Original Research Article

An application of survival analysis on the determinants of employment longevity in Namibia: Evidence from 2018 Labour Force Survey

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ARTICLE INFO

ABSTRACT

Employment longevity shapes the total work experience of an employee's career, in addition to providing additional information about the employment stability of the employee and employer. However, in recent years, employment stability has decreased globally, with Namibia being amongst the highly affected countries where workers are having a high number of short-term employment records over the course of their careers. In this paper, the Kaplan-Meier and Cox Proportional Hazard techniques were used to estimate the survival of employment longevity for employed adults in Namibia using the 2018 Namibia Labour Force Survey. Results showed that majority of the employees were working in the private enterprises and government institutions, attained junior and senior secondary education, never married, worked for a paying job and were from the Khomas, Erongo and Otjozondjupa regions. Likewise, majority of the employees employed for less than 1 year and for 1-2 years were aged 20-29 years, while majority employed for 3-5 years and 6-10 years were aged 30-39 years. The employed adults' characteristics such as age group, type of employer, highest education attained, marital status, region, current schooling status and sex had a significant association with their survival of employment longevity. In addition, employees aged 30-39 and 40-49 years, employed in non-profit institutions, parastatals and government institutions, and from the Oshikoto, Omaheke, Oshana, Khomas, Erongo and Otjozondjupa regions had a high survival of employment longevity, while employees employed in privately owned informal enterprises and had already attained a technical or vocational certificates/diplomas, junior and senior secondary education had a low survival. It is therefore recommended that all relevant organizations and governmental ministries that deals with employment and labour matters should frequently engage all employers through their respective human resources departments, to further assist in the creation and implementation of favourable employment contracts that best suits their respective employees, especially, for those employed in privately owned informal enterprises, employed for less than 1 year, 1-2 years and 3-5 years, who are in their 20s and 30s (age-wise), and already attained a technical or vocational certificates/diplomas, junior and senior secondary education.

1. Introduction

Employment longevity can be defined as the number of years/months/days a person is employed in the service they are currently employed in. It shapes the total work experience of an employee and can provide (more) information about the work stability of both the employees and employers (Ignaczak & Voia, 2011; Noon, Blyton & Morrell, 2013). Most often, employers use limited duration contracts that lasts for a specified period, to create certainty and limit legal risk in respect of staffing solutions, as these contracts will expire on a certain date or upon termination by the employer with valid reasons, which in turns allows an employer to plan for the employee's exit in advance (McKenzie, 2020). These contracts are usually regulated by the labour laws of each country, to ensure that employers still fulfill basic labour rights regardless of a contract's form, and most often they have a minimum duration of one or three months and a maximum term of two to three years, depending on the employer's policies.

An employee can be kept on successive limited duration contracts or can become a permanent employee, as long as it does not violate the employer's policies as well as the labour laws of the country. However, with the increased incorporation of Information and Communications Technologies (ICT) as well as Artificial Intelligence (AI) innovations at workplaces by employers, concerns have been raised with regards to their effects on human employment and comparative demand for skills at workplaces, as well as the segmentation of the labour market as a result of the changes in ICT and AI innovations (Castro-Silva & Lima, 2017). These concerns are fathomable as these innovations (most often) displaces low-skilled, entry-level and low-level workers, which increases the chances of being unemployed or offered very short-term (non-renewable) employment contracts. Moreover, the uncertainty of a country's economy and unforeseen corporate downsizings have also impacted in the retention of employees and the loss of critical employees (Sinha & Sinha, 2012) and Namibia is not immune to this debacle. For this reason, the aim of this study was to examine the factors associated with employment longevity in Namibia for (employed) adults, in addition to estimating their survival of employment longevity.

2. Methodology

The data used in this paper were extracted from the Namibia Labour Force Survey (NLFS), administered by the Namibia Statistics Agency in 2018. The NLFS is conducted yearly from 2012 to 2018, to provide labour force information on the employment, socio-demographic and educational characteristics of all persons living in households in Namibia. In this study, the inclusion criteria were all employed adults aged 18 years and above living in households during the reference period of the 2018 survey. All NLFS reports and datasets are freely available online at www.nsa.org.na, and for more information about the 2018 survey, refer to the NLFS report of 2018.

