

Education and Women's Job Transition During the Pandemic Covid-19

Pendidikan dan Transisi Pekerja Perempuan Selama Masa Pandemi Covid-19

Nugrahayu Suryaningrum¹ & Arif Maulana²

¹ayusurya22@gmail.com (corresponding author)
Faculty of Economics and Business, University of Indonesia
Prof. Dr. Sumitro Djojohadikusumo Street, Depok, West Java, Indonesia

²maulana127041@gmail.com,
Faculty of Economics and Business, University of Indonesia
Prof. Dr. Sumitro Djojohadikusumo Street, Depok, West Java, Indonesia

Received: September 2, 2022 | Revised: April 3, 2023 | Published: December 31, 2023

Abstrak: Pandemi Covid-19 berdampak pada penurunan ekonomi yang mengakibatkan penurunan jam kerja bahkan kehilangan pekerjaan. Akan tetapi, terdapat peningkatan partisipasi angkatan kerja perempuan yang disertai dengan penyerapan tenaga kerja di sektor informal. Banyak perempuan mulai bekerja untuk menambah penghasilan keluarga. Sektor informal menjadi pilihan perempuan karena kemudahan dan tidak memerlukan keahlian khusus. Pendidikan sebagai modal yang dimiliki pekerja mempunyai pengaruh terhadap pilihan memasuki pekerjaan sehingga menentukan transisi pekerjaan yang akan dipilih pekerja dalam menghadapi dampak pandemi. Oleh karena itu, penelitian ini bertujuan untuk mengetahui pengaruh pendidikan terhadap reaksi ekonomi perempuan dalam mengatasi pandemi Covid-19 dengan melihat transisi pekerjaan perempuan dan apakah pengaruh tersebut sama pada perempuan muda dan dewasa. Dengan menggunakan data Survei Angkatan Kerja Nasional 2020 dan metode analisis regresi logistik multinomial terhadap 26.087 sampel yang terdiri dari 8.407 perempuan usia muda dan 17.680 perempuan dewasa serta 6.902 perempuan yang melakukan inmover formal, 16.472 perempuan inmover informal, dan 2713 perempuan outmover, ditemukan bahwa perempuan dengan pendidikan tinggi memiliki peluang lebih besar untuk melakukan inmover ke sektor formal dan lebih kecil kemungkinannya untuk melakukan inmover ke sektor informal dibandingkan menjadi pengangguran. Peluang untuk melakukan transisi ke sektor formal lebih tinggi di kalangan perempuan muda. Pada perempuan dewasa, peluang tersebut lebih rendah karena tanggung jawab dalam pengasuhan anak dan pekerjaan rumah tangga. Selain pendidikan, perempuan kawin dan menjadi kepala rumah tangga lebih berpeluang untuk melakukan transisi ke sektor informal karena kemudahan memasuki pekerjaan dengan kendala yang mereka miliki dalam rangka meningkatkan pendapatan di masa pandemi Covid-19.

Kata Kunci: Covid-19; pendidikan; perempuan dewasa; perempuan muda; transisi pekerjaan



Abstract: The Covid-19 pandemic has impacted the economic downturn, which has resulted in decreased working hours and even lost jobs. However, there has been an increase in women's labor force participation accompanied by employment in the informal sector. Many women start working to supplement their family income. The informal sector is the choice of women because of its convenience and does not require special skills. Education as capital owned by workers influences the choice of entering a job, determining the job transition workers will choose in dealing with the impact of the pandemic. Therefore, this study aims to assess the effect of education on women's economic reactions in overcoming the Covid-19 pandemic by looking at women's work transitions and whether this effect is the same for young and adult women. Using data from the 2020 National Labor Force Survey and the multinomial logistic regression analysis method for 26,087 samples consisting of 8,407 young women and 17,680 adult women as well as 6,902 women who were formal in-movers, 16,472 women who were informal in-movers, and 2713 women who were out-movers, it was found that women with higher education tend to enter formal jobs and are less likely to enter informal jobs than become unemployed. The increased propensity to enter formal employment is higher among young women. In adult women, the tendency to work is lower because of childcare and household responsibilities. Apart from education, women who are married and heads of households are more likely to enter the informal sector due to the ease of entering work with the constraints they have to increase their income during the Covid-19 pandemic.

Keywords: adult women; Covid-19; education; job transition; young women

Introduction

The Covid-19 pandemic in 2020 significantly impacted the global labor market and is estimated to have had an impact four times greater than the global financial crisis in 2009 (ILO, 2021, p. 2). Government intervention in dealing with the spread of Covid-19 impacts the economy and employment. Companies carry out efficiency to minimize losses so that many workers experience a decrease in working hours, even losing their jobs and becoming unemployed (Brodeur et al., 2020, p. 28; Lemieux et al., 2020, p. 57; Prates & Barbosa, 2020, p. 2).

In Indonesia, the Covid-19 pandemic caused the open unemployment rate to increase by 1.84 percent in August 2020 compared to August 2019. However, the Labor Force Participation Rate (TPAK) for women has increased. Meanwhile, men's TPAK decreased in the same period. The increase in women's TPAK was accompanied by the absorption of women workers in the informal sector, which increased from 60.81 percent in 2019 to 65.35 percent in 2020 (Figure 1). On the other hand, both men and women experienced a decline in the percentage of formal workers due to layoffs during the Covid-19 pandemic.

The increase in the proportion of women in the informal sector during the Covid-19 pandemic occurred for two reasons. First, many women work to supplement their family income (Albertini et al., 2020, p. 12). The pressure to fulfill family needs, especially during the Covid-19 pandemic, encourages women to enter the labor market. The informal sector is women's choice because it is easy to enter and does not require special skills. Second, to survive, many female formal workers transitioned from the formal sector to the informal sector due to layoffs during the Covid-19 pandemic.

The women's informal sector increase at the beginning of the Covid-19 pandemic must be mitigated. Informality harms workers' rights and business sustainability because of low productivity and limited access to capital (Porta & Shleifer, 2014, p. 110).

Preventing the informal sector increase is necessary to improve the welfare of Indonesian workers. Working in the informal sector will reduce a household's chances of prosperity. On the other hand, working in the formal sector will increase the opportunity for families to improve their welfare (Dartanto et al., 2019, p. 38). That is because formal sector jobs offer better income than informal ones (Dartanto et al., 2019, p. 34). The increase in the informal sector can be prevented by keeping female workers working in the formal sector (not experiencing a transition to the informal sector or becoming unemployed). It also increases women's employment from informal to formal sectors.

