Births

It is often relatively easy to measure business entries, i.e. those businesses that are present in a given period but were not present in the previous period. It is more difficult however to identify births. Perhaps one of the most important and contentious considerations in defining births is 'timing', that is, when births occur. There are many ways in which an enterprise's birth date can be identified and defined. Typically it starts as the idea of an entrepreneur. This idea may then be acted upon and be evolved in a number of ways. It might be incorporated as a business which appears in official business registers immediately or it may remain unincorporated, registering on administrative (e.g. VAT, income or employment) registers once activity is of a sufficient size. Clearly, viewed in this context, the point at which a birth should be defined is non-trivial.

In extremis one might define it as the date at which the initial idea was formed but this is clearly an impractical definition; partly because of the difficulty in defining this date (which may be many years before any activity ever occurs) partly because many ideas never see the light of day but especially because it will be literally impossible to measure this concept in a harmonised way, if at all, within, let alone across, countries.

The concept itself needs to be defined in such a way that, in theory at least, it is replicable across countries, meaning that it should not be conditional, in theory, on legal and administrative arrangements. The only practical way to do this is to record a birth at the point that some tangible and measurable activity occurs and moreover in a consistent way across countries.

Ultimately given the criteria that the measure must be meaningful, comparable, and replicable, a convention is needed. Different conventions satisfy each of these criteria to varying degrees and, as such, this manual proposes three complementary measures of births, which differ on the basis of employee thresholds. These are summarily described below:

Enterprise births (population R): Enterprise births covering all enterprises, regardless of whether they are employers or not. No general threshold is applied to the size of the enterprise in terms of employment or any other characteristics.

Employer enterprise births (population R_1): Births of enterprises with at least one employee. This population consists of enterprise births (population R) that have at least one employee in the birth year and of enterprises that existed before the year in consideration, but were below the threshold of one employee.

Economic enterprise births (population R_2): Births of enterprises with at least two employees. This population consists of enterprise births (population R) that at least two employees in the birth year and of enterprises that existed before the year in consideration, but were below the threshold of two employees.

Thus, the same unit may be recorded as a birth in more than one of these populations. For instance, an enterprise created in year t without any employees that recruits an employee in t+1, and then an additional employee in t+2 would be counted as an enterprise birth in year t, an employer enterprise birth in year t+1 and an economic enterprise birth on t+2. Equally and to further illustrate this point an enterprise birth with two or more employees in the year of birth will be counted in all three populations in the same year, xx, i.e. Rxx, R_1xx and R_2xx.

Section 5.1 describes the suggested methodology for the identification of enterprise births, and 5.2 the methodology for the identification of employer enterprise births and economic enterprise births.

Before describing these methods however it is instructive to first describe why three measures of births are recommended here, and how they complement each other. In a nutshell three measures are recommended because, and as mentioned above, each measure, satisfies each of the criteria (meaningful, comparable, and replicable) to varying degrees.

Enterprise births are appealing because they reflect, in theory, all new creations of enterprises. At the same time however of the three measures it is, in practice, the weakest when considering international comparability as it is acutely sensitive to the coverage of business registers, In the EU, in theory, all enterprises should be included on the register and so, again in theory, enterprise births should be comparable. However this is not the case for non-EU countries. Indeed, even in EU countries, in practice, not all enterprises are included, as all countries will operationalise some size threshold or another when a business appears on the business register, meaning that there will be international differences in the coverage of typically smaller enterprises[8].

---

[8]   Using a minimum level of turnover in addition doesn't really help to address this problem, because of inflation, different purchasing powers and changes in exchange rates.

To improve international comparability therefore the manual proposes that a definition for employer enterprise births is created to complement the enterprise birth, as this threshold is measurable in a consistent way across countries. But even the employer enterprise birth is not without some problems. Many countries have sizeable populations of self-employed. If a particular government creates incentives for these self-employed to become employees of their own company the total numbers of employer enterprise births will increase but, arguably, little from an economic and entrepreneurial perspective has changed. This can distort comparisons over time and of course across countries.

