



**Long-term unemployment: a question of skill obsolescence  
(updating existing skills) or technological shift (acquiring  
new skills)?**

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# Long-Term Unemployment. A Question of Skill Obsolescence (Updating Existing Skills) or Technological Shift (Acquiring New Skills)?

## ABSTRACT

**Purpose** – This paper empirically explores the role of skill losses during unemployment behind firms' behaviour in interviewing long-term unemployed

**Design/methodology/approach** – The analysis makes use of the Work Employment Relations Survey in the UK, while it applies a Panel Probit Modelling approach to estimate the empirical findings.

**Findings** – The findings document that skill losses during long-term unemployment reduce the likelihood of an interview, while they emphasize the need for certain policies that could compensate for this skills deterioration. For robustness check, the estimation strategy survives the examination of the same predictors under different types of the working environment.

**Originality/value** – The original values of the work lie on combining for the first time both duration and technology as predictors of interview probability. Until now, the independent variables were used to test whether an individual has managed to exit unemployment, thus skipping the step of the interview process.

**Keywords:** long-term unemployed; probability of interviewing; labour skills; UK

**JEL Classification:** J20; C33

## I. Introduction

The general attitude towards those who become long-term unemployed is negatively attributed towards their inherent characteristics as the major cause to both their unemployment status and to their poor future job finding outcomes. This attitude is not new and can be found all the way back to [Pigou \(1933\)](#). He asserted that individuals who have been unemployed for a long period of time, would experience a

deterioration in the industrial qualities. In his time, the unemployment levels had risen at unprecedented levels in the UK (Beveridge, 1937). The widespread belief back then asserted that there was a mechanism that allowed long-term unemployment to persist, which Blanchard (2006) has termed it as the *hysteresis effect of long-term unemployment*. In effect, the hysteresis effect resulted in skill erosion, motivation reduction and general attachment to a single occupation. This implies that even a minor crisis may have structural (long-term) consequences for the labour market, since unemployed persons often cannot return back to their previous levels of pay, job satisfaction, or life satisfaction, even after they have found a new job. Hiring under these circumstances is a problem in the context of wages or earnings, but the pattern of hiring workers with less advantageous characteristics may have persisting effects on those left unemployed longer, even after a crisis has ended. Skill deterioration affects the value of the human capital workers possess due to certain external and rapid developments.

The present study tests three major hypotheses. The first hypothesis tests whether the duration of an individual who remains unemployed for a long period of time influences the probability of being invited for an interview. The literature focuses on whether long-term unemployed have a chance to exit unemployment. Instead of recycling the same empirical approach all over again, this work shifts the attention into a more specific process proceeding employment, that is, to the interview audit between employer and employee. The second hypothesis tests whether technology decay has any effect on the same interview callback. The final hypothesis explores the robustness of the previous findings, when the independent variable remains unchanged, while the dependent variable represents interview callbacks from different occupations.

The paper's structure continues with the literature review in employers' perception of skill obsolescence and the negative effects on long-term unemployed. In the third section, the research agenda moves onto certain theoretical approaches associated with the employees' screening process with their effects. Once these are explored, the data section is introduced, where important information about the sample under study is presented, before moving onto the design of the empirical analysis. In this latter section, a combination of the Heckman sample selection panel and Probit analysis is implemented. Then, the empirical findings are presented, while finally, conclusions and limitations are provided that can help future venues of research. The

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3 study concludes with a short discussion about certain policy approaches which will  
4 benefit corporate social responsibility issues.  
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## 7 **II. Literature Review**

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### 10 *Duration matters for long-term unemployed*

