

Unemployment and (un)happiness: Life satisfaction approach to enhance policy efficiency for developing countries

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Abstract. Unemployment decreases happiness in individuals' lives, generating pecuniary and non-pecuniary costs for unemployed individuals, especially for the least satisfied or most vulnerable groups. The study investigates cognitive aspects of individual well-being among unemployed people. Based on a pooled cross-sectional dataset of 689 unemployed respondents and multivariate regression outputs, the research constructs a "vulnerability scale" and suggests the use of a "differentiated supporting system" in developing countries. The proposed system requires identifying and supporting the least satisfied unemployed individuals first, as they need that the most. Therefore, applying a differentiated supporting system can increase policy efficiency and enhance societal life satisfaction in developing countries with limited resources available for employment agencies. Use of the scale requires easily observable data (age, gender, marital status, educational attainment, and unemployment duration) and is readily reproducible in other cases. Within the conceptual framework of the "differentiated supporting system," employment agencies can construct a measurable "vulnerability scale" for unemployed individuals and increase resource use efficiency.

Keywords: unemployment policy, subjective well-being, vulnerability scale, employment agencies, developing countries, Azerbaijan

JEL Classification: H53, I31, I38, J65

Received:

July, 2020

1st Revision:

August, 2021

Accepted:

December, 2021

DOI:

10.14254/2071-
8330.2021/14-4/15

1. INTRODUCTION

The primary goal of all economic policy decisions is to enhance the well-being of people, at the individual level and as a whole (Oishi & Diener, 2014). Ritzen (2019) argues that "happiness is key to a productive economy, and a job is a key to individual happiness". Happier people have better health and live longer (Zajacova & Dowd, 2014). Being unemployed is a terrible thing, as harmful as a divorce or death in

the family (Layard, Clark & Senik, 2013). It is not only income loss, but also the sense that the person is not fulfilling the duties expected of them as a human being (Akerlof & Shiller, 2010).

Recent studies present strong evidence that unemployment decreases life satisfaction (Lim, 2017; Eren & Aşıcı, 2017; Frey, 2018; Barros, Dieguez & Nunes, 2019) and mental health (Farré, Fasani & Mueller, 2018), simultaneously increases happiness inequality (Becchetti, Massari & Naticchioni, 2013). Studies reveal that jobless people are unhappy and stressed, have poorer mental health (Clark & Oswald, 1994), and feel less valuable.

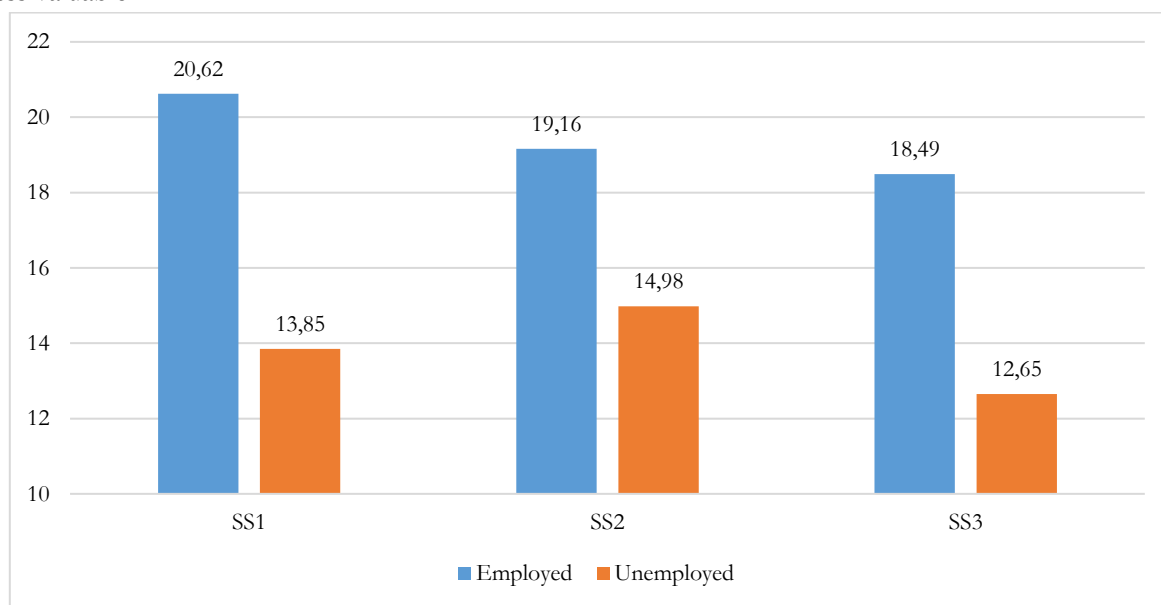


Figure 1. Average life satisfaction among employed and unemployed people

Source: Author's calculation based on ASERC (2018a, 2018b, 2019)

According to 3 large social surveys (SS) datasets, figure 1 describes the satisfaction gap between employed and unemployed people in Azerbaijan. The gap of average life satisfaction was 6.77 points during March-June, 2018 (SS1), 4.18 points during the last quarter of 2018 (SS2), and 5.84 points during March-June, 2019 (SS3).

