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Preface

Demand for statistics on business demography has grown and developed considerably in recent years. Data on births and deaths of enterprises, their life expectancy and the important role they play in economic growth and productivity, as well as the information they provide for tackling social demographic issues, are increasingly requested by policy makers and analysts alike. Some of these data form part of the Structural Indicators measuring the progress towards the European Union's goals set out in the Growth and Jobs Strategy. In addition, business demography is a core element of the OECD's Entrepreneurship Indicators Project, where the OECD and Eurostat are collaborating to develop a framework for the regular and harmonised measurement of entrepreneurial activity and the factors that enhance or impede it. The OECD Project is supported by a grant from the Ewing Marion Kauffman Foundation, though the contents of this Manual are solely the responsibility of the OECD and Eurostat.

This joint manual reflects these growing needs and developments and the agreement between Eurostat and the OECD for a common methodological framework for business demography statistics that maximises their international comparability and relevance, recognising and addressing the different conditions and legal frameworks that govern the production of business statistics at the national level.

At EU level, the production of statistics on business demography has a legal basis with the entry into force of the recast Council and European Parliament Regulation on Structural Business Statistics. This manual describes the methodology for the data collection stipulated in Annex IX of this regulation, covering all enterprises including self-employment. In addition, the manual was endorsed by the OECD Committee on Statistics. It includes indicators that are essential for comparability across OECD countries and the investigation of entrepreneurship, namely indicators of employer enterprises, and, importantly, high growth enterprises, particularly young high-growth enterprises, referred to here as 'gazelles'.

A number of experts from Eurostat, the OECD and national statistical offices have developed this manual over several years. It is the result of many consultations and discussions. We would like to thank all those who have contributed.

Hervé Carré
Director General
Eurostat

Enrico Giovannini
Chief Statistician
OECD

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Introduction

chapter 1

1.1 About this manual

This methodological manual aims to provide both practical and theoretical guidance to those involved in the production and use of data on business demography within the European Union and the OECD. It has been developed from the methodological guidelines used in the original EU business demography feasibility study and first harmonised data collection. The OECD initiated further development by subsequent efforts[1] that considered the comparability of business demography indicators across OECD countries and the needs of policy makers and analysts for relevant and comparable indicators that facilitated studies of entrepreneurship and economic growth, as well as many other policy domains. It therefore contains extensions to the original methodological guidelines based on the experiences gained during those exercises and subsequent collaboration with the OECD.

These guidelines have been discussed and agreed by the Eurostat Business Demography Working Group, the OECD's Entrepreneurship Indicators Steering Group and OECD's Structural Business Statistics Expert Group. Hence, they are jointly agreed upon and should be considered as recommendations for practices that enable the production of comparable statistics. This methodological manual is intended to be consistent with, and to complement methodological guidelines for other areas of business statistics, particularly those concerning statistical business registers and structural business statistics. As such, this manual forms part of the collection of methodological manuals relating to European statistics, which can be accessed at the Eurostat website (http://ec.europa.eu/eurostat/ramon, "Legislation and Methodology", "STATMANUALS", "Industry, Trade and Services"). It is, however, also intended that this manual can be read as a free-standing document.

The manual should be viewed as a living document. It is intended to act as a catalyst for the development not only of the indicators identified here but more generally as a tool that encourages countries to fully capitalise on data that they typically collect.

Most EU and OECD countries compile business registers, which until recently were seen first and foremost as a source for business survey sample frames. However, in recent years, business registers themselves have begun to be used to provide significant information on business demography. The manual is intended to maintain this momentum whilst all the while prioritising international comparability.

1.2 Aims and user needs

There are clearly growing demands for data on business demography from a wide range of users, both at European and OECD level. At the European level demands are for coherent and comparable data across the members of the European Statistical System (ESS). Key customers at this level are the economic policy makers within the European institutions, particularly DG "Enterprise and Industry" of the European Commission. The European Commission has assured its commitment to a policy that promotes entrepreneurship as an essential instrument for improving competitiveness and generating economic growth and job opportunities since its communication to the Council[2] on 'Promoting Entrepreneurship and Competitiveness'. Moreover, the 1999 Employment Guidelines adopted by the Council Resolution emphasise the development of entrepreneurship, given that the formation of new enterprises and the growth of small and medium-sized enterprises are essential for job creation.

The Council of Lisbon in the summer of 2000 set the strategic goal of transforming the European Union into 'the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion'. The Lisbon Strategy was relaunched in 2005 as the Growth and Jobs Strategy. Its main objectives are to ensure sustainable growth, and more and better jobs in the EU. These goals can be reached, among others, through the support of entrepreneurship and entrepreneurial dynamism, the presence of which can be revealed by the analysis of business demography statistics over time. As a consequence, there is high demand for comparable data on business demography for the purposes of monitoring and policy formulation. Customers at the national level also benefit from the development of harmonised methodologies and the exchange of good practices and experiences between countries.

[1] See OECD Statistics Working Papers STD/DOC(2006)/3 http://www.olis.oecd.org/olis/2006doc.nsf/linkTo/std-doc(2006)3 and STD/DOC(2006)/4 http://www.olis.oecd.org/olis/2006doc.nsf/linkTo/std-doc(2006)4.

[2] COM (1998)550 final.

The original EU methodological guidelines are based on regulations governing structural business statistics and business registers at the EU level and provide the basis for comparable business demography data for current and future European Union (EU) and European Free Trade Association (EFTA) Member States. In particular they aim to satisfy the expected requirements for Structural Indicators[3] regarding births, deaths and survival.

These indicators are based on all enterprises, those with employees and the self-employed. However, OECD studies have demonstrated that the comparability of indicators based on all enterprises in countries outside of the EU is limited. Indeed, in practice the thresholds for the inclusion of very small units also vary between EU Member States.

These same studies demonstrated however, a high comparability of indicators based on the population of employer enterprises. As such the OECD, Eurostat and EU Member States have agreed that the collection of data on enterprises that have paid employment can significantly improve the comparability of birth and death rates among all OECD countries, and certainly for EU countries, and so are included in this manual. Better international comparability is not the only rationale for focussing on employer enterprises however, as there is recognition that this population of enterprises is distinctly different from the population of non-employer businesses to justify their inclusion on these grounds alone; certainly this is the view of the OECD's Entrepreneurship Indicators Project.

That being said the business demography indicators based on all enterprises including non-employers remain a central plank of EU business statistics.

The philosophy of the project to develop statistics on business demography has been to minimise the burden on enterprises and National Statistical Institutes and to use automation and existing tools as much as possible. The guidelines contained in this manual have been based on a pragmatic approach. This means that it should be possible to implement them in different countries with relatively little effort. With this aim in mind, the main source for demographic data should be the statistical business register. The advantages and constraints of this data source are explored further in Chapter 2.

1.3 Units and coverage

Statistical units

A fundamental requirement in measuring business entries (creation) and exits (destruction) concerns the definition of a business itself. The notion varies considerably. Statistical offices will typically define businesses according to their activity within national boundaries, although businesses are also, and increasingly so, measured in a global, multinational sense. That is not to say however that the definitions used by national statistical offices are consistent across countries[4]. Many businesses (parents) own or control other businesses (subsidiaries) operating within the same economy. Depending on the degree of control and the nature of economic activity, some statistical offices will consolidate parents with subsidiaries, others will not.

The rules that govern what statistical offices do largely reflect institutional and administrative arrangements that exist in their country. Not surprisingly these differ across countries and so too, therefore, do the definitions used for businesses. It is important to put these differences into context however and to explain why they have arisen and continue.

International definitions of businesses do exist. For example the System of National Accounts, Eurostat (EC Regulation 696/93) and the International Standard Industrial Classification of all Economic Activities (ISIC) all provide definitions. Although these three systems do not entirely converge, three main types of statistical unit emerge: Enterprises, Establishments (or local kind of activity unit) and Enterprise Groups. Legal units are usually the building blocks used in defining businesses in all of these measures but legal units are not themselves comparable across countries since they reflect national administrative and legal requirements that will differ across countries.

All EU and OECD countries are able to produce structural business statistics on these bases (albeit with some differences in practice), often to meet the needs of international organisations, like the OECD, and often for their own needs for

[3] The indicators provide an instrument for monitoring and benchmarking which are vital elements of the Lisbon follow-up strategy.

[4] Work by Eurostat (Herczog, Aimée, Hans van Hooff and Ad Willeboordse (1998), "The Impact of Diverging Interpretations of the Enterprise Concept".) for example, demonstrated that the operational definitions used for enterprises differed considerably for some firm configurations, across countries, both conceptually and, more commonly, in practice.

example in producing R&D statistics, which can only be practically produced at the Enterprise (and Enterprise Group) level, or the national accounts, which are typically based on establishment measures. However, the focus on business demography statistics by statistical offices is relatively new and, so, the business definitions used across countries differ.

Historically the main uses of business statistics have been firstly in providing inputs into the calculation of gross domestic product (GDP) and secondly to identify the contribution to economic activity of businesses. For statistical purposes, businesses have therefore been defined as reporting units in a way that facilitates the collection of statistics to meet these needs. Whether a reporting unit is a subsidiary or not is only relevant if the subsidiary is not able to provide the information required, such as turnover, production and profits. The size of the reporting unit must be chosen to optimise the provision of the required information. It is usually possible to aggregate the data from reporting units to give enterprise level data, although, for a few specific variables such as profits or overseas investment, the optimal reporting unit may sometimes correspond to a group of enterprises.

In collating business statistics as inputs into the national accounts for example, this approach works reasonably well, since in most cases it is able to provide the key economic aggregates needed at a detailed industry level. This is especially true where local kind of activity units form the reporting unit. In any case, in all countries most enterprises correspond to local kind of activity units. It is important for uses such as national accounts to record activities in sufficient detail to allocate them correctly to the chosen level of activity classification. This means that the business definition, in theory, only impacts on the distribution of value-added among industry groups; for total GDP the definition is of little theoretical relevance.

The needs of business demography statistics are however somewhat different. Because their main purpose is to provide information relating to the number of new businesses (entries), failures (exits) and growth, the definition of a business is of crucial importance since it impacts directly on entry, exit and growth rates. Indeed, as demonstrated below, the definition results in a trade-off between exit and entry figures and growth.

Selecting the Statistical Unit for Businesses

Consider an enterprise that initially comprises a single local kind of activity unit or establishment that then expands by creating another local kind of activity unit of the same size as the original unit but with effective operational control remaining at the enterprise level.

If businesses are defined as local kind of activity units this expansion results in an entry but no growth in the original business (establishment). If, on the other hand, businesses are defined as enterprises, no entries would have occurred but the original business unit would have doubled in size. Which of the approaches is better for policy purposes is not immediately obvious, since that depends on the policy focus. But a further expansion of the example can help to illustrate some consequences of each approach.

Consider now the outcome if the original enterprise grew by expanding its operations at the same (original) site. In this case, whether businesses are defined at the enterprise or local activity level, the result is the same; no births and 100% growth. Defining businesses as local kind of activity units or establishments therefore can result in an asymmetric treatment of growth dependent on location; which renders this approach inappropriate for policy makers interested in business demography statistics that paint a picture of the whole economy, as the results should be invariant, at least within economic borders, to where businesses choose to grow. Establishment based data can play a role in practice, since policy makers interested in investigating regional (state, county, local area) differences will not of course be able to use business demography data based solely at the national level.[5] However even in these circumstances it is preferable to use the enterprise definition, albeit, where enterprises are defined on the basis of the economic borders of the regions; and, in practice, the smaller the region the more likely that enterprises and establishments align.

One could say that many enterprises are also part of larger enterprise groups in much the same way that establishments form part of enterprises and, so, enterprise based measures have the same shortcomings. But the argument can be stretched too far, resulting in a definition that links back to ultimate owners. For example one entrepreneur might own many heterogeneous enterprise groups that own in turn a number of heterogeneous enterprises. But the rationale cannot be based on ultimate ownership as the ultimate owners for most companies and certainly listed corporations are shareholders.

[5] In its current guise the manual's primary concern is of course comparability at the national level. It is hoped that future versions will provide concepts and guidelines for local business demography statistics.

What matters most is the level at which decisions are made, such as those that affect expansion and innovation, and where operational control resides. Policy makers are interested in understanding what makes a successful business. The factors and business characteristics that determine this are inextricably linked to operational control.

Measures based on enterprises come closest to these criteria, as the degree of innovation, decision making etc within a business is likely to be closely related to the organisational and management structures that exist at the enterprise level. Research and development, product design and product advertising for example will usually be developed centrally within an enterprise with establishments benefiting from spill-overs; indeed, even innovative ideas generated at the establishment level are likely to permeate throughout the enterprise as upward spill-overs.

That said it is important to put the differences between establishment and enterprise based indicators into context. The vast majority of enterprises have only one establishment; and this is especially the case for small and medium enterprises (SMEs), where there is considerable policy interest. Large new business are typically opened by a larger enterprise group, whether that be foreign or domestically owned and, so, statistics that compare levels of small business entries are likely to be comparable across countries even if the business definitions differ.

Estimates of total business entries and exits are less comparable if different business definitions are used across countries but this can be at least partly mitigated where rates are concerned. Typically, entry (and exit) rates are calculated as the ratio of entries (exits) to the total business population active in the year in question. Comparisons of entries and exits across countries based on different business definitions can be made more comparable when rates are compared, because biases work in the same direction in both the numerator and the denominator – for example establishment entries will be higher than enterprise entries but so too will be the population of establishments compared to the population of enterprises.

Although the Enterprise definition for businesses is to be preferred to other concepts it should be recognised that there are limits to international comparability. When an enterprise with headquarters in one EU country for example sets up a new production unit in another country a new enterprise is recognised. However, when an enterprise with its headquarters in one US state sets up a new production unit in another US state this will generally be recorded as the creation of a new establishment. This means that estimates of the size and number of enterprises between two economic blocs will differ, even if exactly the same national concepts are applied. All other things being equal, comparisons will show that enterprises in the nation state, although fewer, are larger and grow more in periods of expansion (and contract more during recessions) than enterprises in an equivalently sized economic-bloc of nation states. Birth and death rates are however quite similar. A 2003 US study[6] compared enterprise births in the US, on a national and state basis, and showed that churn (birth+death) rates were very similar[7]. They also showed that the average size of new establishments entering a state market for the first time was, on average, larger than the average size of a new enterprise, reflecting the fact that expanding enterprises do so with a tried and trusted business recipe and so less risk of subsequent failure.

This is not to say that business demography statistics, using enterprises as the business unit, cannot be compared across unevenly sized economies. The point is that one cannot look at the statistics in isolation and care is needed in drawing conclusions, particularly those that are likely to impact on policy. In fact, comparisons of domestically owned entries and exits are not impaired by variations in economic size.

