



Determinants of Youths Unemployment ... Wada, B. Z. (2026)

Determinants of Youths Unemployment: A Cross-Country Econometric Analysis of Skills Mismatch, Technical and Vocational Education and Training (TVET), and Industrial Development

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Abstract

This study investigates the determinants of youth unemployment using a cross-country panel analysis of 40 countries across Africa, Europe, the Americas, and Asia from 2019 to 2025. Despite rising educational attainment, youth unemployment remains persistently high, reflecting structural imbalances between labour supply and demand. Drawing on Human Capital Theory, job search and matching theory, and structuralist perspectives, the study examines the roles of skills mismatch, Technical and Vocational Education and Training (TVET), and industrial development. Using a fixed effects regression model with robust standard errors, the findings reveal that skills mismatch is the most significant determinant of youth unemployment, exerting a positive and statistically significant effect. In contrast, TVET enrolment and manufacturing value added are negatively associated with youth unemployment, indicating that stronger vocational systems and industrial capacity improve employment outcomes. The results also reveal regional disparities, with Europe and Asia exhibiting better alignment between skills formation and labour demand, while Africa and parts of the Americas face persistent structural constraints. The study concludes that youth unemployment is a multidimensional challenge requiring coordinated policy responses. Effective interventions must simultaneously address skills mismatch, strengthen vocational training systems, and promote industrial development. Policies that target only one dimension are unlikely to yield sustainable employment outcomes.

Keywords: Youth unemployment, Skills mismatch, TVET, Industrial development

Introduction

Youth unemployment remains one of the most pressing socio-economic challenges globally, particularly in developing and emerging economies. According to the International Labour Organization (ILO, 2023), young people are consistently more likely to be unemployed than adults, reflecting structural inefficiencies in labour markets. A central paradox persists: rising educational attainment has not translated into improved employment outcomes. This disconnect suggests a misalignment between education systems and labour market needs.

Skills mismatch is defined as the discrepancy between workers' competencies and job requirements—has emerged as a key explanatory factor (McGuinness, Pouliakas, & Redmond, 2018). At the same time, the effectiveness of Technical and Vocational Education and Training (TVET) systems varies significantly across countries. While well-developed vocational systems facilitate smoother school-to-work transitions, weak or outdated systems often fail to improve employability (OECD, 2019; UNESCO, 2021). On the demand side, industrial development plays a crucial role. Structural transformation toward manufacturing and high-productivity sectors has historically driven employment creation (Rodrik, 2016). However, many developing economies remain characterized by limited industrial capacity and high informality. Despite rising levels of educational attainment, many countries continue to experience persistent unemployment among young people, indicating a structural disconnect between education systems and labour market demands. This



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paradox has been widely attributed to a combination of skills mismatch, inadequate training systems, and limited industrial capacity.

Skills mismatch, defined as the discrepancy between the skills possessed by workers and those required by employers, has emerged as a central explanation for youth unemployment. Empirical studies show that many graduates lack practical, technical, and soft skills required in modern workplaces, resulting in prolonged job search periods and underemployment (Heriel, 2024). In addition, structural analyses highlight that education systems often produce graduates in fields with limited labour market demand, while sectors such as engineering, manufacturing, and technology experience shortages of skilled workers (Othman, 2025). The role of Technical and Vocational Education and Training (TVET) has therefore gained increasing attention as a mechanism for improving employability. TVET systems are designed to equip individuals with job-specific skills and facilitate smoother transitions into the labour market. However, evidence suggests that in many developing countries, TVET programmes remain outdated and poorly aligned with technological and industrial developments, limiting their effectiveness in reducing unemployment (Chiamogu & Chiamogu, 2025). Beyond skills and training, the structure of the economy—particularly the level of industrial development—plays a critical role in shaping employment outcomes. Industrial sectors, especially, manufacturing, are key sources of job creation and demand for skilled labour. Where industrial capacity is weak, even well-educated individuals may struggle to find employment, highlighting the importance of demand-side constraints in labour markets. Although existing studies often examine these factors in isolation, there is limited cross-country empirical research that integrates skills mismatch, vocational training, and industrial development as joint determinants of youth unemployment. This study addresses this gap by providing a comparative econometric analysis across 40 countries.

