



SMERU WORKING PAPER NO. 1/2024

# READINESS OF EMPLOYERS AND JOBSEEKERS TO MOVE ONLINE: CHALLENGES FACING LABOR MARKET INFORMATION PLATFORMS

Palmira Bachtiar, Luhur Bima, Anne Shakka, Alya Sabrina Aliski

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## **Editor**

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# Abstract

## Readiness of Employers and Jobseekers to Move Online: Challenges Facing Labor Market Information Platforms

Palmira Bachtiar, Luhur Bima, Anne Shakka, Alya Sabrina Aliski

This study examines how prepared employers and jobseekers are when faced with institutional change, namely the use of the labor market information system (LMIS) created by the Ministry of Labor. We will identify causes of institutional change and conduct an analysis to understand factors influencing readiness of employers and jobseekers in this area. From this analysis, we will draw some policy implications to understand how the LMIS should be used for greater efficiency and closer interaction between employers and jobseekers in the labor market.

The scope of the study is limited to vocational high school graduates who—unlike those of higher education—still require support to make good use of the LMIS. The government provides access to the LMIS for those laid off under the newly established Unemployment Benefit Scheme. Along with it, they will also benefit from a six-month cash transfer and training program.

The study found that the internet has not helped big firms in recruiting for operator positions. Instead, big firms prefer to use offline intermediaries to screen through irrelevant applicants. Firms also use intermediaries to avoid pressure from the local community and illegal brokers. Vocational high school graduates are not entirely ready to go digital either. Despite having experience in using the internet for job applications, jobseekers still experience a digital divide as well as have limited digital literacy, including in cases of hoax job vacancies. Since finding work is extremely important for their livelihood, providing access to the LMIS that connects them with vacant positions would be important in this context. They should be introduced to the LMIS while still at school.

Being an important instrument for the implementation of the Unemployment Benefit Scheme, the LMIS at the national level should be complementary rather than competitive with private job matching platforms. The government should also be an aggregator of labor market information at the subnational levels since employment is the responsibility of the *kabupaten/kota* government. As there are costs involved in recruitment, and to allow for faster digitalization, the recruitment process should be streamlined to enable easier sortation and indexing. This is particularly important for vocational career centers (BKK), who cannot charge jobseekers. Additionally, HR managers should utilize various HR applications to enable faster screening and to minimize adverse selection.

**Keywords:** labor market information, Unemployment Benefit Scheme, public employment services, social media



# Table of Contents

Acknowledgements	i
Abstract	ii
Table of Contents	iii
List of Tables	iv
List of Figures	iv
List of Boxes	iv
List of Abbreviations	v
I. Introduction	1
1.1 Background	1
1.2 Literature Review	2
1.3 Conceptual Framework	3
1.4 Data and Methodology	4
II. Case Study Context	5
2.1 Workforce Profile of Vocational High School Graduates	6
2.2 Recruitment Practices	8
III. How Do Firms Hire Workers?	11
3.1 Different Intermediaries for Different Levels of Workers	11
3.2 Preference in Hiring Operator-Level Workers	13
IV. How Ready Are Vocational High School Graduates in Using Digital Recruitment Mechanisms?	15
V. Data Analysis	19
5.1 Factors Influencing Readiness in Using LMIS	19
5.2 Institutional Change and Readiness in Using LMIS	32
VI. Conclusion and Policy Implications	34
List of References	37
Appendices	43

# List of Tables

- Table 1. Summary of Data Collection | 4
- Table 2. The Landscape of Recruitment Institutions | 9
- Table 3. Regulatory Analysis on Recruitment System | 10
- Table 4. Recruitment Channels in Big Manufacturing Companies | 11
- Table 5 Perspectives on Social Media | 27
- Table 6. Illegal brokers According to Informants | 29

# List of Figures

- Figure 1. Open Unemployment Rate and Workforce Population by Education Level, August 2020 | 6
- Figure 2. Vocational High School Workforce and Unemployment Rate, 2016-2020 | 7
- Figure 3. Job Status of Vocational High School Graduates, August 2020 | 7
- Figure 4. Methods in Finding Work by Vocational High School Graduates | 8
- Figure 5. Main Activities in Using Internet – Phone Survey 2021 | 16
- Figure 6. Issues In Accessing Internet Service – Phone Survey 2021 | 17
- Figure 7. Issues in Submitting Online Job Application – Phone Survey 2021 | 17
- Figure 8. Channels of Job Matching Process | 19
- Figure 9. Number of Jobseekers and Registered Companies on Infoloker Karawang. February-September 2021 | 23
- Figure 10. Preference in Finding Job Information | 23
- Figure 11. Factors Influencing Readiness of Employers and Jobseekers in Using LMI | 32

# List of Boxes

- Box 1. Recruitment Agency and Outsource Agency | 13
- Box 2. Difference Between Apprenticeship and Internship | 15
- Box 3. Ghost Vacancies | 31

# List of Abbreviations

<b>ALMP</b>		Active Labor Market Policy
<b>Apindo</b>	Asosiasi Pengusaha Indonesia	The Employers' Association of Indonesia
<b>Bappenas</b>	Badan Perencanaan Pembangunan Nasional	National Development Planning Agency
<b>BIMMA</b>		Bandung Integrated Labor Management Application
<b>BKK</b>	<i>bursa kerja khusus</i>	vocational career center
<b>BLK</b>	<i>balai latihan kerja</i>	public training center
<b>BP Jamsostek</b>	Badan Penyelenggara Jaminan Sosial Tenaga Kerja	Social Security Implementing Agency for Employment
<b>CV</b>		curriculum vitae
<b>FB</b>		Facebook
<b>HR</b>		human resources
<b>HRD</b>		human resources department
<b>IG</b>		Instagram
<b>ILO</b>		International Labour Organization
<b>IT</b>		information technology
<b>JKP</b>	Jaminan Kehilangan Pekerjaan	Unemployment Benefit Scheme
<b>LMI</b>		labor market information
<b>LMIS</b>		labor market information system
<b>LPK</b>	<i>lembaga pelatihan kerja</i>	private training center
<b>LPTKS</b>	<i>lembaga penempatan tenaga kerja swasta</i>	private labor placement agency
<b>NGO</b>		nongovernmental organization
<b>OECD</b>		Organization for Economic Cooperation and Development
<b>perppu</b>	<i>peraturan pemerintah pengganti undang-undang</i>	government regulation in lieu of law
<b>Sakernas</b>	Survei Angkatan Kerja Nasional	National Labor Force Survey
<b>Sisnaker</b>	Sistem Informasi Ketenagakerjaan	Employment Information System
<b>SNS</b>		social networking site
<b>Susenas</b>	Survei Sosial Ekonomi Nasional	National Socioeconomic Survey



# I. Introduction

## 1.1 Background

The year 2020 witnessed two important events which impacted on the Indonesian labor market. On the one hand, Indonesia was hit hard by the COVID-19 pandemic, like any other country in the world. Data from the National Labor Force Survey (Sakernas) in August 2020 shows that, since the pandemic was officially declared in March 2020, it has impacted over 29 million people. Of the workers affected, about 1.7 million (6%) were laid off, and the remainder (94%) were partially affected in their working hours. On the other hand, the government has since issued Law No. 11 of 2020 on Job Creation, in which a new social security scheme has been introduced, namely the Unemployment Benefit Scheme (Jaminan Kehilangan Pekerjaan/JKP).

The law mandates the Social Security Implementing Agency for Employment (BP Jamsostek) to carry out the Unemployment Benefit Scheme. This scheme is designed to facilitate the transfer of laid-off workers to another job to prevent a sudden decrease in their standard of living. The scheme is managed nationally with the purpose of providing social insurance and is accessible to workers who actively pay the installments. Under Article 46D of this law, workers whose employment has been terminated are entitled to receive the following benefits: (i) cash transfer; (ii) labor market information (LMI); and (iii) training. Regarding labor market information, Government Regulation No. 37 of 2021 on the Implementation of the Unemployment Benefit Scheme stipulates that this information will be given alongside counseling from *kabupaten* (district)/*kota* (city) labor agencies through the Employment Information System (Sisnaker).

Both the Job Creation Law and the pandemic have shown that there is an urgency to establish a labor market information system (LMIS). The government should monitor state of the art technology on collecting unemployment data. Aside from regular survey activities, this system should also be fed with labor market information, which has been a part of the public employment system even prior to the reform era. World Bank (2021) elaborated that the four critical functions of an LMIS are (i) job matching, (ii) counseling and career guidance, (iii) analytics, and (iv) government support.

Our study will focus on the job matching feature of the LMIS, which we will define as LMI. In particular, this diagnostic study aims to explore the readiness of employers and jobseekers in using LMI and what challenges they face in order to support the Unemployment Benefit Scheme. In doing so, we undertake a political economic analysis. We address issues with employment structures and regulations, and how that shapes the incentives and interests of jobseekers and employers. This study proposes policy recommendations to address the present challenges and opportunities faced by public employment services.

This paper is structured as follows. It starts with understanding why LMI is important, and unpacks the research objectives and its context. Following the explanation of data and

methods, Chapter Two analyzes the case study context, namely employment structures and recruitment practices. Chapters Three and Four elaborate how prepared big firms and vocational high school graduates are to use LMI. Chapter Five analyzes the factors contributing to the readiness of jobseekers and employers in using LMI. The paper draws conclusions and policy implications in Chapter Six.

## 1.2 Literature Review

In a perfectly competitive labor market, workers and employers should meet costlessly. In reality, the labor market is characterized by imperfection and friction, as both workers and employers must invest in the search process. As conflicts hinder market clearing, job vacancies and jobseekers exist, but they do not meet. High search costs are seen as a market failure. Autor (2009) strongly argued that, despite being an essential public good, information about jobseekers and job vacancies is insufficient in the market. The presence of a third party—the intermediaries—selling information might appear to be practical to both workers and employers.

Moreover, Autor (2001) also insisted that this information is costly and asymmetric. Both jobseekers and job vacancies are heterogeneous by nature. Matching them would be extremely difficult, as both parties are not well informed about each other; the information about vacancies is not disclosed to the jobseekers, and employers can not fully monitor and deal directly with all applicants. With the internet, how would this issue be solved?

There has been considerable literature discussing how the internet can help ease information deficiencies. Kuhn (2014) argued that the internet can have a positive impact on improving labor market efficiency. While his previous study in 1998–2000 viewed the roles of the internet more pessimistically, the evidence from his study in 2011 showed a much brighter image of the internet, where job searchers who used the internet experienced periods of unemployment 25% less than their peer group who did not search for jobs on the internet (Kuhn and Mansour, 2011; Kuhn and Skuterud, 2004). The research by Nakamura et al. (2007) and Stevenson (2009) also confirmed that workers who searched for job vacancies on the internet were often recruited. Kuhn (2014) underlined some beneficial features of the internet, for example the low cost of job searching. With an electronic job board, fresh data is made available for policymakers to examine dynamics in the labor market. More importantly, he found that social networks could be even more beneficial for job matching, as employers could view the Facebook or LinkedIn profiles of applicants. Social media can provide high bandwidth data—data about quality, motivation, and fitness—which Autor (2001) observed could not be previously offered through the internet. According to Kuhn (2014), the presence of this data can reduce frictions in the labor market. At present, social networking sites (SNS), such as Facebook, LinkedIn, and Instagram, have gained popularity among employers and jobseekers. On social networking sites, employers can screen candidates' suitability, while jobseekers can demonstrate their knowledge and commitment to improve their chances of being hired. A study in Malaysia involving 70 employers and 120 final-year university students demonstrated that 61.5% of employers examined potential candidates' SNS during recruitment (Kaur, Arianayagam, and Singh, 2021). Meanwhile, 89.2% of the students were aware of SNS usage by employers. Issues for which employers frequently used social

media to check were candidates' qualifications, drug consumption, and negative comments regarding their previous employers. Despite concerns over its legality, employers argue that SNS usage during recruitment can reduce costs and time, and hence prospective candidates should take their social media activity seriously.

## 1.3 Conceptual Framework

This study examines how prepared employers and jobseekers are in moving with institutional change, namely in using LMI. We will identify causes of institutional change and conduct an analysis to determine factors influencing the readiness of employers and jobseekers. From this analysis, we will draw some policy implications on whether LMI should exist and be used for greater efficiency and closer interaction between employers and jobseekers in the labor market.

To begin, the most common definition for institutions is a set of rules—formal and informal—defining the structure of society and its enforcement (North, 1990). Institutions guide and constrain social behaviors. What makes rules change: what causes institutional change and how does it affect behaviors? Addressing this issue, Coccia (2018) elaborates on various definitions of institutional change. He concludes that, in general, all concepts on institutional change can be categorized into three approaches: (i) designed-based; (ii) evolutionary; and (iii) equilibrium. The designed-based approach is characterized by the process of collective choice. The head of the community or a political leader, the people, and organizations are involved in collective actions, conflicts, and bargaining. The evolutionary approach argues that institutional change is a consequence of human actions. Unlike the designed-based approach, which is centralized and formal, the evolutionary approach is decentralized and informal, where new rules and behaviors are simply those that have survived through natural selection. Meanwhile, the equilibrium approach treats formal and informal rules as a unified framework, where institutional change takes place because of changes in expectation rather than changes in rules.

