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Examining gender disparities in dropout rates in the Philippines: a comparative analysis

Examinando disparidades de gênero nas taxas de abandono escolar nas Filipinas: uma análise comparativa

Examinando las disparidades de género en las tasas de deserción escolar en Filipinas: un análisis comparativo

Samuel John E. Parreño
https://orcid.org/0000-0002-2230-8984
Faculty at Department of Teacher Education, University of Mindanao Digos College, Philippines
samueljohn_parreno@umindanao.edu.ph
(correspondence)

Maria Cristine Joy V. Anter
https://orcid.org/0000-0002-0246-0380
Faculty at Department of Teacher Education, University of Mindanao Digos College, Philippines

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The study highlights the need for targeted interventions to address gender and regional disparities in dropout rates, informing policies to improve educational retention.
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The article provides a comprehensive analysis of gender-specific dropout trends in the Philippines, offering valuable insights for policymakers to design evidence-based interventions.

ABSTRACT

Education plays a crucial role in an individual's success and a nation's overall development. However, dropout rates pose a significant challenge to achieving educational goals. This study examined gender disparities in dropout rates across regions and educational levels in the Philippines, aiming to understand the trends and patterns of dropout rates among male and female students. The research utilized a dataset of dropout rates disaggregated by gender and categorized by 17 regions obtained from the Philippine Institute for Development Studies. Trend analysis and statistical tests were employed to analyze the data and identify significant differences using R version 4.2.3. The findings revealed that dropout rates at the elementary level have been increasing since 2007, with males consistently exhibiting higher rates than females. The Autonomous Region in Muslim Mindanao (ARMM) consistently has the highest dropout rates, while the National Capital Region (NCR), Region I, and Region IVA have relatively lower rates. In the secondary level, overall dropout rates decreased, with male rates consistently higher than female rates. ARMM stood out with fluctuating and increasing dropout rates. The study highlighted the need for targeted interventions to address gender disparities and regional challenges and the importance of learning from successful regions to improve educational outcomes nationwide. Future research could explore the reasons behind the sudden increase in dropout rates during a specific period and investigate dropout rates beyond 2015.

Keywords: dropouts; desertion; gender disparity; Philippines.

RESUMO

A educação desempenha um papel crucial no sucesso individual e no desenvolvimento geral de uma nação. No entanto, as taxas de abandono escolar representam um desafio significativo para alcançar os objetivos educacionais. Este estudo examinou as disparidades de gênero nas taxas de abandono escolar em diferentes regiões e níveis educacionais nas Filipinas, com o objetivo de entender as tendências e padrões das taxas de abandono entre alunos do sexo masculino e feminino. A pesquisa utilizou um conjunto de dados das taxas de abandono escolar desagregados por gênero e categorizados por 17 regiões, obtidos do Instituto Filipino para Estudos de Desenvolvimento. Análises de tendências e testes estatísticos foram empregados para analisar os dados e identificar diferenças significativas usando o R versão 4.2.3. Os resultados revelaram que as taxas de abandono no nível fundamental vêm aumentando desde 2007, com os homens apresentando consistentemente taxas mais altas do que as mulheres. A Região Autônoma no Mindanau Muçulmano (ARMM) tem consistentemente as taxas de abandono mais altas, enquanto a Região da Capital Nacional (NCR), Região I e Região IVA têm taxas relativamente mais baixas. No nível secundário, as taxas gerais de abandono diminuíram, com as taxas masculinas consistentemente mais altas do que as femininas. A ARMM se destacou com taxas de abandono flutuantes e crescentes. O estudo destacou a necessidade de intervenções direcionadas para abordar as disparidades de gênero e desafios regionais, além da importância de aprender com regiões bem-sucedidas para melhorar os resultados educacionais em todo o país. Pesquisas futuras poderiam explorar as razões por trás do aumento súbito nas taxas de abandono durante um período específico e investigar as taxas de abandono após 2015.

Palavras-chave: abandono escolar; desistência; disparidade de gênero; Filipinas.

RESUMEN

La educación juega un papel crucial en el éxito individual y en el desarrollo general de una nación. Sin embargo, las tasas de deserción escolar representan un desafío significativo para lograr los objetivos educativos. Este estudio examinó las disparidades de género en las tasas de deserción escolar en diferentes regiones y niveles educativos en Filipinas, con el objetivo de comprender las tendencias y patrones de las tasas de deserción entre estudiantes masculinos y femeninos. La investigación utilizó un conjunto de datos de tasas de deserción escolar desagregados por género y categorizados por 17 regiones, obtenidos del Instituto Filipino para Estudios de Desarrollo. Se emplearon análisis de tendencias y pruebas estadísticas para analizar los datos e identificar diferencias significativas utilizando R versión 4.2.3. Los resultados revelaron que las tasas de deserción en el nivel primario han ido en aumento desde 2007, con los hombres mostrando consistentemente tasas más altas que las mujeres. La Región Autónoma en Mindanao Musulmán (ARMM) tiene consistentemente las tasas de deserción más altas, mientras que la Región de la Capital Nacional (NCR), Región I y Región IVA tienen tasas relativamente más bajas. En el nivel secundario, las tasas generales de deserción disminuyeron, con las tasas masculinas consistentemente más altas que las femeninas. La ARMM se destacó con tasas de deserción fluctuantes y en aumento. El estudio destacó la necesidad de intervenciones específicas para abordar las disparidades de género y los desafíos regionales, y la importancia de aprender de las regiones exitosas para mejorar los resultados educativos a nivel nacional. Investigaciones futuras podrían explorar las razones detrás del aumento repentino en las tasas de deserción durante un período específico e investigar las tasas de deserción más allá de 2015.

Palabras clave: deserción escolar; abandono; disparidad de género; Filipinas.

INTRODUCTION

Education has been seen as a relevant aspect of defining an individual's success. Many people believe that achieving great things relies upon stepping on the graduation stage (Sportelli, 2014). Education has a crucial role in the development, productivity, and expansion of the nation's economy, which benefits its citizens and society (Gopinathan, 2012). Education also fosters social progress through its humanistic, civic, and economic purposes and by fostering social equity and justice (Spiel et al., 2018). However, some students fail to finish certain milestones on the educational ladder, dropping out in the middle of the school year.