As such a third measure, economic enterprise births, is included in this manual. Although, of course, even this measure is susceptible to changes in the status of unincorporated partnerships without employees but this is also a much smaller empirical problem. However the downside of this measure is that it less intuitively linked to the layman's idea of a birth and so, although the most internationally comparable of the three measures it is also arguably the least relevant in the context of domestic policy.

5.1 From enterprise creations to enterprise births (population R)

The number of enterprise births is a key variable in the analysis of business demography as other variables such as the survival and growth of newly born enterprises are related to this concept. The production of statistics on newly born enterprises should be based on a clear definition and an agreement regarding its interpretation.

Definition

Enterprise births are defined (in Commission Regulation (EC) No 2700/98 of 17 December 1998 concerning the definitions of characteristics for structural business statistics) as follows:

"A count of the number of births of enterprises registered to the population concerned in the business register corrected for errors. A birth amounts to the creation of a combination of production factors with the restriction that no other enterprises are involved in the event. Births do not include entries into the population due to: mergers, break-ups, split-off or restructuring of a set of enterprises. It does not include entries into a sub-population resulting only from a change of activity."

The aim is to produce data on the creation of new enterprises that have started from scratch and that have actually started activity. An enterprise creation can be considered an enterprise birth if new production factors, in particular new jobs, are created.

Inclusions

Enterprises started by a person who previously performed the same activity, but as an employee should be included in the statistics on enterprise births.

Exclusions

Events leading to a creation of a new enterprise, but which should be excluded from the statistics on enterprise births are:

1. Enterprises that are created by merging production factors or by splitting them into two (or more) enterprises (break-ups, mergers, split-offs, restructuring)

2. Newly created enterprises that simply take over the activity of a previously created enterprise (take-over)

3. Any creations of additional legal units/enterprises solely for the purpose of providing a single production factor (e.g. the real estate or personnel) or an ancillary activity (see note below) for an existing enterprise.

4. An enterprise that is registered when an existing enterprise changes legal form. E.g. a successful sole proprietor moves operations from his home to another location and at the same time changes the legal form of the enterprise to a limited liability company.

5. Reactivated enterprises if they restart activity within 2 calendar years.

6. Temporary associations and joint ventures that do not involve the creation of new factors of production. The proportion of the new factors of production necessary for a joint venture to be considered a birth should be at least half, i.e. if less than half of the total employment of the joint venture enterprise is transferred from the participating enterprises, it is considered to be a birth. This is likely to be difficult to measure with any accuracy, so the following equation can be used as a proxy:

Employment of new (joint venture) enterprise > 2 X (total employment of participating enterprises before creation of the joint venture – total employment of participating enterprises after creation of the joint venture)

Newly born national or foreign subsidiaries should be included in the enterprise births if:

1. They are real enterprises (legal units rather than just local units or branches) with autonomy of decision making; and

2. New production factors are created, rather than transferred from another unit.

Note - Ancillary Activities

The following activities can be ancillary as long as they are carried out in a legal unit within the same group as the legal unit they are serving, and they serve only that legal unit:

Activity	ISIC Rev. 4 code	NACE Rev. 2 code
Production of small implements for the production process: Manufacture of tools; Manufacture of other machine tools	2593 and 2822	25.73 and 28.49
Wholesale trade, except of motor vehicles and motorcycles	46	46
Transport and warehousing: Freight transport by road; Warehousing and storage; Support activities for transportation	4923; 521 and 522	49.41; 52.1 and 52.2
Data processing services: Computer programming, consultancy and related activities; Data processing, hosting and related activities; web portals	620 and 631	62.0 and 63.1
Activities of holding companies	642	64.20
Real estate activities	68	68
Accounting, bookkeeping and auditing activities; tax consultancy	692	69.20
Administration: Activities of head offices; Office administrative and support activities	7010 and 821	70.10 and 82.1
Advertising and market research	73	73

These lists are not meant to be exhaustive. It is possible that, in certain circumstances, activities not on these lists could also be considered to be ancillary.

Identification of enterprise births

- **Step 1: Population of active enterprises = Nxx**

The population of active enterprises should be identified using the definition given in chapter 3.

For further steps in the procedure it is necessary to produce also populations N(xx-1) and N(xx-2).

