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Bridging the Gap: Aligning Higher Education Priorities with the Shifting Job Landscape in the Philippines

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Abstract

This study looks at how the present skills need, the dynamic labor market shifts in the Philippines, and the academic programs promoted by the Commission on Higher Education (CHED) connect. The study uses document analysis, guided by Cleary et al.'s (2017) Skills Alignment approach, to link high-demand skills and key economic sectors with CHED's prioritized programs. Using the most recent Labor Market Information reports and the CHED Memorandum Order No. 10, series of 2021, the results show that engineering, IT education, and business degrees significantly aligned with the digital economy, in-demand employment, and rising industries. Nonetheless, there are gaps where specific jobs tangentially align with the initiatives that CHED prioritizes. This paper offers suggestions on how to better align academic programs with the changing needs of the labor market.

Keywords

academic priorities, higher education, job market, document analysis, Philippines

INTRODUCTION

In a dynamic and rapidly changing job market, ensuring academic programs align with the evolving demand for skills has become a crucial concern for policymakers and educational institutions worldwide. The Philippines, like many other countries, faces the challenge of addressing the shifting labor market needs while also prioritizing academic programs for scholarship funding. This research paper explores the extent to which the Commission on Higher Education's (CHED) list of priority educational programs aligns with the current skills demand and changing labor market needs in the Philippines. Various studies here and abroad support the importance of quality higher education fit to the evolving job market (Acosta et al., 2017; Bardhan et al., 2010; Figueiredo et al., 2017; Mocanu et al., 2014; McGuinness & Sloane, 2011). It is said that without a strong link between education and employment, much of our country's resources are wasted.

The job market in the Philippines has undergone significant shifts in recent years, driven by various factors such as marketplace changes, globalization, and the rise of freelance employment. These shifts have led to changes in job roles and the emergence of new demands on workers. As a result, job market instability and uncertainty have increased, particularly for college graduates who are making career

decisions. Moreover, the digitalization and globalization of the job market have further contributed to these shifts (Charles et al., 2022). Workers in the Philippines are now faced with the challenge of adapting to a gig economy, where short-term employment on different projects is becoming more common. This has led to a decrease in the traditional model of stable long-term employment within a single organization. Furthermore, the flexibility of labor markets in the Philippines has also increased. This shift towards more flexible labor markets is characterized by an increase in fixed-term contracts, casual positions, and freelance work (Lee-Tan, 2023). Cleary et al. (2017) add that aggregate labor markets and other dynamic factors also influence shifting job landscapes, which include demographic changes in the workforce, physical boundaries of the targeted labor market, whether local or international and the degree of economic certainty in target industries. For example, the consistently high Gross Domestic Product (GDP) of the country from 2012 to 2019, ranging from 6.1 to 7.1% and how it plummeted to -9.5% in 2020 and then bounced to 5.7% in 2021 and then 7.6% in 2022 contribute to the shifting nature of the job market in the Philippines, especially with the COVID-19 crisis (Bureau of Local Employment [BLE], 2022).

This ever-dynamic nature of the job market here and abroad invites an equally strong linkage or alignment of higher education and employment. Cleary et al. (2017) employ the term labor market alignment (LMA) to capture all activities and related outcomes aimed at ensuring that higher education institutions produce the exact number of graduates equipped with the right skills for the changing job market in a manner that is consistent with students' career goals, institutional missions, present economic conditions, and the needs of other involved stakeholders. Such a definition views LMA as an evolving social process that results from the convergence of multiple stakeholders who have conflicting goals (Cleary et al., 2017) instead of a linear solution approach to education and labor market match. A historical walkthrough of workforce development history in the United States would reveal that higher education continues to struggle with whether or how to implement LMA, considering the friction between liberal education and general civic preparation (Cleary et al., 2017). Furthermore, there is an apparent lack of consensus in higher education about the role of colleges and universities in preparing students for work, such that there was no collective voice from within HEIs that defines the outcomes of teaching, how to measure success, and how to improve the effectiveness of teaching.

The 2023-2028 Philippine Development Plan underscores improving access and quality across all education levels with initiatives on higher education focused on affordability, research, and alignment with labor market needs. The government's goal is to strengthen the connection between education and employment by developing human capital and improving job outcomes. The five-year Philippine Development Plan is designed for profound economic and social transformation to re-energize job creation and accelerate poverty reduction through a high-growth economic path (National Economic and Development Authority [NEDA], 2023). To improve employment outcomes, the plan calls for strengthening the linkage between education and labor market demands through career guidance initiatives, curriculum adjustments to establish job-ready skills, expansion of internship programs, and improving information systems that match job seekers with the right opportunity. As the plan recognizes that the quality of higher education impacts employment outcomes, improving higher education is critical to developing a skilled workforce that matches the labor demand. Strategies to improve higher education include increasing the budget for state universities and colleges, expanding student financial assistance programs, strengthening collaboration between academe and industry, and enhancing the curriculum to align with 21st-century skills (NEDA, 2023).