The school has been tasked with providing young people with a high-quality education. Although its programs are created to achieve this goal, a serious issue arises due to the frequent dropouts among its students. The Philippines' response to the Education For All (EFA) Action Plan has been hindered by the persistently high dropout rate and graduates' lack of elementary school competencies (Andrada, 2008). Dropout is an issue for a variety of reasons. First, dropouts or school leavers constitute a significant loss to the country's economy at the aggregate economy level, where education is believed to be a key predictor of economic growth and development. Second, on a personal level, dropping out of school means committing to a low-income future, so, given an option, one will certainly not choose this (Hanushek et al., 2006). Dropouts may not be noticeable, but they are significant among the poor, directly affecting the transmission of poverty, contrary to the individuals in different generations (Orbeta, 2010).

Dropout rates in an international setting have been a topic of significant research interest, as understanding the factors contributing to students leaving school prematurely is crucial for educational policy and intervention. Some identified reasons contributing to high dropout rates were socio-economic factors such as poverty and parental education (Rumberger & Lim, 2008), academic factors such as low achievement and lack of engagement (Hossler et al., 1989), feelings of disengagement in school (Barnet, 2013), and school climate including safety, teacher-student relationships, and school support (Thapa et al., 2013; Spanu & Chicioreanu, 2020). Other factors contributing to dropping out were aggression and bullying, engagement in delinquent conduct, disparities in familial principles, and family constraints and concerns (Kuo, 2020). Moreover, the teachers' habitual absenteeism and the learner's early school admission were identified as factors for the learner dropping out in the later school years (Hirakawa & Taniguchi, 2021). These studies collectively indicate the complex interplay of socio-economic, academic, school-related, family, and personal factors in understanding dropout rates within an international context.

Several studies have investigated dropout rates and their contributory factors in the Philippines (Bravo, 2023; Cuesta, 2020; Orion et al., 2014). A study conducted on dropout pupils, their parents, and teachers revealed that the reasons for dropping out include social, behavioral, economic, and educational factors (Cuesta, 2020). In another study, teacher-related and health-related factors contributed to the student dropping out (Gella, 2011). A model was also created to predict the number of dropouts after completing primary education, as determined by parental support, learning capacity, and government subsidy factors. (Etulle & Carmelotes, 2014). These findings collectively contribute to understanding dropout rates in the Philippines by addressing the complex interplay of socio-economic, family-related, academic, school-related, and health factors.

On the other hand, some studies have examined the relationship between gender and student dropout (Subrahmanyam, 2016; Hjorth et al., 2016; Kumar et al., 2023). A study in Spain found that gender imbalances in student attrition exist (Bayón-Calvo et al., 2021). Aside from that, gender-specific experiences, such as early parenthood among females and disciplinary issues among males, were also seen as factors in dropping out of school (Rumberger, 2011). Social stereotypes were also considered a factor (Lopez-Pacheco, 2005). Attitude towards schooling was also investigated, where girls were found to be more serious in school than boys (Tinklin, 2003). On the contrary, a study on 17-year-old dropouts found no significant gender gap (Schmidt, 2004). Nonetheless, these studies collectively contribute to understanding gender differences in dropout rates and highlight the complex interplay of societal, academic, and individual factors.

Regarding gender, few studies specifically focus on gender-specific trends and patterns, especially in the Philippines' basic education setting. Analyzing the dropout rates in terms of gender will allow further understanding of its occurrences and the unique challenges faced by male and female students. Additionally, this will provide a basis for evidence-based interventions and targeted strategies.

Therefore, this study aimed to examine gender disparities in dropout rates across regions and educational levels in the Philippines. More specifically, the study aimed to explore gender-specific trends and patterns of dropout rates in elementary and secondary levels and determine significant differences in the dropout rates of male and female students across regions and educational levels. The primary purpose of this paper is to provide comparative evidence of educational disparities in the Philippines, contribute to the existing body of knowledge on dropout rates in the country, and inform future research endeavors in education and social development.

METHODS

Research Design

This study followed a descriptive comparative research design. The descriptive comparative design is a research approach that aims to describe and compare different groups or phenomena without manipulating variables, focusing on identifying similarities and differences (Creswell, 2014). This design provides a detailed understanding of the characteristics and relationships among groups or phenomena, that is, the differences in the dropout rates between sexes in this case.

Dataset and Data Source

The dataset used in this research paper comprised dropout rates of elementary and secondary students in the Philippines, disaggregated by gender and categorized by 17 regions. The data were retrieved from the economic and social database of the Philippine Institute for Development Studies. The dataset includes dropout rate data for the elementary level from 2000 to 2015 and for the secondary level from 2002 to 2015. Only the data from 2002 to 2015 in each educational level were used in the analyses, which sets the study's limitations. Hence, investigating the dropout rates from 2016 to 2023 would be another research concern for future researchers.