Recommended Business Definition

In summary therefore this manual recommends that the statistical unit to be used for business demography data collections is the enterprise. At the European level, this unit is defined as follows in the statistical units Regulation (Council Regulation (EEC) No 696/93 of 15 March 1993 on the statistical units for the observation and analysis of the production system in the Community), and is consistent with definitions uses in the 1993 System of National Accounts and International Standard of Industrial Classifications:

"The enterprise is the smallest combination of legal units that is an organisational unit producing goods or services, which benefits from a certain degree of autonomy in decision-making, especially for the allocation of its current resources. An enterprise carries out one or more activities at one or more locations. An enterprise may be a sole legal unit."

[6] Jarmin Ron, Javier Miranda and Kristin Sandusky (2003), "Alternative Measures of Business Entry and Exit", paper presented at the OECD Workshop on Improving statistics on SMEs and Entrepreneurship, 2003: COM/STD/NAES/DSTI/EAS(2003)12.

[7] Although a comparison of turnover rates of establishments versus enterprises revealed that turnover rates in establishments were approximately 11% lower than enterprise turnover rates.

It is recognised that this unit may not yet be available in statistical business registers in all countries. The general understanding within this manual is that in the absence of data at the enterprise level, demographic data can be produced starting from legal units, or other statistical units. However, it is recommended that countries aim to introduce the enterprise concept into their statistical business registers at the earliest opportunity.

That is not to say however that indicators based on other definitions of businesses units are not useful. Establishments in North America, for example, are sufficiently similar to local units in Europe to consider the possibility of a site-level start-up indicator. Ideally this would have two components, new sites due to births, and new sites created by existing enterprises. Both are of interest for studying employment dynamics and the impact of entrepreneurship at the regional and local levels, but it is perhaps too early to consider including these in this manual at this stage given the additional complications, particularly in the context of international comparability, inherent in them.

Coverage of economic activities and legal forms

The economic activities for which business demography indicators are produced are the ISIC Rev. 4 sections B to N excluding group 64.2 (management activities of holding companies), and potentially sections P to S. Thus activities relating to production, construction, distributive trades and services are covered, but agriculture, public administration, non-market activities of households, and extra-territorial agencies are not. This is mainly due to the current coverage of statistical business registers in most OECD and EU countries.

At present indicators include market oriented legal forms (e.g. limited liability companies, sole proprietors, partnerships, and public corporations) but exclude units in the central and local government sectors. This is partly because the definition of the enterprise is not yet sufficiently developed for these sectors and partly because the births and deaths of enterprises in these sectors are typically determined by very different factors than those that govern births and deaths in the market sector.

1.4 Legal Basis

For EU countries, the collection of basic data on business demography was foreseen in the structural business statistics Regulation (Council Regulation (EC, EURATOM) No 58/97 of 20 December 1996 concerning structural business statistics). Basic variables such as counts of enterprise births and deaths have already been defined in Commission Regulation (EC) No 2700/98 of 17 December 1998 concerning the definitions of characteristics for structural business statistics.

Annex IX of the recast Parliament and Council Regulation on Structural Business Statistics provides the legal framework for the harmonised data collection at EU level. This methodological manual itself has no direct legal basis, and therefore should be seen as advisory. It does, however, seek to interpret and explain current and possible future legal requirements in EU countries and to give recommendations for practices that will make possible the establishment of harmonised statistics across the OECD and EU.

Data Sources

chapter 2

2.1 Business registers

In practice, business demography statistics require the existence of a statistical or administrative business register. This information varies across countries, although within for EU Member States, as described below, they have moved much closer together as a result of regulations concerning Business Registers.

That all said, it is important for producers and users of enterprise demography statistics to recognise their potential limitations in the context of international comparability - the main one being that the appearance of a business on administrative or business registers does not necessarily coincide with the date at which the business first became active. In some countries for example, businesses may be required to register, or voluntarily register, before any turnover is recorded or production occurs. Indeed it does not necessarily follow that all of these businesses will ever be involved in economic activity; instead they may remain permanently inactive. In yet other countries the administrative registers capture businesses after they have already been active for a while; usually because businesses need to exceed some threshold (commonly turnover or employment based) before registration. In practice this may mean that many small and micro enterprises will be excluded.

The existence of thresholds in business registers is perhaps the most important factor that can cause differences in business demography statistics. Although they attempt to be as exhaustive as possible, business registers will, in practice, use one threshold or another that excludes some businesses. Commonly, the thresholds are based on monetary values, using turnover as the indicator for example, or they are based on employment levels. However the thresholds may be based on other criteria reflecting the institutional make-up of businesses, for example they may exclude some industrial sectors, like agriculture, or all unincorporated firms. Finally the registers, in all countries, will exclude firms operating exclusively in the 'black' or underground economy. Although the economic importance of missing firms is generally not significant, when set against total economic activity, their importance in the context of entrepreneurship, and in particular with regards to Small and Medium Enterprise (SME) policy, is greater, and such shortcomings in business register information need to be recognised in the context of business demography statistics.

Survey based approaches to the measurement of births are also possible but these will typically be of lower quality than information derived from registers, which, in theory, cover all businesses above a certain threshold; although it may be easier to derive estimates of births from surveys since respondents will be able to describe precisely how their businesses were created: takeovers, births etc. Moreover, survey based approaches may also capture the creation of informal enterprises. However, the survey approach also suffers from the usual constraints of survey errors and sample size limitations when detailed data breakdowns are required.

In theory, census data can be at least as good, and sometimes better than register based information, if they have less scope restrictions, but the cost of running a census of businesses every year makes this approach unrealistic for most countries. Data from less frequent censuses may still be of interest but, as discussed in the section on periodicity below, they raise major comparability issues. Moreover, it would be literally impossible to identify enterprise deaths by means of surveys, as there would be no units to be surveyed.

Whilst recognising that many countries outside the EU do not currently have adequate statistical or administrative business registers, indeed, even within the EU the comprehensiveness of these registers varies across countries and time, the manual recommends that the business register serve as the primary and preferred source of information for business demography statistics. This source was chosen for various reasons including the following:

- Using data from statistical business registers is generally quicker and cheaper than conducting a survey, thus minimising the burden on businesses.
- There is a considerable degree of harmonisation of statistical business registers in EU Member States following the adoption of the business registers Regulation (Council Regulation (EEC) No 2186/93 of 22 July 1993 on Community co-ordination in drawing up business registers for statistical purposes). This Regulation sets standards for coverage of activities, units and variables, thus helping to assure a certain level of data quality, particularly as regards comparability.
- Under the EU Regulation, Member States are required to hold data on the enterprise, a harmonised statistical unit that removes the impact of different legal and organisational infrastructures. Although the enterprise has not yet been fully implemented in all Member States, and issues relating to the delineation of complex enterprises are still under discussion, the use of this unit will ensure a further increase in the comparability of data.

- Moreover, in calculating rates that require the total population of enterprises as the denominator, the conceptual consistency between the denominator and numerator populations can only realistically be maintained using the same source information. Survey based approaches may also be used to measure the total population of enterprises but they are complicated by issues of multiple-counting of enterprises and require survey respondents to differentiate between statistical business units. If business registers do exist, but a survey based approach is still used to estimate births, there is a risk that inconsistencies between the numerator and denominator arise, for example at the industrial sector level or because the numerator includes births of informal enterprises not included in the business register population.

Statistical business registers are themselves generally built from a number of different sources. The choice of sources is left to individual countries, under the principle of subsidiarity in the EU, though, again, for EU countries, the minimum standards set out in the Regulation must be complied with.

In practice, most national registers are based on a combination of administrative and statistical sources. The administrative sources generally include tax registers (e.g. for value added tax, corporation tax or income tax), compulsory registration systems (e.g. for limited liability businesses or those quoted on stock markets), social security sources and other public or private sector data holdings. The statistical sources generally comprise returns from various surveys.

The range of different sources used for a statistical business register means that duplication of units is a potential problem. Some countries have well developed systems and processes to deal with this, but others are still in the early stages of development in this area. This means that the matching routines described in chapter 5 are particularly important for ensuring comparable data.

The quality of statistical business registers in Member States and certain other countries is measured annually via a survey conducted by Eurostat. This survey also assesses the degree of compliance with the EU registers Regulation. As a result a time-series is being developed to show the rate of progress in the harmonisation of registers across the European Union. Taken together, this survey and the provisions of the registers Regulation help to ensure that the level of quality of statistical business registers as a source for data on business demography is known and documented, and where possible, improved.

The development and use of statistical business registers in the European Union is the subject of a separate methodological manual, which also considers (in chapters 11-16) issues relating to business demography, and continuity of units. It is available from Eurostat, or can be accessed on the Internet at:

http://ec.europa.eu/eurostat/ramon/statmanuals/files/KS-BG-03-001-__-N-EN.pdf

2.2 Other sources

Basic data from statistical business registers are supplemented by data from other survey and administrative sources for certain purposes, particularly the determination of births, deaths and enterprise continuity. Examples of such sources and the purposes for which they are used in certain Member States are given in the following paragraphs.

- Tax sources – In the Netherlands various tax sources relating to e.g. VAT, profits and wages have been used to help determine the true population of active enterprises.

- Statistical surveys – An existing survey on the dissolution of enterprises is used in Portugal as an input to the matching process to determine deaths. Also in Portugal, the harmonised business survey is used to update turnover and persons employed, and provides a basis for estimating the number of employees. Surveys on labour and wages, and specific surveys on enterprise demography have been used in the Netherlands to help determine and validate the population of active enterprises.

- Clerical checking – This has been used to some extent in all EU participating countries to validate large births and deaths, and determine whether or not enterprises have survived. Clerical checks have also been used in some cases to investigate unusual or unexpected results. Sources used to aid clerical checking vary widely between countries, and include various administrative sources, direct contact (by mail or telephone) and the Internet.

The population of Active Enterprises

chapter 3

3.1 Scope of the population

The population of active enterprises is intrinsically linked to the definitions of births and deaths that follow and the thresholds used in these definitions. The following populations of active enterprises are distinguished, depending on the employee thresholds that are applied.

N	Population of active enterprises including all employers and non-employers
N_1	Population of active employer enterprises (at least one employee)
N_2	Population of active employer enterprises with at least two employees
N(0)	Population of active non-employer enterprises. This is the same as N – N_1.
N(0,1)	Population of active enterprises with no or one employee. This is the same as N – N_2.

The population of active enterprises including all employers and non-employers (N) consists of all enterprises that had either turnover or employment at any time during the reference period. If there is insufficient information on turnover or employment to determine whether or not an enterprise is active, then national methods leading to this aim will be accepted.

If the threshold for births and deaths, or target enterprises, is enterprises with 1 or more employees then the population of active enterprises (N_1) should also be based on this threshold. The same principle follows for targets 2 or more employees and so on. The employment used as a threshold for these populations should be based on the annual average in head counts over the operating period of the enterprise (please refer to section 5.3 "Employment in newly born enterprises" for further explanations on measuring the number of employees). If there is insufficient information on turnover or employment to determine whether or not an enterprise is active, then national methods leading to this aim will be accepted.

Populations N_1 and N_2 will be the denominators for the employer and economic birth and death rates as shown in Chapter 5. Populations N(0) and N(0,1) will be needed for the methodology to identify these births and deaths.

This scope is restricted slightly in terms of economic activity and legal form as discussed in the following paragraphs, but, at least for EU Member States, it includes the vast majority of economically significant units.

Irrespective of the thresholds used, the population of active enterprises for the purposes of calculating indicators excludes those enterprises classified to ISIC Rev. 4 sections A, O, T and U. These activities are excluded because they are not yet compulsory for statistical business registers in the EU or are not relevant for the purposes of business demography.

Similarly, enterprises with the legal forms of central or local government are excluded from this population. This is partly because there is no agreed interpretation of the enterprise definition for these legal forms, partly because they have a different role in the context of entrepreneurship and economic growth policy making. Most of them will be classified to ISIC Rev. 4 section O, which is already excluded as described above.

Data are required on populations for two main reasons:

- to provide the denominator for a wide range of indicators, and thus ensure a degree of comparability between countries with economies of different sizes
- to appreciate general trends in the patterns and relative contributions of different sectors of the economy over time.

3.2 Indicators

As well as providing the denominator for a range of indicators, the population of active enterprises can also be used to produce various useful indicators itself, particularly relating to the evolution of the population over time. Such indicators allow the trends in the population to be analysed, e.g. the extent and speed of the move to a service based economy, or the rate of growth of information and communication technology (ICT) activities.

It is clear that by using the population of enterprises active during a period, two effects may be observed, and may introduce an element of uncertainty. The first effect will be the genuine change in numbers of enterprises of a certain category over time. The second effect will be changes in patterns of births, deaths and survival in the same category of enterprise, i.e. if there are a relatively large number of births and deaths in a given period, the number of enterprises active during that period is likely to be higher than that for previous periods, but this may only reflect increasing volatility, not a genuine increase in the economic significance of this category. For this reason, it is recommended that indicators on the population of active enterprises are accompanied by indicators on births and deaths to aid their interpretation.

The proposed indicators on the population of active enterprises are therefore:

- The percentage change in the number of active enterprises between year xx-1 and year xx
- The percentage change in the number of active enterprises between year xx-5 and year xx

These indicators give both a relatively short-term view, and a more medium-term view of the evolution of the population of active enterprises, but it is recognised that it will not be possible to produce the second indicator until a sufficient series of back-data has been built up. It is also recognised that there is a danger that quality changes may have a significant impact when comparing data for two periods five years apart, therefore the second indicator should be regarded as provisional, and not necessarily for release, until data quality has been assured.

Typology of Demographic Events

chapter 4

4.1 Typology

This chapter explores the relationships between the main demographic events affecting enterprises. It develops a typology that describes these events and takes account of the links between them. This typology is then interpreted from the point of view of both business demography and statistical business registers.

Chapter 12 of the EU Business Registers Recommendations Manual sets out a general typology of demographic events covering a range of statistical units including the enterprise. These events are split into existential changes (i.e. those involving the emergence or disappearance of combinations of production factors) and distribution changes (i.e. changes in the distribution of production factors between units).

Chapters 13 and 14 develop this typology specifically for the enterprise, by considering the continuity of enterprises, and the number of enterprises present before and after a particular demographic event. In this way, existential changes (births and deaths) can be defined as events that involve the transition from no enterprises to one enterprise, or vice versa. Changes in the distribution of production factors, however, require that at least one enterprise is present both before and after the event.