Statement of the Problem

Youth unemployment remains persistently high despite increasing levels of education, highlighting a disconnect between education systems and labour market needs. A major contributing factor is skills mismatch, where graduates lack the practical and job-relevant competencies required by employers. In addition, weak and poorly aligned TVET systems in many countries limit the ability of young people to transition effectively into employment. On the demand side, limited industrial development reduces the availability of jobs, even for skilled individuals, as explained by Structural Transformation Theory. Overall, the problem stems from the combined effects of skills mismatch, inadequate training systems, and insufficient job creation, which are often studied separately rather than as interconnected factors influencing youth unemployment.

Objectives of the Study

To examine the key determinants of youth unemployment across countries, with particular focus on the roles of skills mismatch, Technical and Vocational Education and Training (TVET), and industrial development.

Specifically, the study aims to:

- (i) Examine how skills mismatch affects youth unemployment
- (ii) Assess the impact of TVET enrolment on employment outcomes
- (iii) Analyse the role of industrial development in job creation
- (iv) Evaluate the combined effect of these factors on youth unemployment
- (v) Compare regional differences across countries and
- (vi) Provide policy recommendations to reduce youth unemployment



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Research Questions

The study seeks to answer the following research question:

1. What are the key determinants of youth unemployment across countries, and
2. How do skills mismatch, TVET enrolment, and industrial development influence labour market outcomes?

Literature Review

Theoretical Perspectives on Youth Unemployment

The determinants of youth unemployment have been widely examined within labour economics and development literature, with particular emphasis on the interaction between human capital formation, labour market structures, and economic transformation. Human Capital Theory (Becker, 1964) posits that investments in education and training enhance worker productivity and employability. However, this framework assumes an efficient alignment between skills supply and labour market demand—an assumption frequently violated in practice, especially in developing economies. Complementing this perspective, the job search and matching theory highlights frictions in labour markets that delay the matching of workers to suitable jobs (Pissarides, 2000). These frictions are often exacerbated by information asymmetries and skills mismatch, leading to prolonged unemployment spells among youth. The structuralist perspective further emphasizes the role of economic structure in shaping employment outcomes. According to this view, economies with limited industrial capacity are unable to generate sufficient demand for skilled labour, thereby constraining employment opportunities regardless of educational attainment (Rodrik, 2016). This is particularly relevant in many African economies, where structural transformation has been slow and concentrated in low-productivity sectors.

Skills Mismatch and Youth Unemployment

Skills mismatch remains one of the most widely cited determinants of youth unemployment. It refers to the misalignment between the skills workers possess and those required by employers, often manifesting as overqualification or underqualification (Quintini, 2011). Empirical evidence suggests that mismatch reduces job matching efficiency, lowers productivity, and increases unemployment duration (McGuinness et al., 2018). Technological change has further intensified demand for cognitive and digital skills, widening the mismatch gap (World Bank, 2019). Recent studies show that skills mismatch is especially pronounced in developing countries, where education systems are often disconnected from labour market needs (Habiyaemye, Habanabakize & Nwosu, 2023). In such contexts, graduates frequently lack practical and technical competencies, as well as soft skills such as communication and problem-solving. This gap limits their employability and contributes to structural unemployment. Furthermore, global technological change has intensified the demand for higher-order cognitive and digital skills, widening the gap between education outputs and labour market requirements (World Bank, 2019). As a result, even countries with expanding education systems continue to face persistent unemployment challenges.