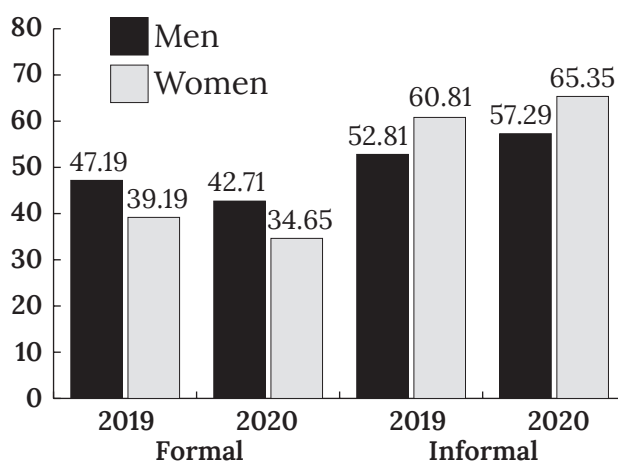


Figure 1. Percentage of Formal and Informal Employment Based on Gender, 2019–2020

Source: Sakernas August 2019–2020 (BPS, 2020).

Education is a crucial factor in women's employment transition. The higher a woman's education, the greater her chances of being able to experience the change from the informal sector to the formal sector (Taufiq & Dartanto, 2020, p. 166). In times of crisis, education is also crucial for women to maintain their jobs (Thiede & Monnat, 2016, p. 897). Apart from education, the decision to make a job transition is also influenced by the age of female workers. Badan Pusat Statistik (2006, p. 7) categorizes residents aged 15–24 as young, while adult residents are defined as residents aged at least 25. The Center for Strategic and International Studies (CSIS) explains that young people tend to work in the formal sector and prefer to be unemployed rather than in the informal sector (KPPPA & BPS, 2018, p. 84). That is also reinforced by the findings of Taufiq and Dartanto (2020, p. 166), who reported that the younger the woman, the higher the opportunity for the woman to make a job transition from the informal sector to the formal sector.

Taufiq and Dartanto (2020, p. 166) researched job transitions in Indonesia. This research shows that education and age variables significantly impact job transitions from informal to formal sectors. However, this research needs to discuss job transitions during an economic crisis. One study that examines worker transition during a financial crisis is Thomas et al. (2020) during the 1998 monetary crisis. The research results of Thomas et al. (2020, p. 19) found that many male workers left the labor market during the 1998 crisis. However, many women entered the labor market, especially working alone and becoming family workers. Women play a crucial role in supporting family income when a problem results in a decrease in revenue.

Some of this research was carried out during periods outside the Covid-19 pandemic, which just occurred in 2020. A study during the Covid-19 pandemic that was carried out included Ngadi et al. (2020, p.46), who found that the Covid-

19 pandemic caused 15.6 percent of workers to experience layoffs and 37.6 percent of workers to experience a decrease in wages. Then, research by Indayani and Hartono (2020, p. 206) linked the Covid-19 pandemic to a decline in economic growth and an increase in the unemployment rate in Indonesia. There is still a research gap related to employment during the Covid-19 pandemic. Existing research has yet to discuss job transitions, especially for women, and what factors can influence women's job transitions when economic shocks occur due to the Covid-19 pandemic.

The transition to work for women during Covid-19 in the labor market encourages women's empowerment. That supports the Indonesian House of Representatives' idea of emphasizing the importance of gender equality through empowering women to achieve the fifth goal of the Sustainable Development Goals. The Inter-Parliamentary Cooperation Commission (BKSAP) explained that women's education is the gateway to gender equality. Therefore, this research aims to determine the influence of education on women's economic reactions in facing the Covid-19 pandemic by looking at women's employment transitions and how these influence young and adult women. Thus, this research will answer the following two research questions: (1) how does education influence women's employment transition during the Covid-19 pandemic? and (2) what is the influence of education on the employment transition of young and adult women?

This research contributes to knowledge by estimating the influence of education on the types of women's job transitions. Apart from that, this research also compares the differences in the effect of education on young and adult female populations in making job transitions during the Covid-19 pandemic. This research focuses on the change of female workers because the group most affected during the Covid-19 pandemic is women, especially those with less education (Adams-Prassl et al., 2020, p. 9; Kikuchi et al., 2021, p. 14; Kristal & Yaish, 2020, p. 5). This research hypothesizes that highly educated women have a greater chance of transitioning to formal work than informal work or becoming unemployed during the Covid-19 pandemic, where

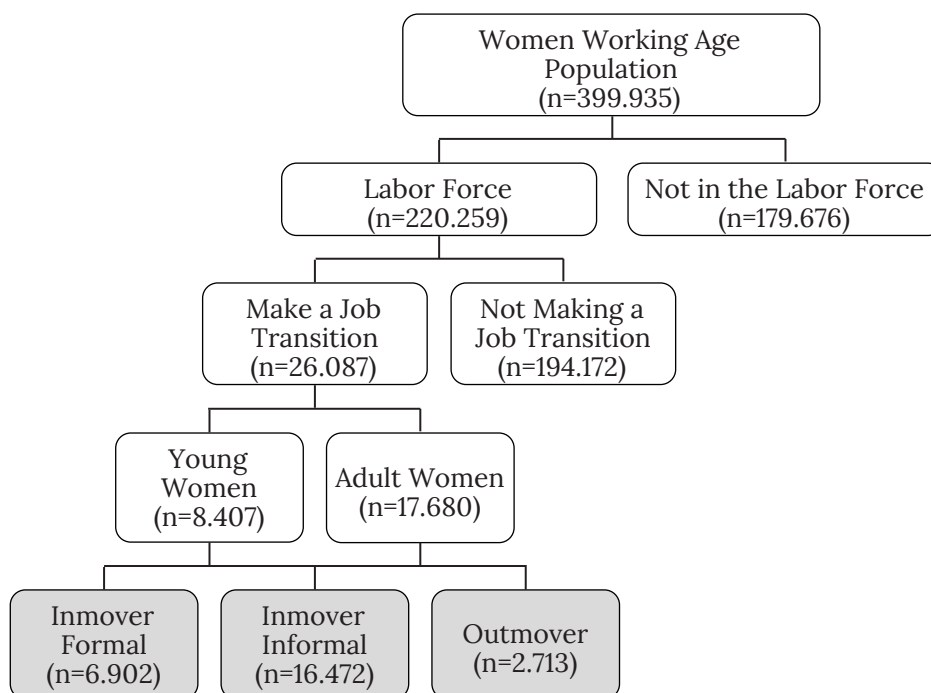


Figure 2. Selection of Research Analysis Units

Source: Sakernas August 2020 (BPS, 2020).

the opportunity to enter formal work is higher for highly educated women at a young age than at an adult age.