A better-educated population with the skills and knowledge to attain quality employment and contribute to an innovative economy is supported by the visions of AmBisyon 2040. AmBisyon Natin 2040, the Philippines' long-term vision and development plan, outlines broad strategies like improving access

and quality in education, aligning skills with industry, expanding social protection, and promoting lifelong learning (NEDA, 2016). For education, the AmBisyon aspires to expand access to technical and vocational education to produce more skilled workers, increase the number of globally competitive higher education institutions or HEIs, and intensify science and technology education to push innovation and prepare the Filipino youth for the changing future. The development vision also aspires most of the workforce to land in high-quality occupations with decent pay, job security, and safety nets. It also aims to half the underemployment rate, reduce informal labor, increase the female labor participation rate, and develop resilience to changing job landscapes where workers are free to shift between growth industries and a social protection system for displaced workers exists. The overall goal of attaining a *matatag, maginhawa*, and *panatag na buhay* (strongly rooted, comfortable, and secure life) requires the coordination of education and employment policies.

Corollary, prioritization is based on the idea that resources are fundamentally limited. Therefore, decision-making must be informed by the limitation of resources to pursue all goals simultaneously. Kovic (2018) argues that prioritization itself should be a top priority, especially in policymaking. The paper is drawn from the experience of Don Mariano Marcos Memorial State University (DMMMSU) on academic prioritization for scholarship funding based on the Commission on Higher Education's Memorandum Order No. 10, series of 2021. As one of the 117 state universities and colleges (SUCs) in the country, DMMMSU is a recipient of the government's free tuition program. After a series of consultations with concerned government agencies and stakeholders, the CMO borders on prioritizing academic programs that respond to the needs of priority economic sectors. Hence, if the student's preferred program is not included in the CMO, the program may be constrained by funding limitations from the state..

Given the evolving demand in the job market in the Philippines and the prioritization of academic programs for scholarship funding by the Commission on Higher Education, this paper addressed the central question: To what extent does the CHED's list of priority academic programs align with the current skills demand and changing labor market needs in the Philippines? Specifically, what are the key high-demand skills and priority economic sectors based on the current labor market data and projections in the Philippines? How well do the specific programs on CHED's priority list match high-demand skills and priority economic sectors?

Acosta et al. (2017), in their book chapter "Education and Labor- Market Outcomes in the Philippines," highlighted that while educational attainment has increased significantly in the Philippines over the past decades, concerns persist regarding the quality and relevance of education to meet labor market demands. They argue that total education enrollment increased at levels, but quality issues persist, and about half of students drop out before even stepping into college. And while about 25% of the workforce has some college education, completion rates in the Philippines lag behind other countries. The authors also revealed a skills mismatch among highly educated workers, resulting in more extended unemployment and low-skilled employment periods. They have also noted that many higher education graduates fail to pass board examinations, which could indicate poor education quality. Evidence suggests that the economy is undergoing structural transformation, generating demand for new skills that are not sufficiently provided by the existing labor force.

The findings of Acosta et al. (2017) echo those of Orbeta (2002), who devised a framework that examines the interrelatedness of education and labor markets and conducted a review and analysis of the trends, issues, and reform proposals following the framework. The review reveals that while the Philippines has very high school attendance rates approximating developed country levels, it has a slow growth and

employment generation. Orbeta (2002) notes that workers' movements were evident from the agricultural sector to the service sectors instead of the high-productivity industrial sectors. Despite improved educational qualifications brought by increased school attendance rates at all levels, Orbeta (2002) notes that overall, the quality of jobs held by college graduates has declined. The underutilization of college graduates in the employment arena is evident in the drastic decline of college-educated individuals in the professional and technical fields, while there was an increase in sales, service, agriculture, and production-related occupations held by college graduates (Orbeta, 2002). There is a discernible increase of college graduates in the manufacturing, finance, insurance, real estate, wholesale, and retail trade sectors while a decline in community and personal services and among the wage and salary workers such as in government agencies and corporations (Orbeta, 2002).

Recent surveys published by the Philippine Institute of Development Studies (PIDS) support the abovementioned findings and emphasize the persistent problem of job mismatches between college graduates and employers in the Philippines, with a significant percentage of workers being either overeducated or in the wrong field (PIDS, 2020; Piatos, 2022; Team Orange, 2022). This finding has implications for productivity and job satisfaction, necessitating improved coordination between educational institutions and labor markets. The PIDS attributes these problems to slow-changing college curricula and changing job markets. Students may also lack information in choosing programs, resulting in pursuing the wrong fields. There is also an undersupply of soft skills like communication and critical thinking. In addition, the Jobs and Labor Market Forecast 2022-2025: Preliminary Report published by the Department of Labor and Employment-Bureau of Local Employment (DOLE-BLE) also reports that the number of underemployed persons from 2012 to November 2022 shows little improvement from 7.5 million to 7.1 million respectively. The average underemployment rate in October 2022 was 14.2%, with SOCCSKSARGEN, Bicol Region, and Eastern Visayas having the highest underemployment rates in the Philippines (BLE, n.d.). Underemployment is a condition in which workers are employed in less than full-time or regular jobs or insufficient jobs for their training or economic needs.

