Advantages in using BR:

• At EU level there is a considerable degree of harmonisation of statistical business registers. The existence of a regulation that set standards for coverage of activities, units and variables, assures a certain level of comparability.

• Homogenous statistical unit: the enterprise

• Possibility to have the full population in order to build up indicators/rates

*In Italy the BD is an information derived from the Italian Business Register (ASIA)*
BD based on employment

The concept on the Employer BD

To improve international comparability a definition for employer enterprise birth is added to complement the enterprise birth.

While the “standard” BD on enterprise birth covers all units (without any threshold concerning very small units) the Employer Enterprise Birth (EEB) is an enterprise birth with at least one employee.

- This introduces a further problem: the measurement of employment both as self-employment and salaried employment.
- The definition take into consideration the need to measure employees.
Employer Enterprise Birth (EEB)

Two conditions which qualify an enterprise as an employer birth:

1) It was an enterprise birth in year $t$ (real birth), and had at least one employee in the year of birth

or

2) It existed before year $t$, was not an employer for the two previous years and had at least one employee in year $t$ (entry by growth).

Optional step: Removing enterprises that grew by take-over.
Enterprise Births: definition

The production of statistics on births based on a clear and acceptable:
- definition
- Interpretation

Definition (Commission Regulation No 2700/98): 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. An enterprise creation can be considered an enterprise birth if new production factors, new jobs in particular, are created.
Enterprise Births

Exclusions:

- Enterprises that are created by merging production factors or by splitting them into two (or more) enterprises (breakups, mergers, split-offs, restructuring);
- Newly created enterprises that simply take over the activity of a previously created enterprise (take-over);
- Any creations of additional legal units/enterprises solely for the purpose of providing a single production factor.
- An enterprise that is registered when an existing enterprise changes legal form.
- Reactivated enterprises if they restart activity within two calendar years.
### Employer Enterprise Birth (EEB)

<table>
<thead>
<tr>
<th>$t-2$</th>
<th>$t-1$</th>
<th>$t$</th>
<th>Outcome</th>
</tr>
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<tbody>
<tr>
<td>$N(0)_{t-2}$</td>
<td>$N(0)_{t-1}$</td>
<td>$N(1)_t$</td>
<td>Births by Growth</td>
</tr>
<tr>
<td>$N(0)_{t-2}$</td>
<td>$N(1)_{t-1}$</td>
<td>$N(1)_t$</td>
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<td>$N(1)_t$</td>
<td>Births by Growth</td>
</tr>
<tr>
<td>$N(1)_{t-2}$</td>
<td>$N(0)_{t-1}$</td>
<td>$N(1)_t$</td>
<td>-</td>
</tr>
<tr>
<td>$N(1)_{t-2}$</td>
<td>$N(1)_{t-1}$</td>
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<td>missing</td>
<td>$RB(1)_t$</td>
<td>RB with at least 1 employee</td>
</tr>
</tbody>
</table>
Employer Enterprise Birth (EEB)

Optional step

In order to remove from Births by growth (2 step) some active enterprises that grow because events of takeover, the following links for reference year $t$ have been identified:

a) $EEB_t$ linked to $Exits_{(t-1)}$ that cease for events
b) $EEB_t$ linked to $A_{(t-1),t}$ that shrink for events
c) $EEB_t$ linked by continuity rules (RL) to $Exits_{(t-1)}$

Adding up the enterprises identified in condition 1 and 2 yields the population of Employer Enterprise Birth
Employer Enterprise Death (EED)

Two conditions which qualify an enterprise as an employer death:

1) It was an enterprise death in year $t$ (real death), and had at least one employee in the year of death or

2) It had at least one employee in year $t$ and continued to exist afterwards without employees (exit by decline).

Optional step: Removing enterprises that shrunk by split-off
## Employer Enterprise Death (EED)

<table>
<thead>
<tr>
<th></th>
<th>$t$</th>
<th>$t+1$</th>
<th>$t+2$</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>$N(1)_t$</td>
<td>$N(0)_{t+1}$</td>
<td>$N(0)_{t+2}$</td>
<td>Deaths by Decline</td>
<td></td>
</tr>
<tr>
<td>$N(1)_t$</td>
<td>$N(1)_{t+1}$</td>
<td>$N(0)_{t+2}$</td>
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<tr>
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<td>$N(0)_{t+1}$</td>
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<td>Deaths by Decline</td>
<td></td>
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<td>$RD(1)_t$</td>
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<td>missing</td>
<td>RD with at least 1 employee</td>
<td></td>
</tr>
</tbody>
</table>
Employer Survival Enterprise

Definition:

• An Employer enterprise birth in year \((t-1)\) is considered survived in year \(t\) if it is active in any part of year \(t\) and if it has at least one employee (= survival without changes).

• If the enterprise is not active in year \(t\) it has survived if its activity is taken over by a new enterprise (with at least one employee) set up specifically to take over the factors of production of that enterprise in year \(t\) (= survival by take-over)
High Growth Enterprise

Definition:

All enterprises with average annualised growth in employees (or in turnover) greater than 20% per annum, over three year period and with 10 or more employees at the beginning of the observation period should be considered as high-growth enterprises.

