

Assessing the Growth Patterns of Government Health Professionals in the Philippine Public Health Sector

Krystian Lee Darelle Serapin¹, Harvey Jun Baluyos², Sean Medina³, Charies L. Malicay⁴,
Florence Jean B. Talirongan⁵

¹²³⁴⁵College of Computer Studies, Misamis University, Ozamiz City, 7200, Philippines

ABSTRACT

This study examined the patterns of the Philippine government's hiring of medical doctors, dentists, midwives, and nurses from 2010 to 2015. By combining ARIMA prediction with time-series analysis, the research identifies trends in the dispersion of the workforce and makes predictions about future deployment patterns. Although the majority of regions experienced a rise in the number of health professionals between the years 2012 and 2013, select locations, such as CARAGA, experienced a decline. In the year 2025, there will likely be no change in the number of dentists and doctors; nevertheless, midwives should anticipate a steady increase in their number. However, a worrying drop in nurses is possible. These trends emphasize the need for healthcare equality and workforce sustainability. The solutions highlight strategies to retain health professionals in marginalized areas, competitive wages, and improved working conditions. The study ensures that gaps are filled. This report provides data-driven guidance for Philippine authorities to enhance workforce planning and healthcare.

Keyword - dentists, government health policies, health workforce, healthcare equality, workforce distribution, workforce planning, workforce sustainability.

1. INTRODUCTION

An accessible healthcare system depends on a sufficient and evenly spread health workforce, including critical professions such as doctors, nurses, dentists, and midwives. These professions are crucial for providing healthcare services, promoting preventive care, and improving population health outcomes. In the Philippines, where people are often scattered between urban and rural areas, equitable distribution of health professionals remains an important objective. However, challenges such as personnel shortages in neglected areas and workforce imbalances persist [4], [11].

From 2019 onwards, the Philippine government launched several policies and programs aimed at improving healthcare systems, including expanding the country's health workers in the public sector. The "Deployment Program for Doctors, Nurses, and Midwives" of the Department of Health was one such measure to reduce shortages of health professionals in provinces and remote and rural areas [1]. These measures align with the objectives of the Philippine Development Plan 2023–2028, which identifies improving health service delivery and expanding access to essential healthcare, particularly for the most disadvantaged groups [2], [7].

Despite these efforts, research shows that the Philippine healthcare workforce continues to encounter issues in staffing levels and labor distribution [15], [17]. These gaps not only affect service delivery but also hinder the nation's progress toward achieving Sustainable Development Goals [14].

2. THEORETICAL FRAMEWORK

2.1 Access to Health as a Civil and Political Right

The theory of civil and political rights establishes that the government should guarantee equal access to fundamental services, such as healthcare, for its citizens. Under this doctrine, the state has a duty not only to provide necessary health facilities but also to deploy a well-equipped and adequate workforce to cater to the varied health requirements of communities. The United Nations underscores that access to healthcare services is closely tied to the rights to life and security, which constitute civil and political rights [10]. In the Philippines, existing disparities in the distribution of healthcare personnel, particularly between urban centers and rural or underserved areas, present a challenge to fulfilling this right [9].

Adequate public health investments have been shown to foster economic development and improve quality of life, particularly in underserved regions [13]. In the Philippines, targeted programs such as universal healthcare coverage and rural health outreach have played a significant role in addressing disparities [16].

2.2 Development of Capabilities through Health Workforce Development

Governments play a crucial role in strengthening healthcare systems by ensuring that health workforce development aligns with population needs and global standards. The World Health Organization highlights that equitable distribution of healthcare workers is essential for achieving universal health coverage and addressing disparities in access to healthcare services [6].

In the Philippines, the Universal Health Care Act (Republic Act No. 11223) underscores the importance of decentralizing healthcare delivery and prioritizing the deployment of healthcare professionals to underserved and rural areas [5]. This act includes measures such as the creation of local health systems and enhanced investments in training programs for healthcare workers. Improving the availability of healthcare personnel aims to empower communities to access essential services and promote better health outcomes while fostering sustainable socio-economic development [2], [8].

3. MATERIALS AND METHODS

3.1 Materials

This study examines the patterns in the distribution of government healthcare workers in the Philippines from 2019 onward, using a range of resources. The primary source of data will be the Department of Health's (DOH) National Health Workforce Registry and related annual reports, which provide statistical information on the distribution of government-employed physicians, nurses, dentists, and midwives across regions.

