve its objectives. Educational databases and labor market surveys provide comprehensive data on variables such as educational attainment, institutional types, and certifications. Advanced data mining techniques, including classification and regression analyses, are utilized to process and analyze the data, uncovering hidden relationships and insights. These instruments ensure a robust and systematic approach to understanding the intricate connections between education and labor market success.

### *Data analyses procedure*

The data analysis begins with the collection and compilation of relevant datasets that detail educational and labor market variables. These datasets are processed using data mining techniques, including classification and regression, to identify meaningful patterns and correlations. The analysis focuses on key variables such as educational attainment, training participation, and their influence on employment status, job quality, and income levels. Cross-national comparisons are conducted to highlight differences and similarities in how education impacts labor market dynamics in various countries. Finally, the findings are interpreted to identify best practices, gaps, and recommendations for improving the alignment of education systems with labor market needs.

## FINDINGS AND DISCUSSION

### *Educational factors*

The results revealed that learner-participants, a total of 10, have very low reading level scores as assessed by CRLA. As can be seen, the highest total score was 10 only, and the lowest was 0. The learners garnered an average of 4.4 reading level score.

### *Highest educational attainment*

The role of highest educational attainment in labor market outcomes varies across countries, reflecting diverse educational systems and socioeconomic contexts. In Kenya, higher education significantly improves employment opportunities, especially for women and marginalized groups. The attainment of higher education enables individuals to secure formal employment, contributing to poverty reduction and overall economic growth (Ajayi & Ross, 2020). The government's focus on expanding access to education, particularly for women, is central to this transformation, as it leads to better job prospects and economic empowerment.

In Pakistan, educational attainment is particularly important for addressing gender inequality and enhancing labor market outcomes. Higher education empowers individuals, particularly women, with the skills and qualifications necessary to pursue better job opportunities. This empowerment contributes to broader economic development by improving workforce participation and reducing social disparities (Liu et al., 2021). Educational attainment in Pakistan is thus seen as a tool for social change, helping to overcome the entrenched gender gaps in employment.

In Nigeria, educational attainment is a critical factor in tackling unemployment and gender disparities. Access to quality education equips individuals with the skills necessary for higher-paying jobs, contributing to economic growth and poverty reduction. The Nigerian government is focused on improving educational access and offering career training programs to foster skills development and economic opportunities (Yahya & Ogunyemi, 2024). This emphasis on education aligns with Nigeria's broader goal of reducing unemployment and promoting equitable economic development.

Germany's robust vocational education system has proven highly successful in reducing youth unemployment. The country's education system ensures that young people acquire skills aligned with labor market needs, thereby leading to successful labor market integration. Germany's example demonstrates how targeted educational programs can directly improve labor market outcomes (OECD, 2023).

In the United States, higher educational attainment is closely associated with higher earnings and job stability. However, disparities in educational access remain a significant barrier to improving labor market outcomes for lower-income groups. Educational inequality continues to exacerbate income inequality, with disadvantaged communities facing greater

challenges in accessing quality education and, consequently, securing well-paying jobs (Hung et al., 2020).

These examples highlight the pivotal role of education in shaping labor market outcomes, with higher educational attainment contributing to reduced unemployment, increased earnings, and social mobility across different countries. However, each nation faces its unique challenges, such as gender disparities in Pakistan and Nigeria, and access to quality education in the United States, all of which influence how educational attainment impacts the labor market.

### *Type of institution*

The table highlights the significant role that both public and private institutions play in shaping labor market outcomes across different countries. A common theme in the countries analyzed is the tension between accessibility and industry alignment in education.

In Brazil, public universities are widely recognized for their prestige but are criticized for not aligning closely with the evolving needs of the labor market. Conversely, private universities are more responsive to industry trends but often face criticism for being less accessible to low-income students (McCowan & Bertolin, 2020). This shows a trade-off between accessibility and industry relevance, where private institutions may be better at preparing graduates for the workforce but at the cost of affordability.

Similarly, in India, private universities offer specialized skill training that can improve labor market outcomes for those who can afford the high tuition fees. On the other hand, public institutions, while more affordable and accessible, sometimes struggle to keep up with the demands of the labor market, which may result in a mismatch between education and job opportunities (Bisht & Pattanaik, 2020). The challenge here lies in balancing accessibility with relevance to industry needs, where public institutions may need more investment to update their programs and bridge the skills gap.

