A method for calculating the average age of labour market exit

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This note revises the methodology that has been used to calculate the so-caled "average effective retirement age"[3] to better account for the demographic structure across age groups.

1.   Conceptually, the average age of labour market exit can be thought of as the average age of all persons withdrawing from the labour force in a given period, whether during the course of any particular year or over any five-year period. The average age of labour market exit (AALME) is thus simply the sum of each year of age weighted by the proportion of all withdrawals from the labour force occurring at that year of age.

2.   In the formulae below, L_j^y refers to the labour force in year y for the age group j and, similarly, a_j^y refers to the participation rate in year y for the age group j. With P denoting the population size, $L_j^y = a_j^y * P_j^y$. It is assumed that no withdrawals occur before the age of 40. Equivalently, the formulae can be interpreted as providing estimates of the AALME for all persons aged 40 and over. It is also assumed, without affecting the general formulation but simply for convenience, that no person 80 years of age or older is in the labour force. The formulae given below also correspond to the use of data by 5-year age groups rather than by single year of age (and each age subscript, j, refers to the 5-year age group j to $j+5$). Again this does not affect the general form of the expressions.

3.   A "static" estimate of the average age of retirement can be obtained by assuming for any given year that withdrawals can be estimated by the difference in the size of the labour force at different ages in that year. In other words, this assumes that between successive years the labour force (and participation rates) is constant at each age. In this case, the estimate of the AALME can be written as follows:

$$AALME^y = \sum_{k=9}^{17} s_{5\cdot k} \cdot \left(L_{5(k-1)}^{y-5} - L_{5k}^y \right) / \sum_{k=9}^{17} \left(L_{5(k-1)}^{y-5} - L_{5k}^y \right) = \sum_{k=9}^{17} s_{5\cdot k} \cdot \left(L_{5(k-1)}^{y-5} - L_{5k}^y \right) / L_{40}^y$$

where $s_{5\cdot k}$ is the share of population among this age group.

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[1] Social Policy Division, Directorate for Employment, Labour and Social Affairs, OECD.

[2] Skills and Employment Division, Directorate for Employment, Labour and Social Affairs, OECD.

[3] https://www.oecd.org/els/emp/39371923.pdf

www.oecd.org/employment/emp/average-effective-age-of-labour-market-exit.htm

This estimate would include withdrawals from the labour force because of deaths and will be affected by changes over time within countries and differences across countries in the age structure of the population. Instead, an alternative "standardised" formulation can be constructed in terms of participation rates, which both excludes retirements due to deaths and abstracts from the age structure of the population.

4.	This equation can re-written equivalently as:

$$AALME^y = \sum_{k=9}^{17} s_{5 \cdot k} \cdot \left(a_{5 \cdot (k-1)}^{y-5} P_{5 \cdot (k-1)}^{y-5} - a_{5 \cdot k}^{y} P_{5 \cdot k}^{y} \right) / a_{40}^{y} P_{40}^{y}$$

Now if we assume that the population for each age group is the same (i.e. death rates are zero and there is zero net migration) then this expression collapses to the following:

$$AALME^y = \sum_{k=9}^{17} s_{5 \cdot k} \cdot \left(a_{5 \cdot (k-1)}^{y-5} - a_{5 \cdot k}^{y} \right) / a_{40}^{y}$$

5.	The attractive features of these estimates of the average age of labour market exit are that they are both simple conceptually and simple to formulate.[4] The main purpose of this indicator is to provide an international comparison focusing on labour market performance as reflected by the structure of participation rates across age groups. Moreover, in order to abstract from compositional effects in the age structure of the population, population shares are common across countries, equal to the average among OECD countries.

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[4] One of the advantages of using participation rates only in any formulation of average labour market exit ages is that they abstract from any breaks in the level of the labour force because of the incorporation of new population benchmarks.