Outside the Philippines, McGuinness and Sloane (2011) analyzed labor market mismatches among UK graduates, emphasizing the pay penalties for over-education and the adverse effects of overskilling on job satisfaction. The study suggests reducing over-skilling as it negatively affects pay and job fulfillment.

Mocanu et al. (2014) underscored the importance of better coordination between education systems and labor markets to reduce mismatches, emphasizing the need for partnerships between universities, employers, and unions. Soft skills such as communication and entrepreneurship were also identified as areas requiring more focus. They add that teachers need academic and practical expertise and more support in career guidance and counseling (Mocanu et al., 2014). Liagouras et al. (2003) add that there is a weakness not in technical knowledge but in communication skills, management, and adaptability among graduates in Greece. Scholars argue that universities are meeting their demand for quantity but not the quality of graduates; hence, reforms are necessary to scan labor market needs, align academic programs with the private sector, and improve education quality.

Furthermore, Livanos (2010) examined high graduate unemployment in the Greek labor market, attributing it to rapid higher education expansion without considering labor market demand. The study identified fields with high unemployment rates and most prolonged unemployment duration, like humanities, sociology, and sports, and called for more rational education choices and better alignment with the labor market. Private sector-oriented fields like computer science and engineering have low unemployment, while self-employment in law and medical practice may serve as an unemployment safety net.

Figueiredo et al. (2017) investigated the impact of mass higher education expansion on graduate employability in Portugal. The study found a growing inequality in graduate outcomes and potential mismatches between education and labor market demands during the expansion phase. In this study, Figueiredo et al. (2017) posit that graduates are increasingly found in 'new graduate' jobs, such as those that dominate the private sector, and in 'latent graduate' positions that have lower earnings, require less time to learn, and have lower skill requirements versus 'traditional graduate' jobs. The latter also have poorer skills utilization and lower job satisfaction.

Bardhan et al. (2010) assessed the responsiveness of higher education to labor market needs using degree completion and occupational data from 1984-2008. The study emphasized the importance of policy reforms in improving information flows and incentives for responsiveness to the education system. Arendt and Rzenca (2014) analyzed the alignment between higher education offerings and labor market needs in the Lodzkie region of Poland. The study highlighted the importance of forecasting occupational demands and strategic alignment of education and skills to support the region's economic growth.

Cleary et al. (2017) propose a way to view labor market alignment that is complex and framed as an evolving social process resulting from a dynamic process of balancing complex stakeholder needs, economic conditions, and other factors instead of an act of engineering, linear solution to labor market alignment. They posit two encompassing goals of LMA efforts: job vacancy alignment, which involves matching the number of graduates with the quantitative demand for workers with these credentials, and skills alignment, which includes matching the skills, competencies, and credentials offered in higher education with those most in demand in the labor market (Cleary et al., 2017). Skills alignment, according to Cleary et al. (2017), is a measure of the extent to which the skills and credentials gained in a program match the needs and preferences of employers.

In terms of academic program prioritization, Fannin and Saran (2017) posit that higher education leaders and the public will need to identify priorities from a wide array of programs for strategic planning purposes. They trimmed down the criteria of program prioritization to four: centrality to institutional mission, quality, demand, revenues, and cost comparison. Other criteria for academic program prioritization could include per-student costs, market share, employer demand for graduates, number of universities offering the degree and extent of competition, the sensitivity of demand to economic conditions, demand for intellectual capital for the program, social trends influencing market and employer demand, legal issues, and political issues.

While these studies explored the mismatch between education and labor market outcomes and jobs and skills alignment with educational qualifications, there is a dearth in the literature that investigates how prioritization of academic programs for scholarship funding potentially responds to the changing labor market. This paper aims to shed light on the critical issue of aligning higher education priority programs with the ever-changing labor market needs in the Philippines. By doing this, this study provides valuable recommendations for policymakers and educational institutions to bridge the gap between academic offerings and labor market demands, ultimately contributing to the country's economic development and individual career success.

The study aims to determine the alignment of the priority programs of CHED, which includes ten clusters with the shifting labor market demand provided by the latest labor market information report (BLE, n.d.) that groups the shifting job landscape into five clusters. Employing the skills alignment LMA approach of Cleary et al. (2017), the study matches the priority academic programs with the skills and credentials required by each of the five categories in job market demand, or vice versa. Under the skills alignment approach, the

study employs the program content and curriculum development dimension, which views "skills alignment as adjusting program and curriculum content based on labor market needs" (Cleary et al., 2017). Going back, skills alignment is one of the two broad approaches of labor market alignment (LMA), which matches the skills, competencies, and credentials in higher education with the demand created by the labor market (Cleary et al., 2017). Cleary et al. (2017) also note that skills alignment measures the extent to which the skills and credentials gained in the academe match the needs and preferences of the employers. Hence, the skills alignment LMA provides the conceptual grounding this study needs in the matching process conducted between the priority academic programs and the labor market demand.

