International Journal of Economics, Business and Innovation Research
https://e-journal.citakonsultindo.or.id/index.php/IJEBIR
E-ISSN : 2964-0865
IJEBIR

Determinants Of Internet Use In Main Employment Among Female Workers In Bengkulu Province

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Abstract

This study aims to analyze the determinants of internet use in main employment among female workers in Bengkulu Province, Indonesia. Using data from 904 female workers in the February 2024 National Labor Force Survey (Sakernas), this study applies survey-weighted binary logistic regression and Average Marginal Effects (AME). The results show that educational attainment, age, marital status, employment sector, and economic sector are significantly associated with internet utilization. Female workers with secondary and higher education have a greater probability of using the internet than those with basic education. Younger workers also exhibit a higher probability of internet use than workers aged 40 years and above. Furthermore, formal-sector workers have a 14.5 percentage points higher probability of using the internet than informal-sector workers, while workers in the tertiary sector have a 35.4 percentage points higher probability than those in the primary sector. Meanwhile, urban–rural residence is not statistically significant. These findings highlight the importance of education and employment characteristics in promoting digital inclusion among female workers.

Keywords: Female Workers, Internet Use, National Labor Force Survey, Bengkulu Province.

INTRODUCTION

The advancement of information and communication technology (ICT) in the era of the Fourth Industrial Revolution has brought significant changes to various aspects of life, including social and economic activities. As one of the key components of digital technological development, the internet plays an important role in expanding access to information, enhancing connectivity, and transforming patterns of interaction and economic activities within society. In the context of employment, internet utilization provides various benefits for workers, ranging from accessing information about job opportunities and communicating with customers and colleagues to acquiring new knowledge and skills and facilitating more efficient task completion. Furthermore, digital

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technological developments have created opportunities for more flexible working arrangements that are not necessarily dependent on physical workplace locations (Wynarczyk & Graham, 2013).

According to a survey conducted by the Indonesian Internet Service Providers Association (APJII), the number of internet users in Indonesia reached 221.56 million in 2024, representing approximately 79.5 percent of the total population. On the island of Sumatra, Bengkulu Province recorded an internet penetration rate of 82.67 percent, higher than several other provinces, including Riau (82.49 percent), Riau Islands (81.09 percent), and Lampung (77.75 percent) (APJII, 2024). These figures indicate that internet access among the population of Bengkulu Province is relatively widespread. Nevertheless, greater internet accessibility does not necessarily translate into equivalent levels of utilization, particularly in supporting economic and employment-related activities. Therefore, it is important to distinguish between general internet use and internet use directly related to primary employment activities.

A gender perspective is essential to understanding digital technology utilization in the labor market because women experience employment-related characteristics and challenges that differ, to some extent, from those faced by men. In many circumstances, women are not only expected to participate in economic activities but also bear domestic and caregiving responsibilities that may influence their employment choices and working arrangements. Consequently, flexibility in working hours and locations becomes a relevant consideration in women's labor market participation. Wynarczyk and Graham (2013) demonstrate that connectivity technologies can support the development of women-owned home-based businesses while creating opportunities for women to engage in economic activities without entirely leaving their domestic environments.

Nevertheless, the flexibility offered by digital technology does not automatically eliminate the barriers women face in the labor market. Differences in household responsibilities, educational attainment, skills, and access to digital devices and infrastructure may influence women's ability to utilize the internet for work-related purposes. Thus, digital technology can serve as an instrument for supporting women's economic activities, although its benefits largely depend on their socioeconomic circumstances and employment environments.

This issue is also associated with labor market structures, which continue to reflect differences in employment opportunities between women and men. As discussed by Dalilah (2021), women in Indonesia face challenges in entering formal employment and tend to be concentrated in the informal sector. Meanwhile, Armansyah and Aryaningrum (2017) explain that informal employment may serve as an alternative for women because it offers greater flexibility in working hours and different employment requirements compared with the formal sector. These conditions warrant attention because

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employment characteristics may determine the need, opportunities, and intensity of digital technology use in carrying out primary employment activities.

