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## Digital Technology: The Impact of Women's Decision to Work from Home in Informal Sector

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**Abstract:** Since the 1970s, Indonesia has gradually shifted from the agriculture sector to the industry with sustained economic growth, increasing women's participation in the workforce participant from 32.65% in 1980 to 53.41% in 2022. Many women choose the informal sector for its flexibility, supported by internet use and the trend of working from home. Despite challenges, advancements in education and technology have bolstered women's economic contributions. This study explores the factors influencing women's decision to work in the informal sector from home. This study analyses data from the National Labor Force Survey (SAKERNAS) 2022 involving 139,870 individuals to identify the factors that drive women to work in the informal sector from home. It includes a descriptive analysis of the characteristics of women working, such as age, marital status, education level, residential location, and internet technology use. It employs binary logistic regression for Inferential analysis. The results showed that the number of female internet users is lower than males, with 31% of

women working in the informal sector from home using internet technology. In contrast, only 10.16% of those not working from home use it. Significant differences in internet technology use between those working from home (31%) and those who do not (10.16%) may be due to limited access to home internet infrastructure, reliance on public facilities or workplaces, and differences in education levels and technology skills: among women in the informal sector, 38.1% work from home and typically aged 42-43 years, while 61,9% work outside and are aged 45-46. Of those working outside, 92% are married, compared to 88.55% working from home. Most home-based workers have secondary education, while most non-home-based workers only complete primary education.

**Keywords:** digital technology, working women, work from home, Informal sector.

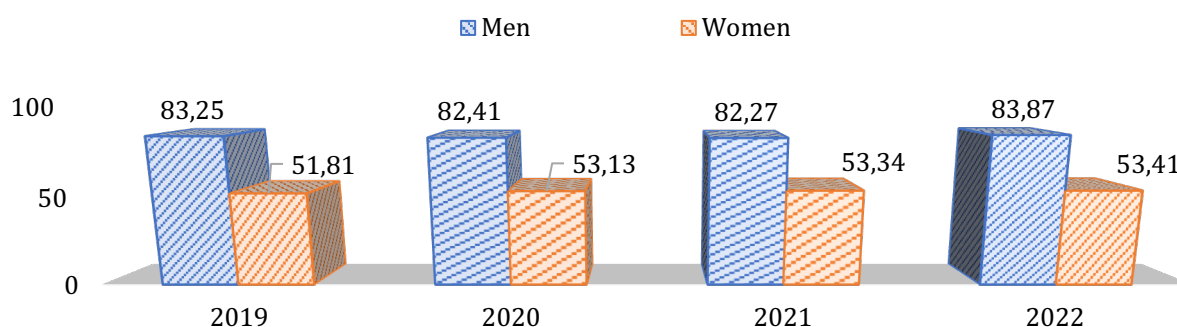
## Introduction

The paradigm shift in the digital era and the evolution of digital technology have transformed the way people perceive various aspects of life, particularly in the social and professional realms. The rapid advancement of technology, such as computers, the internet, mobile devices, and productivity applications, has provided significant opportunities for individuals, including women, to innovate and create. Telaumbanua and Nugraheni (2018a) stated that in the era of globalization, awareness and opportunities for entrepreneurship are increasingly growing. Economic activities continue to expand in all countries worldwide, including developed, developing, and poor nations. In the social aspect, there has been a shift in the role of women, who are no longer just housewives but also often work alongside their husbands or pursue careers (Yunita, 1999). The dual roles undertaken by modern women, with all their busy activities, must be managed with the ability to balance time between career and personal life. Working women who value their profession tend to be at greater risk of experiencing conflict, as they are more likely to become attached to or focused on their work, potentially neglecting their role as housewives (Suryawan et al., 2021). Since the emergence of the COVID-19 pandemic, the trend of working from home (WFH) has become increasingly popular, especially in recent years post-pandemic, where WFH is considered to offer greater flexibility and convenience in managing work and family responsibilities.

It is important to understand how the availability of digital technology has reached aspects previously considered impossible, especially concerning internet technology. The open opportunities for flexible and remote work, including work that can be done from home, are strongly driven by advancements in digital technology and connectivity such as laptops, software, smartphones, as well as Wi-Fi networks, and internet technology (Wynarczyk & Graham, 2013). In this context, the shift towards more flexible work can be a better option for women who are often faced with dilemmas between career and household responsibilities (Aditina & Sugiharti, 2019).

**Figure 1**

*The Labor Force Participation Rate in Indonesia by Gender 2019–2022*



Source: Badan Pusat Statistik (2023a).