2.1 Statistical Analysis

Survival analysis is a collection of statistical methods that can be used for analyzing data whose outcome variable is measured as the time until an event occurs (Kleinbaum & Klein, 2015). It analyses the rates of occurrence of events over time, without assuming the rates are constant, through the usage of a survival function, hazard function and cumulative hazard function. A survival function is defined as the probability that an individual will survives longer than time t, that is,

$$S(t) = P(T > t)$$

with T being the survival time. The hazard function, on the other hand, is defined as the probability of failure during a very small-time interval, assuming that the individual has survived to the beginning of the interval, while the cumulative hazard function is defined as the total number of failures or deaths over an interval of time and it is obtained as

$$H(t) = \int_0^t h(u)du$$

where $h(u)$ is the hazard risk and u is the accumulated risk (Petrus & Oyedele, 2021). To estimate the survival function, the non-parametric Kaplan Meier (KM) method can be used. This estimation method is the easiest way to determine survival over time in spite of all the problems associated with either subjects or situations, and uses curves to determine events, censoring and the survival probability (Etikan, Abubakar, & Alkassim, 2017). The survival probability is obtained as

$$\widehat{S(t)} = \prod_{i:t_i \leq t} \left(1 - \frac{d_i}{n_i}\right)$$

where t_i, for $i = 1, 2, \cdots, n$, represents the time at which failures occurs, n_i represents the number of individuals at risk at time t_i, and d_i represents the number that failed at time t_i (Harrell, 2015). To estimate the hazard function, the Cox Proportional Hazard (CPH) approach can be used. This approach is a semi-parametric regression model that simultaneously assesses the effects of several (risk) factors on survival time of an event of interest (Petrus & Oyedele, 2021) and is given as

$$h(t, X) = h_0(t)e^{\sum_{i=1}^p \beta_i X_i}$$

where $X = (X_1, X_2, \cdots, X_p)$ is the set of predictors, $h_0(t)$ is the baseline hazard function, X_i, for $i = 1, 2, \ldots, p$, is the ith predictor, β_i is the coefficient for the ith predictor and e^{β_i} is the hazard ratio that measures the effect of the ith predictor on the survival time.

The response variable in this paper was the employment longevity (in years) of the employed adults, measured using their respective length of employment, while the predictors were their age group (in years), type of employer, highest education attained, marital status, working for payment job, region, (current) schooling status and sex. All the data analyses of this paper were performed using the R software.

3. Results

Out of the 6,658 employed adults aged 18 years and above considered in this study, majority (2,139) were employed for less than 1 year, followed by those

employed for 3-5 years (1,323), 1-2 years (1,164) and for at least 11 years (1,110), while only 922 (13.85%) were employed for 6-10 years as shown in Table 1. Majority of the employees employed for less than 1 year and for 1-2 years were aged 20-29 years, followed by those aged 30-39 years, while majority of those employed for 3-5 years were aged 30-39 years, followed by those aged 20-29 years. On the other hand, majority of the employees employed for 6-10 years were aged 30-39 years, followed by those aged 40-49 years, while majority of those employed for at least 11 years were aged 40-49 and 50-59 years. Furthermore, majority of the 6658 employees were working in the private enterprises (32.91%) and government institutions (20.94%), attained junior secondary education (32.14%) and senior secondary education (22.84%), and were never married (57.40%). In addition, majority were from the Khomas (15.76%), Erongo (9.91%) and Otjozondjupa (9.12%) regions, worked for a paying job (94.56%), and were males (54.19%) as shown in Table 1.

Table 1: Distribution of the employed adults' characteristics and their length of employment