Medium Growth Enterprise

Definition:

All enterprises with average annualised growth in employees (or in turnover) between 10% and 20% per annum, over three year period and with 10 or more employees at the beginning of the observation period should be considered as medium-growth enterprises.
High Growth Enterprise – Identification process (1)

The identification process

Definition of Potential HG:

*All enterprises that are actives in three consecutive years, excluding the enterprises born in the beginning of the observation period.*

**Step1:** a merge by identification code of the population $N_{t-3}$ to $N_t$

**Step2:** we exclude the $RB_{t-3}$ from the Potential HG population

\[
\text{Potential\_HG}_t = (N_{t-3} \cap N_{t-2} \cap N_{t-1} \cap N_t) \setminus RB_{t-3}
\]
High Growth Enterprise – Identification process (2)

The identification process

**Step3:** Size threshold of 10 or more employees at the beginning of the period \((t-3)\)

\[ \text{Employees}_{t-3} \geq 10 \]

This threshold of 10n employees is a convention and it is applied to avoid the introduction of biases that overstress the importance of small enterprises.
High Growth Enterprise – Identification process (3)

The identification process

**Step 4**: Growth threshold: 20% per annum for the HG

Growth threshold 10%-20% per annum for the MG

For example, the HG are obtained applying to the population of reference (step 3) the following rules to employees or to turnover:

\[
3 \left( \frac{employees_t}{employees_{t-3}} \right)^{1/3} - 1 \geq 0.2 \quad \text{or} \quad 3 \left( \frac{turnover_t}{turnover_{t-3}} \right)^{1/3} - 1 \geq 0.2
\]
Step 5: HG and MG can grow because events of takeover.

- Takeover from units that cease.
- Takeover from units that transfer activity.

By excluding such events we obtain the “pure” HG and “pure” MHG.
Gazelle Enterprise

Definition:

*All enterprises up to 5 years old with average annualised growth greater than 20 percent per annum, over a three year period*

It is that subset of HG that are real births in \((t-5)\) and \((t-4)\).

\[
Gazelles_t = (HG_t \cap RB_{t-4}) \cup (HG_t \cap RB_{t-5})
\]
BD Indicators

Indicators currently refer to:

(A) Births and deaths

(B) Job creation and destruction due to demographic components

(C) Surviving Enterprise

(D) Growth, based on the survival of births

(E) Entrepreneurship Indicators Programme (EIP)
(A) Indicators on enterprise births/deaths

a1) Real Births/Deaths as a percentage of the population of active enterprises (birth/death rates).

a2) Real Births/Deaths by size class.

a3) Real Births/Deaths by economic activity.

To measure the impact of enterprise births/deaths on the population of active enterprises.
(A) Indicators on enterprise births/deaths

a4) **Churn rate** = the sum of births and deaths of enterprises.

The churn rate indicates how frequently new firms are created and how often existing enterprises close down.

This indicator reflects a country’s degree of “creative destruction”.
B) Job creation and destruction

b1) Persons employed in newly born/dead enterprises in year $t$ as a proportion of persons employed in the stock of active enterprises in year $t$ (both in head counts)

b2) Employees in newly born/dead enterprises in year $t$ as a proportion of persons employed in newly born/dead enterprises in year $t$ (both in head counts)
B) Job creation and destruction

The difference between stock of employment calculated on yearly base (at micro level) provides an estimate of job creation (if positive) and destruction (if negative).

- **GJT (gross job turnover)**: is the sum of all flows given by creations and destruction during a year, it is a measure of job reallocation.

- **NJT (net job turnover)**: is the variation between creation and destruction.
(C) Indicators for Surviving Enterprises

c1) Number of surviving enterprises in year $t$ divided by number of enterprise births in year $(t-i)$ ($i=1,...,n$)

This indicator measure the survival rate in year $t$ of real births in year $(t-i)$

(D) Indicators on growth based on the survival of births

d1) The number of persons employed in surviving enterprises in their $i$-th year of operation divided by the numbers of persons employed in RB in the initial year.
## (E) Entrepreneurship Indicators Programme (EIP)

<table>
<thead>
<tr>
<th>Firm-based</th>
<th>Employment-based</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employer firm birth rate</td>
<td>High-growth firm rate by employment</td>
<td>High-growth firm rate by turnover</td>
</tr>
<tr>
<td>Employer firm death rate</td>
<td>Gazelle rate by employment</td>
<td>Gazelle rate by turnover</td>
</tr>
<tr>
<td>Business churn</td>
<td>Ownership rate start-ups</td>
<td>Value added by young firms</td>
</tr>
<tr>
<td>Net business population growth</td>
<td>Ownership rate business population</td>
<td>Productivity contribution, young firms</td>
</tr>
<tr>
<td>Survival rate at 3 and 5 years</td>
<td>Employment in 3 and 5 year old firms</td>
<td>Innovation performance, young firms</td>
</tr>
<tr>
<td>Proportion 3 and 5 year survival</td>
<td>Average firm size after 3 and 5 years</td>
<td>Export performance, young firms</td>
</tr>
</tbody>
</table>
Some results -

Number of Employer Enterprise Birth (EEB) (133 thousands -year 2011)

- Males: 36%
- Females: 15%

Types of Enterprises:
- Partnerships, Corporations: 49%
- Sole-propriet.: 51%
Rate of EEB – Percentage composition by gender and economic sectors - Sole proprietorship - year 2011
next:

PART 3 – LEED