

Gender-Based Disparities in Technical Education Assessment and Certification Outcomes Across Philippine Regions: A Regional Perspective

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Abstract. This study investigates gender-based disparities in assessment and certification outcomes within the Philippine technical vocational education system by analyzing 3,030,892 candidates – 1,609,060 males and 1,421,832 females – across 17 regions and the Central Office in the year 2024. While national data suggest general gender parity in Technical and Vocational Education and Training (TVET), regional-level disparities remain underexplored. Using a descriptive-comparative quantitative design and secondary data from publicly available reports, the study assessed regional certification rates and calculated gender gaps. Results revealed that the National Capital Region recorded the highest certification rates for both males (97.48%) and females (98.01%). At the same time, Region X exhibited the widest gender gap at -18.81%, with males significantly underperforming compared to females. Region I demonstrated near gender parity with only a 0.23% difference. These findings underscore the uneven distribution of TVET success across areas, shaped by socio-economic, institutional, and gender-specific factors. The study highlights the need for localized, gender-responsive interventions, including improved training access, targeted support for underperforming groups, and stronger regional implementation of national TVET equity policies to ensure inclusive skills development across the country.

Keywords: Assessment outcomes; Gender gap; Regional disparities; TVET certification

1.0 Introduction

In today's global labor landscape, Technical and Vocational Education and Training (TVET) is increasingly recognized as a critical driver of workforce development, economic growth, and social inclusion. In the Philippines, the national agency responsible for managing TVET, through training, assessment, and certification, is the Technical Education and Skills Development Authority (TESDA), which plays a significant role in equipping individuals with industry-relevant skills. As the country continues to transition toward service- and industry-oriented economies, ensuring equitable outcomes in certification – not just access to training – has become a pressing concern. This is particularly significant in the context of promoting inclusive development and reducing systemic disparities in education and employment. Aligned with Sustainable Development Goals

(SDGs), especially SDG 4 (Quality Education) and SDG 5 (Gender Equality), equitable TVET certification outcomes serve as a critical benchmark for evaluating access to meaningful economic opportunities (United Nations, 2015). However, despite policies aimed at mainstreaming gender equity in technical education, underlying disparities persist, particularly when analyzed at the regional level. While national-level enrollment data often suggest balanced gender representation in TVET—52.6% female and 47.4% male—these figures obscure more profound inequalities in certification success across geographic and gender lines (TESDA, 2023; UNESCO-UNEVOC, 2022).

Literature suggests that both structural and sociocultural factors shape gender-based disparities in vocational education. Studies by Dumadag et al. (2024) and Masud et al. (2018) reveal that females often encounter barriers in male-dominated trades, while men may experience stigmatization or disengagement in caregiving and service-oriented fields. These dynamics affect not just enrollment, but performance in assessments and certification outcomes. According to Lent and Brown (2013), Social Cognitive Career Theory explains such disparities as outcomes of self-efficacy beliefs shaped by cultural and social expectations. Similarly, Eccles and Wigfield (2002) argue in Expectancy-Value Theory that motivation is influenced by individuals' perception of success and value in a given task—factors that are often gendered due to societal conditioning.

Despite a growing body of international and local studies, a notable gap remains in regionally disaggregated research on gender disparities in technical certification. Previous reports (ADB, 2014; UNESCO-UNEVOC, 2022; Alinea, 2022) point to persistent challenges in marginalized regions where TVET infrastructure is weak and gender norms are rigid. However, little is known about how these dynamics play out in the Philippine context across different regional settings, where economic conditions, cultural norms, and institutional support systems vary widely. Given this gap, this study aims to analyze regional disparities in TESDA assessment and certification outcomes by examining gender-based patterns across the Philippines. Specifically, it seeks to determine the regional distribution of assessment and certification results among male and female TVET candidates and to identify differences in certification rates by gender across regions. Furthermore, the study aims to analyze the extent and patterns of gender gaps in certification outcomes, providing a nuanced understanding of how gender dynamics influence TVET success at the regional level. The findings will provide valuable insights for policymakers, training institutions, and development agencies to ensure that TESDA's skills certification system is not only inclusive in access but also equitable in outcomes, thereby advancing the country's goals for inclusive growth and gender equality.

2.0 Methodology

2.1 Research Design

This study employed a descriptive-comparative quantitative research design to analyze gender-based patterns in assessment and certification outcomes within the Philippine Technical Education and Skills Development Authority (TESDA) system. This design was appropriate for identifying patterns, comparing certification rates between male and female TVET candidates, and analyzing gender gaps across regions in the Philippines (Maclean & Wilson, 2009).