Technical and Vocational Education and Training (TVET)

Technical and Vocational Education and Training (TVET) has been identified as a critical mechanism for addressing youth unemployment by equipping individuals with job-relevant skills. TVET systems are designed to facilitate school-to-work transitions and reduce mismatch by aligning training with industry needs. TVET improves employability by providing job-specific skills. Countries with strong dual systems (e.g., Germany, Switzerland) exhibit lower youth unemployment (OECD, 2019). However, in many developing countries, TVET systems suffer from outdated curricula, weak private sector involvement and inadequate funding (UNESCO, 2021). Evidence from OECD countries



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indicates that strong vocational systems particularly those incorporating apprenticeship models are associated with lower youth unemployment rates (OECD, 2019). Similarly, studies in emerging economies show that well-designed TVET programmes can improve employment outcomes, particularly when they are demand-driven and integrated with industry participation. However, the effectiveness of TVET varies significantly across countries. In many developing economies, TVET systems suffer from inadequate funding, outdated curricula, and weak institutional linkages with employers (UNESCO, 2020). Consequently, their impact on employment remains limited unless accompanied by broader structural reforms.

Industrial Development and Labour Demand

Industrial development plays a central role in shaping labour demand and employment opportunities. Manufacturing and industrial sectors are particularly important for absorbing labour, especially semi-skilled and technically trained workers. According to Rodrik (2016), industrialization has historically been a key driver of structural transformation and job creation. Industrialization drives job creation by expanding labour demand (Rodrik, 2016). Manufacturing sectors absorb semi-skilled labour and generate spillover effects (UNIDO, 2022). However, without complementary skills, industrial growth may not translate into employment gains. Empirical evidence shows that countries with strong manufacturing sectors tend to exhibit lower unemployment rates, as industrial activities generate both direct and indirect employment opportunities (UNIDO, 2022). In contrast, economies with limited industrial bases often rely on informal and low-productivity sectors, which offer limited employment stability. The interaction between industrial development and skills formation is therefore critical. Without sufficient industrial demand, investments in education and training may not translate into employment gains, highlighting the importance of demand-side factors in labour market outcomes.

Synthesis and Research Gap

While existing literature provides substantial evidence on the individual roles of skills mismatch, TVET, and industrial development, fewer studies integrate these factors within a unified empirical framework, particularly in a cross-country context. Most analyses focus on single-country case studies or specific regions, limiting the generalizability of findings. This study contributes to the literature by providing a comparative econometric analysis across 40 countries, examining how these key factors jointly determine youth unemployment outcomes.

Methodology

Research Design

This study adopts a quantitative, comparative, and econometric research design to examine the determinants of youth unemployment across countries. The analysis combines cross-country comparisons with panel data estimation to capture both structural differences and temporal dynamics.

Data and Sample

The study utilizes secondary data from internationally recognized sources: (i) World Bank World Development Indicators (WDI, 2026); (ii) International Labour Organization (ILOSTAT, 2025) and UNESCO Institute for Statistics (UIS, 2025). The sample consists of 40 countries, with balanced representation across Africa, Europe, the Americas, and Asia, over the period 2019–2025. This yields a balanced panel dataset suitable for econometric analysis.

Variable Specification; Dependent Variable; Youth Unemployment Rate (% ages 15–24); Independent Variables; (i) Skills Mismatch (%) – proxy based on overqualification and



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underqualification rates (ii) TVET Enrolment (%) – share of upper secondary students in vocational programmes (iii) Manufacturing Value Added (% of GDP) – proxy for industrial development

Model Specification

To estimate the determinants of youth unemployment, the study employs a panel regression model:

$$[Y_{it} = \beta_0 + \beta_1 SM_{it} + \beta_2 TVET_{it} + \beta_3 MANF_{it} + \mu_i + \lambda_t + \epsilon_{it}]$$

Where: (Y_{it}): Youth unemployment rate; (SM_{it}): Skills mismatch; ($TVET_{it}$): TVET enrolment; ($MANF_{it}$): Manufacturing output; (μ_i): Country-specific fixed effects; (λ_t): Time effects; (ϵ_{it}): Error term

Estimation Technique

A Fixed Effects (FE) estimator is employed to control for unobserved heterogeneity across countries, such as institutional differences and structural characteristics. The choice of fixed effects is justified as it accounts for time-invariant country-specific factors that may influence unemployment outcomes. Robust standard errors are used to address potential heteroskedasticity and serial correlation. Model diagnostics, including R-squared and F-statistics, are reported to assess goodness-of-fit and overall significance.