In the Philippines, the dual role of public and private institutions is emphasized. Private institutions provide specialized training that meets industry demands, enhancing employability, but they are often out of reach for lower-income individuals due to high tuition costs. Public institutions, while offering more accessible education, often face challenges in aligning their programs with the needs of the labor market (Termes et al., 2020). This gap in industry alignment can leave graduates from public institutions at a disadvantage despite their educational accessibility.

South Africa presents a similar dichotomy, where public universities are more accessible but suffer from resource constraints that lead to skills mismatches in the labor market. In contrast, private universities provide more industry-relevant training but are often beyond the financial reach of lower-income students, exacerbating inequality (Graham et al., 2019). This highlights the critical issue of inequality, where private institutions' industry connections come at the cost of further social stratification.

Finally, in Canada, both public and private institutions offer valuable contributions to labor market outcomes. Private institutions tend to have higher graduation rates and stronger employer connections, making them attractive to students seeking direct pathways to employment. However, public institutions play a vital role by offering affordable education and addressing labor market skills shortages through vocational training (Lu & Hou, 2020). This suggests that both types of institutions have complementary roles in fostering labor market success, with public institutions providing more equitable access while private ones cater to industry-specific needs.

Overall, the findings highlight the importance of ensuring that both public and private institutions address the challenges of accessibility and industry relevance to improve labor

market outcomes across different countries. Countries must balance these aspects to create inclusive educational systems that better prepare students for the workforce.

### *Quality of education*

Quality of education, measured through indicators like student-teacher ratios, access to learning materials, availability of technology, and teacher qualifications, plays a critical role in shaping students' readiness for the workforce and their success in the labor market. In Chile, investments in reducing class sizes and enhancing digital access have significantly improved employment prospects, especially in fields like technology and engineering, where industry-aligned education is crucial (Castillo-Canales et al., 2023). Similarly, France emphasizes teacher qualifications and the availability of learning resources, demonstrating how these factors contribute to better long-term employment outcomes and income stability (Lange et al., 2021).

Argentina highlights the importance of addressing regional disparities by improving teacher-student ratios and providing access to educational resources in rural areas. These reforms aim to enhance skills and employability among underserved populations, fostering inclusivity and economic growth (Aparicio et al., 2022). Finland, on the other hand, sets a global benchmark by maintaining low student-teacher ratios and prioritizing equitable resource distribution. Its success underscores the impact of strong teacher training and autonomy in producing highly skilled and adaptable graduates who thrive in the labor market (Niemi, 2021).

Conversely, Mexico illustrates the challenges faced by countries with resource constraints. Issues such as inadequate teacher training and limited access to infrastructure and materials, particularly in rural areas, hinder students' ability to meet labor market demands. However, ongoing efforts to improve educational quality through targeted investments aim to address these gaps and better align educational outcomes with workforce needs (Rodríguez-Abitia, 2020).

Overall, countries that prioritize education quality through strategic reforms and investments see enhanced labor market outcomes, contributing to national economic development. However, addressing systemic disparities, especially in underprivileged areas, remains crucial for ensuring equitable opportunities for all learners.

### *Participation in training or apprenticeships*

The participation in training and apprenticeships across various countries reflects a strategic effort to address skill gaps, improve employability, and align educational outcomes with labor market demands. Each country's approach highlights the importance of such programs in fostering economic growth and providing individuals with practical, job-ready skills.

In Kenya, apprenticeship programs have proven to be a significant solution to the high levels of youth unemployment, particularly in informal sectors. These programs offer hands-on experience, which enhances employability and helps youth transition into the workforce, as noted by Muchira (2023). The success of these programs lies in their ability to equip individuals with practical skills that may not be available through formal education, making them indispensable in reducing unemployment and promoting economic inclusion.

India has similarly embraced apprenticeship programs as a critical tool for narrowing the gap between education and employment. The government's extensive schemes focus particularly on manufacturing and IT sectors, where there is a pressing demand for skilled workers. Mishra (2024) emphasizes that these programs not only provide technical training but also help individuals gain practical, industry-specific knowledge, boosting the workforce's readiness for high-growth sectors. This approach contributes to India's broader

goal of creating a skilled workforce that can meet the demands of a rapidly evolving economy.