3.2 Methods

This study employs quantitative methods to examine the growth patterns of government health professionals in the Philippines, including doctors, nurses, dentists, and midwives, from 2019 onward. Data is gathered from the Philippine Statistics Authority (PSA). After preprocessing to ensure data quality, descriptive statistics are used to analyze trends in workforce distribution.

The ARIMA model is applied to predict time series data, identifying potential growth trends for the future deployment of health professionals. This analysis offers policymakers vital insights into how healthcare resources can be allocated across regions.

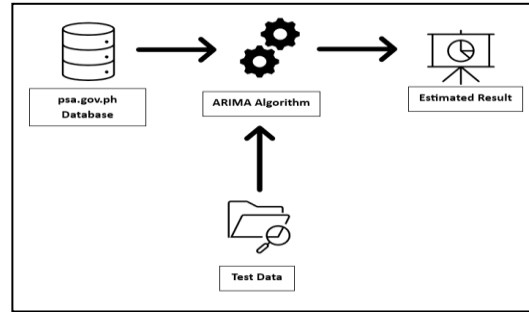


Fig -1: Architectural Design of the Study

4. RESULTS AND DISCUSSIONS

4.1 A. Time-series plot

A time-series plot displays the trend of government health professionals in the Philippines. Figure 1 is a time-series diagram representing the total number of government health professionals in the country based on six years of historical data from 2010 to 2015.