With these three approaches, Kingston and Caballero (2009) added one more approach, namely blending the designed-based and evolutionary approaches. In this blended approach, they argued that scholars attempt to integrate both formal rules—which are centrally designed—and informal rules, which evolve more spontaneously. Kingston and Caballero (2009) also highlighted that the equilibrium approach shifts the focus of formal and informal rules from governing social behavior to the behavior, or expected behavior, itself.

Lin (1987) only divided institutional change as either imposed or induced. He defined imposed change as that which is initiated and implemented by the government. He argued that being a public good, institutional arrangement will remain limited if it relies only on the induced process. Government intervention is therefore necessary to correct this less than socially optimum condition. Meanwhile, induced institutional change is an adjustment to or substitution of the current institution which is introduced, organized, and implemented in response to a more profitable opportunity. Other scholars also identified two reasons to categorize the cause of institutional change. Wegerich (2001) identified bottom-up changes, and changes from above and outside. Brousseau, Garrouste, and

Raynaud (2011) differentiated the sources of institutional change between external rules and a repository of shared belief.

## 1.4 Data and Methodology

This study starts with a literature review and regulatory analysis to formulate an analytical framework and to examine the labor market. The study employs a mixed method of qualitative and quantitative analysis (Table 1).

Primary data was collected from three research areas in West Java Province, namely Kabupaten Karawang, Kabupaten Bekasi, and Kota Bandung. These locations are chosen purposively because *kabupaten/kota* governments in these areas have pre-existing initiatives to improve their job placement system. We will prove whether the governments of these research areas are truly pursuing an innovative approach to bridge the supply and demand of labor. In particular, Kabupaten Bekasi and Kabupaten Karawang are two *kabupaten* with massive industrial parks with a high demand for operator-level workers.

**Table 1. Summary of Data Collection**

		Quantitative Data Collection	Qualitative Data Collection	
			In-Depth Interview	Observation
Demand side	Employers' associations		v	
	Human resources departments		v	
Supply side	Trade unions		v	
	Workers	v		
	Education & training		v	
Intermediary side	Public employment services	National level	v	v
		Subnational levels	v	v
	Private employment services		v	v

We commenced data collection by interviewing representatives of employers' associations and trade unions. This was in addition to conducting an online survey, which targetted 1,000 people in order to obtain a general view of the workforce condition. After approximately one month, only 260 people participated in the survey, which was considered sufficient for an early overview.

On the demand side, we interviewed four managers from the human resources department (HRD) of big companies. The companies are located in an industrial park, employing many vocational high school graduates. Data and information gathered included the recruitment process, particularly recruitment of operator-level workers and their perspectives on LMI.

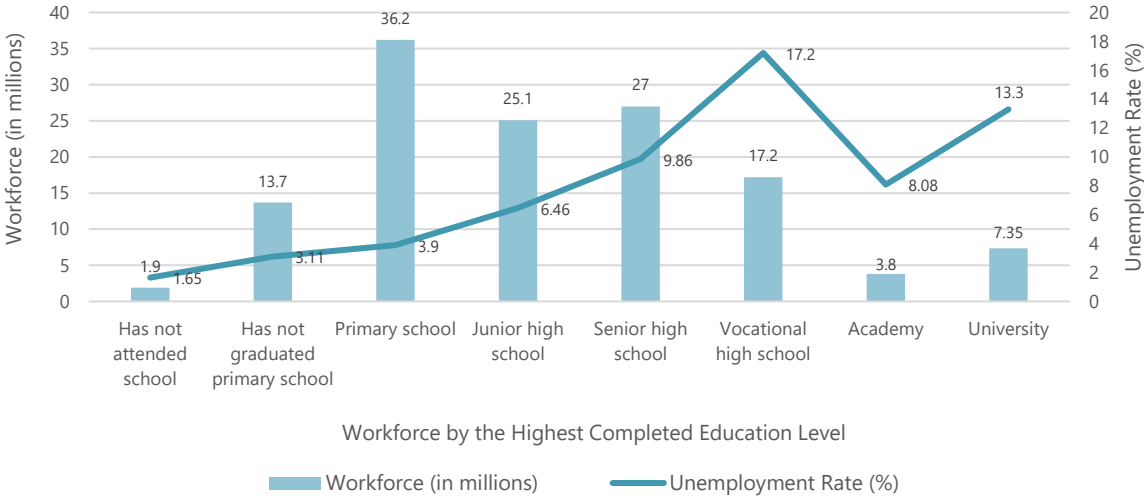
The major obstacle was getting a database of potential respondents from the supply side, namely workers, laid-off workers, and jobseekers. The study was carried out during the pandemic, where conducting an in-person survey was not possible. Therefore, we conducted a telephone survey. However, the number of active phone numbers was also problematic, as respondents frequently changed their number. Hence, many phone numbers from the database were uncontactable. Moreover, a limited number of the targeted respondents who could be reached by phone were willing to share information related to job market issues. This problem hindered the application of a representative sampling design from the available job seeker database. Consequently, our strategy was to contact as many respondents as possible until the target respondent quota was reached. In this survey, we managed to reach more than 1,000 vocational high school graduates, specifically 1,016 persons.

On the intermediary side, data was collected from public and private employment institutions at the national and *kabupaten/kota* levels. We interviewed officials at the national and subnational levels, as well as public intermediary officers. Moreover, we interviewed representatives of several vocational career centers (BKK) and vocational career center forums. Vocational career centers are responsible for disseminating job vacancies to its graduates. The alumni database of vocational career centers in these three research areas was used for the phone survey. Furthermore, interviews were carried out with two private job platform companies. In addition to in-depth interviews, observations were conducted for online job platforms, namely with 7 public and 20 private job platforms. These observations aimed to compare and contrast services and features and collect user experience across different platforms to suggest improvements of LMI.

## II. Case Study Context

This study focuses on Indonesia facing the problem of high unemployment among vocational high school graduates (Figure 1). Vocational high schools are mostly run privately and are of limited quality (Aida and Hardiyanto, 2020). Vocational high school students have lower capabilities, including digital literacy, compared with general high school students. They require more assistance in utilizing job platforms. Therefore, any digital job platforms wishing to include this demographic must consider their needs and perceptions.

**Figure 1. Open Unemployment Rate and Workforce Population by Education Level, August 2020**



Source: the National Labor Force Survey 2016–2020, authors’ calculation

Along with the issuance of the Job Creation Law, workers, including vocational high school graduates, usually enter a fixed-term employment agreement of one year, which can be extended for a maximum of four years. If in that period they are laid off and have already been paid 6 months of installments consecutively, Article 8 of Government Regulation No. 37 of 2021 on the Implementation of the Unemployment Benefit Scheme stipulates that they are entitled to the Unemployment Benefit Scheme. The Indonesian Government believes that the Unemployment Benefit Scheme will benefit both workers and employers ahead of Industrial Revolution 4.0 (ILO<sup>1</sup>, 2020).

Despite uncertainty over who will pay the installment fee, as both employers and workers unions are resistant to further contributing to social security, the idea of having the Unemployment Benefit Scheme suits perfectly with the strategy of the Active Labor Market Policy (ALMP), which has been adopted by many OECD (Organization for Economic Cooperation and Development) countries following the recession in 2008–2009 (Martin, 2014). The ALMP aims to assist laid-off workers to reduce the duration of their unemployment. Thus, in the context of the pandemic, connecting jobseekers to vacancies will accelerate sustainable and equitable recovery from this crisis.

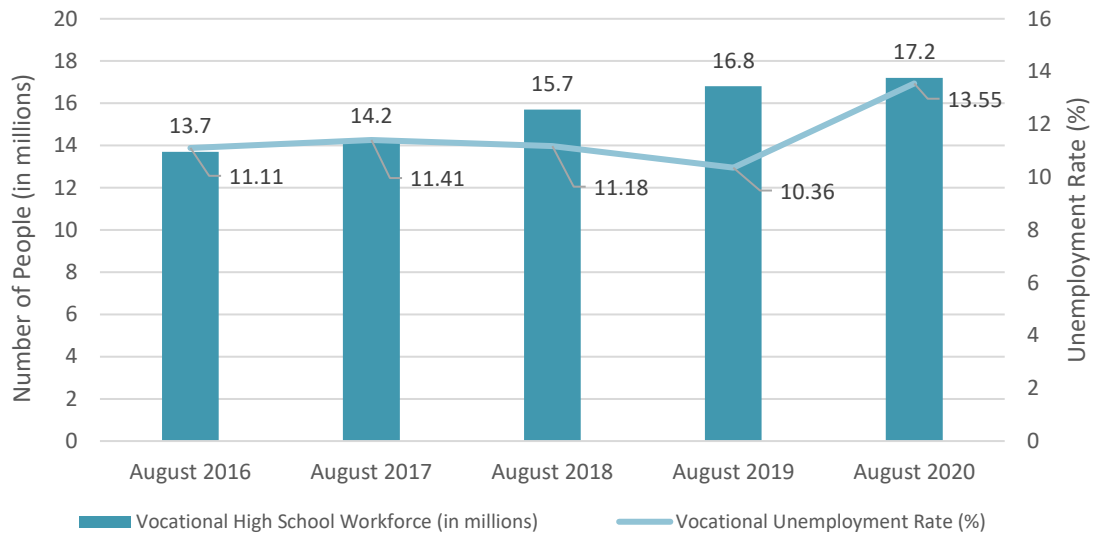
### 2.1 Workforce Profile of Vocational High School Graduates

Workforce data in Figure 2 shows that the workforce of vocational high school graduates consistently increases every year. Between 2016–2020, the number of vocational high school graduates rose from 13.7 million people to 17.2 million people. Nevertheless, the unemployment rate is still high, reaching above 10% each year. We also see from the same figure below that in 2020 the unemployment rate increased by about three percentage points from the previous rate due to the pandemic.

<sup>1</sup>International Labour Organization



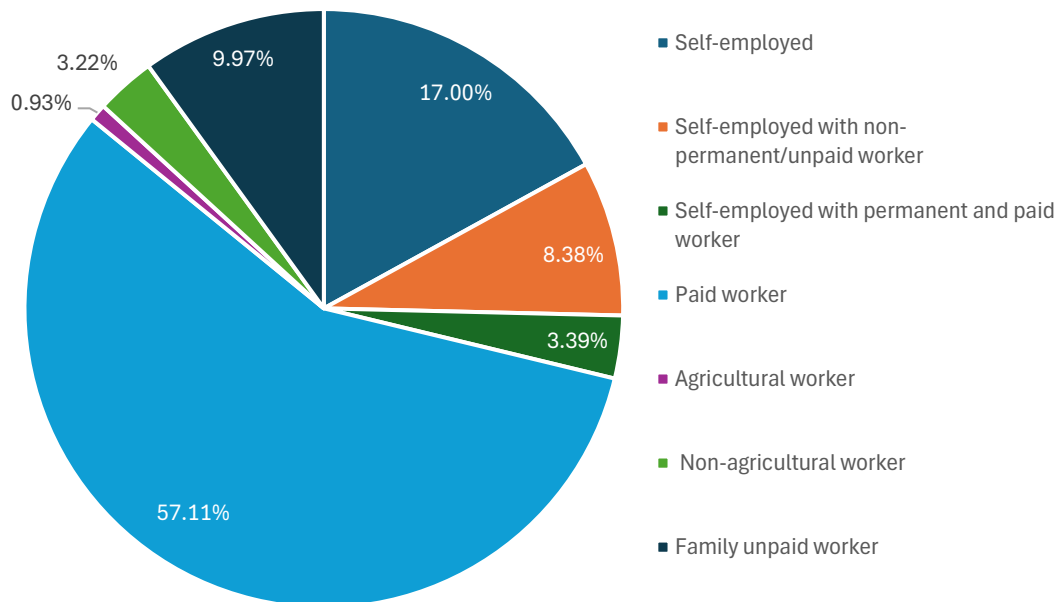
**Figure 2. Vocational High School Workforce and Unemployment Rate, 2016–2020**



Source: the National Labor Force Survey 2016–2020, authors' calculation

More than half of vocational high school graduates (57.11%) work as paid workers (Figure 3). Meanwhile, about 28% of those graduates recorded having their own business, with or without supporting assistants. We also noticed a small proportion of people in this demographic who work as casual workers either in the agriculture sector (0.9%) or in the non-agriculture sector (3.2%).