In Germany, the dual education system is a prime example of how apprenticeships can be integrated with formal education. This model allows students to gain both theoretical knowledge and practical experience simultaneously, producing a highly skilled workforce that is directly aligned with industry needs. Gabrhelová (2020) highlights Germany's apprenticeship system as a benchmark for other countries, demonstrating how such a model can produce highly qualified professionals and maintain the country's competitive edge in global markets.

Brazil's National Apprenticeship Service (SENAI) focuses on vocational training that addresses skill mismatches and unemployment, particularly in the industrial and service sectors. According to Magalhaes (2019), Brazil's efforts are aimed at providing young people with the necessary skills to fill gaps in the workforce, especially in areas experiencing rapid industrial growth. SENAI's initiatives are essential for ensuring that the Brazilian workforce remains adaptable and competitive in the face of changing economic conditions.

In the United States, apprenticeships and training programs are seen as essential pathways to employment, especially in industries such as manufacturing, healthcare, and technology. Recent initiatives have also focused on increasing participation from underrepresented groups, ensuring that these training opportunities are accessible to a broader demographic. Snell (2019) underscores the importance of partnerships between educational institutions and industries, which help ensure that apprenticeships are closely aligned with market demands and offer tangible career pathways for participants.

The analysis shows that apprenticeships and training programs are integral to addressing labor market challenges in these countries. They provide a practical solution to the mismatch between the skills available in the workforce and those demanded by employers. By offering targeted, hands-on experience, these programs not only enhance individual employability but also contribute to broader economic stability and growth. Each country's unique approach to apprenticeship programs reflects its specific economic needs, but they all share a common goal: to equip individuals with the skills required to succeed in a competitive, rapidly changing global job market.

### *Possession of certifications*

The possession of industry-recognized certifications plays a critical role in shaping employment outcomes across various countries, acting as formal recognition of an individual's skills and qualifications. These certifications, obtained through educational institutions or specialized training programs, are increasingly valued by employers as they validate practical expertise in specific fields.

In the Philippines, certifications like the National Certificate II (NCII) from the Technical Education and Skills Development Authority (TESDA) are essential for individuals seeking to enter industries such as automotive, electronics, and hospitality. These certifications not only equip individuals with the skills necessary to meet industry demands but are also widely recognized by employers, leading to enhanced employment opportunities (Cruz, 2023). The focus on vocational education through certifications aligns closely with the growing needs of the labor market, especially in fields requiring technical and practical expertise.

In Pakistan, industry-recognized certifications in fields like IT and technical trades have shown a positive impact on employment outcomes. Urban areas, where technological sectors are expanding rapidly, benefit from a workforce that holds these certifications, giving individuals a competitive edge in the job market (King, 2020). Such certifications enable

workers to adapt to the changing demands of sectors that prioritize specialized knowledge, further improving their employability and long-term career prospects.

Similarly, in India, the National Skill Development Corporation (NSDC) offers a range of national certifications that target high-demand sectors such as healthcare, IT, and manufacturing. These certifications are valuable because they bridge the gap between formal education and the skills required by the labor market. By equipping workers with both theoretical knowledge and practical abilities, these certifications enhance job prospects and contribute to the country's economic growth (Kumar & Hooda, 2024).

In Kenya, the Kenya National Examinations Council (KNEC) provides vocational certifications that play a pivotal role in addressing the country's skills gap. These certifications are particularly beneficial for young people seeking employment in informal sectors like agriculture, construction, and hospitality. They offer a clear path for acquiring the skills demanded by these industries, leading to reduced unemployment and greater labor market inclusion (Amutabi, 2019). The certifications not only align with market needs but also help close the gap between education and employment in Kenya.

In Brazil, the National Service for Industrial Learning (SENAI) offers certifications that are integral in sectors such as manufacturing, engineering, and technology. These national certifications are crucial in aligning the skills of the workforce with the specific needs of industry, thereby reducing the skills gap. By certifying workers in technical fields, Brazil ensures that its workforce is adequately prepared for industrial and service sector demands, improving job prospects and promoting economic development (Rambla, 2020).

In conclusion, national certifications are a significant factor in improving labor market outcomes. They provide individuals with the credentials necessary to secure employment in sectors that require specialized skills, whether in technical fields, manufacturing, or services. As countries focus on enhancing their vocational training systems and aligning them with industry standards, the role of certifications will continue to grow in importance, fostering economic development and reducing unemployment.