The typical question asks how limited resources can be allocated in the most efficient way to improve the well-being of unemployed people. The primary contribution of this research is suggesting the use of a happiness-based relative vulnerability scale predicted by various observable individual-specific factors such as gender, age, marital status, education level, and unemployment duration to improve the theoretical and conceptual frame of a “differentiated supporting system” (identifying, supporting and prioritizing the unhappiest groups first). Employment agencies in the countries with limited employability and compensation resources are recommended to employ such a supporting system based on this scale to support first those who need it the most. The list of covariates can be expanded upon data availability. Parameters of the “vulnerability scale” model could be estimated using regular representative survey data of unemployed people. Therefore, employment agencies can assess the vulnerability of each applicant (required information will be available in the application form).

The research estimates the “vulnerability scale” model and identifies basic features of higher vulnerability to unemployment in Azerbaijan. In a broader context, the research can be replicated in other cases and at different time zones to identify the “vulnerability scale” model parameters and the most vulnerable unemployed groups. In the short-term, research findings can be used by Azerbaijan's employment agencies. The use of the scale can also be beneficial for long-term public policy decisions.

The remaining part of the research is structured as follows: Section II reviews the existing state of knowledge, Section III explains sampling procedure and the employed empirical methodology. Section IV presents preliminary research results, while the last section discusses the findings and make a conclusion.

2. LITERATURE REVIEW

The relationship between the overall unemployment rate and the well-being of the unemployed is ambiguous. Some researchers refer to the social norm effect for unemployed individuals and argue that the negative impact on happiness is comparatively less in a society with a higher rate of unemployment (Stutzer & Lalive, 2004; Ritzen, 2019). On the contrary, others reject this argument and conclude that the negative impact remains the same (Oesch & Lipps, 2012) or even larger (Chadi, 2014) if being unemployed is more common. On the other hand, several studies reveal the negative impact of unemployment on the well-being of employed people (Clark, Knabe & Rätzel, 2010; Schwarz, 2012; Winkelmann, 2014). Ochs and Welsch (2011) state that a person's fear of unemployment is not about being jobless but mostly linked to long-term duration probability, which "affects employed and unemployed people alike".

Unemployment has significant psychological effects as well (Boyce et al., 2015). Scar from past unemployment will become permanent, decreasing the person's happiness even after re-employment (Clark, Georgellis & Sanfey, 2001). Knabe and Rätzel (2011) alter the term slightly to "scarring" effect, implying that the past unemployment experience worsens the expectations of the re-employed people, constantly worrying about the possibility of being unemployed again in the future, and finding himself in discontent and in an in-secured position despite working. In this context, scholars underline the role of job security perception as a channel for the indirect effect of unemployment over life satisfaction (Clark, Knabe & Rätzel, 2010; Winkelmann, 2014; Chadi & Hetschko, 2016), especially for those who are temporarily employed (Helliwell & Huang, 2014; Schöb, 2016). Unemployment causes ineffective job search (Winkelmann, 2014), decreased motivation (Chadi, 2010), and compels those into "psychological scarcity" (Mullainathan & Shafir, 2013), which reduces good decision-making skills. On the contrary, re-employment probability depends on job search confidence (Petrucci, Blau & McClendon, 2015).

The two main channels that unemployment affects life satisfaction are (1) income loss (pecuniary costs), (2) deprivation from social rewards such as social relationships, identity in society, and individual self-esteem (non-pecuniary costs) (Winkelmann & Winkelmann, 1998). Helliwell and Huang (2014) argue that the second exceeds the first. Regarding the impact of unemployment, Harrison (1976) differentiates shock-optimism-pessimism-fatalism stages during the duration. Before, Easterlin (1974) had claimed that the negative impact mainly occurs in the short term that the person adapts to the new situation over time. However, Clark et al. (2008) argue that the impact remains even after re-employment. Results in Von Scheve, Esche and Schupp (2017) also reject the adaptation thesis.

A vast amount of previous studies has confirmed the impact of unemployment on life satisfaction. The relationship is unambiguously clear and negative. For successful active labour market policy implementation with limited resources, there is a need to identify the most vulnerable groups and design a policy directed towards the unemployed belonging to such groups. To develop a vulnerability scale, one should consider factors such as gender, age, marital status, education level, and unemployment duration, among other potential determinants.

According to Daouli et al. (2015), the most vulnerable groups to long-term unemployment are females, singles, the elderly, and the urban labour force. However, some studies conclude that males are more vulnerable to unemployment compared to females. Results display higher life satisfaction of women than men during unemployment (Stutzer & Lalive, 2004). Broman et al. (1995) identify males as more vulnerable to long-term unemployment than females in terms of depression and unhealthy mental state.