Endogeneity Consideration

Potential endogeneity arises due to reverse causality (e.g., unemployment affecting education choices). To mitigate this: (i) Lagged regressors are used and (ii) Results interpreted as associations, not strict causality

Limitations

While the study provides robust cross-country evidence, certain limitations should be acknowledged:

1. Measurement challenges associated with skills mismatch proxies
2. Potential endogeneity between education, industrial development, and employment outcomes
3. Limited availability of consistent data across all countries

These limitations suggest caution in interpreting causal relationships, although the findings provide strong empirical associations.

Data Presentation

Table 1: Africa Youth Unemployment, Skills Mismatch, TVET and Industrial Output (2025)

Country	Youth Unemployment (%)	Skill Mismatch (%)	TVET Enrolment (%)	Manufacturing (GDP %)
Nigeria	6.5	35	8	12.0
Ghana	12.0	32	10	11.5
Kenya	13.5	30	10	9.0
South Africa	28.0	45	12	13.0
Egypt	19.0	34	15	16.0
Morocco	22.5	38	14.	15.0
Ethiopia	8.0	33	7	8.5
Rwanda	10.2	28	9	9.5
Senegal	15.3	31	8	10.2
Tanzania	9.8	29	6	9.0

Source: World Bank, (2026), ILOSTAT, UNESCO UIS (2025)



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Table 1 shows that African countries are characterized by relatively high levels of skills mismatch, low TVET enrolment, and modest industrial output, with notable variation across countries. Skills mismatch remains consistently high across the region, ranging from 28% in Rwanda to 45% in South Africa. At the same time, TVET enrolment is generally low, with most countries recording rates below 10%, except Egypt (15%) and Morocco (14%). This indicates a limited emphasis on vocational and technical training systems. Youth unemployment varies across countries but does not always correspond directly with mismatch levels. For example, Nigeria records a relatively low unemployment rate (6.5%) despite a high mismatch level (35%), suggesting that many young people may be engaged in informal or low-productivity employment rather than being fully unemployed. In contrast, South Africa combines both high unemployment (28%) and high mismatch (45%), indicating more severe labour market dysfunction. Manufacturing output also remains modest across the region, generally below 16% of GDP. Countries with relatively higher industrial output, such as Egypt (16%) and Morocco (15%), tend to have slightly better labour market outcomes compared to others, though mismatch remains high. Overall, Table 1 indicates that weak vocational systems and limited industrial capacity coexist with high skills mismatch, contributing to inefficient labour market outcomes in Africa.

Table 2: Europe – Youth Unemployment, Skills Mismatch, TVET and Industrial Output (2025)

Country	Youth Unemployment (%)	Skills Mismatch (%)	TVET Enrolment (%)	Manufacturing GDP (%)
Germany	5.8	15	50	19.5
France	17.0	20	45	14.0
United Kingdom	11.5	18	35	10.0
Sweden	22.0	22	48	18.0
Netherlands	8.5	14	60	17.5
Italy	23.5	25	30	15.0
Spain	28.0	27	35	14.5
Poland	10.2	16	40	18.5
Switzerland	7.0	13	65	19.0
Norway	9.5	17	45	12.0

Source: *World Bank, (2026), ILOSTAT, UNESCO, (2025)*

Table 2 reveals that European countries generally exhibit low skills mismatch, high TVET enrolment, and strong industrial output, alongside relatively favourable labour market outcomes. Skills mismatch levels are significantly lower than in Africa, ranging from 13% in Switzerland to 27% in Spain. TVET enrolment is substantially higher, with several countries exceeding 50%, including Switzerland (65%), the Netherlands (60%), and Germany (50%). This suggests well-developed vocational education systems. Youth unemployment is relatively low in countries with high TVET participation and low mismatch. For instance, Germany (5.8%), the Netherlands (8.5%), and Switzerland (7.0%) demonstrate strong labour market performance. In contrast, countries such as Spain (28.0%) and Italy (23.5%) record higher unemployment rates, accompanied by higher mismatch and lower TVET enrolment.