This research uses data from the August 2020 National Labor Force Survey (Saker-nas). The unit of analysis used is the female workforce who transitioned to work during the Covid-19 pandemic. The dependent variable used is women's employment transition, which is categorized into three groups shown in the Figure 2.

Based on Figure 2, category 1 is formal in-movers, namely women who started working in the formal sector at least March 2020 or later. Category 2 is informal in-movers, namely women who began working in the informal sector in at least March 2020. Category 3 (out-mover) is women currently unemployed and quitting their jobs from March to August 2020. This categorization refers to the beginning of the Covid-19 pandemic in Indonesia. Meanwhile, the primary independent variable used is women's education, categorized as 1 if the woman has a college education and 0 if the woman has a high school education or less. The control variable used is marital status, with category 1 if the woman is married and category 0 if the woman is unmarried/divorced. The residence variable is categorized as 1 if the woman lives in an urban area and 0 if the woman lives in a rural area. The relationship variable with the Household Head is categorized as 1 if the woman is the head of household and 0 if the woman is not. Meanwhile, the migrant status variable is classified as 1 if the woman has migrant status and 0 if the woman has non-migrant status.

The analytical methods used in this research are descriptive analysis and inference. Descriptive analysis was used to determine the general picture and characteristics of women's work transitions during the Covid-19 pandemic. The inferential analysis used is multinomial logistic regression to estimate the relationship between the dependent variable of more than two categories and one or more explanatory variables (Hosmer & Lemeshow, 2000, p. 260). A multinomial logistic model with k independent variables and j categories, as follows:

$$\left(\frac{P(x)}{P(x)} \right) = \ln \ln \left(\frac{\pi_j}{\pi_0} \right) = \beta_j + \sum_{K=1}^K \beta_{jk} x_k + \varepsilon_i \dots\dots\dots (1)$$

The model significance test is carried out in stages to ensure that the model formed is meaningful: (1) Testing the overall significance of the independent variables using the likelihood ratio test (Hosmer & Lemeshow, 2000, p.270). The test compares a model without independent variables (model B) with one using all independent variables (model A). The null hypothesis used is that the coefficient is zero, with test statistics

$$2 \ln \left[\frac{\text{likelihood (Model B)}}{\text{likelihood (Model A)}} \right]$$

that follow a chi-square distribution with k degrees of freedom. The null hypothesis is rejected if the value of the test statistic $> X^2_{\alpha, k}$ or $p\text{-value} < \alpha$ means that at least one independent variable influences the dependent variable or model A, which is significant at the significance level α . (2) Testing the education variable uses the Wald test with equations

$$W_j = \frac{\hat{\beta}_j}{SE(\hat{\beta}_j)}$$

if the null hypothesis is rejected, then the education level significantly affects women's job transition. Interpretation in the logistic regression model is carried out using the odds ratio, which shows how much the tendency of a particular dependent variable is towards the reference category compared between categories on the primary independent variable (Hosmer & Lemeshow, 2000, p.265).

Thus, the model formed to describe the influence of education on women's employment transition is as follows:

$$g_1 = \ln \ln \left(\frac{P(x)}{P(x)} \right) = \beta_1 + \beta_{11}PT + \beta_{12}Kawin + \beta_{13}Kota + \beta_{14}KRT + \beta_{15}Migran \quad \dots\dots\dots (2)$$

$$g_2 = \ln \ln \left(\frac{P(x)}{P(x)} \right) = \beta_2 + \beta_{21}PT + \beta_{22}Kawin + \beta_{23}Kota + \beta_{24}KRT + \beta_{25}Migran \quad \dots\dots\dots (3)$$

where, g_1 : formal inmover, g_2 : informal inmover, PT: woman's education, married: woman's marital status, city: woman's place of residence, KRT: relationship with household head, migrant: woman's migrant status.

This study divides the analysis into subpopulations based on women's age into young (15–24 years) and adults (over 25 years) to deepen the research regarding the effect of education on women's employment transitions. So, the g_1 and g_2 models are also applied to the subpopulation of young and adult women.

Job Transition

Decisions of workers, companies, or joint decisions between workers and companies cause job transitions. Workers transition jobs if job transition benefits are higher than the costs incurred. Workers will maximize the utility obtained by fulfilling the following conditions (Anderson et al., 1994, p. 180):

$$\sum_t \frac{N_t}{(1+r)^t} - \sum_t \frac{O_t}{(1+r)^t} > C \quad \dots\dots\dots (4)$$

where t is the time index, N_t is satisfaction with the new job, O_t is satisfaction overtime at the old job, C is the cost of job transition, and r is the interest rate.

Job transitions can occur because of the worker's desire to look for a better job or because the worker is laid off by the employer (Bartel & Borjas, 1978, p. 7). Employment transition also includes moving from being employed to unemployed and not in the labor force. The dominant factor determining women's job transition is earning a higher income (Mwangangi, 2014, p. 2).

Time allocation theory explains that people will decide how much time to work and leisure time to get maximum utility. A woman's consumption and free time are limited by budget constraints, including time and income (Borjas, 2016, p. 33). Figure 3 shows women's employment decisions where wT is hourly wages, and V is non-labor income. If someone decides to work, they can consume $wT+V$, but if they choose not to enter the labor market (point E), they can only consume V .