- **Step 2: New enterprises in year xx**

The new enterprises in year xx are a subset of the population of active enterprises in year xx, which have taken up economic activity between 01.01 and 31.12. They can be identified by comparing the population of active enterprises in year xx with the population of active enterprises in year xx-1. New enterprises are identified as enterprises that are only present in year xx.

The basis of the method to be used is the concept of the population of active enterprises. The date of registration should not be used as the primary means of identifying new enterprises as information on the date of commencement and cessation of activity is not available for all enterprises and all Member States, and such dates may represent administrative rather than statistical events.

■ Step 3: Elimination of reactivations

The latest version of the EU Business Registers Recommendations Manual (chapter 14) suggests that enterprises dormant for less than two years are considered reactivations and therefore not new enterprises, whereas enterprises reactivated after more than two years are considered to be new.

The most straightforward way to identify reactivations is to compare the new enterprises in year xx with the population of active enterprises in year xx-2. If a new enterprise in year xx was active in year xx-2 then the enterprise is considered reactivated, and not a genuine new enterprise.

The result after the first three steps is the population of new enterprises (that are not reactivations).

■ Step 4: Elimination of other creations

The identification of births is carried out by eliminating creations due to events other than births from the population of new enterprises, that is, break-ups, split-offs, mergers and one-to-one take-overs. It may be envisaged to carry out pilot studies to collect and report data on these other events as well.

The method for identifying other creations compares the new enterprises (that are not reactivations) with the population of active enterprises for the current year (Nxx) and the previous year, using a matching process. For this purpose, the population of active enterprises should cover all sections of ISIC Rev. 4, including A and O.

The matching process should include matches on name, economic activity and location, either using national matching systems, or the following pair-wise approach:

- ■ Match 1: Comparison of economic activity and location - If more than one match with the same location and economic activity are found, then manual checking should be done in order to verify whether the new enterprise can be considered an enterprise birth.

- ■ Match 2: Matching of name and location

- ■ Match 3: Matching of economic activity and name

The comparison should be carried out at the 4-digit level, using the most detailed available information on the location. It is necessary to be aware that some activities naturally tend to be concentrated in certain locations, such as retailing (shopping malls), construction (large sites), and the "liberal professions" (shared premises), where there is an increased risk of false matches.

In addition to the matching above, it is also necessary to check for links between units, which may indicate that a new enterprise is not a birth, and to carry out additional matching or checking using any other nationally available information, such as telephone number, date of registration/deregistration at the administrative source, Official Journal, employer/ employee links, local unit / local kind of activity unit details, etc. In particular, multi-site enterprise births could be identified by checking for links between local units and enterprises.

■ Step 5: Correction of errors

The method for the identification of enterprise births outlined above is based on the use of existing information. In principle, the identification can be carried out solely by the use of computer programs. However, to finalise the identification of enterprise births some of the data should be investigated manually. The purpose of this investigation is to detect demographic events not accounted for in the process outlined above and which might have considerable influence on the statistics on enterprise births.

The largest enterprises (within the population of remaining new enterprises) in terms of employment and turnover should be listed and investigated in detail to detect whether the event is a birth. The sources used for this investigation could for instance be newspapers, the Internet, Official Journals, local unit / local kind of activity unit details, or direct contact with the enterprise. As this kind of analysis requires a lot of resources, it should be limited to new enterprises with more than twenty employees.

Further, as many of the enterprise births have no employees in the year of establishment, it is also necessary to check enterprises with no employees but exceptionally high turnover. It is difficult to put an exact limit above which the checking should be performed but exceptionally high turnover could be defined as: higher than twice the average turnover in enterprises without employees in that sector of activity.

If the number of enterprises to be manually checked based on the above guidelines is considered to be too heavy a burden, manual checks of representative samples of the two categories of enterprises should be carried out. The results from the manual checking of the sample should then be raised on a random basis, so that a comparison between the number of enterprises identified as other creations based on the manual checking between the countries is possible. For example, if there are 1000 large potential births, but it is only possible to check a 10% sample (i.e. 100 enterprises), and of these only 20% (i.e. 20 enterprises) turn out to be births, then 20% of the 900 enterprises that were not checked should be chosen at random, and also considered to be births. It is recognised that this might lead to problems of accuracy for detailed breakdowns, but such problems should be minimised if the basis for raising the results of the sample check to the population of large births is sufficiently random.

