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Intergenerational Analysis of Educated Unemployment Duration in East Java: A Multilevel Survival Approach Toward School-to-Work Transition Policies

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Abstract

Educated unemployment, particularly among Generation Z (Gen Z), poses a major challenge to inclusive and sustainable labor market development. East Java, as a province with a large population and a high proportion of young people, exhibits a pronounced trend of unemployment among Gen Z in both rate and duration. This study employs a multilevel survival analysis using the 2023 National Labor Force Survey (Sakernas) to compare the unemployment duration between Gen Z and Gen XY (a combination of Generations X and Y) and to identify the factors influencing it. The results reveal that Gen Z experiences longer unemployment durations and responds less effectively to formal interventions such as job training and the *Prakerja* program. Conversely, factors such as age, marital status, and education level significantly affect both groups. Income inequality, measured by the gini ratio, tends to prolong unemployment, while dynamic labor market conditions—reflected in higher labor force participation rates and regional GDP—help accelerate the transition to employment. Based on these findings, this study proposes the *JAWARA KERJA* program (*East Java Initiative for Labor Market Access and Resilience*), which emphasizes adaptive training for Gen Z, skill enhancement for Gen XY, and integration of labor market information systems. This program is expected to serve as a targeted and responsive policy for improving the school-to-work transition and addressing intergenerational disparities in the regional labor market.

Keywords: educated unemployment, generation z, multilevel survival analysis, school-to work transition, east java

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1. Introduction

Educated unemployment represents a strategic challenge in achieving inclusive and sustainable economic development in Indonesia. The Central Bureau of Statistics (BPS, 2023b) defines educated unemployment as individuals who have completed at least upper secondary education (senior high school or its equivalent) but have not yet obtained employment. This condition reflects a gap between the supply and demand for skilled labor, signaling structural inefficiencies in both the education system and national labor market policies. The issue also aligns with Sustainable Development Goal 8, which emphasizes the promotion of inclusive economic growth, productive employment, and decent work for all (Bappenas, 2020). The phenomenon is particularly pronounced among the productive-age population with higher education, whose employment opportunities have not kept pace with economic growth (Widiastuty, 2018).

At the national policy level, this issue has been incorporated into the *Rencana Pembangunan Jangka Menengah Nasional* (RPJMN) 2020–2024 through agendas aimed at enhancing human capital quality and labor competitiveness. These efforts include strengthening vocational skills, expanding access to education, and aligning higher education curricula with industrial needs (Kementerian PPN/Bappenas, 2020). The integration between global commitments and domestic strategies reflects that educated unemployment is not merely a labor issue but a fundamental component of Indonesia's broader transformation toward an innovation-driven economy. Accordingly, addressing it requires a comprehensive approach that integrates education, employment, and innovation policies.

Within this broader transformation, Indonesia's labor market reveals intergenerational disparities that influence the transition from education to employment. Generation Z (born 1997–2012, aged 11–26 in 2023) is particularly vulnerable, facing barriers such as limited work experience, skill mismatches, high wage expectations, and underdeveloped social competencies (Septama & Darmawan, 2025). In contrast, Generation Y (1981–1996, aged 27–42) and Generation X (1965–1980, aged 43–58) generally exhibit greater adaptability and work experience, although they too encounter challenges such as technological adaptation (Ridwan & Ismail, 2024). These intergenerational differences are reflected in Indonesia's Open Unemployment Rate (OUR), where individuals aged 15–19 and 20–24 record rates of 25.77 percent and 16.85 percent, respectively—far exceeding those of older cohorts below 3.5 percent (BPS, 2023a). Such patterns underscore the structural vulnerability of younger generations, particularly Gen Z, in the labor market.

At the provincial level, East Java presents a relevant and strategic context for analysis. With a population exceeding 41 million and nearly equal shares of Gen Z (24.8 percent) and Gen Y (24.3 percent) (BPS, 2020), the province reflects both demographic dynamism and employment pressure. The Open Unemployment Rate by age group in 2023 shows that youth aged 15–19 (24.56 percent) and 20–24 (17.27 percent)—predominantly Gen Z—experienced much higher unemployment than older groups, such as those aged 30–34 (3.28 percent) and 45–49 (2.33

percent) (BPS Provinsi Jawa Timur, 2024). In addition, variations by educational attainment indicate that vocational high school graduates (SMK) recorded the highest unemployment rate (8.70 percent), followed by senior high school (7.93 percent) and university graduates (5.04 percent). The persistence of high unemployment among vocational graduates is particularly concerning, as it implies that vocational curricula remain insufficiently aligned with local industrial needs (Setyanti & Finuliyah, 2022).