Empirical evidence regarding the relationship between internet access and women's labor market outcomes in Indonesia also reveals mixed findings. Kusumawardhani et al. (2023) found that internet availability has heterogeneous effects on women's labor market outcomes. On the one hand, internet access may create employment opportunities for certain groups of women. On the other hand, it does not necessarily increase their opportunities to obtain formal employment or jobs requiring advanced skills. These findings indicate that internet availability does not generate uniform employment benefits across all groups of women.

The findings of Sofa and Eschachasthi (2024) also demonstrate an association between digital adoption and women's labor market participation in Indonesia. However, this relationship varies across regions, suggesting that the benefits of digitalization for women are also associated with regional conditions and differences in economic development. Taken together, these studies illustrate that the relationship between internet use and women's employment is complex. Although the internet can create economic opportunities, it does not necessarily guarantee that women will obtain more productive, formal, or skill-intensive employment.

Despite the continued expansion of internet use, the benefits of digital transformation are not necessarily distributed equally across all population groups. The digital divide literature indicates that digital inequality extends beyond differences in internet availability to include disparities in digital skills, usage patterns, and the ability to derive benefits from technology. Scheerder, van Deursen, and van Dijk (2017) explain that research on the digital divide should consider the determinants of internet skills and usage, as well as the outcomes derived from internet utilization. Therefore, access to the internet alone is insufficient to describe the extent to which technology is being utilized productively.

Van Deursen and van Dijk (2019) further explain that digital access inequalities are not limited to internet connectivity but also encompass material access, including the availability of digital devices and the ability to maintain access to technology. This implies that even individuals living in areas with available internet networks may not necessarily have equal opportunities to utilize the internet optimally.

Among female workers, these digital inequalities may be associated with differences in age, educational attainment, marital status, and employment characteristics. Age may be related to individuals' experience and ability to adapt to technological developments. Meanwhile, educational attainment can shape individuals' ability to understand information, develop skills, and utilize technology to support work-related activities. Scheerder et al. (2019) demonstrate that educational background is

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associated with differences in internet usage patterns and individuals' ability to integrate technology into their daily lives.

In addition to individual characteristics, marital status is also relevant because it may be associated with differences in family responsibilities and time allocation among female workers. Married women may face different combinations of employment and household responsibilities compared with unmarried women. Nevertheless, the relationship between these circumstances and internet use also depends on the distribution of family responsibilities, types of employment, and the respective social environments.

Differences in internet use can also be examined in relation to employment characteristics. Female workers employed as laborers, employees, or salaried workers may face different technological requirements compared with self-employed workers, casual workers, and unpaid family workers. Certain occupations require internet use for communication, administration, marketing, transactions, and information management, whereas others may continue to rely on conventional working methods. Therefore, employment status may be one of the factors associated with differences in opportunities to use the internet in primary employment.

The same consideration applies to industry sectors. Economic activities in the service and trade sectors, for instance, may have different technological requirements compared with those in agriculture and other primary sectors. Differences in production processes, consumer characteristics, and communication requirements may generate variations in internet utilization among female workers. Accordingly, internet use in primary employment reflects not only individuals' ability to access technology but also the demands and characteristics of their respective occupations.

In Indonesia, the digital divide also has a regional dimension. Differences between urban and rural areas may be associated with variations in infrastructure availability, access to digital devices, opportunities for training, and employment composition. These conditions may shape the opportunities available to female workers to utilize digital technology. The study by Sofa and Eschachasthi (2024) demonstrates that the relationship between internet use and women's labor market participation varies across regions in Indonesia. This finding reinforces the importance of considering regional contexts when examining digital technology utilization among women.

Bengkulu Province provides a relevant context for examining this issue. Its relatively high internet penetration rate, according to APJII data, indicates considerable opportunities for digital technology utilization. Nevertheless, geographical conditions, differences between urban and rural areas, and the structure of industry sectors may result in unequal opportunities to use the internet in primary employment. Women

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working in urban and rural areas may encounter different technological requirements and employment environments.

Furthermore, the industry sectors and employment status of women in Bengkulu Province warrant consideration because both may be associated with the technological requirements of their respective occupations. For example, women working in trade and service activities may have different digital communication and information needs compared with those employed in agriculture. However, these differences need to be empirically examined and cannot be inferred solely from a region's internet penetration rate.