Characteristic	<1 year	1-2 years	3-5 years	6-10 years	≥11 years		P-value
	Count (%)	Count (%)	Count (%)	Count (%)	Count (%)	Total (%)	
Age Group							
<20	128 (1.92)	24 (0.36)	13 (0.20)	1 (0.02)	0 (0.00)	166 (2.49)	<2e-16*
20-29	996 (14.96)	484 (7.27)	411 (6.17)	126 (1.89)	18 (0.27)	2035 (30.56)	
30-39	594 (8.92)	391 (5.87)	519 (7.80)	384 (5.77)	201 (3.02)	2089 (31.38)	
40-49	283 (4.25)	175 (2.63)	259 (3.89)	287 (4.31)	429 (6.44)	1433 (21.52)	
50-59	111 (1.67)	75 (1.13)	95 (1.43)	106 (1.59)	422 (6.34)	809 (12.15)	
60-69	21 (0.32)	12 (0.18)	22 (0.33)	17 (0.26)	33 (0.50)	105 (1.58)	
≥70	6 (0.09)	3 (0.05)	4 (0.06)	1 (0.02)	7 (0.11)	21 (0.32)	
Total	2139 (32.13)	1164 (17.48)	1323 (19.87)	922 (13.85)	1110 (16.67)	6658 (100)	
Employer Type							
Unspecified	20 (0.30)	7 (0.11)	7 (0.11)	3 (0.05)	5 (0.08)	42 (0.63)	<2e-16*
Cooperative	35 (0.53)	18 (0.27)	25 (0.38)	12 (0.18)	13 (0.20)	103 (1.55)	
Government	77 (1.16)	103 (1.55)	321 (4.82)	325 (4.88)	568 (8.53)	1394 (20.94)	
Non-profit institution	10 (0.15)	7 (0.11)	8 (0.12)	9 (0.14)	12 (0.18)	46 (0.69)	
Parastatal	71 (1.07)	60 (0.90)	90 (1.35)	85 (1.28)	112 (1.68)	418 (6.28)	
Private enterprise	644 (9.67)	497 (7.46)	522 (7.84)	300 (4.51)	228 (3.42)	2191 (32.91)	
Private enterprise (informal)	288 (4.33)	98 (1.47)	58 (0.87)	23 (0.35)	24 (0.36)	491 (7.37)	
Private household (commercial farm)	201 (3.02)	106 (1.59)	91 (1.37)	53 (0.80)	51 (0.77)	502 (7.54)	
Private household (non-farm)	396 (5.95)	128 (1.92)	114 (1.71)	62 (0.93)	43 (0.65)	743 (11.16)	
Private household (subsistence farm)	397 (5.96)	140 (2.10)	87 (1.31)	50 (0.75)	54 (0.81)	728 (10.93)	
Total	2139 (32.13)	1164 (17.48)	1323 (19.87)	922 (13.85)	1110 (16.67)	6658 (100)	
Highest Education attained							
Postgraduate Certificate/Diploma/Degree	14 (0.21)	21 (0.32)	40 (0.60)	60 (0.90)	91 (1.37)	226 (3.39)	<2e-16*
Junior secondary	845 (12.69)	414 (6.22)	414 (6.22)	226 (3.39)	241 (3.62)	2140 (32.14)	