Knabe, Schöb and Weimann (2016) address the gender-based happiness difference from a different perspective. If the partner of a jobless person is unemployed, the life satisfaction of males falls significantly more than that of females. The result confirms that males with no job are also more vulnerable to the partner's unemployment (Knabe et al., 2016). Stutzer and Lalive (2004) explain the difference by social norm effect of unemployment, especially in more traditionally oriented societies where males are considered the family's breadwinners. Zuelke et al. (2018) argue that unemployment increases depression equally, while Beatty and Ritter (2018) find health costs higher for unemployed males. According to Basbug and Sharone (2017), long-term unemployment creates a larger negative emotional toll for jobless married males than females. Previous studies reveal less happiness among widowed or divorced individuals compared to others (Oshio, Nozaki & Kobayashi, 2011; Chyi & Mao, 2012).

Regarding the impact of age, studies end with the existence of a U-shaped association (Clark and Oswald, 1994; Oesch and Lipps, 2012), concluding that unhappiness due to unemployment is in the majority for those in mid-thirties (Clark and Oswald, 1994). According to Clark and Oswald (1994), unemployment hurts young people less than others. In contrast, Winkelmann and Winkelmann (1998) find a negative relationship between age and happiness regarding the impact of unemployment, which argues that the young suffer the most from losing a job. Graham and De Lannoy (2016) support Winkelmann and Winkelmann (1998), who claim that the most vulnerable age group to unemployment is 15-24. Unemployed individuals aged 30-44 have a significantly greater chance of finding a job in a year after being unemployed than younger and older ones who are challenged by the business cycle and age-related issues, respectively (Axelrad, Malul & Luski, 2018).

Overall, the relationship between educational attainment and happiness is insignificant or negative (Powdthavee, 2010). It can be positive depending on age (Nikolaev & Rusakov, 2016), positive diminishing marginal return (Nikolaev, 2018). Clark and Oswald (1994) reveal higher mental distress at a higher educational level regarding the relationship among unemployed people. In contrast, Daouli et al. (2015) and Broman et al. (1995) find less educated people as more vulnerable to unemployment.

The conclusion from the previous studies displays the greater vulnerability of males and less educated people to unemployment than females and those with higher education levels. The results are inconclusive about the most vulnerable age group in the existing literature. To the best of our knowledge, there is no prior research investigating the unemployment–happiness association in Azerbaijan. The current study will have the following significant contribution to the existing state of knowledge: (1) suggesting the use of “vulnerability scale” to identify the unemployed individuals who need to be supported the most and cover them within “a differentiated supporting system”, (2) identification of more disaggregated vulnerable groups in a Muslim society on a broader framework, (3) filling the unemployment – happiness research gap in subjective well-being literature on Azerbaijan, (4) provide applicable recommendations for the unemployment-related policy decision-makers to enhance the efficiency of labour market policy in the country to overcome negative consequences of being jobless in the society.

3. SAMPLING AND RESEARCH METHODOLOGY

The current study applies pooled cross-sectional research methodology based on the combination of 3 different survey results: Social Survey-1 ($N = 3308$, $n_{unemp} = 353$, conducted during 01.03.2018-01.06.2018), Social Survey-2 ($N = 2208$, $n_{unemp} = 172$, conducted during 01.10.2018-01.01.2019), and Social Survey-3 ($N = 1884$, $n_{unemp} = 164$, conducted during 01.03.2019-01.06.2019) by ASERC (2018a, 2018b, 2019). The sample size equals 689 ($n_{male} = 354$; $n_{female} = 335$, $Mean_{age} = 29.13$).

According to research methodology, the most vulnerable groups among unemployed people are identified based on selected socio-demographic factors. Therefore, the sample covers only unemployed

individuals. The suggested framework attempts to provide a roadmap for policy officials to determine (based on a survey-based independent research finding) and firstly support those with the least life satisfaction. Regarding data collection methodology, respondents are selected randomly in surveys from all parts of the Republic, with comparatively limited access to rural areas.

In the data cleaning stage, we filter respondents who mention their employment status as “unemployed”. Later, the second filtering process is applied to remove all voluntary “unemployed” people following the responses to the question “what do you think, why you are unemployed”. Those mention “I am still studying”, “I do not want to work”, “due to my family (especially some married females)” or any similar other notes are removed from the list to find the number of involuntary unemployed.

In the analysis stage, we employ both descriptive and multivariate regression techniques.

3.1. Conceptual framework

Unemployment has heterogeneous well-being effects on unemployed individuals. In this context, vulnerability to being unemployed is different across unemployed groups. The degree of vulnerability can depend on numerous individual factors such as gender, age, marital status, educational attainment level, duration of unemployment, etc., in line with cultural and regional determinants.

Conceptually, employment agencies can use the “life satisfaction approach” to determine vulnerability among unemployed people in two ways. Firstly, an unemployed applicant should report “how much he/she is happy” according to a 1-10 scale. However, the applicant will try to show how “unhappiest he/she is” to maximize the potential gains. Therefore, this approach would yield biased results. On the contrary, the second way requires survey-based pre-determination of vulnerable group features by independent studies. The survey might be randomly selected, representative, and repeated regularly. In this case, the employment agency could use a “vulnerability scale” and apply the “differentiated supporting system” (identifying, supporting and prioritizing the unhappiest groups first).