2.2 Data Gathering Procedure

The data used in this study were secondary data sourced from TESDA's 2024 quarterly reports, publicly available through TESDA's transparency portal. In the book of Saunders, Lewis, and Thornhill (2023), secondary data is data that was initially collected for some other purpose and categorized into documentary, survey-based, and those from multiple sources. The dataset comprised 3,030,892 individuals: 1,609,060 males and 1,421,832 females. These figures represent all assessed candidates reported in TESDA's quarterly statistics for the year 2024, thus enhancing the representativeness and generalizability of the findings. Each bulletin report includes disaggregated figures on the number of individuals assessed and certified, classified by gender and region. The relevant reports were accessed and downloaded directly from TESDA's Transparency Portal in PDF format. These documents were then carefully reviewed, and all gender-related statistics were encoded into Microsoft Excel spreadsheets. Data were validated by cross-referencing the figures across all four quarterly reports for consistency.

2.3 Data Analysis Procedure

The quantitative data were analyzed using descriptive statistics, such as frequency counts, percentages, and certification rates, to determine the regional distribution of assessed and certified male and female candidates. Comparative analysis was conducted to identify gender-based differences in certification outcomes. The gender gap was calculated by subtracting the male certification rate from the female certification rate for each region. Data were visualized through graphs and tables to present gender disparities. Microsoft Excel was used for data organization and statistical computations. Since the study utilized secondary data, validity was ensured by using official and authenticated TESDA datasets. Consistent calculation methods across all regional data maintained reliability. Trustworthiness was reinforced through transparency in data sources and methodology, and by triangulating trends with established literature (Maclean & Wilson, 2009; ADB, 2014).

2.4 Ethical Considerations

This study utilized secondary, aggregated data obtained from the publicly accessible quarterly statistical bulletins published by the Technical Education and Skills Development Authority (TESDA) for the year 2024. As the data did not include any personal identifiers or sensitive information and were reported at the regional level, the study did not involve human subjects in the traditional sense and was thus exempt from Institutional Review Board (IRB) approval. According to Tripathy (2013), the secondary analysis of publicly available and anonymized datasets typically does not constitute human subjects research and does not require informed consent or formal ethics clearance.

Despite this exemption, the researchers upheld ethical standards by ensuring data integrity, transparency, and accountability throughout the study. All data were accessed directly from TESDA's official website and were handled responsibly, following best practices for secondary data use, including secure storage and accurate documentation of the source (Karp et al., 2008). The TESDA agency was cited appropriately in all instances, respecting intellectual ownership and ensuring traceability. Moreover, the ethical legitimacy of this secondary data analysis is further supported by Ruggiano and Perry (2019), who emphasize that the use of existing datasets—when de-identified and analyzed responsibly—offers a valuable, low-risk method for generating evidence to inform policy and practice. The findings of this study are expected to be utilized in a manner that upholds fairness and respect for all stakeholders involved in the TESDA system, without causing harm or exposing individuals to undue risk.

3.0 Results and Discussion

3.1 The TVET Assessment and Certification among Males by Region

This section presents the regional distribution of TVET assessment and certification outcomes among male candidates, highlighting variations in participation and success rates across different regions.

Table 1. *TVET Assessment and Certification among Males by Region*

Region	Assessed	Certified	Variance
NCR	272,491	265,620	6,871
CAR	46,878	43,819	3,059
I	98,291	92,264	6,027
II	62,658	58,296	4,362
III	180,511	168,989	11,522
IV-A	195,302	185,151	10,151
IV-B	48,487	46,237	2,250
V	80,164	68,856	11,308
VI	72,847	66,031	6,816
VII	119,745	113,988	5,757
VIII	87,314	84,812	2,502
IX	44,463	40,871	3,592
X	75,686	53,896	21,790
XI	84,998	76,835	8,163
XII	88,851	84,490	4,361
CARAGA	33,933	30,255	3,678
BARMM	30,407	28,987	1,420
Central Office	1,855	1,731	124
Overall Total	1,609,060	1,511,128	113,753

Note: Data from 1st quarter TVET statistics (2024, May 16), 2nd quarter TVET statistics (2024, July 22), 3rd quarter TVET statistics (2024, November 25), and 4th quarter TVET statistics (2024, December 27), by the Technical Education and Skills Development Authority