This approach is summarised in the table below, which contains the main demographic events for which it is considered that there is demand for data:

Event	Real, observable world		Business register	
	Enterprises before the event	*Enterprises after the event*	*Creations*	*Deletions*
Enterprise birth	-	1	1	-
Enterprise death	1	-	-	1
Change of ownership	1	1	-	-
Merger	n	1	1	n
Take-over	n	1	-	n-1
Break-up	1	n	n	1
Split-off	1	n	n-1	-
Creation of a joint venture	n	n+1	1	-
Cessation of a joint venture	n	n-1	-	1
Restructuring within an enterprise	1	1	-	-
Restructuring within an enterprise group	n	n	0 or more	0 or more
Change of group	1	1	-	-
Complex restructuring	n	n	0 or more	0 or more

Note: n = 2 or more

This table does not cover separately employer or economic enterprise births or deaths, defined in Chapter 5, because these events do not necessarily have an effect on the units covered in the business register, depending on the coverage of the business register; namely if non-employer enterprises are included. Entries by growth (reaching the respective employee threshold) are events related to units that already exist in the business register. Equally, exits by decline (moving below an employee threshold) may lead to the removal of a unit from the business register only with a delay, if at all.

The continuity rules set out in chapter 14 of the EU Business Registers Recommendation Manual consider three continuity factors, continuity of control, economic activity and location. The rules vary depending on the definition used for births. For enterprise births they can be summarised in the following way (read by column):

Change of controlling legal unit	No	Yes	No	No	Yes	No	Yes	Yes
Change of principal activity	No	No	No	Yes	No	Yes	Yes	Yes
Change of main location	No	No	Yes	No	Yes	Yes	No	Yes
Continuity of Enterprise?	**Yes**	**Yes**	**Yes**	**Yes**	See note	**No**	**No**	**No**

Note – for enterprise births, these rules generally follow the approach that if two out of three of the continuity factors change, there is no continuity of the enterprise. There is, however, one exception. This is where an unincorporated business simultaneously moves to a new location and changes its legal form to become incorporated (and therefore limited liability). The convention is that there is continuity of the enterprise in such cases. For employer enterprise births however all changes in the controlling legal unit that see an enterprise move from having no employees to 1 or more employee are treated as a birth (and for economic births, 2 or more employees).

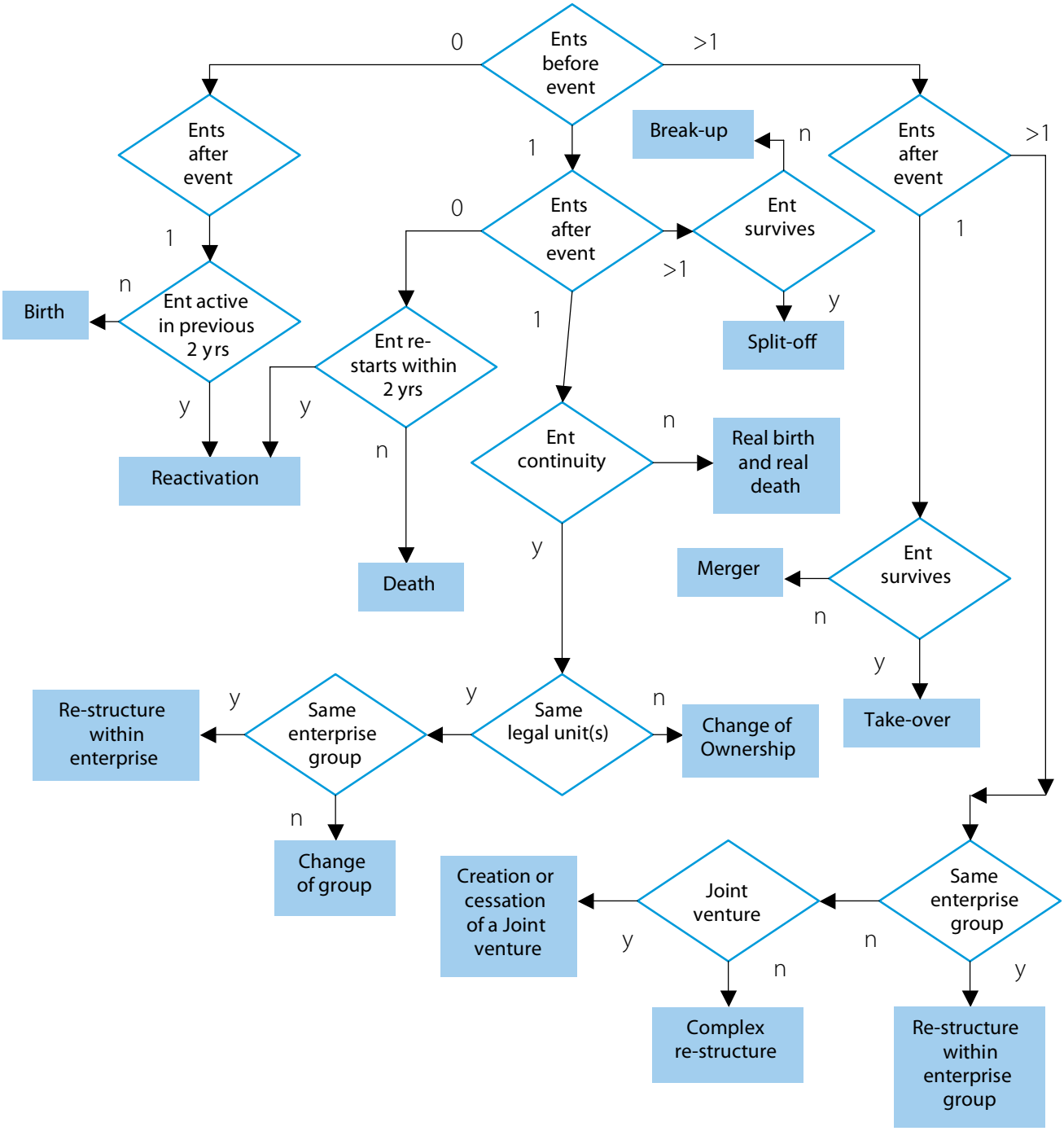
Continuity of employment may also be an important factor, particularly in the (relatively rare) cases where the above rules may lead to the conclusion that two separate enterprises are continuations of a single previous enterprise. Continuity of employment is, however, often difficult to measure in practice, particularly for smaller enterprises, hence it is excluded from the main rules above. It could also be argued that the more measurable factors of principal activity and location are in fact proxies for employment.

There are, however, certain events such as mergers, split-offs, take-overs and restructuring that are not fully covered by these rules. These events are considered further below. The approach followed here is to create a decision matrix that can be used to determine whether or not a particular event has happened, then to look in more detail at the possible outcomes.

Demographic Events Decision Matrix

The decision matrix below is designed to help determine the type of event that has taken place, by drawing together the typology and the continuity rules given above, recalling that the population at the start is dependent in each case on the definition used for births and deaths. The key events for business demography are births and deaths, though other events are relevant when determining whether or not an enterprise has survived.

Note : Ent = enterprise



The outcomes of the decision matrix above can be considered in terms of their implications for both business demography and statistical business registers, although naturally much depends on the coverage of businesses in the statistical business register, or the use of employment thresholds for the definition of the population of active enterprises. Because the matrix above starts with the assumption that the target population is consistent with that used in the birth definition, entries by growth and exits by decline are not represented in the matrix above, for example a merger of two businesses with 1 employee will signal a birth under the economic enterprise birth definition but this is not shown above because, for the definition of economic enterprise births, businesses with 1 employee are not in the population scope.

The following assumes that in each case the coverage of the population of active enterprises is consistent with the business demography concept (birth, death) being followed. In other words it assumes that for the:

Enterprise birth concept – all enterprises that have employment and/or turnover are in the population of active enterprises.

Employer Enterprise birth concept – only enterprises with 1 or more employees are in the population of active enterprises.

Economic Enterprise birth concept – only enterprises with 2 or more employees are in the population of active enterprises.

- **Birth** – This is an independent event affecting only one enterprise in the population of active enterprises. Three concepts of birth exist as shown above. For **Enterprise births** this involves the creation of a new combination of factors of production, and, typically, the creation of a new enterprise reference on the business register, depending on the coverage of the business register. *Employer and Economic Enterprise births* may also coincide with the appearance of a creation on the business register but, where the business register covers all enterprises, some of these births will not coincide with these creations and instead they will appear as births entries by growth, see below.

- **Reactivation** – This event involves an enterprise becoming dormant for a period of less than two years, then re-commencing activity in a way that complies with the definition of continuity. In terms of business demography this event does not constitute a birth or death. The enterprise is considered to have survived as long as the period of inactivity does not encompass a whole calendar year. On the business register, there would be continuity of the enterprise reference, but ideally, the enterprise should have a marker to show that it is dormant during the period of inactivity. If the definition of continuity is not met, e.g. an entrepreneur re-commences trading but with a different activity and at a different location, this would be considered as a death followed by a birth.

- **Enterprise Death** – This is an independent event affecting only one enterprise, and involving the dissolution of a combination of factors of production. It involves the deletion of an enterprise reference on the (live) business register.

- **Re-structure Within Enterprise** – This type of event only involves one enterprise, which survives throughout, but changes structure in the process. Examples include opening or closing local units. This event is of no real interest or significance from the point of view of business demography, and has no impact on the demographic variables held at the enterprise level on business registers.

- **Break-up** – This event involves a splitting of the production factors of an enterprise into two or more new enterprises, in such a way that the previous enterprise is no longer recognisable. There is no continuity or survival, but the closure of the previous enterprise is not considered to be a death. Similarly the new enterprises are not considered to be births. In the business register, this event would be reflected by the deletion of an enterprise reference (from the live register), and the creation of two or more new enterprise references.

- **Split-off** – This event is similar to a break-up, but in this case the original enterprise does survive in a recognisable form, and therefore there is both continuity and survival. There is no death, but one or more new enterprises are created. This would be recorded in the business register by the creation of one or more new enterprise references.

- **Merger** – This event can be seen as the opposite of a break-up. It involves a consolidation of the production factors of two or more enterprises into one new enterprise, in such a way that the previous enterprises are no longer recognisable. There is no continuity or survival, but the closures of the previous enterprises are not considered to be deaths. Similarly the new enterprise is not considered to be a birth. In the business register, this event would be reflected by the deletion of two or more enterprise references, and the creation of one new enterprise reference.

- **Change of Ownership** (one-to-one take-over) - This event simply involves the re-structuring of the legal basis of an enterprise. Typically this would be a re-registration with the legal authorities, e.g. due to a change in the legal form of an enterprise. The enterprise remains live and active throughout. No other enterprises are involved. This event would have no impact on demographic variables at the enterprise level in the business register.

- **Take-over** - This event can be seen as the opposite of a split-off. Enterprises taken over are not considered to be deaths. In this case, one of the original enterprises does survive in a recognisable form, and therefore there is both continuity and survival. The remaining original enterprises are closed. This would be recorded in the (live) business register by the deletion of one or more enterprise references.

- **Creation or Cessation of a Joint Venture** – A joint venture is created when two or more independent enterprises agree to commit some of their resources to work together on a common project or towards a common goal. An important feature of a joint venture is that none of the original enterprises exercise outright control over the entity created, therefore, it is considered to be an enterprise. For business demography purposes, joint ventures may be considered to be births if they involve the creation of new factors of production. This is recorded in the business register by the creation of a new enterprise reference.

  The cessation of a joint venture mirrors the above. It can be considered a death if less than half of the employment is transferred to the participating enterprises. It is recorded as the deletion of an enterprise reference from the (live) business register.

- **Re-structure Within Enterprise Group** – This event involves the creation and/or cessation of one or more enterprises under common ownership. It does not involve a significant change in the total production factors controlled by the group. It does not therefore result in any births or deaths, but will involve the creation and/or deletion of one or more enterprise references on the (live) business register.

- **Complex Re-structure** – This event is similar in principle to a re-structure within an enterprise group, but concerns two or more enterprise groups. There are many different scenarios, but a typical example is where two or more enterprise groups trade subsidiary enterprises. This does not involve a significant change in the total production factors within the economy, and does not, therefore result in any births or deaths. It may involve the creation and/or deletion of one or more enterprise references on the (live) business register.

The above rules are conditional on the business demography concept and population of active enterprises being tracked. In EU countries, and some non EU countries too, the statistical business register is, in theory, supposed to cover all enterprises that have employment and/or turnover. Assuming this coverage of the register the typology above can be extended to the following demographic events.

- **Entry by growth** – An entry by growth occurs if an enterprise was already active, but its employment was below the employee threshold for at least two years before the year when it reaches the employee threshold. This is an event that occurs only in the context of demographic data based on a threshold of one or two employees.

- **Employer Enterprise Birth** – An Employer Enterprise Birth occurs either as an enterprise birth with at least one employee in the year of birth, or as an entry by growth reaching the threshold of one employee.

- **Economic Enterprise Birth** – An Economic Enterprise Birth occurs either as an enterprise birth with at least two employees in the year of birth, or as an entry by growth reaching the threshold of two employees.

- **Exit by Decline** – An exit by decline occurs if an enterprise continues to be active, but moves below the employee threshold for at least two years. This is an event that occurs only in the context of demographic data based on a threshold of one or two employees.

- **Employer Enterprise Death** – An Employee Enterprise death occurs either as an enterprise death with at least one employee in the year of death or as an exit by decline, moving below the threshold of one employee.

- **Economic Enterprise Death** – An Economic Enterprise death occurs either as an enterprise death with at least two employees in the year of death or as an exit by decline, moving below the threshold of two employees.

Births

chapter 5

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 $\mathbf{R}_1$): 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 $\mathbf{R}_2$): Births of enterprises with at least two employees. This population consists of enterprise births (population R) that have 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 an annual average over the operating period 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.

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 indictors 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.

Growth in newly born enterprises

Newly born enterprises are in general relatively small in the year of establishment. To fully evaluate their impact on the economy it is necessary to follow the newly born enterprises over a longer period of time.

For the observation of the survivals and growth of newly born enterprises it is important to keep their classification into the size class and economic activity unchanged from the year of birth. The size class should be kept also if the enterprise outgrows it, and the economic activity should be kept also if it changes in reality, even if the activity moves out of the scope of this data collection.

Growth in existing enterprises

Some annual figures on the population of active enterprises are necessary in order to compare the statistics on growth in newly born enterprises with changes in the population as a whole.

Growth leading to employer / economic birth

When studying the growth of newly born or existing enterprises, it should be noted that the growth of a small enterprise may qualify it as a "birth" within another category. A small enterprise that was a enterprise birth (population R) in a given year, may be recorded as an employer enterprise birth (R_1) and an economic enterprise birth (R_2) not only in the same year, but possibly with a delay of one or more years when it reaches the respective employee threshold. Even an active enterprise that has never been recorded as a birth (because it was not covered by previous data collections, or not the result of an enterprise birth) but is in the population of active enterprises (N) may qualify as an employer or economic birth by growth (see chapter 5).

