



Profiling youth labour market disadvantage:

A technical note

1. OVERVIEW

The key labour market indicators collected by the Labour Force Survey (LFS) combined with the administrative data collected on individuals by the Public Employment Service (PES) are instrumental to identify those factors that are most likely to influence employment outcomes at national level. LFS data can measure the frequency (prevalence) of conditions and demonstrate associations (but not cause-effect relationships, for which econometrics techniques are needed). This means that these data can show the relationship between labour market statuses and other factors of interest as they exist in a specified population at a particular time. When this type of surveys are repeated, the results can be compared across time and changes can be observed.¹

The extensive research literature on youth employment can help in drawing conclusions (inferences) about national data and identify social exclusion and poverty risk factors. The risk factors that affect labour market outcomes are circumstances or individual characteristics that make participation in the labour market and decent work less likely. This process allows to “profile” those population groups (and also individuals) that are more likely to be disadvantaged in the labour market. The paragraphs that follow examine how a simple profiling system can be developed for targeting purposes.

2. LABOUR MARKET RISK FACTORS

Some risk factors are causal in nature, others merely predictive. Risk factors are normally grouped into external (household/family, school and geographical location/community) and internal (individual) factors, as shown below.

- **Household/family factors.** Where household income is higher, children are more likely to go to school, gain higher qualifications and participate in

¹ Cross-sectional surveys differ from longitudinal surveys, as these latter track the same people over the course of time and make the observation of changes more accurate. Panel data (or time-series cross-sectional data), combines both method and looks at multiple subjects and how they change over the course of time. Panel analysis uses panel data to examine changes in variables over time and differences in variables between subjects.

the workforce. Similarly, parents' higher levels of education or higher status occupations are associated with lower school dropout rates of their children. Women who are older when they become mothers are more likely to raise children who stay longer at school and, in turn, have better employment chances. Several other conditions in the household, such as parental criminality, ineffective parental discipline, lack of parents' involvement, family conflict, child neglect and rejection, have been found to predict early the onset and patterns of risky behaviour in children and youth. In many countries, there is an inter-generational cycle as regard social assistance beneficiaries: children belonging to household on social benefit are more likely to become social beneficiaries themselves compared to children not belonging to household receiving social assistance.

- **Education/school factors.** Education experiences are strongly associated with social disadvantage and poverty: many individuals with low educational attainment come from families characterized by disadvantage. Education has been shown to significantly raise labour market earnings and employment probabilities and to impact significantly on health, crime and a range of other outcomes.² Young people who attend school regularly tend to do better in the labour market. Also quality preschool education increases the chance of school success and employment. In general, the higher the level of educational attainment of an individual, the better his/her employment outcomes. However, some countries experience the so called “educated unemployed problem”, e.g. young people with tertiary education level experiencing higher unemployment rates than other groups. This may be due to a number of factors, such as the education stream chosen (leading to occupations for which there is no labour market demand), or reservation mechanisms, with individuals having unrealistic expectations about jobs and wages.
- **Community and geographical factors.** The proportion of white collar, professional neighbours has been found to be the strongest predictor out of fifteen community factors studied for early school leaving. Where there are fewer such neighbours, school dropout rates are higher. A weaker, but still significant factor, is the number of people locally who have left school early. When there are more dropout individuals in the community there is a slight increase in the risk that young people will also leave school early. Geographic location (rural/urban) also plays a role in employment outcomes. The condition of the economy in the region/area of residence influences the probability of finding employment, with workers in urban areas usually experiencing higher earning and higher employment rates, compared to rural workers. However, certain countries experience the reverse situation, with unemployment rates much lower in rural areas due to the predominance of survival agriculture, with large urban areas more

² OECD, Social disadvantage and educational experiences, OECD Social, Employment and Migration working papers, No 32, 2006

likely to expose workers to unemployment, underemployment and marginalization.

- **Labour market factors.** Employment is dependent on the strength of the economy, with young people tending to experience more unemployment than other age groups in weak economies. In some countries, changing jobs often while young is only slightly associated with a greater risk of later unemployment, and is positively associated with higher earnings, particularly for young men. On the other hand, long-term unemployment spells early in the working life is strongly predictive of future unemployment. Early work experience makes individuals more employable later in life. For some, engagement in temporary and casual work is associated with increased vulnerability, while for some others it is an entry point in the labour market. The researches on the impact of minimum wages and stringent labour protection as predictors of unemployment provide mixed results. Some studies show little to no impact on employment while other suggest that some groups, and especially young people, are affected more by minimum wages than other groups of workers.
- **Individual factors.** Behaviour problems and attention difficulties in school may predict later problems such as early school leaving and failure to gain qualifications. Young people who had such problems as children are twice as likely to be unemployed early in life compared to others. The pathway to educational failure appears to lie with disciplinary and peer problems, leading to truancy, suspension and expulsion. Problems with physical health make it harder to be steadily employed, although it is not clear how much of this is due to discrimination and how much is due to actual physical limitation. Anxiety and mild depression do not appear to affect labour market performance, but individuals who experience acute depression are less likely to get work later on in life. Teen pregnancy is strongly associated with early school leaving and lack of qualifications, while gender per se does not appear to have a strong impact on participation. Alcohol and drug abuse are also associated with unemployment and inactivity, with those who have abused drugs and/or alcohol showing a greater tendency to be out of work and dependent on social assistance.