Data Analysis

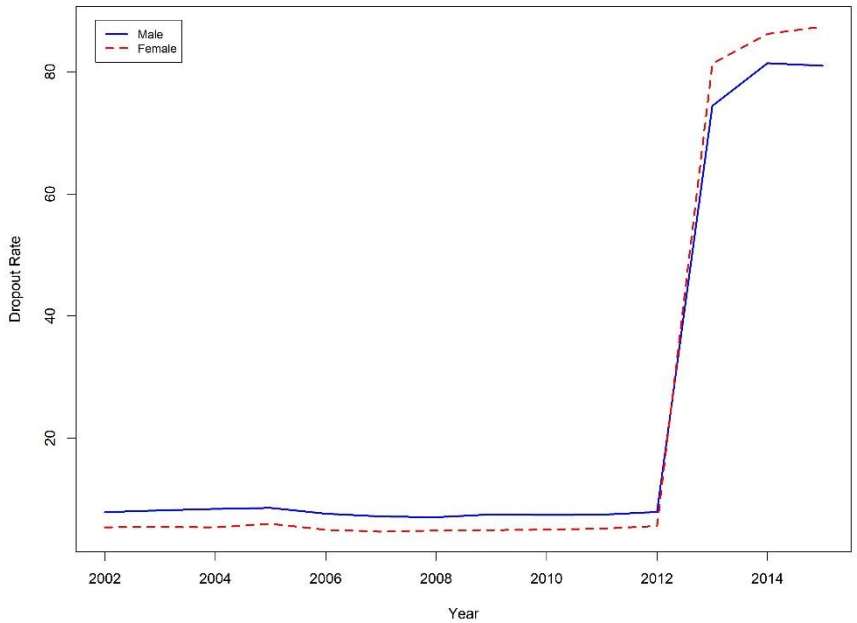
Data were analyzed using time series analysis, particularly trend analysis and moving average, to explore trends in dropout rates and identify any changes or patterns in dropout rates over time. The Welch two-sample t-test and Wilcoxon rank sum tests assessed differences in dropout rates between male and female students for both elementary and secondary levels. The Kruskal-Wallis test was used to examine if there were significant differences in dropout rates among different regions, educational stages, and genders. Dunn's test with Bonferroni correction was used to assess the pairwise differences between male and female dropouts at the elementary and secondary levels across various regions in the Philippines. All statistical tests used a 0.05 level of significance. All analyses and visualizations were done using R version 4.2.3.

RESULTS AND DISCUSSION

Trend analysis on dropout rates in elementary level

It was observed that the dropout rates at the elementary level in the Philippines have been steadily increasing since 2007. The highest dropout rates from 2002 to 2012 were observed in 2005 for male and female students, with dropout rates of 8.58% and 5.98%, respectively. This notable peak in the trend highlighted the significant dropout rates during that year. Following this peak, the male and female dropout rates continued to rise steadily over the subsequent years. In addition, the female dropout rates had generally remained lower throughout the observed period, showing a comparatively minor increase over time. Moreover, a drastic dropout rate increase was reported between 2013 and 2015 (Figure 1).

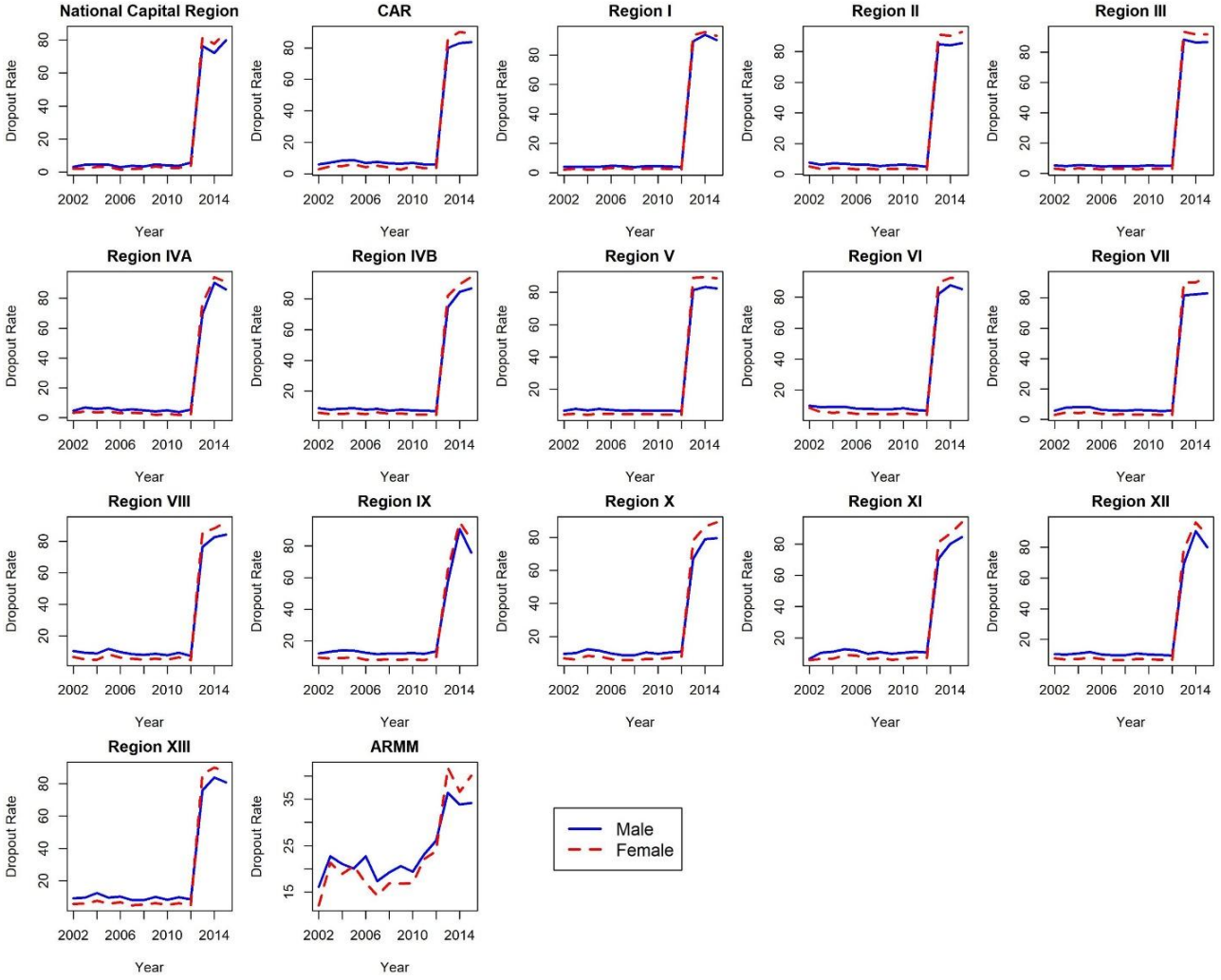
Figure 1. Dropout rate in elementary level in the Philippines from 2002 to 2015.



Note. Authors' preparation with the research data.

