



INSTITUTO NACIONAL DE ESTATÍSTICA
STATISTICS PORTUGAL

Data infrastructure for business statistics in Portugal: Stats Business

UNCEBTS

8 September 2022

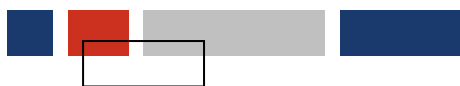


Cristina Neves

Economic Statistics Department



- **Multidimensional perspective**
- **Data sources**
- **Data integration: Stats Business**



Multidimensional perspective

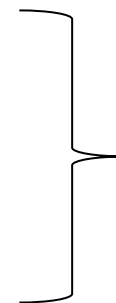




- ✓ Multidimensional perspective of enterprises' economic performance
- ✓ Micro data linking
- ✓ Integration of data from different data sources

Sample surveys

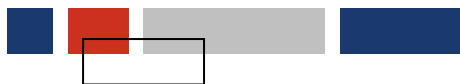
Administrative data



**Combination
of several
data sources**

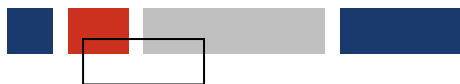


- ✓ Focus on harmonisation (concepts, definitions)
- ✓ Creation of a new Administrative Data Unit (Data Collection and Management Department – Business Data Unit)
- ✓ Making data integrable:
 - Quality control
 - Outlier detection
 - Estimations (non-response, also on administrative records)



Data sources





IES/SBI



**Other
administrative
data**

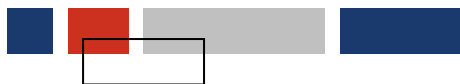


**Conventional
surveys**

(quantitative)

**New
surveys**

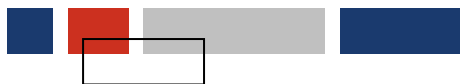
(qualitative; economic sentiment;
forecasts)



Data from enterprises:

- **IES – SIMPLIFIED BUSINESS INFORMATION**
- **OTHER ADMINISTRATIVE DATA** (growing use)
- **CONVENTIONAL SURVEYS** (Intrastat; Short term statistics - turnover)
- **NEW SURVEYS** (capture mainly qualitative aspects that influence business activity (Survey on Framework Regulation Costs; Management Practices Survey; Survey on Information and Communication Technologies Usage in Enterprises; Community Innovation Survey); get indications on economic sentiment and forecasts (Survey on Perspectives of Exports of Goods))



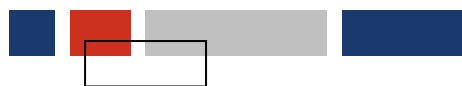


Four legal requirements from different entities on enterprises, fulfilled in a single report:



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Main advantages for Statistics Portugal:

Units covered:

50.000
(≈ 15%)



400.000
(≈ 100%)

Availability:

12 Months



6,5 Months

Number of variables:

800



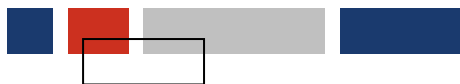
5 000



Other administrative data:

Microdata or highly detailed data from other sources:

- **Social Security:** Single Report; Monthly Statement of Remunerations
- **Tax Authority:** “e-invoice” system; VAT; fiscal declarations (Income taxes, corporation taxes, property taxes...) – business statistics, housing prices and rents (information in high detail for society)
- **Ministry of Justice:** creation and dissolution of enterprises; NACE classification (SICAE).



Data integration – Stats Business



Reengineering Business Statistics

SBS/ Integration of business statistics' domains



Bank of Portugal
(Financial enterprises)
ISP (Insurances)

IES
(Companies)

Fiscal information

✚ (Sole proprietors and
Independent workers)

**Financial
Business Statistics**
**Non financial
Business Statistics**

IFATS



Integrate



**Business
Demography**
Globalization
Entrepreneurship

Main input for National Accounts





Integration of statistical data from surveys and administrative data:

Surveys:

Integrated Business Accounts System

Survey on Framework Regulation Costs; Management Practices Survey; Survey on Perspectives of Exports of Goods

Intrastat, Short Term Statistics, CIS, IVNE, CIS, Survey on ICT Usage in Enterprises, ...