### *Labor market indicators*

#### *Employment status*

Employment status serves as a key indicator of labor market health, reflecting the availability of jobs and the effectiveness of economic policies aimed at reducing unemployment and underemployment (Cheli et al., 2021). In various countries, education plays a significant role in shaping employment status, with higher educational attainment often leading to better job prospects. For instance, in Nigeria, individuals with higher education are more likely to secure formal sector jobs, while underemployment remains a persistent issue, particularly among youth (Fawole & Ozkan, 2019). Similarly, in the Philippines, although the rise of technical and vocational education has improved employment rates, underemployment continues to challenge many workers, especially in jobs that don't fully utilize their qualifications (Melchor, 2024).

In Canada, educational attainment is strongly correlated with full-time employment, but underemployment persists, particularly among younger workers and those in low-wage sectors (Evans et al., 2021). France presents a similar scenario, where higher education improves job opportunities, but youth unemployment and underemployment, especially in part-time or lower-skilled positions, remain prevalent, particularly in retail and hospitality sectors (Livingstone, 2019). Lastly, Argentina faces significant challenges with high rates of unemployment and underemployment, particularly in regions like Greater Buenos Aires, where informal employment without benefits is common (Tutiven & Quintero, 2024).

These examples highlight the importance of education in determining employment status, while also emphasizing that underemployment and youth unemployment remain significant issues globally, often exacerbated by economic factors and mismatches between educational qualifications and job market demands.

### *Type of employment*

The type of employment, which includes full-time, part-time, and contract-based work, is a critical indicator of labor market dynamics and the overall economic health of a country. Full-time employment typically offers more stability, long-term job security, and benefits such as health insurance, paid leave, and retirement plans. In contrast, part-time and contract-based jobs, though sometimes offering flexibility, often come with fewer benefits and less job security, reflecting a more precarious work arrangement. The distribution of these employment types often correlates with an individual's educational background, with higher educational attainment generally leading to more full-time, stable positions, while those with lower education levels are more likely to work in informal, part-time, or contract roles.

In countries such as Kenya, Pakistan, and Chile, educational attainment plays a crucial role in determining the type of employment individuals access. In Kenya, for instance, those with higher education are more likely to secure full-time positions, while those with lower educational qualifications often face part-time or informal work (Awiti et al., 2019). Similarly, in Pakistan, the lack of job opportunities for graduates, particularly in rural areas, often results in underemployment, where many are relegated to part-time or contract-based jobs (Malik & Ameen, 2021). In Chile, although higher education can secure full-time employment, a significant portion of the population, especially in rural areas, remains employed in part-time or contract-based jobs with less security (Espinoza, 2024).

In developed countries like Germany and the United States, educational attainment still plays a role in job access, but the rise of the gig economy and contract work presents challenges. In Germany, the dual education system creates a strong link between education and full-time employment, yet recent graduates still face contract-based work in certain sectors (Staneva, 2020). In the United States, the growth of contract work, especially in low-wage sectors, indicates a shift toward more precarious employment arrangements, even for those with higher educational qualifications (Thomas & Baddipudi, 2022).

This analysis emphasizes the ongoing challenge of balancing educational opportunities with stable, high-quality employment, with part-time and contract work remaining prevalent in both developing and developed economies. Addressing this issue requires tailored policies to enhance job security and create pathways to more sustainable employment across all sectors.

### *Income levels*

Income levels across countries are closely tied to educational attainment, with variations in job types and sectors affecting earnings. In India, higher education, particularly in fields like IT and engineering, results in higher wages and better job prospects. However, income disparities between urban and rural areas persist, with rural workers often engaged in lower-paying, informal or part-time work. This reflects a broader trend where skilled labor in urban areas commands higher wages, while those in rural sectors remain underemployed or in lower-wage jobs (Puggioni et al., 2022).

In South Africa, education also plays a pivotal role in income disparities, but racial and gender inequalities further exacerbate income levels. While those with higher education secure better-paying, formal jobs, wage gaps persist, particularly between white and Black workers, as well as between men and women. These disparities highlight how social factors, such as race and gender, intersect with educational attainment to influence labor market

outcomes (Maluleke, 2020). Government initiatives focused on expanding access to education aim to address these inequalities, but systemic barriers continue to impede equal opportunities.

In Brazil, education is similarly a key determinant of income, with higher levels of education correlating with better-paying jobs. However, there is a notable income gap between those with formal education and those without, especially in rural areas where informal and lower-paying employment is more common. Although income inequality has reduced in recent years, challenges remain in achieving equitable access to education and employment across the country, particularly outside of major urban centers (World Bank, 2020).