Previous studies have examined the relationship between internet development and women's labor market outcomes. Kusumawardhani et al. (2023) investigated the effects of internet availability on various labor market outcomes among women in Indonesia, whereas Sofa and Eschachasthi (2024) analyzed the relationship between digital adoption and women's labor market participation. Nevertheless, there remains room for further research that specifically examines internet use in primary employment among female workers at the provincial level while accounting for sociodemographic and employment characteristics.

This distinction is important because internet availability, general internet use, women's labor market participation, and internet use in primary employment represent different concepts. An individual may have internet access and use it for personal activities without necessarily utilizing it to support their work. Therefore, internet use in primary employment represents a more specific indicator for understanding digital technology utilization in workers' economic activities.

From the perspective of the digital divide, internet use in primary employment is regarded as a form of technology utilization influenced by individual resources and socioeconomic environments. Human capital theory is employed to explain the relationship between educational attainment and age and individuals' capacity to utilize technology. Meanwhile, the labor market segmentation perspective is used to understand differences in internet utilization opportunities according to employment status and industry sector. The gender perspective complements these approaches by considering social conditions and domestic responsibilities that may shape women's experiences in the labor market.

Unlike studies focusing on household internet access, digital infrastructure availability, or women's labor market participation, this study specifically examines internet use in primary employment among female workers. The contribution of this study lies in identifying the associations between sociodemographic and employment characteristics and internet utilization in primary employment at the provincial level. This study employs microdata from the February 2024 National Labor Force Survey

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(Sakernas), enabling a more detailed examination of individual and employment characteristics.

Based on the aforementioned discussion, this study aims to analyze the associations of age, educational attainment, marital status, area classification, employment status, and industry sector with internet use in primary employment among female workers in Bengkulu Province using data from the February 2024 National Labor Force Survey.

METHODOLOGY

This study employs a quantitative approach using secondary data obtained from the February 2024 National Labor Force Survey (Sakernas), conducted by Statistics Indonesia (BPS). The Sakernas dataset provides individual-level information covering demographic characteristics, educational attainment, marital status, residential area classification, employment status, and industry sector. The unit of analysis consists of employed women aged 15 years and above in Bengkulu Province, comprising a total of 904 female workers.

To identify the factors associated with internet use in primary employment among female workers in Bengkulu Province, this study employs a binary logistic regression model. This method is selected because the dependent variable is dichotomous, consisting of two categories: internet users and non-internet users in primary employment. Following Hosmer and Lemeshow (2000), the binary logistic regression model used in this study is formulated as follows:

$$L_i = ln\left(\frac{P_i}{1-P_i}\right) = \beta_0 + \beta_1 Age_i + \beta_2 Education_i + \beta_3 Married_i + \beta_4 Informal_i + \beta_5 Rural_i + \beta_6 Primary_i + \varepsilon_i$$

where: L_i represents the log-odds of internet use in primary employment among female workers; P_i denotes the probability that female worker i uses the internet in her primary employment, with $0 < P_i < 1$; β_0 is the intercept; and β_1 to β_6 represent the regression coefficients associated with age (the age of the female worker in years), education (the educational attainment of the female worker), dummy marital status (1 if married; 0 if otherwise), dummy employment status (1 if employed in the informal sector; 0 if otherwise), dummy area classification (1 if residing in a rural area; 0 if residing in an urban area), and primary (the economic sector in which the female worker is primarily employed).

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RESULT & DISCUSSION

1. Cross-tabulation

Table 1. Cross-tabulation of determinants of internet use in primary employment among female workers in Bengkulu Province

Variable	Not using the internet	Using the internet	Total
Age			
15–24 years	26 (4.51%)	47 (14.37%)	73 (8.08%)
25–39 years	137 (23.74%)	150 (45.87%)	287 (31.75%)
40 years and older	414 (71.75%)	130 (39.76%)	544 (60.18%)
Education			
Basic education	304 (52.69%)	43 (13.15%)	347 (38.38%)
Secondary education	228 (39.51%)	137 (41.90%)	365 (40.38%)
Higher education	45 (7.80%)	147 (44.95%)	192 (21.24%)
Marital Status			
Never married	30 (5.20%)	51 (15.60%)	81 (8.96%)
Married	434 (75.22%)	251 (76.76%)	685 (75.77%)
Divorced	38 (6.59%)	14 (4.28%)	52 (5.75%)
Widowed	75 (13.00%)	11 (3.36%)	86 (9.51%)
Domicile			
Urban	190 (32.93%)	148 (45.26%)	338 (37.39%)
Rural	387 (67.07%)	179 (54.74%)	566 (62.61%)
Employment Sector			
Informal sector	486 (84.23%)	129 (39.45%)	615 (68.03%)