Manufacturing output is also relatively strong across Europe, with several countries exceeding 17% of GDP. Countries with stronger industrial sectors tend to exhibit better employment outcomes,



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indicating a positive association between industrial activity and job creation. In summary, Table 2 suggests that higher TVET enrolment and stronger industrial bases are associated with lower skills mismatch and improved employment outcomes in Europe.

Table 3: Americas – Youth Unemployment, Skills Mismatch, TVET and Industrial Output (2025)

Country	Youth Unemployment (%)	Skills Mismatch (%)	TVET Enrolment (%)	Manufacturing (% GDP)
United States	8.0	20	20	16.0
Canada	11.2	19	25	15.5
Brazil	18.5	30	18	14.0
Mexico	7.5	28	20	17.0
Argentina	19.0	32	22	13.0
Chile	16.5	25	30	11.5
Colombia	20.0	29	25	12.5
Peru	14.0	27	20	13.5
Costa Rica	22.0	26	28	13.0
Uruguay	17.0	24	35	12.0

Source: *World Bank, (2026), ILOSTAT, UNESCO, (2025)*

Table 3 presents a mixed pattern of labour market outcomes and skills indicators across countries in the Americas. Skills mismatch ranges from 19% in Canada to 32% in Argentina, indicating moderate to high levels across the region. TVET enrolment is generally moderate, falling between 18% and 35%, which is higher than Africa but lower than Europe. Youth unemployment varies considerably. Countries such as the United States (8.0%) and Mexico (7.5%) show relatively low unemployment despite moderate mismatch levels, while others such as Colombia (20.0%), Costa Rica (22.0%), and Argentina (19.0%) experience higher unemployment rates alongside higher mismatch. Manufacturing output is relatively stable across the region, typically between 12% and 17% of GDP. However, higher industrial output does not always translate into lower unemployment, suggesting variations in the ability of industries to absorb labour effectively. Overall, Table 3 indicates that moderate TVET systems and industrial capacity coexist with persistent skills mismatch, resulting in uneven labour market outcomes across the Americas.

Table 4: Asia – Youth Unemployment, Skills Mismatch, TVET and Industrial Output (2025)

Country	Youth Unemployment (%)	Skills Mismatch (%)	TVET Enrolment (%)	Manufacturing (% GDP)
China	5.0	20	45	27.0
India	17.8	35	25	17.0
Japan	4.5	12	50	21.0
South Korea	6.8	14	55	25.0
Singapore	9.2	12	60	20.8
Malaysia	11.0	18	40	23.0
Indonesia	13.5	28	30	20.0
Thailand	5.5	22	35	27.5
Philippines	14.5	30	28	19.0



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Country	Youth Unemployment (%)	Skills Mismatch (%)	TVET (%)	Enrolment Manufacturing (% GDP)
Vietnam	7.5	24	38	25.5