3. PROFILING APPROACHES

The prevention of long-term unemployment has long been the main objective of the employment policies of high and middle-income countries. Many of those who become long-term unemployed suffer particular labour market disadvantages, such as skill erosion and scarring, leading to difficulty in re-entering employment. In addition, long-term unemployed individuals are more likely to be socially excluded.

From the perspective of the wider economy, long-term unemployment entails substantial financial costs in both welfare payments and lost revenue as well as in lost production. This is why over the last two decades; many countries

have begun to develop profiling systems to identify the relative difficulty job seekers have in finding employment because of their personal circumstances and labour market skills.³

A number of profiling approaches have long been used by national employment services to identify early jobseekers at risk of long-term unemployment (Box 1) and allocate scarce human and financial resources more efficiently.

BOX 1. PROFILING APPROACHES

Eligibility rules describe a process whereby individuals are channelled towards various forms of re-employment support on the basis of meeting certain criteria. The advantage of this system is that the development of clear-cut criteria rules makes it relatively cheap and straightforward to implement. However, the eligibility rules approach is still somewhat indiscriminate in that the needs of individuals falling into what will be relatively broad criteria-based categories are likely to remain diverse.

Caseworker discretion, as the name suggests, describes a process whereby the Public Employment Service interviewer uses his/her own judgment to direct the claimant towards the type of intervention that he/she feels is most appropriate to meet the jobseeker's needs. While such a process may be more responsive to individual needs relative to the eligibility rules approach, it is still highly subjective, more expensive to implement and difficult to evaluate.

Screening describes the process whereby the caseworker attempts to score the individual claimant's employability using typically psychological-based techniques, and, on the basis of a resulting ordinal employability score the claimant is directed towards the intervention that is designed to meet his/her particular score. The principal criticism of this approach relates to a lack of consensus regarding the most effective methods of screening. Furthermore, the approach again relies on a level of caseworker discretion and, therefore, cannot be considered wholly objective.

Statistical profiling is a tool whereby a numerical probability score, determines the referral of an unemployed person to further employment services. Specifically, the score derived ranks each individual in terms of his/her risk of becoming long-term unemployed and public employment service (PES) staff can then use this score to identify those who are most in need of their assistance to help prevent them becoming long-term unemployed. Overall, the main objective in using statistical profiling is to deliver intensive services early rather than after long-term unemployment has already occurred.

Source: O'Connell et al., *National Profiling of the Unemployed in Ireland*, Economic and Social Research Institute, Dublin, 2009

Statistical profiling is a tool used by the employment services whereby a numerical probability score ranks each individual in terms of his/her risk of becoming long-term unemployed. PES staff then use this score to target intensive employment services and programmes to those who are most at risk.

³ The United States and Australia introduced fully operational systems in the mid-1990s. Denmark and Germany followed suit in 2004 and 2005, respectively. The Netherlands, New Zealand and South Korea also experimented with some form of profiling as a means of targeting their public employment services (PES). Bulgaria, Finland, France, Hungary, Mexico, Slovakia and Sweden are currently testing profiling models.

4. SIMPLIFIED PROFILING MODEL TO IDENTIFY RISK FACTORS

In the same way in which profiling is used to identify the risk of long-term unemployment, it can also be used to indicate the likelihood of other negative labour market outcomes occurring (such as underemployment or working poverty) based on the personal characteristics and circumstances of an individual, as detected by cross-sectional or longitudinal data. As such, profiling can be a very valuable tool in developing effective targeting mechanisms for employment interventions.

One of the key findings of the evaluation literature on employment measures, in fact, points to targeting as one of the most problematic areas in the development of effective labour market interventions, with failures often occurring in addressing the multiple layers of disadvantage that can cumulate on the same individual.

Combining the results of a statistical profiling model with the assessment of individuals carried out by an employment service caseworker can go a long way in reducing the deadweight loss associated with the incorrect selection of participants to employment interventions.⁴ Such a combined system uses statistical variables to screen individuals that may be at risk of poor labour market outcomes; such preliminary screening is then verified by an employment service caseworker through individual counselling interviews (also to detect factors that are difficult to measure, such as low motivation). If the at-risk screening of the profiling model is confirmed by caseworker's judgement, the individual is referred to the most appropriate sequence of employment services and programmes (targeting).

