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Brian Daguman

Samantha Victoria Abordo Baradas

Aileen Abigail D. Co

Martha Louise Delos Santos

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De La Salle University
AKI
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In most written literature on labor, wages are determined by labor market supply and demand factors. With this, what a person can control to increase their wages is to focus on their skill endowments, particularly honing skills. These skills this paper will be focusing on are those occupational-specific, which pertains to the tasks and activities that a worker does in their job. That being said, it is important for an average worker to improve their skills through human capital (i.e., internships and on-the-job training) identified in this study as cognitive-interactive, Information and Communications Technology (ICT), and computational skills are found to have wage premiums. Along with skills, the variables education, experience, and firm tenure have been found to provide wage premiums.

Written by:

Brian Christian Daguman
Samantha Victoria Baradas
Aileen Abigail Co
Martha Louise Delos Santos
School of Economics, De La Salle University

Policy Recommendation

On-the-Job Training and Internships for Business Administration and Communication

Based on the results of our study, occupational dummies like managers, associates, and clerical workers tend to have higher wages than others in the labor market. Accompanying this, these sets of occupations have higher degrees of cognitive, interactive, and computer-related skills required in their occupation. Moreover, higher levels of education are needed to be employed in these occupations. Thus, a typical worker with no background in such will have to hone their skills. Because skills are derived from tasks of occupation, we recommend that workers or job seekers should train through on-the-job training and internships. This may be feasible because internships or apprenticeships are usually not paid by firms. In Australia, apprenticeships are usually recommended for people who want to learn skills by doing hands-on tasks and activities done by the occupation. With this, the government should encourage business administration internships for university students; and apprenticeships for older individuals that will allow them to gain occupational skills like basic bookkeeping, communication, and administrative skills.

On-the-Job Training and Internships for Basic Tech-Related, and Data Analytical Skills

Considering the increasing capital intensive ICT, there is a high demand for tech-related skills. Similarly, having on-the-job training that utilizes ICT and computational skills is a necessity for the government to provide. That said, creating apprenticeships and internships would allow the workers to develop occupational skills like coding, data analysis, use of spreadsheets, and the like.

For Research and Development in the Labor Field

To improve research on labor, the Annual Survey of Philippine Business and Industry (ASPBI) and Labor Force Survey (LFS) should be merged wherein the LFS shifts from a household-based survey to be more establishment-based with individual-level data. This allows the LFS to encapsulate the labor market demand and supply factors for labor research.

This recommendation includes improvement on the current research database like the LFS. It is best to increase the number of unique occupations in the dataset. Our group highly recommends a 4-digit occupational code consisting of around 250 unique occupations. With this, there should be a skill database for the Philippines like the O*Net database in the U.S. and other developed countries. This would create a skill distance for certain skill categories like cognitive, interactive, or manual, giving unique values to skill categories based on the tasks of each occupation.

Introduction

Education

In a previous study by Dabla-Norris et al. (2015), it was discussed that various sources such as income, education, and health could result in income inequality. This paper dwells on skill price, which is the wage premium that workers are paid with regards to the skills they produce in their jobs (Autor & Handel, 2013). Meanwhile, wage penalties are common for workers who perform tasks related to manual skills. With this, the common denominator as to how low-skilled workers are being paid less can stem from the poor quality of education, lack of human capital, and skill-biased technology (Tinbergen, 1972; Jain, 2018).

Charles-Coll (2011) said an individual's choice of education with regards to its quality greatly influences their future wages. In the Mincerian framework on education and wages, a person could decide to spend more years of schooling to improve their chances of getting accepted into an occupation with better pay. At the same time, a person accumulates or improves their skills through various degrees of education, internships, technical-vocational courses, and bachelor's degrees or higher (Deming, 2017).