Other data sources:

Single Report – Social Security

Monthly Statement of Remunerations

E-invoice system, VAT, fiscal declarations (income and corporation taxes, property taxes...)

Creation and dissolution of enterprises; NACE classification (SICAE)

Enable Statistics Portugal:

- Data security
- Statistical confidentiality

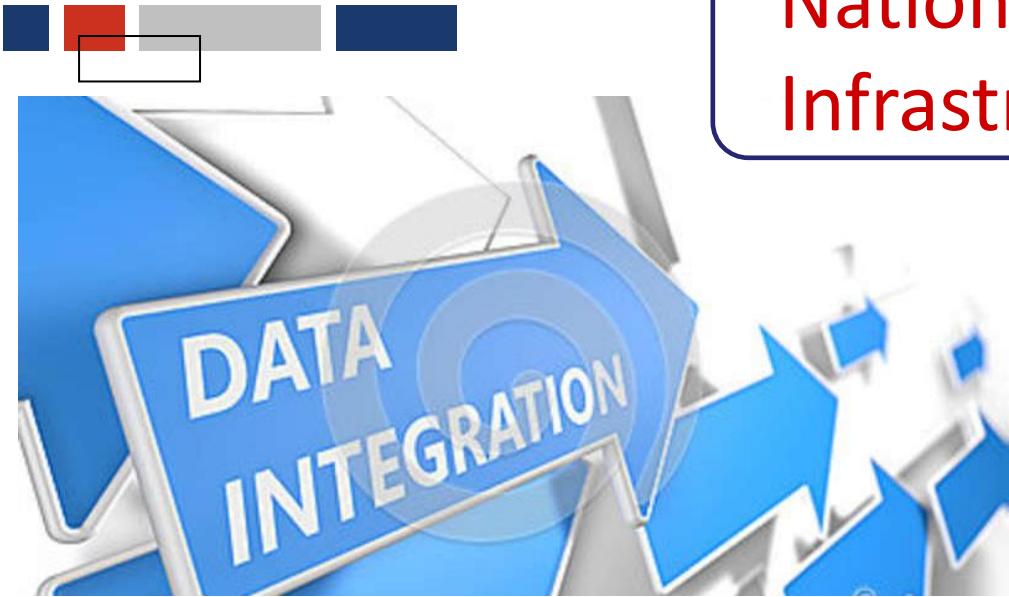
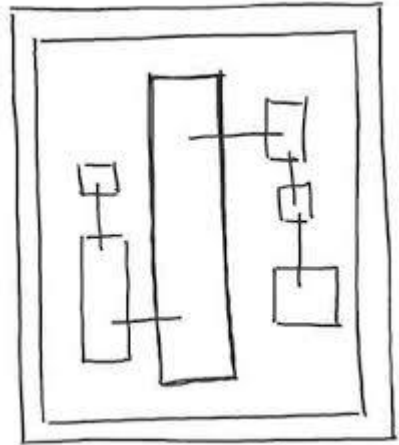


Powerful enterprise database

**Stats
Business**



National Data Infrastructure



ICT

CIS

Other surveys

Stats Business

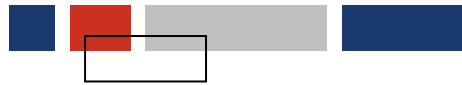
Single Report

Other sources

PRODCOM

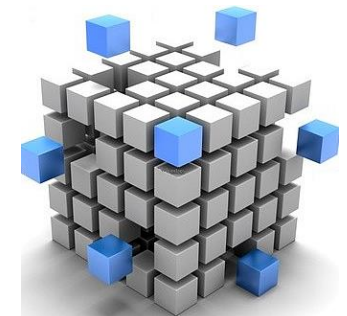


ITGS



Stats Business

- One of the most advanced enterprise databases in international terms;
- Its analytical exploration is still under development from three perspectives:
 - ✓ exploitation for a more efficient production of existing official statistics (e-invoice: useful during pandemic, for Intrastat and Tourism);
 - ✓ design of new official statistics which are made available at an early stage as experimental statistics (*Stats Lab*) (innovation and size; management and performance; new: gender analysis);
 - ✓ support for scientific research (contrafactual analysis).