Mexico's labor market demonstrates a clear link between higher education and increased income levels. College graduates, particularly those with professional or postgraduate degrees, tend to earn higher salaries and enjoy greater job stability. However, underemployment is a persistent issue, with many new graduates unable to find jobs that align with their qualifications, contributing to income inequality. Moreover, many workers in the informal sector continue to face lower wages and fewer benefits, highlighting the need for reforms that improve formal employment opportunities (Roldán & Robles, 2020; Grindle, 2019).

Together, these findings underscore the importance of addressing educational disparities to improve income levels across various sectors. In particular, it is crucial to address underemployment, informal work, and systemic barriers that prevent equitable access to higher-paying, formal jobs (World Bank, 2020). The role of education in shaping labor market outcomes is clear, but significant work remains to ensure that all individuals, regardless of background or location, can access the higher-paying, stable jobs that higher education typically provides.

#### *Job security and benefits*

Job security and benefits are essential factors in assessing the quality of employment, with direct implications for workers' financial stability and job satisfaction. The link between educational attainment and job security is evident across countries, with higher education often leading to greater access to formal, full-time jobs that provide essential benefits like pensions, health insurance, and tenure stability. In the Philippines, for example, workers with higher educational qualifications are more likely to secure full-time, permanent positions, particularly in the government or large private sectors, where job stability and benefits are more common. However, individuals working in the informal sector, especially in rural areas, often face precarious work conditions with limited access to these protections (Sagayno et al., 2019).

In the United States, educational attainment is similarly tied to job security, with college graduates having a higher likelihood of securing permanent, full-time jobs that offer comprehensive benefits, particularly in sectors like healthcare, education, and government. On the other hand, the rise of gig work and part-time positions has created a divide, as workers in these sectors typically do not have access to pensions or healthcare, revealing a key challenge in the evolving labor market (Tan et al., 2021).

In Nigeria, access to job security and benefits is largely shaped by educational attainment, with those who hold higher education degrees more likely to secure formal jobs with health insurance and pensions. However, a significant portion of the workforce is employed in the informal sector, where these benefits are often unavailable, contributing to lower job security (Etim & Daramola, 2020). Similarly, in Germany, while the dual education system facilitates secure employment with benefits in sectors like engineering and healthcare,

young graduates entering temporary or contract-based jobs may face job insecurity, despite access to some benefits (Lau, 2022).

In Brazil, higher education offers better access to formal jobs with security and benefits, but a large proportion of the workforce, particularly in informal sectors such as retail and agriculture, lacks these protections, leading to income and job security disparities (Manzano et al., 2021; Gerard & Gonzaga, 2021). This highlights the ongoing challenge of informal sector work in many economies, where workers are often excluded from essential benefits, undermining long-term job stability and financial security.

In summary, job security and benefits are deeply influenced by educational attainment, with formal education acting as a key factor in securing more stable employment with benefits. However, the informal sector remains a significant challenge in many countries, limiting access to these protections and contributing to income inequality and job insecurity.

## CONCLUSIONS

The conclusions drawn from the analysis highlight the profound influence of education on labor market outcomes, emphasizing its role as a catalyst for economic growth and social mobility. Countries with well-aligned educational systems, such as Germany, demonstrate how integrating theoretical and practical training can enhance employability, reduce unemployment, and address skill mismatches. However, the persistence of disparities in access to education remains a significant barrier in many regions, particularly for marginalized and underserved communities. For example, individuals in rural areas or low-income groups often face systemic obstacles to obtaining quality education, limiting their opportunities for stable, well-paying jobs.

Efforts to bridge these gaps must focus on improving access to education, especially for disadvantaged groups, and ensuring that educational programs meet the evolving needs of labor markets. Expanding vocational training and apprenticeship opportunities is critical for equipping workers with practical skills that enhance employability. Furthermore, providing certifications and industry-specific training can help individuals align their qualifications with market demands, addressing underemployment and fostering workforce adaptability.

Addressing systemic inequities, such as those based on gender, race, and geography, is also vital for creating inclusive labor markets. Governments, educational institutions, and industry stakeholders must work together to implement policies that reduce barriers to education and employment while promoting lifelong learning and skill development. Focusing on these strategies, countries can leverage education as a powerful tool to achieve equitable economic growth and strengthen labor market resilience in an increasingly competitive global economy.