Complementary evidence from the Ministry of Manpower's *Employment Development Index* (EDI) reveals that East Java's ranking declined from 13th in 2019 to 24th in 2023 (Kementerian Ketenagakerjaan, 2024). This deterioration indicates weakening labor development performance and reinforces the need for contextual, region-specific analysis. In this study, Generations Y and X are analytically merged into a single group—referred to as Gen XY—to simplify comparison with Gen Z. The distinction between Gen Y and Gen X is relatively minor in this context, making such grouping appropriate without compromising interpretative validity. These conditions make East Java a relevant setting for examining intergenerational differences between Gen Z and Gen XY in the context of educated unemployment.

Prior studies have identified various determinants of unemployment duration, including age, education, work experience, and wage expectations (Adianto & Fedryansyah, 2018; Jannah et al., 2022). Statistical methods such as the Cox regression and Naïve Bayes classification have been applied to investigate factors influencing waiting time for employment, emphasizing the roles of academic performance, study period, and extracurricular engagement (Chandra & Rohmaniah, 2019; Rachmadiansyah et al., 2022). However, multilevel survival analysis remains rarely applied in studies of intergenerational educated unemployment in Indonesia, despite its strength in handling hierarchical data structures—such as individuals nested within districts—thereby yielding more accurate and context-sensitive insights (Austin, 2017).

Accordingly, this study aims to fill this gap by applying a multilevel survival analysis using *Sakernas 2023* data for East Java. The novelty of this research lies in its integration of the most recent data with a comparative intergenerational framework between Gen Z and Gen XY. The analysis focuses on identifying determinants of educated unemployment duration and exploring differences in dominant factors across generations.

Specifically, this paper seeks to provide an overview of educated unemployment among Generation Z and Gen XY in East Java, examine the duration of educated unemployment across generational cohorts, and identify the determinants influencing educated unemployment duration using a multilevel survival framework. Findings from this study are expected to inform targeted labor market policies that enhance employability and support smoother school-to-work transitions for Indonesia's educated youth.

2. Research method

This study adopts a quantitative approach using *multilevel survival analysis* to examine the duration of educated unemployment in East Java Province. The research framework integrates *human capital theory* from Becker (1975), *job search and matching theory* (Mortensen, 1986 in Faggian, 2014; Pissarides, 2000 in Economic Sciences Prize Committee, 2010), and the *school-to-work transition* model (Salsabila & Budiasih, 2023). These theories provide the conceptual basis that unemployment duration is influenced by both individual characteristics—such as education, skills, and experience—and contextual factors, including regional labor market conditions and wage disparities. The multilevel approach enables the model to capture hierarchical variations between individuals (level 1) and districts (level 2), improving the explanatory power of the analysis (Austin, 2017).

2.1. Data and Variables

All data used in this study are obtained from the Statistics Indonesia (BPS). The main dataset is derived from the microdata of the August 2023 *National Labor Force Survey (Sakernas)*, complemented by BPS official publications and dynamic tables available on the BPS website. The research focuses on the working-age population (≥15 years) in East Java who have completed at least upper secondary education (SMA/SMK) and are in the transition phase between completing education and obtaining their first job. The analysis distinguishes between *Generation Z* (aged 18–27, 5.334 observations) and *Generation XY* (aged 28–58, 14.795 observations). The dependent variable is the *duration of unemployment*, measured as the length of time (in months) from completing formal education to obtaining a job or starting a business. Individuals who have obtained employment at the time of the survey are treated as *event cases* (coded as 1), while those who remain unemployed are considered *censored cases* (coded as 0).

Independent variables are divided into two hierarchical levels. Level 1 (individual level) includes age, gender, household size, marital status, migration status, *Prakerja* participation, job-training certification, internship experience, and education level. Level 2 (district level) comprises the minimum wage (UMK), number of registered job vacancies, district labor-force participation rate (LFPR), gross regional domestic product (GRDP), gini ratio, and number of training centers (BLK). The variable definitions are summarized in Table 1.