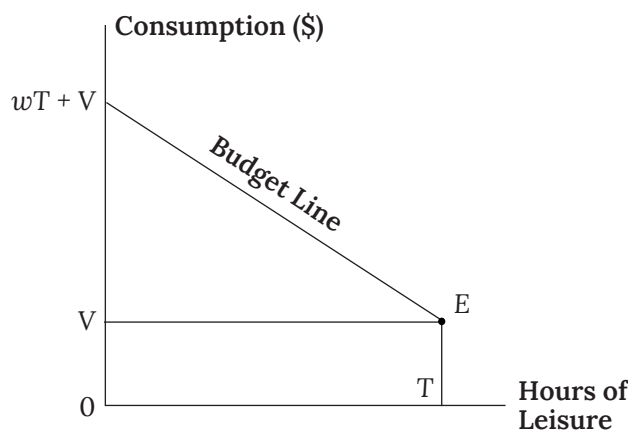


Figure 3. Trade-off Between Consumption and Leisure

Source: Borjas (2016, p. 33).

Human capital theory explains that education will increase individual skills and productivity (Becker, 1994, p. 6). A person's high level of human capital can reduce the person's risk of being unemployed (Mincer, 1991, p. 1). Even when a crisis occurs, higher education plays an essential role in maintaining employment so that it can reduce the risk of becoming unemployed (López-Bazo & Motellón, 2013, p. 397; Thiede & Monnat, 2016, p. 897). That is because educated workers have essential advantages compared to less educated workers in the labor market, including more excellent job stability (Mincer, 1991, p. 2). Education negatively affects a person's chances of losing their job. Educated workers are less likely to lose their jobs than less knowledgeable workers (Kletzer, 1998, p. 118).

Women's Job Transition and Influencing Factors

Women have a lower propensity to participate in the labor market and are more likely to be unemployed than men (ILO, 2018). Women have a double burden, such as caring for children, so many choose not to work. Sometimes, women are forced to leave work during the Covid-19 pandemic because the share of female workers is more significant in sectors with a higher risk of Covid-19 transmission and are vulnerable to being affected by lockdowns (Bonacini et al., 2021, p. 2). If viewed based on the employment sector, women's involvement in the labor market is still dominated by the informal sector (Dalilah, 2020, p. 3). Women also have more jobs in the informal sector than men (Lee et al., 2017, pp. 7–8).

The phenomenon of job transition is influenced by individual factors, which show that women can stay in formal work when they have superior skills (Maciel & Oliveira, 2018, p.37). Education is a crucial factor in explaining transition patterns in the labor market. The higher a worker's education, the less likely they are to transition into the informal sector (Tansel & Acar, 2017, p. 632; Wandaweka & Purwanti, 2021, p. 660) or become unemployed (Maciel & Oliveira, 2018, p. 48; Mincer, 1991, p. 1). The role of higher education encourages women to enter the formal sector to earn lifetime earnings that exceed the costs of education. Therefore, higher-educated women have more opportunities for formal employment (Dartanto et al., 2019, p. 34; Lee et al., 2017, p. 8). Higher education can signal women's productivity (Mincer, 1991, p.10). Workers with high productivity have incentives to be hired by companies through signals from education (Borjas, 2016, p. 257). In addition, higher education is associated with training that signals high abilities and skills and information or networks. These abilities can help someone obtain alternative work opportunities when making a job transition, reducing the risk of unemployment (Borjas, 2016, p. 257). Therefore, as the level of education increases, the tendency to become unemployed will decrease (Balde et al., 2020, p. 21; Rivera & Castro, 2021, p. 14).

Based on other socio-demographic factors, marital status negatively influences job transitions. Married workers are less likely to lose their jobs than never-married workers. That is because unmarried workers are usually young and do not have experience (Balde et al., 2020, p. 17). However, family factors can also cause married women not to work because their partners do not allow it (Schaner & Das, 2016, p. 21).

Women who are the household heads are more likely to enter the informal sector because of the ease of entering it. The informal sector is associated with independent businesses, using simple technology and small capital (Wandaweka & Purwanti, 2021, p. 653). This employment sector generally does not have special requirements for hiring workers, so with their limitations, married women can increase their income during the Covid-19 pandemic (Isti'any & Pitoyo, 2016, p. 1).

The region of residence also influences job transitions. Workers in rural areas find it difficult to find work, so many are absorbed into the informal sector and even become unpaid workers (Rivera & Castro, 2021, p. 15). However, people living in urban areas also have a higher chance of becoming unemployed than those living in rural areas because of the structural mismatch between the skills possessed by workers and the skills required by companies (Qayyum, 2007, p. 616). The probability of engaging in job search activities is higher for those living in urban areas (Schaner & Das, 2016, p. 33).

The migration status of workers also influences job transitions. Migrant workers are less likely to be unemployed than non-migrants (Gebeyaw, 2011, p. 98). However, Shita and Dereje (2018, p. 260) mentioned that worker migration status positively affects youth unemployment. Migrant workers tend to be unemployed compared to non-migrants.

Job Transition Characteristics of Women Employment

The results of the August 2020 Sakernas show that 50.4 percent of the working-age population are women. The female working-age population comprises 55.1 percent of the workforce and 44.9 percent of the non-labor force, including those still attending school, taking care of the household, and other activities. Of the female workforce, 12 percent of the female population experienced a job transition, while 88 percent did not make a job transition during the beginning of the Covid-19 pandemic. Women’s employment transition at the beginning of the Covid-19 pandemic consisted of 26.5 percent transitioning to formal sector work, 63.1 percent transitioning to informal sector work, and 10.4 percent becoming unemployed from March to August 2020 (Figure 4).

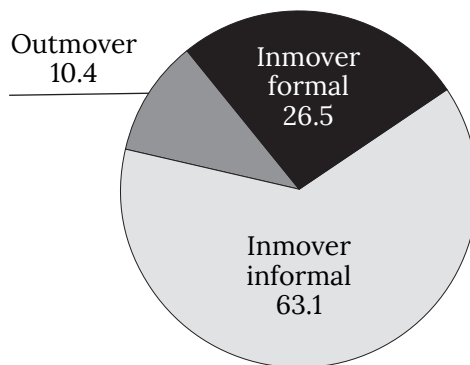


Figure 4. Percentage of Women’s Job Transition, 2020

Source: Sakernas August 2020 (BPS, 2020).