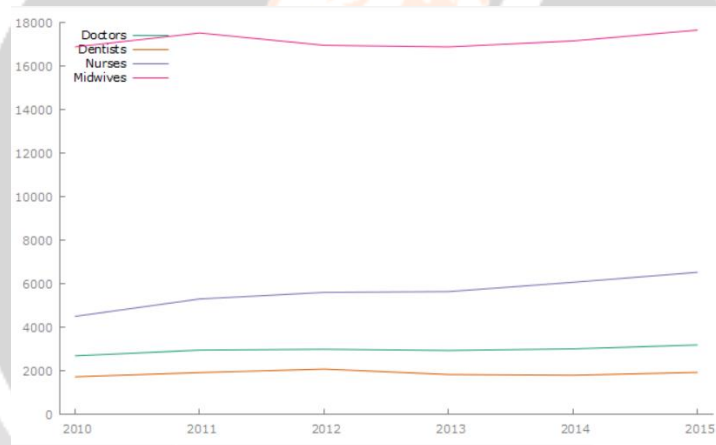


Chart -1: Time-Series Plot of Government Health Professionals in the Philippines

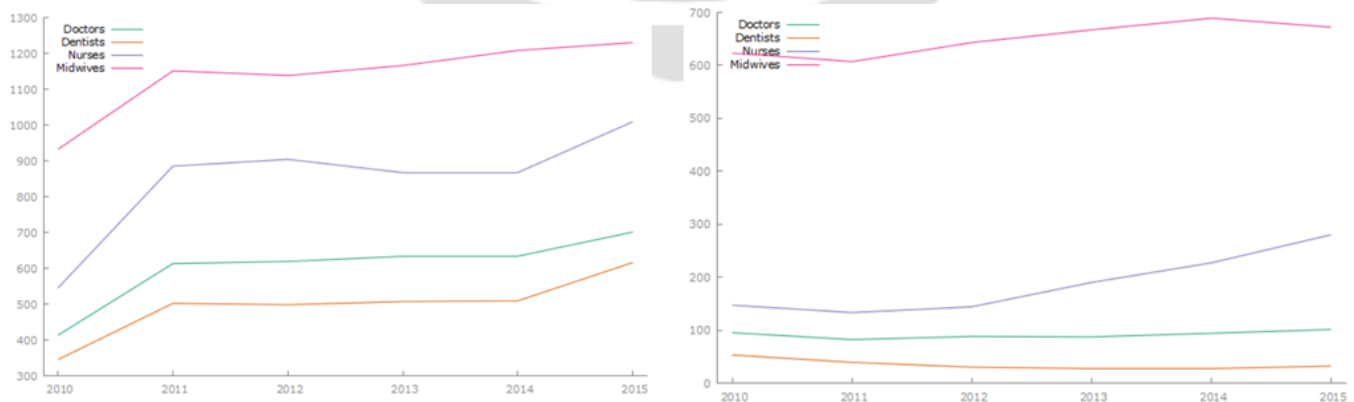


Chart -2: Time-Series Plot of Government Health Professionals in NCR-A and CAR

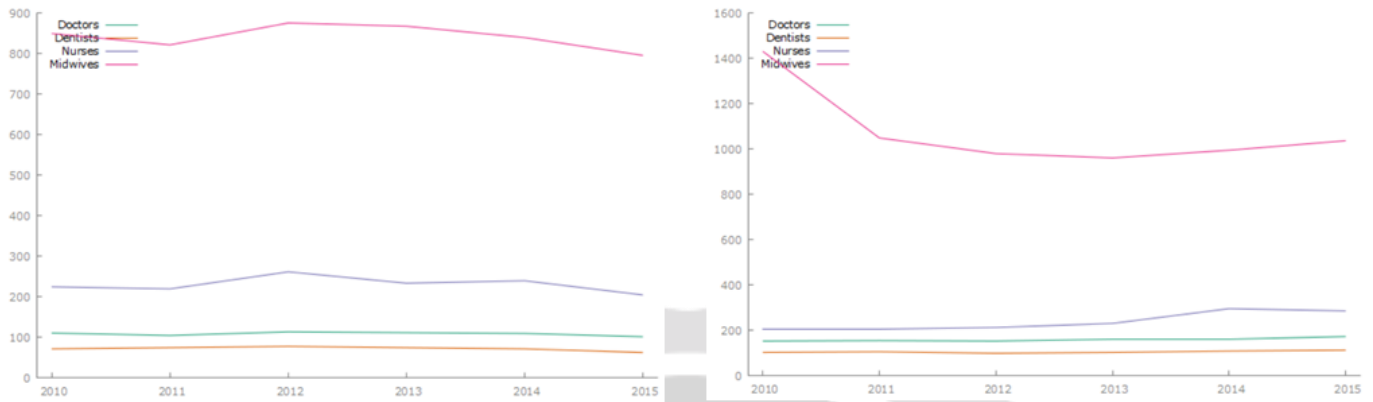


Chart -3: Time-Series Plot of Government Health Professionals in Region I-B and II-B

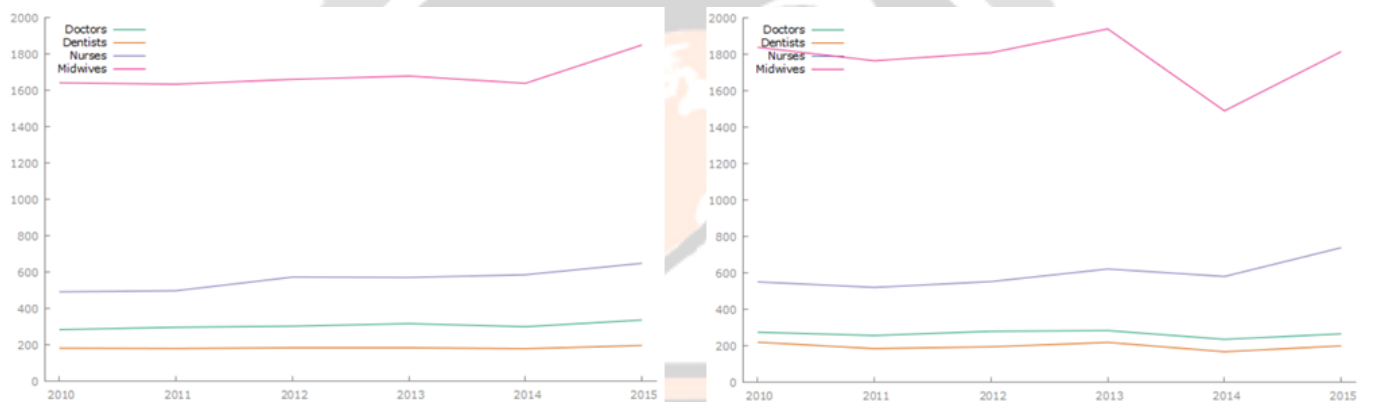


Chart -4: Time-Series Plot of Government Health Professionals in Region III-b and IV-A

