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Determinants of duration of unemployment among first-time job seekers in Bail Province

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Abstract: The purpose of this research is to determine the impact of social and economic factors, circular migration, psychology, and the adoption of science and technology on the length of unemployment among first-time job seekers. The participants in this study were all 20–30-year-old workers in Denpasar City, Badung Regency, and Gianyar Regency. This study used an accidental sampling technique and snowball sampling. Next, proportionate stratified techniques were used to gain participants according to their level of education, with a sample size of 165 respondents. An additional finding is that economic conditions do not affect the length of unemployment experienced by first-time job seekers; the adoption of science and technology does not mitigate the impact of social and psychological factors on the length of unemployment experienced by first-time job seekers; and the adoption of science and technology mitigates the impact of both economic conditions and the circular migration culture on the length of unemployment experienced by first-time job seekers. The practical implications of this research are that job seekers in Bali, in particular, can start adopting science and technology to improve the culture and economic conditions of migration circulation.

Keywords: *Adoption of science and technology, Circular migration culture, Duration of unemployment, Economic conditions, Social condition.*

1. Introduction

Unemployment happens when a country's ability to absorb labor is insufficient to meet its ability to produce labor over a given period. According to Triatmanto and Bawono [1] one of the factors impeding the nation's progress is unemployment, which also affects social conditions and economic stability. According to Sinha [2] consumers and the private sector will find it challenging to develop long-term plans in an unpredictable economy. People's purchasing power tends to decline when the unemployment rate rises, which might lower demand for goods and services and slow domestic consumption. A mismatch between education and employment arises when workers' competencies do not correspond with employment opportunities that match those competencies [3].

The misalignment of the workforce's abilities with the demands of the labor market affects both the rate of unemployment and the length of time that workers are unemployed. According to Faryna, et al. [4] the length of unemployment in microeconomic analysis is determined by the pay offer level, the targeted minimum wage level (reservation wage), and the opportunity cost of persistently seeking a job. Long-term unemployment might make workers less competitive in the labor market because individual skills are eroding or not keeping up with industry demands and technological advancements [5]. According to Silalahi and Walsh [6] unemployment is one of the factors impeding Indonesia's development as a developing nation and has a detrimental effect on social circumstances and economic stability.

Increases in open unemployment significantly affect workers' capacity to meet their requirements and enhance their standard of living. According to Priambodo [7] the issue of unemployment would

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significantly affect everyone's ability to improve their quality of life, which may also affect the economic development of an area or even a nation. According to Nordin and Almén [8] educated unemployment contributes significantly to the rise in open unemployment. Education affects labor absorption through various means, including changes in the social context that facilitate the establishment of numerous employment and an assumption that the workforce is more capable [9]. Figure 1 shows Indonesia's open unemployment rate by province during the 2019–2023 timeframe.