**Figure 3. Job Status of Vocational High School Graduates, August 2020**

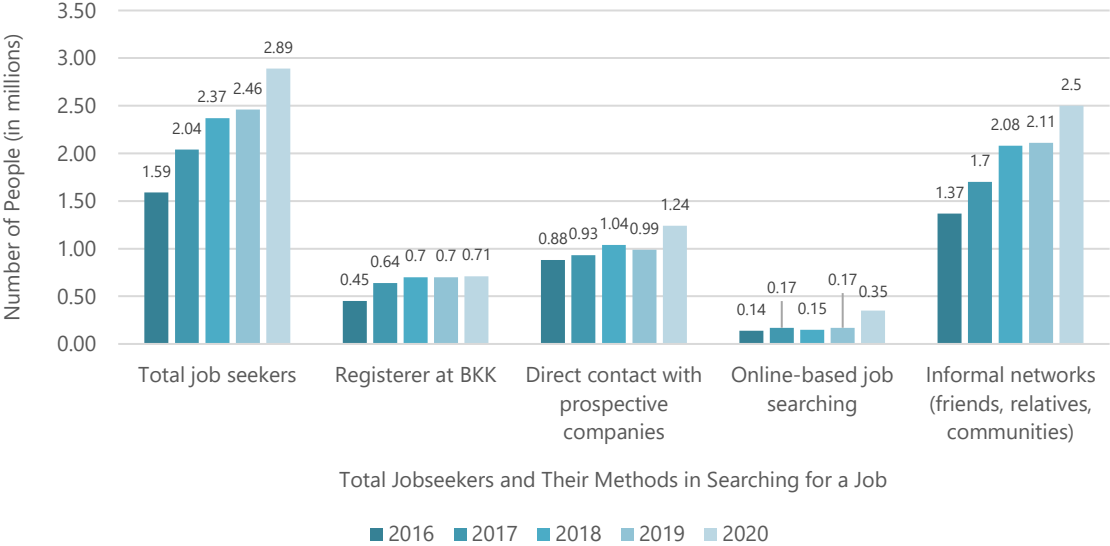


Source: the National Labor Force Survey 2020, authors' calculation

The total number of vocational high school graduates who look for a paid job increases every year, and they use various methods to find a suitable job. Figure 4 shows that an informal network—by contacting friends, relatives, or communities—is an approach that

almost all vocational high school graduates use to obtain information on job opportunities. Nevertheless, using the internet to find job information is an increasingly popular approach used by the graduates. This increase could be likely due to the COVID-19 pandemic, which limited mobility and forced people to utilize internet access more intensely. Additionally, the use of vocational career centers as a recruitment channel seemed to become stagnant in the last couple of years.

**Figure 4. Methods for Finding Work Used by Vocational High School Graduates**



Source: the National Labor Force Survey 2016–2020, authors’ calculation

Data from the National Labor Force Survey also shows that vocational high school graduates have become very familiar with the use of the internet because many of them use the internet as a part of their daily work activities. About 50% of vocational high school graduates, who reported to be working, use the internet in their primary work for communication, transactions, and promotion. This indicates that the internet has become an essential part in the professional life of vocational high school graduates, and it would provide advantages during the job matching process for these vocational high school graduates.

## 2.2 Recruitment Practices

In recruitment practices, employers might choose to recruit directly without intermediaries. If the recruitment is open to the public, employers may post vacancies on their website. A body of literature has pointed out evidence that employers are amazed by incoming online applications. This phenomenon is what scholars associate with adverse selection, the damaging consequence of asymmetric information in the labor market (Autor, 2001; Manning, 2010).

There are also low-cost recruitment practices without intermediaries. Employers can use their informal source of information or network to find candidates. Our findings on this conform with existing literature. For example, Montgomery (1991) argued that jobseekers

with informal networks are far better off than their peer group who are without them. He also added that firms recruiting through informal networks might profit more. This is also clear in the case of Indonesia (Figure 4).

Meanwhile, using intermediaries is a common recruitment practice, where an agency mediates between jobseekers and employers. This is particularly true when employers and jobseekers cannot use the internet to help them connect with each other. Autor (2009) argued that the presence of intermediaries would enable the labor market to deliver better outcomes by addressing the issues of adverse selection and coordination failure. These issues are "endemic to the labor market," whose solution can not rely solely on the low cost of information. Thus, he concluded that intermediaries are still needed even where information is abundant.

There are many ways to categorize types of intermediaries. For example, Bonet, Cappelli, and Hamori (2013) differentiated intermediaries based on their human resources (HR) practices, namely information providers, matchmakers, and administrators. Autor (2009) used market function and type of participation as the basis for differentiating intermediaries. We use intermediaries' legal framework to categorize them (Table 2).

**Table 2. The Landscape of Recruitment Institutions**

Recruitment of Workers		Regulations
With intermediary	Job advertisement	Presidential Decree No. 4 of 1980 on Mandatory Reporting of Job Vacancies Minister for Labor Regulation No. 39 of 2016 on the Placement of Workers
	Employment service (by central and <i>kabupaten/kota</i> governments; by public and private services; by training & education institute)	Articles 21–30 and Articles 35–37 of Law No. 13 of 2003 on Labor Minister for Labor Regulation No. 39 of 2016 on the Placement of Workers Minister for Labor Regulation No. 6 of 2020 on the Implementation of Domestic Apprenticeships
	Job fair	Minister for Labor Regulation No. 39 of 2016 on the Placement of Workers
Without intermediary	Open	Article 35 of Law No. 13 of 2003 on Labor
	Close	

Source: regulatory analysis and in-depth interviews

Presidential Decree No. 4 of 1980 on Mandatory Reporting of Job Vacancies has been used to force the private sector to disclose job vacancies to the *kabupaten/kota* labor agencies where the jobseekers are registered. The private sector is expected to make use of jobseekers' data from the government. When Law No. 13 of 2003 on Labor was issued, using public employment services was no longer obligatory. Article 35 of the law allows the private sector to undertake direct recruitment or use a third party to do so. Yet, with the current Presidential Decree No. 4 of 1980 on Mandatory Reporting of Job Vacancies,

vacancies are to be reported to public employment agencies. This old decree still appears in the overarching Minister for Labor Regulation No. 39 of 2016 on the Placement of Workers (Table 3). Table 3 also highlights policy issues that arise from the Minister for Labor Regulation No. 6 of 2020 on the Implementation of Domestic Apprenticeships. Although apprenticeships are not part of the recruitment system, the apprentices who complete the program have a chance to be recruited as workers. This tends to be the current trend for recruitment.

**Table 3. Regulatory Analysis on Recruitment System**

Regulations	Policy Relevance
Minister for Labor Regulation No. 39 of 2016 on the Placement of Workers	<p>All vacancies should reveal salary, social security, and other benefits to the public. This might only fit vacancies for high professional jobs, and not all jobs (Article 15).</p> <p>All intermediaries should report job orders and job placements to the labor agency. This also applies to companies with direct recruitment systems. No clear penalties for violation (Articles 41–51)</p> <p>Job fairs should not charge jobseekers (Articles 54 and 66).</p> <p>Private employment services can only charge employers and jobseekers for certain professions (Article 38(2)).</p> <p>No stipulation on how public intermediary officers undertake verification and validation against fake vacancies</p>
Minister for Labor Regulation No. 6 of 2020 on the Implementation of Domestic Apprenticeships	<p>Apprenticeships can be managed directly by the companies if they have a training unit. If not, they can partner with a private training center (LPK). This regulation improved on the previous Minister for Labor Regulation No. 36 of 2016 on the Implementation of Domestic Apprenticeships on the following aspects:</p> <ul style="list-style-type: none"> <li>Proportion of apprentices to workers is reduced from 30% to 20% (Article 2).</li> <li>People with disability are allowed to carry out an apprenticeship (Article 24).</li> </ul> <p>However, some loopholes still exist.</p> <p>Despite urgency, particularly if the program to be undertaken is in a large scale, there are no rules on the supervision of violations of apprenticeships.</p> <p>There are no maximum working hours nor is there an online registration.</p> <p>Whether apprenticeships should be restricted to fresh graduate or not remains unclear.</p>

# III. How Do Firms Hire Workers?

## 3.1 Different Intermediaries for Different Levels of Workers

Companies use various recruitment channels to hire staff, from free public job platforms to paid private job services. The type of channel used by companies depends on the level of the recruited workers (Table 4).

For an operator, we use government channels at the *kabupaten/kota* level. For staff and supervisors, we used newspaper advertisements. For managerial level positions, we recruited through newspaper advertisements, networking, and headhunting. (HRD representative of Company A, male, 21-Dec-2020)

**Table 4. Recruitment Channels in Big Manufacturing Companies**

Recruitment of Workers			Public	Private
With intermediary	Job advertisement	Operator	Display board at the labor agency	---
		Supervisor & staff level	---	Newspaper
		Managerial level		
	Employment service	Operator	The labor agency	Private employment service, consultant
		Supervisor & staff level	---	Job matching platform, private employment service, consultant
		Managerial level		Headhunter
	Education and training institution	Operator	Vocational career center in public education, public training center (BLK)	Vocational career center from vocational high school, private training center
		Supervisor & staff level	Career center at public universities	Career center at private universities
		Managerial level	---	---
Without intermediary	Closed recruitment	Operator	Informal channel and network	
		Supervisor & staff level	Informal channel and network, internal career pathway	
		Managerial level		

Source: in-depth interviews with HRD companies and representatives of vocational career centers

Companies are more likely to use paid channels, such as advertisements in newspapers or headhunting services, to fill a position at the managerial level. Although the fee of headhunting services is costly, this option gives a better chance to find the right person who fits the requirements. Additionally, companies develop internal career development systems to fill medium- and high-level positions.

Since 2019, we rarely searched for workers above the operator level. We are developing a management career plan for operators to become supervisors. Meanwhile, supervisors can also be promoted to staff-level positions and so on. The career plan from below fits the company's values. (HRD representative of Company D, male, 27-Jan-2021)

In recruiting low-level positions, such as operators, public or private intermediaries are common. In particular, public intermediary services are generally free and can also improve the company's image from negative claims made by the community. In addition, companies can also post vacancies manually, particularly for operator-level positions, at the labor agency.

Jobseekers are still in favor of using manual channels. Many of them still come to the labor agency to observe the display board of job postings. We provide job board displays for companies to fill in. Not many companies are posting their vacancies online. (Staff of the Labor Agency of Kabupaten Sukabumi, male, 7-Jul-2021)

Public employment services also have developed talent pools to create a job seeker database. However, companies find that it is not up-to-date and is unlikely to contain relevant information to help companies filter out irrelevant candidates and select the needed ones. Furthermore, the jobseekers' data from the government, including the job fair, is either as a hardcopy or in a form that requires re-inputting, thus adding costs to the recruitment process.

In addition to the labor agency, education and training institutions, such as vocational career centers, could also serve as a recruitment pathway. Jobseekers' data from vocational high schools is more likely to be updated, and the candidates are more likely to be newly graduated. However, companies might prefer to deal with vocational career center forums at the provincial or *kabupaten/kota* level rather than at the school level.

Alternatively, companies can utilize private intermediary services, such as buying advertising slots at job platforms for a designated time frame. Those interested can send their application to the HRD via email. There is also access to talent pools, but curricula vitae (CVs) are not updated. In terms of costs, it is not expensive. Private intermediaries can also act as a third party or a recruitment agency. Using a third party for operators' recruitment is favorable since it is fast. They can select many candidates; this increases the probability of getting suitable candidates.

Private employment services as a third party are mostly used to recruit temporary contract workers. Private training centers are a channel for companies to get apprentices who are fresh graduates. But top manufacturing companies usually recruit workers using HRD consultant who carries out the initial selection at the school or at the labor agency. (Representative of a vocational career center forum in Kabupaten Karawang, male, 28-May-2021)



### **Box 1** **Recruitment Agencies and Outsourcing Agencies**

Although both are third parties, recruitment agencies are different from outsourcing agencies. For outsourcing agencies, companies pay the candidates' salary to the agency. The agency will deduct the compensation accordingly. There is no relationship between the company and the candidate.

Recruitment agencies are paid based on the number of candidates admitted, and they do not have any relationship with candidates once accepted. Since these agencies can build partnerships with many companies simultaneously, the candidates who fail in one company could be given an offer to try with another company. Private training centers are a favorable channel for apprentices, as they are required to give soft skills training in areas such as work culture, attitude, safety, etc. Therefore, it reduces the burden on companies.

*Source:* in-depth interview with a representative of a vocational career center forum in Kabupaten Karawang (male, 28-May-2021)

Job fairs and career expositions organized by both public and private organizations are a traditional way to get the supply and demand to meet, and companies could also proceed with the initial selection process at these events. According to an HRD representative, job fairs are used to fill supervisor- or staff-level positions. Nevertheless, vocation career centers also organize job fairs for operator-level positions.

## 3.2 Preference in Hiring Operator-Level Workers

Compared with the recruitment of medium- and high-level staff, recruiting low-level workers, such as operators, is even more intricate for HRDs of companies due to the involvement of the local community and nongovernmental organizations (NGOs).

These unscrupulous NGOs issue recommendation letters to justify that these are local people who deserve to be hired. They then ask for money from the jobseekers saying that the money is necessary for bribing us. They even sell our name. (HRD representative of Company B, male, 3-Feb-2021)

The limited number of vocational high school graduates who meet the job criteria could also explain the pervasive role of illegal brokers. All HRD managers interviewed complained that candidates barely met the minimum requirements. For instance, most jobseekers do not qualify for basic math skills and mental readiness to work in a factory. This concern is also shared by an informant from a vocational career center.