The time series plots of dropout rates at the elementary level in each region revealed several characteristics. Since 2007, there has been a consistent upward trend in dropout rates across all regions (Figure 2). Additionally, a trend emerges when comparing male and female students. Male students generally exhibited higher dropout rates than their female counterparts. Furthermore, within the 2002 to 2012 period, most regions experienced their highest dropout rates between 2004 and 2005. It is reported that within the 2002 to 2012 period, the highest dropout rate for males was recorded in ARMM in 2012 at 26.09%, while the lowest was recorded in Region I in 2006 at 4.64%. On the other hand, the highest female dropout rate in the same period was recorded in ARMM in 2012 at 23.85%, while the lowest was recorded in Region I at 3.15% (Table 1).

Figure 2. Dropout rates in the elementary level by region from 2002 to 2015



Note. Authors' preparation with the research data.

Table 1. Comparison of highest dropout rates in elementary level by region, gender, and year.

Region	Year with Highest Dropout Rate	
	Male	Female
National Capital Region (NCR)	2012 (5.75%)	2012 (3.75%)
Cordillera Administrative Region (CAR)	2005 (8.68%)	2005 (6.02%)
Region I	2006 (4.64%)	2006 (3.15%)
Region II	2002 (7.45%)	2002 (5.13%)
Region III	2004 (5.55%)	2004 (3.47%)
Region IVA	2003 (6.63%)	2003 (4.18%)
Region IVB	2005 (8.98%)	2007 (6.29%)
Region V	2003 & 2005 (7.83%)	2003 (4.94%)
Region VI	2002 (9.82%)	2002 (8.44%)
Region VII	2004 (7.95%)	2005 (4.69%)
Region VIII	2005 (11.71%)	2005 (8.17%)
Region IX	2004 (14.14%)	2012 (9.89%)
Region X	2004 (12.19%)	2004 (8.23%)
Region XI	2005 (12.78%)	2005 (8.95%)
Region XII	2005 (11.94%)	2005 (8.28%)
Region XIII	2004 (12.28%)	2004 (7.51%)
Autonomous Region in Muslim Mindanao (ARMM)	2012 (26.09%)	2012 (23.85%)

Note. Authors' preparation with the research data.

From 2002 to 2012, it is noteworthy that the Autonomous Region in Muslim Mindanao (ARMM) consistently exhibited the highest dropout rate among the regions analyzed. ARMM stood out with persistently high dropout rates for both male and female students, reaching a peak in 2012 at 26.09% for males and 23.85% for females. In contrast to the consistently high dropout rates in ARMM, it is noteworthy that the National Capital Region (NCR), Region I, and Region IVA consistently exhibited the lowest dropout rates among the regions analyzed during the period. These regions, particularly the NCR, emerged as notable examples of relatively lower dropout rates than other regions in the Philippines. (Table 2).

Table 2. Comparison of highest and lowest dropout rates in elementary level by year, gender, and region

Year	Gender	Region with Highest Dropout Rate	Region with Lowest Dropout Rate
2002	Male	ARMM (16.15%)	NCR (3.22%)
	Female	ARMM (12.15%)	NCR (2.09%)
2003	Male	ARMM (22.68%)	Region I (4.03%)
	Female	ARMM (21.25%)	NCR (2.16%)
2004	Male	ARMM (21.06%)	Region I (3.9%)
	Female	ARMM (18.94%)	Region I (2.15%)
2005	Male	ARMM (20.08%)	Region I (4.08%)
	Female	ARMM (20.57%)	Region I (2.06%)
2006	Male	ARMM (22.69%)	NCR (2.98%)
	Female	ARMM (16.95%)	NCR (1.46%)
2007	Male	ARMM (17.37%)	NCR (3.72%)
	Female	ARMM (14.28%)	NCR (1.8%)
2008	Male	ARMM (19.21%)	NCR (3.43%)
	Female	ARMM (16.87%)	NCR (2.13%)
2009	Male	ARMM (20.62%)	Region IVA (4.2%)
	Female	ARMM (16.8%)	Region IVA (1.78%)
2010	Male	ARMM (19.37%)	NCR (4.03%)
	Female	ARMM (16.95%)	NCR (2.53%)
2011	Male	ARMM (23.14%)	Region IVA (3.7%)
	Female	ARMM (22.11%)	Region IVA (1.83%)
2012	Male	ARMM (26.09%)	Region I (3.64%)
	Female	ARMM (23.85%)	Region IVA (2.3%)

Note. Authors' preparation with the research data.

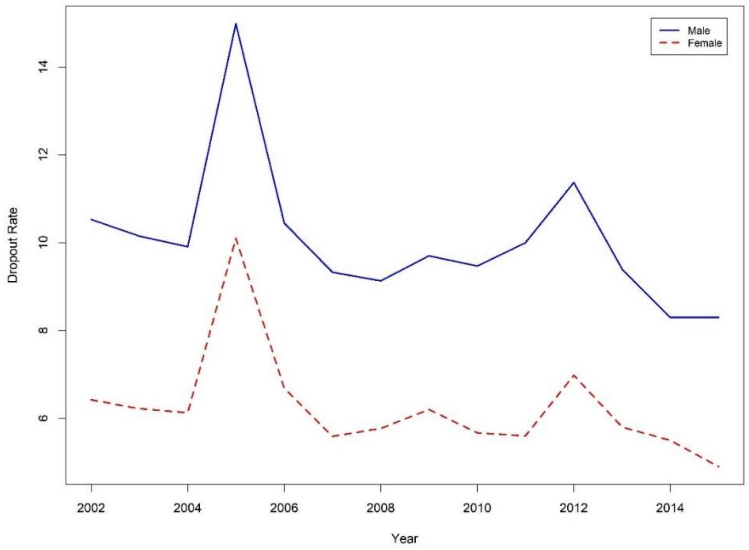
The trend analysis highlighted the gender disparity in elementary level dropout rates, with males consistently exhibiting higher rates than females. The sustained increase in male dropout rates since 2007 underscores the need for targeted interventions and policies aimed at addressing the underlying factors contributing to this disparity. Efforts to mitigate this trend should prioritize initiatives that support male students, ensuring their educational success and reducing the overall gender disparity in dropout rates in the Philippines. Also, the sudden increase in reported dropout cases from 2013 to 2015 raises the possibility that there may have been an error in reporting or data collection during the period. Hence, observations on that period were not considered in the trend analysis. Future research could delve into the circumstances surrounding this notable spike in dropout rates to ascertain its accuracy and understand any underlying factors contributing to this possible anomaly.