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12 When individuals are out of work, their skills begin to erode, which leads  
13 gradually to the ‘depreciation of human capital’ over time. This implies that the chances  
14 of individuals getting a new job significantly decrease, the longer they stay out of work.  
15 That is the theory of “state dependence” or “duration dependence”, i.e. the exit rate  
16 from unemployment declines with the length of spell in unemployment (Machin and  
17 Manning, 1999). The advocates of state dependence have cited employer  
18 discrimination, skill atrophy and declining job search intensity. The problem is  
19 attributed to both employees’ heterogeneity and ex-ante differences. However, Bean  
20 (1994) does not support the hypothesis of skill atrophy, while in the same page, Aberg  
21 (2001) does not find any evidence in favour of a declining search intensity along with  
22 unemployment duration in Sweden. Recent evidence suggests otherwise. In particular,  
23 past spells of unemployment seem to have a negative effect on current employment  
24 probabilities (Burgess et al., 2003; Eriksson and Rooth, 2014).  
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36 Pissarides (1992) and Ljungqvist and Sargent (1998, 2008) clearly document  
37 that unemployment gets more persistent when unemployed workers lose their skills  
38 during the unemployment period. In a relative paper, the measurement of the  
39 obsolescence of human capital is far from straightforward and ranges from subjective  
40 judgments to more direct measurements of productivity (De Grip and Van Loo, 2002).  
41 Employers are usually hesitant to hire unemployed job seekers, because their  
42 productivity is perceived to be lower than the productivity of employed workers. This  
43 productivity gap is believed to get larger with the duration of unemployment, a  
44 phenomenon known as “ranking” (Blanchard and Diamond, 1994). They consider that  
45 human capital may depreciate due to certain technical and economic skills  
46 deteriorations. Technical deteriorations seem to affect the stock of human capital  
47 workers possess. What is worst, if skills keep deteriorating for a lengthy period of  
48 unemployment, then this outcome negatively affects an individual’s likelihood of  
49 returning to work (Fogg et al., 2010).  
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### ***Psychological impact of long-term unemployment***

Being out of work reduces workers' "social capital"; as a result, it hastens the erosion of their business contacts network that makes them employable or suitable in finding good jobs (Gallie, 2003; Lindsay, 2009). Machin and Manning (1999) argue that long-term unemployed lose their social contacts. Similarly, the stress of being out of work can influence individuals' physical and mental health, family dynamics, and the well-being of their children (Burgard et al., 2007; Salm, 2009). Nilsson (2015) provides supportive evidence that variations in the unemployment rate are strongly associated with variations in the quality of their health, as well as with variations in their non-cognitive ability. Moreover, while workers are unemployed, their family income falls due to the lack of earnings, reducing both the quantity and the quality of goods and services their families can purchase.

Past studies have shown that a return to employment improves the psychological well-being of those previously unemployed (Warr and Jackson, 1985; Payne and Jones, 1987), but Kaufman (1982) suggests that those who have suffered long-term unemployment remain permanently scarred by the experience, which changes their perception and leads them to be grateful to what they have (Payne and Jones, 1987). This is particularly evident for people who are long-term unemployed at the time of interview when they exhibit a 'work inhibition syndrome' (Lawlis, 1971) and the extent to which one can control the external environment. The lack of any control tends to dissipate after re-employment (Preuss and Hennecke, 2018). A study by Isralowitz and Singer (1986) shows that unemployment can have a significant effect on youth development, because the family environment can be a primary source in shaping children's psychosocial development, including attitudes, beliefs and values. In the same study, youths from an unemployed environment value both altruism and work that brings one into contact with fellow workers.

### ***The technology shift***

From a supply-side perspective, search and hiring intensity vary in response to different macroeconomic conditions (Osberg, 1993). Chapman (1994) considers that long-term unemployment increases dramatically after the onset of the recession but falls only slowly with economic growth. The economic theory focuses on the causes of the upgrading process in the labour market as part of the 'trade versus technology' debate.

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3 Within this debate, [Wood](#) (1994) argues that the international specialization is the  
4 driving force behind increasing skill intensities, while others see technological  
5 developments, i.e. the diffusion of information technology, as the main driver of  
6 increasing skill intensities ([Autor et al.](#), 1998; [Machin and Van Reenen](#), 1998). Others  
7 argue that it is not merely the introduction of information technology that induces skill-  
8 biased technological changes, but also the combination of information technology,  
9 complementary workplace reorganization, and the introduction of new products and  
10 services ([Caroli et al.](#), 2001; [Bresnahan et al.](#), 2002).