On average, there are three weak areas among the candidates: the initial administration, written test, and physical test. Most candidates could not meet the minimum scores in the national examination that companies require. These scores include math and science scores. The written test can be challenging particularly because students are under pressure to complete the answers in a limited time. About 75% of them cannot complete it. In the physical test, only about 55% of the candidates can complete it. Companies are looking for men who are 162 cm tall and women who are 155 cm tall with proportional weight. Many candidates have flecks in their lungs because of smoking. Now, many also suffer from hemorrhoids from consuming instant food too frequently. (Representative of a vocational career center forum in West Java Province, male, 16-Jun-2021)

Due to the low quality of candidates, HRDs or intermediaries have to collect as many applicants as possible prior to the selection process. According to an HRD manager, to get 50 operators, he needs to have at least 400 candidates. Hence, the intermediary would have to work hard in mobilizing candidates.

Strong competition and issues of age sensitivity have made vocational high school graduates feel desperate to find a job. The National Labor Force Survey data shows that vocational high school graduates strongly rely on paid work (Figure 3). Many of them still consider working in a factory to boost their self-esteem. This only sustains the existence of illegal brokers.

However, companies try to reduce the illegal brokers' involvement by ensuring that their newly recruited workers are not engaged with illegal brokers.

We requested all newly recruited workers to sign an acknowledgment letter confirming that they are not paying anybody to get to the selection process. If it turns out otherwise, they will have to resign. (HRD representative of Company B, male, 3-Feb-2021)

The presence of illegal brokers and complications during the recruitment of operators lead to a preference for using informal channels (Table 4). According to HRD managers, recruiting new workers based on the recommendation of internal networking tends to be fast and cheap, and have a lower turnover than formal channels. When a substantial number of operators are recruited, companies prefer to hire a third party, such as a private employment service, a private training center, or a consultant.

Hiring people from informal channels means we have an internal referral. (HRD representative of Company B, male, 3-Feb-2021)

Businesses also favor apprentices as an alternative to workers. The apprenticeship scheme provides information on people's performance which helps companies select the ones to be further recruited.

An apprenticeship is a possible way of recruitment, as new graduates are easier to direct and have enthusiasm to work. We are partnering with some schools as well as with private training centers. At the end of the program, we will select the best to continue the contract. Apprenticeship partnerships with schools are more complicated than those with private training centers. The process of signing an agreement will take time. Hence, in the case where we need apprentices urgently, we will take them from a private training center. (HRD representative of Company B, male, 3-Feb-2021)

Some industries have proved that the apprentices are recruited after the end of the program. We see a promising trend in these years. The apprentice will also receive proof of skills competency issued by the certification agency. Those joining the apprenticeship are more likely to get work than their peer group. (Representative of a vocational career center forum in West Java Province, male, 16-Jun-2021)

For certain positions, many firms prefer fresh graduates to experienced workers. The first is perceived to have greater enthusiasm to work and can be easily directed than the latter. Firms might also recruit apprentices to avoid the high minimum wage in certain *kabupaten/kota*.

Some companies strictly prefer newly graduated alumni. These are candidates without influence from previous experience in other companies. (Representative of a vocational career center forum in Kota Bandung, male, 16-Apr-2021)

In Karawang where the minimum wage is high, companies can save money by hiring apprentices and pay them between 70% and 80% of the minimum wage. (Representative of a vocational career center forum in Kabupaten Karawang, male, 28-May-2021)

Despite its benefits, apprenticeships can also lead to abuse of young and inexperienced trainees if supervision is not well prepared.

Many companies are reluctant to use apprentices considering the criticisms from the labor union. Apprentices are usually regarded as cheap labor. Therefore, there should be a way to ensure that the program is being carried out appropriately. (HRD representative of Company B, male, 3-Feb-2021)

### **Box 2**

#### **Difference between Apprenticeships and Internships**

An apprenticeship is a form of training to improve skills competency. It is designed for those who have graduated from vocational high schools up to vocational universities. Hence, companies pay them. Meanwhile, an internship is carried out while a student is still learning. It is run by vocational high schools in partnership with companies and industries. While internships are a part of the learning process to get work experience, it is unpaid. Having finished an internship, students only receive a certificate of attendance. While an apprenticeship is under the authority of the Ministry of Labor, an internship is under the Ministry of Education and Culture.

Private training centers are the institutions which carry out apprenticeships in partnership with local and overseas industries. Thus, they can also send their alumni overseas as trainees. Many young people register at private training centers in the hope of being accepted into an apprenticeship program in countries like Japan. However, only a few can pass the test.

*Source:* in-depth interviews with a representative of the Vocational Career Center Forum of West Java (male, 16-Apr-2021), a staff member of the Labor Agency of Kota Bandung (male, 31-Mar-2021), and a representative of Private Training Center E (female, 6-Jul-2021)

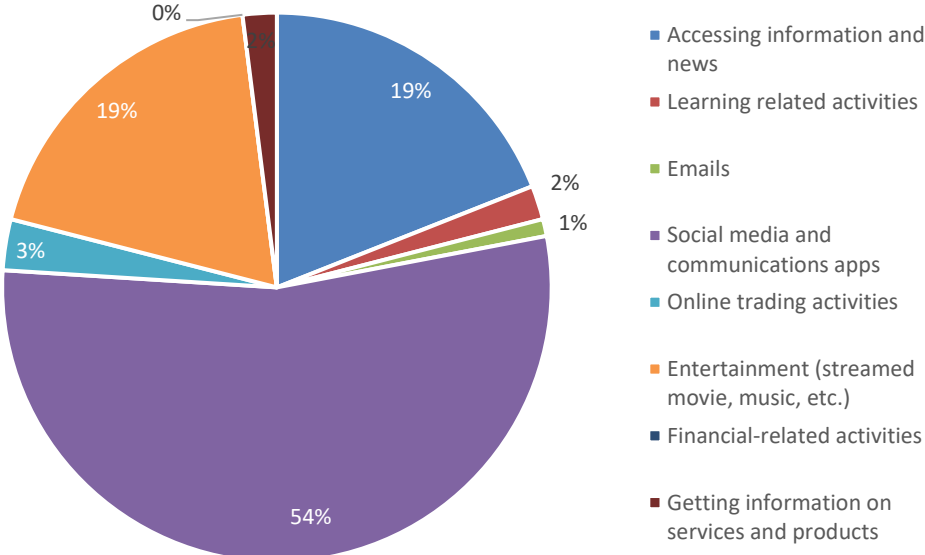
## IV. How Ready Are Vocational High School Graduates in Using Digital Recruitment Mechanisms?

From the phone survey, we captured the perspectives and experiences of vocational high school graduates during the recruitment process. The demographic characteristics of respondents can be seen in Table A2 Appendix 1. On internet access, our respondents mostly used their smartphones. Only about 20% of them used laptops or tablets.

Most of our respondents believed that their internet skills were relatively good compared to their peers, and even better than their family members. Nevertheless, we found that most of their internet use was still primary, and did not directly link to improving their knowledge and skills (Figure 5). About 54% of respondents admitted that they mostly used the internet to access social media or communications apps. Furthermore, 19% of other respondents said that they spent most of their time using the internet for entertainment, such as watching movies or downloading songs from websites.

On the other hand, only about 2% of our respondents mentioned that their internet access was mainly used to obtain information to support their learning activities. Compared to the National Socioeconomic Survey (Susenas) data, the pattern of internet usage among vocational high school graduates is similar to that of the national population (Figure A2 Appendix 1). The two most popular reasons for using the internet are social media, including communications apps, and entertainment.

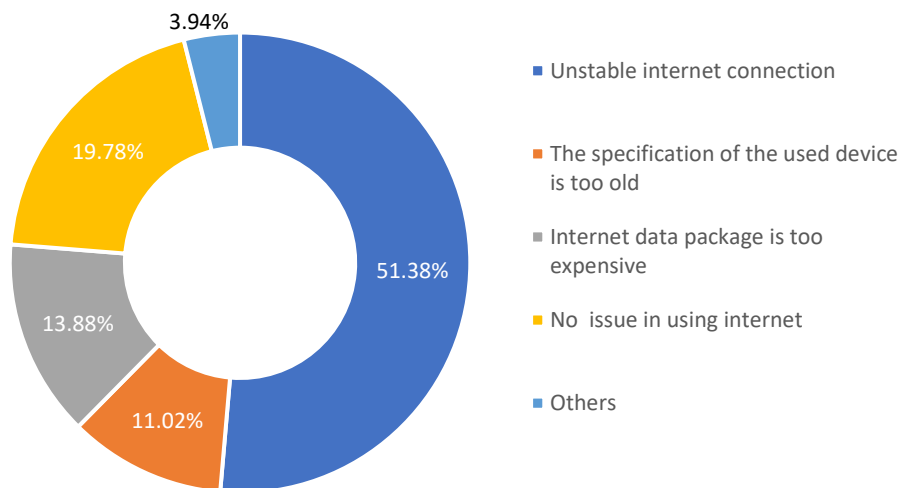
**Figure 5. Main Activities in Using the Internet – Phone Survey 2021**



Source: phone survey

Despite being very popular in Indonesia in recent years, particularly among young people, an affordably priced and sufficiently fast internet connection is still hard to achieve. Our phone survey revealed that 51.4% of respondents complained about unstable internet connection as an issue in using the internet daily (Figure 6). Moreover, 13.9% felt that internet data plans were too expensive. These issues could hinder accessing the benefits of the internet for labor market matching. Bhuller, Kostol, and Vigtel (2020) reported that broadband internet has increased vacancies posted by firms and job-finding rates of jobseekers. Compared to jobseekers with zero internet access, they also found that those with full broadband coverage enjoyed a higher starting wage. Similarly, Beard, Ford, and Saba (2010) suggested that slower internet speeds reduced the effectiveness of the internet on job searching. Hence, jobseekers who experience difficulties accessing the internet are less likely to be able to optimize internet usage to find a job that matches their qualifications and expectations.

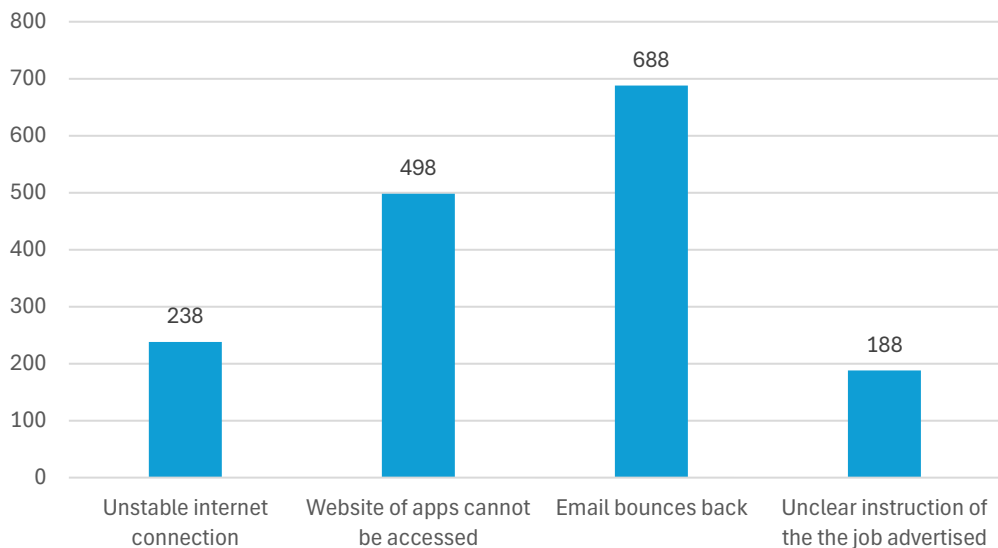
**Figure 6. Issues in Accessing Internet Services – Phone Survey 2021**



Source: phone survey

There are various problems related to online job applications. According to respondents, the most common issue was an email bouncing back. This problem occurs when the relevant HR manager does not make sufficient preparations to receive a large number of applications (Figure 7). Furthermore, about half of our respondents reported that they could not access the company's website or apps to obtain details on the vacancy or even submit an application. Additionally, the respondents said that the internet quality could interrupt the process of submitting an online job application.

**Figure 7. Issues in Submitting Online Job Applications – Phone Survey 2021**



Source: phone survey

On the issue of illegal brokers, *kabupaten/kota* governments believe that online recruitment mechanisms can help solve this issue. In fact, there is a high expectation from employers, too.