Indicators

Indicators on the growth of newly born enterprises may be produced, such as the following:

- The rate of growth of the number of persons employed in newly born enterprises
- The rate of growth of surviving enterprises
- The average number of jobs per enterprise in newly born enterprises during the first five years of operation

The advantage of these indicators is that they enable a direct comparison of growth rates across countries, because they reduce the impact of differences in the size of respective economies.

The first indicator is calculated as the number of persons employed in newly born enterprises in the second year of operation divided by the number of persons employed in newly born enterprises in the initial year.

The second indicator is the rate of growth of the number of persons employed in the newly born enterprises. It is calculated as the number of persons employed in surviving enterprises in xx+n divided by the number of persons employed in the year of birth (=xx) of those same enterprises that have survived to xx+n

The third indicator is calculated in order to follow the development of the average number of jobs in the newly born enterprises during their five first years of operation. The number of persons employed in xx+n is divided by the number of surviving enterprises in xx+n (of newly born enterprises in xx).

The measurement of relative changes of employment figures neglects the fact that a growth compared to a larger initial figure also reflects a higher contribution to employment. Therefore weights may be applied to the indicators, e.g. by using Birch rate analysis.

Deaths

chapter 7

Section 7.1 explains the suggested methodology for the identification of enterprise deaths. Like enterprise births, enterprise deaths include the population of all active enterprises irrespective of employment thresholds. In addition to enterprise deaths, exits by decline may occur in data collections using an employee threshold. These are explained in section 7.2 on employer enterprise deaths and economic enterprise deaths.

Like the various definitions of births, the following populations of deaths can be distinguished:

Enterprise deaths (population **D**): Enterprise deaths 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 deaths (population $\mathbf{D}_1$): Deaths of enterprises with at least one employee. This population consists of enterprise deaths (population D) that had at least one employee in the year of death, and of enterprises that move below the threshold of one employee for at least two years.

Economic enterprise deaths (population $\mathbf{D}_2$): Deaths of enterprises with at least two employees. This population consists of enterprise deaths (population D) that had at least two employees in the year of death, and of enterprises that move below the threshold of two employees for at least two years.

Again like births, the same unit may be recorded as a death in more than one of these populations. For instance, an enterprise may move below the threshold of two employees in a given year, below the threshold of 1 employee in the following year, and then cease its activity permanently in the next year. In this case, it would be counted as a death in populations D_2xx, D_1xx+1 and $Dxx+2$. An enterprise death with two or more employees in the year of death will be counted in all three populations in the same year, i.e. Dxx, D_1xx and D_2xx.

7.1 From enterprise closures to enterprise deaths (population D)

Enterprise deaths

For the sake of consistency, and in line with user needs, the method of comparing populations of active enterprises used for the production of data for enterprise births should also be followed for enterprise deaths. This will also help to gain from synergies in processing.

The Commission Regulation No 2700/98 defines enterprise deaths as follows:

"A count of the number of deaths of enterprises registered to the population concerned in the business register corrected for errors. A death amounts to the dissolution of a combination of production factors with the restriction that no other enterprises are involved in the event. Deaths do not include exits from the population due to mergers, take-overs, break-ups and restructuring of a set of enterprises. It does not include exits from a sub-population resulting only from a change of activity."

Events leading to a closure of an enterprise, but which should be excluded from the statistics on enterprise deaths are:

1. Enterprises that close down due to merging or breaking-up of production factors (break-ups, mergers, restructuring)
2. Enterprises whose activity is taken over by another enterprise (take-over)
3. Enterprises that are deleted due to a change of legal form, e.g. a successful sole proprietor moving operations from his home to another location and at the same time changing the legal form of the enterprise to a limited liability company is a case that should be excluded.
4. Reactivated enterprises if they restart activity within 2 calendar years.

For many enterprises there is no direct way to determine death, and information on the date of cessation may not be forthcoming from an administrative source or may reflect only administrative death. Hence, the decision that an enterprise has ceased to exist or has become permanently inactive will have to be made by combining information from different sources.

Identifying deaths

Populations of active enterprises are compared in order to identify the potential population of enterprise deaths. ID numbers of enterprises that were active during at least part of year xx are matched with the ID numbers of enterprises active in years xx+1 and xx+2. The matching process should result in two sets of enterprise records:

1. Enterprises active in xx and not active in xx+1 or xx+2 (= enterprise closures = potential enterprise deaths in year xx, to be investigated further)

2. All other enterprises.

■ 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: Cessations in year xx

The cessations in year xx are a subset of the population of active enterprises in year xx, which have ceased their 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. Cessations are identified as enterprises that are only present in year xx.

Again, the basis of the method to be used is the concept of population of active enterprises. The date of deregistration should not be used as the primary means of identifying cessations 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

As in step 3 of the identification of enterprise births, cessations should be checked for reactivation in the following two calendar years, because enterprises dormant for less than two years are considered reactivations and therefore not deaths followed by a birth. An enterprise death occurs only if the unit has been inactive for at least two years.

The way to identify reactivations as suggested in step 3 of the chapter enterprise births, applies equally to the context of enterprise deaths, i.e. if a new enterprise in year xx+2 is identified as a reactivation, then the enterprise is not considered an enterprise death in year xx.

■ Step 4: elimination of other cessations

In order to find the events that were not real enterprise deaths, but rather cessations due to events like break-ups, mergers or take-overs, a matching of criteria (as for enterprise births) should be carried out. The pairwise matching is used in the same way to identify the cases where another unit is involved in the cessation of the enterprise. As for enterprise births, the matching should consider name, location and economic activity (on the most detailed level of address and 4-digit level of ISIC). For this purpose, the population of active enterprises should cover all sections of ISIC Rev. 4, including sections A and O. Some manual checking will have to be done, mostly on near matches by name. Possible multiple matches should be treated the same way for deaths as for births.

The last automated check should be for links between legal units. If a link is found, this is a strong indicator for other cessation than death. As with births, other nationally available information should also be used where appropriate, and manual checks of all large cessations (i.e. 20 or more employees) should also be carried out, though again a sample may be used if the numbers are too high (see step 5 in chapter 5.1).

7.2 Employer enterprise deaths and economic deaths

The main component of the data on employer and economic enterprise deaths already exists in the population of all enterprise deaths (population D). The enterprise deaths except the units below the respective employee thresholds cover largely the population of employer and economic enterprise deaths. However, there are also enterprises that move below the threshold of one or two employees but that continue activity below this threshold. These should be considered employer enterprise deaths, or economic enterprise deaths respectively. These enterprises may well be counted again as enterprise deaths (according to chapter 7.1) when they cease all economic activity. "Exits by decline" are not covered in the methodology on enterprise deaths described in section 7.1 and will be described in this section. The time perspective has to be opposite to the one used for "entry by growth". As was shown in chapter 5.2, entries by growth are identified by looking at the units that were active but below the respective employee threshold in the two years *before* the year in question (xx-1 and xx-2). "Exits by decline" will have to be identified by looking at the units that dropped below the employee threshold in the two years *after* the year in question.

7.2.1 Employer enterprise deaths (population D_1)

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

1. It was an enterprise death (see section 7.1) in year xx, and had at least one employee in the year of death, or

2. It had at least one employee in year xx, continued activity but was not an employer for the two following years (exit by decline). The decline in employment should not be due to a split-off.

The suggested step-by-step method for identifying employer enterprise deaths (population D_1xx) is as follows:

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

Enterprise deaths (population Dxx) excluding those without employees should be used to establish the population of enterprises with at least one employee in the year of their death.

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

In addition to deaths with at least one employee, we have to identify those enterprises that had at least one employee in xx and continued to exist afterwards without employees. To make sure that no reactivations within two years are included (these should not be considered as deaths), we have 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 might be exits by decline, the following cases should be considered, and the populations of active non-employer enterprises N(0)xx+1 and N(0)xx+2 should first be established.

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 and possibly a death. => 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

We have to check whether units identified by these cases in step 2a had ≥ 1 employee in year xx. If so, they are employer deaths in year xx.

Step 2c: Removing enterprises that shrunk by split-off (optional step)

Results on split-offs should be available from the methodology used to identify enterprise births (see section 5.1). Where possible, the information on new enterprises that were split-offs (and therefore no real enterprise births) should be used to identify original enterprises that moved below the one employee threshold because a new unit emerged from a split-off. These original enterprises should be removed from the population of exits by decline.

Step 3: Adding up the results

Adding up units identified in steps 1 and 2 yields the population of employer enterprise deaths D_1xx.

7.2.2 Economic enterprise deaths (population D_2)

There are again two conditions which qualify an enterprise as an economic death:

1. It was an enterprise death in year xx, and had at least two employees in the year of death, or
2. It had at least two employees in year xx, continued activity but had less than two employees for the two following years (exit by decline). The decline in employment should not be due to a split-off.

The methodology for identifying economic deaths follows from the method used for employer deaths:

Step 1: Enterprises with two or more employees in the year of death

Enterprise deaths (population Dxx), excluding units with less than two employees, should be used to establish the population of enterprises with at least two employees in the year of their death. Using the same methodology as for the current harmonised data collection ensures that only real deaths are counted, but not cessations of units due to merger or take-over

Step 2: Identifying former employers with two or more employees (exits by decline)

In addition to deaths with at least two employees, we have to identify enterprises that had at least two employees in xx and continued to exist afterwards with less than two employees.

Step 2a: Identifying enterprises with less than two employees in years xx+1 and xx+2

To cover all the units that might be exits by decline, the populations of active non-employer enterprises N(0,1)xx+1 and N(0,1)xx+2 should first be established. Then the following cases have to be considered.

1) A unit is in population N(0,1)xx+1 and N(0,1)xx+2. => It was active and 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 had 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, and possibly a death. => 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+1 excluding N(0,1)xx+1), it had 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 units identified by these cases in step 2a had ≥ 2 employees in year xx. If so, they are economic deaths in year xx.

Step 2c: Removing enterprises that shrunk by split-off (optional step)

Where possible, enterprises that moved below the two employee threshold because a new unit emerged from a split-off should be removed from the population of exits by decline.

Step 3: Adding up the results

Adding up the units identified in steps 1 and 2 yields the population of economic enterprise deaths D_2xx.

7.3 Units in liquidation

Information from administrative sources may indicate that a unit is in liquidation, and that the remaining activity is related to this process itself, e.g. turnover from the sale of production factors, or employment due to administrative matters. Although this turnover or employment is not related to the enterprise's genuine activity, it is recommended to consider the enterprise alive until it ceases this activity. As it cannot always be identified whether activity is related only to the liquidation process or not, and as the availability of administrative information varies across countries, the benefit of this approach is that results are comparable.

7.4 Provisional data on deaths

The check for reactivation within two years leads to a time lag of one year of the data availability compared with the data on the population of active enterprises and enterprise births. In order to improve the timeliness of the data on enterprise

deaths, provisional results in year t+2 should be estimated using the best national methods available. As examples, the following methods or a combination of both could be used:

1) If data collections have already been conducted, the known ratio between enterprise deaths and either reactivations or the total number of cessations from previous reference years can be used to estimate the number of enterprise deaths based on the available number of cessations. This may however not be possible at a detailed level.

2) Based on the information that is available on reactivations during the year t+2, during which results are prepared, preliminary data on the enterprise deaths excluding the known reactivations can be produced. This will however lead to an overestimation of enterprise deaths, as reactivations occurring later in the year t+2 are not taken into account or estimated.

7.5 Impact of deaths

As well as indicators on the number of deaths, there is a demand for data on the impact of these deaths. This can only partly be satisfied by studying deaths by size-band, therefore more accurate measures are needed. The impact can be measured both in terms of the effect on the labour market, i.e. the amount of employment lost, or the effect on the economy in financial terms, i.e. the amount of turnover lost.

Employment

It is clear that the employment lost when an enterprise death occurs is of interest to policy makers. What is less clear is the time at which that employment should be recorded. Few enterprises suddenly change from being fully active to being dead, most go through a period of contraction lasting months, or possibly even years. This means that if employment is measured at the exact moment of death, the impact of the loss of that enterprise could be under-stated.

Conversely, if employment is measured over a period prior to death, e.g. the year before the death occurred, there is the problem of how to deal with relatively short-lived enterprises, i.e. those that only survive for a few months. These enterprises may not have had any activity or employment in the previous period.

This problem is eased to some extent by the use of average employment over the period during which the enterprise was active. If infra-annual employment data are available, the decline in employment immediately before death will be somewhat masked by using an average figure, particularly if the death occurs towards the end of the period. It should be noted, however, that although this may reduce the problem, it is unlikely to solve it entirely.

Another scenario is that only one observation is available for a given period. This is particularly likely for smaller enterprises. In this case it is obviously not possible to take an average, but the observation may, in many cases, reflect the position several months before the death, so may not be affected by the period of pre-death decline.

Initial research in two EU Member States has shown that the employment figure for the period in which the death occurs is not significantly different to that for previous periods. If this research is validated by other Member States, the conclusion is likely to be that employment relating to the period of the death is suitable for an indicator on the impact of enterprise deaths.

7.6 Indicators

The following indicator related to deaths may be produced:

- Number of deaths as a percentage of the population of active enterprises.
- Correlations of deaths with GDP and unemployment

It is also proposed to add the following two indicators on the impact of deaths in terms of employment loss. These will be tested, and if successful, may be implemented in future data collections.

- Persons employed in enterprises that die 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)
- Mean employment loss per death, measured in terms of persons employed (head count)

High-Growth Enterprises

chapter 8

8.1 Definition

A variety of approaches can be considered as providing the basis for defining high-growth enterprises. Many studies, for example, have focused on indicators that define high-growth enterprises as the top Y% of companies, for example Birch type measures, which marry absolute and relative changes in growth as a way of overcoming the small enterprise bias inherent in measuring enterprise growth rates.

$$Growth = (x_{t_1} - x_{t_0}) \frac{x_{t_1}}{x_{t_0}}$$

Where x_t is either employment, turnover or some other indicator of size in year t. Or the "Davis, Haltiwanger, Schuh' measure used by US statistical agencies for example, which measures growth on the following basis (a second order approximation to rates measured in logs):

$$Growth = (x_{t_1} - x_{t_0}) / (x_{t_1} + x_{t_0}) / 2$$

Perhaps the simplest type of indicator however, and moreover one that has clearer interpretability, is one that defines high-growth enterprises as those that satisfy some predetermined threshold that distinguishes them as high-growth, with a secondary qualification that enterprises have to be above a certain size, to mitigate any small enterprise growth bias. This is the approach used in this manual. Like the measures above, thresholds are selected by convention based largely on individual country studies/experiences.