None	302 (4.54)	136 (2.04)	116 (1.74)	78 (1.17)	101 (1.52)	733 (11.01)	
Primary	481 (7.22)	185 (2.78)	172 (2.58)	115 (1.73)	148 (2.22)	1101 (16.54)	
Senior secondary	364 (5.47)	265 (3.98)	346 (5.20)	269 (4.04)	277 (4.16)	1521 (22.84)	
Technical or Vocational Certificate/Diploma	25 (0.38)	32 (0.48)	42 (0.63)	28 (0.42)	18 (0.27)	145 (2.18)	
Undergraduate Certificate/ Diploma/Degree	108 (1.62)	111 (1.67)	193 (2.90)	146 (2.19)	234 (3.51)	792 (11.90)	
Total	2139 (32.13)	1164 (17.48)	1323 (19.87)	922 (13.85)	1110 (16.67)	6658 (100)	
Marital Status							
Separated	16 (0.24)	6 (0.09)	10 (0.15)	3 (0.05)	8 (0.12)	43 (0.65)	
Consensual union	271 (4.07)	139 (2.09)	156 (2.34)	95 (1.43)	94 (1.41)	755 (11.34)	<2e-16*
Divorced	6 (0.09)	7 (0.11)	17 (0.26)	11 (0.17)	27 (0.41)	68 (1.02)	
Married traditionally/customary	139 (2.09)	72 (1.08)	81 (1.22)	53 (0.80)	59 (0.89)	404 (6.07)	
Married with certificate	181 (2.72)	166 (2.49)	282 (4.24)	280 (4.21)	555 (8.34)	1464 (21.99)	
Never married	1503 (22.57)	759 (11.40)	767 (11.52)	464 (6.97)	329 (4.94)	3822 (57.40)	
Unspecified	4 (0.06)	3 (0.05)	0 (0.00)	1 (0.02)	0 (0.00)	8 (0.12)	
Widowed	19 (0.29)	12 (0.18)	10 (0.15)	15 (0.23)	38 (0.57)	94 (1.41)	
Total	2139 (32.13)	1164 (17.48)	1323 (19.87)	922 (13.85)	1110 (16.67)	6658 (100)	
Payment Working							
No	105 (1.58)	72 (1.08)	75 (1.13)	43 (0.65)	67 (1.01)	362 (5.44)	0.500
Yes	2034 (30.55)	1092 (16.40)	1248 (18.74)	879 (13.20)	1043 (15.67)	6296 (94.56)	
Total	2139 (32.13)	1164 (17.48)	1323 (19.87)	922 (13.85)	1110 (16.67)	6658 (100)	
Region							
Zambezi	107 (1.61)	45 (0.68)	56 (0.84)	43 (0.65)	39 (0.59)	290 (4.36)	
Erongo	190 (2.85)	121 (1.82)	157 (2.36)	98 (1.47)	94 (1.41)	660 (9.91)	
Hardap	151 (2.27)	94 (1.41)	84 (1.26)	63 (0.95)	81 (1.22)	473 (7.10)	
!Karas	154 (2.31)	105 (1.58)	101 (1.52)	78 (1.17)	86 (1.29)	524 (7.87)	
Kavango East	178 (2.67)	78 (1.17)	86 (1.29)	61 (0.92)	84 (1.26)	487 (7.31)	
Kavango West	118 (1.77)	39 (0.59)	46 (0.69)	19 (0.29)	26 (0.39)	248 (3.72)	
Khomas	226 (3.39)	196 (2.94)	261 (3.92)	190 (2.85)	176 (2.64)	1049 (15.76)	5e-11*
Kunene	119 (1.79)	46 (0.69)	57 (0.86)	48 (0.72)	37 (0.56)	307 (4.61)	
Ohangwena	131 (1.97)	51 (0.77)	56 (0.84)	33 (0.50)	53 (0.80)	324 (4.87)	
Omaheke	146 (2.19)	76 (1.14)	84 (1.26)	40 (0.60)	63 (0.95)	409 (6.14)	
Omusati	148 (2.22)	75 (1.13)	71 (1.07)	36 (0.54)	74 (1.11)	404 (6.07)	
Oshana	136 (2.04)	72 (1.08)	85 (1.28)	67 (1.01)	105 (1.58)	465 (6.98)	
Oshikoto	149 (2.24)	69 (1.04)	77 (1.16)	58 (0.87)	58 (0.87)	411 (6.17)	
Otjozondjupa	186 (2.79)	97 (1.46)	102 (1.53)	88 (1.32)	134 (2.01)	607 (9.12)	

	2139 (32.13)	1164 (17.48)	1323 (19.87)	922 (13.85)	1110 (16.67)	6658 (100)	
Total	2139 (32.13)	1164 (17.48)	1323 (19.87)	922 (13.85)	1110 (16.67)	6658 (100)	
Current Schooling Status							
Attending school	108 (1.62)	64 (0.96)	98 (1.47)	69 (1.04)	68 (1.02)	407 (6.11)	3e-08*
Left school	1754 (26.34)	976 (14.66)	1119 (16.81)	784 (11.78)	961 (14.43)	5594 (84.02)	
Never attended	277 (4.16)	124 (1.86)	106 (1.59)	69 (1.04)	81 (1.22)	657 (9.87)	
Total	2139 (32.13)	1164 (17.48)	1323 (19.87)	922 (13.85)	1110 (16.67)	6658 (100)	
Sex							
Female	938 (14.09)	526 (7.90)	620 (9.31)	417 (6.26)	549 (8.25)	3050 (45.81)	0.004*
Male	1201 (18.04)	638 (9.58)	703 (10.56)	505 (7.58)	561 (8.43)	3608 (54.19)	
Total	2139 (32.13)	1164 (17.48)	1323 (19.87)	922 (13.85)	1110 (16.67)	6658 (100)	

* Significant at a 5% level of significance

Looking at the KM curves, it can be observed that the cumulative survival probability was higher for (adult) employees aged 50-59 years and lower for the 20-29 and less than 20 years age groups, while the probability was the same for both employees who worked for payment and those who did not, as shown in Figure 1.