The second strategy looks more reliable and practically applicable if the determined features can be observable (easily collected without subjective evaluation) and back-checked.

3.2. Measuring happiness

According to Oishi and Diener (2014), self-reported happiness is reliable enough and valid, which “tracks objective societal and economic conditions fairly well”. The measurement scale for self-reported happiness varies in different studies. Many empirical studies use a single Likert scale alike question such as “how satisfied are you at present with your life as a whole? (1 to 10)” (See Winkelmann and Winkelmann, 1998). However, self-reported happiness with a single question may not be reliable to measure the well-being of unemployed people, particularly in Muslim societies where gratitude behaviour (thanks to God) dominates largely. To measure approximate true happiness, the Satisfaction with Life Scale (SWLS) methodology by Pavot and Diener (1993) is more powerful which determines well-being according to 5 questions (p. 172): (1) *In most ways, my life is close to my ideal*, (2) *The conditions of my life are excellent*, (3) *I am satisfied with my life*, (4) *So far, I have achieved the important things I want in life*, and lastly (5) *If I could live my life over, I would change almost nothing*. The first three questions address measuring current satisfaction, while the remaining two cover the effect of past events on current happiness.

Answer choices are the same for all 5 questions – *strongly agree, agree, slightly agree, neither agree nor disagree, slightly disagree, disagree, and strongly disagree*. The participant is allowed to choose only one option. Each answer option is coded as 1 to 7, starting from “strongly disagree” (equals 1) while 7 stands for “strongly agree”. Next, the life satisfaction (LS) index for each respondent is calculated as the sum of response values to all 5 questions, varying between 5 (the respondent chooses the “strongly disagree” option in all questions) and

35 (the respondent chooses the “strongly agree” option in all question). The reliability of the scale reached conventional levels of acceptability ($\alpha = 0.846$).

According to Pavot and Diener (1993), the respondent is: Extremely dissatisfied if $5 \leq LS \leq 9$; Dissatisfied if $10 \leq LS \leq 14$; Slightly dissatisfied if $15 \leq LS \leq 19$; Neutral if $LS = 20$; Slightly satisfied if $21 \leq LS \leq 25$; Satisfied if $26 \leq LS \leq 30$; Extremely satisfied if $31 \leq LS \leq 35$.

Note that SWLS is a multi-item scale intended to assess the cognitive (happiness) rather than affective (life satisfaction) component of subjective well-being (Pavot and Diener, 1993). SWLS relies on Diener's (1984) early concept to create a global life-satisfaction scale based on.

3.3. Model building

3.3.1. Variables

Life satisfaction (LS) is the dependent variable. Independent variables include unemployment duration (UD), age, gender status, a set of dummy variables displaying the respondent's highest educational attainment level, marital status. Two more dummy variables are added to account for the time difference among the wave of surveys. The primary logic of independent variable selection is to be easily observable from individual's personal records which makes the use of the suggested supporting system based on a “vulnerability scale”.

Brief definitions are given in Appendix A. Table 1 presents major descriptive statistics about each variable. Due to missing values, the number of observations varies across variables.

Table 1

Descriptive statistics of variables

Variable	No. of Obs.	Mean	Minimum	Maximum	Std. Dev.
LS	687	14.47	5	34	6.925
UD	587	2.096	0.05	10	2.167
Age	685	28.98	17	65	9.515
Female	689	0.486	0	1	0.500
School	689	0.263	0	1	0.440
College	689	0.161	0	1	0.368
Bachelor (Ref.)	689	0.466	0	1	0.499
Master	689	0.104	0	1	0.306
Single (Ref.)	689	0.379	0	1	0.485
Married	689	0.488	0	1	0.500
Widowed	689	0.046	0	1	0.211
SS1	689	0.512	0	1	0.500
SS2	689	0.249	0	1	0.433

Source: Author's own completion

3.3.2. Model

For reliability of empirical results, we employ 3 estimation methods: Ordinary Least Squares (OLS), Robust Least Squares, and Ordered Logit. The final model specification includes a quadratic association between unemployment duration and happiness as well as between age and happiness. The model for estimation is as follows:

$$Y_i = \delta_0 + \delta_1 * UD_i + \delta_2 * UD_i^2 + \delta_3 * \ln(age)_i + \delta_4 * \ln(age)_i^2 + \delta_5 * School_i + \delta_6 * College_i + \delta_7 * Master_i + \delta_8 * Married_i + \delta_9 * Widowed_i + \delta_{10} * Female_i + \delta_{11} * SS1_i + \delta_{12} * SS2_i + u_i \quad (1)$$

Y_i is the dependent variable, LS, which is in natural logarithmic form ($\ln(LS)_i$) for OLS and Robust Least Squares, while different ($\ln(\frac{p}{1-p})_i$) in Ordered Logit. δ_n denotes regression coefficient for each explanatory variable. u is the error term. i stand for i -th observation.

Considering Harrison's (1976) "shock-optimism-pessimism-fatalism" stages during the unemployment period, previous findings on the age-happiness relationship (see Clark and Oswald, 1994; Oesch and Lipps, 2012), and in accordance with the results of descriptive analyses, U-shaped association is expected between UD and LS ($\delta_1 < 0, \delta_2 > 0$), and age and LS ($\delta_3 < 0, \delta_4 > 0$) while $\delta_5 < 0$ and $\delta_9 < 0$.