High-growth enterprises can be defined both in terms of employment (number of employees) and in terms of turnover. In order to study the phenomenon of high growth enterprises, it is recommended that both criteria are used.

The definition of high-growth enterprises recommended is as follows:

> *All enterprises with average annualised growth greater than 20% per annum, over a three year period should be considered as high-growth enterprises. Growth can be measured by the number of employees or by turnover.*

A meaningful size threshold (t) should be set to avoid the growth of small enterprises distorting the picture. For instance, an enterprise growing from one to two employees would automatically be a high growth enterprise, using the above growth threshold, although this growth occurs at a very low level with relatively negligible economic impact. On the other hand, the size threshold should be low enough to avoid excluding too many enterprises. A provisional size threshold has been suggested as 10 employees at the beginning of the growth period, but a final recommendation is expected after tests have been performed using different thresholds.

Note that the provisional size threshold of 10 or more employees holds for both the turnover and employment measures. The advantage of this is that the initial population is the same, regardless of whether growth is measured in employment or turnover. Moreover, it would be difficult to apply a consistent turnover threshold across all countries participating in the data collection. In order to compare high-growth enterprises of roughly the same size, it would in any case be necessary to identify a turnover threshold that corresponds to a certain employment size.

8.2 Calculation

When trying to identify high-growth enterprises, it is not necessary to check the change in employee numbers or turnover from one year to the next over a three-year period. It is sufficient to consider only the population of active enterprises reaching the employee threshold (N_t) in year xx-3 and to measure the number of employees in year xx. As *average annualised growth* has to be measured, the formula describing high-growth enterprises is:

Measured in employment

$$\sqrt[3]{\frac{employees_{(xx)}}{employees_{(xx-3)}}} - 1 > 0.2$$

Measured in turnover

$$\sqrt[3]{\frac{turnover_{(xx)}}{turnover_{(xx-3)}}} - 1 > 0.2$$

In practice, average annualised growth of 20% over three years would be equal to 72.8% growth from xx-3 to year xx. Thus, the easiest way to find out which of the population $N_t$xx-3 can be considered high-growth enterprises in year xx is to

- check by ID number comparison which enterprises in population $N_t$xx-3 are still in population $N_t$xx, and then
- check whether the number of employees, or turnover respectively, in year xx is at least 1.728 times higher than in year xx-3.

If at any time (xx-1 or xx-2, and xx for turnover based measures) the number of employees falls below the employee threshold the enterprise can still be regarded as a high-growth enterprise so long as between xx-3 and xx total growth is 72.8% or higher.

8.3 Exclusions

When identifying the population of high-growth enterprises for a given reference year xx, enterprises that were born three years ago should be excluded from the population. This is because the population $R_t$xx-3 (newly born enterprises with at least t employees) were born at different points in time during year xx-3, and so *on average* these enterprises were born around 1st July. Consequently their average turnover in the birth year is significantly lower than in following years simply because of the shorter average period of activity in the birth year. A seeming turnover growth from the birth year to following years may be due only to the fact that the operating period in the birth year was only a few months long. Therefore the data on high-growth enterprises should be 'cleaned' by removing units that were born in year xx-3. Otherwise it would be necessary to annualise turnover in the birth year, which would introduce imprecision and make it necessary to identify the date when the enterprise first generated turnover.

The same problem would not occur if only employment were measured, because it is measured as an annual average over the operating period and does not accumulate over the year. However, to ensure that high-growth enterprises are always identified from the same base population, population $R_t$xx-3 should be removed also from high-growth enterprises measured by employee growth.

If growth in the number of employees or turnover was due to mergers or take-overs, the enterprise in question should not be considered a high-growth enterprise.

In practice, the problem of growth by *merger* should not occur if a new ID number is assigned to the new enterprise resulting from the merger. An enterprise that was in population $N_t$xx-3 will no longer be found in population $N_t$xx if it merged with another enterprise.

A *take-over* may also increase employment and turnover considerably, so that the enterprise could mistakenly be considered a high-growth enterprise. While the enterprise that is taken over ceases to exist, the enterprise taking over the other one continues and keeps its ID number. As information on take-overs should be a by-product of the methodology used for identifying enterprise deaths (section 7.1), this information could also be used to identify units that show high growth because of such a take-over, and that should therefore be excluded from the results.

8.4 Gazelles

Gazelles are the subset of high-growth enterprises which are up to five years old. The definition is

> *All enterprises up to 5 years old with average annualised growth greater than 20% per annum, over a three year period, should be considered as gazelles.*

The difference in scope and data reporting is that we consider populations of newly born enterprises (R_t) rather than entire populations of active enterprises (N_t).

In principle, the high-growth period of 3 years, referring to a population R_t, can occur at different stages in the five-year monitoring and survival period. In a given reference year xx, gazelles may be in the different cohorts of newly born enterprises $R_t$xx-3, $R_t$xx-4 or $R_t$xx-5, i.e. enterprise in their third, fourth or fifth year of survival (remembering that the birth year itself of an enterprise is considered as year zero). To be consistent with the exclusions suggested for high-growth enterprises in general, survivals from population $R_t$xx-4 and $R_t$xx-5 should be considered, but not from population $R_t$xx-3.

To summarise, potential high growth enterprises in reference year xx must have been in population $N_t$xx-3. Gazelles as a subset must fulfil the additional condition that they were in population $R_t$xx-4 or $R_t$xx-5.

The identification of high-growth enterprises on an annual basis may lead to the inclusion of an enterprise in the population of high-growth enterprises in several years. The question arises whether a high-growth enterprise, and thus also a gazelle, should be counted in more than one reference year if it fulfils the given definition. The recommendation is to do so. For instance, a gazelle born in year xx could be counted as such either once or twice, if it shows high growth over a three year period from the first to the fourth survival year and/or from the second to the fifth survival year. As the data on high-growth enterprises are collected on an annual basis, the question whether an enterprise was identified as a high-growth enterprise in any previous year is not relevant.

8.5 Indicators

Data on high-growth enterprises and gazelles should be produced in terms of the numbers of enterprises. Employment and turnover should be used as measures of growth and thus criteria for the identification of high-growth enterprises, but not as characteristics to be reported in the statistics.

The following indicators based on the numbers of enterprises may be produced:

- Rate of high-growth enterprises: Number of high-growth enterprises as a percentage of the total population of active enterprises with at least t employees.
- Rate of gazelles among newly born enterprises: Number of gazelles as a percentage of all active enterprises with at least t employees that were born four or five years ago.

Glossary

A

Activity

An activity is said to take place when resources such as equipment, labour, manufacturing techniques, information networks or products are combined, leading to the creation of specific goods or services. An activity is characterised by an input of products (goods or services), a production process and an output of products.

In practice the majority of production units perform activities of a mixed character. The identification of a principal activity is necessary to allocate a unit to a particular ISIC / NACE heading.

Principal activity The principal activity of a statistical unit is the activity which contributes most to the total value added of that unit. The principal activity is identified according to the top down method (see section 3.1) and does not necessarily account for 50% or more of the unit's total value added.

Secondary activity A secondary activity is any other activity of the unit, whose outputs are goods or services are suitable for delivery to third parties. The value added of a secondary activity must be less than that of the principal activity.

Ancillary activities Principal and secondary activities are generally carried out with the support of a number of ancillary activities, such as accounting, transportation, storage, purchasing, sales promotion, repair and maintenance, etc. Thus, ancillary activities are those that exist solely to support the principal or secondary economic activities of a unit, by providing goods or services for the use of that unit only.

Source: NACE Rev. 2, Statistical Classification of Economic Activities in the European Community, Introduction, Eurostat, 2007, P. 13.

Related terms:

- Industry
- ISIC Rev. 4
- NACE Rev. 2
- Statistical unit
- Activity [Business Demography]

Activity [Business Demography]

Within the Business Demography context, activity is defined as any turnover and/or employment in the period from 1st January to 31st December in a given year. This definition complements the concept of activity in the Business Registers glossary.

Source: Eurostat-OECD Manual on Business Demography Statistics (chapter 6)

Related terms:

- Activity

Administrative sources

Administrative sources are sources containing information that is not primarily collected for statistical purposes.

Source: Business Registers Recommendations Manual, paragraph 20.3

Ancillary activity

According to the Regulation on statistical units an activity must be regarded as ancillary if it satisfies all the following conditions:

— it serves only the unit referred to: in other words, goods or services produced must not be sold on the market;

— a comparable activity on a similar scale is performed in similar production units;

— it produces services or, in exceptional cases, non-durable goods which do not from part of the unit's end product (e.g. small implements or scaffolding);

— it contributes to the current costs of the unit itself, i.e. does not generate gross fixed capital formation.

It should be noted that under the above definition the following are not to be regarded as ancillary activities:

— Production of goods or work carried out which forms part of fixed capital formation: in particular, construction work for own account. This is in line with the method used in NACE Rev. 1.1, where units carrying out construction work for own account are classified under the building industry if data are available;

— Production, a significant part of which is sold commercially, even if much is used as consumption in connection with the principal activity or secondary activities;

— The production of goods which subsequently become an integral part of the output of the principal or secondary activity - e.g. production of boxes, containers, etc. by a department of an enterprise for use in packing its products;

— The production of energy (integrated power station or integrated coking plant), even where this is consumed in its entirety in the principal or secondary activity of the parent unit;

— The purchase of goods for resale in (an) unaltered state;

— Research and development. These activities are not very widespread and do not produce services which are used in current production.

Source: Council Regulation (EEC), No. 696/93, Section IV B1 and B4 of 15.03.1993 on the statistical units for the observation and analysis of the production system in the Community

Related terms:

- Activity

(equals: CODED: "Ancillary activity - Council Regulation 696/93")

Autonomy of decision

see: Enterprise

B

Birth date [of Business]

The date on which a unit was born.

Enterprise:

In principle the date could be decided by referring to the definition of the enterprise: the birth takes place at the (first) moment the conditions of the definition are met, so the moment there is an organisational unit producing goods or services.

The convention is that the date on which the first financial commitments for investments are made should be taken. This may seem somewhat early, since actual production will take place afterwards, but this allows for the statistical coverage of all important variables, such as investments, from the beginning. This date is not considered too early since serious commitments have been made, however, from the point of view of cost-efficiency and response burden it may not always be desirable to actually collect the date of birth from the enterprise; in that case the registration date at the administrative source has to be taken.

Source: Business Register Recommendations Manual, paragraphs 13.13, 13.30

Related terms:

- Date of creation

Birth rate

The birth rate of a given reference period (usually one calendar year) is the number of births as a percentage of the population of active enterprises. This birth rate may vary depending on the birth concept that is used. The use of thresholds affects both the enumerator (births) and the denominator (population of active enterprises), but may do so to a different degree.

Births of enterprises

see: Enterprise birth, Number of births of enterprises

Break-up

of Enterprise:

Break-up involves one enterprise before and more than one enterprise after the event. In a break-up, the enterprise is divided in such a way that neither (none) of the new enterprises keeps the identity of the original enterprise.

There is no continuity or survival, but the closure of the previous enterprise is not considered to be a real death. Similarly the new enterprises are not considered to be real births. A break-up can be seen as the opposite of a merger.

Source: Business Register Recommendations Manual, paragraph 13.22, Eurostat-OECD Manual on Business Demography Statistics (chapter 4).

Related terms:

- split-off
- merger
- new enterprises

Business closures

see: Cessation [of Business]

Business demography

Business demography covers events, like births and other creations of units, deaths and other cessations of units, and their ratio to the business population. It covers follow-up of units in time dimension, thus gaining information on their survival or discontinuity. It also covers development in time dimension according to certain characteristics like size, thus gaining information on the growth of units, or a cohort of units, by type of activity.

Demographic information can in principle be produced by any statistical unit, however, a clear political interest in Europe is on enterprise demography.

The demography of enterprises can be assessed by studying enterprise births and enterprise deaths and by examining the change in the number of enterprises by type of activity, i.e. by examining the flows and stocks to get a complete picture of the enterprise dynamism.

Source: Business Register Glossary

Related terms:

- Number of births of enterprises
- Number of deaths of enterprises

Business register

see: Statistical business register

Business start-ups

see: Creation [of Business]

C

Ceased trading

see: Number of deaths of enterprises

Cessation [of Business]

The cessation of activities of a unit. This can occur either due to a (real) death of the unit, or due to other cessation by a merger, take-over, break-up or discontinuity point according to the continuity rules.

Related terms:

- Enterprise death
- Merger
- Take-over
- Break-up

Commencement [of business]

see: Creation of business

Complex enterprise

An enterprise combined of two or more legal units under the same control

Source: Eurostat

Concentration

Concentration of enterprises refers to demographic events (mergers and take-overs) involving more than one enterprise before and one enterprise after the event.

The term may also be used to denote that the population of enterprises gets fewer owners or is spread over a reduced number of enterprise groups.

Source: Business Register Recommendations Manual, paragraphs 13.18-13.19

Related terms:

- Merger
- Take-over
- De-concentration

Continuity

In theory, the continuity rules would be derived from the definition of the enterprise (or other unit) and its statistical uses. In principle, the continuity of an enterprise depends on the continuity of its production factors: employment, machines and equipment, land, buildings, management, and intangible assets. The continuity of these factors can be measured and weighted to decide upon the continuity of the enterprise.

In practice, the continuity rules depend on considerations of cost-efficiency, notably availability of information, costs of additional information collection for the statistical institute, and response burden effects. Practical criteria, if complete information on the continuity of the production factors is not available, is discussed for enterprises in chapter 14 of the Business Register Recommendations Manual.

Source: Business Register Recommendations Manual, chapter 14

Related terms:

- Survival

Coverage

The extent to which a frame includes the units belonging to the respective target population. Congruency is the ideal case.

Source: Eurostat

Related terms:

- over-coverage
- under-coverage
- frame

Creation [of Business]

The emergence of a new unit. This can be either due to a (real) birth of the unit, or due to other creation by a merger, break-up, split-off or discontinuity point according to the continuity rules.

Related terms:

- New enterprises
- Enterprise birth
- Merger
- Break-up
- Split-off

D

Date of cessation

The date on which a unit ceased activities. This can be its death date, or other cessation date due to merger, take-over, break-up or discontinuity point according to the continuity rules.

Legal unit - Variable 1e (date on which the legal unit ceases to be legally responsible for an enterprise) - This date is not easy to collect but probably the registration of the event is far more important that the precise day and month of its having taken place. Basically, the legal unit ceases to be legally responsible for an enterprise when:

(a) The legal unit ceases to exist;

(b) All the means of production of the legal unit are bought by or transferred to another legal unit, which is then the responsible unit for the enterprise.