Jobseekers are very prone to being tricked by illegal brokers. This is quite common elsewhere, not just in Karawang. And we are happy that with the online platform, we can recruit with zero illegal brokers. (Staff of the Labor Agency of Kabupaten Karawang, male, 1-Feb-2021)

With the Karawang labor market platform, we can say to illegal brokers that we only recruit candidates from *kabupaten/kota* government platforms. Thus, their candidates must get registered on the platform, too. (HRD representative of Company B, male, 3-Feb-2021)

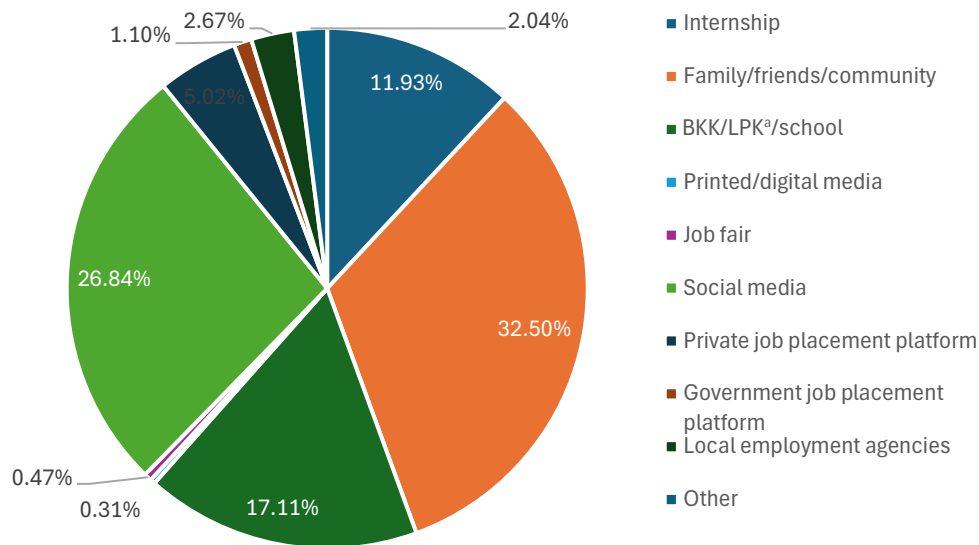
However, transitioning the registration process to online might not totally solve the problem. Illegal brokers might use other forms of extortion. Our respondents experienced fake job advertisements, which are widely and easily disseminated online. About 85% of them admitted that they received phony job information during the job searching process. Out of those respondents who received fake job information, more than half submitted their personal data. Furthermore, some of them also reported being asked to pay money to apply for the fake job position. The money varied from a couple of hundred thousand rupiah to above one million rupiah.

The phenomenon of job ad scams has increased in the last couple of years as more people have access to the internet and are starting to find jobs online. According to Vidros, Koliass, and Kambourakis (2016), FlexJobs' survey in 2015 reported that about 7% of jobseekers had experienced employment scams. Furthermore, only about 48% of jobseekers were aware that they could receive fraudulent job ads during their searching process.

Regarding channels that vocational high school graduates usually find their jobs through, about 32% of the phone survey respondents who were employed reported that they got their current position through informal networking, such as through family, friends, and the community (Figure 8). Nevertheless, around 27% of respondents mentioned that they received vacancy information on their current job through social media. Hence, although informal networking remains a popular option for both firms and jobseekers in the job application process, social media has an increasing role in supporting the labor market matching for jobseekers with mid-level education. This finding is in line with what has been reported by Karaoglu, Hargittai, and Nguyen (2022), i.e., that lower-educated jobseekers and older jobseekers have a lower likelihood to utilize social media when searching for jobs.



**Figure 8. Channels of Job Matching Process**



Source: phone survey  
<sup>a</sup>private training center

## V. Data Analysis

We identified six factors influencing the readiness of big firms and jobseekers in using LMIS for job matching, namely (i) the passing of the Job Creation Law; (ii) the development of public job platforms; (iii) internet penetration; (iv) private job platforms and social media; (v) illegal brokerage; and (vi) recruitment rigidity in big firms. Prior to the synthesis, each of the factors will be described more in detail.

### 5.1 Factors Influencing Readiness in Using LMIS

#### 5.1.1 The Passing of the Job Creation Law

The most influencing factor in the setting of LMIS is the issuance of Law No. 11 of 2020 on Job Creation mandating access to LMI for laid-off workers. Although LMI can stand alone as the entry point for a more comprehensive LMIS, it is an integrated part of the Unemployment Benefit Scheme under the umbrella of the Job Creation Law. The law itself ambitiously amends about 70 existing laws in order to cut back red tape, and boost investment and employment. The Job Creation Law or Omnibus Law was first mentioned by President Joko Widodo in his inauguration on the 20<sup>th</sup> October 2019 (Rizal and Wedhaswary, 2020). On the 21<sup>st</sup> January 2020, the government submitted the draft bill to the parliament for the deliberation process.

The parliament and the government were under fire for undertaking hasty public consultations, ignoring the involvement of stakeholders, particularly those negatively impacted by the law. Protests occurred across the country as debates on the law were held

behind closed doors, with the excuse of containing the spread of COVID-19. Two of the most controversial issues concerning the law were impairing workers' rights and environmental protection. Nevertheless, the parliament still passed the law on the 5<sup>th</sup> October 2020 and it came into effect on the 2<sup>nd</sup> November 2020. Upon its enactment, the government was rushed to prepare and implement regulations. By February 2021, 51 implementing regulations were issued, including Government Regulation No. 37 of 2021 on the Implementation of the Unemployment Benefit Scheme (Office of Assistant to Deputy Cabinet Secretary for State Documents & Translation, 2021).

However, the journey of the law did not stop there. The law was brought to the Constitutional Court by trade unions for judicial review on the 16<sup>th</sup> April 2021 (Mainake, 2021). On the 25<sup>th</sup> November 2021, the Constitutional Court ruled that the Job Creation Law was conditionally unconstitutional considering that the Omnibus Law method had no legal basis. The government must, therefore, amend the labor cluster of the law. If within two years, the government failed to rectify the substantive and procedure issues, the law would become permanently unconstitutional (Hutauruk, 2021; IGJ, 2021). The court did not allow the government to issue any policy or implementing regulations that had strategic and broad impacts. Responding to the court ruling, the government respected the rule of law and immediately fixed the overall labor law making process.

Responding to the ruling of the Constitutional Court, on the 16<sup>th</sup> June 2022, the parliament amended Law No. 12 of 2011 on the Formation of Laws and Regulations with Law No. 13 of 2022 on the Second Amendment to Law No. 12 of 2011 on the Formation of Laws and Regulations. The amended law included the Omnibus Law method, safeguarding the legal basis of the Job Creation Law. On the 30<sup>th</sup> December 2022, President Joko Widodo issued Government Regulation in Lieu of Law (Perppu) No. 2 of 2022 on Job Creation. The *perppu* was issued as a response to the crisis following the global stagflation and in anticipation to further economic uncertainty. The *perppu* was expected to aid economic recovery. The issue of the *perppu* was brought to the court by dozens of labor unions and labor parties (Jakarta Globe, 2023). The *perppu* was only discussed in the parliament starting from February 2023. On the 31<sup>st</sup> March 2023, the parliament approved Perppu on Job Creation to become Law No. 6 of 2023 on the Stipulation of Government Regulation in Lieu of Law on Job Creation. The issuance of Law No. 6 of 2023 on the Stipulation of Government Regulation in Lieu of Law on Job Creation also prompted labor unions to bring the law to the Constitutional Court. On the 2<sup>nd</sup> October 2023, the Constitutional Court rejected all formal tests against Government Regulation in Lieu of Law No. 2 of 2022 on Job Creation and Law No. 6 of 2023 on the Stipulation of Government Regulation in Lieu of Law on Job Creation. The journey of Job Creation Law, however, will continue as one labor union has planned to file a judicial review against Law No.6 of 2023 (Mediana, 2023).

Institutional change following the enactment of Law No. 6 of 2023 on the Stipulation of Government Regulation in Lieu of Law on Job Creation is yet to be seen. Although Dolfsma and Verburg (2005) clearly echoed that legitimacy is essential in the process of institutional change, it is still unclear whether the transformation of the employers and the workers toward LMI platforms will be accelerated by Law No. 6 of 2023 on the Stipulation of Government Regulation in Lieu of Law on Job Creation.

## 5.1.2 Development of Public Job Platforms

### National Job Platform

In the last five years, there has been a strong will from the Ministry of Labor to push for digitalization and the use of LMIS among employers and jobseekers. In October 2019, it launched Sisnaker (Employment Information System<sup>2</sup>), a platform with 12 overarching employment-related services. Sisnaker serves as a single sign-on, where users, once logged in, can access any of these services. One of the services is Karirhub-Sisnaker, a LMIS with a job matching feature. Despite being free of charge, Karirhub-Sisnaker is unknown to all of the big companies we interviewed. They are also unaware that it is compulsory to report vacant positions as stipulated in Minister for Labor Regulation No. 39 of 2016 on the Placement of Workers (Table 3).

If asked whether we post job vacancies in Sisnaker, I have an opinion that the hiring unit within the company is not aware of this. The one dealing with the platform might not deeply search all the features or menus available for us. Also, there is no obligation to report job vacancies to the *kabupaten/kota* labor agency. (HRD representative of Company A, male, 21-Dec-2020)

Karirhub-Sisnaker is the successor of the previous platform called AyoKitaKerja, which was active since September 2016.<sup>3</sup> Due to the single sign-on system of Karirhub-Sisnaker, public intermediary officers (*pengantar kerja*) can neither facilitate job seekers to register online nor assist employers in posting vacancies in Karirhub-Sisnaker. This is a shortcoming of its use at the local level, where going digital is not as easy as in big cities. Compared to Karirhub-Sisnaker, AyoKitaKerja was more popular among *kabupaten/kota* governments due to its user-friendliness and practicality. Following the onset of Karirhub-Sisnaker, AyoKitaKerja was abruptly taken down in mid-2020, which surprised public intermediary officers at the *kabupaten/kota* labor agencies.

Consequently, many *kabupaten/kota* and provincial governments are forced to create their own platforms. They do this for many reasons. First, they are not certain whether the Ministry of Labor will keep using Karirhub-Sisnaker, considering the frequent changing of the platforms over time.

Why do we in *kabupaten/kota* [government] make our own platform? Because the central government is not consistent. [They changed the platform] From Bursa Kerja Online, then Informasi Pasar Kerja Online, then AyoKitaKerja, then Karirhub. ... [If platforms] keep on changing, it creates difficulty. ... We have to refamiliarize companies [with the new platform]. (Staff of Labor Agency of Kota Malang, male, 21-May-2021)

Second, in terms of data submitted to the central government, there is a growing concern that the national government does not share the data with—although it comes from—subnational governments.

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<sup>2</sup>The Employment Information System was already mentioned in Minister for Labor Regulation No. 39 of 2016 with the name of Sisnaker Terpadu.

<sup>3</sup>See World Bank (2021) for a comprehensive review of AyoKitaKerja.

Sometimes, I ask for data and get it several days later. Because of difficulties in requesting data, we are building our own data center. ... Data would just be a waste if kept at the central level while we—who need it badly—are deprived of it. (Official of Labor Agency of West Java Province, male, 29-Sep-2021)

The termination of AyoKitaKerja at the national level and the creation of public job platforms at the subnational level are the silver lining in encouraging job seekers as well as firms to go digital. Currently, these platforms are spread across different typologies (Bachtiar et al., 2021). Many of them appear to be less sophisticated than Karirhub-Sisnaker, and rather just aggregate the vacancies from private job platforms. However, they are sufficiently important in serving local needs, namely bringing vacancies closer to jobseekers.

### Local Job Platforms

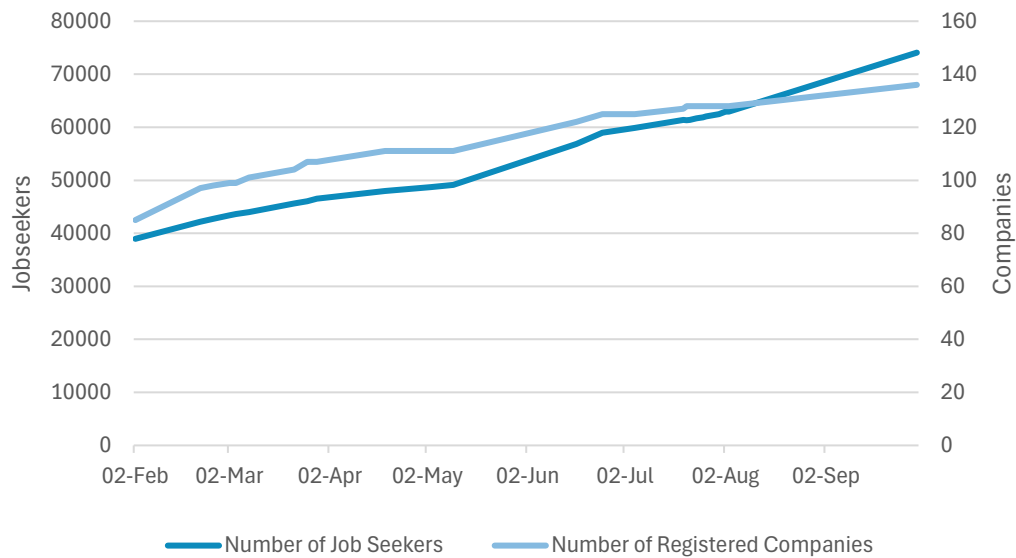
Under the decentralization, employment has become the responsibility of the *kabupaten/kota* government. The *kabupaten/kota* government might take employment issues as business as usual, where public intermediary officers regularly send letters to the companies. This is the case in Kabupaten Bekasi.