4. RESULTS

4.1. Descriptive results

This introductory overview also displays the level of unhappiness among unemployed people in Azerbaijan. In the sample of 689 unemployed individuals, 75% are dissatisfied with their life, while 4% are neutral, and 13% are just slightly satisfied. The total average score is 14.46, which is slightly more than the upper axis of dissatisfaction.

It is highly noteworthy to underline that the largest portion belongs to the extremely dissatisfied category - 204 jobless, 128 males, and 76 females. Among those, males are slightly more unhappy ($LS_{male} = 6.69, Age_{male} = 30.53; LS_{female} = 7.01, Age_{female} = 30.52$). The age distribution is almost equal for each gender group. Initial descriptive analyses outcomes display signs of females being less vulnerable to unemployment compared to unemployed males.

Regarding the role of marital status, educational attainment level, and age, results show that the gender happiness gap is 3.29 among married respondents ($LS_{male} = 13.17; LS_{female} = 16.46$) while the difference is 2.52 for single / engaged ($LS_{male} = 13.47; LS_{female} = 15.99$) and 4.2 among widowed participants ($LS_{male} = 6.28; LS_{female} = 10.48$). Gender happiness gap ($LS_{male} - LS_{female}$) is always negative against males. The least gap is among singles in absolute value, and the most considerable difference is for widowed respondents. All widowed males are extremely dissatisfied with life, while overall dissatisfaction is 92% (60% extremely dissatisfied) among widowed females. The average LS score of unemployed widowed individuals is extremely low, especially for males (twice more). Therefore, widowed males should be at the center of the unemployment policy focus as a more vulnerable group.

Brief descriptive results display an increasing return to life satisfaction and gender happiness gap expansion at higher educational attainment levels. The gap is 2.22 points among comprehensive school graduates ($LS_{male} = 12.16; LS_{female} = 14.38$), 2.76 points at college graduation level ($LS_{male} = 13.13; LS_{female} = 15.89$), 2.38 points among bachelor degree holders ($LS_{male} = 13.96; LS_{female} = 16.34$), and the largest, 3.25 point at graduate (master or Ph.D.) level ($LS_{male} = 12.77; LS_{female} = 16.02$). Therefore, comprehensive school graduates or less educated individuals are more vulnerable to unemployment.