In developing countries, the quality of education available proved to be a hindrance in developing skills in preparation for future workers in the labor market (Glewwe & Kremer, 2006). For example, the 2019 Functional Literacy, Education, and Mass Media Survey showed only 52.4% of Filipino children who had completed primary school have basic reading, writing, and arithmetic skills—important foundational skills that are expected to be developed further through adulthood (Philippine Statistics Authority, 2020). These skills, in the most basic form, shape the skill endowment of the future workers in the labor force.

Tech-Related Skills

Historically, various occupations demand different skills from the labor force, and as a result, advancements in technology have altered the type of labor that most firms prefer. This shifted the preference of workers to develop cognitive skills from the more traditional manual skills. Due to higher skill-based requirements in consistently performing tasks (i.e., computation, data analysis) in the labor market, tasks about cognitive skills are required in utilizing and performing these. In task-based methodology

literature, ICT skills can be measured by identifying computer-related tasks like coding, programming, and using databases (Generalao, 2019). Nevertheless, technology has changed the way occupations form their tasks.

On technology-biased skills, firms have been increasingly providing computer and ICT-skilled workers with skill premiums because these tasks usually require more cognitive skills, and computer programs need analytical abilities for them to be performed. This results in a skill-biased ICT where income inequality widens between low and high-skilled workers, as usage of ICT capital demands higher levels of skill in technology, which high-skilled workers are more likely equipped with. Hershbein et al. (2018) demonstrated how shifting to more technologically-driven training and education for low-skilled workers greatly improves their productivity and wages as these workers will become more competitive in the increasingly digital economy.

As technological progress paved the way for more complexity in occupational skills and job tasks, the returns for computer-related skills were empirically inconsistent (Deming, 2017). An explanation for this can be traced towards the increase in ICT capital, where a huge surge of workers has shifted to a more technologically-intensive work. The increase of its supply of workers, coupled with their oversaturation in the ICT industry, have led to an ambiguous effect of computer skills on wages. Concurrently, the routinization of ICT skills has become prominent as low-skilled workers shifted to the ICT industries. Given this, there are still several significantly evident forces that need to be analyzed.

Empirical Findings

Our findings show robust significant positive returns on a change in computational, ICT, and cognitive-interactive skills across occupations. This is supported when occupations that have tasks intensive in the aforementioned skills tend to have high returns, whereas occupations that require manually intensive skills are paid less.

Although our topic primarily discusses skill returns, these skills are established in a worker's education. Hence, schooling returns are a point of interest in this paper. As evidenced in our series of models, there is still an increasing trend of basic pay per day of workers as years of education increase in Filipino workers. This may be the case where, as years of education increase, skills are developed as a result. With this, a worker's occupational choice increases as with their potential to accumulate higher earnings.

Conclusion

To conclude, this study uses occupational tasks as a foundation for the conceptualization and the quantification of job skills. The quantified tasks resulted in the creation of component skill variables, which are used to explain wages. Cognitive-interactive, ICT, and computational skills are identified as relevant skill/component variables and suggest a statistically significant positive impact on wages of workers by 12%, 3, and 1.5%, respectively. Building from these skills returns, the group implores private and government agencies to provide on-the-job opportunities for tech-related skills (i.e., IT, Data Analysis, etc.), arrange internships or apprenticeships for business administration and communication, and improve labor databases.

Due to the limitations of the dataset, this paper primarily only focuses on the determinants of a worker's wage on the supply side. However, to further augment future analysis of the topic, merging LFS and ASPBI datasets allows labor demand perspective in the literature on workers' wages. At the same time, it is imperative to develop more disaggregated occupations in the PSA LFS dataset as opposed to the standard 2-digit occupation code reported in the current dataset.

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CONTACT INFORMATION

DLSU - Angelo King Institute for Economic and Business Studies (DLSU-AKI)
Room 223, St. La Salle Hall
2401 Taft Avenue
1004 Manila

Angelo King International Center
Corner of Arellano Avenue and Estrada Street
1004 Manila

+63-2-8524-4611 loc. 287,
+63-2-8524-5333, +63-2-85245347 (Fax)
https://www.dlsu-aki.com

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