Enterprise - Variable 3g (date of final cessation of activities of the enterprise) - This variable refers to the death or other cessation date of the enterprise and is interpreted in a way similar to the corresponding variable (2g) for local units.

Source: Business Register Recommendations Manual, paragraphs 5.83 - 5.93

Related Terms

- Enterprise death
- Death date

Date of commencement

see: Date of creation

Date of creation

The date on which a unit commenced activities. This can be either its birth date, or other creation date due to merger, break-up, split-off or discontinuity point according to the continuity rules.

Legal Unit - Variable 1d (date of incorporation for legal persons or date of official recognition as an economic operator for natural persons) - The 'date of official recognition' may be the date on which an identification number is given, be it a VAT number or other. In general this is the prerequisite for a firm to engage in legal economic transactions.

Enterprise - Variable 3f (date of commencement of activities of the enterprise) - The date refers to the birth or other creation date of the enterprise and it is different from variable 1d, because the continuity rules for enterprises

should be applied. The date of birth is in principle the date on which the first financial commitments are made, but in practice it may refer to the registration date in the administrative source.

Source: Business Register Recommendations Manual, paragraphs 5.80 - 5.82

De-concentration

De-concentration is defined as changes (break-ups and split-offs) involving one enterprise before and more than one enterprise after the event.

Source: Business Register Recommendations Manual, paragraph 13.22

Related terms:

- Break-up
- Split-off
- Concentration

Death date

The date on which a unit died. The date is not easy to collect but registration of the event is more important than the exact day.

There may be no interest from the part of the unit to announce its death. Between activity and death there may be a period of inactivity, in which the unit may be recorded as dormant. Only after 24 months of such status may the unit be erased from the statistical business register and that is the date to be retained.

Source: Business Register Recommendations Manual, paragraphs 5.83 - 5.93

Related terms:

- Date of cessation

Death rate

The death rate of a given reference period (usually one calendar year) is the number of deaths as a percentage of the population of active enterprises. This death rate may vary depending on the birth concept that is used. The use of thresholds affects both the enumerator (deaths) and the denominator (population of active enterprises), but may do so to a different degree.

Deaths of enterprises

see: Enterprise death, Number of deaths of enterprises

Demography of enterprises

see: Business demography

Dormant unit

A unit is said to be dormant if it is legally alive and has legal personality, but does not carry on any activity and has neither employment nor turnover.

Source: Business Register Recommendations Manual, paragraph 7.33

Related Terms:

- death date
- reactivation

E

Economic activity

Any activity consisting in offering goods and services on a given market is an economic activity.

Source: Judgement of the Court of Justice C-180-184 198 [2000] ECR I-6451

Related terms:

- Activity

Economic enterprise birth

Birth of an enterprise with at least two employees. This population consists of enterprise births that have 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.

Related terms

- Entry by growth
- Economic enterprise death
- Employer enterprise birth

Economic enterprise death

An Economic Enterprise death occurs either as an enterprise death with at least two employees in the year of death or as an exit by decline, moving below the threshold of two employees.

Related terms

- Exit by decline
- Economic enterprise birth
- Employer enterprise death

Employees

Employees are defined as those persons who work for an employer and who have a contract of employment and receive compensation in the form of wages, salaries, fees, gratuities, piecework pay or remuneration in kind.

The relationship of employer to employee exists when there is an agreement, which may be formal or informal, between an enterprise and a person, normally entered into voluntarily by both parties, whereby the person works for the enterprise in return for remuneration in cash or in kind.

A worker is considered to be a wage or salary earner of a particular unit if he or she receives a wage or salary from the unit regardless of where the work is done (in or outside the production unit). A worker from a temporary employment agency is considered to be an employee of the temporary employment agency and not of the unit (customer) in which they work.

In particular the following are considered as employees:

— paid working proprietors;

— students who have a formal commitment whereby they contribute to the unit's process of production in return for remuneration and/or education services;

— employees engaged under a contract specifically designed to encourage the recruitment of unemployed persons;

— homeworkers if there is an explicit agreement that the homeworker is remunerated on the basis of the work done and they are included on the pay-roll.

Employees include part-time workers, seasonal workers, and persons on strike or on short-term leave, but excludes those persons on long-term leave. Employees do not include voluntary workers.

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For the purposes of the Labour Force Survey the following definition is used:

Employees are defined as persons who work for a public or private employer and who receive compensation in the form of wages, salaries, fees, gratuities, payment by results or payment in kind; non-conscripted members of the armed forces are also included.

Source: Definitions of SBS Regulation variables (16 13 0), The EU Labour Force Survey, Methods and Definitions, Eurostat 1996

Related terms:

- Employment
- Number of employees
- Number of persons employed

(see: CODED: "Employees - ESA", "Employees - Labour market", and "Employees - SBS")

Employer enterprise birth

Birth of an enterprise with at least one employee. This population consists of enterprise births 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.

Related terms

- Entry by growth
- Economic enterprise birth
- Employer enterprise death

Employer enterprise death

An Employee Enterprise death occurs either as an enterprise death with at least one employee in the year of death or as an exit by decline, moving below the threshold of one employee.

Related terms

- Exit by decline
- Economic enterprise death
- Employer enterprise birth

Employment

Employment is one of the main variable groups covered by structural business statistics. The two main measures used are:

— the number of persons employed and

— the number of employees.

More complex measures are sometimes produced by measuring the number of hours worked or by conversion into full-time equivalent units. In addition some particular categories of employment are measured, such as part-time employment, female employment, self-employment, apprentices, homeworkers and unpaid employment (unpaid family workers and working proprietors).

The European System of Accounts (ESA) defines employment as covering both employees and self-employed persons, who are engaged in some productive activity that falls within the production boundary of the system.

1. Employees:

Employees are defined as all persons who, by agreement, work for another resident institutional unit and receive remuneration. An employer-employee relationship exists when there is an agreement, which may be formal or informal, between an enterprise and a person, normally entered into voluntarily by both parties, whereby the person works for the enterprise in return or remuneration in cash or in kind.

Note: Employees corresponds to the International Labour Office definition of 'paid employment'.

2. Self-employed persons:

Self-employed persons are defined as persons who are the sole owners, or joint owners, of the unincorporated enterprises in which they work, excluding those unincorporated enterprises that are classified as quasi-corporations. Self-employed persons are classified here if they are not also in a paid employment which constitutes their principal activity: in that latter case they are classified under employees. Self-employed persons also include the following categories: unpaid family workers, outworkers and workers engaged in production undertaken entirely for their own final consumption or own capital formation, either individually or collectively.

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The Community Labour Force Survey defines employment (in accordance with the International Labour Office) as follows:

Persons in employment are those, aged 15 years and over and living in private households, who during the reference week did any work for pay or profit for at least one hour, or were not working but had jobs from which they were temporarily absent. Family workers are also included.

Source: The EU Labour Force Survey, Methods and Definitions, Eurostat 1996, European System of Accounts (ESA) 1995, [11.11-11.16] and Eurostat

Related terms:

- Employees
- Number of persons employed

Enterprise

The enterprise is the smallest combination of legal units that is an organisational unit producing goods or services, which benefits from a certain degree of autonomy in decision-making, especially for the allocation of its current resources. An enterprise carries out one or more activities at one or more locations. An enterprise may be a sole legal unit.

Source: Council Regulation (EEC), No. 696/93, Section III A of 15.03.1993 on the statistical units for the observation and analysis of the production system in the Community

Related terms:

- Number of enterprises
- Statistical unit

Enterprise birth

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.

A birth occurs when and enterprise starts from scratch and actually starts activity. An enterprise creation can be considered an enterprise birth if new production factors, in particular new jobs, are created. If a dormant unit is reactivated within two years, this event is not considered a birth.

Source: Definitions of SBS Regulation variables (11 12 0), Eurostat-OECD Manual on Business Demography Statistics (chapter 5).

Related terms:

- Reactivation
- Economic enterprise birth
- Employer enterprise birth

Enterprise closures

Enterprises that are not active in a given period, but were active in the previous period. The number of enterprise deaths is derived from the population of enterprise closures by removing reactivations within two years and closures that do not meet the definition of enterprise deaths.

Source: Eurostat-OECD Manual on Business Demography Statistics

Related terms:

- New enterprises
- Number of deaths of enterprises
- Activity

Enterprise death

A death amounts to the dissolution of a combination of production factors with the restriction that no other enterprises are involved in the event. Deaths do not include exits from the population due to mergers, take-overs,

break-ups or restructuring of a set of enterprises. It does not include exits from a sub-population resulting only from a change of activity.

An enterprise is included in the count of deaths only if it is not reactivated within two years. Equally, a reactivation within two years is not counted as a birth.

Source: Definitions of SBS Regulation variables (11 13 0), Eurostat-OECD Manual on Business Demography Statistics (chapter 7).

Related terms:

- Cessation [of Business]
- Reactivation
- Economic enterprise death
- Employer enterprise death

Enterprise group

An enterprise group is an association of enterprises bound together by legal and/or financial links. A group of enterprises can have more than one decision-making centre, especially for policy on production, sales and profit. It may centralise certain aspects of financial management and taxation. It constitutes an economic entity which is empowered to make choices, particularly concerning the units which it comprises.

Source: Council Regulation (EEC), No. 696/93, Section III A of 15.03.1993 on the statistical units for the observation and analysis of the production system in the Community

Related terms:

- Enterprise
- Statistical unit

Entry by growth

An entry by growth occurs if an enterprise was already active, but its employment was below the employee threshold for at least two years before the year when it reaches the employee threshold. This is an event that occurs only in the context of demographic data based on a threshold of one or two employees.

Related terms

- Exit by decline
- Economic enterprise birth
- Employer enterprise birth

Event [Business Demography]

The table below contains the main demographic events for enterprises, the number of enterprises involved in the events and their consequences for business registers in terms of number of register creations and deletions.

For enterprise groups a similar table could be constructed as most of the events can be defined for groups as well. For local units only births and deaths are generally observed.

Event	Real, observable world		Business register	
	Number of enterprises before the event	*Number of enterprises after the event*	*Number of creations*	*Number of deletions*
Birth	-	1	1	-
Death	1	-	-	1
Change of ownership	1	1	-	-
Merger	n	1	1	n
Take-over	n	1	-	n-1
Break-up	1	n	n	1
Split-off	1	N	n-1	-
Creation of a joint venture	n	n+1	1	-
Cessation of a joint venture	n	n-1	-	1
Restructuring within an enterprise	1	1	-	-
Restructuring within an enterprise group	n	N	0 or more	0 or more
Change of group	1	1	-	-
Complex restructuring	n	N	0 or more	0 or more

Note: n = 2 or more

Source: Business Register Recommendations Manual, paragraph 13.45

Exit by Decline

An exit by decline occurs if an enterprise continues to be active, but moves below the employee threshold for at least two years. This is an event that occurs only in the context of demographic data based on a threshold of one or two employees. An exit by decline occurs if an enterprise continues to be active, but moves below the employee threshold for at least two years. This is an event that occurs only in the context of demographic data based on a threshold of one or two employees.

Related terms

- Entry by growth
- Economic enterprise death
- Employer enterprise death

F

Factors of production

A factor of production is any good or service used to produce an output. In economics, factors of production are normally grouped into the categories land, labour and capital. Capital includes intermediate inputs.

Source: Business Register Recommendations Manual, paragraph 14.9

False match

A pair wrongly designated as a match in the matching process

Source: TES Course "The Use of Administrative Sources for Statistical Purposes"

Related terms:

- Matching

False non-match

A pair which is a match in reality, but is designated as a non-match in the matching process.

Source: TES Course "The Use of Administrative Sources for Statistical Purposes"

- Related terms: Matching

Frame

The frame for a survey is the listing or listings of units in the population at which the survey is aimed, from which the sample is drawn and through which units of the study population are contacted.

Source: Doc. Eurostat/A4/Quality/97/Business Statistics/Structural/Glossary. Original sources either: Lessler, J.T. and Kalsbeek, W.D. (1992), "Non Sampling Error in Survey", New York: John Wiley or US department of Commerce (1978), "Glossary of Non Sampling Error Terms: An Illustration of a Semantic Problem in Statistics", Statistical Policy Working Paper 4, Office of Federal Statistical Policy Standards.

Related terms:

- Statistical business register

(compare: CODED: "Frame - Statistics Canada")

Franchise

The operation of a franchise network is a method of doing business that is popular in a number of service activities, especially hotels, restaurants, and retail sales. Franchisees are independent legal units which sign a contract with another legal unit, the franchiser, to engage in an activity making use of trademarks, trading styles and marketing support provided by the franchiser, usually in return for a fee or a share of the profits. A franchise contract typically includes a number of restrictive clauses limiting the franchisee's freedom of choice, for instance imposing standards as to the goods and services to be produced, their quality and their price. The franchisee may be compelled to obtain supplies from the franchiser and must pay possibly access rights. The franchisee remains entirely responsible for his investment. Contribution towards certain services organised by the franchiser that is common to the entire network. The franchiser, in turn, offers scale economies without completely taking away the autonomy of the franchisee, for example by taking care of collective marketing. Franchise operators may or may not belong to the same enterprise group.

Franchisees are deemed to be separate enterprises because they consist of a complete combination of factors of production, and they run the full entrepreneurial risk. Moreover, the definition of the enterprise requires autonomy but allows for this autonomy to be somewhat restricted ("a certain degree of autonomy" is required), and full accounts tend to be available only at the level of the separate franchisees. The franchiser is also regarded as a separate enterprise.

Source: Business Register Recommendations Manual, paragraphs 19.54-19.55

Related terms:

- Involvement of the enterprise in an association or co-operation agreement with other enterprises

(compare: CODED: "Franchise")

FTE's

see: Full-time equivalent units

Full-time equivalent units

Full-time equivalent units are used in annual business statistics to improve the comparability of measures of employment. Figures for the number of persons working less than the standard working time of a full-year full-time worker, should be converted into full time equivalents, with regard to the working time of a full-time full-year employee in the unit. Included in this category are people working less than a standard working day, less than the standard number of working days in the week, or less than the standard number of weeks/months in the year. The conversion should be carried out on the basis of the number of hours, days, weeks or months worked.

Source: Extract from the definitions of SBS Regulation variables (16 14 0) and Eurostat

Related terms:

- Number of employees
- Head count

G

Gazelle

A gazelle is a high-growth enterprise that is up to 5 years old.

Related terms:

- High-growth enterprise

Growth

The term growth is used in business demography to study how groups 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 (for those enterprises that have survived) as the vast majority are very small at the time of start-up. 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.