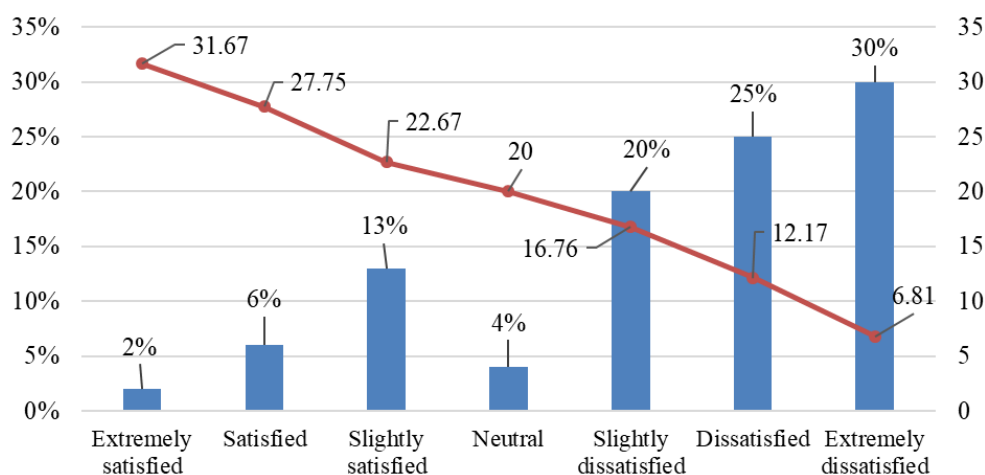


Figure 2. Disaggregated life satisfaction: general overview

Source: Author's own creation

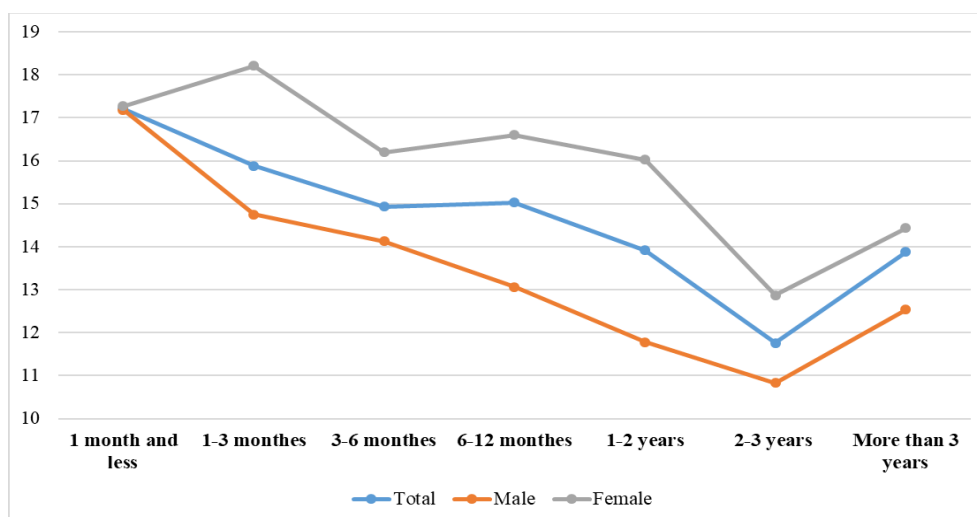


Figure 3. Average life satisfaction vs unemployment duration

Source: Author's own creation

Disaggregated age distribution of life satisfaction among the unemployed people in Azerbaijan displays a U-shaped association. Average LS score decreases until the age group 35-39 and turns upward after. Among the youngest group of unemployed (17-24 ages), the dissatisfaction share is 75% (out of which 23% are extremely dissatisfied) while the percentage is 77% (out of which 32% are extremely dissatisfied) among 25-29 aged youth, 86% (out of which 38% are extremely dissatisfied) among age 30-34, and 91% (out of which 48% are extremely dissatisfied) among age 35-39. In older age groups (40-44, and 45 and older), the share of dissatisfied individuals is 74% (out of which 39% are extremely dissatisfied) and 72% (out of which 25% are extremely dissatisfied), respectively. The gender happiness gap is negative in all age groups, relatively larger at 25-39 ages. Females' average LS score is nearly 3-point higher than males' score within these age groups.

The overall evaluation result is that people at thirties are more vulnerable to unemployment, especially males. Males are also more vulnerable to unemployment duration (see figure 3).

Following Harrison's (1976) "shock-optimism-pessimism-fatalism" stages, shock or immediate effect of being jobless is approximately the same – females and males are almost equally unhappy. As the

unemployment duration lasts longer, males become pessimistic and report higher unhappiness, while the "optimism" stage is valid for females during 1-3 months of unemployment followed by sharp pessimism (3-6 months), a little optimism (6-12 months), small (1-2 years) and large pessimism (2-3 years). Adaptation to the unemployment or fatalism stage only starts after approximately 3 years of being unemployed.

4.2. Empirical results

Table 2 includes results from OLS, Robust Least Squares, and Ordered Logit estimation methods. The findings of all methods are logically very close to each other. Hence, the causality from unemployment duration towards the life satisfaction of an unemployed person is like U-shaped ($p_{\delta_1} < 0.01, p_{\delta_2} < 0.01$). Contrary to Clark and Oswald (1994), we do not find any significant association between age and happiness¹. Simultaneously, comprehensive school graduates are substantially less happy compared to those with a bachelor degree ($p_{\delta_5} < 0.05$). Regarding marital status, empirical results reveal a huge happiness gap between widowed and unmarried (single) individuals ($p_{\delta_9} < 0.01$). The gender happiness gap is significant against males ($p_{\delta_{10}} < 0.01$). Overall, results are generally close to the findings of previous studies.

Reminding the primary goal to identify the main features of a more vulnerable group among the unemployed individuals, we do that here for Azerbaijan. Considering the U-shaped association between the duration of unemployment and life satisfaction, we should calculate the threshold level. Finding the first derivative of the estimated model by OLS according to UD_i yields the marginal impact equation. Therefore, we can calculate the threshold:

$$\frac{\partial Y_i}{\partial UD_i} = -0.132 + 2 * 0.014 * UD_i = 0 \quad (2)$$

$$UD_i = \frac{0.132}{0.028} = 4.71 \text{ years} \quad (3)$$

OLS finds 4.71 years as the threshold level of unemployment duration in Azerbaijan, after which adaptation happens. Analogous results by Robust Least Squares and Ordered Logit methods are 4.96 ($\frac{0.129}{0.026} = 4.96$) and 9.89 years ($\frac{0.435}{0.044} = 9.89$), respectively. More precisely, there is a diminishing marginal return to an additional year of unemployment in absolute value. Unemployment hurts more in earlier years. Starting the adaptation requires too much time – at least nearly five years, *ceteris paribus*.

Regarding individual-specific characteristics of vulnerable group members, the research reveals that less-educated individuals (graduation from 9-year comprehensive school is compulsory in the Azerbaijan education system) are nearly 13% less satisfied with life than bachelor degree holders. However, there is no significant satisfaction gap among unemployed individuals with college and master's degrees compared to those with a bachelor's degree ($p > 0.1$). On average, unemployed widows are 43-46% less happy than singles, *ceteris paribus*. While holding other fixed factors, an unemployed female is 23-24% more satisfied with life than males, on average. There is no significant well-being difference between married and single unemployed individuals ($p > 0.1$).

¹ For robustness, models are also estimated without quadratic term of age variable, as well as for different age groups. In all cases, no significant causality is revealed from age to happiness.