## REFERENCES

- Ajayi, K. F., & Ross, P. H. (2020). The effects of education on financial outcomes: Evidence from Kenya. *Economic Development and Cultural Change*, 69(1), 253-289.
- Amutabi, M. N. (2019). Competency based curriculum (CBC) and the end of an era in Kenya's education sector and implications for development: Some empirical reflections. *Journal of Popular Education in Africa*, 3(10), 45-66.
- Aparicio, J., Perelman, S., & Santín, D. (2022). Comparing the evolution of productivity and performance gaps in education systems through DEA: an application to Latin American countries. *Operational Research*, 1-35.
- Awiti, A., Orwa, C., Mbuvi, L., & Karumba, M. (2019). Whole Youth Development in Kenya: Survey of employers and employees in the formal and informal sectors to determine entry-level skills among youth (18-30 yrs) in employment Kenya.

## Exploring education and labor market outcomes: insights from diverse global contexts

- Bisht, N., & Pattanaik, F. (2020). Youth labour market in India: education, employment, and sustainable development goals. In *International perspectives on the youth labor market: Emerging research and opportunities* (pp. 172-196). IGI Global.
- Buchmann, N. C. (2024). *The Economics of Gender in Low-Income Countries* (Doctoral dissertation, Stanford University).
- Castillo-Canales, D., Mejías, L., Roque-Gutierrez, E., Valentini, A., & Rübbecke, J. (2023). Ed-Tech landscape and challenges in Latin America and the Caribbean.
- Cheli, B., Coli, A., & Regoli, A. (2021). A fuzzy approach to the measurement of employment and unemployment. In *Analysis of socio-economic conditions* (pp. 256-263). Routledge.
- Cruz, R. A. D. (2023). Employability of Senior High School Technical-Vocational and Livelihood Graduates: Basis for Human Resource Management Enhancement Program. *East Asian Journal of Multidisciplinary Research*, 2(9), 3877-3892.
- Darling-Hammond, K., & Darling-Hammond, L. (2022). *The civil rights road to deeper learning: Five essentials for equity*. Teachers College Press.
- Espinoza, O., González, L., Sandoval, L., Larrondo, Y., Corradi, B., McGinn, N., & Maldonado, K. (2024). Factors contributing to the (un) fulfilment of employment aspirations of recent Chilean university graduates. *Journal of Education and Work*, 37(1-4), 198-215.
- Etim, E., & Daramola, O. (2020). The informal sector and economic growth of South Africa and Nigeria: A comparative systematic review. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(4), 134.
- Evans, B., Fanelli, C., & McDowell, T. (2021). Resisting low-wage work: The struggle for living wages. *Rising up: The fight for living wage work in Canada*, 3-25.
- Fang, F. (2023). A Study on the Application of Data Mining Techniques in the Management of Sustainable Education for Employment. *Data Science Journal*, 22(1).
- Fawole, W. O., & Ozkan, B. (2019). Examining the willingness of youths to participate in agriculture to halt the rising rate of unemployment in South Western Nigeria. *Journal of Economic Studies*, 46(3), 578-590.
- Gabrhelová, G., Lajčín, D., Barnová, S., & Krásna, S. (2020). Dual System of Education and Training as a Pathway to the Labour Market.
- Gallagher, S. R. (2022). *The future of university credentials: New developments at the intersection of higher education and hiring*. Harvard Education Press.
- Gerard, F., & Gonzaga, G. (2021). Informal labor and the efficiency cost of social programs: Evidence from unemployment insurance in Brazil. *American Economic Journal: Economic Policy*, 13(3), 167-206.
- Graham, L., Williams, L., & Chisoro, C. (2019). Barriers to the labour market for unemployed graduates in South Africa. *Journal of Education and Work*, 32(4), 360-376.
- Grindle, M. S. (2019). *Searching for rural development: labor migration and employment in Mexico*. Cornell University Press.
- Hanushek, E. A., & Woessmann, L. (2020). Education, knowledge capital, and economic growth. *The economics of education*, 171-182.
- Hung, M., Smith, W. A., Voss, M. W., Franklin, J. D., Gu, Y., & Bounsanga, J. (2020). Exploring student achievement gaps in school districts across the United States. *Education and Urban Society*, 52(2), 175-193.
- International Labour Office. (2023). *World Employment and Social Outlook: Trends 2023*. Geneva: International Labour Office. <https://doi.org/10.54394/SNCP1637>
- Kabeer, N. (2021). Gender equality, inclusive growth, and labour markets. In *Women's Economic Empowerment* (pp. 13-48). Routledge.
- King, L. C. (2020). *The Effect of Career and Technical Education Courses on On-Time Graduation for English Language Learners: A Quantitative ANOVA Factorial Analysis* (Doctoral dissertation, Northcentral University).

