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**Compilation of Annual Balance Sheets for Nonfinancial Assets:
Methodological Approach, Main Outcomes and Open Issues in the Italian
Experience**

To be presented in Session 5 by Marco Marini, Economist, Real Sector Division, Statistics
Department, IMF, on behalf of Italian National Institute of Statistics

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TABLE OF CONTENTS

1	INTRODUCTION.....	5
1.1	Compiling annual Balance Sheets by institutional sector: an essential achievement...5	
1.2	Compiling annual Balance Sheets for Non financial assets by institutional sector: EU at present	6
1.3	Compiling annual Balance Sheets for Non financial assets by institutional sector: Italy at present.....	10
2	ESTIMATING DWELLINGS IN THE BALANCE SHEET BY INSTITUTIONAL SECTOR	13
2.1	Definition	13
2.2	Sources and methodology.....	13
2.3	The value of dwellings: comparisons	23
2.4	The value of land underlying dwellings.....	25
2.5	The stock of dwellings by institutional sector.....	26
2.6	The value of dwellings for Financial corporations (S12)	28
3	ESTIMATING NON-RESIDENTIAL BUILDINGS AND OTHER STRUCTURES BY INSTITUTIONAL SECTOR.....	30
3.1	Introduction	30
3.2	The OMI statistics building block.....	31
3.3	The estimation by institutional sector	37
4	ESTIMATING MACHINERY AND EQUIPMENT (AN1113) AND COMPUTER SOFTWARE (AN1122) BY INSTITUTIONAL SECTOR.....	42
5	ESTIMATING LAND (AN211) BY INSTITUTIONAL SECTOR.....	47
5.1	Land underlying buildings and structures (AN2111)	47
5.2	Land under cultivations (AN2112)	47
5.3	The value of land under cultivations (AN2112) by region.	49
5.4	The value of land under cultivations (AN2112) by institutional sector	51

6	ESTIMATING CONSUMER DURABLES.....	53
6.1	The method	53
6.2	The results	55
7	OPEN ISSUES AND FUTURE PLANS	58
7.1	Main open issues.....	58
7.2	Future plans	59

	BALANCE SHEET FOR NON-FINANCIAL ASSETS BY INSTITUIONAL SECTOR, YEARS 2006-2008	60
	REFERENCES.....	62

1 Introduction

1.1 Compiling annual Balance Sheets by institutional sector: an essential achievement

The compilation of Balance sheets (BS) for non financial assets by institutional sector is a substantial improvement to the statistical framework of National Accounts (NA) data: combined with BS for financial assets and liabilities they complete the information on wealth.

The recent economic crisis has shown that not only economic flows are important, but that stocks are just as important. The decline in real estate prices in the United States has, for example, been a major contributor to the economic crisis.

The necessity to better measure progress is clearly determined by the Commission communication GDP & beyond, the recommendations of the Commission on the Measurement of Economic Performance and Social Progress (CMEPSP, Stiglitz - Sen - Fitoussi) and strengthened by the EU-2020 strategy to go out of the crisis and prepare EU economy for the next decade (to be adopted by the European Council in June 2010).

In particular, the Report by the CMEPSP indicates that measures of wealth are fundamental to measuring sustainability: *"(...) Perhaps had there been more awareness of the limitations of standard metrics, like GDP, there would have been less euphoria over economic performance in the years prior to the crisis; metrics which incorporated assessments of sustainability (e.g. increasing indebtedness) would have provided a more cautious view of economic performance. But many countries lack a timely and complete set of wealth accounts – the 'balance sheets' of the economy – that could give a comprehensive picture of assets, debts and liabilities of the main actors in the economy. (...)"*¹; moreover, *"Income and consumption are crucial for assessing living standards, but in the end they can only be gauged in conjunction with information on wealth. A household that spends its wealth on consumption goods increases its current well-being but at the expense of its future well-being. The consequences of such behaviour would be captured in a household's balance sheet, and the same holds for other sectors of the economy, and for the economy as a whole. To construct balance sheets, we need comprehensive accounts of assets and liabilities. Balance sheets for countries are not novel in concept, but their availability is still limited and their construction should be promoted. Measures of wealth are central to measuring sustainability. What is carried over into the future necessarily has to be expressed as stocks – of physical, natural, human and social capital. The right valuation of these stocks plays a crucial role, and is often problematic. There is also a need to "stress test" balance sheets with alternative valuations when market prices for assets are not available or are subject to bubbles and bursts. Some more direct non monetary indicators may*

¹ Stiglitz – Sen – Fitoussi, 2009, pg. 9.

be preferable when the monetary valuation is very uncertain or difficult to derive (Recommendation 3: Consider income and consumption jointly with wealth)².