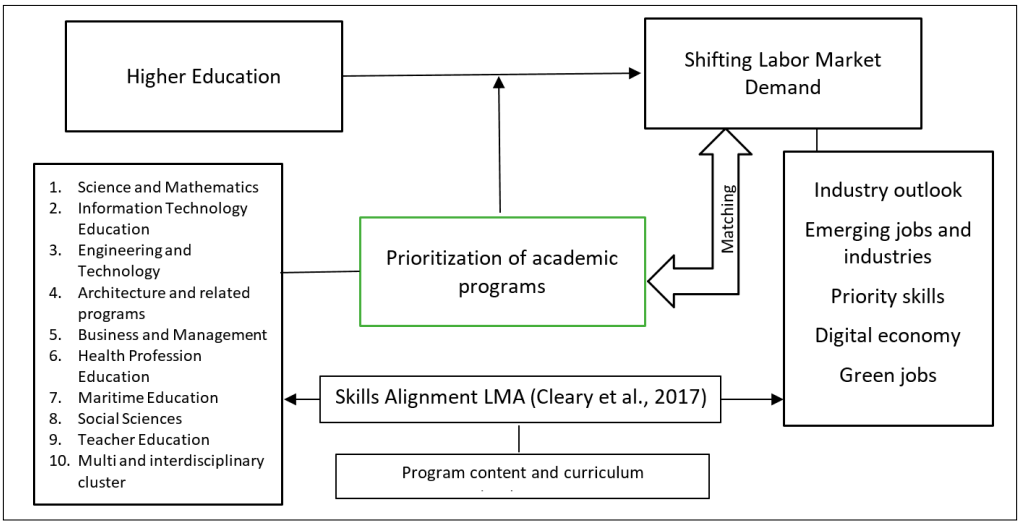

Figure 1. *Conceptual framework of the study*

METHODS

The study employs a qualitative research design using content analysis of public documents. Using the Jobs and Labor Market Forecast 2022-2025: Preliminary Report from the Department of Labor and Employment - Bureau of Local Employment (n.d.), the present study employed document analysis as described by Bowen (2009) and matched the high-demand skills and emerging economic sectors with the latest national and regional academic programs priority list by the Commission on Higher Education effective academic year 2021-2022 or the CHED Memorandum Order No. 10, series of 2021 to determine the extent of alignment between priority academic programs and current demand in the Philippine job market. The process involved basic matching of academic programs with the jobs market demand through highlighting or checking as a qualitative coding technique (Saldaña, 2015). After this, the researcher counted the number of academic programs matched with the jobs market as a basic quantitative analysis method (Creswell, 2014). The matching process is guided by the skills alignment approach to labor market alignment (Cleary et al., 2017). In particular, the matching process is done through the program content and curriculum development dimension of skills alignment LMA, which involves matching the program and curriculum content with the labor market needs (Cleary et al., 2017). Findings were then corroborated with the literature. From here, recommendations were crafted to improve the alignment of the CHED's list of priority programs with the Philippine job market demand. The design of the present study is limited to content analysis due to time and budget constraints.

The study was issued a certificate of exemption by the Research Ethics Clearance of Don Mariano Marcos Memorial State University since the study's design is a qualitative content analysis of public documents and does not in any way involve human participants.

RESULTS AND DISCUSSION

This section presents the results of the skills alignment matching process between the priority programs of CHED and the priority skills and jobs consolidated by the DOLE. The labor market outlook in the Jobs and Labor Market Forecast 2022-2025 (BLE, n.d.) document provides five (5) categories of the job market demand in the Philippines for three years. These are industry outlook (IO), emerging industries and jobs (EIJ), priority skills requirements (PSR), digital economy (DE), and green jobs (GJ). The economic sectors, jobs, and/or skills under each category are then matched with the appropriate academic program in the CHED's priority list.

Priority programs list for CHED funding

The prioritization of academic programs by the Commission on Higher Education (CHED) was carried out for the primary purpose of scholarship funding. Contained in the CHED Memorandum Order (CMO) No. 10, series of 2021, the list of priority programs for CHED Scholarship Programs (CSP) was issued effective Academic Year (AY) 2021-2022. According to the CMO, the list aims to "direct/steer higher education qualified applicants for financial assistance under the CSPs to enroll in public or private higher education institutions offering recognized/ authorized undergraduate priority programs" (Commission on Higher Education [CHED], 2021).

An outcome of multi-sector discussions and deliberations by the Technical Working Group (TWG) composed of CHED, UniFAST, Department of Trade and Industry (DTI), National Economic Development Authority (NEDA), Technical Education and Skills Development Authority (TESDA), Department of Labor and Employment (DOLE), Department of Science and Technology (DOST), Professional Regulation Commission (PRC), Philippine Overseas Employment Administration (POEA), Philippine Chamber of Commerce and Industry (PCCI), and the Philippine Management Information System (PMIS), the determination of the priority programs was indeed a collective decision. Furthermore, the CMO states that it is anchored on the JobsFit 2022 Labor Market Information (LMI) by the DOLE-BLE, which will be introduced in the next section of this paper.

The CMO reports that the allocation of priority programs is divided among STEAM (Science, Technology, Engineering, Agri-Fisheries, and Mathematics) and non-STEAM programs. 15% were allocated to Science and Mathematics, 15% to Engineering and Technology, and 20% to Information and Technology Education. For non-STEAM programs, 10% is apportioned to business and management programs, 10% to multi and interdisciplinary programs, and 25% to other disciplines. Regional priority programs also comprise 5% of the total allocation (CHED, 2021).