A simplified way to develop a profiling system is to use the LFS and administrative data indicators, compare the performance of the different groups (for example youth vs. adults; men vs. women; rural vs. urban residents; individuals with low education vs. high-educated individuals and so on) and match the results with the findings with those of the national and international literature to identify factors that may be associated with labour market risk at country level.

Each factor is assigned a numerical weight (score), indicative of the average contribution the factor makes to the difficulty of the individual in the labour market. For example, a scale 0 to 10 scale may be used, with "0" indicating no risk and "10" the highest possible risk. The identification of factors, as well as the weight to be applied to each factor, may be decided by the employment service itself or by a national expert group on the basis of what the employment indicators show.⁵

An individual's score, obtained by summing all the separate weights for that person, will indicate the overall employment difficulty in comparison with

⁴ The incorrect selection of individuals to be targeted by an employment measure causes a deadweight loss, e.g. the same result/outcome for the individual would have been achieved without the intervention.

⁵ The Job Seeker Classification Instrument (JSCI) used in Australia, for instance, was developed through formal research (statistical analysis to determine risk factors and estimate their average effect on long-term unemployment probability) and expert judgement (a Classification Working group made recommendations on additional factors which could not be tested in the research). See: Department of Employment, Workplace Relations and Small Business, *Job Seeker Classification Instrument*, Canberra 1998.

others. For example, an individual scoring less than 20 in a scale from 0 to 50 is classified as at low risk, another scoring between 21 and 39 is at medium risk, while individuals scoring between 40 to 50 are categorized as at high risk.

The most common variables used by the profiling models of various countries to compute risk are: age and sex; educational attainment; geographical location; family status and income; disability/medical condition; unemployment history and access to transport (or proximity to the labour market). The table below provide an illustrative example of a numerical scoring system applied to two individuals. The final rank may be confirmed or adjusted by an employment service caseworker during the individual counselling interview. For instance, the score assigned to the factor “family status and income” (8 in Table 1 below) may be increased, if the dependants for example are children below school age, or is the partner is unemployed.

TABLE 1: EXAMPLE OF PROFILING SCORING SYSTEM

Factors	Individual 1	Score	Individual 2	Score
Age	22 years	5	30 years	7
Sex	M	0	F	1
Literacy and numeracy	Good	0	Limited	5
Educational attainment	10 years basic	2	Uncompleted primary	7
Vocational qualification	None	5	None	5
Work experience	None	5	None	5
Family status and income	Lives with partner and 2 dependants Income below 2/3 median	8	Lives with family Income at median	0
Geographical location	Region/area at high risk	8	Region/area at moderately high risk	5
Transport/proximity to labour market	Public transport	3	No adequate transport	6
Disability/medical condition	None	0	Medical condition with low impact	4
Unemployment duration	N/A	0	N/A	0
Totals	At moderate risk	36	At high risk	45

An example of possible factors to be considered, together with some explanation on how to use weights, is provided below.⁶

- **Age.** This factor measures the labour market perception of age as an employment barrier. Older workers, for instance, are more likely to become unemployed compared to prime age workers. Young people are less likely to find a job due to their lack of work experience or qualifications

⁶ The list proposed draws from the statistical profiling systems used in Australia and under piloting in other countries.

that are relevant for the labour market. Based on cross-sectional data disaggregated by age group it is possible to assign different weights to different age-cohorts.⁷ For example, if youth employment data reveal that teenagers are twice as likely to be employed in low earning jobs compared to young adults, the score assigned to the age-group 15-19 will be twice that assigned to young adults (for instance, a person who is 17 years old will have a score of 8 compared to a score of 4 for a 21 years old individual). If the figures show that women over 50 years of age are 20 per cent more likely to become long term unemployed compared to prime age women (25-49 years of age), the score assigned to the former has to be approximately 20 per cent higher than that assigned to prime age women (for example 6.5 and 5, respectively).