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E-ISSN : 2964-0865
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Formal sector	91 (15.77%)	198 (60.55%)	289 (31.97%)
Economic Sector			
Primary sector	357 (61.87%)	36 (11.01%)	393 (43.47%)
Secondary sector	31 (5.37%)	8 (2.45%)	39 (4.31%)
Tertiary sector	189 (32.76%)	283 (86.54%)	472 (52.21%)
Total	**577 (100%)**	**327 (100%)**	**904 (100%)**

Source: Sakernas, 2026 (data processed)

Based on Table 1, several observations can be made regarding the characteristics of female workers who use and do not use the internet in their primary employment. In terms of age, female workers aged 40 years and older constitute the largest proportion of the total sample, accounting for 60.18 percent. However, internet use is more prevalent among younger workers. Among female workers aged 15–24 years, 64.38 percent use the internet in their primary employment, while this proportion decreases to 52.26 percent among those aged 25–39 years and 23.90 percent among workers aged 40 years and older. This pattern indicates that younger female workers tend to have greater engagement with digital technology in their work activities compared to older workers.

Regarding educational attainment, female workers with secondary education represent the largest share of the sample (40.38 percent), followed closely by those with basic education (38.38 percent). Nevertheless, internet use is considerably more common among workers with higher educational attainment. Approximately 76.56 percent of female workers with higher education use the internet in their primary employment, compared to 37.53 percent of those with secondary education and only 12.39 percent of those with basic education. This finding suggests that educational attainment is closely associated with the adoption of digital technology in the workplace, potentially reflecting differences in digital literacy, skills, and occupational requirements.

In terms of marital status, married women dominate the sample, accounting for 75.77 percent of all female workers. Among married workers, 36.64 percent use the internet in their primary employment. Meanwhile, the highest proportion of internet users is observed among unmarried women, at 62.96 percent, followed by divorced women (26.92 percent) and widowed women (12.79 percent). These differences indicate that internet use in primary employment varies across marital status categories.

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With respect to domicile, the majority of female workers reside in rural areas, representing 62.61 percent of the total sample, while 37.39 percent live in urban areas. However, internet use is more prevalent among female workers in urban areas, where 43.79 percent use the internet in their primary employment, compared to 31.63 percent of those living in rural areas. This difference may reflect disparities in digital infrastructure and access to internet services between urban and rural communities.

Furthermore, employment sector characteristics reveal a substantial difference in internet use between formal and informal workers. The informal sector accounts for 68.03 percent of female employment, while the formal sector represents 31.97 percent. However, 68.51 percent of female workers in the formal sector use the internet in their primary employment, compared to only 20.98 percent of those working in the informal sector. This pattern suggests that formal employment is more closely associated with the utilization of internet technology, potentially due to differences in job requirements, organizational practices, and access to digital facilities.

Regarding economic sectors, female workers are predominantly concentrated in the tertiary sector, accounting for 52.21 percent of the sample, followed by the primary sector (43.47 percent) and the secondary sector (4.31 percent). Internet use is particularly prevalent among workers in the tertiary sector, reaching 59.96 percent. In comparison, only 9.16 percent of workers in the primary sector and 20.51 percent in the secondary sector use the internet in their primary employment. This finding indicates that the utilization of internet technology is more common in service-oriented economic activities than in primary and secondary economic activities.

Overall, the cross-tabulation results indicate that internet use in the primary employment of female workers varies considerably according to age, educational attainment, marital status, domicile, employment sector, and economic sector. Younger workers, those with higher education, urban residents, formal-sector workers, and those employed in the tertiary sector exhibit relatively higher proportions of internet use. These descriptive findings provide an initial indication of the relationship between individual and employment characteristics and internet utilization. However, further analysis using survey-weighted logistic regression is necessary to examine these relationships while controlling for other relevant variables.