Bases of the CMO include the 2021 General Appropriations Act, which mandates CHED to prioritize courses linked with global innovation, such as STEAM, and key growth areas like semiconductor and electronics, business process outsourcing, tourism, general infrastructure, and manufacturing (CHED, 2021). It is also anchored on the priority needs of the government brought about by the pandemic, the Philippine Development Plan, in-demand and hard-to-fill jobs, jobs of the future, and green jobs identified by DOLE, PCCI, POEA, TESDA, and PRC, and CHED's data on oversubscribed and undersubscribed programs (CHED, 2021).

The national priority programs are grouped into the following clusters:

1. Science and Mathematics
2. Information technology education
3. Engineering and technology
4. Architecture and related programs
5. Business and management
6. Health profession education
7. Maritime Education
8. Social Sciences
9. Teacher Education
10. Multi and interdisciplinary cluster

Regarding the regional priority programs, the Commission only released the priorities of Regions I, II, III, V, VI, VII, VIII, XI, NCR, and IV-B (MIMAROPA). Since the priority programs of Regions IV-A (CALABARZON), IX, X, XII, and XIII were not stated in the document, it is assumed that these regions' academic priorities mirror that of the national priority programs. In the case of the Bangsamoro Autonomous Region of Muslim Mindanao (BARMM), higher education is governed by the Ministry of Basic, Higher, and Technical Education (MBHTE), not by CHED. Based on regional needs and the availability of slots, the regional priority list aims to complement the national priority programs. These programs are as follows: teacher education for Region I; social and behavioral science, arts and humanities, business administration and related courses; medical electronics, communication, and architecture and related programs for Region II; and for Region III, technology programs, engineering, information technology education, business and management, archaeology, HUSOCOM programs, and teacher education.

For Region V, only the Communication program was added. Region VI prioritized criminology, programming, elementary teacher education, and packaging engineering. Region VII prioritizes science, engineering, information technology, business education, related programs, teacher education, and communication. Region VIII puts primacy on business and management, information technology design, architecture and associated programs, culinary arts, and the industrial design program. On the other hand, Region XI's priorities include social and behavioral sciences, arts and humanities, teacher education, architecture, and engineering degree programs.

The National Capital Region explicitly prioritizes science programs, technology, information technology education, architecture, communication, engineering, arts and humanities, social and behavioral sciences, health profession education, business administration and related courses, and teacher education. Lastly, the MIMAROPA region certifies the following programs as a priority: teacher education, business administration and related courses, and communication.

The CMO was one of the main documents analyzed in this study.

The Philippine Labor Market Information report

The flagship labor market information (LMI) report called "Jobs and Labor Market Forecast 2022-2025" (n.d.) is published by the Bureau of Local Employment (BLE) under the Department of Labor and Employment. Previously known as the JobsFit LMI Report, it has been released annually since 2014. This report presents national and regional forecasts for the upcoming three years, focusing on various aspects such as important employment sectors, emerging industries, in-demand and difficult-to-fill job positions, and other relevant labor market data. Its main objective is to assist students, job seekers, policymakers, and stakeholders in making informed career planning, workforce development, and policymaking decisions.

The 2022-2025 edition of the report comes at a time when the Philippine economy is recovering, and digital and green economies are influencing the labor market. With this in mind, the report offers updated forecasts to address potential discrepancies between job demands and required skills, providing timely and accurate Labor Market Information.

Given the common mismatches between labor demand and supply, the report strives to address these issues by providing facilitation programs. The generation of the report relies on a combination of quantitative data (e.g., industry growth figures and labor force projections) and qualitative data (e.g., priority skills and worker profiles). The methodology includes desk research, data analysis, and stakeholder consultations.

In conclusion, the Jobs and Labor Market Forecast 2022-2025 (n.d.) is a comprehensive and regularly published LMI report by the DOLE-BLE, offering valuable insights into current and emerging labor market trends and issues. Its purpose is to inform policies, planning efforts, and career decisions.

Skills alignment matching

The following presents the results of the matching process conducted between the two documents using the skills alignment approach to labor market alignment (LMA) by Cleary et al. (2017). As stipulated in the framework earlier, the process matched the labor market outlook jobs with the priority programs of CHED as guided by the program content and curriculum development dimension of the skills alignment LMA.