Table 1. Variables Used in the Study

Level	Variable	Type/Coding	Data Source
Dependent	Unemployment Duration	Continuous	Sakernas Microdata (BPS)
	Employment Status (Event)	0 = Unemployed, 1 = Employed	Sakernas (BPS)
Individual Level	Age	Continuous	Sakernas (BPS)
	Gender	1 = Male, 2 = Female	Sakernas (BPS)

Level	Variable	Type/Coding	Data Source
	Household Size	1 = ≤4 members, 2 = >4 members	Sakernas (BPS)
	Marital Status	1 = Single, 2 = Married	Sakernas (BPS)
	Migration Status	1 = Resident, 2 = Migrant	Sakernas (BPS)
	Prakerja Participation	1 = No, 2 = Yes	Sakernas (BPS)
	Job-training Certification	1 = No, 2 = Yes	Sakernas (BPS)
	Internship experience	1 = No, 2 = Yes	Sakernas (BPS)
	Education Level	1 = SMA, 2 = SMK, 3 = Diploma, 4 = University	Sakernas (BPS)
District Level	Minimum Wage (UMK)	Continuous	BPS Publications
	Registered Job Vacancies	Continuous	BPS Dynamic Tables
	Labor Force Participation Rate (LFPR)	Continuous	BPS Publications
	GRDP	Continuous	BPS Dynamic Tables
	Gini Ratio	Continuous	BPS Publications
	Training Center (BLK)	1 = Not Available, 2 = Available	BPS Publications

Source: BPS (2023)

2.2. Analytical Framework

The research framework (Figure 1) illustrates the relationship between individual and regional factors that influence the duration of educated unemployment. At the individual level, demographic and human capital characteristics (such as age, education, and skills) shape the probability of exiting unemployment. At the district level, economic structure and labor market conditions (such as UMK, GRDP, and LFPR) determine the contextual opportunities available to job seekers. The model assumes that differences across districts introduce random variations, which are captured through a random-effect structure in the multilevel survival model.

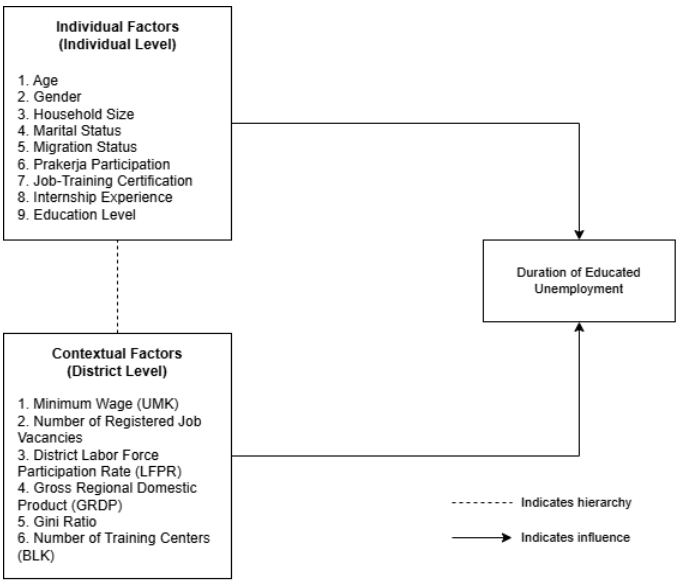


Figure 1. Conceptual Framework of the Study

2.3. Model Specification and Estimation

The duration of unemployment is modeled using a *parametric multilevel survival analysis*. The general form of the survival function is expressed as:

$$S_{ij}(t) = \left[-H_0(t)\exp\left(\gamma_{DD} + \sum_{k=1}^{K}\gamma_{kD}X_{kij} + \sum_{m=1}^{M}\gamma_{Dm}Z_{mj} + u_{0j} + e_{ij}\right)\right] \quad (1)$$

where $H_D(t)$ represents the cumulative baseline hazard function at time t, which describes the underlying risk of the event occurring when all covariates are set to zero; X_{kij} represents individual-level variables; Z_{mj} represents district-level variables; u_{0j} is the random effect at the district level; and e_{ij} is the individual-level error term.

The selection of the best-fitting parametric distribution (Weibull, exponential, or log-logistic) is based on the smallest *Akaike Information Criterion (AIC)* value. Once the distribution is determined, the random-effect significance is tested to verify the necessity of using a multilevel model. The *likelihood ratio test* is applied, with the null hypothesis $H_0: \sigma_{u0}^2 = 0$ indicating no district-level variance. Rejection of H_0 confirms the presence of significant between-group variability, justifying the multilevel approach. The joint significance of all explanatory variables is evaluated using the *likelihood ratio test* as follows:

$$G^2 = -2\ln\left(\frac{L_0}{L_1}\right) \sim \chi^2(v) \quad (2)$$

Where L_0 and L_1 represent the likelihood values of the reduced and full models, respectively. A significant G^2 value ($p < 0.05$) indicates that at least one explanatory variable significantly affects unemployment duration. The partial significance of individual parameters is assessed using the *Wald test*:

$$W = \frac{\hat{\gamma}}{SE(\hat{\gamma})} \sim Z \quad (3)$$

where $\hat{\gamma}$ denotes the estimated coefficient and $SE(\hat{\gamma})$ its standard error. The *Intraclass Correlation Coefficient (ICC)* quantifies the proportion of total variance in unemployment duration attributable to differences between districts:

$$\rho = \frac{\sigma_{u0}^2}{\sigma_{u0}^2 + \sigma_{\hat{e}}^2} \quad (4)$$

A higher ICC value suggests that contextual (district-level) factors significantly shape the unemployment experience of educated workers.

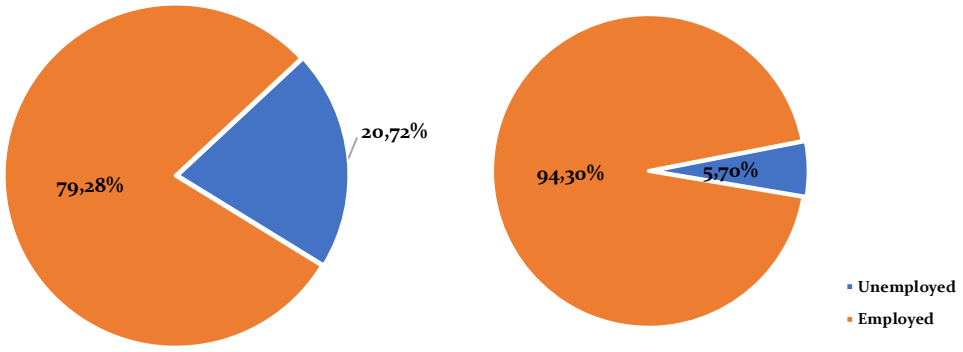
2.4. Justification for Methodological Choice

The choice of multilevel survival analysis is theoretically grounded in *job search and matching theory*, where heterogeneity in job-finding rates arises from both individual behavior and regional labor market conditions. At the same time, *human capital theory* explains how personal attributes—such as training, certification, and education—affect employability. Integrating these frameworks allows the model to reflect real-world labor dynamics more accurately. The survival approach, particularly the multilevel variant, also addresses censoring in unemployment data and accounts for nested structures among individuals within regions, ensuring robust and context-sensitive inference.

3. Results and Discussion

3.1. Overview of Educated Unemployment among Gen Z and Gen XY in East Java

This subsection presents a descriptive overview of educated unemployment across generations in East Java based on the 2023 Sakernas data. The analysis focuses on comparing employment outcomes between Generation Z and Generation XY to illustrate the magnitude of intergenerational disparities at the early stage of school-to-work transitions. By examining differences in employment status and their spatial distribution, this subsection provides an empirical basis for identifying intergenerational disparities in the early stage of school-to-work transitions, as illustrated in Figure 2.



(a) (b)

Figure 2. Percentage of Educated Unemployment in East Java (a) Generation Z and (b) Generation XY

Source: Processed

Figure 2 compares the employment status of Generation XY and Generation Z after completing formal education. The data reveal that 94.3 percent of Gen XY have been employed, with only 5.7 percent still unemployed. In contrast, the unemployment rate among Gen Z reaches 20.72 percent, while only 79.28 percent have entered the labor market. This substantial gap indicates that Gen Z faces more complex challenges in their school-to-work transition. The result likely reflects shifts in labor-market structure, rising skill requirements, and the persistent gap between graduate competencies and industry needs.

The spatial distribution of educated unemployment further highlights these differences. As illustrated in Figures 3 and 4, most districts and cities in East Java exhibit high Gen Z unemployment rates (10–50 percent, marked in red), suggesting that the challenge is not merely individual but also geographically widespread. Only a few areas—such as Ponorogo, Magetan, and Madiun City—manage to maintain relatively low unemployment levels, hinting at the presence of effective local practices that facilitate smoother youth transitions to employment. Conversely, the distribution of unemployment among Gen XY is more balanced, mostly concentrated in the low-to-moderate category (0–10 percent). High-unemployment areas are limited to a few locations, including Kediri City, Bangkalan, Tuban, and Gresik. In Figures 3 and 4, darker red areas represent districts with the highest proportions of educated unemployment, while lighter colors indicate lower unemployment categories. These descriptive spatial patterns motivate the subsequent multivariate analysis to assess whether inter-district differences persist after controlling for individual and regional characteristics.