2. Statistical Description Results

Table 2. Descriptive Statistics of Research Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Internet use in primary employment					
Internet use	904	0.362	0.481	0	1
Age					

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15–24 years	904	0.081	0.273	0	1
25–39 years	904	0.317	0.466	0	1
40 years and older	904	0.602	0.490	0	1
Education					
Basic education	904	0.384	0.487	0	1
Secondary education	904	0.404	0.491	0	1
Higher education	904	0.212	0.409	0	1
Marital Status					
Never married	904	0.090	0.286	0	1
Married	904	0.758	0.429	0	1
Divorced	904	0.058	0.233	0	1
Widowed	904	0.095	0.294	0	1
Domicile					
Urban	904	0.374	0.484	0	1
Rural	904	0.626	0.484	0	1
Employment Sector					
Informal sector	904	0.680	0.467	0	1
Formal sector	904	0.320	0.467	0	1
Economic Sector					
Primary sector	904	0.435	0.496	0	1
Secondary sector	904	0.043	0.203	0	1
Tertiary sector	904	0.522	0.500	0	1

Source: Sakernas, 2026 (data processed)

Referring to Table 2, the descriptive statistics show that the study included 904 female workers in Bengkulu Province. Approximately 36.2 percent of the respondents used the internet in their primary employment, while the remaining 63.8 percent did not use the internet. In terms of age, the majority of respondents were aged 40 years and older, accounting for 60.2 percent of the total sample, followed by those aged 25–39 years (31.7 percent) and 15–24 years (8.1 percent). Regarding educational attainment, most respondents had secondary education (40.4 percent), followed by basic education (38.4 percent) and higher education (21.2 percent).

In terms of marital status, married women dominated the sample, representing 75.8 percent of respondents. Meanwhile, unmarried, widowed, and divorced women accounted for 9.0 percent, 9.5 percent, and 5.8 percent, respectively. Regarding domicile, most female workers lived in rural areas (62.6 percent), while 37.4 percent resided in urban areas. Furthermore, employment characteristics indicate that the majority of respondents worked in the informal sector, accounting for 68.0 percent, whereas 32.0

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E-ISSN : 2964-0865
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percent were employed in the formal sector. Based on economic sectors, the tertiary sector had the largest share of female workers (52.2 percent), followed by the primary sector (43.5 percent) and the secondary sector (4.3 percent).

Overall, these descriptive statistics indicate that female workers in Bengkulu Province are predominantly aged 40 years and older, have secondary education, are married, reside in rural areas, and work in the informal and tertiary sectors. The relatively low proportion of female workers using the internet in their primary employment (36.2 percent) highlights the importance of examining the individual, demographic, and employment-related characteristics associated with internet utilization among female workers.

3. Estimation Results of the Logistic Regression Model

Table 3. Results of Marginal Effect Estimation

Variable	Internet use (=1)
Age (ref. 40 years and older)	
15–24 years	0.187**
	(0.076)
25–39 years	0.101***
	(0.031)
Education (ref. Basic education)	
Secondary education	0.138***
	(0.045)
Higher education	0.240***
	(0.068)
Marital Status (ref. Married)	
Never married	−0.127**
	(0.054)
Divorced	−0.107**
	(0.047)
Widowed	−0.146***
	(0.045)
Domicile (ref. Rural)	
Urban	−0.046
	(0.038)
Employment Sector (ref. Informal)	
Formal sector	0.145***
	(0.047)

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E-ISSN : 2964-0865
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Economic Sector (ref. Primary)	
Secondary sector	0.063
	(0.087)
Tertiary sector	0.354***
	(0.048)

Source: Data processed, 2026
*Remarks: *=10%; ** = 5%; ***= 1%*

The estimation results of the logistic regression model examining the determinants of internet use in primary employment among female workers in Bengkulu Province are presented in Table 4. Based on the Average Marginal Effects (AME), the findings indicate that internet utilization among female workers is significantly associated with individual characteristics, particularly age, educational attainment, marital status, employment sector, and economic sector. These findings suggest that digital technology adoption in the labor market is not evenly distributed across female workers but varies according to their socioeconomic and employment characteristics.