Industry Outlook

According to the Philippine labor market outlook, the industry outlook in the next three years will comprise the following: agribusiness, banking and finance, mining, construction, education, health and wellness, hotel, restaurant, and tourism, IT-BPM, transport and logistics, wholesale and retail trade, and manufacturing. Mapping the industrial outlook with the priority academic programs from CHED, the following table is generated:

Table 1. *Industry outlook matching with CHED priority programs*

Industry Outlook	CHED Priority Cluster	Specific Priority Programs
Agribusiness	Multi and interdisciplinary cluster	Agribusiness
Banking and Finance	Business and management	No specific priority program
Mining	Engineering and technology	Mining engineering
Construction	Engineering and technology	Civil engineering
Education	Teacher Education	All priority programs
Health and wellness	Health profession education	All priority programs
Hotel, restaurant, and tourism	Business and Management	Hospitality management/hotel and restaurant management
IT-BPM	Information and technology education	All priority programs
Transport and logistics	Engineering and technology	No specific priority program
Wholesale and retail trade	Business and Management	No specific priority program
Manufacturing	Engineering and Technology	Manufacturing/production engineering

It could be gleaned from this table that all the eleven (11) industry outlook categories of the Jobs and Labor Market Forecast 2022-2025 are addressed by CHED priority clusters, namely engineering and technology (4), business and management (3), information and technology education (1), teacher

education (1), health professional education (1), and multi and interdisciplinary cluster (1). While some industry outlook categories have specific academic programs prioritized in the CHED list, the following categories do not list particular priority programs listed in the CMO: banking and finance, education, health and wellness, transport and logistics, and wholesale and retail trade.

The cross-matching confirms that job projections will focus more on the private sector, known as new graduate jobs, compared to 'traditional jobs' (Figueiredo et al., 2017). The industry outlook forecast is aligned with the claim of Livanos (2010) that there is already an oversupply of workers for the public sector fields because many individuals make irrational choices in choosing college degrees. The findings, however, contradict the claim of Livanos (2010) that there will be poor prospects for sociology, humanities, and agricultural graduates while positive prospects await for law, medicine, computer-related, and engineering graduates due to the presence of agribusiness and agro-forestry degrees in the priority programs of CHED.

Emerging Industries and Jobs

The labor market information report lists the following as the emerging industries and occupations in the next three years (2022-2025): green industry, IT and platform industry, and creative industry. The green economy embraces the need for occupations addressing our climate change concerns, especially in companies across sectors adopting ecologically sustainable solutions; the IT and platform industry includes the digital economy whose jobs focus on developing digital products and services for businesses; and lastly, the creative sector is composed of the higher demand for activities driven by knowledge generation and information exploitation (BLE, n.d.). Based on the cross-matching with CHED's priority programs, the following data summary is generated:

Table 2. *Emerging industry matching with CHED priority programs*

Emerging industry	CHED priority cluster	Specific priority program
Green Industry	Engineering and technology Multi and interdisciplinary cluster Architecture and related programs	Sanitary engineering Agribusiness Agroforestry Disaster Risk Management/Climate Change Renewable/sustainable energy Environmental planning
Digital industry	Information technology education Multi and interdisciplinary cluster Engineering and technology	Computer Science Cyber security Information system Information technology Data science and analytics Computer engineering
Creative industry	Information technology education Architecture and related programs	Entertainment and multimedia computing/game development and animation Fine arts

Based on this cross-matching of industries and priority programs, the priority clusters that address emerging industries' needs are engineering and technology, information technology education, multi and interdisciplinary clusters, and architecture and related programs. Specifically, the three-year forecast sees the following programs to respond to the emerging industries: sanitary engineering, agribusiness, agroforestry, disaster risk management/ climate change, renewable/ sustainable energy, environmental

planning, computer science, cyber security, information systems, information technology, data science and analytics, computer engineering, entertainment and multimedia computing/ game development and animation, and fine arts.

If we look into the emerging jobs per region for the three-year forecast (2022-2025), the following specific academic programs will address the need: biochemistry, environmental science, almost all information technology education programs, agricultural and biosystems engineering, civil engineering, mechanical engineering, sanitary engineering, structural engineering, aviation-related programs, mechatronics engineering technology, environmental planning, almost all teacher education priority programs, agroforestry, nursing, and data science and analytics. It is gleaned from this finding that only four priority clusters from CHED, namely, engineering and technology, multi and interdisciplinary cluster, information technology education, and architecture and related programs, respond to the national emerging jobs and industries forecast. In the regional forecast, however, they have added health professional education, social sciences, specifically human services, and teacher education for the tutoring jobs.

Priority Skills Requirements

The priority skills requirements category of the Jobs and Labor Market Forecast is divided into five subcategories: in-demand occupations (IDO), hard-to-fill occupations (HFO), cross-cutting occupations (CCO), occupational shortage and surplus (OSS), and 21st-century skills (TCS).

In-demand occupations

In-demand occupations, as forecasted by DOLE, include the medical field, construction architecture, and engineering-related workers, information technology and business process outsourcing, platform work (i.e., delivery riders, virtual assistants, and e-commerce), and services and tourism sectors. Based on this forecast, these IDOs can be filled through the priority clusters: health profession education, engineering and technology, architecture and related programs, information technology education, business and management, and multi and interdisciplinary clusters. In the regional forecast provided by the report, the academic clusters can address most of the regional IDOs. However, if we examine the respective regional academic priorities of the region, very few jobs match the regional priority programs. For instance, in the National Capital Region, only information technology education, communication, accounting technology, e-commerce, marketing, and health sciences respond to their IDOs of the region. These are accountants, digital marketing specialists, e-commerce development executives, IT/ computer science specialists, medical practitioners, nutritionists, program developers, and web developers. Most in-demand jobs are considered 'new graduate' jobs, according to Figueiredo et al. (2017), since they are primarily found in the private sector.