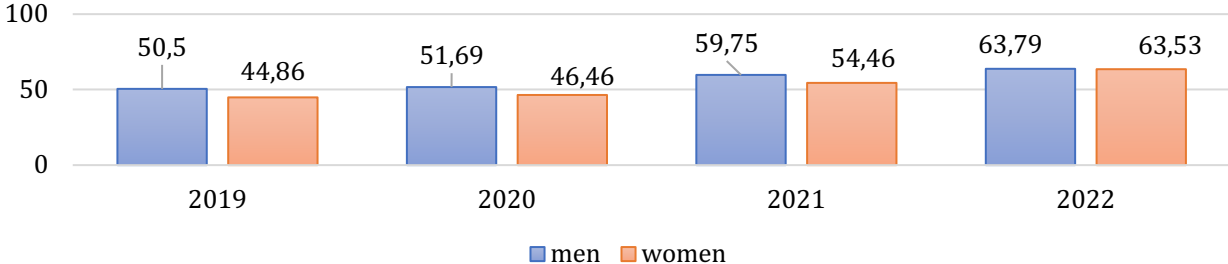
Globally, the Female Labor Force Participation Rate (FLFPR) from 1990 to 2010 showed no significant changes, with women’s FLFPR being lower than men’s. Only about 50 per cent of women worldwide are employed and receive wages, whereas more than 75 per cent of men are in paid employment (Schifman et al., 2019 in Nuraeni & Lilin Suryono, 2021). A similar situation occurred in Indonesia, where the average FLFPR for men reached around 84 per cent over the past two decades, while for women, it was only about 50 per cent. In 2018, it was recorded that 83 out of 100 men entered the labour force, whereas only 52 out of 100 women did (KPPPA, 2019 in Nuraeni & Lilin Suryono, 2021).

Figure 1 shows that in 2019, the Female Labor Force Participation Rate (FLFPR) reached 51.81%. This figure experienced a significant increase in 2020 during the COVID-19 pandemic, reaching 53.13%. This increase is not only situational but continues in the following years. In 2021, the Female Labor Force Participation Rate (FLFPR) continued to rise to 53.34%, and this positive trend further strengthened in 2022, reaching 53.41%. This phenomenon reflects the resilience of women in facing economic challenges, including the impact of the global pandemic. The increase in the Female Labor Force Participation Rate (FLFPR) each year reflects the growing desire of women to enter the workforce (Majid, 2012).

In addition to the increasing Female Labor Force Participation Rate (FLFPR), Figure 2 illustrates that the percentage of internet users among women has also been on the rise year by year, based on data from the Central Bureau of Statistics (BPS). The number of internet users aged 5 and above is increasing daily, with women nearly reaching the same percentage as men.

**Figure 2**

*Percentage of Internet Users Aged 5 and Above by Gender 2019–2022*

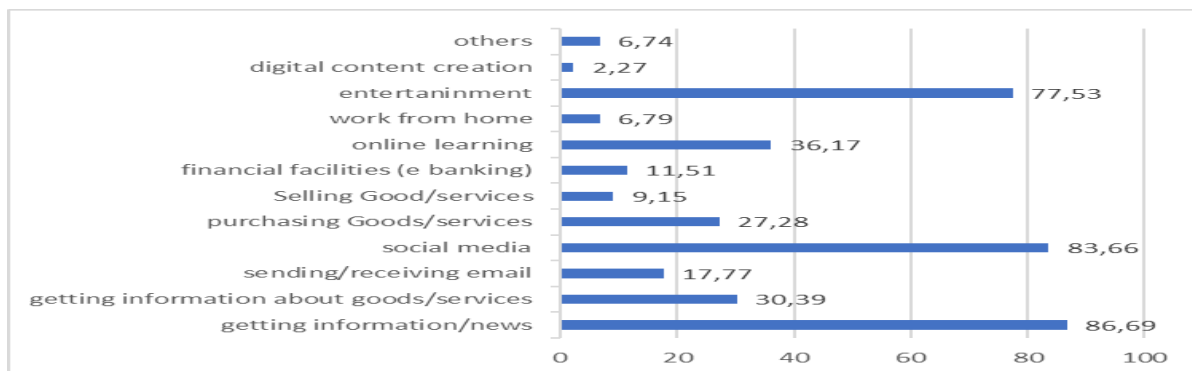


Sources: Badan Pusat Statistik (2023c).

In terms of digital technology usage, various interests, including women, can utilise digital technology. Based on available data from BPS, as shown in Figure 3, several activities utilise internet technology, which is part of digital technology. Among these are searching for information at 86.69%, accessing social media at 83.66%, and entertainment at 77.53%. Meanwhile, online learning stands at 36.17%, searching for information about goods/services at 30.39%, purchasing goods/services at 27.28%, sending/receiving emails at 17.77%, financial facilities at 11.51%, selling goods/services at 9.15%, working online from home at 6.79%, other activities at 6.74%, and creating digital content at 2.27%. From the data, it can be seen that although not occupying a large percentage, working from home has become one of the alternatives for people to continue working activities even without being in the office. Additionally, Anker (2018) and Aditina and Sugiharti (2019) state that before women decide to enter the labour market, particularly those who are married, they tend to consider their position within the household first.