Further, the consistent pattern of high dropout rates in ARMM highlights the significant educational challenges faced by the region and the urgent need for targeted interventions to address the high dropout rates and ensure equal access to education. Reasons for the high dropout rates in ARMM may be the high cost of education and lack of personal interest (Parreño, 2019; Parreño, 2023). In contrast, the NCR, the country's capital region, consistently demonstrated comparatively lower dropout rates for both male and female students. It served as a positive example of providing a more supportive educational environment and effective measures to retain students in schools. Similarly, Region I and Region IVA consistently showed lower dropout rates. These regions' commitment to education and successful implementation of programs and policies likely contributed to their relatively better outcomes in terms of dropout rates. The lower dropout rates in these regions, particularly the NCR, indicated the potential impact of factors such as better access to educational resources, infrastructure, and socio-economic advantages that can contribute to higher retention rates (Barrett et al., 2019). It also highlighted the importance of studying and learning from these regions' practices and implementing successful strategies in other areas to improve educational outcomes and reduce dropout rates nationwide.

Trend analysis on dropout rates in secondary level

The dropout rates of secondary learners in the Philippines reveals a decreasing pattern. The highest dropout rates among male and female secondary learners were recorded in 2005, with values of 14.99% and 10.10%, respectively, marking a notable peak in the trend. Since then, both male and female dropout rates have been declining. Notably, throughout the observed period, the male dropout rate remained consistently higher than that of females (Figure 3).

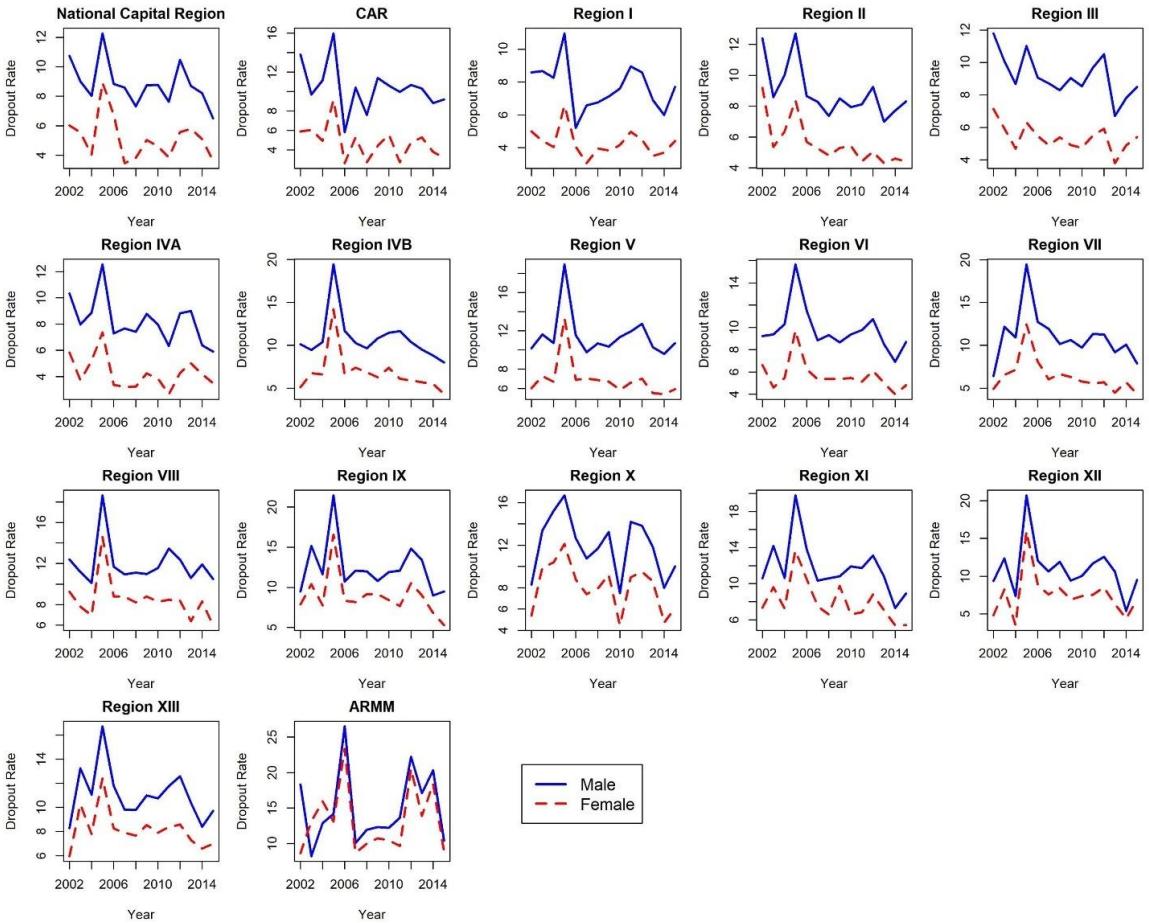
Figure 3. Dropout rate in secondary level in the Philippines from 2002 to 2015



Note. Authors' preparation with the research data.

The time series plot showcasing the dropout rates of male and female secondary students across all regions provides valuable insights into the educational landscape in the Philippines. Overall, a consistent trend emerges as the dropout rates in most regions exhibit a downward trajectory. However, it is essential to note that there are exceptions to this pattern, particularly in the Autonomous Region in Muslim Mindanao (ARMM), where dropout rates have experienced fluctuations and even shown an increasing trend. Male students consistently display higher rates than their female counterparts across the regions when comparing the male and female dropout rates. Furthermore, a notable observation is that most regions experienced their highest dropout rates in 2005. It is reported that within the period, the highest dropout rate for males was recorded in ARMM in 2006 at 26.5%, while the lowest was recorded in Region I in 2005 at 10.96% (Table 3). On the other hand, the highest female dropout rate in the same period was recorded in ARMM in 2006 at 23.34%, while the lowest was recorded in Region I at 6.56% (Figure 4).