Similarly, the probability was higher for employees in the Khomas, Oshana, Erongo, !Karas and Otjozondjupa regions, but lower for the remaining regions, while it was higher for the female employees and lower for the males as shown in Figure 2.
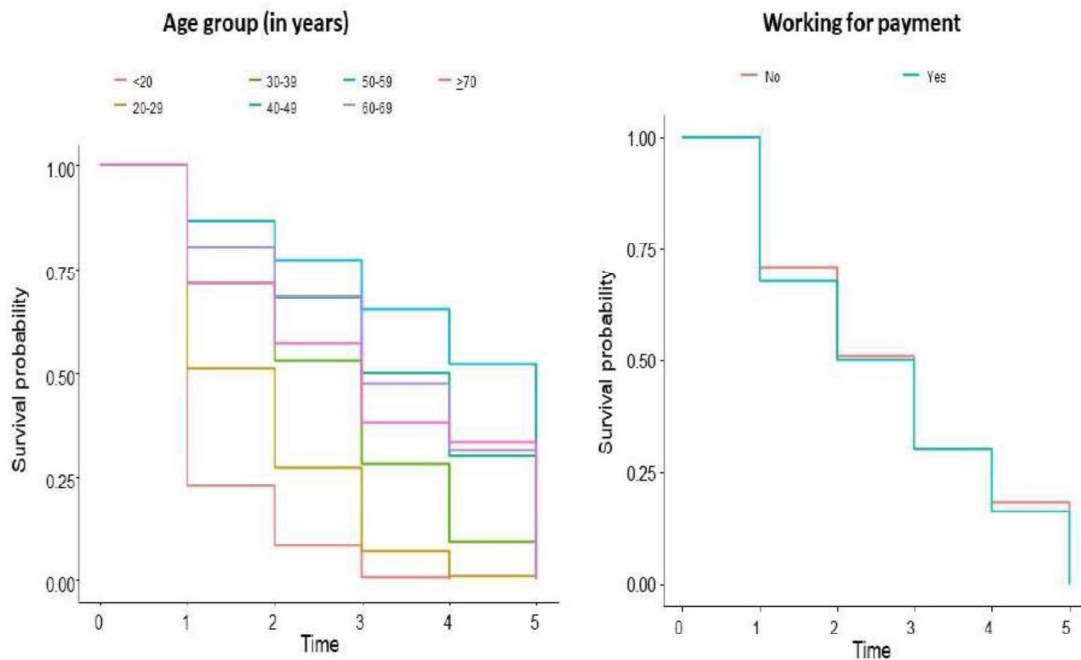

Figure 1: KM curves for employed adults' age group and working for payment.

Figure 2: KM curves for employed adults' region and sex.

Figure 3: KM curves for employed adults' schooling status and highest education attainment.

From Figure 3, it can be observed that the cumulative survival probability was higher for employees who were currently attending school and those that left school, but lower for those who never attended school, while the probability was higher for postgraduate certificate/diploma/degree holders and lower for

junior secondary and primary school certificate holders as well as uneducated employees. Likewise, the probability was higher for employees employed at government institutions, but lower for those employed at privately owned informal enterprises, non-farm and subsistence farm households, while it was higher for employees who were divorced, married with certificate and widowed, but lower for the employees with unspecified marital status as shown in Figure 4. Thus, it can be concluded that the employed adults' age group, region, sex, current schooling status, highest education attainment, marital status and type of employer were associated with their survival of employment longevity, while working for payment or not working for payment was not associated.
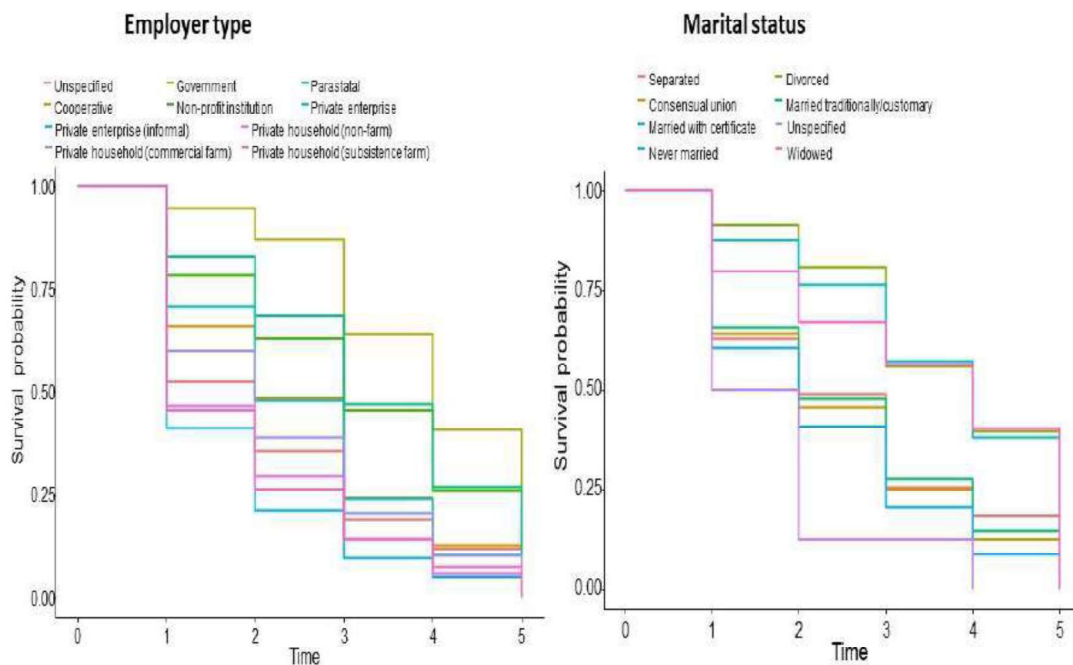