At the moment, the process is still manual. We send a letter to the companies and ask if they have vacancies. Then, they send us back, and we post it on the display board at our office. We also share those vacancies to the WhatsApp group of vocational career centers. (Staff of Labor Agency of Kabupaten Bekasi, male, 11-Dec-2020)

On the contrary, Kota Bandung and Kabupaten Karawang show a stronger commitment to putting the recruitment issues in order. Kota Bandung has a job platform called BIMMA (Bandung Integrated Labor Management Application), which was established in 2016. This system works and is useful, particularly for the job seeker registration, although the number of vacancies is limited.

Meanwhile, Kabupaten Karawang recently launched its platform, Info Loker, in September 2020. Info Loker in Kabupaten Karawang manages to share vacancies consistently. Observation shows constant daily updates of vacancies ranging from one to ten per day. Most vacancies only go live for a brief period before being taken down, as there are a lot of applicants already, especially for operator positions. Figure 9 shows the observation between February and September 2021. During this period, there was an increase of 90% of jobseekers, from 38,963 to 74,075 people, while the number of registered companies rose by 60%, from 85 to 136. However, it is essential to note that non-Kabupaten Karawang residents are restricted from applying for jobs on this platform.

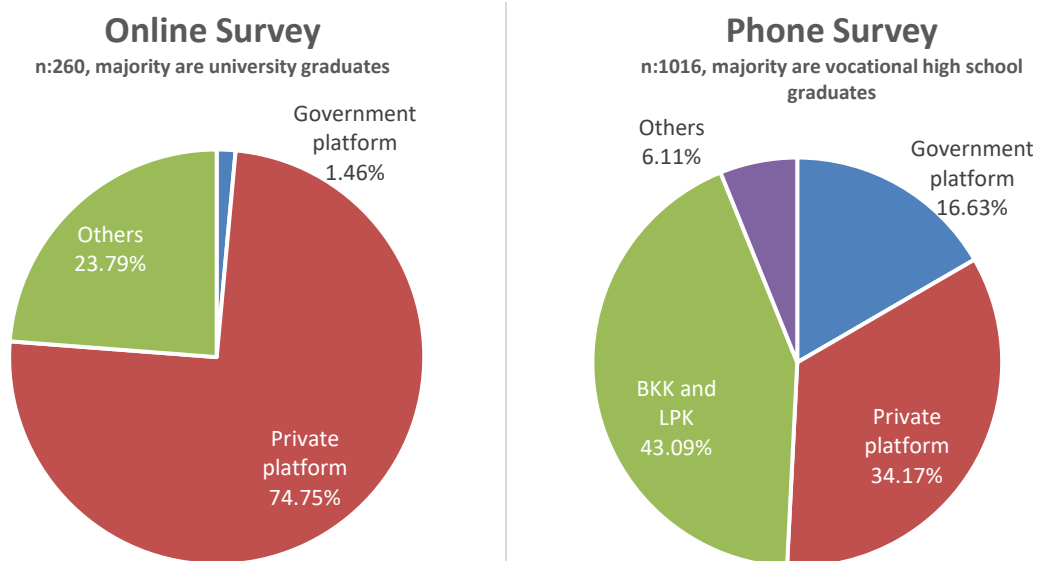
**Figure 9. Numbers of Jobseekers and Registered Companies on Info Loker Karawang, February–September 2021**



Source: observation on <https://infoloker.karawangkab.go.id/>, 2 February 2021 to 30 September 2021

We also see that vocational high school graduates, compared with higher education graduates, prefer to use government platforms when finding jobs (Figure 10). Vocational high school graduates interact more with the labor agency's services because the jobs they apply for require a jobseeker card from the labor agency. On the other hand, firms also see the labor agency as a potential channel to disseminate certain types of jobs because it is free of charge and could protect the image of the firms against pressure from local communities. Hence, the labor agencies, through their job platforms, can facilitate both employers and job seekers.

**Figure 10. Preference in Finding Job Information**



Source: online survey and phone survey

### 5.1.3 Internet Penetration

Over the last five years, the internet has become increasingly influential in society. Jayani (2021) wrote that the number of households with internet access has increased from 47.22% in 2016 to 78.18% in 2020. Bachtiar et al. (2020) quoted the McKinsey report as well as Google, Temasek, and Brain & Company on the significant economic impacts of internet. For example, by 2025, there will be an additional 3.7 million jobs and Indonesia will become one of the digital economic giants in Southeast Asia.

Alongside this, this internet penetration has led to the growth of various online job platforms—particularly the private ones—as well as more intensive engagements with social media. Moreover, the pandemic was an external shock that led to the increased use of the internet. However, one should not forget that the issues of the digital divide and digital literacy are still limiting the capacity of the internet to act as a communication channel between employers and job seekers.

Internet penetration has intensified due to the pandemic. Data analysis from the National Labor Force Survey demonstrates how the pandemic expedited internet use among vocational high school graduates in searching for job opportunities (Figure 4). According to an informant, this is in line with the survey conducted by a job platform showing that internet use for job searching increased 11%, from 37% in 2020 to 48% in 2021. To her, the pandemic has transformed the recruitment process from offline to online. This is true not only for jobseekers but also for employers, and we are at a point of no return. She added,

As a consequence of the pandemic, in-person job fairs have turned to virtual career fairs where we facilitate both the employers and jobseekers to match. Our survey also showed that jobseekers using newspapers have decreased from 32% in 2020 to 20% in 2021, and most of those still using newspapers reside outside big cities. Digital transformation is a real phenomenon in big cities, particularly for the youth. (Manager of Private Job Platform B, female, 25-Aug-2021)

Labor agency officials also report the push toward using job portals instead of having physical contact during the pandemic. Following the instruction to work from home, government offices at the central and *kabupaten/kota* levels enforced online registration for jobseeker cards. Kota Bandung facilitated jobseekers in the whole online registration process. Hence, jobseekers could print their jobseeker card from home.

We now have an officer who verifies and validates jobseekers' documents. Verification and validation are carried out online. If the documents are not complete, the applicants will be contacted. In essence, we will ensure that the needed documents are completed and consistent in terms of name, photo, and ID number. Once this is through, applicants can do the printing by themselves. (Staff of Labor Agency of Kota Bandung, 21-Sep-2021)

Despite the fast internet penetration, issues of a digital divide and poor digital literacy still prevail. The digital divide is usually associated with geography and developmental disparities, for example, urban and rural, continent and islands (Bachtiar et al., 2020). Providing internet connection to all people is a big challenge in a country whose population is spread across thousands of islands. Even in Java, there exist many regions still with zero digital connection. However, the divide is not only caused by the lack of



internet connection, but also the kinds of devices and the price of data plans. Many informants have echoed this.

Our vocational high school students are left behind because only a few of them own smart phones. The school is also located in the periphery and, hence, without a broadband connection. Some students cannot do their homework because they do not have a data plan. (Representative of a vocational career center forum in Kabupaten Tangerang, male, 19-May-2021)

Moreover, in order to search and apply for jobs digitally, one has to know basic computer skills, such as how to search for information, attach files and photos, reply to emails, etc. This is important even if daily digital skills are not needed in those jobs. Not all jobseekers acquire these important skills.

We cannot generalize the level of digital literacy. It all depends on the students. We also have students with low literacy. They still handwrite their CVs. (Representative of Private Training Center E, female, 6-Jul-2021)

The challenge is not only internet connection, but also digital literacy. Jobseekers lack the skills to use the applications. ... Data shows that about 60% of the workers are only junior high school graduates and below. Thus, they really need facilitation and assistance. (Representative of a trade union, male, 23-Sep-2021)

An informant highlighted that moving to digital recruitment will take time. It is not only about infrastructure and literacy, but also the mindset and behavior of vocational high school graduates and employers.

To enable jobseekers to register themselves for a jobseeker card, we have provided computers. Still, many of them require assistance to help them register. Moreover, once they are registered, the system will produce the softcopy of the card. However, many would prefer to have a hardcopy instead. Hence, they would opt for in-person registration. We need to change their mindset. A hardcopy is just the same as a softcopy. On the other hand, many HRD managers still prefer to see a hardcopy, too. (Staff of a *kabupaten/kota* labor agency, male, 15-Sep-2021)

HRD managers often think twice about using the internet. Why would they bother while the jobseekers are waiting outside the fence. And they are afraid of receiving criticism from the local community. (Representative of a vocational career center forum in Kabupaten Tangerang, male, 19-May-2021)

Indeed, HRDs—the managers and staff—are also important in the transition to LMIS. If they do not have competent computer skills, they will likely miss out on the talents that can be found via e-recruitment. Schramm (2006) echoed that data mining software will help HRDs sort the right applicants among a large pool of applications. If the HR managers are from an older generation or do not have specific information technology (IT) staff, the transition could be more difficult.

#### 5.1.4 Private Job Platforms and Social Media

Aside from public job platforms at the national and *kabupaten/kota* levels, the internet has also sparked the growth of private job platforms, thus transforming LMIS. Bachtiar et al.

(2021) highlighted that the majority of private job platforms that they observed already have a matching function. They have been using artificial intelligence to match jobseekers to the job requirements. Moreover, many of them provide additional facilities to jobseekers, such as skills assessment test, career mentorship, etc. These facilities are helpful for jobseekers who understand how to access them. This explains why jobseekers with higher education are more in favor of private job platforms compared to other types of intermediaries (Figure 10). Moreover, the level of digital literacy also determines the preference of the users.

Students in top-level vocational high schools usually have a high digital literacy. They trust private job platforms more than the public ones. (Staff of a local labor agency, DKI Jakarta, male, 31-Mar-2021)

In fact, central and *kabupaten/kota* governments are partnering with private job platforms. For example, the Kartu Prakerja Program, a major upskilling program targeting the unemployed, has formed a partnership with several online job platforms to provide information about skills needed in the industry. On the dashboard of Kartu Prakerja Program, graduates can apply directly to relevant vacancies that they are interested in. Moreover, some provincial governments have developed a LMIS in partnership with private job platforms.

It cannot be denied that the beginning of the pandemic hurt private job platforms significantly. According to BPS (2020), the number of job vacancies from September 2019 to March 2020 fluctuated around 11,000. However, it decreased drastically afterward. By May 2020, there were only 3,000 jobs advertised. Following the close of the business, online recruitment also plummeted. The silver lining was that restrictions on mobility forced people to search for jobs online. This is in line with what Bhwana (2020) reported, observing that the pandemic brought an increase in jobseekers since the pandemic began. Consequently, the number of users of private job platforms also increased.

Our income certainly dropped. So, we changed our focus from recruitment to selling e-learning for young entrepreneurs. We are quite happy with the increase of young users. (Manager of Private Job Platform A, female, 29-Dec-2020)

Internet penetration can also be seen in the rapid adoption of social media. According to Statista (2022) Indonesia has the third highest number of Facebook users in the world with 142.5 million users. Indeed, the internet is used way more often for the purpose of social media than for online trade and financial activities (Figure A2 Appendix 3).

Moreover, from our survey (Figure 5 and Figure 8) as well as the in-depth interviews, we know that social media plays a critical role in job searching among jobseekers, as well as a means of job advertising for intermediaries. Social media has been used by both private and public employment services. Many public intermediary officers actively engage with jobseekers through social media. To them, it is just the virtual version of the display board at the *kabupaten/kota* labor agency: quick and easy to use. In Kabupaten Sleman, for example, one public intermediary officer has been using Facebook in the last ten years, WhatsApp over the previous four years, and Instagram over the last two years. Having a wide connection with jobseekers, the public intermediary officer has gained many followers. This has given them respect and trust from local employers. The use of social

media among public intermediary officers has become intensified since AyoKitaKerja was taken down. Public intermediary officers have been collecting job vacancies from employers, and as they are not able to post them in Karirhub-Sisnaker, they post them on their social media.

**Table 5. Perspectives on Social Media**

Aspects of Usability and Features	Website and Application	Social Media	
		Social Network Sites (Facebook/FB and Instagram/IG)	Social Messaging Platforms (WhatsApp)
Users	External users	External users. FB to reach older audience; IG to reach millennials	Internal users with limited membership
Outreach	Active jobseekers	Passive jobseekers	Deliver message to users
Interaction	No interaction	Interaction and education	Interaction

Table 5 helps us understand why public and private employment services like to use social media in their intermediary activities. First, many intermediary officers reported that they prefer using social messaging platforms for texting their target groups. However, to reach a wider audience, they use social network sites.

A vacancy is shared internally through WhatsApp only for our alumni. If there are still vacancies coming and no alumni need them, we will share them to other vocational career centers. (Representative of a vocational career center in Kabupaten Bekasi, male, 9-Feb-2021)

The favorite is Instagram and WhatsApp, particularly for the youth. Middle-aged alumni prefer Facebook. From social media, our alumni can also share job opportunities. (Representative of Private Training Center E, female, 6-Jul-2021).