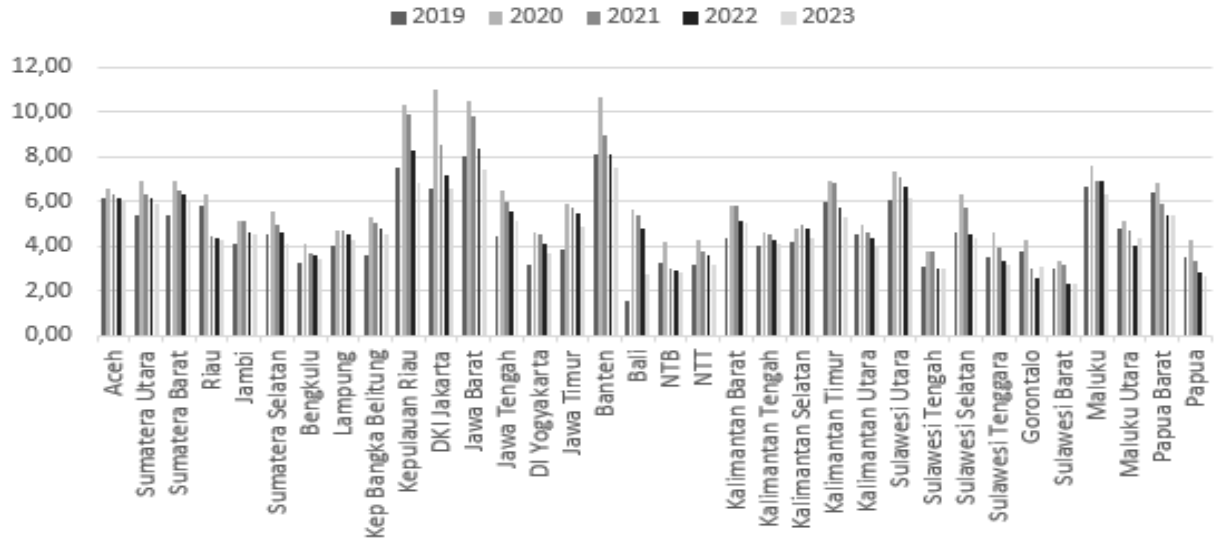

Figure 1.
Open Unemployment Rate in Indonesia by Province Period 2019-2023 (Percentage).
Source: Central Bureau of Statistics of Indonesia, 2024.

Bali Province saw a notable drop in the open unemployment rate compared to other Indonesian provinces during 2022–2023. The open unemployment rate decreased from 4.80 in 2022 to 2.69 in 2023, representing a 43.96 percent decline. Unemployment has the effect of depriving people of the chance to live their lives as they envision. The features of Bali Province's economy that depend on the unorganized sector—particularly tourism, which propels economic expansion—play a significant part in lowering the province's open unemployment rate, where the labor force is growing over time due to lack of absorption by the labor market in the preceding period [10].

Factors influencing the length of unemployment for the workforce include the economic and social circumstances of the worker. The workforce's involvement in environmental activities is typically used to evaluate its social conditions [11]. People can get information about job openings and recommendations from strong social networks, such as connections with friends, family, or professional communities. This situation demonstrates how workers' social circumstances affect how long they are unemployed. Good economic conditions will allow workers to select employment that fits their talents and preferences [12]. The family income of employees is a good indicator of their economic circumstances. Working families experiencing financial hardship are more likely to take jobs sooner to support themselves [13]. Workers are forced to choose jobs due to limited economic conditions.

Circular migration culture is one of the factors that influences the motivation of workers to find work immediately and impacts the duration of unemployment of these workers. Circular migration is the process of moving people to specific areas with the aim of settling and is carried out repeatedly [14]. Workers who carry out circular migration usually aim to obtain work, so they have high job aspirations. The circular migration culture will be indirectly related to the psychological conditions of the workforce to help the family bear the family's economic burden [15]. After completing their education, workers

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are psychologically compelled to start working right away. According to Zhang, et al. [16] psychological behavior is a behavior that is motivated by an individual's inner spirit or mindset while selecting products and making purchases. A worker's psychological role changes from when they are studying to when they are finished studying, which encourages them to obtain a job more quickly and affects how long they are unemployed.

Adopting science and technology is another element that determines the length of unemployment in labor. As science and technology advance, society must continue to enhance its skills and capacities in order for people to maintain equilibrium in this day and age [17]. In order to compete with other workers, the use of science and technology can expedite workers' access to information in the labor market [18]. The following factors hinder workers from embracing science and technology: limited access, a lack of expertise, reliance on outdated technologies, and aversion to change [19]. Workers in the tourism industry frequently employ antiquated equipment and techniques that are ineffective against more recent, more productive technologies [20]. Further research is required to determine the impact of social and economic factors, circular migration, psychology, and the adoption of science and technology on the length of unemployment among first-time job seekers in Bali Province based on the background information that has been explained.

2. Literature Review

2.1. Human Capital Theory

According to the human capital theory, one of the resources needed to accomplish equitable economic development is people. Human capital is the ability within a person and can be exhibited through what is visible or what remains concealed. Human resources are the key to attaining fundamental economic progress [21]. Human capital is the sum of a nation's citizens' knowledge, abilities, and intelligence. Numerous social, economic, and cultural elements affecting how quickly employees land their first job significantly correlate with human capital theory. Human Capital Theory refers to the idea that an individual's skills, knowledge, education, work experience, and abilities can be considered a form of capital that increases their productivity and income in the labor market. Human capital theory also considers the influence of social status on job search. Human capital theory is also able to explain its relationship to workforce culture. According to human capital theory, some cultural influences on the duration of unemployment include a very high value placed on formal education and academic degrees. Labor is a significant variable in a region's efforts to support the achievement of national development goals.