Job transitions carried out by the female workforce have different patterns based on their characteristics (Figure 5). More highly educated women transition to the formal sector (52 percent) than the informal sector and become unemployed. On the other hand, 66 percent or the majority of low-educated female workers transitioned to the informal sector. Yuniati and Mataram (2019, p. 1860) explain that highly educated female workers have more significant opportunities to compete in the formal labor market, and women with lower levels of education tend to choose jobs in the informal sector that do not require a high education. That is because work in the formal sector generally requires higher education, skills, training, and experience than in the informal sector (ILO, 2004, p. 31). More educated workers enter the formal sector following human capital theory regarding the age-earning profile in the schooling model, which explains that workers focus on the monetary rewards from

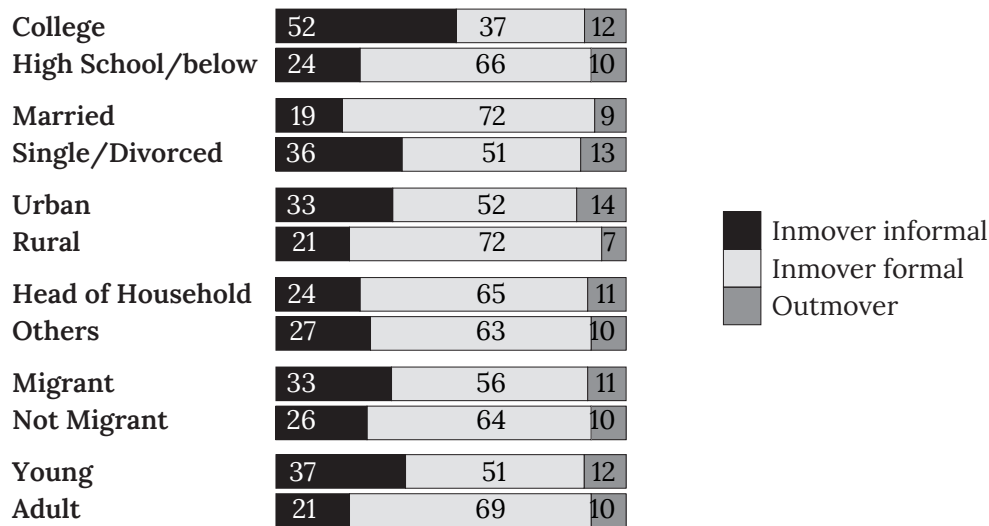


Figure 5. Percentage of Characteristics of Women's Job Transition During the Covid-19 Pandemic

Source: Sakernas August 2020 (BPS, 2020).

their education (Borjas, 2016, p. 232). Highly educated workers can earn high incomes because they have incurred the costs of pursuing education and the opportunity costs of earning income when they do not continue their education. Therefore, the sacrifices made by a highly educated workforce will be paid for with high-income levels. Meanwhile, low-educated workers will earn lower incomes because the time, energy, and costs spent on pursuing education are also low (Yuniati & Mataram, 2019, p. 1859). Based on marital status, married women have a transition percentage to the informal

Table 1. Results of Multinomial Logistic Regression Analysis of Women's Job Transition, Relative Risk Ratio (standard error)

	All sample		Subsample			
	Inmover formal	Inmover informal	Young Women		Adult Women	
	Inmover formal	Inmover informal	Inmover formal	Inmover informal	Inmover formal	Inmover informal
Intercept	3.092***	6.563***	3.241***	6.721***	2.177***	5.789***
Education						
High Educated (College)	1.898*** (0.130)	0.611*** (0.043)	2.305*** (0.268)	0.699*** (0.088)	1.894*** (0.165)	0.595*** (0.511)
Marital Status						
Married	0.794*** (0.038)	2.128*** (0.094)	0.825* (0.091)	1.616*** (0.166)	1.133 (0.087)	2.470*** (0.178)
Residence						
Urban	0.740*** (0.035)	0.368*** (0.016)	0.800*** (0.060)	0.364*** (0.266)	0.699*** (0.042)	0.369*** (0.199)
Head of Household Status						
Head of Household	0.859* (0.067)	1.439*** (0.104)	0.0821 (0.197)	0.632 (0.158)	1.198* (0.119)	1.688*** (0.154)
Migrant Status						
Migrant	1.049 (0.143)	0.946 (0.077)	1.096 (0.157)	1.125 (0.160)	1.056 (0.115)	0.934 (0.095)
Model Significance Test						
Likelihood Ratio Test	3042.52***		804.05***		1492.45***	

Reference Category: Outmover, $p < 0.01^{***}$, $p < 0.05^{**}$, $p < 0.10^*$

Source: Sakernas August 2020 (BPS, 2020).

sector of 72 percent, more significant than women who are never married/divorced. On the other hand, a higher percentage of unmarried/divorced women transition to the formal sector than married women. Most women in rural areas transition to the informal sector, amounting to 72 percent. However, only 7 percent of women who live in rural areas are outmovers, lower than the outmovers of women who live in urban areas. Whether women are household heads, informal movers still dominate compared to formal movers and out movers. Even though the percentage is relatively low, more women who are not household heads (27 percent) experience a transition to the formal sector than women who are household heads (24 percent).

Based on migration status, more migrant women transition to the formal sector and fewer transition to the informal sector than non-migrant women. According to age, young women do more formal moving than adult women. On the other hand, more adult women make informal moves than young women (15–24 years). Apart from that, the percentage of outmovers is higher among young women than adults.

Table 1 shows the estimation results using multinomial logit regression. Testing the overall significance of the independent variables using the likelihood ratio test. The null hypothesis is that no independent variables influence women's job transition. Meanwhile, the alternative hypothesis is that at least one independent variable influences women's job transition. The likelihood ratio test results in Table 1 show that the model formed has a p-value <0.001. Therefore, it is inevitable that the null hypothesis is rejected, meaning that at least one independent variable influences women's job transition at the start of the Covid-19 pandemic. Thus, the logit model used in this research is appropriate to use.

A partial test was carried out To see the effect of education on women's job transitions. The null hypothesis is that education does not affect women's job transitions. The alternative hypothesis is that there is an influence of education on women's job transition. Based on significance testing on the education variable, it shows a significance value of less than 0.001. Therefore, it is inevitable that the null hypothesis is rejected, meaning that education significantly influences women's job transition at the beginning of the Covid-19 pandemic.

The magnitude of the influence of education on women's employment transitions in all samples is shown in columns 1 and 2 (Table 1). There is a different pattern of highly educated women transitioning to work in the formal and informal sectors compared to unemployment at the start of the Covid-19 pandemic. The relative probability of transitioning to the formal sector versus becoming unemployed is 1.9 times higher for women with higher education than those with low education. In addition, the relative probability of women transitioning to the informal sector versus becoming unemployed is 0.6 times lower for women with higher education than those with low education. Thus, highly educated women are more likely to transition to work in the formal sector than become unemployed.