Educational Attainment and Digital Technology Utilization

Educational attainment emerges as one of the important factors associated with internet use in primary employment. The results show that female workers with secondary education have a 13.8 percentage points higher probability of using the internet compared to those with basic education. This probability increases to 24.0 percentage points among female workers with higher education, with both estimates statistically significant at the 1 percent level. These findings indicate a positive association between educational attainment and internet utilization in the workplace.

From the perspective of Human Capital Theory, education represents an investment in knowledge, skills, and individual capabilities that can enhance workers' productivity and adaptability to technological changes (Becker, 1964). Higher educational attainment may facilitate the acquisition of digital competencies, improve the ability to process information, and expand access to occupations that require internet-based applications. Conversely, workers with lower educational attainment may face limitations in accessing employment opportunities that involve more intensive use of digital technology.

This finding is consistent with the broader evidence presented by Aditina and Sugiharti (2019), who found that women with higher educational attainment had greater opportunities to work from home compared to those with lower educational attainment. Their study, using data from the February 2018 National Labor Force Survey (Sakernas), also demonstrated the relevance of internet technology in supporting women's

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employment activities. Although their dependent variable differs from that of the present study, the findings highlight the importance of education in shaping women's employment opportunities in a changing technological environment.

Furthermore, Yunisvita et al. (2025) emphasize that the benefits of internet development in the labor market may differ according to workers' skill levels and employment characteristics. Their discussion highlights the importance of technological skills in enabling workers to benefit from internet-based economic activities. This perspective supports the argument that educational disparities may contribute to differences in the ability of female workers to participate in digitally supported employment.

These findings are also consistent with the broader human capital perspective discussed by Habibi and Zabardast (2020), who examine the relationship between digitalization, education, and economic development. Accordingly, educational differences in internet utilization may reflect not only disparities in digital competencies but also unequal access to employment opportunities that require technological capabilities. Strengthening digital literacy and providing accessible skills development programs, particularly for women with basic education, may therefore contribute to reducing digital inequality in Bengkulu Province.

Employment Sector and Labor Market Segmentation

The estimation results reveal significant differences in internet utilization between formal and informal employment. Female workers employed in the formal sector have a 14.5 percentage points higher probability of using the internet compared to those working in the informal sector, with the difference statistically significant at the 1 percent level.

This finding can be understood through the perspective of labor market segmentation, which emphasizes differences in working conditions, organizational structures, and access to productive resources across employment categories. Formal employment may involve administrative activities, digital communication, electronic documentation, and information management that require internet access. In contrast, some informal employment activities may rely more heavily on conventional production and service processes, resulting in relatively limited requirements for internet utilization.

The importance of employment characteristics is also reflected in Aditina and Sugiharti (2019), who found that approximately 66.3 percent of women working from home in their study were employed in the informal sector. Their findings illustrate the concentration of female workers in employment arrangements characterized by relatively flexible working conditions. Although their study does not directly compare internet utilization between formal and informal workers, it provides relevant evidence concerning

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the relationship between women's employment characteristics and opportunities to participate in technology-supported economic activities.

Similarly, Dalilah (2021) discusses the challenges associated with women's participation in formal employment in Indonesia, while Aryaningrum and Armansyah (2017) highlight the role of informal employment as an alternative source of economic opportunities for women. These studies suggest that employment segmentation may influence the types of occupations accessible to female workers and the resources available within their working environments.

Furthermore, Yunisvita et al. (2025) demonstrate the relevance of internet-based activities, including online promotion and marketplaces, in examining labor market outcomes among formal-sector workers in Indonesia. Their findings provide additional context for understanding how internet technology is incorporated into employment activities, although they do not directly estimate differences in internet utilization between formal and informal workers.

In Bengkulu Province, the importance of this finding is reinforced by the substantial proportion of female workers engaged in informal employment. The observed difference suggests that digital inclusion initiatives should extend beyond formal workplaces by supporting internet access, digital literacy, and the adoption of relevant technologies among informal workers. Such interventions may help reduce disparities in the productive utilization of digital technology across employment categories.