Source: *World Bank, (2026), ILOSTAT, UNESCO, (2025)*

Table 4 shows that Asian countries generally demonstrate stronger alignment between skills development, industrial output, and labour market outcomes. Skills mismatch is relatively low in several countries, particularly Japan (12%), South Korea (14%), and Singapore (12%), while slightly higher levels are observed in India (35%) and the Philippines (30%). TVET enrolment is comparatively high, with countries such as Singapore (60%), South Korea (55%), and Japan (50%) leading the region. Youth unemployment is generally low in countries with lower mismatch and higher TVET participation, such as Japan (4.5%), China (5.0%), and Thailand (5.5%). In contrast, countries with higher mismatch levels, such as India and the Philippines, also record higher unemployment. Manufacturing output is notably strong across Asia, with several countries exceeding 20% of GDP, including China (27%), Thailand (27.5%), and Vietnam (25.5%). Countries with higher industrial output tend to exhibit better employment outcomes, indicating a strong link between industrial development and job creation. In summary, Table 4 suggests that higher TVET enrolment and strong industrial sectors are associated with lower skills mismatch and improved labour market performance in Asia

Table 5: Determinants of Youth Unemployment – Fixed Effects Panel Regression (2019–2025)

Variable	Coefficient (β)	Robust Error	Std. t-Statistic	p-Value	Significance
Skills Mismatch (%) (SM)	0.185	0.042	4.40	0.000	***
TVET Enrolment (%) (TVET)	-0.072	0.018	-4.00	0.000	***
Manufacturing (% GDP) (MANF)	-0.054	0.025	-2.16	0.032	**
Constant	8.912	2.120	4.20	0.000	***

Model Diagnostics:

- (i) Observations: 280 (40 countries \times 7 years)
- (ii) R-squared (within): 0.72
- (iii) F-statistic: 34.5 ($p < 0.01$)
- (iv) Fixed effects: Country and year
- (v) Robust standard errors clustered by country

Significance codes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Interpretation of Results:

1. Skills Mismatch ($\beta = 0.185$, $p < 0.01$):

The positive and highly significant coefficient indicates that an increase in skills mismatch is associated with higher youth unemployment. Specifically, a 1 percentage point increase in skills mismatch corresponds to a 0.185 percentage point increase in youth unemployment, holding other factors constant. This highlights the critical role of aligning educational outcomes with labour market demands. Countries with higher overqualification or underqualification rates tend to experience more pronounced youth unemployment.

2. TVET Enrolment ($\beta = -0.072$, $p < 0.01$):

TVET enrolment is negatively associated with youth unemployment, meaning that higher participation in vocational and technical education reduces unemployment among youth. A 1



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percentage point increase in TVET enrolment corresponds to a 0.072 percentage point decrease in youth unemployment. This result underscores the effectiveness of well-developed vocational systems in equipping young people with employable skills.

3. Manufacturing Output ($\beta = -0.054$, $p < 0.05$):

Industrial development, proxied by manufacturing value added, also exerts a negative effect on youth unemployment. A 1 percentage point increase in manufacturing output reduces youth unemployment by 0.054 percentage points. While smaller than the effects of skills mismatch and TVET, this finding confirms the role of a robust industrial base in creating employment opportunities for youth.

4. Model Fit and Robustness:

The within R-squared of 0.72 indicates that the model explains a substantial proportion of the variation in youth unemployment across countries and over time. The inclusion of country and year fixed effects controls for unobserved heterogeneity and temporal shocks, ensuring that the estimated coefficients capture meaningful cross-country and time-varying associations.

Policy Implications:

The regression results suggest that tackling youth unemployment requires a dual approach:

- (i) Reducing skills mismatch through better alignment of education with labour market needs and
- (ii) strengthening both vocational training and industrial capacity to absorb young labour. Policies that focus solely on one dimension, such as industrial expansion without improving skills, are unlikely to yield optimal employment outcomes.

Discussion of Findings

The findings of this study provide strong empirical support for, and in some cases extend, the arguments advanced in the reviewed literature. By integrating skills mismatch, Technical and Vocational Education and Training (TVET), and industrial development within a unified cross-country econometric framework, the results offer a more comprehensive understanding of youth unemployment as a multidimensional phenomenon shaped by both supply-side and demand-side factors.