On the other hand, highly educated women have a lower chance of transitioning to work in the informal sector than becoming unemployed. That follows human capital theory, especially the schooling model, which explains that workers with higher education will get higher incomes (Borjas, 2016). The formal sector is generally associated with higher incomes than the informal sector. Glick and Sahn (1997) explained that women with a higher level of education have higher incomes than those with a lower level of education. Women with higher levels of education are also more likely to work in the formal sector. Meanwhile, the informal sector is characterized by low income and benefits levels and high exposure to danger (Gutierrez et al., 2019).

Based on the results of the analysis in terms of age, a higher level of education can increase young women's opportunities to transition to work in the formal sector (column 3). The relative probability of transitioning to formal sector work compared to unemployment is 2.3 times higher for young women with higher education than those with low education. On the other hand, the relative probability of transitioning to informal sector work compared to becoming unemployed is 0.7 times lower for young women with higher education than those with low education. For adult women, the relative probability of transitioning to formal sector work compared to becoming unemployed is 1.9 times higher for adult women with higher education than those with low education (column 5). Furthermore, the relative probability of transitioning to informal sector work compared to becoming unemployed is 0.6 times lower for adult women with higher education than those with low education (column 6).

The odds ratios in column 3 and column 5 can be used to see the tendency to transition to formal work among young and adult women. The regression coefficient results show that education's impact on the transition to the formal sector for mature women is smaller than for young women. In other words, the opportunity to transition to the formal sector is higher for young women than adults. That is in line with the KPPPA & BPS report (2018, p.84), which reports that young people prefer to work in the formal sector or be unemployed rather than in the informal sector. Adult women experience a double burden, namely the responsibility of caring for children, domestic work at home, and working outside the home, which can result in conflict between work and family for women during the Covid-19 pandemic (Alon et al., 2020; Costoya et al., 2020; Power, 2020). That is likely to cause a decrease in the involvement of adult women in paid employment (Augustus, 2021).

Based on marital status, the data processing results show that the relative probability of transitioning to the formal sector compared to unemployment is 0.8 times lower for married women than unmarried women. In addition, the relative probability of transitioning to informal sector work compared to unemployment is 2.1 times higher for married women than never/not married women. Compared to age, the relative probability of young women transitioning to formal sector work is 0.8 times lower for married women than never/unmarried women. In addition, the relative probability of young women transitioning to informal sector work compared to becoming unemployed is 1.6 times higher for married women than never/unmarried women. Meanwhile, for adult women, the relative probability of transitioning to informal work compared to unemployment is 2.5 times higher for married women than for never-married women. This result shows that married women try to get work, even in informal jobs and avoid unemployment for their family's survival, in line with Rivera and Castro (2021, p. 15) and Tansel and Acar (2017, p. 627), who explain that family factors (ownership of children and a partner) influence a person's employment decisions. The influence of obligations in taking care of the household can increase the chances of married women entering informal sector work.

According to area of residence, the relative odds of transitioning to the formal and informal sectors versus being unemployed are 0.7 times and 0.4 times lower for women living in urban areas than those in rural areas. When compared between young and adult women, the pattern is the same. The relative probability of young women transitioning to formal and informal work compared to being unemployed is 0.8 times and 0.4 times lower for women living in urban areas than those living in rural areas. Meanwhile, for adult women, the relative odds of transitioning to formal and informal work compared to being unemployed are 0.7 times and 0.4 times lower for women

living in urban areas than those living in rural areas. This result shows that women living in urban areas have a higher chance of becoming unemployed than transitioning to formal or informal sector jobs. Ham et al. (2021, p. 16) explain that unemployment is higher in urban areas. However, jobs in rural areas are worse or less feasible due to the lack of facilities and accessibility in rural areas. In addition, more unemployment in urban areas is caused by a structural mismatch between the skills possessed by workers and the skills required by companies (Qayyum, 2007, p. 616).

Based on household head status, the relative probability of transitioning to formal employment versus being unemployed is 0.9 times lower for women with household head status than those without that status. However, the relative probability of transitioning to informal work compared to unemployment is 1.4 times higher for women with household head status than those without that status. When compared based on age, the relative probability of transitioning to formal and informal work compared to unemployment differs between young and adult women. For young women, the relative probability of transitioning to informal work versus being unemployed is 0.6 times lower for women with household head status than those without that status. Meanwhile, the relative probability of adult women transitioning to formal and informal work compared to being unemployed is 1.2 and 1.7 times higher for married women than never/unmarried women. This result shows that women with household head status are more likely to enter informal work because of the ease of entering the informal sector. Informal sector work is associated with independent business, using simple technology and little capital (Wandaweka & Purwanti, 2021, p.653).

According to migration status, the relative chance of making a transition to formal work compared to being unemployed is higher for migrant women than for non-migrants, and the relative chance of making a transition to informal work is lower than for being unemployed. However, these results were not statistically significant either in the analysis unit of all women or young and adult women.

Conclusion

During the Covid-19 pandemic, 12 percent of the female population experienced a job transition consisting of 26.5 percent transitioning to formal sector jobs, 63.1 percent transitioning to informal sector jobs, and 10.4 percent becoming unemployed at the beginning of the period. Covid-19 pandemic. Women's education level significantly affects women's opportunities to transition to work at the start of the Covid-19 pandemic. Highly educated women are more likely to transition to the formal sector than unemployment. In addition, highly educated women have a lower chance of transitioning to informal employment than becoming unemployed.

The influence of education level on women's opportunities to make a job transition to the formal sector is higher for young women than adults. That is closely related to most married adult women with childcare responsibilities and housework, reducing their chances of entering formal work. On the other hand, for women who are married and become household heads, the opportunity to transition to informal sector work is higher because of the ease of entering work with the constraints they have to increase their income during the Covid-19 pandemic.

To improve women's welfare, one thing that can be done is to increase the proportion of the formal sector and reduce the proportion of women in the informal sector. Based on research results, it has been identified that higher education can increase women's opportunities to transition to the formal sector. In addition, higher education can also reduce women's opportunities to transition to the informal sector. Therefore,

the policy recommendations suggested by researchers are as follows. First, the Indonesian House of Representatives can develop policies to overcome the main obstacles preventing women from having a career, such as lack of education and inadequate childcare facilities.