Economic Sector and Differences in Internet Utilization

Among the employment-related characteristics examined, the economic sector demonstrates a particularly notable association with internet utilization. Female workers employed in the tertiary sector have a 35.4 percentage points higher probability of using the internet compared to those working in the primary sector, with the difference statistically significant at the 1 percent level. Meanwhile, the estimated marginal effect for the secondary sector is positive but statistically insignificant.

The relatively higher probability of internet utilization in the tertiary sector may be associated with the nature of service-oriented economic activities, which frequently involve information exchange, communication, administration, digital transactions, and access to online information. These activities may generate greater demand for internet-based applications compared to certain primary-sector occupations, where production processes may rely more heavily on conventional working methods.

This interpretation is supported by Aditina and Sugiharti (2019), who found that internet utilization among women working from home was predominantly associated with communication with consumers and promotional activities. Their study reported that 76.5 percent of internet-using women working from home utilized the internet for

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communication with consumers, while 60.3 percent used it for marketing and promotion. These findings illustrate the importance of internet technology in supporting activities commonly associated with trade and service-oriented occupations.

Similarly, Yunisvita et al. (2025) examined internet utilization for promotional activities and online marketplaces in relation to full-time employment in Indonesia. Their findings demonstrate the relevance of internet-based commercial activities in contemporary labor markets. Although the study focuses on working-hour outcomes rather than sectoral differences in internet adoption, it provides supporting evidence regarding the expanding role of digital technology in economic activities.

The importance of internet-based economic activities is also reflected in the discussion by Yunisvita et al. (2025), which highlights how digital promotion, online marketing, and internet-based transactions can reduce information and transaction costs. Such mechanisms may be particularly relevant to service-oriented occupations that depend on communication with customers and the exchange of information.

In the context of Bengkulu Province, these results suggest that digital transformation is closely associated with the structure of economic activities. The substantially higher probability of internet utilization among tertiary-sector workers highlights the importance of considering sector-specific technological requirements. Digital development initiatives should therefore encourage the adoption of appropriate technologies not only in service-oriented activities but also in agriculture and other primary-sector occupations. Improving access to market information, digital marketing platforms, and work-related applications may help expand productive internet utilization among female workers across different economic sectors.

Demographic Characteristics and Internet Utilization

In addition to educational and employment characteristics, age and marital status are significantly associated with internet utilization. Female workers aged 15–24 years have an 18.7 percentage points higher probability of using the internet compared to those aged 40 years and older. Similarly, workers aged 25–39 years have a 10.1 percentage points higher probability. Both estimates are statistically significant, indicating that younger female workers are more likely to utilize the internet in their primary employment.

One possible explanation is that younger workers may have greater familiarity with digital technology and more opportunities to participate in occupations involving internet-based activities. However, differences in internet utilization across age groups may also reflect variations in educational attainment, occupational experience, and the types of employment accessible to workers at different stages of their working lives.

Aditina and Sugiharti (2019) found that women aged 15–24 years and 25–39 years had greater odds of working from home compared to women aged 40 years and older.

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Their findings suggest that age is an important characteristic associated with women's employment arrangements. Although their study does not directly investigate age differences in internet adoption, it demonstrates that employment patterns among women vary across age groups.

Yunisvita et al. (2025) also identify age as a relevant demographic characteristic in explaining labor market outcomes in Indonesia. Their discussion highlights differences in working-hour patterns across age groups, suggesting that age-related characteristics may be associated with variations in labor market participation. Taken together, these studies provide a broader context for understanding the association between age and internet utilization observed in the present research. Nevertheless, the extent to which these differences are explained by digital skills or technological familiarity cannot be directly established from the available data.

Marital status also exhibits a significant association with internet utilization. Compared to married female workers, those who have never married, are divorced, or are widowed have lower probabilities of using the internet by 12.7, 10.7, and 14.6 percentage points, respectively. These results indicate that internet utilization varies across marital status categories even after controlling for other individual and employment-related characteristics.