Source: Eurostat-OECD Manual on Business Demography Statistics, section 6.2

H

Head count

The number of physical persons (full time and part time) employed by a unit

Source: Business Register Recommendations Manual, paragraph 5.5

Related terms:

- Number of persons employed
- Full-time equivalent units

High-growth enterprise

A high-growth enterprise is an enterprise with average annualised growth greater than 20% per annum, over a three year period should be considered as high-growth enterprises. Growth can be measured by the number of employees or by turnover.

Related terms:

- Gazelle

Holding company

If an enterprise has a holding legal unit, which is not holding assets of any other enterprise, this legal unit is considered to carry out an ancillary activity. It should be combined with the other legal units of the enterprise.

A legal unit set up to hold the assets of two or more enterprises within an enterprise group (a "holding company") resembles to some extent the previous case. It is not market oriented in the sense that it does not sell goods and services to customers outside the group. Pure holding companies only hold the assets of other units, and therefore have no turnover or employment, though many holding companies also provide some sort of group service, often of a financial nature. The costs of providing such a service are often recovered through transfers from the enterprises involved.

In theory, pure holding companies do not fulfil the definition of the enterprise, as they are not a combination of factors of production producing goods and services. Since an enterprise can not contain parts of legal units, and as ISIC Rev. 4 and NACE Rev. 2 group 64.2, "activities of holding companies", allows the units concerned to be clearly recognisable and their impact quantifiable, holding companies within groups should be regarded as separate enterprises (for some purposes these may be considered to be "quasi-enterprises"). This solution does not rule out the possibility of apportioning variables to other enterprises within the group, indeed this may be desirable for certain types of statistics. The possibility of combining all legal units within the group into one enterprise is not considered here as the groups under consideration can be very large. Units that combine holding and other types of activities should be treated as separate enterprises, particularly if this involves the provision of goods and services outside the group.

Source: Business Register Recommendations Manual, paragraphs 19.42, 19.47-19.48

Related terms:

- Holding corporations

Holding corporations

SNA 1993:

Holding corporations are corporations that control a group of subsidiary corporations and whose principal activity is owning and directing the group.

ESA 1995:

Holding corporations are institutional units whose main function is to control and direct a group of subsidiaries (see paragraph 2.26). Entities forming part of a group of units engaged in production and keeping a complete set of accounts are deemed to be institutional units even if they have partially surrendered their autonomy of decision to the central body (the holding corporation) responsible for the general direction of the group; the holding corporation itself is deemed to be an institutional unit distinct from the units which it controls, unless b) is applicable. Holding corporations (i.e. corporations which direct a group of companies) are classified as follows:

a) in sector S.11, non-financial corporations, if the preponderant type of activity of the group of corporations which are market producers, as a whole is the production of goods and non-financial services (see paragraph 2.23. e);

b) in sector S.12, financial corporations, if the preponderant type of activity of the group of corporations as a whole is financial intermediation (see paragraph 2.40. e).

Source: System of National Accounts (SNA) 1993, par.4.100, European System of Accounts (ESA) 1995, par.2.13e

Related terms:

- Holding company

I

Identity number

Legal Units - (variable 1a, identity number) The identity number of the legal unit can either be specific to the statistical business register or external (common and shared with other institutions).

Enterprises - (variable 3a, identity number) As the continuity rules for enterprises should be applied, the identity number should remain the same from commencement to cessation of activities.

Source: Business Register Recommendations Manual, paragraphs 5.10 - 5.12

Imputation

Imputation means creating plausible (but artificial) substitute values for all those missing, while preserving the original weights when estimates are calculated. There are several methods and software suitable for imputation.

Source: Eurostat, Quality /Glossary

Industrial activity

see: Activity

Industry

There is no harmonised definition for the term 'Industry' in business statistics due to its wide usage in different circumstances.

'Industry' is often used as a synonym for 'activity', for the 'industrial sector' and for 'industrial activity'. However it is broader than the industrial sector in that it may be used to refer to a population based on observation units other than the enterprise or the local unit, namely the kind of activity unit (KAU) or the local KAU. Care should be taken to avoid confusion with a 'branch' which is based on the unit of homogeneous production (UHP) or the local UHP.

The European System of Accounts (ESA) defines the term 'Industry' as consisting of a group of local KAUs engaged in the same, or similar, kind-of-activity. At the most detailed level of classification, an industry consists of all the local KAUs falling within a single class (4-digits) of ISIC / NACE and which are therefore engaged in the same activity as defined in the ISIC / NACE.

Industries comprise both local KAUs producing market goods and services and local KAUs producing non-market goods and services. An industry by definition consists of a group of local KAUs engaged in the same type of productive activity, irrespective of whether or not the institutional units to which they belong produce market or non-market output.

Source: Eurostat and European System of Accounts (ESA) 1995, [2.108]

Related terms:

- Activity

ISIC Rev. 4

ISIC Rev.4 is a standard classification of economic activities arranged so that entities can be classified according to the activity they carry out. The categories of ISIC at the most detailed level (classes) are delineated according to what is, in most countries, the customary combination of activities described in statistical units and considers the relative importance of the activities included in these classes. While ISIC Rev.4 continues to use criteria such as input, output and use of the products produced, more emphasis has been given to the character of the production process in defining and delineating ISIC classes.

The groups and divisions, the successively broader levels of classification, combine the activities of producing units according to: similarities in the character of the goods and services produced, the uses to which the goods and services are put, and the inputs, process and technology of production.

Wide use has been made of ISIC, both nationally and internationally, in classifying data according to kind of economic activity in the fields of production, employment, gross domestic product and other statistical areas. ISIC is a basic tool for studying economic phenomena, fostering international comparability of data, providing guidance for the development of national classifications and for promoting the development of sound national statistical systems.

In providing more up-to-date detail, this revision of the classification provides a closer representation of current economic reality. In addition, the Revision 4 of ISIC has improved comparability with other regional activity classifications in use around the world.

Source: United Nations Statistics Division

Related terms:

- NACE Rev. 2

J

Jobs

A job is defined as an explicit or implicit contract (relating to the provision of labour input, not to supplying output of a good or service) between a person and a resident institutional unit to perform work (activities which contribute to the production of goods or services within the production boundary) in return for compensation (including mixed income of self-employed persons) for a defined period or until further notice.

In that definition, both employee and self-employment jobs are covered: that is, an employee job if the person belongs to another institutional unit than the employer and a self-employment job if the person belongs to the same institutional unit as the employer.

The concept of jobs differs from the concept of employment:

— It includes second, third, etc. jobs of the same person. Those second, third, etc. jobs of a person may either successively follow one another within the reference period (usually, a week) or, as when someone has an evening job as well as a daytime job, run in parallel.

— On the other hand, it excludes persons temporarily not at work but who have a 'formal attachment to their job' in the form, for instance, of 'an assurance of return to work or an agreement as to the date of return'. Such an understanding between an employer and a person on lay-off or away on training is not counted as a job in the system.

Source: European System of Accounts (ESA) 1995, [11.22-23]

Related terms:

- Employment

Joint venture

A joint venture is created when two or more independent enterprises agree to commit some of their resources to work together on a common project or towards a common goal. An important feature of a joint venture enterprise is that none of the original enterprises exercise outright control over the entity created, therefore it is considered to be an enterprise.

For business demography purposes, joint ventures may be considered to be real births if they involve the creation of new factors of production. The cessation of a joint venture mirrors the above. It can be considered a real death if less than half of the employment is transferred to the participating enterprises.

The proportion of the new factors of production necessary for a joint venture to be considered a real 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 real birth.

Source: Business Register Recommendations Manual, paragraph 13.23, - Business demography methodological manual, sections 4.1 and 5.1

L

Legal form

The following legal forms can be found in most Member States:

— Sole proprietorship: Enterprise owned exclusively by one natural person.

— Partnership: Association of persons who conduct a business under a collective name. It can take the form of a limited partnership.

— Limited liability companies: Enterprises comprising joint-stock companies, limited partnerships with share capital and private limited company. Harmonised rules at European level governing the publication of accounts for these types of companies are laid down by the Fourth Council Directive.

— Co-operative societies: These are bodies set down by law in each country. They observe a number of general principles, for example they may only be entitled to provide their services to members, profits are often distributed in proportion to members' dealings with the society, etc.

— Non-profit making bodies.

— Enterprises with other forms of legal constitution: This group includes nationalised industries, publicly-owned enterprises and state or local authority monopolies.

Source: Eurostat

Related terms:

- Enterprise

Legal status

see: Legal form

Legal unit

Legal units include:

— legal persons whose existence is recognised by law independently of the individuals or institutions which may own them or are members of them.

— natural persons who are engaged in an economic activity in their own right.

The legal unit always forms, either by itself or sometimes in combination with other legal units, the legal basis for the statistical unit known as the 'enterprise'.

Source: Council Regulation (EEC), No. 696/93, Section II A3-4, of 15.03.1993 on the statistical units for the observation and analysis of the production system in the Community

Related terms:

- Enterprise
- Statistical unit

Limited liability companies

see: Legal form

Local Unit

The local unit is an enterprise or part thereof (e.g. a workshop, factory, warehouse, office, mine or depot) situated in a geographically identified place. At or from this place economic activity is carried out for which - save for certain exceptions - one or more persons work (even if only part-time) for one and the same enterprise.

Source: Council Regulation (EEC), No. 696/93, Section III F of 15.03.1993 on the statistical units for the observation and analysis of the production system in the Community

Related terms:

- Enterprise
- Statistical unit
- Number of local units

M

Main activity

see: Principal activity, Activity

Main location

The main location of an enterprise is the location of the local unit with the largest number of persons actually employed.

Source: Business Register Recommendations Manual, Paragraph 14.11

Market producer

Market producers are local KAUs or institutional units the major part of whose output is market output.

It should be noted that if a local KAU or institutional unit is a market producer its main output is by definition market output, as the concept of market output is defined after having applied the distinction market, for own final use and other non-market to the local KAU and institutional unit that have produced that output.

Source: European System of Accounts (ESA) 1995, [3.24]

Related terms:

- Other non-market producers

(equals: CODED: "Market producer - ESA")

Match

A pair that represents the same entity in reality.

Source: TES Course "The Use of Administrative Sources for Statistical Purposes"

Related terms:

- Matching

Matching

Matching is the process of linking data from different sources. There are various forms of matching, including:

— Exact Matching (Record Linkage) - linking corresponding records from two or more sources using a common identifier.

— Probabilistic Matching - determining a probable link between records from two or more sources using an algorithm based on common fields, e.g. name, address, economic activity code.

Source: Business Register Glossary

Related terms:

- Match
- Non-match
- False match
- False non-match

Merger

of Enterprises:

Enterprises may integrate to the extent that the number of existing enterprises is reduced. If two enterprises integrate entirely, the enterprises involved may lose their identity because they are dissolved beyond recognition in the new organisation. If both enterprises lose their identity, the event is called a merger.

There is no continuity or survival, but the closures of the previous enterprises are not considered to be real deaths. Similarly the new enterprise is not considered to be a real birth. This event can be seen as the opposite of a break-up.

Source: Business Register Recommendations Manual, paragraph 13.18, Eurostat-OECD Manual on Business Demography Statistics (chapter 4).

Related terms:

- break-up
- take-over
- new enterprises

N

NACE Rev. 2

NACE ("Nomenclature générale des Activités économiques dans les Communautés Européennes" - Statistical classification of economic activities in the European Communities) is the acronym used to designate the various statistical classifications of economic activities developed since 1970 in the European Union. It is the European standard classification of productive economic activities. NACE presents the universe of economic activities partitioned in such a way that a NACE code can be associated with a statistical unit carrying them out. NACE provides the framework for collecting and presenting a large range of statistical data according to economic activity in the fields of economic statistics (e.g. production, employment, national accounts) and in other statistical domains.

NACE is derived from ISIC, in the sense that it is more detailed than ISIC. ISIC and NACE have exactly the same items at the highest levels, where NACE is more detailed at lower levels.

The coding of the NACE nomenclature comprises:

— a first level consisting of headings identified by an alphabetical code (sections),

— an intermediate level consisting of headings identified by a two-character alphabetical code (subsections),

— a second level consisting of headings identified by a two-digit numerical code (divisions),

— a third level consisting of headings identified by a three-digit numerical code (groups),

— a fourth level consisting of headings identified by a four-digit numerical code (classes).

Source: NACE Rev. 2 introductory guidelines, Eurostat

Related terms:

- Activity
- ISIC Rev. 4

New enterprises

Enterprises that are active in a given period, but were not active in the previous period. The number of enterprise births is derived from the population of new enterprises by removing reactivations and other enterprise creations that do not meet the definition of enterprise births.

Source: Business Demography Methodological Manual

Related terms:

- Enterprise closures
- Number of births of enterprises

- Activity

Non-market producer

see: Other non-market producers

Non-match

A pair that represents two different entities in reality

Source: TES Course "The Use of Administrative Sources for Statistical Purposes"

Related terms:

- Matching

Non-profit institutions

A non-profit institution is defined as a legal or social entity created for the purpose of producing goods and services whose status does not permit them to be a source of income, profit or other financial gains for the units that establish, control or finance them. In practice, their productive activities are bound to generate either surpluses or deficits but any surpluses they happen to make cannot be appropriated by other institutional units.

Non-profit institutions serving households are separate legal entities, which are private other non-market producers. Their principal resources, apart from those derived from occasional sales, are derived from voluntary contributions in cash or in kind from households in their capacity as consumers, from payments made by general governments and from property income.

Source: European System of Accounts (ESA) 1995, [2.87, 3.31]

Related terms:

- Other non-market producers
- Activity

Number of active enterprises

A count of enterprises that had either turnover or employment at any time during a given reference period.

Source: Draft - Business demography methodological manual, section 3.1

Number of births of enterprises

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.

Source: Definitions of SBS Regulation variables (11 12 0)

Related terms:

- Reactivation
- Enterprise birth

Number of deaths of enterprises

A count of the number of deaths of enterprises registered to the population concerned in the business register corrected for errors. A death amounts to the dissolution of a combination of production factors with the restriction that no other enterprises are involved in the event. Deaths do not include exits from the population due to mergers, take-overs, break-ups or restructuring of a set of enterprises. It does not include exits from a sub-population resulting only from a change of activity.

Source: Definitions of SBS Regulation variables (11 13 0)

Related terms:

- Enterprise death

Number of employees

The number of employees is defined as those persons who work for an employer and who have a contract of employment and receive compensation in the form of wages, salaries, fees, gratuities, piecework pay or remuneration in kind.

The relationship of employer to employee exists when there is an agreement, which may be formal or informal, between an enterprise and a person, normally entered into voluntarily by both parties, whereby the person works for the enterprise in return for remuneration in cash or in kind.