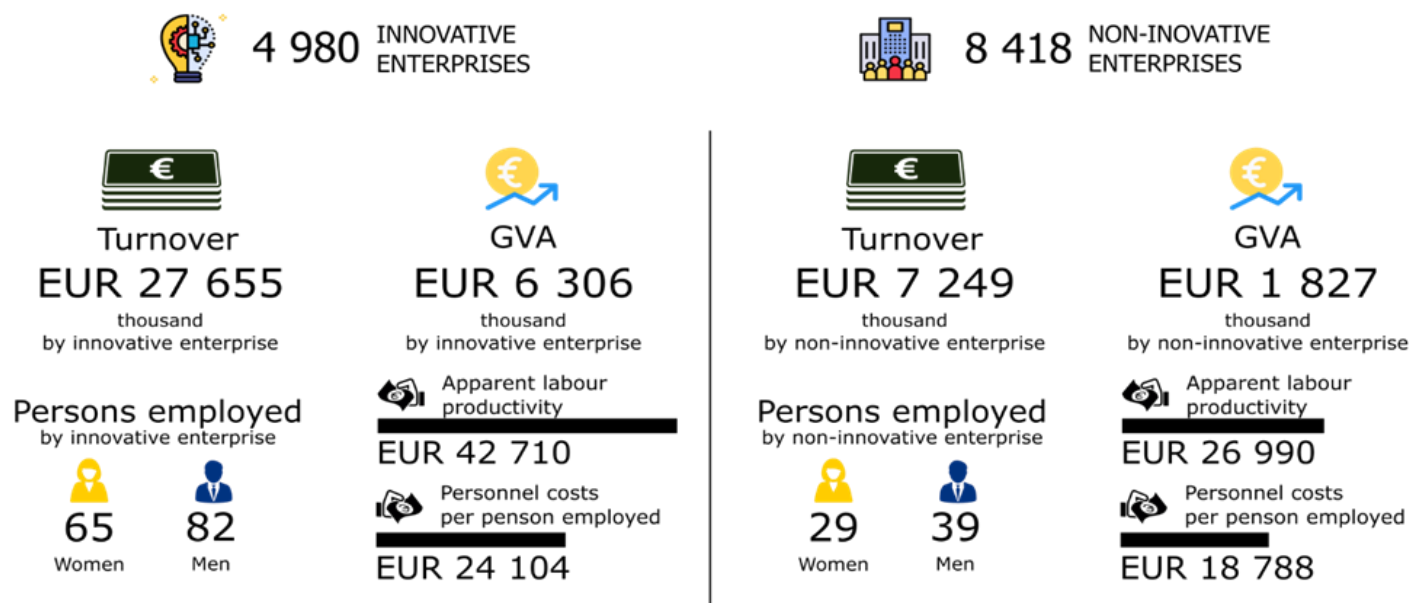


Stats Business

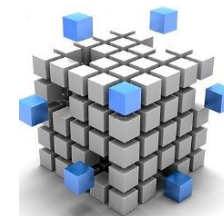
Example 1

Main economic indicators of innovative and non-innovative enterprises (2018)

CIS/ IBAS (IES)