Figure 3. *Distribution of Educated Unemployment among Gen Z by District/City in East Java*
Source: Processed

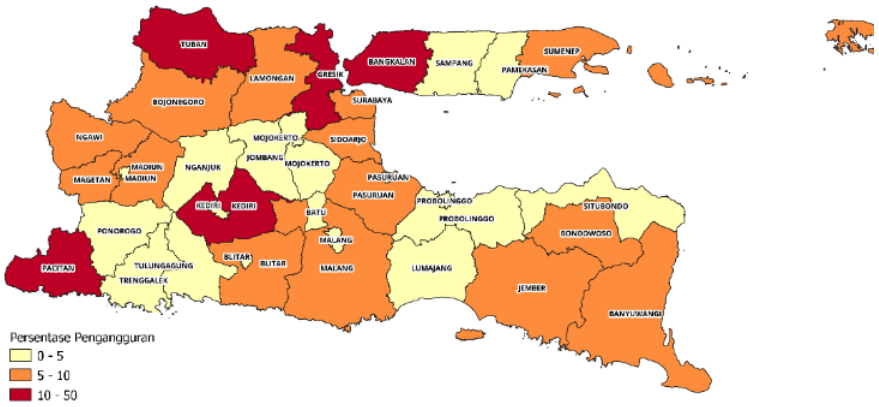


Figure 4. *Distribution of Educated Unemployment among Gen XY by District/City in East Java*
Source: Processed

At the individual level, several consistent patterns emerge from the data. Among Gen XY, most individuals have successfully integrated into the labor market. Interestingly, women in this cohort record higher employment participation than men, suggesting a gradual shift in gender dynamics within older generations. Practical experience also plays a decisive role: those who participated in internships or on-the-job training are more likely to secure employment quickly, underscoring the value of experiential learning. Migrants, too, show better employment outcomes, likely because geographic mobility broadens access to suitable job opportunities. Diploma holders display higher employment absorption rates than university graduates, implying that industries may prefer workers with practical competencies over those with purely academic qualifications.

Meanwhile, among Gen Z, a different pattern emerges. Male participation in employment remains higher than that of females, reflecting continuing gender disparities among younger workers. Migration continues to enhance job prospects, though the effect of internships appears

weaker—indicating that not all training experiences translate effectively into employability. Furthermore, diploma graduates within Gen Z tend to face higher unemployment rates than their SMK (vocational high-school) counterparts, pointing to a potential misalignment between mid-level educational curricula and current industry needs.

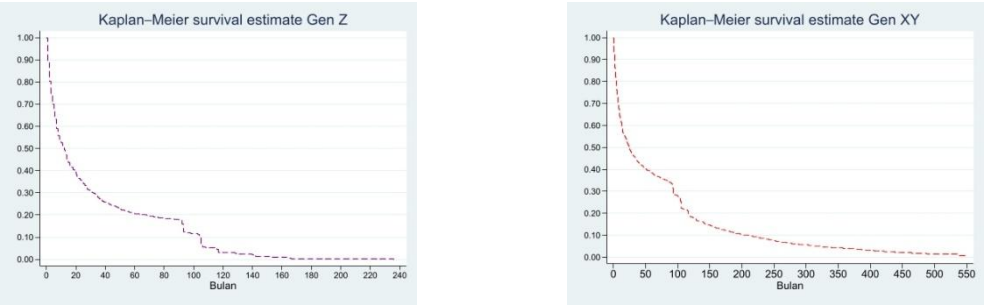
Overall, these findings underline that education alone is insufficient to guarantee employment for the younger generation. Practical exposure, relevant skill development, and geographical mobility increasingly determine employability in today's competitive labor market. Consequently, policy interventions must be both generation-sensitive and structurally responsive, ensuring that the evolving characteristics of youth labor supply are matched with dynamic and inclusive employment opportunities across East Java.

3.2. Descriptive Patterns of Unemployment Duration among Educated Gen Z and Gen XY in East Java

After examining the individual characteristics influencing employment status, this section focuses on the duration of unemployment as a key dimension in understanding the school-to-work transition. Unemployment duration reflects the length of time individuals take to secure their first job after completing education. Differences between generations can indicate structural shifts in the labor market, evolving worker characteristics, and inequality in access to job opportunities. Younger generations, particularly Gen Z, tend to face new challenges driven by technological transformation, shifting job preferences, and intensified competition, whereas Gen XY benefits from greater experience and professional networks.