Figure 4. Dropout rate in secondary level by region from 2002 to 2015



Note. Authors' preparation with the research data.

Table 3. Comparison of highest dropout rates in secondary level by region, gender, and year

Region	Year with Highest Dropout Rate	
	Male	Female
NCR	2005 (12.26%)	2005 (8.93%)
CAR	2005 (15.96%)	2005 (9.12%)
Region I	2005 (10.6%)	2005 (6.56%)
Region II	2005 (12.71%)	2002 (9.19%)
Region III	2002 (11.79%)	2002 (7.13%)
Region IVA	2005 (12.54%)	2005 (7.37%)
Region IVB	2005 (19.41%)	2005 (14.17%)
Region V	2005 (18.91%)	2005 (13.29%)
Region VI	2005 (15.65%)	2005 (9.72%)
Region VII	2005 (19.44%)	2005 (12.44%)
Region VIII	2005 (18.63%)	2005 (14.57%)
Region IX	2005 (21.43%)	2005 (16.56%)
Region X	2005 (16.67%)	2005 (12.12%)
Region XI	2005 (19.78%)	2005 (13.66%)
Region XII	2005 (20.7%)	2005 (15.99%)
Region XIII	2005 (16.71%)	2005 (12.42%)
ARMM	2006 (26.5%)	2006 (23.34%)

Note. Authors' preparation with the research data.

It was observed that there were regional variations in dropout rates. The region with the highest dropout rate fluctuates from year to year, indicating variations in educational challenges across different regions in the Philippines. The region with the lowest dropout rate also varies. Also, in most years, the dropout rates for male students tend to be higher than for female students. This trend suggests a gender disparity in educational outcomes, with males more prone to dropping out.

Moreover, the ARMM consistently has high dropout rates for both male and female students across multiple years. Further, some regions consistently display patterns of high and low dropout rates over the years. For instance, ARMM consistently has high dropout rates for male students over multiple years, while Region IVA consistently shows low dropout rates for female students (Table 4).

Table 4. Comparison of highest and lowest dropout rates in secondary level by year, gender, and region.

Year	Gender	Region with Highest Dropout Rate	Region with Lowest Dropout Rate
2002	Male	ARMM (18.33%)	Region VII (6.41%)
	Female	Region VIII (9.25%)	Region XII (4.84%)
2003	Male	Region IX (15.17%)	Region IVA (7.98%)
	Female	ARMM (13.15%)	Region IVA (3.73%)
2004	Male	Region X (15.21%)	Region XII (7.38%)
	Female	ARMM (15.97%)	Region XII (3.51%)
2005	Male	Region IX (21.43%)	Region I (10.96%)
	Female	Region IX (16.56%)	Region III (6.32%)
2006	Male	ARMM (26.5%)	Region I (5.21%)
	Female	ARMM (23.34%)	CAR (2.64%)
2007	Male	Region IX (12.09%)	Region I (6.58%)
	Female	Region VIII (8.77%)	Region I (3.06%)
2008	Male	Region IX (12.01%)	Region I (6.77%)
	Female	ARMM (9.99%)	CAR (2.74%)
2009	Male	Region X (13.22%)	Region I (7.13%)
	Female	ARMM (10.75%)	Region I (3.83%)
2010	Male	ARMM (12.23%)	Region X (7.49%)
	Female	ARMM (10.46%)	Region IVA (3.86%)
2011	Male	Region X (14.19%)	Region IVA (6.34%)
	Female	ARMM (9.68%)	Region IVA (2.67%)
2012	Male	ARMM (22.23%)	Region I (8.58%)
	Female	ARMM (20.55%)	Region IVA (4.27%)
2013	Male	ARMM (17.1%)	Region III (6.7%)
	Female	ARMM (13.9%)	Region I (3.5%)
2014	Male	ARMM (20.3%)	Region XII (5.4%)
	Female	ARMM (18.4%)	Region I (3.7%)
2015	Male	Region V (10.7%)	Region IVA (5.9%)
	Female	ARMM (8.9%)	CAR (3.2%)

Note. Authors' preparation with the research data.

The trend analysis on dropout rates for the secondary level revealed several notable results. It was observed that male and female dropout rates have been declining, indicating positive progress in reducing secondary school dropout rates. Also, throughout the observed period, the male dropout rate remained consistently higher than that of females, emphasizing the existence of a gender disparity. However, the decreasing trend for both genders suggests that efforts to address dropout rates have yielded positive outcomes, albeit with continued emphasis required to bridge the gender gap. Moreover, the high dropout rates recorded in most regions in 2005 indicated a critical period when dropout rates peaked nationwide. It is crucial to investigate the factors contributing to this trend, including social, economic, and educational dynamics, to implement effective measures for dropout prevention.

Further, the persistent trend of high dropout rates in Region XIII, Region IX, Region X, and ARMM underscores the substantial educational obstacles encountered in the region, emphasizing the imperative for specific interventions to mitigate these rates and foster equitable educational opportunities. Possible causes of dropouts in Region XIII include the need for more personal interest and the high cost of education. Meanwhile, the high cost of education and employment could be the reason for Region IX. For Region X, the causes of dropouts could be the lack of personal interest and insufficient family income for schooling. Moreover, for ARMM, the high cost of education and the lack of personal interest could be the causes of dropouts (Cuesta, 2020).

On the other hand, several regions in the Philippines stood out for their relatively lower dropout rates throughout the period analyzed. Among these regions were the CAR, Region I, Region III, Region IVA, Region VII, Region X, and Region XII, with Region I and Region IVA prominently featured as regions with consistently lower dropout rates. The consistent presence of regions such as Region I and Region IVA among those with lower dropout rates highlights the importance of studying their educational strategies and best practices. By examining the approaches to reducing dropout rates in these regions, policymakers and stakeholders could gain valuable insights and replicate successful initiatives in other areas with higher dropout rates.