**Figure 3**

*Percentage of Internet Usage Purposes Based on Types of Activities 2022*



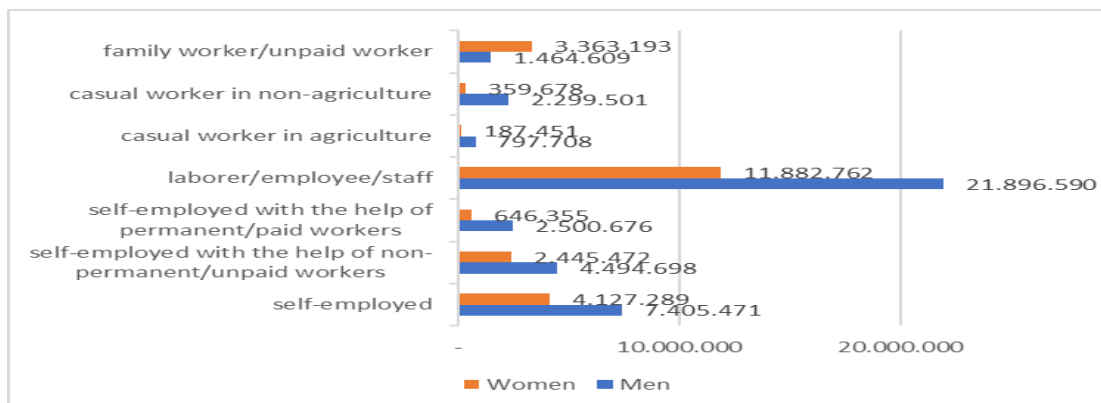
Source: Badan Pusat Statistik (2023c).

In the world of work, digital technology has also played a significant role, especially in the current era of digital transformation. Based on employment status, it can be observed that the largest users of digital transformation, particularly through the internet, are workers/employees with a total of 21,896,590 males and 11,882,762 females. Meanwhile, self-employed individuals rank second as the most prevalent internet users, with 7,405,471 males and 4,127,289 females. Figure 4 shows that among females, those who are workers/employees constitute the largest group of internet users compared to females with other employment statuses.

Figure 4 also shows that the utilization of digital technology is dominated by individuals who work as labourers or employees. Half of the total labourers or employees are female.

**Figure 4**

*The Number of Workers Using the Internet Based on Employment Status, 2022*



Sources: Badan Pusat Statistik (2023a).

Several studies indicate that an increase in women's education has a positive impact on their participation in the labor market (Borjas, 2016; Widarti, 1998). Besides education, women's involvement in the workforce is also influenced by the drive to improve family income (Dewi, 2012).

Furthermore, in her research, Fajriyati (2022) revealed that in her initial survey, women in Indonesia have various motivations for making the decision to work. These include helping their husbands meet family needs, gaining experience and self-actualisation, wanting their income, utilising their knowledge, and realising their aspirations to become career women (Fajriyati, 2022).

This study will examine the factors that can influence women's decisions to work from home as their primary work location.

## ***Problem Statement***

This study will formulate the main research question, which is how internet technology use and demographic factors such as age, marital status, education level, and place of residence influence women's decisions to work from home. This research will thoroughly examine how each demographic factor affects women's choices in selecting informal work that can be done from home and the extent to which digital usage supports this decision.

## ***Research Aim and Hypotheses***

This study aims to fill the gap by analysing how internet technology use and demographic factors such as age, marital status, education level, and place of residence influence women's decisions to work from home. This research will thoroughly examine how each demographic factor affects women's choices in selecting informal work that can be done from home and the extent to which digital usage supports this decision.

## ***Literature Review***

A country with a large population has one of the essential resources for national development, provided it can effectively utilize and enhance the quality of its human resources (Prastyaningtyas et al., 2023). In Indonesia, the working-age population is predominantly female, yet women's participation in the labour market remains relatively lower than that of men. The high number of working-age women should ideally increase their participation in the labour market, which can drive Indonesia's economic growth (Adioetomo, 2017). The increasing accessibility of higher education for women provides hope for them to actualize themselves more fully by participating and contributing to the nation's welfare through increased labour market participation, thereby aiding economic growth (Adioetomo, 2017). With Indonesia's rapid economic development and modern globalisation, women now have more opportunities and equal chances as men in national development. Women's participation in the workforce is a critical aspect that needs serious attention in development efforts (Cantika, 2019). Women's decision to work, whether to earn their own income or support the family economy in the informal sector, results from various influencing factors. There are several reasons why women decide to work. First, economic pressure, such as the inability to meet family needs solely with the husband's income, motivates the wife to help support the family's financial needs. Second, strong support from the family environment in working, such as helping people around them who run industrial businesses. Third, there is a lack of other job opportunities that match the skills they possess (Sosan, 2010).

## ***Women in Domestic and Market Work***

Typically, household (domestic) work is performed by women, stemming from societal views that housing and family care are women's responsibilities. Meanwhile, Maryati (2018) states that women, as one of the human resources in the labour market, make a significant contribution, with the number of women offering their labour increasing over time. The demands of dual roles within the household are a limiting factor for female workers. These dual roles require women to balance the responsibilities of managing household duties with the challenges they face in their jobs (Wandaweka & Purwanti, 2021 in Huzaimi, 2023). Considering this, the majority of women tend to choose jobs that offer time flexibility to balance their dual roles, one of which is participating in the informal sector (Huzaimi, 2023). Some women working in the informal sector choose part-time jobs because they offer time flexibility to care for their families (Tisnawati et. al, 2020). Utami and Ariusni (2023) define working as an activity performed regularly and continuously over a specific period to earn income through money, goods, or ideas. According to Mantra et al. (2023), working involves activities to produce or help produce goods or services to earn income in money or goods within a certain timeframe. Matlin (1987) in Nilakusmawati & Susilawati (2012) uses the term working mothers, referring to women working outside the home for pay and those working inside the home without pay, specifically noting women

working outside and earning income as employed women. Pandia (1997) and Rizky and Santoso (2018) define employed women as those working outside the home and earning income from their jobs.