Regarding access to education, the Indonesian House of Representatives can encourage the Government to focus on improving the quality of education and training accompanied by equal distribution of education in each region to increase women's human capital. By encouraging women to increase their education to higher education levels, women will have more competitiveness, increasing their chances of getting decent work in the formal sector. Regarding childcare facilities, the Indonesian House of Representatives needs to encourage government cooperation with related sectors to increase the number of subsidized childcare facilities for working women. That is one way to encourage women to enter the formal sector. Second, the Indonesian House of Representatives can work together with the Government to encourage the availability of more jobs in the formal sector so that the population's human capital is balanced by employment in the formal sector, which will improve the welfare of Indonesian women.

References

- Adams-Prassl, A., Boneva, T., Golin, M., & Rauh, C. (2020). Inequality in the impact of the coronavirus shock: Evidence from real time surveys. *Journal of Public Economics*, 189, 104245. <https://doi.org/10.1016/j.jpubeco.2020.104245>
- Albertini, J., Poirier, A., & Sopraseuth, T. (2020). Informal work along the business cycle: Evidence from Argentina. *IZA Journal of Development and Migration*, 11(1), 1–16. <https://doi.org/10.2478/izajodm-2020-0019>
- Alon, T., Doepke, M., Olmstead-Rumsey, J., & Tertilt, M. (2020). The impact of COVID-19 on gender equality. In *CRC TR 224 Discussion Paper Series University of Bonn and University of Mannheim*. Germany. https://ideas.repec.org/p/bon/boncrc/crctr224_2020_163.html
- Anderson, P. M., Meyer, B. D., Pencavel, J., & Roberts, M. J. (1994). The extent and consequences of job turnover. *Brookings Papers on Economic Activity*. *Microeconomics*, 1994, 177–248. <https://doi.org/10.2307/2534731>
- Augustus, J. (2021). The impact of the Covid-19 pandemic on women working in higher education. *Frontiers in Education*, 6, 648365. <https://doi.org/10.3389/educ.2021.648365>
- Badan Pusat Statistik. (2006). *Statistik ketenagakerjaan usia muda di Indonesia*. Badan Pusat Statistik.
- Badan Pusat Statistik. (2020). *Survei angkatan kerja nasional Agustus 2020*. Badan Pusat Statistik. <https://www.bps.go.id/publication/2020/12/23/d8b9a75ce826ddafbddb9657/booklet-survei-angkatan-kerja-nasional-agustus-2020.html>
- Balde, R., Boly, M., & Avenyo, E. (2020). *Labour market effects of COVID-19 in Sub-Saharan Africa: An informality lens from Burkina Faso, Mali and Senegal* [MERIT Working Papers 2020–2022]. United Nations University - Maastricht Economic and Social Research Institute on Innovation and Technology (MERIT).
- Bartel, A. P., & Borjas, G. J. (1978, October). *Wage growth and job turnover: An empirical analysis* [NBER Working Paper No. w0285]. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=260475
- Becker, G. S. (1994). *Human capital: A theoretical and empirical analysis with special reference to education* (3rd ed.). University of Chicago Press. <https://www.nber.org/books-and-chapters/human-capital-theoretical-and-empirical-analysis-special-reference-education-third-edition>

- Bonacini, L., Gallo, G., & Scicchitano, S. (2021). Will it be a secession? The unintended influence of working from home on the gender wage gap related to the COVID-19 pandemic [GLO Discussion Paper No. 771]. In the GLO Discussion Paper Series, Global Labor Organization (GLO). Global Labor Organization (GLO). <http://hdl.handle.net/10419/229149>
- Borjas, G. J. (2016). *Labor economics* (7th ed.). McGraw-Hill.
- Brodeur, A., Gray, D., Islam, A., & Bhuiyan, S. J. (2021). A literature review of the economics of covid19. *Journal of Economic Surveys*, 35(4), 1007–1044. <https://docs.iza.org/dp13411.pdf>
- Costoya, V., Echeverría, L., & Thailinger, A. (2020). *The impact of COVID-19 in the allocation of time within couples* (Issue Evidence for Argentina) [Working Papers 145]. Universidad de San Andrés, Departamento de Economía, revised Aug 2020.
- Dalilah, F. (2020). Analisis terhadap partisipasi kerja perempuan pada sektor formal di Indonesia. *Jurnal Ilmiah Mahasiswa FEB Universitas Brawijaya*, 9(2).
- Dartanto, T., Moeis, F. R., & Otsubo, S. (2019). Intergenerational economic mobility in Indonesia: a transition from poverty to middle class in 1993–2014. *Bulletin of Indonesian Economic Studies*. <https://doi.org/10.1080/00074918.2019.1657795>
- Gebeyaw, T. (2011). Socio-demographic determinants of urban unemployment: the case of Addis Ababa. *Ethiopian Journal of Development Research*, 33(1), 79–124. <https://doi.org/10.4314/ejdr.v33i1.68615>
- Glick, P., & Sahn, D. E. (1997). *Gender and education impacts on employment and earnings in West Africa: evidence from Guinea*. University of Chicago Press. <https://doi.org/10.1086/452308>
- Gutierrez, I. A., Kumar, K. B., Mahmud, M., Munshi, F., & Nataraj, S. (2021). Transitions between informal and formal employment: results from a worker survey in Bangladesh. *ZA Journal of development and Migration*, 9(3), 1–27. <https://doi.org/10.1186/s40176-019-0141-2>
- Ham, A., Maldonado, D., & Guzmán-Gutiérrez, C. S. (2021). Recent trends in the youth labor market in Colombia: Diagnosis and policy challenges. *IZA Journal of Labor Policy*, 11(1), 1–32. <https://doi.org/10.2478/izajolp-2021-0007>
- Hosmer, D. W., & Lemeshow, S. (2000). *Applied logistic regression* (Second ed.). John Wiley & Sons.
- ILO. (2004). *ILO: Laporan mengenai tenaga kerja muda di Indonesia*. Lembaga Penyelidikan Ekonomi dan Masyarakat, Fakultas Ekonomi, Universitas Indonesia dan ILO.
- ILO. (2018, March 8). *Women still less likely to be active in the labour market than men in most of the world*. ILO. https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_619119/lang--en/index.htm
- ILO. (2021, January 25). *Ketidakpastian dan ketimpangan pemulihan diprediksi terjadi seiring krisis pasar tenaga kerja*. ILO. https://www.ilo.org/jakarta/info/public/pr/WCMS_767366/lang--en/index.htm
- Indayani, S., & Pitoyo, A. J. (2020). Analisis pengangguran dan pertumbuhan ekonomi sebagai akibat pandemi Covid-19. *Perspektif: Jurnal Ekonomi & Manajemen Universitas Bina Sarana Informatika*, 18(2), 201–208.
- Isti'any, N. N., & Pitoyo, A. J. (2016). Pekerja perempuan dalam sektor informal di Daerah Istimewa Yogyakarta analisis faktor pengaruh berdasarkan susenas kor 2014. *Jurnal Bumi Indonesia*, 5(4).
- Kikuchi, S., Kotao, S., & Mokoshiba, M. (2021). Who suffers from the COVID-19 shocks? Labor market heterogeneity and welfare consequences in Japan. *Journal of the Japanese and International Economies*, 59(101117). <https://doi.org/10.1016/j.jjie.2020.101117>
- Kletzer, L. G. (1998). Who gets displaced: The characteristics of permanent job loss. *Journal of Economic Perspectives*, 12(1), 115–136.