Comparison of male and female dropout rates per region

The Wilcoxon rank sum test results showed that several regions in the Philippines exhibited a significant difference in dropout rates between male and female elementary students. These regions include NCR (p=0.0274), CAR (p=0.01076), Region I (p=0.008233), Region II (p=0.01225), Region III (p=0.01076), Region IVA (p=0.009146), Region IVB (p=0.006743), Region V (p=0.01075), Region VI (p=0.02412), Region VII (p=0.01076), Region VIII (p=0.01411), Region IX (p=0.007182), Region X (p=0.008233), Region XI (p=0.02119), Region XII (p=0.005761), and Region XIII (p=0.009146). On the other hand, the p-value for ARMM is 0.3462, indicating no statistically significant difference in dropout rates between male and female elementary students in that region (Table 5).

Table 5. Wilcoxon rank sum test for significant difference in dropout rates of male and female elementary students across regions in the Philippines.

	W-value	p-value
Philippines	155	0.009421*
NCR	146.5	0.0274*
CAR	154	0.01076*
Region I	156	0.008233*
Region II	153	0.01225*
Region III	154	0.01076*
Region IVA	154	0.009146*
Region IVB	156	0.006743*
Region V	154	0.01075*
Region VI	147	0.02412*
Region VII	154	0.01076*
Region VIII	151	0.01411*
Region IX	157	0.007182*
Region X	156	0.008233*
Region XI	148	0.02119*
Region XII	157	0.005761*
Region XIII	154	0.009146*
ARMM	119	0.3462

*p-value < 0.05

Note. Authors' preparation with the research data.

Among the secondary school students, the results of the Wilcoxon rank sum test indicate significant differences in dropout rates between male and female secondary students in several regions, including the Philippines as a whole, Region II (p<0.01), Region IVB (p<0.01), Region V (p<0.01), Region VI (p<0.01), Region VII (p<0.01), Region VIII (p<0.01), Region IX (p<0.01), Region XI (p<0.01), and Region XII (p=0.001645). Similarly, the Welch t-test results reveal significant differences in

dropout rates between male and female secondary students in NCR (p<0.01), CAR (p<0.01), Region I (p<0.01), Region III (p<0.01), Region IVA (p<0.01), Region X (p<0.01), and Region XIII (p<0.01). However, it is worth noting that in ARMM (p=0.3545), no statistically significant difference in dropout rates between male and female secondary students was observed. This suggests that gender may not be a significant factor contributing to dropout rates in ARMM (Table 6 and Table 7).

Table 6. Wilcoxon rank sum test for significant difference in dropout rates of male and female secondary students across regions in the Philippines.

	W-value	p-value
Philippines	187	<0.01*
Region II	179	<0.01*
Region IVB	183	<0.01*
Region V	183	<0.01*
Region VI	187	<0.01*
Region VII	179	<0.01*
Region VIII	183	<0.01*
Region IX	174.5	<0.01*
Region XI	175	<0.01*
Region XII	167	0.001645*

*p-value < 0.05

Note. Authors' preparation with the research data.

Given the comparative data, it was evident that gender may not be a significant factor contributing to dropout rates in ARMM in both elementary and secondary levels. Overall, the results of the tests provided evidence of gender disparities in dropout rates among elementary students across several regions in the Philippines. Similarly, the findings also suggest the presence of gender disparities in dropout rates among secondary students in these regions. This is consistent with tables and figures above wherein the male students in both levels had higher dropout rates compared to their female counterparts. Possible reason for this is that males are more vulnerable than females. Males, in both levels, are susceptible to peer influence, such as *barkada* (group of friends), and involvement in vices (McCoy et al., 2017). Specifically, computer and mobile phone-based games were frequently cited as significant reasons for chronic absenteeism and lack of focus among these students (Sun et al., 2023). It was found that children often lose sleep due to excessive gaming, resulting in them coming to school feeling tired and disoriented. As males progressed in age, they displayed an increasing tendency to develop difficult attitude problems, particularly when they faced academic challenges and fell behind their peers (David et al., 2018). These results emphasized the need for targeted interventions and policies to address the observed disparities and promote equal access to education (Psaki et al., 2022).

Table 7. Wilcoxon rank sum test for significant difference in dropout rates of male and female secondary students across regions in the Philippines.

	Male	Female	p-value
NCR	8.841429	5.151429	<0.01*
CAR	10.384286	4.747143	<0.01*
Region I	7.707857	4.295714	<0.01*
Region III	9.172143	5.358571	<0.01*
Region IVA	8.236429	4.267857	<0.01*
Region X	11.94	8.10	<0.01*
Region XIII	11.092143	8.180714	<0.01*
ARMM	15.02143	13.25571	0.3545

*p-value < 0.05

Note. Authors' preparation with the research data.

Comparison of dropout rates of regions by gender

To examine the assumption of normality, the Shapiro-Wilk test was conducted across all regions, and significant departures from normality were observed in all regions except NCR, CAR, Region I, Region III, Region IVA, Region X, Region XIII, and ARMM. Consequently, in order to ensure a standardized statistical analysis approach, the nonparametric independent-samples Kruskal-Wallis test and Dunn's test with Bonferroni correction for post hoc comparisons were employed.

Table 8. Kruskal-Wallis test for dropout rates of elementary students of regions by gender

	Kruskal-Wallis	df	p-value
Male	76.784	16	<0.01*
Female	75.985	16	<0.01*

*p-value < 0.05

Note. Authors' preparation with the research data.

The Kruskal-Wallis test results on elementary level data indicate significant differences in dropout rates among male and female elementary students across the regions ($\chi^2 = 76.784$, $df = 16$, $p < 0.01$ for males; $\chi^2 = 75.985$, $df = 16$, $p < 0.01$ for females). These findings suggest that the dropout rates of male and female elementary students vary significantly across the different regions, indicating the presence of regional disparities in elementary school dropout rates by gender (Table 8). Similarly, for the secondary level data the Kruskal-Wallis test results reveal significant differences in dropout rates among male and female secondary students across the regions ($\chi^2 = 93.286$, $df = 16$, $p < 0.01$ for males; $\chi^2 = 138.54$, $df = 16$, $p < 0.01$ for females). This indicates that the dropout rates of male and female secondary students also vary significantly across the regions, highlighting the existence of regional disparities in secondary school dropout rates by gender (Table 9).