Women have the same needs as men when it comes to working, including psychological, security, social, ego, and self-actualization needs (Wiladatika, 2016). For women themselves, working outside the home satisfies these needs. According to Munandar (in Pandia, 1997) and Rizky and Santoso (2018), women work for several reasons: to increase income, avoid boredom, utilize specific interests or skills, gain status, and develop themselves. Ware (1981) in Ken Suratiyah et al. (1996), as cited by Wiladatika (2016), states that there are two main reasons for women's involvement in the labour market. First, necessity reflects low household economic conditions, making it essential to work to increase household income. Second, the choice reflects higher socioeconomic conditions where working is not merely for additional family funds but as a form of self-actualisation, seeking affiliation, and a means for socialization.

### ***The Informal Sector***

The informal sector plays a significant role in developing countries, including Indonesia. Rosni (2017) in Telaumbanua and Nugraheni (2018b) stated that national development can be observed through the improvement of public welfare, which is reflected in the better quality of family life. As a result, informal work has become the main choice for many workers. The informal sector involves work without organizational structure, relying on personal responsibility without legal force and agreements, and often lacking educational or skill requirements (Nababan et al., 2017). Additionally, Munawaroh (2022) mentioned that the informal sector generally consists of independent, small-scale businesses with low productivity, low profits, and the use of simple technology. Pratiwi (2018) describes the informal sector's characteristics: irregular activity patterns, small-scale operations, simple technology use, and irregular work locations and hours. Various factors drive workers to choose this sector, including economic reasons, education levels, and low skills, hindering them from entering the formal sector. The informal sector should not be underestimated as it contributes significantly to Indonesia's economy, including as a GDP contributor. This sector is resilient and can withstand various situations, even during economic crises. Its flexibility and resilience make it a viable option for women, especially homemakers who must balance household chores and other jobs, leading to its domination by women.

### ***The Informal Sector and Technological Advances***

In developing countries, 30-70% of the workforce is in the informal sector, mostly migrants from rural to urban areas or other regions. Low education and skill levels prompt individuals to enter the informal sector (Purwaningsih, 2020). Typically, migrants from villages to cities have low education and inadequate skills, while the formal sector requires education and skills. The rapid advancement of information technology in the 21st century has led to the era of Industry 4.0, where information is no longer scarce, including in Indonesia. Various technological tools like computers, mobile phones, and smartphones connected to the internet make accessing information easier (Adnyana & Martini, 2021). The development of information and communication technology has positively impacted various aspects of human life, such as facilitating access to communication and expanding the reach of information. This can drive economic growth and enhance labour efficiency (Suarmini et al., 2018).

The development of information technology, especially the internet, has stimulated the emergence of the digital economy. Large businesses and small and medium enterprises (SMEs) utilize technology for online business. Online promotions and payments through transfers or mobile banking facilitate transactions without direct meetings. Flexible working hours and the ease of conducting business anywhere make online businesses part of the informal sector. The digital technology boom in Indonesia not only boosts online business development but also the digital economy in sectors such as industry, transportation, finance, and agriculture.

## Methodology

This research uses microdata sourced from Survey Angkatan Kerja Nasional (SAKERNAS) August 2022, which includes various critical information such as gender, age, marital status, education information, location of domicile, and internet usage. Several variables are used to examine the relationship between Digital Technology and women's decision to work from home. These variables can be grouped into dependent and independent variables.

This study will use logistic regression models to identify factors influencing the adoption of digital technology and its impact on women's decision to work from home. The logistic model is chosen because it ensures that the dependent variable is dichotomous, with values of 0 and 1. The logistic method is selected in this context because the data on the dependent variable are categorical, while the independent variables involve a mixture of continuous and categorical data.

The logistic statistical model, in general, is as follows.

$$\ln (P_i / (1 - P_i)) = Z_i = \\ = \beta_0 + \beta_{1i}D_{1i} + \beta_{2i}X_{2i} + \beta_{3i}D_{3i} + \beta_{4i}D_{4i} + \beta_{5i}D_{5i} + \beta_{6i}X_{6i} + \beta_{7i}D_{7i}$$

Description:

The dependent variable is women's decision to work from home (Y), where  $P_i$  represents women's decision to work from home ( $Y=1$ ),  $1 - P_i =$  Women's decision to work outside the home ( $Y=0$ ). Then, the independent variables consist of :

D1 = Dummy Internet Usage

X2 = Age

D3 = Dummy Marital Status

D4 = Dummy Education Degree

D5 = Dummy Training Experience

X6 = Total worked hours in a week

D7 = Dummy area of residence category

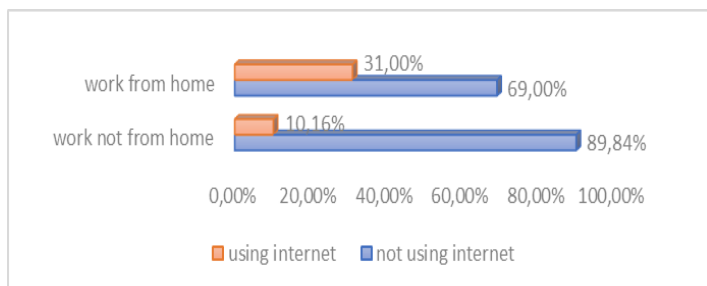
## Results

### *Percentage of Working Women in the Informal Sector Based on Internet Usage*

The advancement of technology, especially the internet, has undoubtedly greatly assisted daily activities. For women who often juggle multiple roles, the Internet significantly eases the burden of both household tasks and work-related duties. The increase in internet usage is depicted in Figure 5, which shows that although the number of female internet users is still lower compared to male users, 31% of women working in the informal sector from home use internet technology, while only 10.16% of those not working from home use it.