The data from the table revealed that the region with the highest variance between male candidates assessed and certified is Region X (Northern Mindanao), which recorded a gap of 21,790. This significant difference suggests a notable challenge in transitioning assessed individuals to successful certification, possibly due to training quality, assessment readiness, or socio-economic constraints within the region. According to Atchoarena and Delluc (2001), regional disparities in Technical and Vocational Education and Training (TVET) outcomes often reflect unequal access to quality training infrastructure and resources, which could hinder performance during certification assessments. This underperformance in Region X highlights the need for targeted interventions to enhance the delivery and effectiveness of training programs for male participants.

In contrast, the Central Office posted the lowest variance, with only 124 fewer certifications than assessments. This minimal gap may indicate a highly efficient system of candidate preparation, closely monitored assessment standards, or more rigorous pre-assessment screening. Such efficiency aligns with the findings of Maclean and Wilson (2009), who emphasized the role of institutional support and centralized quality control in improving certification success rates. The proximity of administrative oversight and the relatively small sample size at the Central Office may also contribute to this high certification conversion rate.

Overall, the data show that out of 1,609,060 males assessed nationwide, 1,511,128 were certified, resulting in a total variance of 113,753. While the certification rate remains generally high, the disparity indicates room for improvement in preparing candidates, particularly in regions with larger gaps. These findings reinforce the importance of strengthening TVET systems at the regional level to ensure equitable outcomes. Addressing variance is crucial not only for individual employability but also for regional workforce development, as successful certification has been linked to higher labor market integration (Atchoarena & Delluc, 2001; Maclean & Wilson, 2009).

3.2 The TVET Assessment and Certification among Females by Region

The data in Table 2 showed the results of the regional distribution of TVET assessment and certification outcomes among female candidates, highlighting disparities and trends in female participation and success rates across the country.

Table 2. TVTED Assessment and Certification among Females by Region

Region	Assessed	Certified	Variance
NCR	406,056	397,994	8,062
CAR	41,800	37,926	3,874
I	76,971	72,073	4,898
II	48,830	44,958	3,872
III	137,612	127,102	10,510
IV-A	136,976	129,284	7,692
IV-B	36,373	33,915	2,458
V	61,974	50,687	11,287
VI	52,755	47,946	4,809
VII	96,826	90,878	5,948
VIII	66,806	64,229	2,577
IX	34,455	31,299	3,156
X	50,027	45,034	4,993
XI	76,050	68,932	7,118
XII	56,450	53,374	3,076
CARAGA	18,171	15,901	2,270
BARMM	20,615	19,532	1,083
Central Office	3,085	2,776	309
Overall Total	1,421,832	1,333,840	87, 992

Note: Data from 1st quarter TVET statistics (2024, May 16), 2nd quarter TVET statistics (2024, July 22), 3rd quarter TVET statistics (2024, November 25), and 4th quarter TVET statistics (2024, December 27), by the Technical Education and Skills Development Authority.

The data from Table 2 revealed that the region with the highest variance between assessed and certified female candidates is Region V (Bicol Region), which recorded a gap of 11,287. This significant difference suggests that while many females are entering the assessment process, a sizable number are not achieving certification. Several factors may contribute to this gap, such as limited access to high-quality training, a lack of assessment readiness, or socio-cultural barriers affecting female learners. As UNESCO-UNEVOC (2013) notes, females in TVET often face gender-based challenges, including less access to advanced training technologies and reduced support systems. These challenges may disproportionately affect outcomes in regions with limited resources, reinforcing the need for gender-sensitive and inclusive training approaches.

While the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) posted the lowest variance, with only 1,083 fewer certifications than assessments, despite being one of the most geographically and economically challenged regions, BARMM's close certification rate suggests focused interventions or smaller, well-targeted training populations. This aligns with findings by King and Palmer (2010), who emphasized the effectiveness of community-based and localized TVET programs in improving certification outcomes when culturally and contextually adapted. The minimal variance may also reflect the presence of programs that directly support female learners in marginalized areas, a key strategy in closing the gender certification gap (Asian Development Bank, 2014).