Table 9. Kruskal-Wallis test for dropout rates of secondary students of regions by gender

	Kruskal-Wallis	df	p-value
Male	93.286	16	<0.01*
Female	138.54	16	<0.01*

*p-value < 0.05

Note. Authors' preparation with the research data.

Post hoc testing on male elementary level data revealed significant differences in dropout rates between various regions. Specifically, significant differences were found between ARMM and NCR, ARMM and Region I, ARMM and Region III, ARMM and Region IVA, NCR and Region IX, NCR and Region X, NCR and Region XI, NCR and Region XII, Region I and Region IX, Region I and Region XI, Region I and Region XII, Region III and Region IX, and Region IVA and Region IX. Further, on female elementary level data, significant differences were observed, specifically, ARMM and NCR, ARMM and Region I, ARMM and Region III, ARMM and Region IVA, ARMM and Region VII, NCR and Region IX, NCR and Region X, NCR and Region XI, NCR and Region XII, Region I and Region IX, Region I and Region XI, Region I and Region XII, Region III and Region IX, Region IVA and Region IX, and Region IVA and Region XII.

Similarly, the post hoc test was administered to the male secondary level data. The results revealed that there were significant differences in dropout rates among regions. Specifically, significant differences were found between ARMM and NCR, ARMM and Region I, ARMM and Region II, ARMM and Region III, ARMM and Region IVA, ARMM and Region VI, NCR and Region IX, NCR and Region VIII, Region I and Region IX, Region I and Region V, Region I and Region VII, Region I and Region VIII, Region I and Region X, Region I and Region XI, Region I and Region XIII, Region II and Region IX, Region II and Region VIII, Region IVA and Region IX, Region IVA and Region V, Region IVA and Region VIII, Region IVA and Region X, and Region IVA and Region XI. Moreover, the same test was applied to the female secondary level data, and significant differences were also observed. Specifically, significant variations were observed between ARMM and NCR, ARMM and Region I, ARMM and Region II, ARMM and Region III, ARMM and Region IVA, ARMM and Region VI, NCR and Region IX, NCR and Region VIII, Region I and Region IX, Region I and Region V, Region I and Region VII, Region I and Region VIII, Region I and Region X, Region I and Region XI, Region I and Region XIII, Region II and Region IX, Region II and Region VIII, Region IVA and Region IX, Region IVA and Region V, Region IVA and Region VIII, Region IVA and Region X, and Region IVA and Region XI.

These findings indicate that the dropout rates significantly vary between regions. Thus, the area could be a contributing factor to the dropout. For instance, a study found that learners in urban areas are more likely to finish schooling than rural students (Sabates et al., 2010). Additionally, differences on the educational developments between urban and rural areas (Muta, 2014) and employment (Atilano et al., 2016) can also contribute to the dropout rates. Nonetheless, these results highlight the need for further investigation and targeted interventions to address the specific challenges faced by each region regarding dropout prevention and educational support.

FINAL REMARKS

Based on the results of the analysis of dropout rates at the elementary and secondary levels in the Philippines, several key findings emerged.

At the elementary level, it was observed that dropout rates have been steadily increasing since 2007. The highest dropout rates recorded for both male and female students were in 2005. Male students consistently exhibited higher dropout rates than females throughout the observed period. Additionally, a drastic increase in dropout rates was reported between 2013 and 2015. The sudden increase in reported dropouts raises the possibility of reporting or data collection errors. Also, the Autonomous Region in Muslim Mindanao (ARMM) consistently had the highest dropout rates among the regions analyzed. At the same time, the National Capital Region (NCR), Region I, and Region IVA consistently exhibited the lowest dropout

rates.

In the secondary level, dropout rates showed an overall decreasing trend. The highest dropout rates were recorded in 2005 for male and female students. Similar to the elementary level, male students consistently had higher dropout rates than females across the regions. ARMM displayed fluctuations and an increasing trend in dropout rates, while NCR, Region I, and Region IVA consistently had lower dropout rates.

The comparison of male and female dropout rates per region revealed significant differences in several regions, including NCR, CAR, Region I, Region II, Region III, Region IVA, Region IVB, and Region V. These findings highlight the gender disparity in dropout rates, with males consistently exhibiting higher rates than females. Moreover, a consistent pattern of high dropout rates was observed in ARMM, underscoring the region's significant educational challenges. In contrast, regions with consistently lower dropout rates, such as NCR, Region I, and Region IVA, serve as positive examples of effective measures to retain students in schools.

In light of these findings, it is fitting to recommend targeted interventions and policies to reduce dropout rates among secondary learners in the Philippines, particularly for males. By addressing the underlying factors contributing to the higher male dropout rates and implementing strategies that promote educational retention and achievement, policymakers and educators can work towards ensuring equal opportunities for male and female students to complete their elementary and secondary education. Studying and learning from the practices of regions with lower dropout rates can inform strategies to improve educational outcomes and reduce dropout rates nationwide. Implementing successful initiatives from these regions in areas with higher dropout rates can contribute to bridging the educational gap and fostering equitable educational opportunities. Further research is necessary to investigate the common factors contributing to dropout rates in general.

Additionally, a crucial task is identifying the local factors specific to different geographical areas within the country. This process requires close collaboration between academic institutions, local school division offices, and universities. Such collaborative efforts can enhance the knowledge base through research and support evidence-based decision-making to combat the issue of school dropout effectively in the future. This approach will provide valuable insights and strategies tailored to the unique circumstances and challenges faced by various regions in the Philippines. Moreover, future research could investigate the circumstances surrounding this notable spike in elementary level dropout rates from 2013 to 2015 to ensure data accuracy and understand any underlying factors contributing to this possible anomaly. Finally, given that the study only covers the 2002 to 2015 dropout data, it is recommended that future researchers also analyze the dropout rates of both elementary and secondary students from 2016 to 2023.

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