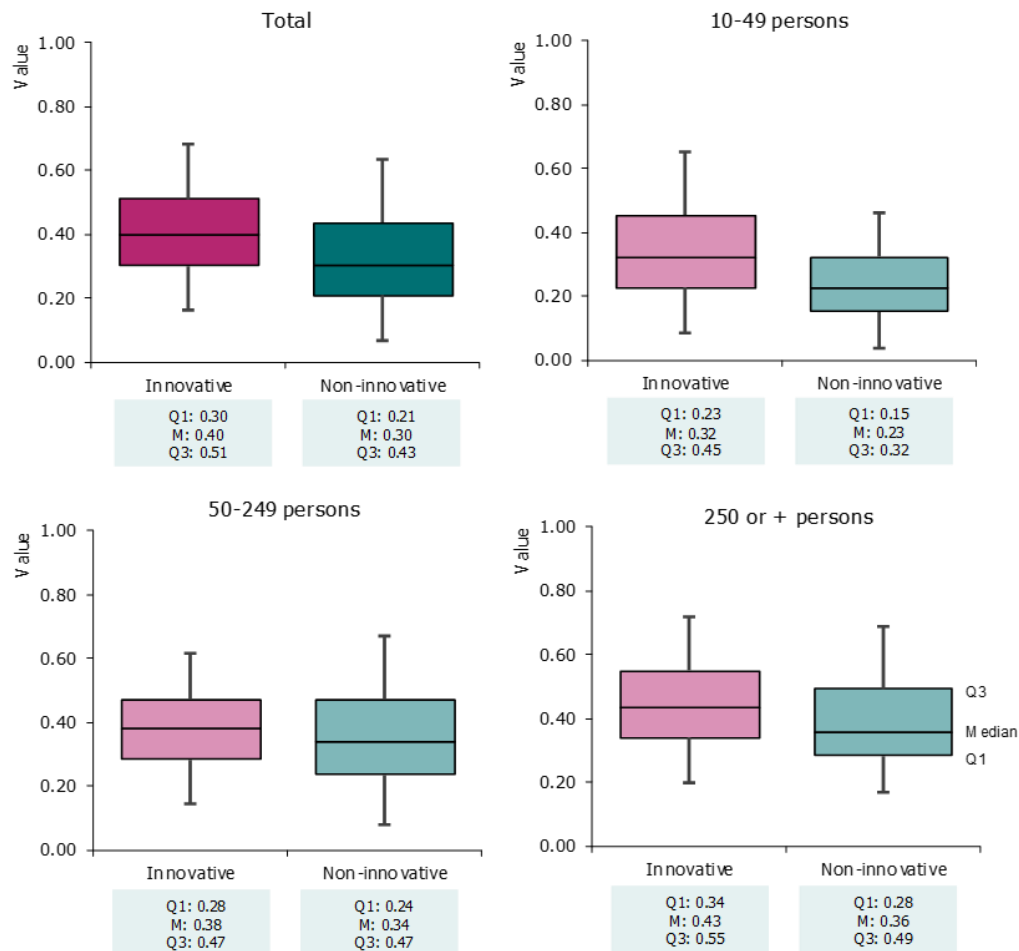
Source: Statistics Portuga, CIS and IBAS



Stats Business

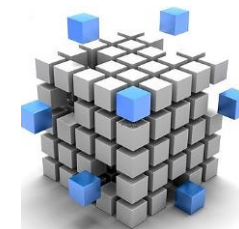
Example 2

Distribution of innovative and non-innovative enterprises, by ticscore, persons employed and total (2018)



ticscore – Information and communication technology use intensity indicator based on community survey on ICT usage and e-commerce in enterprises

Source: Statistics Portugal, Community Innovation Survey, Integrated Business Accounts System and ICT Usage



Stats Business

G-score - Results obtained from linear regression:

$$(1) Y_i = AK_i^\alpha L_i^\beta e^{\gamma g_i} \prod_j e^{\delta_j x_{i,j}}$$

$$\ln\left(\frac{Y_i}{L_i}\right) = \ln(A) + \alpha \ln\left(\frac{K_i}{L_i}\right) + (\beta + \alpha - 1) \ln(L_i) + \gamma g_i + \sum_j \delta_j x_{i,j}$$

Management Practices Survey:

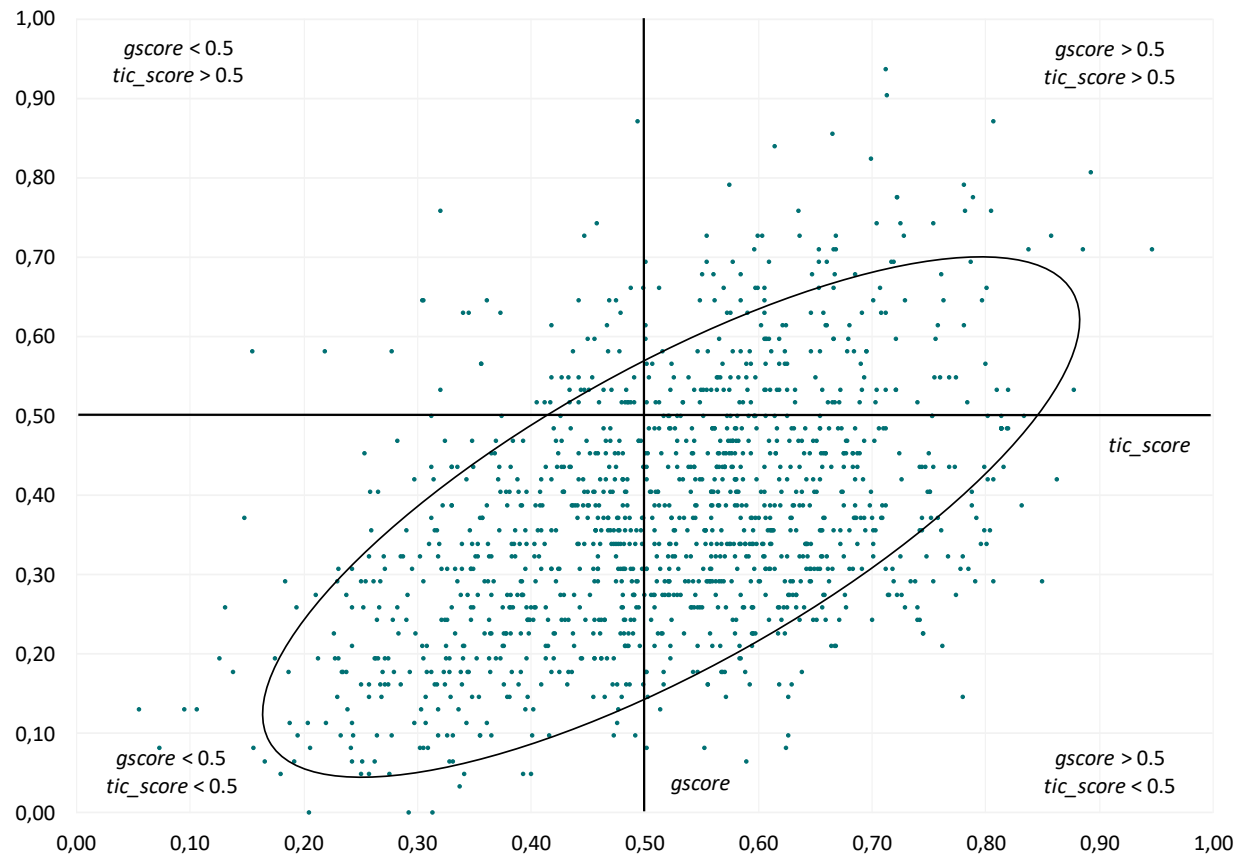
G-score: the G-score is obtained for each company through the simple average of the scores attributed to the answers to a set of specific questions in the Management Practices Survey.

The score for each answer varies between 0 and 1, with the maximum value assigned to the answer option corresponding to the most structured practice and the minimum value to the least structured.

<i>ln (GVA / NPS)</i> N = 3620 R ² = 0.43			
<i>Variable</i>	<i>Coefficients</i>	<i>t Stat</i>	<i>P-value</i>
<i>ln(A)</i>	8.81	94.83	0.00
<i>gscore</i>	1.68	14.51	0.00
<i>young</i>	-0.02	-0.37	0.71
<i>adult</i>	0.06	1.82	0.07
<i>group</i>	0.20	6.86	0.00
<i>micro</i>	-0.52	-12.47	0.00
<i>large</i>	0.52	11.33	0.00
<i>p_export</i>	0.09	3.38	0.00
<i>ln(asset/NPS)</i>	0.13	21.23	0.00
<i>% hab_sup</i>	0.92	15.70	0.00
<i>antig</i>	0.02	6.79	0.00
<i>ln(NPS)</i>	-0.27	-18.52	0.00

Stats Business

Management Practices Survey - Relationship between gscore and tic_score



Source: Statistics Portugal, MPS and IUTICE





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Thank you for your attention!

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