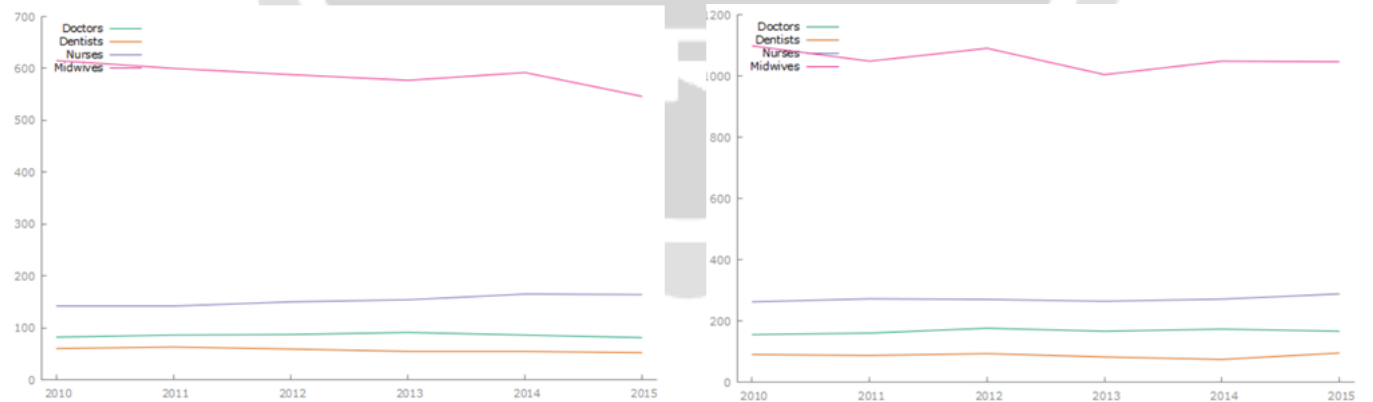


Chart -5: Time-Series Plot of Government Health Professionals in Region IV-B and V-B

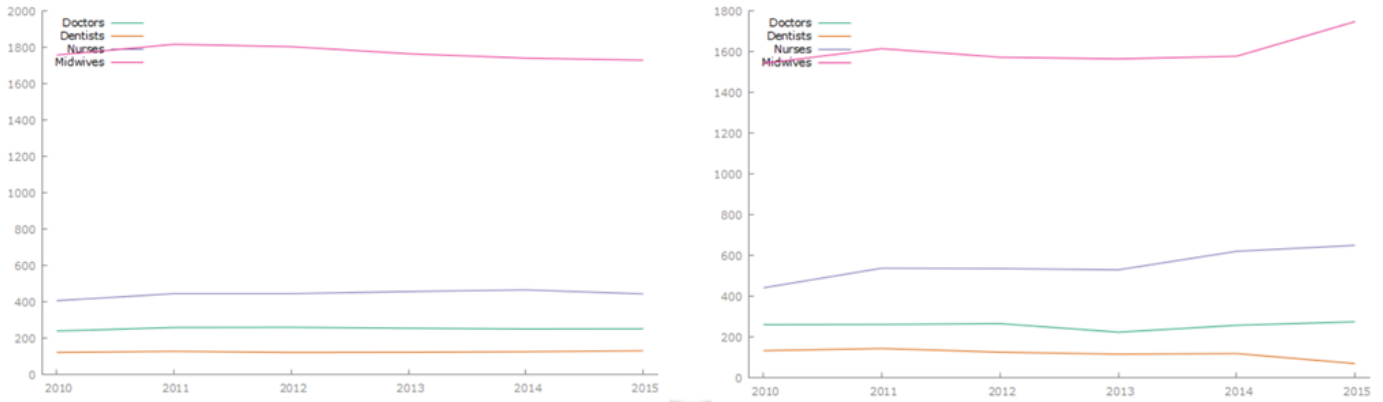


Chart -6: Time-Series Plot of Government Health Professionals in Region VI-B and VII