2.2. Decision Theory

Decisions are the outcome of ideas derived from evaluating the opportunities that present themselves under specific circumstances in an attempt to address an issue. People often base their decision-making process on criteria to choose the best circumstances. A decision is the outcome of the decision-making process, a type of thought. An individual's decision-making process will significantly impact all of their activities, including their economic activities. A variety of elements, both objective and subjective, are taken into account when making decisions. Decision-making is weighing several options and then picking one to accomplish the desired outcome. The situation that the workforce faced and the workforce itself are factors influencing decision-making. One of the options available to a worker is to start working right away after finishing their academic time. The workforce's choice to start working after graduation significantly impacts the family's production level. The choice to start working right away will reduce the length of time that workers are unemployed and improve the financial circumstances of the family and the nation. One of the judgments taken due to uncertain circumstances is to make decisions based on the situations employees confront to compel them to start working immediately.

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3. Methods

3.1. Research Location

This research was conducted in Denpasar City, Badung Regency, and Gianyar Regency, which were chosen as research locations based on the development of the most unemployed compared to other districts in Bali Province. In 2022-2023, Bali Province experienced a significant decrease in the open unemployment rate compared to other provinces in Indonesia, with the open unemployment rate in 2022 being 4.80 to 2.69. The workforce in Bali Province mainly works in the informal sector and relies on the tourism sector, which is a unique economic structure compared to other provinces in Indonesia.

3.2. Research Scope

The participants in this study were all 20–30-year-old workers in Denpasar City, Badung Regency, and Gianyar Regency. According to Viviani, et al. [22] employees between the ages of 20 and 30 typically start their careers and gain a lot of experience and skills, which are directly linked to increased productivity at work. Therefore, the 20–30 age range is a highly relevant time frame to evaluate how the workforce boosts productivity when adjusting to the demands and dynamics of the workplace. One million ninety-one thousand three hundred forty-seven workers were included in the study's overall population. According to Hair, et al. [23] a minimum of 165 workers should be used, five to ten times the number of latent variable arrows in the route model or two to ten times the number of indicators. This study used an accidental sampling technique in conjunction with snowball sampling. Next, proportionate stratified selection techniques were used to choose research participants according to their most significant level of education.

3.3. Operational Variable Definition

The duration of idleness. The amount of time a person in the workforce remains unemployed until they find employment is known as the duration of unemployment. The waiting period is more significant for workers with better educational backgrounds. This study used the following indicators of unemployment duration: 1) Information, 2) Job Choice, 3) Process, and 4) Response. Social Situations: social conditions of society are defined by kinship, community, mutual acquaintance, and cooperation. Social contact, ideals, and educational attainment make up Bali Province's social conditions. The following are markers of social conditions: 1) Prestige, 2) Involvement, and 3) Relationships.

Economic conditions: economic conditions can be explained by measuring the percentage of the workforce's family's economy affected by their financial expenditure during a given period. The following arfe indicators of the state of the economy: 1) economic support, 2) purchasing power, and 3) economic burden. A culture of circular migration: when it comes to molding an individual's behaviors to fit the demands of the workplace, culture plays a crucial role. The following are signs of a circular migration culture: 1) Individualism, 2) Masculinity, 3) Power Distance, and 4) Uncertainty Avoidance.

Psychological roles: psychology has a lot to do with how people think, influence, and interact with one another. In this study, the psychological role is the shift from the workforce role prior to the study period to the workforce position following the study period. The following are indicators of the psychological role: 1) Motivation, 2) Personality, 3) Behavior, and 4) Satisfaction. Technology and science adoption: significant societal changes have been brought about by adopting science and technology in industrialized and developing nations, including Indonesia. This study's science and technology adoption indicators include 1) interest, 2) understanding, 3) implementation, and 4) profit.

3.4. Data Analysis Techniques

Designing a structural model (inner model) and a measurement model (outer model). The inner or structural model describes the relationship between latent variables based on substantive theory. The design of the structural model of the relationship between latent variables is based on formulating the problem or the established research hypothesis. The outer or measurement model defines the

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relationship between the indicator group and the latent variables formed. The design of the measurement model determines the nature of the indicators of each latent variable.