Using the Kaplan-Meier survival approach, this study estimates the probability of remaining unemployed over time. The results (Figure 5) reveal distinct patterns between the two generations. For Gen XY, the survival curve declines sharply within the first 50 months after graduation, showing that over 70 percent have obtained their first job within that period. The curve then flattens after 100 months, indicating that nearly all eventually enter the labor market, though a few experience prolonged unemployment.

In contrast, Gen Z's curve declines more gradually, with 60–70 percent employed by the 50th month, and the remainder transitioning more slowly until approximately the 240th month. This suggests that Gen Z faces longer transition periods, possibly due to higher job selectivity, skill mismatches, or changing labor market dynamics. Overall, while both generations ultimately integrate into the workforce, Gen XY demonstrates a faster and more stable transition, highlighting the growing structural and behavioral challenges confronting today's younger educated workers.



(a) (b)

Figure 5. *Kaplan-Meier Survival Curves for (a) Generation Z and (b) Generation XY*
Source: Processed

In summary, the median unemployment duration for Gen XY is substantially shorter than that of Gen Z, indicating a faster school-to-work transition among older cohorts. Specifically, the median unemployment duration of Gen Z is notably longer than that of Gen XY, confirming a slower school-to-work transition among younger cohorts. While the Kaplan–Meier curves provide an initial depiction of these differences, they do not account for confounding individual and regional factors. Therefore, the following section applies a multilevel lognormal accelerated failure time (AFT) model to quantify the determinants of unemployment duration in a multivariate framework.

3.3. Factors Affecting the Duration of Educated Unemployment in East Java

Following the non-parametric analysis of unemployment duration differences across generations using the Kaplan–Meier approach, this section explores the factors influencing how long educated individuals remain unemployed before securing their first job. A parametric approach is employed to estimate the effects of explanatory variables in a more structured manner. The first step involves identifying the most appropriate parametric distribution to represent the data accurately. The model selection is based on the Akaike Information Criterion (AIC), where the model with the smallest AIC value is considered the best fit. The comparison results are presented in Table 2.

Table 2. AIC Values by Parametric Distribution

Distribusi Parametrik	AIC	
	Gen Z	Gen XY
Weibull	128951.1	31887.5
Exponential	132491.1	32303.9
Gamma	129277.6	31913.8
Lognormal	**128613.3**	**31254.4**
Loglogistic	129388.9	31482.1

Source: Processed

Based on Table 2, the lognormal model provides the best fit for both generations, indicated by the lowest AIC value. This suggests that the distribution of unemployment duration among educated workers is asymmetric and complex, with lognormal specifications better capturing

high variance, particularly among younger and mid-aged groups. To accommodate potential regional heterogeneity, a random-effects test was conducted to determine whether a multilevel model was preferable to a single-level one. This step ensures that the model reflects not only statistical accuracy but also the structural complexity of the data. The results are shown in Table 3.

Table 3. Random-Effect Test Results

Model	LR Test	p-value	Description
Gen Z	231.82	0.000	Random effect is significant
Gen XY	487.23	0.000	Random effect is significant

Source: Processed

Table 3 confirms that the multilevel approach is appropriate for both generations. The significant random effects indicate that baseline risk variations across districts influence unemployment duration and cannot be fully explained by fixed covariates. Therefore, a multilevel survival analysis was adopted using the lognormal accelerated failure time (AFT) model with random intercepts, allowing for regional differences in baseline risks while assuming homogeneous covariate effects. The estimation results are summarized in Table 4.

In the lognormal AFT framework, the exponentiated coefficients (Exp(Coef)) represent time ratios. Values greater than one indicate a longer unemployment duration, whereas values below one imply a shorter duration relative to the reference group. This interpretation allows for a direct assessment of how individual and regional factors accelerate or decelerate the transition into employment

Table 4. Estimation Results of Multilevel Survival Analysis (Lognormal AFT Model)

Variable	Category	*Gen Z*			*Gen XY*		
		Coef	Exp(Coef)	*P-value*	Coef	Exp(Coef)	*P-value*
Age	–	0.0461	1.0472	0.000*	0.0299	1.0304	0.000*
Gender	2	0.1232	1.1310	0.011*	0.3637	1.4385	0.000*
Household Members	1	-0.0422	0.9587	0.401	0.0983	1.1033	0.004*
Marital Status	2	-0.1496	0.8609	0.015*	-0.144	0.8658	0.008*
Migration Status	2	-0.2691	0.7642	0.010*	-0.0786	0.9244	0.290
Prakerja Participation	1	-0.1458	0.8644	0.188	-0.1187	0.8881	0.121
Job-training Certificate	1	0.0624	1.0644	0.256	-0.2354	0.7903	0.000*
Internship experience	1	-0.0907	0.9133	0.398	-0.3485	0.7056	0.009*
Education Level: Vocational High School	2	-0.5633	0.5690	0.000*	-0.3699	0.6906	0.000*
Education Level: Diploma	3	-0.4899	0.6129	0.001*	-0.4606	0.6310	0.000*