Summary of the identification process of enterprise births

Population	Information used	Number of enterprises
Active enterprises in year xx	Turnover / employment	N_{xx}
Active enterprises in year xx-1	Turnover / employment	N_{xx-1}
Active enterprises in year xx-2	Turnover / employment	N_{xx-2}
New enterprises in year xx	ID number comparison of N_{xx} with N_{xx-1} and N_{xx-2}	X_{xx}
Sub-population from matching	Location and Sector	X_1
Sub-population from matching	Location and Name	X_2
Sub-population from matching	Sector and Name	X_3
Sub-population from matching	Links between legal units	X_4
Sub-population from matching	Other nationally available information (Official Journal, telephone number etc.)	X_5, X_6 etc
Sub-population from matching	Manual control of large units	X_z
Enterprise births (R)		**R_{xx}**

The sub-populations denoted X_1 to X_z in the table above are not mutually exclusive, i.e. the same enterprise might be included in several sub-populations. These sub-populations and population X_{xx} are regarded as intermediate outputs in the process of identifying enterprise births, and are not required to be submitted to Eurostat.

5.2 Employer enterprise births and economic enterprise births

The main component of the data on employer and economic enterprise births already exists in the population of all enterprise births (population R). The enterprise births except the units below the employee thresholds cover largely the population of employer and economic enterprise births. However, there are also enterprises that do not reach the employee threshold of one employee for employer enterprise births or 2 employees for economic enterprise births in their first year of economic activity. Enterprise births of non-employer enterprises, for instance, should be counted as employer enterprise births when they become an employers. These "entries by growth" are not covered in the methodology on enterprise births described in section 5.1 above, and so will be described in this section.

5.2.1 Employer enterprise births (population R_1)

There are two conditions which qualify an enterprise as an employer birth:

1.   It was an enterprise birth (see section 5.1) in year xx, and had at least one employee in the year of birth, or

2.   It existed before year xx, was not an employer for the two previous years and had at least one employee in year xx (entry by growth). The growth should not be due to the take-over of another enterprise with employees.

An enterprise should be considered an employer enterprise in a given year if it has at least one employee at any time during the reference period from 01.01 to 31.12. Its operating period *as an employer* within a calendar year is the time during which it has at least one employee. In some countries information on employees may not be available. In these cases payroll information can serve as an alternative source for determining whether the enterprise was an employer enterprise. This source of information can also prove useful for those countries that measure employment only a given point in time each year. For economic enterprise births, described below, the lack of information on employees presents greater estimation problems. In these circumstances countries may need to use assumptions about the average pay per employee combined with payroll information to determine whether two or more employees were on the payroll.

The easy way to identify entries by growth and thus to complete the data on employer enterprise births would be to check which active employer enterprises in year xx (population N_1xx) had no paid employees in year xx-1. However, reactivations would be neglected, i.e. an apparent birth might in fact be a reactivation of a dormant unit. So it would be necessary to check whether a unit that has employees in year xx had no employees in xx-1 and xx-2.

The suggested step-by-step method for identifying employer enterprise births (population R_1xx) is as follows:

■ Step 1: Enterprises with employees in the year of birth

Enterprise births (population Rxx) excluding those without employees should be used to establish the population of newly born enterprises with at least one employee in the year of birth.

■ Step 2: Identifying former non-employers that become employers in xx (entries by growth)

In addition to the enterprise births with at least one employee, we need to identify those enterprises that existed before the year xx without employees, and that had at least one employee in xx. To make sure that no reactivations within two years are included (because they should not be considered as births), we need to check whether these units had no employees in years xx-1 *and* xx-2. The populations of "active non-employer enterprises" will be called N(0)xx-1 and N(0)xx-2.

■ Step 2a: Identifying non-employers in years xx-1 and xx-2

To cover all the units that could be entries by growth, the populations of active non-employer enterprises N(0)xx-1 and N(0)xx-2 should first be established. Then the following cases should be considered.

1)   A unit is in population N(0)xx-1 and N(0)xx-2. => It was a non-employer in both years.

2)   A unit is in population N(0)xx-1, but not in N(0)xx-2.