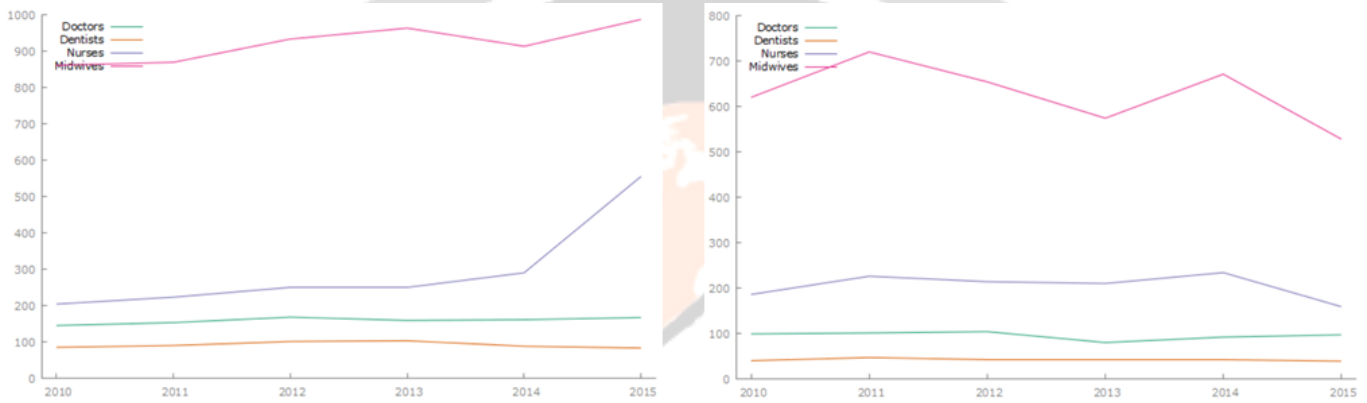


Chart -7: Time-Series Plot of Government Health Professionals in Region VIII-B and IX-B

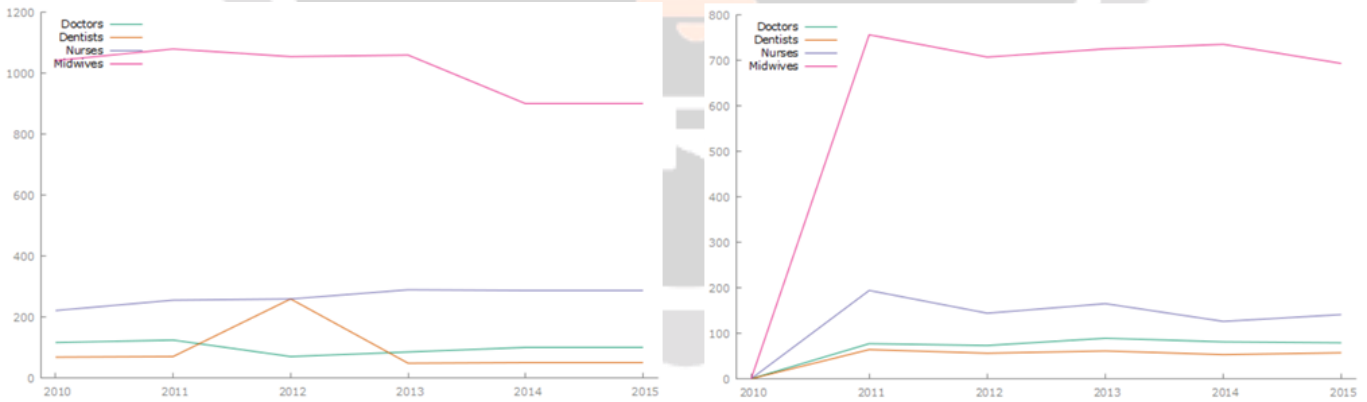


Chart -8: Time-Series Plot of Government Health Professionals in Region X and XI

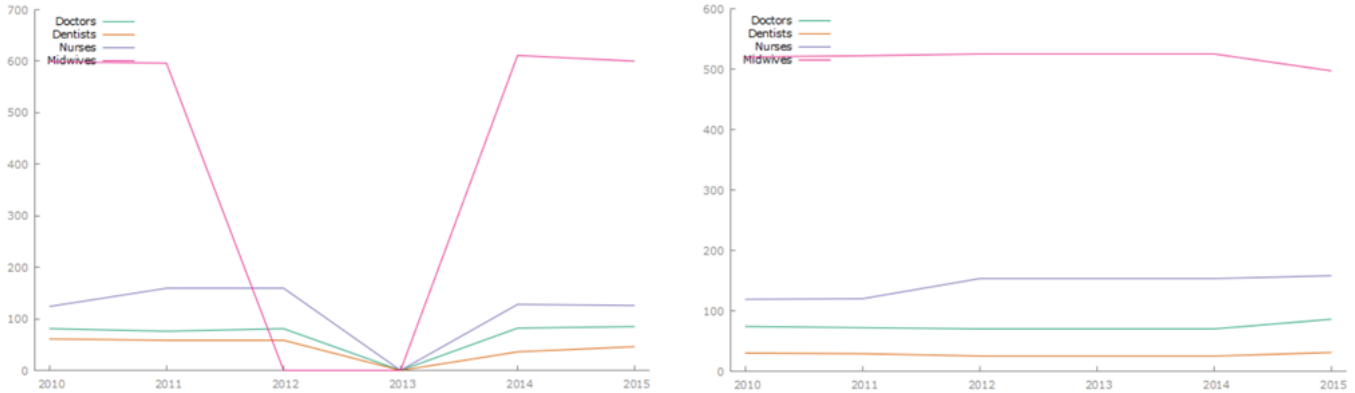


Chart -9: Time-Series Plot of Government Health Professionals in CARAGA and BARMM