### 17 *Job interview as a barrier for long-term unemployed*

20 [Gelanianos](#) (2014) argues that the efficiency of the aggregate matching is pro-  
21 cyclical, because employees' social networks transmit information about existing  
22 vacancies, wages and new firms on the market available. The importance of  
23 procyclicality of a match efficiency model between job seekers and firms is examined  
24 by [Sedlacek](#) (2014). Separations and firing costs should be explicitly included in order  
25 to improve match efficiency on top of the hiring standards. A more demanding hiring  
26 standard necessitates a better wage offer in order to attract adequate qualified applicants  
27 ([Schlicht](#), 2005). Almost half of the rise in US unemployment during the Great  
28 Recession is explained by a drop in matching efficiency ([Sedlacek](#), 2016). [Rivera](#)  
29 (2012) argues that hiring is more than just a process of skill sorting. It is also a process  
30 of cultural matching between the candidates. Employers are seeking candidates who are  
31 not only competent, but also culturally similar to themselves in terms of leisure pursuits,  
32 experiences and self-presentation styles. The empirical analysis confirms the  
33 importance of hiring standards.

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36 The long-term unemployed view screening from firms as a major obstacle in  
37 their re-employment efforts. Screening is an important mechanism. According to [Kroft](#)  
38 [et al.](#) (2013), screening could potentially lead to interview rates cut nearly in half across  
39 the long-term unemployed relative to the newly unemployed. [Eriksson and Rooth](#)  
40 (2014) use a unique dataset from the Swedish labour market to investigate how past and  
41 contemporary unemployment affect a young worker's probability of being invited to a  
42 job interview. Their findings indicate that recruiting employers use information about  
43 past unemployment to sort workers.

### 59 **III. Data**

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Data on firms' responses are obtained from the Work Employment Relations Survey, which is a national survey of people at work in the U.K. It is the flagship survey of employment relations and collects data from employers, employee representatives and employees in a representative sample of workplaces. Data are referring to the 2011 wave. The survey contains 2,700 public and privately-run workplaces across Britain. The principal question in relevance is: "*what is the probability of no interviewing a prospective unemployed given that he/she is over a year unemployed?*" In that sense, this study is exclusively focusing on prospective candidates who have been unemployed for over a year<sup>1</sup>. Their responses are classified as a dummy variable with three scales: 0 = if the probability is from 0 to 0.3, 1 = if the probability is from 0.4 to 0.7, and 2 = if the probability is from 0.7 to 1 (variable INT).

Moreover, information on work skills obsolescence during unemployment is measured through two types of skills obsolescence. The first type describes technical obsolescence: wear implies a depreciation of human capital. It refers to the natural ageing process, injury or illness. The above survey provides information on the duration of unemployment (variable DUR) for people sending their biographical notes to the workplaces included, which can be used as a proxy for ageing (or potentially for injury and illness that both contribute to a longer period of unemployment), since it is expected that older workers run a higher risk of skills obsolescence because they received their initial education earlier and, therefore, are more likely to possess outdated qualifications. The second type describes economic obsolescence: it can be measured either through job-specific skills obsolescence, which arises when job-requirements change, or through the fact that skills may lose their productive value when employment shrinks in an occupation, forcing workers to change jobs (De Grip and Hoevenberg, 1996).

Through the so-called company-specific skills obsolescence, workers change their jobs due to certain adverse economic conditions in the firm they work in. This reallocation process may cause firm-specific skills to depreciate. This job-specific skills obsolescence is closely related to various developments in the society. Pillay (1998) points out that organizational developments, such as re-organizations and changing

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<sup>1</sup> Some other authors, such as Kostaki and Ioakimoglou (1998), define long-term unemployed those who have been looking for a job for two years or more.

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3 management systems can have a strong impact on job content and, thus, may contribute  
4 to job-specific skills obsolescence. Organizational developments are often initiated by  
5 changes in the production process or by changes in governmental policies/legislation.  
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7 In addition, new technologies often require new or other skills within the same job  
8 (Watkins and Marsick, 1993), e.g. the increasing use of information technology  
9 (variable IT). Research studies (Wolff, 1999) show that this IT-trend can cause  
10 substantial changes in skills requirements.  
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16 Another important tendency in the society that reshapes skill requirements is  
17 increases in the international competition (Watkins and Marsick, 1993) caused by the  
18 entry of new firms in national markets or the increased competition in foreign markets.  
19 Next, skills obsolescence by market developments occurs when employment in certain  
20 occupations or sectors shrinks, forcing workers to move to another occupations or  
21 sectors. In this process, they may lose part of their human capital. In addition, workers  
22 may be forced to change firms, leading to firm-specific skills obsolescence. Both types  
23 of mobility are involuntary and may cause skills obsolescence. This obsolescence is  
24 more problematic when skills are highly occupation-, industry- or company-specific.  
25 Finally, when workers have to change firms within a sector, they may lose some of their  
26 (firm-specific) skills in the process. In that case, firm-specific skills obsolescence takes  
27 place again (De Grip et al., 1997). To the end of the empirical analysis, job-specific  
28 skills obsolescence is proxied by technological developments, measured by the use of  
29 information technology (variable IT). It is expected that prospective workers who make  
30 extensive use of information technology in their work activities, are the most vulnerable  
31 to technological changes. This piece of information is also extracted by the resumes of  
32 those prospective candidates for an interview. Unfortunately, the other types of  
33 economic obsolescence are not participating in the analysis due to data unavailability.  
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#### 48 **IV. Design of Empirical Analysis**