Figure 4: KM curves for employed adults' employer type and marital status.

Moreover, testing for the equality of survival distribution using the log rank (Mantel-Cox) test and with a significant p-value at a 5% level of significance, the employed adults' age group (p-value<2e-16), type of employer (p-value<2e-16), highest education attained (p-value<2e-16), marital status (p-value<2e-16), region (p-value=5e-11), current schooling status (p-value=3e-08) and sex (p-value=0.004) can be concluded to have a significant association with their survival of employment longevity, while the working for payment variable (p-value=0.500) does not have a significant association, as shown in Table 1. Hence, all the associated employed adults' characteristics were considered in the fitted CPH regression model and the subsequent results shown in Table 2.

Table 2: Output from the fitted CPH regression model

Characteristic	Adjusted estimate	Hazard ratio	Standard error	P-value	95% Confidence Interval for hazard ratio	
					Lower	Upper
Age Group						
<20 (Ref)						
20-29	-0.418	0.659	0.083	<0.001*	0.560	0.774
30-39	-0.988	0.372	0.084	<2e-16*	0.316	0.439

40-49	-1.432	0.239	0.087	<2e-16*	0.202	0.283
50-59	-1.673	0.188	0.092	<2e-16*	0.157	0.225
60-69	-1.614	0.199	0.130	<2e-16*	0.154	0.257
$\geq$70	-1.614	0.199	0.235	<0.001*	0.126	0.316
Employer Type						
Unspecified (Ref)						
Cooperative	-0.135	0.874	0.184	0.465	0.609	1.255
Government	-0.729	0.482	0.159	<0.001*	0.353	0.658
Non-profit institution	-0.388	0.679	0.215	0.049*	0.445	1.034
Parastatal	-0.445	0.641	0.163	0.006*	0.466	0.883
Private enterprise	-0.161	0.851	0.157	0.304	0.626	1.157
Private enterprise (informal)	0.276	1.318	0.162	0.040*	0.960	1.810
Private household (commercial farm)	-0.077	0.926	0.162	0.635	0.674	1.272
Private household (non-farm)	0.221	1.247	0.160	0.168	0.911	1.706
Private household (subsistence farm)	-0.058	0.943	0.161	0.717	0.688	1.293
Highest Education attained						
Postgraduate Certificate/Diploma/Degree (Ref)						
Junior secondary	0.187	1.206	0.074	0.012*	1.042	1.395
None	0.112	1.119	0.137	0.412	0.855	1.464
Primary	0.192	1.212	0.079	0.015*	1.039	1.414
Senior secondary	0.088	1.092	0.073	0.230	0.946	1.260
Technical or Vocational Certificate/Diploma	0.215	1.240	0.108	0.046*	1.004	1.533
Undergraduate Certificate/Diploma/Degree	0.067	1.069	0.076	0.377	0.922	1.241
Marital Status						
Separated (Ref)						
Consensual union	-0.155	0.857	0.158	0.329	0.628	1.169
Divorced	-0.193	0.825	0.197	0.328	0.561	1.213
Married traditionally/customary	0.005	1.005	0.162	0.977	0.731	1.381
Married with certificate	-0.246	0.782	0.157	0.118	0.575	1.064
Never married	-0.061	0.940	0.156	0.694	0.693	1.277
Unspecified	0.633	1.883	0.387	0.101	0.883	4.017
Widowed	-0.073	0.929	0.187	0.694	0.645	1.339
Region						
Zambezi (Ref)						
Erongo	-0.225	0.798	0.075	0.003*	0.689	0.925
Hardap	-0.072	0.931	0.079	0.360	0.798	1.086
!Karas	-0.087	0.917	0.077	0.262	0.788	1.067
Kavango East	0.061	1.063	0.076	0.421	0.916	1.234
Kavango West	-0.054	0.948	0.090	0.550	0.795	1.130
Khomas	-0.224	0.799	0.071	0.001*	0.696	0.918
Kunene	0.060	1.062	0.085	0.483	0.899	1.254
Ohangwena	-0.012	0.988	0.084	0.890	0.838	1.165
Omaheke	-0.153	0.858	0.081	0.047*	0.733	1.005