Second, the intermediary officers can also use social media to reach passive jobseekers, who Laumer et al. (2018) defined as employed individuals who are not actively looking for vacancies but are interested in job opportunities available in the industry. Attaching social media to websites and applications would enable the intermediary to reach active and passive jobseekers.

The short version of vacancies is still circulated through WhatsApp groups. From this, the interested jobseekers are nudged to visit the website. (Representative of a vocational career center forum in West Java Province, male, 16-Jun-2021)

Third, many intermediary officers frequently mention interaction as a valuable social media feature.

Jobseekers like to interact using WhatsApp. This is not possible in the application and on the website. (Representative of Private Training Center E, female, 6-Jul-2021)

WhatsApp has a chatbot feature to help jobseekers in preparing their application letter. (Manager of Private Job Platform A, female, 29-Dec-2020)

Through the interaction, we educate jobseekers to regularly update their CVs and keep them informed about the latest trend in the industry. (Manager of Private Job Platform A, female, 29-Dec-2020)

### 5.1.5 Illegal Brokerage

Two of our study areas, Kabupaten Karawang and Kabupaten Bekasi, have big industrial parks, among the biggest in Indonesia. The surrounding areas are villages that have a claim right to local empowerment by the manufacturing companies, which includes access to employment. In Kabupaten Karawang, this power relation is backed by Regional Regulation of Kabupaten Karawang No. 1 of 2011 on the Implementation of Labor, stipulating that local residents should constitute 60% of total workers in the company. Following its issuance, this local regulation received a lot of criticism, as it is considered discriminatory against nonlocal residents.

Prastiyo (2020) echoed that Law No. 13 of 2003 on Labor rules out discrimination against workers (Article 5) and guarantees the right to work both inside and outside the country (Article 31). However, it has no specific stipulation on the use of local residents. Moreover, Law No. 23 of 2014 on Local Governance allows the *kabupaten/kota* government to establish local regulations according to local needs. Consequently, employers just have to obey them.

Among our workers are those from the local community with certain proportion. (HRD representative of Company D, male, 27-Jan-2021)

The village youth and local NGOs are invited to submit their candidates who are local residents. But they send us nonresidents candidates instead. There, one can smell the money already. (HRD representative of Company B, male, 3-Feb-2021)

To employers, illegal brokers usually appear as a part of the local community: head of the neighborhood, village officer, village youth, or representative of a local NGO. Their presence has created complications, particularly in the recruitment of operators. An HRD representative in Kabupaten Karawang said that these people even come into the company to inspect the IDs of workers to ensure that the proportion of local residents is met in accordance with regulations. They claim that they have the authority to enforce compliance of the Regional Regulation of Kabupaten Karawang No. 1 of 2011 on the Implementation of Labor.

In addition to disturbing the employers, illegal brokers' operations in exploiting jobseekers are reported in Table 6.

**Table 6. Illegal Brokers According to Informants**

Informants	Perception about Illegal Brokers and Their Operations
Representatives of HRD	HRD is usually accused of being asked for money from candidates. Candidates usually submit an alleged "recommendation letter" from the <i>kabupaten/kota</i> labor agency in their application in the hope to pass the selection easily. Illegal brokers usually threaten firms to employ the local people.
Officers of the <i>kabupaten/kota</i> labor agencies	The <i>kabupaten/kota</i> labor agency is usually accused to be a place where illegal brokers operate. Each company has its own illegal brokers.
Representatives of vocational career centers	Many companies are controlled by the local community and NGOs. Almost all companies' HRDs have their own illegal brokers. Illegal brokers involved in job fairs offer their service to jobseekers who want to get their CVs through to the companies.

Table 6 describes how pervasive the illegal brokers are. This pervasiveness is understandable in the context of high competition for jobs amongst vocational high school graduates. This situation has made these graduates feel desperate. National Labor Force Survey data shows that vocational high school graduates strongly rely on paid work (Figure 3). Many of them still regard working in a factory as a way to enhance their self-esteem. This only sustains the existence of illegal brokers.

These jobseekers are lining up at the office of the *kabupaten/kota* labor agency for a jobseeker card. Every day about 300 persons ... During the pandemic, there was no vacancies. Also, although they have passed the exam, at this point of time, they have not received their diploma. (Staff of the Labor Agency of Kabupaten Sukabumi, male, 7-Jul-2021)

Based on informants' narratives, these brokers operate in various ways with jobseekers. First, they interact face to face with jobseekers, usually at the office of the *kabupaten/kota* labor agency. They act as if they were an insider with direct connections to decision-makers whose letters will influence the recruitment results. They even use threats to force young jobseekers to use their service. Second, they temporarily rent an office building as a recruitment agency, spread fake vacancies, or conduct fake job fairs to deceive jobseekers. Third, they extort money from workers who are newly recruited as if they deserved full credit for these workers' admittance.

These are clear examples of illegal brokerage. However, the line between legal and illegal brokers is not always clear. Therefore, one should not generalize that payment during the recruitment process is obviously unlawful. Take vocational career centers as an example. As public employment services, vocational career centers must not charge alumni for placement tasks. However, vocational career centers cannot adhere to this rule when it relates to commercial intermediaries.

In the case where we have to work with private employment services or private training centers, these institutions charge our alumni a Rp30,000 administrative fee/person. This is affordable, so not a problem; but some third parties can charge up to Rp100,000. We refuse

to cooperate if they charge too much. (Representative of a vocational career center forum Kabupaten Karawang, male, 28-May-2021)

The above quotation implies that information about the vacancy is in the hand of private training centers/private employment services. These institutions have a direct connection with firms. The information is only shared with vocational career centers who agree to their terms. Thus, recruitment is not free of charge on account of the value of information (Autor, 2009). To add to the administrative fee, an informant from a vocational career centre forum in Bandung admitted that there are some operational costs when organizing a selection pretest for hundreds of candidates. This is used to pay for staff to arrange the seats and clean the rooms, and to serve the proctors with tea, coffee, and lunch. To cover these costs, the vocational career center forum sells T-shirt to candidates to wear on the pretest day. The margin is used to cover the operational costs.

### 5.1.6 Recruitment Rigidity in Big Firms

#### Offline Recruitment System

In the previous chapter, we have seen that big firms have been using private employment services as an offline intermediary to supply them with experienced workers for temporary contracts. This is outside the LMIS. Moreover, for several decades, big companies have also developed training in partnership with vocational high schools. For example, a certain leading automotive company has conducted a technical education program with top-level vocational high schools around the country since 1991 (Putra, 2014). From this partnership, the company has recruited an annual average of 7% of students who graduated from the program to be technicians.

Big firms have already partnered with vocational high schools and vocational universities to conduct talent scouting and head hunting. (Representative of Employers' Association, male, 20-Sep-2021)

The above example illustrates that firms with a training unit can manage apprentices by themselves (Table 3). The other scheme is to partner with a private training center. This partnership is beneficial because private training centers can conduct the training themselves and charge jobseekers. According to many informants, apprenticeships are gaining popularity among firms. In addition, Government Regulation No. 45 of 2019 on Amendments to Government Regulation No. 94 of 2010 on the Calculation of Taxable Income and the Payment of Income Tax in the Current Year targets firms that participate in vocational education by providing facilities for jobseekers to do an apprenticeship.

However, apprenticeships—directly with vocational high schools or through private training centers—are registered manually at the *kabupaten/kota* level, even if the LMIS exists. This is also the case at the national level, where Karirhub-Sisnaker does not include apprenticeships in the platform.

As of now, the recruitment of trainees is not the same as that of workers through Info Loker Karawang. In the recruitment of trainees, the *kabupaten* labor agency will be the one who manually verifies the data. We hope to change it to a digital format in the future to avoid slander. (Staff of Labor Agency of Kabupaten Karawang, male, 15-Sep-2021)

In Table 4, we have seen that big firms have been using private employment services as an offline intermediary method to employ experienced workers on a temporary contract. This is outside the national LMIS. Partnership with private employment services has become the preference of HR managers particularly because the longer the partnership is, the more familiar these intermediaries become with the culture of the company, therefore making them more accurate in finding the right candidates.

Finally, recruitment through informal channels and networks is certainly outside the LMIS. This is in line with our findings (Figure 4 and Figure 8). By employing informal channels and networks, the costly and burdensome parts, namely the mobilization of too many candidates, have been cut back. According to informants, candidates gathered from informal channels and networks are still required to follow the pretest. Yet, referral is important for companies.

The majority of companies will look for workers from WhatsApp, Instagram or through an informal channel. The culture of references is still lingering in Indonesia. (Manager of Private Job Platform B, female, 25-Aug-2021)

### Adverse Selection

As the internet has lowered the cost of applications significantly, jobseekers can send as many applications as possible. Quoting the works of other scholars, Autor (2001: 31) said, "Excess application appears to be the norm for online job postings, with employers reporting that they frequently receive unmanageable numbers of resumes from both under- and overqualified candidates, often repeatedly and frequently from remote parts of the world." This is also the case for an HR manager we interviewed. He said,

Even though I never opened any recruitment, somehow my name is on Google. ... I have no idea where they got it. Thus, I blocked my emails, except for my company email. There could be thousands [of vacancies] in my inbox every day. This is terrible. (HRD representative of Company B, male, 3-Feb-2021).

### **Box 3** **Ghost Vacancies**

Adverse selection gives rise to inefficiencies in the labor market. Like the case of 'lemons', it happens when the value of suitable candidates to the employers are lessened by the presence of high numbers of unqualified candidates, making it difficult for the employers to identify suitable ones. Consequently, low wage benefits are offered to further distract suitable candidates (Shapiro, 2005).

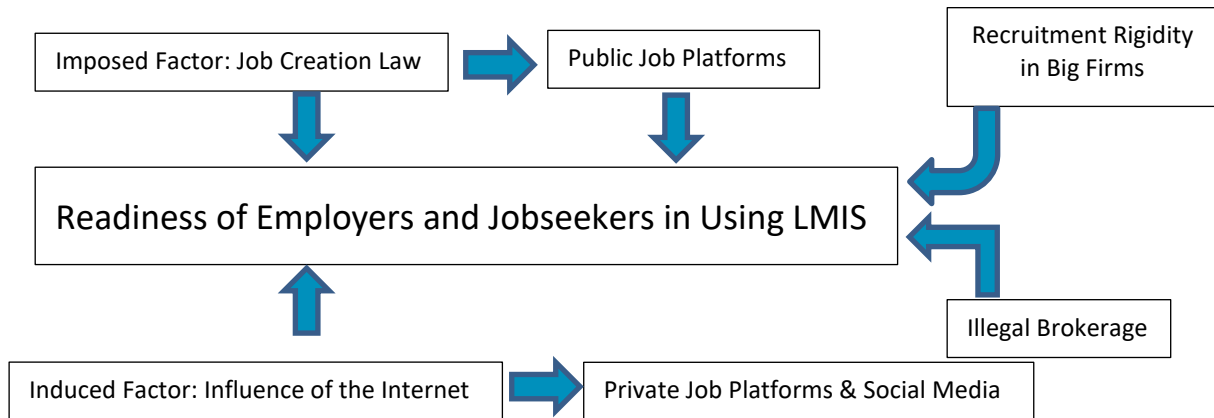
Recently, the labor market has also witnessed another inefficiency. There exists a growing trend of ghost, fake, or hidden job vacancies, where the employers are fishing for the candidates by posting ghost vacancies on their website which costs them nothing. According to Capelli (2019), despite being posted for quite some time, the positions are still vacant. The job ads are not taken down even after the position is filled. This gives the impression that there are no suitable candidates yet, and that the labor market is smaller than it really is.

So, different from job scams, ghost or fake vacancies are also a way to depict a company's image as growing company and to motivate the overloaded staff that the management is helping them (Dennison, 2023). However, Roston (2023) warned that the pervasiveness of ghost vacancies has a distorting effect on job seekers as well as the employers themselves.



## 5.2 Institutional Change and Readiness in Using LMIS

**Figure 11. Factors Influencing the Readiness of Employers and Jobseekers in Using LMIS**



Source: authors' concept

To start with, we can view the Job Creation Law as an imposed factor. However, complexity of the Job Creation Law is another game influencing institutional change. If the government fails to comply with the instructions of the Constitutional Law by November 2023, then this imposing factor will disappear. The intention of the government to correct the undersupply of public goods as Lin (1987) argued will also be missed. With LMIS, the desired outcome is to move job information closer to jobseekers, and hence reduce transaction costs—the costs of organizing, maintaining, and enforcing rules—and increase efficiency in finding a job. This means that the rulers are perceived to be benevolent, although Lin (1987) casted doubt whether the new institution is truly more efficient than the old one, as it is very difficult to calculate efficiency. Gascó (2003) did research on electronic government projects and found out that the projects do not necessarily change the institution in terms of better efficiency, transparency, and transformation of behavior. She said that the project will cause institutional change only when it brings adjustment to the public sector variables. More importantly, she also said that electronic government projects can only change institutions incrementally.