1. Designing a structural model (inner model) and a measurement model (outer model). The inner model or structural model describes the relationship between latent variables based on substantive theory. The design of the structural model of the relationship between latent variables is based on the formulation of the problem or the established research hypothesis. The outer model or measurement model defines the relationship between the indicator group and the latent variables formed. The design of the measurement model determines the nature of the indicators of each latent variable.
2. Model evaluation or goodness of fit (GoF). This evaluation is intended to validate the structural model as a whole. The GoF index is a single measure to validate the combined performance of the measurement and structural models. In Smart-PLS analysis, two important evaluation stages are used, namely the measurement model and the structural model.
3. Hypothesis Testing and Moderation. Hypothesis testing (γ) in SmartPLS uses the bootstrapping resampling approach developed by Geisser and Stone based on the probability of data in the path coefficients menu. The "t" statistic, also known as the t-test, and/or the probability of the significance level (p-value) are the test statistics performed. The indicator is considered a measurement tool for latent variables if the outer model's hypothesis test findings are significant.

4. Finding

4.1. Measurement Model

Inferential analysis shows the results of predicting the relationship between latent variables in the structural model (inner model), which is preceded by an evaluation of the measurement model (outer model). The research hypothesis testing was carried out using the Structural Equation Modelling (SEM) approach based on PLS.

1. The convergent validity of the measurement model utilizing reflective indicators is evaluated using the loading factors of the indicators that generate and reflect the construct. Table 1 displays the convergent validity results for the variables utilized in this investigation.

The results of convergent validity (Table 1) using second-order confirmatory methods show that the loading factor values of the indicators on all latent variables were within expectations, namely more than 0.5 (> 0.5).

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Table 1.
Loading Factor Measurement Model.

Variable	Code	Indicators	Outer Loading
Social Condition	SC1.1	Prestige	0.786
	SC1.2	Involvement	0.733
	SC1.3	Relationships	0.848
Economics Condition	EC2.1	Economic Support	0.939
	EC2.2	Purchasing Power	0.929
	EC2.3	Economic Burden	0.933
Circular Migration Culture	CMC3.1	Individualism	0.844
	CMC3.2	Masculinity	0.910
	CMC3.3	Power Distance	0.900
	CMC3.4	Uncertainty Avoidance	0.721
Psychological Role	PR4.1	Motivation	0.792
	PR4.2	Personality	0.811
	PR4.3	Behavior	0.862
	PR4.4	Satisfaction	0.796
Adoption of Science and Technology	AoST1	Interest	0.770
	AoST2	Understanding	0.825
	AoST3	Implementation	0.867
	AoST4	Benefits	0.823
Duration of Unemployment	DU1	Information	0.904
	DU2	Job choice	0.950
	DU3	Process	0.939
	DU4	Response	0.912

2. Internal consistency is a test of the reliability of a construct to measure the consistency of a measurement tool. Reliability shows a measuring tool's accuracy, consistency, and precision. Internal consistency is tested using two criteria, namely, Cronbach's alpha (CA) and composite reliability (CR).

Table 2.
Internal Consistency Reliability.

Variable	Cronbach's alpha	Composite reliability
Social Condition	0.706	0.739
Economics Condition	0.927	0.951
Circular Migration Culture	0.867	0.892
Psychological Role	0.832	0.833
Adoption of Science and Technology	0.840	0.843
Duration of Unemployment	0.945	0.945

Based on the test results in the Table 2, all constructs can be said to have a reliability level of more than 0.7 (CA> 0.7), meaning that all constructs can be considered capable of providing internal consistency support. Composite reliability (CR) tests can also be used to measure the stability and consistency of combined reliability measurements.

3. Discriminant Validity: Average Variance Extracted (AVE) and Cross Loadings The measurement model's discriminant validity is evaluated by comparing the measurement's construct with its cross-loading; if each indicator of the relevant variable has a cross-loading value greater than 0.50, the indicator is considered to be. Discriminant validity can also be tested by comparing the square root value of AVE with the correlation value between latent constructs. The model is said to have good discriminant validity if the measurement value of the average variance extracted (AVE) produced by each construct is more than 0.50 (AVE > 0.50).

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Table 3.
Cross Loadings.