**Figure 5**

*Percentage of Working Women in the Informal Sector Based on Internet Usage*



Source: Badan Pusat Statistik (2022).

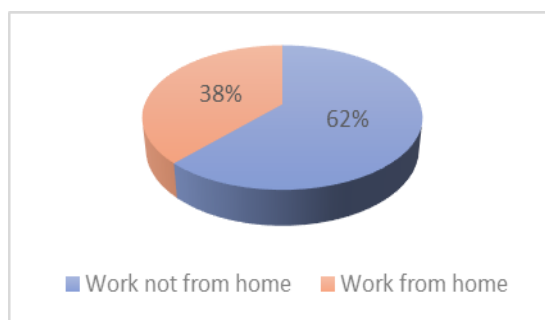
Significant differences in the use of internet technology between those working in the informal sector from home (31%) and those who do not (10.16%) may be attributed to limited access to internet infrastructure at home, work patterns relying on public facilities or workplace settings, and differences in education levels and technological skills among these individuals.

***Characteristics of Working Woman in the Informal Sector by Demography Factor***

Based on data processing results from Sakernas August 2022 in Figure 6, the percentage of women who work informally at home is 38.1%, while those who do not work at home are 61.9%. Thus, the number of women who work in the informal sector at home is less than that of those who do not work at home.

**Figure 6**

*Percentage of Working Women in the Informal Sector From Home and Not From Home*



Source : Badan Pusat Statistik (2023b).

**Table1**

*Average Age of Working Women in the Informal Sector From Home*

	Work Not From Home	Work From Home
	Mean	Mean
Age	45,41	42,70

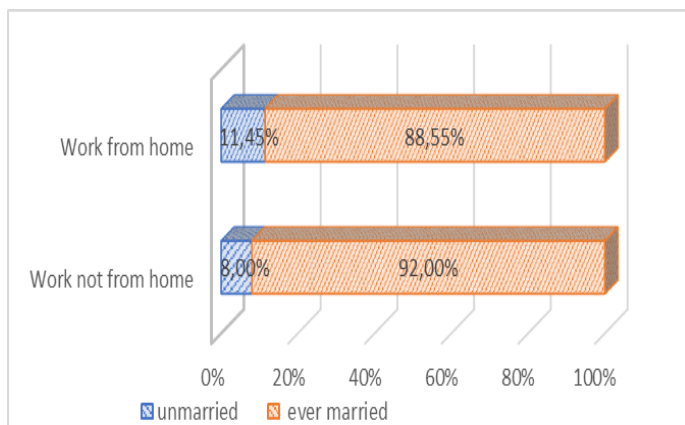
Source: Badan Pusat Statistik (2022).

The result in Table 1 shows that women working in the informal sector who choose to work from home are, on average, 42 to 43 years old, while those who choose to work in the informal sector without being at home are, on average, 45 to 46 years old.

The average age difference between women working in the informal sector from home, aged around 42 to 43, and those working in the informal sector but not from home, aged around 45 to 46, is due to various factors such as differing preferences for work environments, family responsibilities, and access to suitable infrastructure for remote work, which tend to vary with age and life stage.

**Figure 7**

*Percentage of Working Women in the Informal Sector From Home by Marital Status*

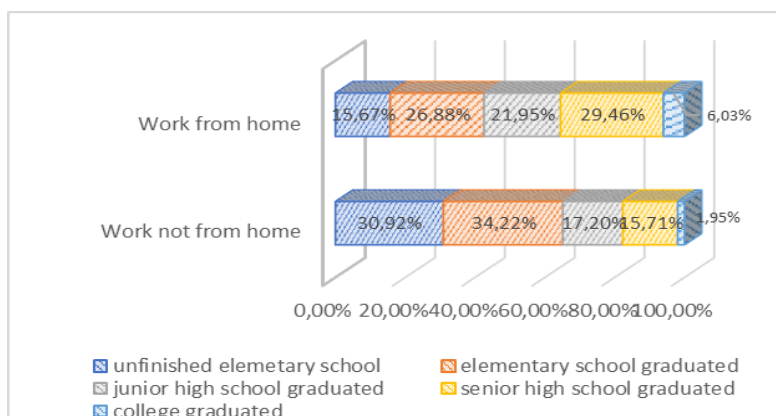


Source: Sakernas (2022).

From the total sample of women working in the informal sector, illustrated in Figure 7, it is known that 92% of women working informally outside their homes are married, while 8% are unmarried. Additionally, among women who choose to work in the informal sector from home, 88.55% are married, and 11.45% are unmarried.