The relevance of marital status to women's employment decisions has been discussed by Aditina and Sugiharti (2019), who found that married women had lower odds of working from home compared to unmarried women. Their study emphasizes that women's employment arrangements may be associated with household responsibilities and the presence of children. Similarly, Yunisvita et al. (2025) identify marital status as an important demographic characteristic associated with working-hour outcomes.

However, these findings should not be interpreted as direct evidence that marriage increases internet utilization. Differences in marital status may be associated with variations in household economic conditions, occupational choices, and employment arrangements. Since the present study does not directly examine childcare responsibilities or household time allocation, the mechanisms underlying the observed relationship require further investigation.

Meanwhile, domicile does not demonstrate a statistically significant association with internet utilization after controlling for other characteristics. The estimated marginal effect indicates that female workers living in urban areas have a 4.6 percentage points lower probability of using the internet compared to those in rural areas, but this difference is not statistically significant.

This finding can be compared with Aditina and Sugiharti (2019), who found that women living in urban areas had lower odds of working from home compared to those in rural areas. Their study relates this result to differences in employment opportunities

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between urban and rural locations. However, because their dependent variable concerns work location rather than internet utilization, the findings are not directly comparable.

The absence of a statistically significant domicile effect in the present study suggests that differences in internet utilization between urban and rural female workers are not statistically distinguishable after accounting for educational attainment, demographic characteristics, and employment conditions. This does not imply that geographical disparities or infrastructure limitations are unimportant, but rather that the urban–rural classification does not independently distinguish internet utilization in the estimated model.

Overall Implications for Digital Inclusion and Women's Economic Participation

Overall, the estimation results demonstrate that internet utilization among female workers in Bengkulu Province is associated with differences in educational attainment, employment status, economic sector, and demographic characteristics. The findings particularly emphasize the importance of education, formal employment, and participation in tertiary-sector activities in explaining variations in the probability of internet use in primary employment.

These findings complement previous research on internet technology and women's employment in Indonesia. Aditina and Sugiharti (2019) demonstrate the relevance of internet technology in supporting flexible employment arrangements among women, while Yunisvita et al. (2025) highlight the relationship between internet-based activities and labor market outcomes. By focusing specifically on internet utilization in primary employment, the present study extends this discussion to the socioeconomic and employment characteristics associated with productive internet use among female workers in Bengkulu Province.

From a human capital perspective, the positive association between education and internet utilization reinforces the importance of developing workers' capabilities to participate in an increasingly digital economy. At the same time, the differences observed between formal and informal employment and across economic sectors suggest that digital inequality is also associated with the structure of employment opportunities.

From an economic development perspective, these findings suggest that promoting digital inclusion among female workers requires more than expanding internet infrastructure. Policies should also address differences in educational opportunities, digital competencies, and the technological capacity of various employment sectors. Particular attention should be given to female workers with lower educational attainment, those engaged in informal employment, and those working in primary-sector activities.

Therefore, strengthening digital literacy, expanding access to relevant technological resources, and facilitating the adoption of internet-based applications

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across different economic sectors may contribute to more inclusive labor market participation and support women's economic empowerment in Bengkulu Province.

CONCLUSION

This study demonstrates that internet utilization in primary employment among female workers in Bengkulu Province is significantly associated with educational attainment, age, marital status, employment sector, and economic sector. Education plays an important role, as female workers with secondary and higher education have a greater probability of using the internet compared to those with basic education. Younger female workers also exhibit a higher probability of internet utilization than those aged 40 years and older. In addition, employment characteristics are closely related to digital technology adoption, with formal-sector workers having a higher probability of internet use than informal-sector workers. The strongest association is observed among workers in the tertiary sector, whose probability of using the internet is 35.4 percentage points higher than that of workers in the primary sector. Meanwhile, marital status is significantly associated with internet utilization, whereas differences between urban and rural residence are not statistically significant after controlling for other characteristics. These findings indicate that digital inequality among female workers is not determined solely by geographical access to internet infrastructure but is also related to human capital and the structure of employment opportunities. Therefore, policies to promote digital inclusion should prioritize strengthening digital literacy and educational opportunities, expanding access to technology among informal workers, and encouraging the adoption of digital applications across economic sectors, particularly agriculture and other primary-sector activities. Such efforts are essential to support more inclusive digital transformation and enhance women's participation in the labor market.

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