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50 A cross-section equation for the 2011 wave is estimated through a standard  
51 Heckman probit equation. The Heckman selection model is a two-equation model.  
52 First, there is the regression model:  
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$$55 Y_i = X_i \beta + \mu_1$$

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57 and second, there is the selection model:  
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$$Z_i\gamma + \mu_2 > 0$$

where:  $\mu_1 \sim N(0, \sigma)$ ,  $\mu_2 \sim N(0, 1)$  and  $\text{corr}(\mu_1, \mu_2) = \rho$

where  $Y_i$  denotes the dependent variables,  $X_i$  denotes the observable features of the independent variables,  $\beta$  denotes the parameters to be estimated and  $\mu_1$  is a normally distributed error term with a mean of zero and a standard deviation  $\sigma$  to be estimated.  $Z_i$  denotes observable features and  $\gamma$  denotes the vectors of parameters to be estimated.  $\mu_2$  is a distributed error term with a mean of zero and a standard deviation equal to one, while  $\rho$  represents the correlation between the two error terms to be estimated. The Heckman selection model provides consistent, asymptotically efficient estimates for all of the parameters. In the main equation of this study, it is assumed that a regression model can be used to explain the probability of being interviewed:

$$\text{Prob}(INT)_i = \alpha_i + b_1 \text{DUR}_i + b_2 \text{IT}_i + \mu_i$$

with  $\text{Prob}(INT)_i$  indicating the probability of interviewing (variable INT) and  $a_i$  are the workplaces' random effects. Here, the dependent variable may not always be observed, and it is specially observed only when the probability of being interviewed belong to the DUR and IT categories. Therefore, in the selection model, the dependent variable is observed if:

$$\gamma_1 Z_{1i} + \gamma_2 \text{DUR}_i + \gamma_3 \text{IT}_i + v_i = \gamma Z_i + v_i > 0$$

where  $Z_i$  is a vector of observable features related to the duration of unemployment and the technology variable;  $Z_{1i}$  represents the endogenous variables that may or may not be the same as  $X_{1i}$ ;  $\gamma_1$ ,  $\gamma_2$  and  $\gamma$  are vectors of the parameters to be estimated; and  $v_i$  is a distributed error term with a mean of zero and a standard deviation equal to one. This equation describes the being interviewed is greater than zero. The error terms hold the following distribution:

$$\mu_i \sim N(0, \sigma), v_i \sim N(0, 1) \text{ and } \text{corr}(\mu_i, v_i) = \rho$$

where  $\rho$  represents the correlation between the two error terms to be estimated. To avoid potential endogeneity problems with specific variables, such as duration and technology, the empirical analysis uses the methodology developed by [Nicoletti and Perracchi \(2001\)](#), while instruments include lags of the control variables. The results

are reported in [Table 1](#). The standard errors for the coefficients have been estimated with [White's](#) (1980) standard errors to avoid heteroskedasticity.

## V. Empirical Analysis

The results, reported in [Table 1](#), clearly illustrate that both variables of interest, 'DUR' and 'IT', turn out to be negative and statistically significant, indicating that firms are less likely to interview long-run unemployed due to the long duration of being unemployed, as well as due to their heavier involvement with IT activities. The Hansen diagnostic test supports the random effects modelling approach. Next, for robustness purposes, a fixed effects approach has been also used to confirm the validity of the random effect results. The new findings, also presented in [Table 1](#), confirm the validity of the previous results.