A worker is considered to be a wage or salary earner of a particular unit if he or she receives a wage or salary from the unit regardless of where the work is done (in or outside the production unit). A worker from a temporary employment agency is considered to be an employee of the temporary employment agency and not of the unit (customer) in which they work.

In particular the following are considered as employees:

— paid working proprietors;

— students who have a formal commitment whereby they contribute to the unit's process of production in return for remuneration and/or education services;

— unemployed persons;

— homeworkers if there is an explicit agreement that the homeworker is remunerated on the basis of the work done and they are included on the pay-roll.

The number of employees includes part-time workers, seasonal workers, persons on strike or on short-term leave, but excludes those persons on long-term leave.

The number of employees does not include voluntary workers.

The number of employees is calculated in the same manner as the number of persons employed, namely as the number of jobs and is measured as an annual average.

Source: Definitions of SBS Regulation variables (16 13 0)

Related terms:

- Employment
- Number of persons employed

Number of employees in full-time equivalent units

This heading is defined as a count of the number of employees converted into full time equivalents (FTE).

Figures for the number of persons working less than the standard working time of a full-year full-time worker, should be converted into full time equivalents, with regard to the working time of a full-time full-year employee in the unit.

Included in this category are people working less than a standard working day, less than the standard number of working days in the week, or less than the standard number of weeks/months in the year The conversion should be carried out on the basis of the number of hours, days, weeks or months worked.

Source: Definitions of SBS Regulation variables (16 14 0)

Related terms:

- Employees
- Employment
- Number of persons employed

Number of enterprises

A count of the number of enterprises registered to the population concerned in the business register corrected for errors, in particular frame errors. Dormant units are excluded. This statistic should include all units active during at least a part of the reference period.

Note for insurance enterprises: all enterprises authorised at the end of the reference period are included. Enterprises wound up or being in the run-off or enterprises without a large amount of investments or provisions should be excluded. Branches of enterprises with their head office in non-EEA countries are covered.

Source: Definition of SBS Regulation variables (11 11 0) and Eurostat

Related terms:

- Enterprise

Number of local units

A count of the number of local units registered to the population concerned in the business register corrected for errors, in particular frame errors. Local units must be included even if they have no paid employees. This statistic should include all units active during at least a part of the reference period.

Source: Definitions of SBS Regulation variables (11 21 0)

Related terms:

- Local unit

(equals: CODED: "Number of local units")

Number of persons employed

The number of persons employed is defined as the total number of persons who work in the observation unit (inclusive of working proprietors, partners working regularly in the unit and unpaid family workers), as well as persons who work outside the unit who belong to it and are paid by it (e.g. sales representatives, delivery personnel, repair and maintenance teams). It includes persons absent for a short period (e.g. sick leave, paid leave or special

leave), and also those on strike, but not those absent for an indefinite period. It also includes part-time workers who are regarded as such under the laws of the country concerned and who are on the pay-roll, as well as seasonal workers, apprentices and home workers on the pay-roll.

The number of persons employed excludes manpower supplied to the unit by other enter-prises, persons carrying out repair and maintenance work in the enquiry unit on behalf of other enterprises, as well as those on compulsory military service.

Unpaid family workers refer to persons who live with the proprietor of the unit and work regularly for the unit, but do not have a contract of service and do not receive a fixed sum for the work they perform. This is limited to those persons who are not included on the payroll of another unit as their principal occupation.

Note: In order to check the comparability of data, it is necessary to indicate whether voluntary workers have been included under this heading or not.

Source: Definitions of SBS Regulation variables (16 11 0)

O

Other non-market producers

Other non-market producers are local KAUs or institutional units whose major part of output is provided free or at not economically significant prices.

Source: European System of Accounts (ESA) 1995, [3.26]

Related terms:

- Market producer

(equals: CODED: "Other non-market producers - ESA")

Over-coverage

Units which are included in the sampling frame but do not belong to the target population. These cases are usually observed for contacted units, but not necessarily for non-contacted units or those excluded from a sample. Reasons for over-coverage are the death of units, misclassification and a non-updated frame. The overcoverage in a register generally biases the estimators drown from that sampling list.

Source: Doc. Eurostat/A4/Quality/97/Business Statistics/Structural/Glossary. Original sources either: Lessler, J.T. and Kalsbeek, W.D. (1992), "Non Sampling Error in Survey", New York: John Wiley or US department of Commerce (1978), "Glossary of Non Sampling Error Terms: An Illustration of a Semantic Problem in Statistics", Statistical Policy Working Paper 4, Office of Federal Statistical Policy Standards.

Related terms:

- coverage
- under-coverage
- frame

(compare: CODED: "Over-coverage")

P

Partnership

see: Legal form

Persons employed

see: Number of persons employed

Population of active enterprises

see: Number of active enterprises

Production factors

see: Factors of production

Principal activity

The principal (or main) activity is identified as the activity which contributes most to the total value added of a unit under consideration. The principal activity so identified does not necessarily account for 50% or more of the unit's total value added. The classification of principal activity is determined by reference to ISIC Rev. 4 / NACE Rev. 2, first at the highest level of classification and then at more detailed levels ("top-down" method).

Source: Eurostat

Related terms:

- Activity
- Statistical unit

R

Reactivation

A unit that re-commences activity after a period of temporary cessation of no more than 24 months.

Source: Based on Business Registers Recommendation Manual chapter 14

Real birth

see: Enterprise birth

Real death

see: Enterprise death

Register [Business registers manual]

see: Statistical business register

Restructuring

Restructuring within an enterprise does not affect the continuity of the enterprise, but changes its structure in the process. An example could be the creation or deletion of a local unit. Restructuring may affect key characteristics such as size or principal activity. It could be argued that this is not really a demographic event at the level of the enterprise and does not impact on the demographic variables relating to the enterprise, but it could affect the way the enterprise is included in demographic statistics. Restructuring will be reflected through changes to relationships or characteristics recorded in the register.

Restructuring within an enterprise group is a change (e.g. creation and/or cessation of one or more enterprises) involving more than one enterprise before and more than one enterprise after the event, where all enterprises involved are under common control. It affects the identity of at least one enterprise, though the total number of enterprises before and after the event may be the same. A typical example is the complete reorganisation of the production capacity of a large enterprise group, involving many enterprises and possibly, but not necessarily, entailing a change in the number of enterprises of the group. Complex restructuring is a similar event, but this is not constrained to one enterprise group. An example is the transfer of a number of enterprises or parts of enterprises between groups. Restructuring within an enterprise group, or complex restructuring, may entail any number of register creations and deletions.

Source: Business Register Recommendations Manual, paragraphs 13.16-13.36

S

Self-employed person

see: Employment

Small and medium-sized enterprises

Enterprises that belong to size categories defined by staff headcount and financial ceilings.

1. The category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million.

2. Within the SME category, a small enterprise is defined as an enterprise which employs fewer than 50 persons and whose annual turnover and/or annual balance sheet total does not exceed EUR 10 million.

3. Within the SME category, a micro-enterprise is defined as an enterprise which employs fewer than 10 persons and whose annual turnover and/or annual balance sheet total does not exceed EUR 2 million.

In addition, an SME must be 'autonomous', it cannot belong to an enterprise group or be a 'partner enterprise'. The main criterion (with some exceptions that must not lead to dominant influence), is holding 25 % or more of the capital or voting rights of another enterprise.

Source: Commission Recommendation (2003/361/EC), Annex, Articles 2-3

Related terms:

- Enterprise

SME

see: Small and medium-sized enterprises

Sole proprietorship

see: Legal form

Split-off

of Enterprise:

Split-off involves one enterprise before and more than one enterprise after the event. In a split-off, the new enterprise(s) is (are) generally much smaller and the identity of the original enterprise is retained by the larger enterprise.

There is no death, but one or more new enterprises are created. This event can be seen as the opposite of a take-over.

Source: Business Register Recommendations Manual, paragraph 13.22, Eurostat-OECD Manual on Business Demography Statistics (chapter 4)

Related terms:

- break-up
- take-over
- de-concentration
- new enterprises

Statistical business register

Statistical business registers are lists of enterprises and other units, as required by the registers Regulation or recorded on voluntary basis, whose activities contribute to the Gross Domestic Product of the Member State. All Member States of the European Union maintain business registers for statistical purposes. According to Article 1 of the registers Regulation "Member States shall set up for statistical purposes one or more harmonised registers with the definitions and scope specified in the following Articles".

Source: Business Registers Recommendation Manual, paragraph 1.11

Statistical unit

The Council Regulation ((EEC), No. 696/93 of 15 March 1993) on statistical units for the observation and analysis of the production system in the Community lays down a list of eight (types of) statistical units:

— the Enterprise;

— the Institutional Unit;

— the Enterprise Group;

— the Kind-of-activity Unit (KAU);

— the Unit of Homogeneous Production (UHP);

— the Local Unit;

— the Local Kind-of-Activity Unit (local KAU);

— the Local Unit of Homogeneous Production (local UHP).

Statistical units are defined on the basis of three criteria:

— Legal, accounting or organisational criteria;

— Geographical criteria;

— Activity criteria.

The relationship between different types of statistical units can be summarised in the following way:

— Units with one or more activities and one or more locations

Enterprise,

Institutional unit;

— Units with one or more activities and a single location

Local unit;

— Units with one single activity and one or more locations

KAU,

UHP;

— Units with one single activity and one single location

Local KAU,

Local UHP.

Source: Council Regulation (EEC), No. 696/93, Section I-IV of 15.03.1993 on the statistical units for the observation and analysis of the production system in the Community

Structural business statistics

The objective of the Council Regulation on structural business statistics is to establish a common framework for the collection, compilation, transmission and evaluation of Community statistics on the structure, activity, competitiveness and performance of businesses in the Community. The compilation of structural business statistics has as its purpose, in particular, to analyse:

(i) the structure and evolution of the activities of businesses;

(ii) the factors of production used and other elements allowing business activity, performance and competitiveness to be measured;

(iii) the regional, national, Community and international development of businesses and markets;

(iv) business conduct;

(v) small and medium-sized enterprises;

(vi) specific characteristics of enterprises related to particular groupings of activities.

Source: Council Regulation (EC, EURATOM) No 58/97 of 20 December 1996 concerning structural business statistics, articles 1 and 2

Survival

Survival occurs when a unit is active and identifiable both before and after a specific (business) demographic event. The unit may be changed in some way, e.g. in terms of economic activity, size, ownership or location, but there should be continuity of the unit reference number in the statistical business register.

Source: Business Register glossary

Related terms:

- Continuity

Survival [Business Demography]

In the Business Demography context, survival occurs if an enterprise is active in terms of employment and/or turnover in the year of birth and the following year(s). Two types of survival can be distinguished:

1) An enterprise born in year xx 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).

2) 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).

Source: Eurostat-OECD Manual on Business Demography Statistics

Related terms:

- Continuity

Survival rate

The survival rate of newly born enterprises in a given reference period is the number of enterprises that were born in year xx-n and survived to year xx as a percentage of all enterprises born in year xx-n.

T

Take-over

of Enterprises:

Enterprises may integrate to the extent that the number of existing enterprises is reduced. If two enterprises integrate entirely, one of the enterprises may remain largely the same. In this case the other enterprise is generally much smaller, it is merely absorbed by the larger enterprise, which remains the same. If one of the enterprises keeps its identity, the event is called a take-over.

Enterprises taken over are not considered to be real deaths. In this case, one of the original enterprises does survive in a recognisable form, and therefore there is both continuity and survival. The remaining original enterprises are closed. This event can be seen as the opposite of a split-off.

Source: Business Register Recommendations Manual, paragraph 13.14, Eurostat-OECD Manual on Business Demography Statistics (chapter 4)

Related terms:

- merger
- split-off
- concentration
- new enterprises

Turnover [Business statistics]

Turnover comprises the totals invoiced by the observation unit during the reference period, and this corresponds to market sales of goods or services supplied to third parties.

Turnover includes all duties and taxes on the goods or services invoiced by the unit with the exception of the VAT invoiced by the unit vis-à-vis its customer and other similar deductible taxes directly linked to turnover.

It also includes all other charges (transport, packaging, etc.) passed on to the customer, even if these charges are listed separately in the invoice. Reduction in prices, rebates and discounts as well as the value of returned packing must be deducted.

Income classified as other operating income, financial income and extra-ordinary income in company accounts is excluded from turnover. Operating subsidies received from public authorities or the institutions of the European Union are also excluded.

Note: Indirect taxes can be separated into three groups.

i) The first comprises VAT and other deductible taxes directly linked to turnover which are excluded from turnover. These taxes are collected in stages by the enterprise and fully borne by the final purchaser.

ii) The second group concerns all other taxes and duties linked to products which are either 1) linked to turnover and not deductible or 2) taxes on products not linked to turnover. Included here are taxes and duties on imports and taxes on the production, export, sale, transfer, leasing or delivery of goods and services or as a result of their use for own consumption or own capital formation.

iii) The third group concerns taxes and duties linked to production. These are compulsory, unrequited payments, in cash or in kind which are levied by general government, or by the Institutions of the European Union, in respect of the production and importation of goods and services, the employment of labour, the ownership or use of land, buildings or other assets used in production irrespective of the quantity or the value of goods and services produced or sold.

Source: Definitions of SBS Regulation variables (12 11 0)

U

Under-coverage

Failure to include in the frame all units belonging to the defined study population. This mainly includes (new) enterprises not included in the frame, either through real birth or demergers, and misclassified units. This generally leads to biases in the estimators.

Source: Doc. Eurostat/A4/Quality/97/Business Statistics/Structural/Glossary. Original sources either: Lessler, J.T. and Kalsbeek, W.D. (1992), "Non Sampling Error in Survey", New York: John Wiley or US department of Commerce (1978), "Glossary of Non Sampling Error Terms: An Illustration of a Semantic Problem in Statistics", Statistical Policy Working Paper 4, Office of Federal Statistical Policy Standards.

Related terms:

- coverage
- over-coverage
- frame

(compare: CODED: "Under-coverage)

V

Value added tax

A value added type tax (VAT) is a tax on goods and services collected in stages by enterprises and which is ultimately charged in full to the final purchasers.

This heading value added type taxes comprises the value added tax which is collected by the General government and which is applied to national and imported products, as well as, where appropriate, other deductible taxes applied under similar rules to those governing VAT, for simplicity henceforth called 'VAT'.

Producers are obliged to pay only the difference between the VAT on their sales and the VAT on their purchases for their own intermediate consumption or gross fixed capital formation.

Source: European System of Accounts (ESA) 1995, [4.17]

VAT

see: Value Added Tax

European Commission

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