

Survival and Growth

chapter 6



6.1 Survival of newly born enterprises

Typology of survival

The survival of an enterprise is defined in the following way:

- An enterprise born in year xx or having survived to year xx from a previous year is considered to have survived in year $xx+1$ if it is active in terms of turnover and/or employment in any part of year $xx+1$ (= survival without changes).
- An enterprise is also considered to have survived if the linked legal unit(s) have ceased to be active, but their activity has been taken over by a new legal unit set up specifically to take over the factors of production of that enterprise (= survival by take-over).

Activity is defined as any turnover and/or employment in the period from 1.1 to 31.12 in a given year. For the populations of employer enterprise births and economic enterprise births, the employee thresholds of one, or two employees respectively, apply to the employment criterion. This definition is therefore in accordance with that used for the population of active enterprises and births, as described previously. If sufficient information on turnover or employment is lacking in order to determine whether or not an enterprise is active, then national methods leading to this aim will be accepted.

This definition of survival excludes cases where enterprises merge, or are taken over by an existing enterprise in year xx . In these cases the continuation of the enterprise involves an enterprise established before year $xx+1$ and therefore the enterprise is not considered to have survived.

The survival of an enterprise is an event that should always be observed between two consecutive years. For instance, an enterprise that was born in year xx should be considered as having survived to $xx + 2$ only if it was active also in year $xx + 1$, and so forth. The survivals from a survival year to the following year should therefore be identified in the same way as the survivals from a birth year to the following one. Referring to the populations of employer births and economic births, this means that the employee threshold should be reached in every year as well. A newly born enterprise according to the definition of economic birth, for instance, would be considered as a survival only as long as it has at least two employees. As soon as it moves below the threshold of two employees, it would be considered as not having survived (although not necessarily a death).

Consistency with enterprise births

To ensure consistency between data on births and survivals, it is important that the identification of cases where an enterprise is taken over by a new enterprise is based on the use of the same information as when evaluating whether a new enterprise is a birth or not. The enterprise birth methodology states that the identification is carried out by firstly matching on name, location and economic activity, and secondly using other information available, for instance links between legal units. The methodology for determining survival should mirror that used for births.

The second rule of the definition also implies that the enterprise is only counted as survived, if the enterprise that takes over the factors of production is a new enterprise, i.e. an enterprise that commences activity in the year of the take-over and which is not a reactivation. A survival by take-over does not necessarily lead to the cessation of the original unit. In some cases for instance, the original unit that has handed over the production factors to the new unit may become an ancillary unit to this new one. The continuity of the production factors should be the main criterion for the decision which unit to follow for its survival.

Finally it should be noticed that a birth might fulfil both rules at the same time, e.g. a birth in year xx is active in part of year $xx+1$ and then is taken over by a new enterprise, which commences activities in $xx+1$. In this case, the birth is included in the population of active enterprises in year $xx+1$, but at the same time the enterprise is taken over according to the second rule. As the newly born enterprise has had activity in year $xx+1$ it is considered as survived. A link should be coded between the units to indicate the take-over and taken into consideration when producing statistics for $xx+2$.



Reactivations

When calculating survival rates a decision on how reactivated enterprises should be treated must be taken. Once an enterprise has been judged as not having survived, there should be no further checks for reactivation. It is considered that doing so would complicate the production process considerably and delay the data, without adding much value, as reactivations among recent enterprise births are probably rare. This principle should be applied equally to enterprise births (R), employer enterprise births (R_1) and economic births (R_2).

In some cases, it may be possible to observe that an apparent reactivation is due to a temporary lack of administrative information on the activity of the enterprise, which in reality was active without any gaps. In these cases, it is recommended to consider the unit as having survived and to impute the missing employment variables. Where appropriate, previous data on survivals should then be corrected.

Populations

The production of statistics on survival can be based on three populations, which are all part of the production of the statistics on births:

- Births in year xx , or enterprises having survived to xx from a previous year.
- Active enterprises in year $xx+1$
- Enterprises that have commenced activity in year $xx+1$ with the purpose of taking over the factors of production of an enterprise that commenced activity before $xx+1$. As it is necessary to identify the link between enterprises, the data set should consist of two variables, namely the identity number of the enterprises that cease to exist and the identity number of the enterprises that takes them over.