	AoST	CMC	DU	EC	SC	PR
AoST1	0.770	0.093	-0.744	-0.016	0.200	0.250
AoST2	0.825	0.019	-0.741	-0.046	0.168	0.245
AoST3	0.867	0.032	-0.701	-0.054	0.201	0.275
AoST4	0.823	-0.028	-0.591	-0.123	0.156	0.229
DU1	-0.776	-0.164	0.904	-0.026	-0.366	-0.445
DU2	-0.790	-0.175	0.950	-0.018	-0.444	-0.434
DU3	-0.800	-0.157	0.939	-0.021	-0.371	-0.426
DU4	-0.795	-0.120	0.912	-0.003	-0.322	-0.415
EC2.1	-0.054	0.302	-0.020	0.939	-0.018	0.107
EC2.2	-0.091	0.368	-0.014	0.929	-0.014	0.114
EC2.3	-0.053	0.342	-0.016	0.933	-0.029	0.072
SC1.1	0.180	0.298	-0.313	-0.015	0.786	0.010
SC1.2	0.065	0.384	-0.235	0.068	0.733	0.095
SC1.3	0.244	0.258	-0.388	-0.071	0.848	0.068
CMC3.1	0.040	0.844	-0.138	0.305	0.293	0.064
CMC3.2	0.024	0.910	-0.127	0.390	0.332	0.079
CMC3.3	0.036	0.900	-0.172	0.322	0.353	0.126
CMC3.4	0.032	0.721	-0.116	0.184	0.303	0.022
PR4.1	0.231	0.132	-0.354	0.052	0.033	0.792
PR4.2	0.236	0.033	-0.387	0.081	0.051	0.811
PR4.3	0.258	-0.041	-0.378	0.088	0.034	0.862
PR4.4	0.271	0.175	-0.392	0.118	0.105	0.796

Table 4.
Average Variance Extracted (AVE).

Variable	Code	AVE
Social Conditions	SC	0.625
Economics Conditions	EC	0.872
Circular Migration Culture	CMC	0.718
Psychological Role	PR	0.665
Adoption of Science and Technology	AoST	0.676
Duration of Unemployment	DU	0.858

The model has good discriminant validity, as indicated by the average variance extracted (AVE) test in the above table, which shows that each construct in the model produces an AVE value greater than 0.50 (AVE > 0.50). Therefore, both discriminant validity tests show that the latent variables in the model do not have discriminant problems, indicating that the latent variables in the model pass the validity test.

4. Quality criteria using R-square. The R-square value provides information on the contribution of the independent variables (social conditions, economic conditions, circular migration culture, and psychological roles) to the duration of unemployment..

Table 6.
Quality Criteria: R-Square (R^2).

Variable	R-square	R-square adjusted
Duration of Unemployment	0.900	0.895

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Table 5.
Hypothesis Testing Result.

Variable	Original sample (O)	p values	Significance
Social Conditions → Duration of Unemployment (H1)	-0.248	0.000	Significant
Economics Conditions → Duration of Unemployment (H2)	0.029	0.384	Not Significant
Circular Migration Culture → Duration of Unemployment (H3)	-0.114	0.027	Significant
Psychological Role → Duration of Unemployment (H4)	-0.313	0.000	Significant
Adoption of Science and Technology → Duration of Unemployment (H5)	-0.777	0.000	Significant
Adoption of Science and Technology x Social Conditions → Duration of Unemployment (H6)	0.029	0.581	Not Significant
Adoption of Science and Technology x Economics Conditions → Duration of Unemployment (H7)	0.134	0.009	Significant
Adoption of Science and Technology x Circular Migration Culture → Duration of Unemployment (H8)	-0.195	0.023	Significant
Adoption of Science and Technology x Psychological Role → Duration of Unemployment (H9)	-0.060	0.226	Not Significant

The calculation results showed that the unemployment duration variable's rounded R2 value was 0.895. Accordingly, the variables of social circumstances, economic circumstances, circular migration culture, and psychological roles can account for 89.5 percent of the duration of unemployment, with other variables not included in the model accounting for the remaining 10.5 percent.

5. Four indications of evidence—the path coefficient, t-test results, R-square, and Q-square—are used to assess the structural model. The route coefficient describes the strength of the association between constructs. The bootstrapping process can be used to determine the estimated value of the path coefficient between constructs, and it must have a significant value.

Analysis of direct effect. Table 5 shows that Social conditions have a negative and significant effect on unemployment duration (O = -0.248; p-values = 0.000), economic conditions have a positive and insignificant effect on unemployment duration (O = 0.029; p-values 0.384), circular migration culture has a negative and significant effect on unemployment duration (O = -0.114; p-values = 0.027), psychological roles have a negative and significant effect on unemployment duration (O = -0.313; p-values = 0.000), adoption of science and technology has a negative and very significant effect on unemployment duration. (O = -0.777; p-values = 0.000).