The longer *duration* produces a negative relation of -0.03 and 0.01 on the fixed and random effects specification, respectively. It can be derived that the longer the duration dependence in both cases, the lower the probability for the employee to be invited for an interview. The same negative effects are reported when the model controls for someone who is an *information technologist*. The association is negative and statistically significant for both random and fixed effects. Specifically, -0.07 and (0.00) and -0.06 (0.00), respectively. It can be extrapolated from the early results that both a duration dependence and technology dependence are sending negative signals to potential employers due to their skill obsolescence. For the *information technologist* variable, there is a strong probability that firms prefer to outsource IT operations rather than hiring them directly, unless information specialists are familiar with e.g. *enterprise resource planning* (ERP) systems or when they know how to incorporate firm-specific skills (e.g. e-commerce) to firm-specific ERP systems.

**Table 1**

### *Estimations*

Variables	Random Effects	Fixed Effects
Constant	0.28** [0.03]	0.19** [0.04]
DUR	-0.03*** [0.01]	-0.03*** [0.00]
IT	-0.07*** [0.00]	-0.06*** [0.00]
<i>Diagnostics</i>		
McFadden Pseudo-R <sup>2</sup>	0.62	0.59

Hosmer-Lemeshow  $X^2$  [0.64]

Hansen Random Effects [0.55]

Instruments: Constant, DUR(-1), DUR(-2), DUR(-3), IT(-1), IT(-3), IT(-4), IT(-5)

Notes: Figures in brackets denote p-values. Hosmer-Lemeshow  $X^2$  tests the validity of the instruments used, with the null hypothesis being that the instruments used are valid. \*\*\*:  $p \leq 0.01$ ; \*\*:  $p \leq 0.05$ .

Table 2 repeats the baseline analysis by considering different types of working environments in the last job the prospective candidates for interview were holding (i.e., public sector, IT, medical, financial, education, managerial), respectively. The new findings document that both control variables exert a negative impact on the probability of firms to interview long-term unemployed across all types of working environments, with the larger effect being in relevance to the medical and financial environments, followed by the IT, education and managerial environments, while the public type of environment is taking the last position. The robustness check results extrapolated from Table 2 confirm suspicions that the negative relationship in duration dependence and technology dependence is also met in specific working environments or specific sectors. Figure 1 summarizes the relations postulated by the model derived from the empirical investigation.

**Table 2**

*Type of working environment (random effects) results*

Variables	Public	IT	Medical	Financial	Education	Managerial
Constant	0.24*** [0.00]	0.17*** [0.00]	0.14** [0.02]	0.18*** [0.00]	0.19*** [0.00]	0.21*** [0.00]
DUR	-0.04*** [0.01]	-0.07*** [0.00]	-0.11*** [0.00]	-0.10*** [0.00]	-0.06*** [0.00]	-0.05*** [0.01]
IT	-0.05*** [0.01]	-0.08*** [0.00]	-0.13*** [0.00]	-0.11*** [0.00]	-0.07*** [0.00]	-0.06*** [0.00]
<i>Diagnostics</i>						
McFadden Pseudo- $R^2$	0.59	0.61	0.68	0.65	0.60	0.60
Hosmer-Lemeshow $X^2$	[0.67]					
Hansen Random Effects	[0.48]	[0.51]	[0.59]	[0.57]	[0.58]	[0.55]

Notes: Figures in brackets denote p-values. Hosmer-Lemeshow  $X^2$  tests the validity of the instruments used, with the null hypothesis being that the instruments used are valid. \*\*\*:  $p \leq 0.01$ ; \*\*:  $p \leq 0.05$ .