Omusati	-0.019	0.981	0.081	0.813	0.838	1.149
Oshana	-0.196	0.822	0.078	0.012*	0.705	0.959
Oshikoto	-0.134	0.874	0.081	0.049*	0.747	1.024
Otjozondjupa	-0.231	0.794	0.075	0.002*	0.685	0.920
Current Schooling Status						
Attending school (Ref)						
Left school	-0.079	0.924	0.053	0.141	0.832	1.027
Never attended	-0.060	0.942	0.127	0.638	0.735	1.207
Sex						
Female (Ref)						
Male	0.009	1.009	0.026	0.745	0.958	1.062

* Significant at a 5% level of significance   (Ref) = Reference category

From Table 2, with significant p-values<2e-16 and <0.001, (adult) employees who were aged 20-29 years (HR=0.659, p-value<0.001) had a higher survival of employment longevity, compared to the survival for employees who were less than 20 years old, while employees aged 30-39 (HR=0.372, p-value<2e-16) and 40-49 years (HR=0.239, p-value<2e-16) had a high survival of employment longevity. In addition, employees aged 50-59 (HR=0.188, p-value<2e-16), 60-69 (HR=0.199, p-value<2e-16) and at least 70 years old (HR=0.199, p-value<0.001) had a slightly fair survival of employment longevity as shown in Table 2. With regards to the type of employers, employees who were employed in non-profit institutions (HR=0.679, p-value=0.049) and parastatals (HR=0.641, p-value=0.006) had a higher survival of employment longevity, compared to the survival for those who had unspecified employers, while employees who were employed in government institutions (HR=0.482, p-value<0.001) had a high survival of employment longevity. However, employees who were employed in privately owned informal enterprises (HR=1.318, p-value=0.040) had a lower survival of employment longevity as shown in Table 2.

Furthermore, with significant p-values between 0.012 and 0.046, employees who had a technical or vocational certificates/diplomas (HR=1.240, p-value=0.046), senior secondary education (HR=1.212, p-value=0.015) and junior secondary education (HR=1.206, p-value=0.012) had a lower survival of employment longevity, compared to the survival for those who had postgraduate certificates/diplomas/degrees as shown in Table 2. Moreover, looking at the region characteristic, employees from the Oshikoto (HR=0.874, p-value=0.049), Omaheke (HR=0.858, p-value=0.047), Oshana (HR=0.822, p-value=0.012), Khomas (HR=0.799, p-value=0.001), Erongo (HR=0.798, p-value=0.003) and Otjozondjupa regions (HR=0.794, p-value=0.002) had a higher survival of employment

longevity, compared to the survival for employees who were from the Zambezi region as shown in Table 2.

4. Discussion

From this study, majority of the employees were employed for less than 1 year, while majority of the employees employed for less than 1 year and for 1-2 years were aged 20-29 years. On the other hand, majority of the employees employed for 3-5 years and 6-10 years were aged 30-39 years. However, majority of the employees employed for at least 11 years were aged 40-49 and 50-59 years. Additionally, majority of the employees were working in the private enterprises and government institutions, attained junior and senior secondary education, never married, worked for a paying job and were from the Khomas, Erongo and Otjozondjupa regions.