- **Sex.** In certain countries, sex alone is only marginally associated with disadvantage, while other factors, such as educational attainment and family status are more relevant for computing risks. However, national data may point to clear gender-related differences (often it is the combination of sex and age that is more telling in the identification of risk).
- **Literacy.** The data of many countries point to a clear correlation between low levels of literacy and numeracy and labour market disadvantage. Three rating levels can be envisaged for literacy and numeracy: “good” (with score equal to zero), “limited” (with score between 3 and 5 on) and “very limited” (with score equal to the one decided for the lowest ranking of educational attainment, see below).
- **Educational attainment.** The level of educational attainment has a significant impact on employment outcomes and the scoring of this factor should follow the organization of the national educational system and be anchored to the highest level completed. The ratings can include: “No school” (with a high risk score, such as 8 out of 10); “uncompleted primary education” (with an equally high score), “primary education” (with a score slightly lower than that assigned to “no school” and “uncompleted primary education”) and so on, with the highest levels of education being scored the lowest (if the relation higher education/better employment performance is valid at national level). This factor can be further disaggregated by educational stream, if there is an association between this latter and higher/lower employment probability. For example, if the country experiences low demand for English literature graduates, an individual with such an educational stream will be scored higher than another who graduated in another stream.
- **Vocational qualification.** The probability of having poor employment outcomes is also related to the lack of vocational or occupational qualifications. Such qualifications may be gained through school, or work experience or a combination of both. The score can be organized around

⁷ If cross-sectional data are not available, or the figures of the LFS are considered unreliable, the data on registered unemployment (administrative data) can be used as a basis for developing a scoring system. This is done by examining outflow (into unsubsidized employment) figures of the PES. If the probability of individuals with any given characteristics to exit the register is higher/lower than others (for example university-educated against vocational school graduates), then the score assigned will be proportionally higher/lower.

three categories: “no vocational occupation”; “vocational qualification no longer relevant/useful”, and “(relevant) vocational qualifications”, with this latter having a zero weight. For example, many individuals in Serbia gain qualifications for which there is no demand. These persons would be classified in the mid to high-risk category.

- **Family status.** This refers to the position of individuals within families of different types. For instance, sole parents generally face significant barriers in accessing employment opportunities; married women with children may be discriminated against because perceived to be more likely to be absent from work due to child care duties, and so on. The possible categories to be considered for the scores are: “living with husband, wife or partner with dependants (children)”; “lone parent living with dependants”; “living with other family members”; and “living alone”. If data on household income and/or the activity status of the members of the household are available, this should also be considered. For instance, an individual living in a family where no other member is employed, or in a household with a income below two-third of the median is certainly more at risk of exclusion than somebody living in households with median income or where one or more members are employed.
- **Geographical location.** This factor measures the disadvantage arising from living in a particular geographical location. The condition of the economy in the region of residence is an overriding influence on the probability of finding decent work. Geographical regions can be classified into four categories based on employment growth and unemployment rates: “regions/areas at low risk” (score zero), “regions/areas at moderate risk” (with a score of 3, for example); “regions/areas at moderately high risk” (score 4); and “regions/areas at very high risk” (score 6 or above). Other labour market indicators, instead of employment growth and unemployment rate can be selected if these are better able to represent the relative employment risk that living in a certain region/area poses compared to the national average. A rural/urban categorization can be also be used if the association with certain employment outcomes is sufficiently strong.
- **Proximity to the labour market.** The chances of an individual of having decent employment outcomes are directly related to his/her ability to access the labour market. One factor to be taken into consideration is transport. The possible categories in which scores can be organized are: “having own transport” (zero risk); “access to adequate public transport” (low risk), and “inadequate transport” (high risk). Another possible way to measure difficulties in accessing labour markets is to express proximity as a function of the distance from the residence to a town of a certain population size (for instance a person living 60 minutes away from a town with a population of at least 5,000 inhabitants faces lower labour market risks than somebody living three hours away from the nearest populated area).
- **Disability status.** It is commonly accepted that a person’s reduced ability to undertake a job is a significant disadvantage in the labour market. Many countries have work ability assessments that measure the extent to which

an individual's disability will hinder his/her capacity to undertake work. Where this is the case, the scoring system should refer to the national work ability rankings. Alternatively, a simple three category scoring can be used: "no disability/medical condition"; "disability/medical condition with low impact"; and "disability/medical condition with medium impact"

- ***Recent work experience.*** Individuals with no or inadequate work experience are generally considered disadvantaged in the labour market. The scoring for this factor can be built on the main activity carried out by the individual in a (recent) past. For instance, someone who was not in the labour force in the year prior to the survey (because at school, caring for children or others), or was unemployed or was working as a contributing family member will have more difficulties in the labour market compared to someone who was employed, albeit casually or on a part-time basis.
- ***Duration of unemployment.*** Employment prospects deteriorate as the duration of unemployment grows. Significant deterioration occurs around the 3-6 month mark, when motivation to search for work start to decline; around the 12 month period, when the impact of unemployment sets in with skills, work experience and work habits having already deteriorated considerably. Usually, the scores for this factor are organized around the following unemployment marks: less than 3 months; 3-6 months; 6-12 months; 12-24 months; 24 months and over, with the latter category having the higher weight.