- Kumar, J., & Hooda, G. (2024). Skill Development Programmes: Challenges and Employment Opportunities. *SEDME (Small Enterprises Development, Management & Extension Journal)*, 09708464241252316.
- Lange, M. F., Lauwerier, T., & Locatelli, R. (2021). The impact of privatization on teachers in Francophone sub-Saharan African countries. In *UNESCO Global Education Monitoring Report* (No. December, pp. 1-76).
- Lau, A. (2022). *Investigating young professionals' psychological contracts to advance human-centred human resources management strategies: A multi-method qualitative research* (Doctoral dissertation, University of Worcester).
- Léime, Á. N., & Street, D. (2019). Working later in the USA and Ireland: implications for precariously and securely employed women. *Ageing & Society*, 39(10), 2194-2218.
- Liu, F., Li, L., Zhang, Y., Ngo, Q. T., & Iqbal, W. (2021). Role of education in poverty reduction: macroeconomic and social determinants form developing economies. *Environmental Science and Pollution Research*, 28, 63163-63177.
- Livingstone, D. W. (2019). Underemployment of highly qualified labour in advanced capitalism: Trends and prospects. *Journal of Education and Work*, 32(4), 305-319.
- Lu, Y., & Hou, F. (2020). Immigration system, labor market structures, and overeducation of high-skilled immigrants in the United States and Canada. *International migration review*, 54(4), 1072-1103.
- Magalhaes Queiroz, P. (2019). *Intention, tensions and mediations in and out the National Qualification Framework* (Master's thesis).
- Malik, A., & Ameen, K. (2021). The employment landscape and LIS education in Pakistan: challenges and prospects. *Global Knowledge, Memory and Communication*, 70(1/2), 79-93.
- Maluleke, R. (2020). *Education and labour market outcomes in South Africa, 2018* (Education Series, Vol. VI). Statistics South Africa. <https://www.statssa.gov.za>
- Manzano, M., Krein, J. D., & Abílio, L. C. (2021). The dynamics of labour informality in Brazil, 2003-2019. *Global Labour Journal*, 12(3).
- McCowan, T., & Bertolin, J. (2020). *Inequalities in higher education access and completion in Brazil* (No. 2020-3). UNRISD working paper.
- Melchor, M. (2024). Resolving Education-Employment Mismatches in the Philippines. Available at SSRN 4952062.
- Mishra, A. (2024). New Education Policy 2020: Why India Needs to Mainstream Vocational Education. In *International Handbook of Skill, Education, Learning, and Research Development in Tourism and Hospitality* (pp. 995-1029). Singapore: Springer Nature Singapore.
- Muchira, J. M., Kiroro, F., Mutisya, M., Ochieng, V. O., & Ngware, M. W. (2023). Assessing technical vocational education and training institutions' curriculum in Kenya: What strategies can position the youth for employment?. *Journal of Adult and Continuing Education*, 29(2), 563-582.
- Niemi, H. (2021). Teacher Education in at the Crossroads—Educational Ecosystems for Equity and Quality of Learning. *Envisioning Teaching and Learning of Teachers for Excellence and Equity in Education*, 3-21.
- OECD (2023), "How does educational attainment affect participation in the labour market?", in *Education at a Glance 2023: OECD Indicators*, OECD Publishing, Paris, <https://doi.org/10.1787/10d23c46-en>.
- OECD (2023), "Germany", in *Education at a Glance 2023: OECD Indicators*, OECD Publishing, Paris. <https://doi.org/10.1787/d2886a6f-en>
- OECD. (2022). *Education at a Glance 2022: OECD Indicators*. OECD Publishing. <https://doi.org/10.1787/ea6b5e0e-en>
- Okolie, U. C., Nwosu, H. E., & Mlanga, S. (2019). Graduate employability: How the higher education institutions can meet the demand of the labour market. *Higher education, skills and work-based learning*, 9(4), 620-636.