Variable	Category	*Gen Z*			*Gen XY*		
		Coef	Exp(Coef)	*P-value*	Coef	Exp(Coef)	*P-value*
Education Level: Bachelor's Degree	4	-0.5938	0.5520	0.000*	-0.4285	0.6515	0.000*
Minimum Wage (UMK)	–	-0.0002	0.9998	0.062	-0.2152	0.8064	0.037*
Registered Job Vacancies	–	-0.0215	0.9787	0.066	-0.0309	0.9696	0.017*
Labor Force Participation Rate (LFPR)	–	-0.0557	0.9458	0.001*	-0.0389	0.9618	0.022*
GRDP	–	0.0002	1.0002	0.005*	0.0016	1.0016	0.024*
Gini Ratio	–	-5.4096	0.0045	0.001*	-5.532	0.0039	0.002*
Training Centers (BLK)	1	-0.0743	0.9284	0.553	0.030	1.0305	0.830
Constant (Intercept)	–	8.0406	3,099.43	0.000*	7.782	2,397.18	0.000*

Notes: * Significant at 5%. Reference categories include male, >4 household members, single, resident, no participation in prakerja, no job-training certification, no internship experience, SMA/SMK education, and districts without BLK.

Source: Processed

The estimation results in Table 4 reveal several factors significantly affecting unemployment duration. Age has a positive and significant impact across both generations, implying that older unemployed individuals face longer job-search durations due to declining adaptability and competitiveness. A one-year age increase extends unemployment duration by approximately 4.7 percent for Gen Z and 3.0 percent for Gen XY, consistent with Ode (2022). Gender also plays an important role: females tend to experience longer periods of unemployment—around 13 percent for Gen Z and 44 percent for Gen XY—because they are generally more selective in accepting job offers. This finding is consistent with Amalia & Nugrahadi (2020), who found that males tend to accept available jobs more quickly, even if the positions are not perfectly matched to their qualifications.

Household size significantly affects only Gen XY, where individuals from larger households face 10 percent longer unemployment durations, possibly due to greater financial pressure and slower decision-making. In contrast, no effect is found among Gen Z, who are often economically dependent. Marital status shows a negative and significant effect for both generations: married individuals experience about 14 percent shorter unemployment durations, reflecting stronger economic motivation to secure jobs (Crisanty & Pasaribu, 2022).

Migration status is significant only for Gen Z, where migrants experience a 24 percent shorter unemployment duration compared to non-migrants, suggesting that geographic mobility facilitates faster job matching among younger workers (Shumway 1993 in Amalia & Nugrahadi, 2020b). Participation in the Pre-Employment Card (*Prakerja)* program shows no significant

impact for either generation, suggesting that variations in motivation and training relevance may limit program effectiveness (Adam et al., 2025; Alatas et al., 2022). However, possession of training certificates significantly reduces unemployment duration by 21 percent among Gen XY, indicating enhanced employability through skills recognition (Romadhon & Zikra, 2022).

Internship experience (PKL) significantly shortens unemployment duration by 29 percent for Gen XY, emphasizing the value of practical exposure in improving job readiness. In contrast, the effect is insignificant for Gen Z, likely due to suboptimal quality and industry alignment (Adam et al., 2025). Regarding education level, all higher-education groups (Vocational High School, Diploma, and Bachelor) experience shorter unemployment durations compared to high school graduates, indicating a lack of qualifications in the workforce and job mismatch (Friska & Damayanti, 2021).

Regional economic variables also contribute to variations in unemployment duration. Minimum wage (UMK) and registered job vacancies significantly shorten unemployment duration for Gen XY, indicating stronger labor absorption in more dynamic local economies. Labor Force Participation Rate (LFPR) negatively affects unemployment duration for both generations, reflecting more active and fluid labor markets (Salsabila et al., 2022). In contrast, higher regional GDP (GRDP) is associated with longer unemployment spells for both generations, suggesting that more developed regions may involve tighter competition and higher job-search selectivity, which prolongs the school-to-work transition (Nuzulaili, 2022). Meanwhile, income inequality, as measured by the Gini ratio, significantly shortens unemployment duration. This counterintuitive effect may reflect increased pressure to accept available, even lower-quality, jobs in more unequal regions, where access to stable employment is unevenly distributed (Anwar, 2023).