Analysis of modertaion effect. Adoption of science and technology moderates the influence of social conditions on unemployment duration positively and insignificantly (O = 0.029; p-values = 0.581), adoption of science and technology moderates the influence of economic conditions on unemployment duration positively and significantly (O = 0.134; p-values = 0.009), adoption of science and technology moderates the influence of circular migration culture on unemployment duration negatively and significantly (O = -0.195; p-values = 0.023), adoption of science and technology moderates the influence of psychological roles on unemployment duration negatively and insignificantly (O = -0.060; p-values 0.226).

5. Discussion

Effect of Social conditions on unemployment duration. Better social conditions can accelerate individuals' job search because they provide support from the social environment, networks, and social norms that encourage productivity. This significant adverse effect suggests that unemployment duration tends to decrease as social conditions improve. *Effect of economic conditions on unemployment duration.* Although better economic conditions should reduce unemployment, these results show a positive but insignificant effect. This result could be due to the unequal distribution of job opportunities or because macroeconomic indicators are not immediately felt directly by job seekers. *Effect of circular migration on unemployment duration.* Circular migration culture negatively impacts unemployment duration,

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indicating that those who habitually migrate (e.g., between regions or return to their hometown periodically) tend to find employment more quickly, perhaps due to adaptive experience and broader employment networks.

Effect of psychological roles on unemployment duration. Good psychological factors, such as motivation, self-confidence, and mental resilience, greatly assist individuals actively and efficiently seeking employment. Adverse and significant effects indicate that the stronger the psychological role, the shorter the duration of unemployment. *The effect of the adoption of science and technology on unemployment duration.* Good psychological factors, such as motivation, self-confidence, and mental resilience, greatly assist individuals actively and efficiently seeking employment. Negative and significant effects indicate that the stronger the psychological role, the shorter the duration of unemployment.

The role of adopting science and technology moderates the influence of social conditions on the duration of unemployment. However, the adoption of science and technology does not significantly strengthen or weaken the influence of social conditions on unemployment duration. This result indicates that even though science and technology are adopted, the effect of social conditions remains independent and is not significantly moderated by technology. This insignificance may be due to social effects such as family support, community relations, or social norms being more emotional and interpersonal, thus less dependent on the use of technology. Even though science and technology are adopted, the role of social relations remains dominant and is not too influenced by technology.

The role of adopting science and technology moderates the influence of economic conditions on the duration of unemployment. Adopting science and technology significantly strengthens the effect of economic conditions on unemployment duration. This result suggests that in areas or populations that are more adaptive to science and technology, good economic conditions are more effective in shortening unemployment duration—perhaps because technology helps individuals seize economic opportunities more quickly and efficiently. *The role of adopting science and technology moderates the influence of circular migration culture on the duration of unemployment.* Adopting science and technology significantly weakens the influence of circular migration culture on unemployment duration. When technology is adopted, the positive influence of circular migration on job acceleration is slightly reduced, perhaps because technology provides alternative access to information and mobility without moving physically.

The role of adopting science and technology moderates the influence of psychological roles on the duration of unemployment. However, the adoption of science and technology is not significant in moderating the relationship between psychological roles and unemployment duration. This means that even though science and technology are adopted, psychological roles still have an independent effect on reducing unemployment duration without being significantly strengthened or weakened by technology. This insignificance can occur because the internal aspects of the individual more influence psychological factors such as motivation, self-confidence, and perseverance than by technological tools or media. Thus, even though science and technology are adopted, the psychological role continues to run autonomously without being greatly influenced by the existence of technology.

6. Conclusion

Based on the outcomes of the analysis and discussion of the research findings. it can be concluded as follows: Social factors. cyclical migratory culture. and psychological roles all have a negative and significant impact on the length of unemployment among first-time job seekers in Bali Province. According to the study's findings. the length of unemployment for first-time job seekers in Bali Province will likely decrease if social conditions. cyclical movement culture. and psychological roles are all improved. An additional finding is that economic conditions have no effect on the length of unemployment experienced by first-time job seekers in Bali Province. the fact that adoption of science and technology does not mitigate the impact of social and psychological factors on the length of unemployment experienced by first-time job seekers in Bali Province. and that adoption of science and technology mitigates the impact of both economic conditions and the circular migration culture on the

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length of unemployment experienced by first-time job seekers in Bali Province. The study's findings indicate that the application of science and technology can enhance the impact of economic circumstances and the circular migratory culture on the length of unemployment. allowing workers to more rapidly find positions that align with their talents and preferences.
The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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