Furthermore, in Region II, out of nineteen (19) IDOs, only customer service representatives, medical technologists, and retail sales representatives are matched with the regional priority programs social science, entrepreneurship, and medical electronics. For Region III, only 6 out of 23 jobs are matched with the regional academic priorities: digital programs, engineering, entrepreneurship, office administration, logistics, teacher education, and development communication. The matched jobs in the region are accounting jobs, engineers, customer service representatives, office clerks, teachers, and logistics personnel. For Region IV-B (MIMAROPA), only business administration and related courses matched the regional IDOs: accounting clerk, accounting associates, auditor, bookkeeper, and manager. And for Region XI, only the teacher education program matched the demand for teachers. It must be noted that

the regional priority programs complement only the national priority programs. Both documents (the CMO and the LMI) also did not have complete regional priorities and IDOs; hence, only five regions were analyzed. The national priority academic programs could address most of the remaining IDOs of the regions.

Hard-to-fill Occupations

The report listed twenty (20) occupations as hard-to-fill or jobs that companies struggle to fill. Based on the cross-matching, eighteen (18) of these jobs can be addressed by the priority academic programs of CHED, leaving agriculturist and lawyer jobs as not directly matched. It is noticeable that the Juris Doctor and Bachelor of Science in Agriculture degree programs are not part of the priority programs of CHED. However, relevant programs in the priority list include agribusiness, agroforestry, biology, and botany, and for the law degree, any other program accepted as pre-law, such as accountancy, teacher education, and social sciences, among others. It should be noted that the Juris Doctor program is not under the jurisdiction of CHED but by the Legal Education Board (LEB), which could explain why it is not part of the academic priorities of the former.

The eighteen (18) matched jobs include chemical engineering technician, chemist, culinary, geologist, production engineer, medical technologist, power plant maintenance engineer, etc. The following priority programs can address these but are not limited to chemical engineering, chemistry degree, hotel and restaurant management, geology degree, production engineering, medical technology, engineering technology, and industrial engineering, among others.

Cross-cutting occupations

These are jobs that can be classified as both in-demand and hard to fill when advertised by companies. The LMI report lists forty-seven (47) CCOs as an outcome of regional consultations. Many jobs may not require a college degree, such as drivers, welders, utility crew, cooks, masons, farm workers, and plumbers. It is argued that all the CCOs can be addressed by the priority academic programs of CHED, directly or through relevant programs. The priority programs can directly address some of these jobs: engineers, architects, accountants, graphic artists/ designers, guidance counselors, librarians, nurses, pharmacists, social workers, business/ data analysts, and environmental engineers.

Cross-cutting occupations that do not require a college degree can be linked with the claim of Figueiredo et al. (2017) that recent graduates are increasingly working in 'latent graduate' jobs that have lower earnings and are prone to job dissatisfaction. While not all who become drivers, crew, and plumbers have no tertiary education, some college degree holders land these jobs because of education mismatch. Therefore, skills matching is crucial to ensure decent income and job fulfillment.

Occupational shortage and surplus

Occupational shortage happens when hard-to-fill vacancies with few applicants experience a supply deficiency of qualified applicants compared to the number of jobs available. There are 24 occupational shortages and 23 of these can be addressed by the CHED academic priorities. In particular, food technologist/ technician, statistician, and medical technologist jobs can be filled by food engineering, statistics, and medical technology graduates. The doctor shortage, however, may not be directly addressed by the CMO since it only expressly indicated Doctor of Dental Medicine and Doctor of Optometry as academic priorities.

On the other hand, an occupational surplus occurs when most employers struggle in the recruitment process because the number of applicants is higher than the number of vacancies. In this situation, applicants compete for a few slots, but most lack the specific skills (BLE, n.d.). Seventeen (17) occupations

are experiencing occupational surplus; most require skills but not college degrees. These include waiters, sales assistants, drivers, mechanics, utility/ sanitation crew, carpenters, and baggers. Those that require college degrees can be addressed by the CHED academic priorities, namely hotel and restaurant management, teacher education, nursing, and accountancy.

21st-century skills

The DOLE considers that workers must develop both their hard and soft skills necessary in the digital and fast-changing world. Hard skills show the employee's technical knowledge and ability, while soft skills demonstrate the candidate's work ethic and character (BLE, n.d.). Combined and infused with relevant digital and 21st-century skills, workers can survive and compete in the labor market. There are ten 21st-century skills listed as an outcome of regional consultations. These are English functional skills, teamwork, math functional skills, decision-making, workplace ethics, innovation, English comprehension, planning and organizing, multi-tasking, and creative problem-solving. The DOLE notes that teamwork, critical thinking, work ethics, and planning and organizing are top soft skills expected of 21st-century workers.

While these skills are not directly taught in college, soft skills are trained among students across all disciplines. With liberal education, college students, regardless of major or program, are taught general education courses that equip them with English and mathematics functional skills. It is, however, noticeable that the Bachelor of Arts in English Language and the Bachelor of Secondary Education major in English are not part of the priority programs of CHED. Mocanu et al. (2014) support the demand for such skills, arguing that communication and entrepreneurial soft skills require more attention among graduates. Liagouras et al. (2003) also confirm that communication and adaptability are weak among graduates in the Greek labor market.