All figures above, from Figures 2 to 10, show the time series plot from different regions in the Philippines. The data indicated that most areas experienced an increase in the number of government health professionals from 2010 to 2015. Notably, CARAGA exhibited a significant decline in health professionals from 2012 to 2013.

4.2 Forecasting

The following figures present a 15-year prediction on the progression of government health officials nationwide. These predictions were generated using ARIMA modeling based on historical data from 2010 to 2015.

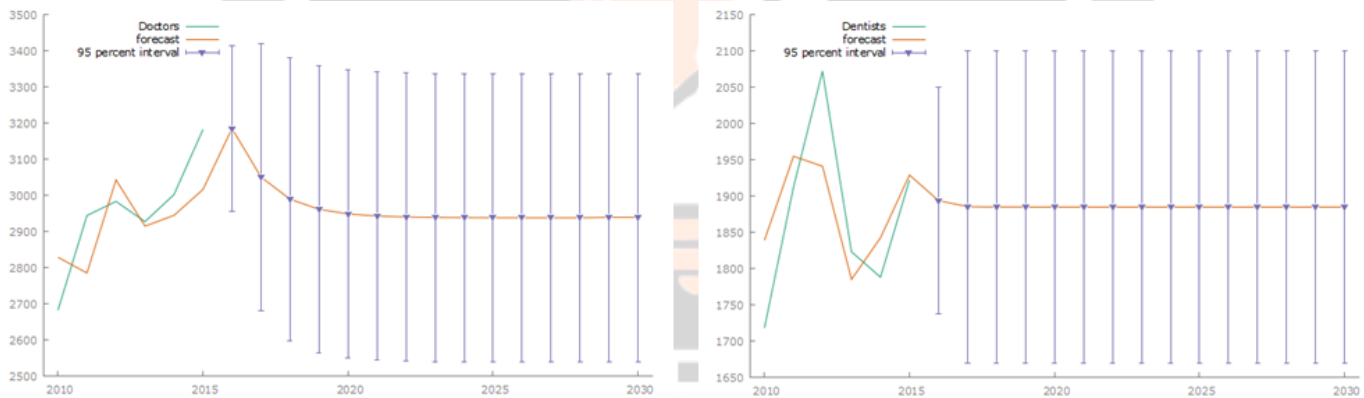


Chart -10: (a) Doctors: 15-Year Forecast; (b) Dentist: 15-Year Forecast

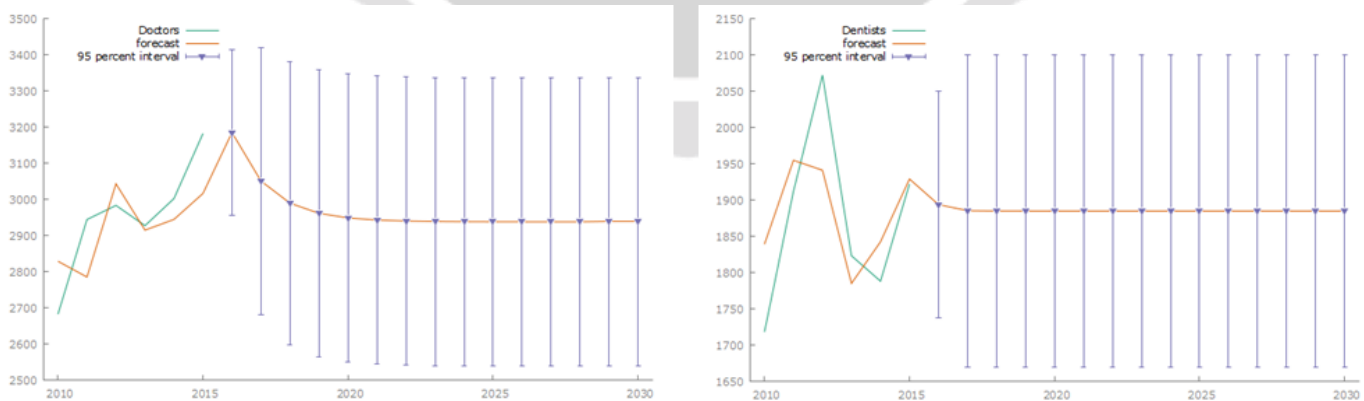


Chart -11: (a) Nurses: 15-Year Forecast; (b) Midwives: 15-Year Forecast

For government health professionals in the Philippines, the time-series forecasts depict various trends and implications for doctors, nurses, midwives, and dentists in the future. Physicians or doctors increased steadily

between 2010 and 2015, peaking in 2015. Their number is anticipated to level off in succeeding years. Dentists' salaries fluctuated significantly, but after 2015, they should level off a bit. Although the number of nurses is increasing steadily, the proportion is expected to reach its bottom in 2025. The projection shows good steadiness in the variation of the number of midwives until 2015. However, as the date of 2030 approaches, the width of the confidence interval expands, meaning that the probability of catching the future values is very uncertain.

5. CONCLUSIONS

The predictions focused on critical possibilities and difficulties for managing government health professionals in the Philippines. Specifically, while the number of doctors and dentists is expected to stabilize, the anticipated reduction in nurses is quite alarming since it may make it even harder for the healthcare system to satisfy the future demand. The long-confidence intervals also reveal that long-term projections have been uncertain, resulting in various flexible approaches.

6. RECOMMENDATIONS

The government should make hiring and retention initiatives the priority to solve these problems since they provide competitive pay, perks, and chances for professional advancement. Improving working circumstances, such as lowering workload and resources and improving workplace safety, prevents burnout and encourages experts to stay in government service. In addition, targeted initiatives like training programs, scholarships, and rewards for deprived communities would help in building a sustainable health workforce. Addressing newly emerging issues and ensuring that adequate health professionals exist in the country would require monitoring and adjustment of workforce policies in real-time.