Overall, the data reveal that out of 1,421,832 females assessed nationwide, 1,333,840 were certified, yielding a total variance of 87,992. While the national female certification rate remains strong, the disparity still highlights the need for improvements in training quality, assessment preparation, and support for women in TVET programs. These findings support the view that although gender parity in TVET participation is increasing, certification outcomes remain uneven and must be addressed through policy, pedagogy, and targeted interventions (UNESCO-UNEVOC, 2013; King & Palmer, 2010; ADB, 2014). Strengthening the support systems for female learners—especially in regions with higher variances—will help ensure more equitable labor market integration and empowerment through technical education.

3.3 The Gender Certification Rate and Gender Gap Analysis

One of the specific objectives of the study was to examine gender-based certification rates and conduct a gender gap analysis.

Table 3. Gender Gap

Region	Male Certification Rate (%)	Female Certification Rate (%)	Gender Gap
NCR	97.48	98.01	-0.54
CAR	93.47	90.73	2.74
I	93.87	93.64	0.23
II	93.04	92.07	0.97
III	93.62	92.36	1.25
IV-A	94.80	94.38	0.42
IV-B	95.36	93.24	2.12
V	85.89	81.79	4.11
VI	90.64	90.88	-0.24
VII	95.19	93.86	1.34
VIII	97.13	96.14	0.99
IX	91.92	90.84	1.08
X	71.21	90.02	-18.81
XI	90.40	90.64	-0.24
XII	95.09	94.55	0.54
CARAGA	89.16	87.51	1.65
BARMM	95.33	94.75	0.58
Central Office	93.32	89.98	3.33
Overall Total	93.81	93.91	-0.10

The data in Table 3 shows that Region X recorded the highest gender gap at -18.81%, indicating a significantly lower certification rate among males (71.21%) compared to females (90.02%). This substantial disparity could be attributed to several factors, including the migration of male workers, limited engagement in formal certification programs, or possibly the alignment of training programs more toward female-dominated fields in the region.

Studies show that men are more likely to engage in informal, uncertified skilled labor, especially in construction or agriculture sectors, which may reduce their motivation to pursue formal assessment (Asian Development Bank, 2014). Furthermore, cultural or economic constraints might push males into the labor force earlier, bypassing certification altogether (International Labor Organization, 2019).

In contrast, the lowest gender gap is observed in Region I with a marginal 0.23% difference, where male certification stands at 93.87% and female at 93.64%. This near parity suggests balanced access and participation in TVET certification among both genders, potentially resulting from well-distributed training centers, equitable local education initiatives, and gender-neutral program delivery. As emphasized by UNESCO (2013), regions that ensure inclusive learning environments and institutional support mechanisms often foster equal participation among men and women in skills development programs. The minimal gap here reflects the effective implementation of gender-responsive strategies within local TVET policies.

Looking at the overall total, the national gender gap is almost negligible at -0.10%, with female certification (93.91%) slightly exceeding male certification (93.81%). This suggests that, at a national level, the Philippines has made significant progress in narrowing gender disparities in technical and vocational education and certification outcomes. According to the Asian Development Bank (2014), the country has been a regional model in integrating gender equality into skills development. However, regional inconsistencies highlight the need for location-specific gender interventions and monitoring. Addressing the underlying socioeconomic and cultural dynamics behind such disparities remains essential in sustaining inclusive growth and workforce readiness.

4.0 Conclusion

The findings of this study contribute significantly to understanding the regional and gender-based disparities in TVET certification outcomes in the Philippines, revealing both progress toward national gender parity and the persistent localized gaps that hinder equitable access. These results underscore the importance of designing region-specific strategies that address geographic, cultural, and institutional barriers, particularly in underserved areas like Region X and CARAGA. For policy and practice, this implies a need for TESDA and local government units to strengthen gender-responsive programming, expand access in remote regions, and align training offerings with both local labor demands and inclusive development goals. In education, the study highlights the value of promoting gender equity through curriculum design, outreach efforts, and localized support services. Future research may be conducted to evaluate the long-term effects of gender-focused interventions on certification and employment outcomes. Qualitative research can explore the lived experiences of male and female TVET trainees, particularly in regions with pronounced gender gaps. Such insights would help uncover the social and psychological factors influencing certification performance and inform more holistic program development.

5.0 Contributions of Authors

Author 1: Conceptualization, data gathering, proposal writing, and data analysis.
Author 2: Proposal writing, data analysis, data gathering, and conceptualization.
Author 3: Proposal writing, data gathering, and conceptualization.
Author 4: Data analysis, data gathering, proposal writing, and conceptualization.
Author 5: Validation, supervision.

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7.0 Conflict of Interest

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