In this study, it was revealed that the employed adults' age group, type of employer, highest education attained, marital status, region, current schooling status and sex had a significant association with their survival of employment longevity. This study key findings are similar to the conclusions made in Ignaczak & Voia (2011), Madden et al. (2014), Jendrossek et al. (2019), ten Berge et al. (2020) and Selwaness & Krafft (2020). Ignaczak & Voia (2011) and Madden et al. (2014) concluded that employee's sex was related to their employment longevity, with the longevity decreasing abruptly among the male employees, while for the female employees a miscellaneous pattern was observed (Ignaczak & Voia, 2011). Likewise, Selwaness & Krafft (2020) concluded that the employees' marital status and sex were related to their employment longevity, with individuals forestalling marriage and those getting married having a strong relation with women's employment longevity outcomes. Jendrossek et al. (2019) concluded that the employees' age as well as the type of their employers were related to their employment longevity, with older aged employees and

those working in government institutions having fair to high employment longevity. Madden et al. (2014) and ten Berge et al. (2020) concluded that the attainment of higher education by the employee was associated with lower likelihood of job ending at the company.

Moreover, compared to the less than 20 years old age group, employees aged 30-39 and 40-49 years had a high survival of employment longevity, while employees aged 50-59, 60-69 and at least 70 years old had a slightly fair survival. This is not surprising as the older the employees get, the closer they are to the early or universal retirement age, which in turns lowers their chance of getting long-term employment contracts. In addition, some employers often give critical and scarce-skilled employees who have passed the universal retirement age of 65 years short-term (renewable) employment contracts of a duration between 6 months to 1 year. This is often done with the understanding that the critical and scarce-skilled employees train and pass on their skills to the low-level and junior employees in the company. This finding is in line with findings reported by Jendrossek et al. (2019) where it was concluded that the older the employees gets, the fairly to high their employment longevity in the company. Employees who were employed in non-profit institutions, parastatals and government institutions had a high survival of employment longevity. However, employees who were employed in privately owned informal enterprises had a low survival of employment longevity. This is not startling as most privately owned informal enterprises in Namibia are often micro, small and medium-sized enterprises that are non-subsidiary, independent and employs fewer than 10 employees, with a low to medium turnover and capital basis. Additionally, majority of these businesses experience difficulties during the first 12 to 24 months of their existence due to factors such as lack of proper planning, poor financial management, lack of management skills, inability to manage growth, lack of financial support, and lack of capital and access to finance. On the other hand, enterprises such as non-profit institutions, parastatals and government institutions most often do not lack financial support and access to institutional credit and financing, which micro, small and medium-sized enterprises most frequently lack resulting in their high financing costs and eventual failure. This finding somewhat echoes the observations made by Jendrossek et al. (2019) that the type of employer an employee has was associated with the employees' longevity at the company, especially, for those working in government institutions having higher longevity.

Furthermore, employees from the Oshikoto, Omaheke, Oshana, Khomas, Erongo and Otjozondjupa regions had a high survival of employment longevity, compared to the survival for employees who were from the Zambezi region. This may be due to the high number of employment opportunities within these developed and industrialized regions. Compared to the survival for those who had postgraduate certificates/diplomas/degrees, employees who had a technical or vocational certificates/diplomas, as well as junior and senior secondary education had a low survival of employment longevity. This is not surprising as most employers require a (higher) degree or specific classes of qualification from their employees before they can get promoted or be considered for a promotion at work, and an employee having a higher education attainment for his/her job makes him/her a more attractive candidate for work promotion opportunities within the company. Also, having higher education attainment can serves as an investment that improves the economic worth of individuals which in turns can increase a country's overall productivity and economic competitiveness, since an economy's productivity increases as the number of educated workers increases due to the prospect that skilled workers can perform tasks more efficiently. This finding is in line with findings reported by ten Berge et al. (2020) and Madden et al. (2014) where it was concluded that the attainment of higher education by the employee was associated with lower likelihood of job ending/loss.

5. Conclusion

It is recommended that all relevant organizations and governmental ministries that deals with employment and labour related matters should frequently engage all employers through their respective human resources departments, to further assist in the creation and implementation of favourable employment contracts that best suits their respective employees, especially, for those employed in privately owned informal enterprises and those who have already attained a technical or vocational certificates/diplomas, as well as junior and senior secondary education. This in turns will minimize the dislodgment of low-skilled, entry-level and low-level employees within the company, as well as minimize the loss of critical and scarce-skilled employees in the company. Additionally, such engagements may result in the reduction in the chances of being unemployed, especially, for employees employed for less than 1 year, 1-2 years and 3-5 years who are in their 20s and 30s (age-wise).

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