## Exploring education and labor market outcomes: insights from diverse global contexts

- Pettingell, S. L., Houseworth, J., Tichá, R., Kramme, J. E., & Hewitt, A. S. (2022). Incentives, wages, and retention among direct support professionals: National core indicators staff stability survey. *Intellectual and developmental disabilities, 60*(2), 113-127.
- Popo-Olaniyan, O., Elufioye, O. A., Okonkwo, F. C., Udeh, C. A., Eleogu, T. F., & Olatoye, F. O. (2022). Inclusive workforce development in US stem fields: a comprehensive review. *International Journal of Management & Entrepreneurship Research, 4*(12), 659-674.
- Pratap, P., Dickson, A., Love, M., Zanoni, J., Donato, C., Flynn, M. A., & Schulte, P. A. (2021). Public health impacts of underemployment and unemployment in the United States: Exploring perceptions, gaps and opportunities. *International journal of environmental research and public health, 18*(19), 10021.
- Puggioni, D., Calderón, M., Zurita, A. C., Bujanda, L. F., González, J. A. I., & Jaume, D. (2022). Income dynamics and inequality: The case of Mexico. *Quantitative Economics, 13*(4), 1669-1705.
- Quigley, P. (2024). *Apprenticeship engagement among large employers in Scotland* (Doctoral dissertation, University of Glasgow).
- Rambla, X., Castioni, R., & Sepúlveda, L. (2020). The making of TVET systems in middle-income countries: Insights on Brazil and Chile. *Journal of Education and Work, 33*(1), 67-80.
- Roden, I. (2023, April 18). *New research sheds light on the gap between postsecondary education and the workforce*. Harvard.edu; Harvard Kennedy School. <https://www.hks.harvard.edu/centers/wiener/news-events/new-research-sheds-light-gap>
- Rodríguez-Abitia, G., Martínez-Pérez, S., Ramirez-Montoya, M. S., & Lopez-Caudana, E. (2020). Digital gap in universities and challenges for quality education: A diagnostic study in Mexico and Spain. *Sustainability, 12*(21), 9069.
- Roldán Vera, E., & Robles Valle, A. (2020). The education system of Mexico: Inequality, standardization, and compensation. *The Education Systems of the Americas, 1-26*.
- Sagayno, R. C., Tiukinhoy, A. C., Jochin, M. T. T., & Aparece, U. B. (2019, December). Job Security and Satisfaction Experiences of Former Working Students Turned Employees of a Private University. In *International Forum Journal* (Vol. 22, No. 2, pp. 133-157).
- Snell, D. (2019). Vocational education and the revitalisation of manufacturing in the United States. *Journal of Vocational Education & Training, 71*(2), 239-259.
- Staneva, M. (2020). *Employment Alongside Bachelor's Studies in Germany*. Springer Fachmedien Wiesbaden.
- Sultani, G., & Usmonjon, H. (2024). Stages of integration of the educational system in the development of globalization. Education and economy. *Masters, 2*(9), 74-79.
- Tan, Z. M., Aggarwal, N., Cowls, J., Morley, J., Taddeo, M., & Floridi, L. (2021). The ethical debate about the gig economy: A review and critical analysis. *Technology in Society, 65*, 101594.
- Termes, A., Edwards Jr, D. B., & Verger, A. (2020). The development and dynamics of public-private partnerships in the Philippines' education: A counterintuitive case of school choice, competition, and privatization. *Educational Policy, 34*(1), 91-117.
- Thomas, S. M., & Baddipudi, V. (2022). Changing nature of work and employment in the gig economy: The role of culture building and leadership in sustaining commitment and job satisfaction. *NHRD Network Journal, 15*(1), 100-113.
- Tutiven Desintonio, C., & Quintero Montaña, W. J. (2024). RECENT PERFORMANCE OF THE ECUADORIAN ECONOMY IN A CONTEXT OF HIGH UNCERTAINTY: AN ANALYSIS OF ECONOMIC GROWTH, POVERTY, AND UNEMPLOYMENT. *International Economics/Economia Internazionale, 77*(1).
- Yahya, L. O., & Ogunyemi, E. O. (2024). Human Empowerment and Financial Resource Utilisation as a Panacea For Poverty Eradication In Nigeria. *EDUCATIONAL PERSPECTIVES, 12*(1).