> If the unit is in population N_1xx-2 (Nxx-2 excluding N(0)xx-2), it was an employer in xx-2 and should be ruled out.

> If the unit is not in population N_1xx-2 either, it was dormant in xx-2, or it was a non-employer birth in xx-1. => It was a non-employer in both years.

3)   A unit is in population N(0)xx-2, but not in N(0)xx-1.

> If the unit is in population N_1xx-1 (Nxx-1 excluding N(0)xx-1), it was an employer in xx-1 and should be ruled out.

If the unit is not in population N_1xx-1 either, it was dormant in xx-1. => It was a non-employer in both years.

In summary, the enterprises to be identified in step 2a are those which are

- in population $N(0)xx-1$ *or* $N(0)xx-2$ *or* both

- *and* which are *neither* in population N_1xx-1 *nor* in N_1xx-2

- ### Step 2b: Checking whether non-employers in xx-1 and xx-2 had employees in xx

A check is needed on whether active non-employer enterprises identified by these cases in step 2a had ≥ 1 employee in year xx. If so, they are employer births in year xx.

- ### Step 2c: Removing enterprises that grew by take-over (optional step)

Results on take-overs should be available from the methodology used to identify enterprise deaths (see section 7.1). Where possible, the information on units that took over other units (which ceased to exist but were not deaths) should be used to identify enterprises that reached the one employee threshold by taking over another one. These should be removed from the population of entries by growth.

- ### Step 3: Adding up the results

Adding up the units identified in steps 1 and step 2 yields the population of employer enterprise births R_1xx.

Why not use a simpler method?

An alternative way of trying to identify employer births would be simply to check which employer enterprises in year xx had no employees in xx-1 and xx-2, i.e. whether they were not in populations N_1xx-1 and N_1xx-2. This condition would, however, hold true for all new enterprises with employees in year xx (population Xxx). The disadvantage, then, would be the lack of a check as to whether newly born enterprises in year xx with at least one employee were enterprise births (as described above). New employer enterprises in year xx that emerged from take-overs, mergers, break-ups, split-offs, change of legal form, etc. would be counted as births.

5.2.2 Economic enterprise births (population R_2)

In principle, the approach to identifying economic enterprise births (R_2) should be the same as for employer enterprise births (R_1). Again, there are two conditions that qualify an enterprise as an economic enterprise birth:

1. It was a enterprise birth in year xx, and had at least two employees in the year of birth or

2. It existed before year xx, had less than two employees in the previous two years and had at least two employees in year xx (entry by growth). The growth should not be due to the take-over of another enterprise.

The suggested step-by-step method for identifying economic enterprise births (population R_2xx) is as follows:

- ### Step 1: Enterprises with at least two employees in the year of birth

Enterprise births (population Rxx), excluding all units with less than two employees, should be used to establish the population of newly born enterprises with at least two employees in the year of birth.

■ Step 2: Identifying enterprises that existed, but had less than two employees (entries by growth)

In addition to enterprise births with at least two employees, we have to identify enterprises that existed before the year xx with less than two employees, and that had at least two employees in xx.

■ Step 2a: Identifying enterprises with no or one employee in years xx-1 and xx-2

To cover all the units that might be entries by growth, the populations of active non-employer enterprises $N(0,1)xx-1$ and $N(0,1)xx-2$ should be established. Then the following cases should be considered again.

1)   A unit is in population $N(0,1)xx-1$ and $N(0,1)xx-2$. => It was active but below the employee threshold in both years.

2)   A unit is in population $N(0,1)xx-1$, but not in $N(0,1)xx-2$.

> If the unit is in population N_2xx-2 ($Nxx-2$ excluding $N(0,1)xx-2$), it was an employer with at least two employees in xx-2 and should be ruled out.

> If the unit is not in population N_2xx-2 either, it was dormant in xx-2, or it was born in xx-1, but below the employee threshold. => It was below the employee threshold in both years.

3)   A unit is in population $N(0,1)xx-2$, but not in $N(0,1)xx-1$.

> If the unit is in population N_2xx-1 ($Nxx-2$ excluding $N(0,1)xx-1$), it was an employer with at least two employees in xx-1 and should be ruled out.