Matching the populations

Using these three populations, it is possible to identify surviving enterprises, enterprises that cease to exist and enterprises that are taken over, by matching the populations using enterprise identity number as the key. The possible outcomes are given in the table below:

Production of survival data for $xx+1$

Outcome	Births or survivals in year xx	Active enterprises in year $xx+1$	Enterprises taken over by a new enterprise
A	√		
B	√	√	
C	√		√
D	√	√	√

Outcomes A to D can be described as follows:

- A - This is the simplest outcome of the matching, where an enterprise is not present in the population of active enterprises in year $xx+1$ or in the population of enterprises taken over by a new enterprise. These cases are therefore enterprises that have not survived in $xx+1$.
- B - This is the case, where an enterprise is present in the population of active enterprises in year $xx+1$ and not in the population of enterprises taken over by a new enterprise. These enterprises are classified as survived in $xx+1$ without any changes.
- C - This is the case, where an enterprise is not present in the population of active enterprises in year $xx+1$, but is present in the population of enterprises taken over by a new enterprise. These enterprises are classified as survived between year xx and year $xx+1$, by having been taken over by a new enterprise. (Take-over took place in xx).



- D - This is where an enterprise is present in the population of active enterprises and at the same time in the population of enterprises taken over by a new enterprise. This means that two enterprises coexist at for instance the same location and with the same economic activity in year $xx+1$. The enterprise has survived in year $xx+1$, but a take-over has happened in that year. The link between the units should be recorded and the new enterprise should be followed when producing survival statistics for $xx+2$. For the year $xx+1$ the link should also be used to avoid counting both units, i.e. the one taken over and the one taking over, as active enterprises.

Manual checks

In order to verify the accuracy of the results, some manual checks should be carried out. The manual control should be designed to capture large changes (decline or growth) in the turnover or employment data between xx and $xx+1$, and should include enterprises that survive and that cease to exist. It is recommended to check at least all enterprises that:

- a) have more than 5 employees either before or after the change (or both), and;
- b) change by more than a factor of 3 (i.e. employment after the change is greater than 300% or less than 33% of the employment before the change).

Split-offs and break-ups

Split-offs and break-ups of enterprises between years xx and $xx+1$ are more complicated as regards survival. In both cases the production factors are continued, but the enterprise as such has not. Such cases are considered to be rare in newly born enterprises in the first few years after birth and their impact on the statistics on survival of newly born enterprises is therefore limited. Further, it is probably difficult to detect a split-off in practice, as the newly born enterprise of year xx still exists and is active in year $xx+1$. As a pragmatic approach, in split-off cases, the original enterprise should be considered as survived, and the part that has split-off will not be followed. In the case of break-ups, the original enterprise is not considered to have survived.

Indicator

The indicator to be calculated regarding survivals is:

- Survival rate of newly born enterprises
 - Survival rate in years $xx+t$, ($t=1$ to n) of enterprise births in xx .
 - Survival rate in years $xx+t$, ($t=1$ to n) of employer enterprise births in xx .
 - Survival rate in years $xx+t$, ($t=1$ to n) of economic enterprise births in xx .

Where n , is as many years as information systems allow, with a recommended minimum of 5.

Supplementary indicators can be also considered which take the average survival rate over a period of time. So the average survival rate of enterprises born within xx and $xx+y$ can be shown as

- Average survival rate i years after birth ($i=1$ to n) of enterprise births in the period xx , $xx+t$
- Average survival rate i years after birth ($i=1$ to n) of employer enterprise births in the period xx , $xx+t$
- Average survival rate i years after birth ($i=1$ to n) of economic enterprise births in the period xx , $xx+t$.

6.2 Measuring growth

The term growth is used in business demography to study how cohorts of enterprises develop. Growth is measured in terms of a change in size (in this case employment) over time. It is expected that growth for births will generally be positive. There will be occasional cases for births, and more frequent cases for the population of active enterprises, where the growth measured in this way will be negative.