Table 2

Empirical results

Variables	OLS	Robust Least Squares	Ordered Logit
UD_i	-0.132*** (0.026)	-0.129*** (0.028)	-0.435*** (0.098)
UD_i^2	0.014*** (0.003)	0.013*** (0.003)	0.044*** (0.011)
$\ln(age)_i$	-2.308 (1.589)	-2.422 (1.697)	-7.865 (6.003)
$\ln(age)_i^2$	0.336 (0.229)	0.354 (0.245)	1.151 (0.869)
$School_i$	-0.128** (0.053)	-0.126** (0.056)	-0.409** (0.197)
$College_i$	-0.042 (0.057)	-0.035 (0.061)	-0.101 (0.211)
$Master_i$	-0.102 (0.067)	-0.107 (0.072)	-0.351 (0.252)
$Married_i$	0.031 (0.044)	0.029 (0.047)	0.088 (0.162)
$Widowed_i$	-0.430*** (0.107)	-0.458*** (0.115)	-1.550*** (0.387)
$Female_i$	0.227*** (0.041)	0.240*** (0.044)	0.821*** (0.157)
$SS1_i$	0.174*** (0.053)	0.184*** (0.056)	0.617*** (0.197)
$SS2_i$	0.080 (0.063)	0.084 (0.068)	0.254 (0.235)
C	6.443** (2.741)	6.617** (2.928)	$p > 0.1$
R-Squared	0.160	0.152	0.025

Note: ***, **, and * denote statistical significance at 1%, 5%, and 10%, respectively. Standard errors are in ().

^a Dependent variable is $\ln(LS)_i$.

^b Dependent variable is $\ln(LS)_i$. Method: M-estimation. M settings: weight=Bisquare, tuning=4.685, scale=MAD (median centered), Huber Type I Standard Errors & Covariance.

^c Dependent variable is $\ln\left(\frac{p}{1-p}\right)_i$. The number of ordered indicator values: 7. Convergence achieved after 5 iterations. Coefficient covariance computed using observed Hessian.

Meanwhile, it is also essential to underline the time-related difference of unhappiness/dissatisfaction among unemployed individuals. The coefficient of a time-specific dummy variable ($SS1_i$) means that in average, ceteris paribus, life satisfaction has been 17.4% higher among unemployed participants of “Social Survey -1” than “Social Survey -3”. The time difference is approximately 1 year. Although the coefficient of $SS2_i$ is statistically insignificant, the positive sign still confirms that life satisfaction has a decreasing tendency among unemployed people in Azerbaijan.

4.3. Sensitivity analyses

The robustness check requires residual and stability diagnostics (results are available upon request). Test results confirm that the estimated models have no functional misspecification (Ramsey-Reset test is employed) and heteroscedasticity (Breusch-Pagan-Godfrey test is applied) problems. Although residuals are not normally distributed, it should have no significant effect on t-test results due to the large sample size. Meanwhile, recursive estimates confirm the stability of OLS results.

To avoid omitted variable biasedness, we re-estimated the models by adding religiosity and regional dummies. Although religiosity dummies were significant, other variables' coefficients (and statistical significance) are not affected substantially. Because religiosity is not an observable indicator, we did not keep it in the model. On the contrary, regional dummies significantly impact neither the dependent nor the coefficients of independent variables, so not added.

5. DISCUSSION AND CONCLUSION

The research provided robust evidence about the severe unhappiness of unemployed people in Azerbaijan, which may have substantial social effects. A review of existing studies confirms how much unemployment can be harmful. The official unemployment rate is around 5%, while the number of people who received “unemployed status” at employment agencies is less than 1.6% of the total active labour force. However, the country has a large informal sector (Ismayilov, 2020) and hidden unemployment (Guney, Sabiroglu and Bulut, 2013) problems. According to the State Statistical Committee of Azerbaijan Republic, the average unemployment duration is 6.3 months. In 2019, the monthly unemployment benefit had been within 127-163 USD (1USD = 1.7 AZN (Azerbaijan national currency)), which was 36-40% of the average nominal salary in the country and paid only to 540 individuals. Interestingly, compared to the previous year, 4 times more people received official “unemployed status” in 2019 while beneficiaries of unemployment benefit decreased 2 times. All these confirm that employment agencies have limited resources in Azerbaijan (probably in many other developing countries). There is a need for “a differentiated supporting system” to enhance policy efficiency.

In this context, the current research provides valuable policy insights, suggesting that employment agencies should focus on unemployed people with higher vulnerability who need to be supported the most. The study follows the life satisfaction approach to vulnerability, arguing that unhappy people are more vulnerable to unemployment.

It becomes clear that males are more vulnerable to unemployment in Azerbaijan. The result is consistent with previous studies (Broman et al., 1995; Stutzer and Lalive, 2004; Knabe et al., 2016; Basbug and Sharone, 2017; Beatty and Ritter, 2018). With dominating Muslim society, males are viewed as breadwinners. In this sense, supporting the argument of Stutzer and Lalive (2004), unemployment policy should identify males as a more vulnerable group than females. However, results identify being divorced or widowed as the most influential factor to determine a specific vulnerable group to unemployment. Being less educated is another determined feature of a vulnerable group to unemployment, inconsistent with Broman et al. (1995) and Daouli et al. (2015), among others. To sum up, major individual-specific determinants of the most vulnerable group to unemployment in Azerbaijan are being widowed, male, and less educated – completing only compulsory education.