**Figure 8**

*Percentage of Working Woman In the Informal Sector From Home by Education Degree*



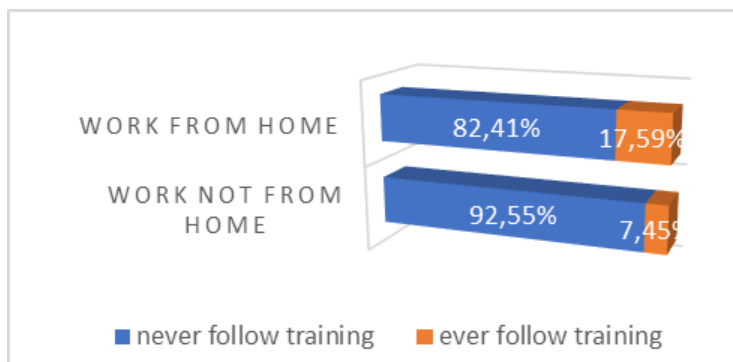
Source: Sakernas (2022).

In addition to demographic characteristics and internet usage, the educational background of women working in the informal sector can be observed. In this regard, Figure 8 shows their educational attainment levels: The majority of women working informally from home have completed high school, accounting for 29.46%, followed by those who completed primary school at 26.88%, junior high school at 21.95%, did not complete primary school at 15.67%, and college at 6.03%.

Women working in the informal sector outside their homes are predominantly those who have completed primary school, comprising 34.22%, followed by those who did not complete primary school, at 30.92%. The remaining percentages are women who completed junior high school, at 17.20%, senior high school, at 15.71%, and college, at 1.95%.

**Figure 9**

*Percentage of Working Women in the Informal Sector From Home by Training Experience*



Source: Sakernas (2022).

Despite having completed their education, Figure 9 shows that a significant portion of women choosing to work in the informal sector lack training experience in terms of training characteristics. Specifically, 82.41% of women working informally from home have never undergone training, while for those working informally outside their homes, the figure is 92.55%. This indicates that many women in the informal sector have not yet gained training experience.

***Percentage of Working Women in the Informal Sector From Home by Total Working Hours***

Table 2 shows that women working in the informal sector from home spend an average of 39.4 hours per week, whereas those working in the informal sector outside their homes spend 29.8 hours per week. This means that, on average, women in the informal sector spend about five to six hours each day working outside their homes, while those working from home spend an average of 6.5 to 8 hours daily.

**Table 2**

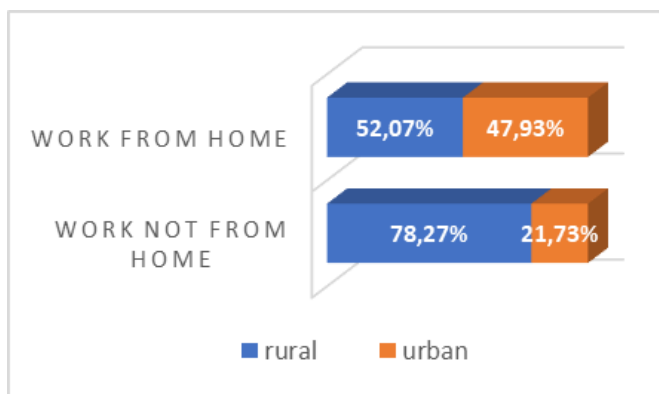
*Percentage of Women Working in the Informal Sector Based on Total Working Hours*

	Work Not From Home	Work From Home
Total Time of Work	29,8	39,4

Source: Sakernas (2022).

**Figure10**

*Percentage of Women Working in the Informal Sector Based on Residential Area Classification*



Source: Sakernas (2022).

Figure 10 shows that women working in the informal sector are classified by residential area. Among those working from home, 52.07% reside in rural areas, while 47.93% live in urban areas. Among

women working in the informal sector outside their homes, 78.27% reside in rural areas, and 21.73% live in urban areas.

### **Logistic Regression**

The results of logistic regression and several testing stages were conducted before the regression of variables suspected to influence women's decision to work in the informal sector from home.

The results of the tests using SPSS are as follows:

**Table 3**

#### *Multicollinearity Test Result*

<b>Model</b>	<b>VIF</b>
Age	1.496
Marital Status	1.278
Length of School	1.478
Training Experience	1.142
Internet Usage	1.236
Total time of work	1.055
Clasification of residence	1.165

*Source:* Sakernas (2022).

Based on the data analysis in Table 3, the Variance Inflation Factor (VIF) values for various variables used to detect multicollinearity, which is a condition where independent variables are highly correlated with each other, are as follows: Age (1.496), Marital Status (1.278), Years of Schooling (1.478), Training Experience (1.142), Internet Usage (1.236), Total Working Hours (1.055), and Urban/Rural Classification (1.165). All these VIF values are well below the threshold of 10, which is generally considered an indication of serious multicollinearity issues. Therefore, it can be concluded that there are no significant multicollinearity problems in this model.

**Table 4**

#### *Omnibus Test Results*

<b>Likelihood Chi-Square</b>	<b>df</b>
23.854.739	11

*Source:* Sakernas (2022).