Finally, the availability of vocational training centers (BLK) shows no significant influence, implying limited effectiveness of current training programs due to quality, relevance, or accessibility constraints (Irvan, 2019). To assess the contribution of regional variation, the Intraclass Correlation Coefficient (ICC) was calculated based on the null multilevel lognormal model, as shown in Table 5.

Table 5. Intraclass Correlation Coefficient (ICC) Results

Output	Level-2 Variance (var(cons))	Level-1 Variance	ICC
Model Gen Z	0.1168	1.645	6.63%
Model Gen XY	0.0826	1.645	4.77%

Source: Processed

The ICC results suggest that 6.6 percent (Gen Z) and 4.8 percent (Gen XY) of unemployment duration variance is attributable to inter-district differences. Although modest, these values indicate meaningful spatial effects, consistent with Gulliford et al. (1999) in Hox et al. (2010), who found typical ICCs between 0.00–0.30 at household level and around 0.05 at the neighborhood

level. Thus, regional context exerts a measurable, though not dominant, influence on the duration of educated unemployment across generations.

Overall, the findings yield concrete policy implications for strengthening school-to-work transition programs such as *JAWARA KERJA* (*Jawa Timur Wujudkan Akses dan Resiliensi Angkatan Kerja* / East Java Initiative for Labor Market Access and Resilience). For Generation Z, the prolonged unemployment duration and the limited effectiveness of internships and training participation indicate the need for more adaptive and demand-driven interventions, including industry-aligned training curricula, quality-controlled internships, and strengthened labor market information systems to reduce skill mismatches and improve job matching efficiency. In contrast, for Generation XY, the significant role of job-training certificates and internship experience suggests that upskilling and certification-based programs remain effective tools for accelerating re-employment. At the regional level, the presence of inter-district variation—though modest—highlights the importance of place-based strategies that account for differences in minimum wages, labor market activity, and income inequality. Integrating individual-level interventions with region-specific labor market conditions within the JAWARA KERJA framework can enhance program targeting, improve transition outcomes across generations, and support a more inclusive and responsive labor market in East Java.

4. Conclusion and Recommendations

This study provides robust evidence of intergenerational disparities in school-to-work transitions among educated workers in East Java. The findings indicate that Generation Z experiences systematically longer unemployment durations than Generation XY, even after controlling for individual and regional characteristics, reflecting a more fragile and prolonged entry into the labor market. The multilevel survival analysis further shows that formal interventions, such as participation in training programs and the Pre-Employment Card (*Kartu Prakerja*), have not been consistently effective in shortening unemployment duration among Gen Z. Instead, individual characteristics (age, education level, and marital status) and regional labor market conditions emerge as the dominant determinants. In addition, regional factors, including minimum wages (UMK), labor force participation rates (LFPR), regional economic output (GRDP), income inequality (Gini ratio), and the availability of training institutions, significantly influence transition speed, with inter-district variation accounting for approximately 5–7 percent of the total variance in unemployment duration.

These results underscore the importance of evidence-based and generation-sensitive labor market policies. In this context, the *JAWARA KERJA* (*Jawa Timur Wujudkan Akses dan Resiliensi Angkatan Kerja* / East Java Initiative for Labor Market Access and Resilience) framework offers an integrated policy response to persistent school-to-work transition challenges. For Generation Z, adaptive and competency-based training—particularly in digital, green, and soft skills—is essential to addressing prolonged unemployment spells and persistent skill mismatches. For Generation XY, targeted upskilling and certification-oriented programs are crucial for facilitating

technological adaptation and sustaining employability over the life course. At the regional level, the observed spatial variation highlights the need to strengthen district-based vocational training centers (*Balai Latihan Kerja*), enhance coordination with local industries, and integrate real-time labor market information systems to reduce information frictions and improve job matching

Overall, this study contributes both methodologically and substantively to the literature. Methodologically, it applies a multilevel survival analysis with an explicit intergenerational lens to examine unemployment duration at the provincial level. Substantively, it proposes a concrete and empirically grounded policy framework through *JAWARA KERJA* to support more effective and inclusive school-to-work transitions in East Java. While the analysis relies on cross-sectional labor force data, future research would benefit from longitudinal datasets and indicators of job quality to better capture dynamic employment trajectories and the sustainability of labor market integration.

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