Without specifying any individual, but another essential factor is the duration of unemployment. Despite reviling diminishing marginal return in absolute value, the threshold duration level is very long, until which each additional year of being unemployed reduces the life satisfaction further. Therefore, long-term unemployment duration also should be added to the features of the most vulnerable group in the country.

5.1. Implications for research and policy

Research findings have significant research and policy implications. Contributions to the existing literature are (1) confirmation of the significant negative effect of unemployment over life satisfaction in Azerbaijan, and (2) identification features of the most vulnerable groups among unemployed individuals and suggesting the use of "a differentiated supporting system" to enhance policy efficiency. Those features can be case and time-sensitive and require further empirical evidence in different societies. In this context, the second contribution also opens a new field for future research.

Regarding policy implications, Oishi and Diener (2014) underline that "*self-reported happiness can be used to evaluate public policies such as taxation and unemployment benefits*" and describe an ideal society as "*in which citizens are happy, feel satisfied, and find their lives meaningful*". Current research creates a scientific impression about the unhappiness of unemployed individuals for Azerbaijani policymakers. Considering the vulnerable group's features, the government should re-evaluate its unemployment policy and consider applying "a differentiated supporting system".

Official employment agencies are recommended to build a strategy based on the individual's vulnerability degree. The agency can order an independent research agency to conduct an anonymous survey among both employed and unemployed people regularly. In this way, it will be possible to update the main features of more vulnerable groups. According to the scale, limited resources and available jobs might be used: from the most to the least vulnerable. The scale can refer to the current research findings at earlier stages.

5.2. Limitations

Firstly, the research does not consider the strength of family ties, income support from other family members, and whether husband/wife works or not (if works, how much salary do they earn) due to data unavailability. The second limitation is about not controlling for an individual's health-related (personal or family) issues. However, these factors are essential to assess actual vulnerability among unemployed people. The first one may decrease an individual's vulnerability to unemployment, while the second most probably affects vice-versa. Relatively less important, another limitation can be the perception of an unemployed person about the socio-economic situation and living conditions of others.

5.3. Conclusion

The overall conclusion of empirical findings is that the most vulnerable group to unemployment in Azerbaijan is (1) *widowed/divorced, less educated (with only comprehensive school graduation) males with long-term (4-5 years) unemployment duration*. The most influential factor seems to be widowed/divorced and gender status. Calculations based on estimated equations display that more vulnerable (high-to-low) subsequent groups are:

- *Widowed/divorced males with higher educational attainment*
- *Widowed/divorced less-educated females*
- *Widowed/divorced females with higher educational attainment*
- *Less-educated males (not widowed/divorced)*
- *Less-educated females (not widowed/divorced).*

Assessment of individual vulnerability among unemployed people and prioritizing those with the least life satisfaction should increase the quality and efficiency of services provided by employment agencies with limited available resources. Parameters of the "vulnerable scale" model are case sensitive and should be updated over time. The countries with a high unemployment rate can use this scale to identify and support

those who need it the most. The use of "a vulnerability scale" or "a differentiated supporting system" based on a life satisfaction approach will have many practical and social implications and positive externalities.

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APPENDIX A

Brief definitions of the variables

Variables	Definitions
<i>Dependent variable</i>	
<i>LS</i>	Life satisfaction / happiness / well-being of the unemployed individuals, measured in units changing between 5 and 35.
<i>Independent variables</i>	
<i>UD</i>	Duration of unemployment for each corresponding jobless, measured in years.
<i>Age</i>	The age of each respondent, measured in years.
<i>Female</i>	Dummy variable, equals 1 if the jobless is female, 0 otherwise. Reference group is <i>males</i> .
<i>Educational dummies (Ref. bachelor degree holders.)</i>	
<i>School</i>	Equals 1 if the respondent's highest educational attainment level is graduation from comprehensive schools, 0 otherwise.
<i>College</i>	Equals 1 if the respondent's highest educational attainment level is graduation from vocational schools / colleges (2.5-year education), 0 otherwise.
<i>Master</i>	Equals 1 if the respondent has master or higher degree, 0 otherwise.
<i>Marital status dummies (Ref. Singles)</i>	
<i>Married</i>	Equals 1 if the respondent is married, 0 otherwise.
<i>Widowed</i>	Equals 1 if the respondent is widowed / divorced, 0 otherwise.
<i>Time specific dummies (Ref. Social Survey -3, 01.03.2019-01.06.2019)</i>	
<i>SS1</i>	Equals 1 if the respondent belongs to Social Survey -1 (01.03.2018-01.06.2018), 0 otherwise.
<i>SS2</i>	Equals 1 if the respondent belongs to Social Survey -2 (01.10.2018-01.01.2019), 0 otherwise.
<i>Source: Author's own completion</i>	