Table 4 presents the results of the Likelihood Ratio test, a statistical method used to compare the fit of two models. The Chi-Square value of 23,854.739 indicates the extent to which the tested model differs from the null model. With 11 degrees of freedom (df), this test measures the number of free parameters used in the model comparison. A significance (Sig) value of .000 shows that the test results are highly statistically significant, with a p-value much more minor than 0.001. This means there is strong evidence to reject the null hypothesis, indicating that the tested model provides a significantly better fit compared to the null model. In conclusion, the tested model has a much better fit to the data than the null model, as supported by the highly significant results of the Likelihood Ratio test.

In logistic regression, model fit can be assessed by conducting certain tests, including the Deviance test and examining its results.

**Table 5***Goodness of Fit Test Results*

	<b>Value</b>	<b>df</b>	<b>Value/df</b>
Deviance	77.688.768	55.894	1.390

*Source:* Sakernas (2022).

From the model fit test results in Table 5, a deviance value of 77,688.768 was obtained. This value indicates the level of error within the model. The degrees of freedom (df), amounting to 55,894, represent the number of values that can vary freely in the statistical calculation. This is typically calculated as the total number of observations minus the number of parameters estimated within the model. The ratio between deviance and degrees of freedom, which is 1.390, demonstrates the average deviance per degree of freedom.

A ratio close to 1 suggests that the model fits the data fairly well. However, while this value is near 1, it is slightly higher, which might indicate that there is some room for improvement. The model may have unexplained variations within the data. This slight deviation implies that although the model performs adequately, the current parameters could not capture underlying factors or interactions. This observation invites further investigation into potential improvements or additional variables that could enhance the model's explanatory power and fit.

**Discussion**

The study's findings indicate that for the variable of Influence of Internet Technology Usage on Women's Decision to Work in the Informal Sector from Home as shown in table 6 where the odds ratio value for Internet usage is 2.2, indicating that women in the informal sector using internet technology have a 2.2 times higher likelihood to work from home compared to those who do not use internet technology. These benefits stem from several factors. Internet access allows flexibility, enabling access to diverse tools and work platforms from anywhere and facilitating remote work. Working from home reduces travel needs, saving time and transportation costs, particularly benefiting women balancing household and childcare duties. Internet access also broadens market access, enabling women to sell goods/services online and enhance skills through courses and resources. Remote work offers a safer, more comfortable environment, which is crucial for women to avoid unsafe conditions in the informal sector. Internet use aids in managing dual roles effectively, improving skills remotely for diverse, higher-paying job opportunities. Overall, internet-enabled work significantly boosts opportunities for women in the informal sector to work from home, enhancing their well-being and efficiency in managing responsibilities. This is in line with research conducted by Tasmilah in 2022, which states that the utilization of digital technology will enable women to continue working during the pandemic compared to those who do not take advantage of such technology. Similarly, Aditina and Sugiharti (2019) state that internet technology will help women work at home. Furthermore, the increase in digital activity has led to the emergence of various forms of remote work.

**Table 6***Odds Ratio Test Results*

<b>Variables</b>	<b>Exp (B)</b>	<b>Sig</b>
Internet Usage	2,200	0.000
Ages	0,999	0.009
Marital Status	0,685	0.000
Length of School	1,054	0.000
Training Experience	1,493	0.000
Total Time of Work	1,023	0.000

Clasiification of Residence	2,232	0.000
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Source: Sakernas (2022).

For Influence of Age on Women's Decision to Work in the Informal Sector from Home, The research findings indicating that each increase in age among women working in the informal sector reduces the likelihood of working from home by 0.1% can be explained by several factors. Older women typically have greater responsibilities outside the home, such as caring for elderly family members or participating in community activities that require physical presence. These responsibilities often necessitate more time spent outside the home, reducing their opportunities to choose or maintain work that can be done remotely. Additionally, many jobs in the informal sector taken by older women may not offer the same flexibility as internet-based jobs; thus, they remain in traditional roles that require physical presence. Secondly, technology skills play a significant role. Older women may have less exposure to internet technology or feel less comfortable using it compared to younger generations. They may find it more challenging to adapt to modern tools that heavily rely on internet usage. Their professional networks and experiences built over the years may be more closely tied to location-based jobs, leading them to prefer retaining existing jobs rather than transitioning to newer, technology-based remote work models. Difficulties in accessing training and technological support also hinder them from working from home. Thus, family responsibilities, technology skills, and existing professional networks all contribute to the decreased likelihood of older women working from home in the informal sector.

For the Influence of Marital Status on Women's Decision to Work in the Informal Sector from Home, the odds ratio value for marital status is 0.685, indicating that married women in the informal sector have a 31.5% lower chance of working from home compared to unmarried women. This contrasts with general expectations where married women typically have greater opportunities for home-based work. Marital status appears less influential than the presence of children, suggesting that married women may still be free to work anywhere, including from home, as long as they do not have children. Women in the informal sector who are married or previously married (including married, separated, or widowed) are 0.68 times less likely to work from home compared to unmarried women. This is because married women are more likely involved in traditional community-based informal work, such as market trading or running small businesses that require direct customer interaction, which cannot easily be transitioned to remote work. Additionally, marital status may influence their social and economic networks, affecting the types of jobs accessible and sustainable for them. Disparities in resource access, social support, and job opportunities also contribute to their reduced likelihood of working from home compared to unmarried women.