Digital Economy

The Philippines' demand for digital economy workers even more escalated during the pandemic because of social distancing and minimum health standards. More workers are also needed to home-deliver necessities to consumers or pursue home-based digital jobs that offer flexibility in time and structure. The DOLE listed seventeen (17) occupations required by this economy, which include virtual assistants, digital marketers, social media marketers, web and system developers, programmers, IT specialists, software engineers, graphic designers, data analysts, online tutors/sellers, fiber optic technicians, CAD operator, call center agents, ICT manager, and database operator/ analyst which CHED national priority programs can address. The demand for delivery riders and logistics personnel for e-commerce platforms can be addressed through regional priority programs, specifically on e-commerce and logistics. These can be found in the regional priority programs of Region III and the National Capital Region, where most of the e-commerce and fintech companies are headquartered.

Green Jobs

Green jobs are occupations that respond to the need to preserve and restore our environment and jobs that are decent, productive, respectful, and fair, provide security in the workplace and social protection for families, and promote social dialogue (BLE, n.d.). These environment-related jobs can range from mitigation activities, adaptation to climate impacts and disaster risk management, protection of ecosystems and habitats, prevention of land degradation from human activities, the efficiency of water and natural resource management, pollution prevention and control, environmental compliance, education and training, and public awareness. According to regional consultations conducted by the DOLE, jobs that were tagged as green comprise thirty-seven (37) jobs from agriculture to zookeeping. Among those

that the green economy will demand are biochemists, civil engineers, environmental engineers, officers, planners, foremen, forest rangers, foresters, mechanical engineers, renewable energy engineers, tourist guides, and waste management officers. These can be addressed by science and mathematics academic programs, engineering and technology, and multi and interdisciplinary clusters, specifically agroforestry programs. Among those noted not directly addressed by the CHED priority programs are e-jeepney drivers, farm breeders and technicians, landscapers/gardeners, park rangers, pollution control officers, solar energy engineers, water resource facilities operators, and zookeepers. These jobs require a skill set that may or may not require a college degree.

CONCLUSION

In conclusion, this study aimed to determine the extent of alignment between the CHED's list of priority academic programs and the current skills demand and changing labor market needs in the Philippines.

The first research question sought to identify the key high-demand skills and priority economic sectors based on current Philippine labor market data and projections. The analysis of the DOLE - BLE's (n.d.) Jobs and Labor Market Forecast 2022-2025 revealed priority sectors like IT-BPM, construction, health and wellness, and emerging industries like green jobs and the digital economy. High-demand skills include soft skills like communication and technical skills in IT, engineering, healthcare, and green technologies.

The second research question examined how well the specific programs on CHED's priority list match the identified high-demand skills and priority economic sectors. The cross-matching analysis showed strong alignment for priority clusters like engineering, IT, healthcare, teacher education, and agriculture. However, gaps exist where some specific in-demand jobs lack direct matching programs on the priority list. Mismatches are also evident between regional academic priorities and localized skill demands.

Recommendations

Based on the study's findings, the study forwards the following recommendations:

1. CHED should regularly review and update the list of priority academic programs to better align with evolving labor market needs. More direct matches are needed for certain jobs like banking, agriculture, law, and English language teaching.
2. CHED and DOLE should enhance coordination and data sharing to identify skills gaps and emerging demands. This will allow for timely adjustments in prioritized programs.
3. Academic institutions should be given incentives to offer programs catering to priority skills needs like technology, healthcare, green jobs, and the digital economy. Scholarships can steer students toward these strategic programs.
4. Beyond specific degree programs, developing 21st-century skills like communication, critical thinking, and adaptability should be integrated across all disciplines through general education courses.
5. Regional academic priorities need further development to address unique local demands. CHED can engage local industries and LGUs in formulating tailored priority programs.
6. Bridging programs should be offered to address skill gaps of graduates unable to find employment. Academe-industry partnerships can design these programs.
7. More active labor market monitoring and foresight studies are needed to identify emerging skills demands in advance. Outputs can inform priority-setting.

Overall, the study demonstrates a reasonable yet imperfect alignment between CHED's priorities and labor market needs. While CHED is responding to major sectors and skills in demand, there is room for enhancement through regular priority list updates, improved CHED-DOLE coordination, and addressing remaining alignment gaps. It must be noted, however, that achieving education-employment alignment is not the sole responsibility of CHED and DOLE only. Other agencies such as TESDA and DepEd should continue to provide relevant skills and training to complement the DOLE and CHED. TESDA providing technical-vocational skills while DepEd offering senior high school tracks designed to produce job-ready graduates are essential in this whole government response to job mismatch. It is also recommended that they include all regions and their priorities and clarify the role of national and regional academic priorities. This will strengthen the fit between academic offerings and the evolving job landscape, fostering a more skilled, productive workforce and supporting the country's development goals. The study provides valuable insights for policymakers and academe seeking to bridge the divide between education and employment.

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