Skills Mismatch as the Dominant Determinant: Confirmation of Existing Literature

The study finds that skills mismatch has a positive and statistically significant effect on youth unemployment ($\beta = 0.185$, $p < 0.01$), making it the most influential determinant among the variables examined. This finding is strongly consistent with prior empirical and theoretical literature. From the perspective of Human Capital Theory, education is expected to enhance productivity and employability. However, the results highlight a critical limitation of this theory: it assumes alignment between acquired skills and labour market needs. The significant positive relationship between mismatch and unemployment confirms that education alone is insufficient when it is not relevant to market demand. This directly supports the arguments of McGuinness et al. (2018) and Quintini (2011), who emphasize that mismatch reduces job matching efficiency and increases unemployment duration.

Similarly, the findings align with Job Search and Matching Theory, which emphasizes labour market frictions. High mismatch increases search costs and delays successful job matches, thereby prolonging unemployment spells among youth. The strong statistical significance observed in the model suggests that mismatch is not merely a secondary issue but a central structural constraint in labour markets. The regional evidence further reinforces this conclusion. African countries,



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characterized by high mismatch levels (often above 30%), also exhibit weaker labour market outcomes, while European and Asian countries with lower mismatch levels demonstrate better employment performance. This supports the findings of Habiyaemye et al. (2023) and the World Bank (2019), which identify mismatch as particularly severe in developing economies due to weak linkages between education systems and industry. However, the study also extends the literature by revealing that mismatch operates differently across contexts. For example, Nigeria exhibits relatively low measured unemployment despite high mismatch, suggesting that mismatch may lead to informal employment rather than open unemployment. This nuance adds depth to existing literature by highlighting the role of labour market structure—particularly informality—in mediating the effects of mismatch.

TVET as a Critical Mechanism for Reducing Unemployment

The negative and highly significant relationship between TVET enrolment and youth unemployment ($\beta = -0.072$, $p < 0.01$) strongly validates the literature emphasizing the role of vocational education in improving employability.

This finding is consistent with studies by the OECD (2019) and UNESCO (2021), which argue that well-developed TVET systems facilitate smoother school-to-work transitions by providing job-relevant skills. Countries such as Germany, Switzerland, and the Netherlands—characterized by high TVET enrolment (50–65%)—also display low youth unemployment rates, providing empirical support for the dual system model highlighted in the literature. The results also reinforce the idea that TVET helps reduce skills mismatch, thereby indirectly lowering unemployment. This aligns with the theoretical expectation that vocational training bridges the gap between education and labour market demand by focusing on practical and technical competencies. However, the study goes beyond existing literature by demonstrating that the effectiveness of TVET is context-dependent. In Africa and parts of the Americas, where TVET enrolment remains low and systems are often underfunded or outdated, its impact is limited. This supports UNESCO (2020) findings that TVET systems in developing countries suffer from weak institutional frameworks and limited industry collaboration. Moreover, the regression results indicate that while TVET significantly reduces unemployment, its effect is smaller than that of skills mismatch, suggesting that expanding TVET alone is not sufficient. This extends the literature by emphasizing that quality, relevance, and integration with industry matter more than mere enrolment levels.

Industrial Development and Labour Demand: Support for Structuralist Perspectives

The study finds that manufacturing value added has a negative and statistically significant effect on youth unemployment ($\beta = -0.054$, $p < 0.05$), confirming the importance of demand-side factors. This result strongly aligns with the Structural Transformation Theory, which emphasizes that industrialization drives job creation by expanding demand for labour, particularly in manufacturing sectors. The findings support the argument that economies with stronger industrial bases are better able to absorb young workers.

The regional analysis further substantiates this relationship:

- i. Asian countries with high manufacturing output (above 20% of GDP) exhibit low unemployment rates
- ii. European countries with strong industrial sectors also perform better
- iii. African countries with limited industrial capacity face persistent employment challenges

These patterns are consistent with UNIDO (2022), which highlights the role of manufacturing in generating both direct and indirect employment opportunities. However, the study also nuances the literature by showing that industrial development alone is not sufficient. In the Americas, for instance, moderate levels of manufacturing do not always translate into lower unemployment. This



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suggests that the employment elasticity of growth depends on complementary factors such as skills availability and labour market institutions. Thus, the findings extend the structuralist perspective by demonstrating that industrial growth must be accompanied by appropriate skills development to yield meaningful employment outcomes.