For Influence of Education on Women's Decision to Work in the Informal Sector from Home the odds ratio value for education is 1.054, indicating that each additional year of education among women in the informal sector increases the likelihood of working from home by 1.054 times. Higher education enhances literacy and digital skills vital for remote jobs such as writing, graphic design, digital marketing, and online customer service. It also provides access to information about flexible, technology-based job opportunities, enabling women to balance work and household duties effectively. Additionally, higher education improves critical thinking and problem-solving abilities, which are crucial for independent and proactive roles in remote work. Educated women often benefit from broader professional networks that offer insights into remote job options, further increasing their likelihood of working from home as their education progresses. In her research, Tasmilah (2022) similarly reveals that a high level of education among women is crucial for their resilience during economic shocks caused by the pandemic. The higher the level of education, the greater the chances of remaining employed. Aditina and Sugiharti (2019) state that women with higher education have the opportunity to work both from home and outside the home.

The Influence of Training on Women's Decision to Work in the Informal Sector from Home showed the result that the value for training is 1.493, indicating that women in the informal sector with training

experience have a 1.493 times greater chance of working from home compared to those without training. Training enhances women's skills in digital tools and online platforms crucial for remote work, boosting their confidence and ability to effectively balance work and household responsibilities. Training equips women with new skills and enhances existing ones, especially in essential technologies and digital tools crucial for remote work. Increased training proficiency enables them to efficiently use software and online platforms from home, boosting productivity. For instance, training in digital marketing, content writing, or social media management empowers them to conduct online businesses or jobs without physical presence. Beyond technical skills, training experience builds women's confidence in pursuing and securing flexible, home-based work opportunities. It often includes personal development aspects like time management, effective communication, and problem-solving, all vital for remote work success. Women with extensive training also gain better access to professional networks and job information suitable for remote work. Continuous training opens doors to jobs that may not be accessible without specific skills, enhancing their job mobility and flexibility to work from home. Thus, each training experience significantly expands opportunities for women in the informal sector to work from home, utilizing their acquired skills to improve well-being and economic independence.

A value of the odds ratio for total working hours is 1.023, indicating that each additional hour worked by women in the informal sector increases the likelihood of working from home by 1.023 times. Increased working hours encourage the pursuit of flexible work arrangements like working from home, allowing women to manage household duties while remaining productive. Women spending more time in informal work may seek greater flexibility in managing their schedules. Optimising time and balancing work-life responsibilities become more critical as work hours increase. Working from home offers this flexibility, enabling women to handle household duties while remaining productive. Moreover, remote jobs like digital or online-based work allow them to use time more efficiently and adjust work schedules to meet family and personal needs. Therefore, as work hours grow, they are more inclined to work from home.

The odds ratio value for residential areas is 2.232, indicating that women in the informal sector residing in urban areas are twice as likely to work from home compared to those in rural areas. Women working in the informal sector and residing in urban areas are 2.2 times more likely to work from home compared to their rural counterparts. Several factors can explain this. Firstly, urban areas often provide better access to technology infrastructure and stable, high-speed internet connectivity. As hubs of economic activity and technological development, cities have broader access to broadband internet services and other telecommunications facilities, enabling women to work from home more efficiently. With better infrastructure, urban women can access online platforms and digital tools more efficiently, facilitating smooth remote work operations. The economic and social environment of urban areas can also influence remote work opportunities. Urban settings often offer more technological and flexible job opportunities, such as roles in creative industries, digital marketing, or online customer service. The presence of growing small and medium-sized businesses in urban areas also creates demand for services like graphic design, content writing, or social media management, which can be done from home. Moreover, population density and economic diversity in urban areas can create a larger market for online products and services, increasing opportunities for women in the informal sector to work from home. Therefore, the combination of better technology infrastructure and broader economic opportunities makes urban women more likely to take advantage of remote work flexibility compared to their rural counterparts.

These findings underscore various factors influencing women's decisions to work from home in the informal sector, including technology use, age, marital status, education, training, working hours, and residential location. Each factor plays a critical role in shaping opportunities for flexible and home-based work arrangements, ultimately impacting women's economic independence and well-being.

## Conclusions and Implications

Based on the discussion in the previous sections, that study identifies several key factors influencing women's decisions to work from home in the informal sector. Internet technology usage significantly enhances the likelihood of remote work, providing flexibility, market access, and safer work environments. Age negatively impacts this likelihood due to increased external responsibilities and less familiarity with internet tools.

Marital status, particularly being married, reduces the chance of working from home, often due to involvement in traditional, community-based roles that require physical presence. Higher education and training increase the odds of working from home by enhancing digital skills and job opportunities. Increased working hours also correlate with a higher likelihood of choosing remote work, facilitating a better balance between work and household responsibilities.

Urban residency doubles the likelihood of working from home compared to rural areas, attributed to better technology infrastructure and diverse job markets. These findings collectively highlight the complex interplay of socio-economic factors that shape women's opportunities for flexible, home-based work in the informal sector, significantly impacting their economic independence and overall well-being.

## Suggestions for Future Research

Based on the above conclusions, the recommendations provided include:

1. To support women working from home in the informal sector, the government and relevant institutions must improve access to internet technology, provide continuous education programs, and offer relevant skills training.
2. Efforts should be made to enhance internet infrastructure in remote areas, provide educational scholarships for women, and develop job training programs tailored to market needs.

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