> If the unit is not in population N_2xx-1 either, it was dormant in xx-1. => It was below the employee threshold in both years.

In summary, the enterprises to be identified in step 2a are those which are

- in population $N(0,1)xx-1$ *or* $N(0,1)xx-2$ *or* both

- *and* which are *neither* in population N_2xx-1 *nor* in N_2xx-2

■ Step 2b: Checking whether units with less than two employees in xx-1 and xx-2 had two or more employees in xx

We have to check whether active enterprises with less than two employees as identified in step 2a had ≥ 2 employees in year xx. If so, they are economic births in year xx.

■ Step 2c: Removing enterprises that grew by take-over (optional step)

Where possible, results on take-overs should be used to identify enterprises that reached the two employee threshold by taking over another one. These should be removed from the population of entries by growth.

■ Step 3: Adding up the results

Adding up the units identified in steps 1 and step 2 yields the population of economic enterprise births R_2xx.

5.3   Employment in newly born enterprises

Once we know how many enterprises are born in the economy, an assessment of their impact should be made. This can be evaluated by measuring the number of jobs or the additional turnover created. There is particular interest in the number of jobs created by new enterprises as well as the actual volume of work created, as some of the created jobs may be only part time.

To meet this demand, data should ideally be provided both as head counts and as full-time equivalents. Using solely the head count will overestimate the volume of work produced if the enterprise starts later than 1st January of year xx or if it has only part-time employment. However, as information on full-time equivalents is not available in all countries it is proposed that as, a first priority, employment indicators should be measured in terms of head counts.

The head count of persons employed and the number of employees should be calculated as <u>an annual average over the operating period</u> of the enterprise. The average should be rounded to the nearest whole number. Depending on the frequency of data updates, the annual average is the arithmetic mean of the infra-annual observations, or the only annual figure that is available, if this is the case. Using an annual average over the operating period accommodates for seasonal activities, which would not be the case if the employment at a certain reference point were used.

When considering employer enterprises, the operating period should be the one during which they are active *as employers*. For instance, an enterprise that was active without any paid employees during three quarters and which had one employee in the fourth quarter should be considered active *as an employer* only for the fourth quarter. If only the fourth quarter is considered as the operating period, the average number of employees would still be reported correctly as 1. The same principle should be applied to the two employee threshold used for economic births and deaths. Again, as described above for employer and economic enterprise births, point in time estimates of employment will affect these estimates. In these cases countries should use payroll information, if available, as a source to estimate the number of employees, following the averaging principles outlined above. With this estimate of employees, 'persons employed' can be estimated using information on the legal form and the principles described under the 'Estimation method' section below.

Examples of employment measurements:

1) If an enterprise has activity during 3 months in the summer only with two persons employed, the annual average head count will be two.

2) If the enterprise is created during the last quarter of the year the observation for employment in this quarter should be used as the annual average.

Estimation method

If one of the variables "employees" or "persons employed" is missing, the other can be estimated using the following method. For example, the number of persons employed is simply estimated by adding an estimate of the number of working proprietors to the number of employees:

sole proprietorship:	number of employees + 1
partnership:	number of employees + 2
limited liability company:	number of employees + 0

Some refinement of the method by legal form and/or economic activity may be necessary to take account of national legislation on legal forms.

If neither variable (employee/persons employed) is available countries should attempt to estimate these variables using a combination of payroll information and information on the legal form.

5.4   Indicators

The data may be used to produce further indicators related to enterprise births, such as the following:

- Births as a percentage of the population of active enterprises (birth rates).

- Births by size class.

- Births per 10.000 of the population.

- Births per 10.000 of total active population aged 15-64

- Correlations of enterprise births with GDP and unemployment

Additional indicators will be produced to demonstrate the impact of the newly born enterprises to the economy:

- Persons employed in newly born enterprises in year xx as a proportion of the total number of persons employed in the population of active enterprises in year xx (both in head counts)

- Employees in newly born enterprises in year xx as a proportion of number of persons employed in newly born enterprises in year xx (both in head counts)

The first of these indicators reflects the employment creation potential of newly born enterprises. The second reflects the potential employment creation going beyond the entrepreneurs themselves.