## VI. Conclusion

This paper investigated the role of skills' depreciation due to long-term unemployment in the firms' pivotal role in interviewing unemployed individuals. Using

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3 a unique longitudinal dataset from the UK labour market in relevance to the 2011 wave,  
4 the analysis documented that the losses of skills negatively affected the behaviour of  
5 firms to interview long-term unemployed.  
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9 Going back to the title, is it really a matter of technological shift? Although an  
10 easy answer would be that technology is moving so fast that human mind cannot catch  
11 up, the authors object with such pessimism on human nature. The real problem is not  
12 that humans are not capable of remaining up-to-date, but the entire approach of  
13 interview process is obsolete and tends to become an institutional friction, preventing  
14 the matching process.  
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20 All three hypotheses, initially outlined in the introduction, are accepted. More  
21 specifically, the first hypothesis tested whether the duration an individual remains  
22 unemployed had any effect on being invited for an interview. The empirical  
23 investigation explored whether long-term unemployed had a chance to exit  
24 unemployment and turned the attention into a more specific process proceeding  
25 employment, that is the interview audit between employer and employee. The second  
26 hypothesis assessed whether technological decays had any effect on the same interview  
27 callback. The hypothesis was positive, while interviewers seemed to consider  
28 technology knowledge more adversely. The final hypothesis explored the robustness of  
29 the findings, but this time the independent variable remained unchanged, while the  
30 dependent variable represented interview callbacks from different occupations. The  
31 findings in relevance to the third hypothesis corroborated the findings in the previous  
32 two hypotheses.  
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44 The results have important policy implications for policies that target the role  
45 of skills for unemployed and, especially, for those characterized as long-term  
46 unemployed. More specifically, if the loss of human or social capital is the driving  
47 mechanism behind the reluctance of firms to interview such types of unemployed, then  
48 policies designed to keep unemployed workers using their skills or in contact with other  
49 workers, would be an effective means of mitigating firms' negative attitude towards  
50 long-term unemployed. Furthermore, the findings recommend that the emphasis should  
51 be on policies that improve the skills of long-term unemployed, by focusing on the need  
52 of certain partners to work together so as to reinvent workforce skills-development  
53 programmes, or even to reform the educational system to avoid low high-school  
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3 graduation rates, as well as the inadequacy of post-secondary education to prepare  
4 students with the skills needed by modern industries.  
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## 7 **VII. Limitations**

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10 Some of the obvious limitations in the present research is the inclusion of  
11 control variables in the estimation strategy. Further research can, based on data  
12 availability, approach interview callbacks through further quantitative analyses across  
13 different sectors and not only on information technology. Additionally, future research  
14 venues can explore the confounding effects with other variables and estimate the  
15 duration dependence the sample is decomposed by gender or age. Are there any  
16 possibilities for curvilinear relationships? Furthermore, this work would like to stress  
17 certain extensions to the present static model. A more dynamic approach may provide  
18 a better answer about the influence of different variables in the final model. The authors  
19 believe that they have just barely managed to scratch the surface of a whole new area  
20 in interview research and they extend an invitation on reforming the existing screening  
21 process of interviews.  
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31 The broad concept of ‘normal ageing’ is used to identify the process by which  
32 certain cognitive functioning deteriorates with increasing age. While a general trend of  
33 the downward development of skills has been observed ([Hertzog et al., 2009](#)), the  
34 literature has also documented that this trend is not uniform across all individuals and  
35 all types of cognitive skills, while several factors influence the speed and the extent of  
36 the process of skill deterioration, including neurological and behavioural maturation  
37 ([Desjardins and Warnke, 2012](#)). Social and economic characteristics of the environment  
38 in which the individuals live can also play a significant role in preserving or even  
39 increasing the level of skills, i.e. the ‘use it or lose it’ hypothesis. [Green and Riddell](#)  
40 (2013) confirm that a negative relationship between literacy and age starts quite early.  
41 Elder people begin to lose their access to health care and relatives are exposed to higher  
42 risks for developing depression ([Madianos et al., 2014](#)). Formal education is the main  
43 means through which skills are acquired, after which not only individuals are unable to  
44 further develop literacy skills, but they also gradually and slowly deteriorate their skills  
45 endowments. Not only literacy skills deteriorate with age, but also the more recent birth  
46 cohorts have lower levels of literacy skills compared to the older ones, while the decline  
47 in literacy skills is not homogeneous across the skill distribution. Instead, it can affect  
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3 differently those at the top (i.e., high initial levels of skills) or at the bottom (i.e., low  
4 initial levels of skills), and this can vary across countries.  
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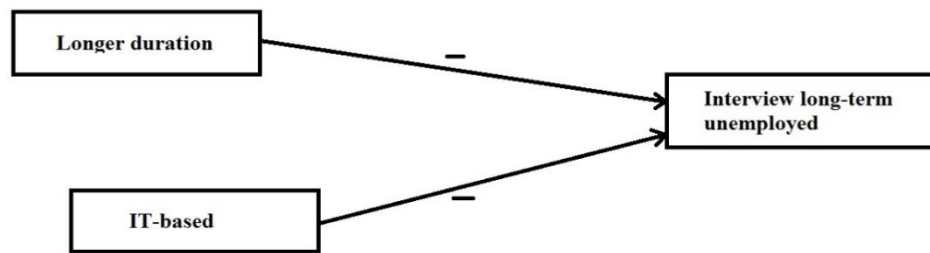
### 7 **VIII. Discussion**