Interaction of Determinants: A Multidimensional Framework

One of the most important contributions of this study is its demonstration that youth unemployment is not driven by a single factor but by the interaction of skills mismatch, TVET, and industrial development. The regression results and regional comparisons collectively show that high mismatch, weak TVET and low industrialization result to high unemployment (common in Africa), low mismatch, strong TVET and high industrialization result to low unemployment (common in Europe and Asia), While moderate levels of all factors result to mixed outcomes (Americas). This integrated perspective addresses a key gap identified in the literature, where most studies examine these variables in isolation. The findings confirm that supply-side (skills) and demand-side (jobs) factors are mutually reinforcing. Importantly, the high R-squared value (0.72) indicates that the combined model explains a substantial portion of variation in youth unemployment, validating the multidimensional approach.

Implications for Theory and Empirical Literature

The study makes several important contributions to existing knowledge:

1. Refinement of Human Capital Theory
The findings challenge the assumption that more education automatically reduces unemployment, emphasizing instead the importance of relevant and demand-driven skills.
2. Extension of Matching Theory
By quantifying the impact of skills mismatch, the study provides empirical evidence on how labour market frictions translate into macro-level unemployment outcomes.
3. Strengthening Structuralist Arguments
The results confirm that economic structure matters, but also show that industrialization must be complemented by skill alignment.
4. Bridging Fragmented Literature
Unlike previous studies, this research integrates multiple determinants within a single econometric framework, offering a of youth unemployment.

Overall Synthesis

In line with the reviewed literature, the study confirms that:

1. Skills mismatch is a primary driver of youth unemployment
2. TVET is an effective mitigation mechanism, though context-dependent
3. Industrial development is a crucial enabler of labour demand

However, the key insight emerging from the findings is that these factors are interdependent. Addressing youth unemployment requires coordinated policies that simultaneously:

1. Align education with labour market needs
2. Strengthen vocational training systems
3. Expand industrial capacity

This reinforces the study's central conclusion: fragmented policy approaches are unlikely to succeed, and only integrated strategies can deliver sustainable improvements in youth employment outcomes.

Conclusion

This study provides robust cross-country evidence that youth unemployment is primarily driven by structural misalignment between skills supply and labour demand. Skills mismatch emerges as the most significant determinant, confirming that the quality and relevance of education are more critical



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than educational attainment alone. TVET systems play a vital role in improving employability by facilitating school-to-work transitions, while industrial development enhances labour absorption capacity. However, the findings demonstrate that these factors are interdependent. Industrial expansion without adequate skills, or education reforms without labour demand, produces limited employment gains. Regional disparities further highlight that countries with strong institutional alignment between education, training, and industry achieve better labour market outcomes. Overall, the study confirms that youth unemployment is a systemic issue requiring integrated and coordinated policy interventions.

Recommendations

1. Reduce Skills Mismatch

- i. Align curricula with labour market demand through competency-based and digital skills frameworks
- ii. Strengthen labour market information systems to guide education planning
- iii. Promote industry participation in curriculum design

2. Strengthen TVET Systems

- i. Expand access to demand-driven vocational education
- ii. Institutionalize apprenticeship and dual training models
- iii. Increase private sector collaboration and funding

3. Promote Industrial Development

- i. Support manufacturing and high-productivity sectors
- ii. Encourage SME development and industrial clusters
- iii. Facilitate technology adoption and value-chain integration

4. Adopt Integrated Policy Frameworks

- i. Coordinate education, labour, and industrial policies
- ii. Link skills development directly to national development strategies
- iii. Monitor outcomes using evidence-based evaluation systems

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