

Italian National Accounts measure of hidden economy

A.Faramondi (faramond@istat.it)

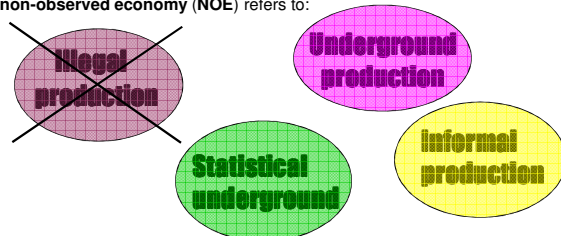
A. Milani (milani@istat.it)



Exhaustiveness of GDP

GDP estimates should include all economic activities, both observed and non-observed, that take place within the "production boundary", as defined by the European System of Accounts (ESA).

The **non-observed economy (NOE)** refers to:



Underground production

Activities that are productive and legal but are deliberately concealed from public authorities to avoid payment of taxes or social charges or compliance with regulations.

Informal sector production

Productive activities conducted by unincorporated enterprises in the household sector or other units that are unregistered and/or less than a specified size in terms of employment, and that have a market production. Household production for own final use is also included in this sector.

Statistical underground

Productive activities that should be accounted for in basic data collection programs but are missed due to deficiencies of the statistical system.

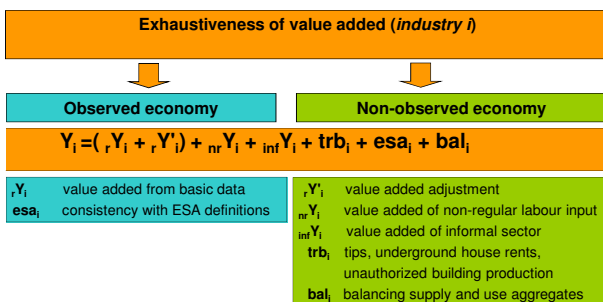
Illegal production

Productive activities that generate goods and services forbidden by law or that are unlawful when carried out by unauthorized procedures.

*Illegal production is not included in the Italian GDP and the informal sector is estimated net of household production for own final use. So, hereafter **Hidden economy** refers only to legal activities (underground production, informal production net of household production for own final use and statistical underground).*

Main causes of NOE

- non-response
 - incomplete/out of date business register
 - under-reporting of income
 - over-reporting of intermediate consumption
- } adjustment value added



Exhaustiveness of GDP – year 2008 (Nace Rev. 1.1)

	% on GDP
Observed economy	82.5
NOE	17.5
- value added adjustment	7.3
- tips, underground house rents, unauthorized building	2.3
- non-regular labour	6.5
- informal sector labour*	0.1
- balancing supply and use figures	1.3
GDP	100.0

* Household production for own final use is not considered

The adjusted value added relative to regular labour input (industry i) is:

$$adj_i Y_i = (r_i Y_i + r_i Y_i) = \sum_j (c_j U_j) \times (c_j X_i + c_j X_i')$$

- $adj_i Y_i$ adjusted value added - regular labour
- $c_j U_j$ full time equivalent employment (FTE) - regular labour
- $c_j X_i$ survey gross value added per labour unit
- $c_j X_i'$ value added per labour unit adjustment
- c size class

Hypothesis underlying value added per labour unit adjustment

Remuneration of a self-employed worker cannot be lower than that of an employee (same economic activity, job position and number of working hours).

According to this assumption, if this occurs for some enterprise j, its income and consequently its value added is raised.

Model for value added adjustment

(small and medium enterprises – up to 99 workers)

- 1) Average mean remuneration per employee by domain
where domain is: economic activity, turnover, legal status, territory, enterprise maturity
- 2) Correction to adjust for working hours
- 3) Enterprise net income
- 4) Net income per self-employed worker
- 5) If self-employed income (step 4) is lower than the average employee income (step 2), then it is replaced by the latter
- 6) Income of the revaluated enterprise
= Self-employed income (step 5) × number of self employed workers
- 7) Value added is raised of an amount equal to revaluation of income

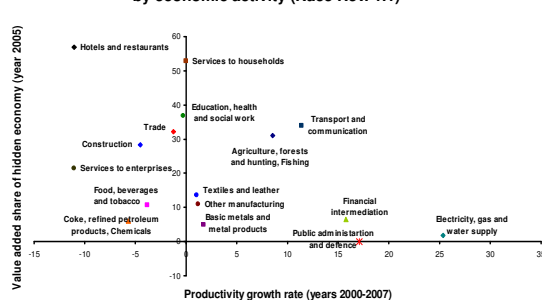
To ensure consistency the components of gross value added (turnover, intermediate consumption and production) are corrected.

Results

Hidden economy by economic activity – year 2005 (Nace Rev. 1.1)

	% on VA
Agriculture, hunting and forestry, Fishing	31,1
Industry	11,7
Food, beverages and tobacco	10,7
Textiles, leather and shoes	13,7
Coke and refined petroleum products, Chemicals	6
Basic metals and fabricated metal products	5
Other manufacturing	11
Electricity, gas and water supply	1,8
Construction	28,4
Services	21,7
Trade	32,1
Hotels and restaurants	56,8
Transport, storage and communication	33,9
Financial intermediation	6,4
Services to enterprises	21,5
Public administration and defence	0
Education, health and social work	36,8
Activities of households	52,9
Total economy (%GDP)	17,8

Value added share of hidden economy and productivity growth rates by economic activity (Nace Rev. 1.1)



Further developments

Attention is focused on the following issues:

- characteristics of the value added adjustment model and its appropriateness in relation to the economic cycle. In periods of recession some enterprises could be erroneously subject to re-evaluation resulting in over-estimation of value added. On the contrary during economic growth the risk is to under-estimate the increase of GDP. Fiscal information will be analysed together with data from SBS in order to solve this problem;
- assessment of Hidden economy at a more detailed level in terms of economic activity, size class and territory;
- account for non-observed economy that is generated by international transactions.

References

- [1] OECD (2002) *Measuring the non-observed economy – Handbook*
- [2] A.Franz (1985) *Basic Model in Estimates of the hidden economy in Austria on the basis official statistics*