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10 When [Litecky et al.](#) (2004) proposed a two-stage model for IT recruiting based  
11 on the image theory work suggested by [Beach and Mitchell](#) (1996), it went like this: In  
12 the first stage (the filtration stage), screening was implemented by an employer to  
13 eliminate some of the possible candidates from the pool and to pass others on the second  
14 stage. Candidates are matched against the skills enumerated for the job. During the  
15 second stage (the choice/hiring stage), the information used to select the individual  
16 employee consists of a different set of skills, such as soft skills. These soft skills might  
17 consist of behavioral and interpersonal skills ([Green](#), 1989; [Leitheiser](#), 1992).  
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25 However, by paying a close attention on [Figure 1](#), the reader might notice the  
26 effect of skill obsolescence. Skill obsolescence or skill decay refers to the loss or decay  
27 of trained or acquired skills (or knowledge) after periods of non-use ([Arthur et al.](#),  
28 1998). This is particularly important to standard operating procedures (SOPs)<sup>2</sup>, wherein  
29 process control, knowledge and procedural skills acquired during initial and basic  
30 training cannot be retrieved. This was one of the main concerns of introducing  
31 automation in manufacturing plants ([Onnash et al.](#), 2013). SOPs include a number of  
32 actions that need to be performed during fixed sequences of actions ([Kluge](#), 2014). A  
33 distinction given by [Jansen and Backes-Gellner](#) (2009) is that knowledge-based tasks  
34 suffer from higher depreciation, while experience-based tasks do not.  
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59 <sup>2</sup> An example of standard operation procedure is encountered in air traffic control ([Malakis and](#)  
60 [Kontogiannis](#), 2012) and military contexts ([Arthur et al.](#), 2010).



**Figure 1.** *A Static Model of Skill Obsolescence and Interview Probability of the Long-Term Unemployed*

The common trend is the promotion of ‘active labour market policies’ (ALMP)<sup>3</sup>, which have shown signs to cut down long-term unemployment (Nickell, 1997). Based on Sloan’s (1993) arguments, there are three basic types of *labour market programmes* designed to assist unemployed and provide some relief. The first two essentially operate on the demand side, while the third one on the supply side. They are: i) wage subsidy schemes, ii) public sector job creation schemes, and iii) training schemes. In contrast, Chapman (1994) provides an inexhaustive list of *active labour market policies*: i) jobs delivered on a local level, ii) private sector interests be invited to tender for community projects that employ a certain percentage of the targeted group, iii) reductions in company or payroll taxes for firms making jobs available to the long-term unemployed, iv) firms could gain access to the use of governmental funds on condition to employing long-term unemployed persons, v) firms tendering for the provision of goods and services to the government could be required to include employment of some long-term unemployed, and vi) governments could institute positive publicity for firms taking on the targeted group of long-term unemployed.

<sup>3</sup> Benda et al. (2018) suggest that for active labour market programmes (ALMPs) to be successful they have to be complemented by less strict employee protection legislation (EPL), while Duval et al. (2007) suggest that the negative association between strong EPL for regular contracts and the hiring rate is mitigated by the presence of temporary contracts.