- KPPPA & BPS. (2018). *Profil generasi milenial Indonesia*. KPPPA & BPS.
- Kristal, T., & Yaish, M. (2020). Does the coronavirus pandemic level the gender inequality curve? (It doesn't). *Research in Social Stratification and Mobility*, 68(100520). <https://doi.org/10.1016/j.rssm.2020.100520>
- Lee, K. D., Lee, S. H., & Choe, J. I. (2017). State dependence, individual heterogeneity, and the choice of employment status: evidence from Korea. *Applied Economics*, 50(8), 824–837. <https://doi.org/10.1080/00036846.2017.1343447>
- Lemieux, T., Milligan, K., Schirle, T., & Skuterud, M. (2020). Initial impacts of the Covid-19 pandemic on the Canadian labour market. *Canadian Public Policy*, 46(S1), S55–S65. <https://doi.org/10.3138/cpp.2020-049>
- López-Bazo, E., & Motellón, E. (2013). The regional distribution of unemployment: What does micro-data tell us? *Papers in Regional Science*, 92(2), 383–405. <https://doi.org/10.1111/j.1435-5957.2012.00456.x>
- Maciel, F. T., & Oliveira, A. M. H. C. (2018). Dynamics of the formal and informal labour in Brazil: occupational and earnings mobility. *International Journal of Development Issues*, 17(1), 28–54. <https://doi.org/10.1108/IJDI-07-2017-0129>
- Mincer, J. (1991). Education and unemployment. *NBER Working Paper*, 3838, 1–23.
- Mwangangi, F. W. (2014). *Factor affecting employees turnover in the pharmaceutical industry: A case of Phillips Group of Companies Kenya*. University of Africa. <https://core.ac.uk/download/pdf/45380883.pdf>
- Ngadi, Meliana, R., & Purba, Y. A. (2020). Dampak pandemi Covid-19 terhadap PHK dan pendapatan pekerja di Indonesia. *Jurnal Kependudukan Indonesia*, (Edisi Khusus Demografi dan COVID-19), 43–48. <https://doi.org/10.14203/jki.v0i0.576>
- Porta, R. L., & Shleifer, A. (2014). Informality and development. *Journal of Economic Perspectives*, 28(3), 109–126. <https://doi.org/10.1257/jep.28.3.109>
- Prates, I., & Barbosa, R. J. (2020). The impact of COVID-19 in Brazil : Labour market and social. *The Indian Journal of Labour Economics*, 63(Suppl 1), 31–35. <https://doi.org/10.1007/s41027-020-00252-3>
- Qayyum, W. (2007). Causes of youth unemployment in Pakistan. *The Pakistan Development Review*, 46(4), 611–621. <https://doi.org/10.30541/v46i4Ipp.611-621>
- Rivera, V., & Castro, F. (2021). Between social protests and a global pandemic: Working transitions under the economic effects of Covid-19. *Social Sciences*, 10(4), 145. <https://doi.org/10.3390/socsci10040145>
- Schaner, S., & Das, S. (2016). Female labor force participation in Asia: Indonesia country study. In *Asian Development Bank Economics Working Paper Series No. 474*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2737842
- Shita, A., & Dereje, M. (2018). Determinants of urban youth unemployment: Evidence from East Gojjam Zone, Ethiopia. *International Journal of Economic Development*, 11(2), 245–265.
- Tansel, A., & Acar, E. Ö. (2017). Labor mobility across the formal/informal divide in Turkey: Evidence from individual-level data. *Journal of Economic Studies*, 44(4), 617–635. <https://doi.org/10.1108/JES-06-2015-0103>
- Taufiq, N., & Dartanto, T. (2020). Education, informal turnover and poverty dynamics in Indonesia. *International Journal of Economics and Management*, 14(1), 157–172. [http://www.ijem.upm.edu.my/vol14no1/11\)%20Education,%20Informal%20Turnover.pdf](http://www.ijem.upm.edu.my/vol14no1/11)%20Education,%20Informal%20Turnover.pdf)
- Thiede, B. C., & Monnat, S. M. (2016). The great recession and America's geography of unemployment. *Demographic Research*, 35(1), 891–928. <https://doi.org/10.4054/DemRes.2016.35.30>

- Thomas, D., Beagle, K., & Frankenberg, E. (2020). Labor market transitions of men and women during an economic crisis: Evidence from Indonesia [Working Paper Series 00-11]. In the *Labor and Population Program*. rand.org. <https://www.rand.org/content/dam/rand/pubs/drafts/2008/DRU2344.pdf>
- Wandaweka, A. T., & Purwanti, D. (2021). Determinan partisipasi kerja perempuan dalam sektor informal di Indonesia tahun 2019. *Seminar Nasional Official Statistics*, 2021(1), 652–661. <https://doi.org/10.34123/semnasoffstat.v2021i1.994>
- Yuniati, M., & Mataram, N. W. (2019). Profil tenaga kerja perempuan berdasarkan umur, tingkat pendidikan, sektor formal, informal di Provinsi NTB Tahun 2016–2018 beserta analisis ekonominya. *Media Bina Ilmiah*, 13(12), 1855–1862.