7. REFERENCES

- [1] Department of Health (2022). Annual Report on the Deployment of Health Professionals in the Philippines. Department of Health, Manila.
- [2] National Economic and Development Authority (2023). Philippine Development Plan 2023–2028: Building a Resilient and Inclusive Future. NEDA, Manila.
- [3] World Health Organization (2022). Global Strategy on Human Resources for Health: Workforce 2030. WHO, Geneva.
- [4] World Health Organization (2023). State of the World's Health Workforce Report. WHO, Geneva.
- [5] Republic Act No. 11223 (2019). Universal Health Care Act. Official Gazette of the Republic of the Philippines.
- [6] World Health Organization (2019). Primary Health Care on the Road to Universal Health Coverage: 2019 Global Monitoring Report. WHO, Geneva.
- [7] Asian Development Bank (2021). Improving Health Service Delivery in Asia: Regional Trends and Challenges. Asian Development Bank, Manila.
- [8] International Labour Organization (2020). Global Framework on Decent Work in Public Health. International Labour Organization, Geneva.
- [9] Philippine Institute for Development Studies (2020). Health Workforce Imbalances in the Philippines: Challenges and Policy Recommendations. PIDS, Manila.
- [10] United Nations Committee on Economic, Social and Cultural Rights (2023). General Comment No. 14: The Right to the Highest Attainable Standard of Health (Article 12). UN Office of the High Commissioner for Human Rights (OHCHR).
- [11] United Nations Development Programme (2020). Human Development Report 2020: The Next Frontier. UNDP, New York.
- [12] United Nations Population Fund (2021). State of the World Population Report 2021: My Body is My Own. UNFPA, New York.
- [13] International Monetary Fund (2023). The Impact of Public Health Investments on Economic Growth in Asia. IMF, Washington, D.C.

- [14] Global Health Workforce Network (2021). Strengthening the Sustainability of Human Resources for Health in Southeast Asia. WHO, Geneva.
- [15] Philippine Statistics Authority (2023). Statistical Yearbook 2023: Health and Workforce Indicators. PSA, Manila.
- [16] United Nations Children's Fund (2022). Delivering Essential Health Services in Rural Communities. UNICEF, New York.
- [17] World Bank (2021). The Economic Impact of Health Workforce Distribution in the Philippines. World Bank, Washington, D.C.