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3 A meta-analysis from [Card et al. \(2017\)](#) of active labour market programmes  
4 indicates that programme effects are larger for the long-term unemployed than for other  
5 job seekers. That is true because not all workers benefit from the presence of economic  
6 recovery. According to [Erken et al. \(2015\)](#), sectors that are structurally declining, such  
7 as postal services (due to lower demand) and finance (due to technological changes –  
8 e-banking, e-payment, blockchain, e-trading, e-shop) have consequences for their  
9 displaced workers, as the chances to return to their previous occupations are slim. In  
10 the UK, the Britain's Retention and Advancement (BRA) programme launched in 2003  
11 has shown that financial incentives can help the long-term unemployed ([Hendra et al.,](#)  
12 2011). According to [Webster \(2005\)](#), in 1986 in the UK, the level of unemployment  
13 benefits were reduced relative to sickness benefits and the Restart programme was  
14 introduced which in effect made unemployment benefits received conditional on the  
15 claimant's statement of actively seeking work. In 1996, unemployment benefits were  
16 replaced by Job Seekers Allowance, which lasted for 6 months and was again  
17 conditional on active work search. In April 2001, the New Deal programme was  
18 introduced in bulk, which compelled all claimants to a given unemployment duration  
19 to take a preparatory 'Gateway', followed by a subsidized or not job placement. There  
20 is a geographic component in the form of 'employment zones' in areas of high  
21 unemployment. However, the results of economic benefits were poor, leading to a worst  
22 problem, that of rising of economic inactivity due to sickness ([Nickell and Quintini,](#)  
23 2002). No matter what the reason for long-term unemployment is, the consequences  
24 have wider implications. Long-term unemployment is related to an increased level of  
25 current psychological distress, depressive symptoms and anxiety ([Warr and Jackson,](#)  
26 1985; [Kokko et al., 2000](#)). [Edin and Gustavsson \(2008\)](#) find that a year out of work is  
27 associated with five percentile points' lower general skills relative to continuously  
28 employed workers, but there is no attempt to explicitly document the drivers behind the  
29 reluctance of firms to hire long-term unemployed.  
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51 This paper is a call to the academic community to revise the existing screening  
52 methods for interviews. As mentioned above, research on long-term unemployment  
53 suggests that long-term unemployed individuals are viewed as less desirable applicants  
54 ([Eriksson and Rooth, 2014](#)). As a consequence, the long-term unemployed may be less  
55 tied to the labour market, because they grow discouraged and search less intensely for  
56 a job ([Krueger and Muller, 2011](#)). [Nickell \(1987\)](#) finds a significant association between  
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3 wage inflation and short-term unemployment, but only in the long run. [Gordon \(2013\)](#)  
4 comes to similar conclusions when he finds that short-term unemployment has  
5 performed better than total unemployment in predicting price inflation since the 2007  
6 financial crisis.  
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11 The academic and corporate community should bear in mind that a revised  
12 process of interview is not to protect the interviewees, but to protect the interviewers  
13 from themselves. The total costs to society seem to be underestimated until now. As the  
14 interview process moves away from hiring objectively and towards a more subjective  
15 approach, a focus on soft skills is expected to have serious implications to future  
16 prospects for the labour market, the welfare system of benefits, and social stability. The  
17 importance of soft skills in interviews has been explored by [Moss and Tilly \(1995\)](#).  
18 Empirical research has suggested that long-term unemployment increases the strain that  
19 fosters violent behaviours, which eventually lead to increased criminality ([Saridakis,](#)  
20 [2004](#); [Nordin and Almen, 2017](#)). According to the strain theory, the strain of  
21 unemployment affects violent crimes ([Agnew, 1992](#)), because idleness increases with  
22 long-term unemployment ([Rege et al., 2009](#); [Gronqvist, 2011](#)), with the gap being filled  
23 by other activities, such as alcohol and narcotics ([Felson, 1998](#)). The stigma attached to  
24 employees with longer unemployment spells lasting at least nine months could generate  
25 large inefficiencies in the labour market ([Eriksson and Rooth, 2014](#)).  
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38 It becomes evident that the problem is not as much as presented by  
39 macroeconomists to be a benefit problem, but the roots of the causes start deep in the  
40 microdomain and by drawing the attention on the interview callbacks. Thus, this work  
41 deviates from the commonly held view that benefits are the cause of long-term  
42 unemployment and agree with [Farber and Valleta \(2015\)](#) on that the enhanced  
43 availability or extended unemployment benefits, following recessionary events, can  
44 explain a fraction of the elevated long-term unemployment.  
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Journal of Economic Studies



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3 **Long-Term Unemployment. A Question of Skill Obsolescence**  
4 **(Updating Existing Skills) or Technological Shift (Acquiring New**  
5 **Skills)?**  
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