Lin (1987) added that to achieve the desired outcome, it is necessary that other institutional arrangements also perform well. Hence, for the LMIS to live up to expectations, the performance of public job platforms is essential. The government has a strong interest in developing its LMIS. The World Bank (2021) describes more advanced LMIS in other countries, such as Australia, Denmark, France, United Kingdom, and South Korea. The World Bank (2021) has facilitated Indonesia in developing its world-class LMIS. However, as LMIS at the subnational levels have also been developed, some of them are designed particularly to serve their own job seekers. This creates coordination problems.

Ideally, cooperation between national and subnational governments taking similar actions on LMIS would have advantages. As labor issues are the responsibility of the *kabupaten/kota* governments, LMIS are best organized by the *kabupaten/kota* governments. However, in the attachment of Law No. 23 of 2013 on the State Revenue and Expenditure Budget for the 2014 Fiscal Year, it is stated that LMIS can be developed at

the national, provincial, and *kabupaten/kota* levels. There is no direction that the upper level should aggregate the data and information from the lower levels. Consequently, LMIS at different levels do exist but are not integrated. Hence, provincial and *kabupaten/kota* LMIS may not be beneficial for the central government.

At the global level, the development of LMIS in many emerging countries has become a transnational trend. This transnational trend is also induced by internet penetration. Internet penetration is supported by Lin (1987): change that is induced by attractive gains. The past decade has witnessed the rapid growth of information and communication technology and this has strongly influenced changes in institutions. We associate the internet penetration with induced factors, arising from rewarding opportunity (Lin, 1987). Lin said that different from imposed factors, induced factors are voluntary. Internet penetration as an induced factor has brought together users—employers, jobseekers, and intermediaries—to interact virtually. Institutional change, as North (1990) predicted, would only be possible if virtual interaction increased efficiency by reducing transaction costs. However, efficient institutions are not necessarily the chosen ones. According to North (1990), by creating a stable—rather than efficient—structure, institutions can play a role in reducing uncertainty in human interaction. Institutions also have to serve the interest of those in power.

Institutions are not necessarily or even usually created to be efficient; rather, they, or at least the formal rules, are created to serve the interest of those with the bargaining power to devise new rules. (North 1990: 16)

Thus, new institutions can reduce the transaction costs, but this should be in line with the rulers' own interest. In other words, inefficient institutions might stay unchanged if adequate support is not present. This explains why recruitment in big firms is rigid and difficult to change. According to North (1990), big firms—unlike small to medium enterprises—are facing more complex institutional games. Hence, they are difficult to transform. Other scholars give different explanations:

Institutional systems are difficult to transform because they establish relative positions in political and economic competition and because they result from compromises, explicit or implicit, among a wide set of stakeholders. (Brousseau, Garrouste, and Raynaud, 2011: 41)

In fact, for big firms in industrial zones, recruitment is a compromise between their compliance with national and subnationals' programs and the firms' own programs. While national and subnational programs are associated with formal institutions, the firms' own programs could be considered both formal and informal institutions, including the perception of HR managers. Their perception plays a central role in determining choices. Roland (2004) confirms that changes in informal rules are the driver of institutional change. Ruttan (2006) also states that slow changes in informal rules inhibit formal rules. They have different views from North (1990), who gives more emphasis on formal rules and hierarchies. To North (1990), "discontinuous change"—which he means as radical change—only happens in formal rules. Meanwhile, change in informal constraint is not discontinuous; rather it is gradual. He says,

Perhaps the most important of all, the formal rules change but the informal constraints do not. In consequence, there develops an ongoing tension between informal constraints and

new formal rules, as many are inconsistent with each other. The informal constraints had gradually evolved as the extension of the previous formal rules. (North, 1990: 91)

North (1990) uses the term informal constraints instead of informal rules to describe conventions, norms, and self-enforced codes of conduct. To him, informal constraints lie in “cultural antecedents”, and they are an important source of path dependence. Path dependence has been used by scholars to attribute resistance to institutional change, as the present choice depends strongly on the previous one. Path dependence is derived from probability theory, where the probability of a subsequent event is related to the earlier events (Ebbinghaus, 2015). Brousseau, Garrouste, and Raynaud (2011), quoting Libecap, mentions that the path dependence process in institutional change allows groups with vested interests to favor the inefficient status quo and block the change.

Path dependence also explains recruitment rigidity of big firms: why they keep using its offline recruitment through partnerships with certain vocational high schools, apprenticeships, private employment services, or informal channels and networks. As Parts in Gascó (2003) says, for institutions to change, innovation should be included in the current system by changing the rules or status quo. This includes the perceptions and biases of key actors with respect to the cost and benefit to be obtained from change. In the case of big firms, the key actor is the HR managers who decide the recruitment mechanisms.

The phenomenon of path dependence can also be observed in job seekers who are vocational high school graduates. Facing the digital divide and having limited digital literacy, they encounter difficulties to alter their relationship with local brokerages due to strong reliance on paid work (Figure 3), while information on paid work is in the hands of private employment services, such as LPTKS<sup>4</sup>, LPK, and illegal brokers. This high dependence only sustains the existence of intermediate organizations. Even more irrational, some desperate job seekers are willing to pay them money up to an amount of their one-month salary. North (1993) says that rationality depends on whether the information received is complete or not. In addition to limited information, people can struggle to make suitable and appropriate choices. With limited mental capacity, jobseekers would rather stick with yesterday’s choice. Consequently, altering their path dependence would be difficult and a choice they make might not be efficient, yet it is still rational given the informal constraints.

## VI. Conclusion and Policy Implications

To support the implementation of the Unemployment Benefit Scheme as laid out in Government Regulation No. 37 of 2021 on the Implementation of the Unemployment Benefit Scheme, transformation toward LMIS is a must for workers who are laid off.

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<sup>4</sup>private labor placement agencies

However, for LMIS to incorporate workers in general, our analysis shows that LMIS should collaborate with private job platforms and optimize the use of social media. If collaboration between LMIS and the private sector as well as the *kabupaten/kota* governments can not be established, there is a potential that LMIS could become trapped in an inefficient equilibrium, where it is left unused.

To avoid that, this study proposes the following policy recommendations. First, from the demand side, we find that the internet has not helped big firms recruit operator-level workers. However, our analysis shows that institutional change is incremental and gradual; it should be immediately introduced so that the decision-makers in big firms start to get accustomed to it. As big firms currently do not prefer to use LMIS, the Ministry of Labor could set up a pilot project and invite some collaborative firms to join. Otherwise, the intermediaries in partnership with big firms, in this case, private employment services and private training centers, could be supported to use LMIS.

Second, from the supply side, vocational high school graduates are not entirely ready to go digital. Despite having the experience in using the internet in job applications, jobseekers still experience a digital divide as well as have limited digital literacy, with limited knowledge of hoax vacancies. It is, therefore, important that free Wi-Fi is made available at the *kabupaten/kota* labor agencies. Also, safeguarding the jobseekers against fake hiring should be a part of the job description of public intermediary officers. Furthermore, public intermediary officers could use social media to broadcast verified and validated vacancies to nudge more jobseekers to use LMIS.

Third, job creation is extremely important for the livelihood of vocational high school graduates, as data shows how dependent they are on paid work. Providing access to LMIS that connect them with available hiring would be important in this context. They should be introduced to LMIS while still at school. Most of the time, jobseekers are the ones bearing the expensive search cost through legal and illegal brokerages. The use of LMIS, although this is not what big firms currently prefer, could minimize physical contact in the recruitment process. Therefore, LMIS could cut back—although not cut off—the intervention of illegal brokers. There has been nascent evidence in Kabupaten Karawang that the *kabupaten* government could establish e-recruitment through its LMIS, albeit with strong opposition from supposedly illegal brokers.

Fourth, Karirhub-Sisnaker as the LMIS at the national level is best used as the aggregator of jobseekers and vacancies of subnational governments as well as private job platforms. The government at the central level should ensure that platforms at the subnational levels have the same interface for easy aggregation by Karirhub-Sisnaker. Karirhub-Sisnaker should not compete with private job platforms. Instead, it should complement them. This study recommends that Karirhub-Sisnaker focuses more on vocational high school graduates and cater to their needs. With budding vacancies from many sources, Karirhub-Sisnaker would attract even more users, not only those who are participating in the Unemployment Benefit Scheme.

Fifth, as employment has become the responsibility of the *kabupaten/kota* government, local initiatives should be appreciated, particularly in the effort to reduce the prevalence of illegal brokers. During the pandemic and even now in the 'new normal', with LMIS,

candidates do not have to do physical registration amongst the crowds. With the minimized physical contact during the recruitment process, the intervention of illegal brokers could be cut back; the evidence from Kabupaten Karawang mentioned earlier provides a strong example.

Sixth, although the study shows that recruitment is far from costless, the cost can be reduced if the process is streamlined. For example, vocational career centers can require applicants to fill in their personal information through e-recruitment which can be easily sorted and indexed. Thus, the number of candidates invited for the pretest exam can be reduced to that with a high probability of passing. Training on this specific skill should be given to vocational career center staff, particularly because they cannot charge jobseekers. HR managers should also use various HR applications to enable fast screening and minimize the phenomenon of adverse selection.

Seventh, there is a trend that apprenticeships will become a more popular pathway prior to recruitment, particularly in *kabupaten/kota* with a higher minimum wage. An apprenticeship could help ease the problem of asymmetric information for both sides. This study recommends that a supervision mechanism be set up by the provincial labor agencies. This includes establishing call centers to avoid abuse by irresponsible firms and to ensure that the rights of trainees are upheld. Moreover, LMIS should also accommodate apprenticeship schemes. Minister for Labor Regulation No. 6 of 2020 on the Implementation of Domestic Apprenticeships has to be revised to explicitly rule on this issue as well as include a supervision mechanism. Otherwise, illegal brokerage could just move from extorting workers to manipulating the apprentices.

Finally, we have to underline some limitations in this study. The scope of this study is limited to *kabupaten/kota* in West Java. The employment conditions and internet infrastructure outside West Java could be different. Also, our analysis focuses specifically on vocational high school graduates who should be prioritized in utilizing the LMIS. Consequently, the implication of the research might be less relevant for different groups such as university graduates. Furthermore, the study could only collect the perspective of some big firms. To address these limitations, further studies covering wider regions are suggested. This will capture the variation in the job matching process facing vocational high school graduates across *kabupaten/kota* in Indonesia, particularly in those dominated by SMEs and where internet infrastructure is less advanced. Last but not least, the issue on illegal brokerage requires further study. Despite the importance of such issue, it is rarely explored. Hence, research on illegal brokerage during job searching is highly recommended.

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## **Government Laws and Regulations**

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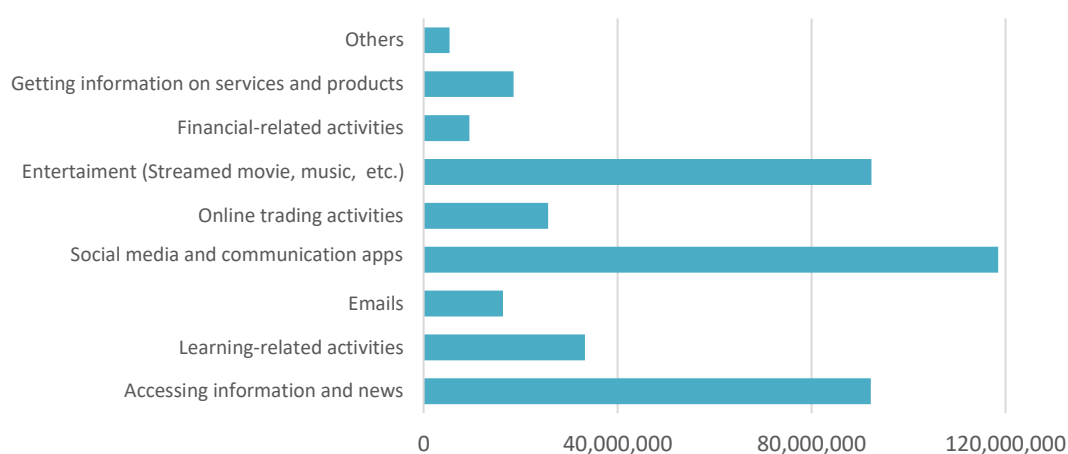
# Appendices

## Appendix 1

**Tabel A1. Characteristics of Phone Survey Respondents**

Variable	Number of Respondents	%
<b>Education level</b>		
Vocational education	982	96.65
Diploma education	16	1.57
University education	18	1.77
<b>Domicile</b>		
Bekasi	466	45.87
Karawang	239	23.25
Bandung	44	4.33
Others	267	26.28
<b>Gender</b>		
Male	612	60.24
Female	404	39.76
<b>Employment status</b>		
Working	699	31.2
Not working	317	68.8

**Figure A2. Purpose for Using the Internet – The National Socioeconomic Survey 2020**



Source: the National Socioeconomic Survey 2020, authors' calculation



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