Since the balance sheet presents the wealth of an institutional sector and of the economy as a whole, it is an essential tool to measure the sustainability too.

In particular, what is crucially important from a policy point of view are the estimates of the wealth of households; to obtain sound estimates of data for Households, however, an exhaustive calculation of the value of non financial assets for all the sectors that compose the national economy should be performed.

Promoting the compilation of BS, by institutional accounts, for financial ("financial accounts") and non financial assets, defining a common methodological framework across countries and harmonizing the available data appears to be a point of utmost importance.

1.2 Compiling annual Balance Sheets for Non financial assets by institutional sector: EU at present

In the EU, financial accounts are currently produced on a regular basis by the most all EU member states (in most cases in the responsibility of the Central Banks) and are transmitted through the current transmission programme of the European System of Accounts Regulation (ESA95) (ESA95 TP).

As to non financial assets, the ESA95 TP currently in force asks for two different measures:

1. Capital stock by industry and by asset (Table 20), with the following breakdown :
 - AN1111 dwellings
 - AN1112 other buildings and structures
 - AN11131 transport equipment
 - AN11132 other machinery and equipment
 - AN1114 cultivated assets
 - AN112 intangible fixed assets.

These data are generally estimated by applying the Perpetual Inventory Method (P.I.M.). Table 20 provides consumption of fixed capital estimates by activity too.

2. Balance sheets for non-financial assets by institutional sector (Table 26), where the breakdown of non financial assets is quite larger and covers not only fixed assets but also Inventories, Valuables, Tangible non-produced assets, mainly Land and Subsoil assets, and Intangible non-produced assets.

Capital stock data as estimated in Table 20 are a starting point to evaluate the non financial wealth of institutional sectors.

²Stiglitz – Sen – Fitoussi, 2009, pg. 13.

Table 26 allows a complete representation of the structure of non financial wealth of the country and of the relative weight of institutional sectors, providing a useful tool to policy makers to check economic soundness and to assess sustainability.

As a follow-up to the report by the CMEPSP, a Sponsorship Group on "Measuring progress, wellbeing and sustainable development" has been created by Eurostat and the statistical office of France (INSEE), to analyze and promote multidimensional measurement of sustainable development, to agree on the level of ambition in the implementation of various recommendations and to propose a strategy to prioritise these recommendations and actions within the European Statistical System (ESS).

Four taskforces have been set-up by the Sponsorship group to tackle the different dimensions of sustainable development. In particular, the TF on "Households perspective" (TF-HP) is committed to study economic welfare from the households' perspective, including the distributional aspects of income, consumption and wealth. One major task of the TF-HP is fostering the compilation of the balance sheets accounts of households (medium term). Leader of this particular issue is Italy.

The Task Forces are expected to offer priorities, sources and legislative proposals for consideration by member States of the European Union and guidance on how to reorganize production of statistics.

The next meeting of the plenary Sponsorship Group is planned for the second half of 2011, after the delivery of the reports by the Task Forces. A final report of the Group is expected in the second half of 2011.

When the TF-HP was set up, the knowledge of the work already done by EU countries and their future plans of improvements did not prove to be satisfactory. For this reason, in September 2010, a questionnaire was circulated to the TF-HP members, to ask detailed information about data availability, present dissemination policy and future plans.

Six countries (Austria, Denmark, France, Germany, Italy, The Netherlands) and ECB have provided a response to the questionnaire.

The outcomes of the questionnaire showed that statistical data on non financial assets in European countries seem to be still widely incomplete and pointed out that there is a strong need to harmonize the available data.

The main outcomes of the questionnaire are³:

- All the respondent countries produce some data on non-financial assets by sector, even if in some cases information is limited to some main variables for some sectors. FR and NL compile the whole system of accounts from the opening to the closing BS, DK produces

³ Istat, TF-Hp draft final report fostering the compilation of Balance sheets accounts of Households, February 2011.

all the accounts only for Fixed assets. As for the Euro area, ECB produces experimental estimates, annual and quarterly, for selected non-financial assets for the euro area and for total assets by sector. Estimates on other changes in volume and revaluation of non-financial assets are not available. Separate estimates of non-financial assets for NPISHs exist in FR, DK and NL and, partly, in DE.

- Quite a relevant question proves to be the one concerning the delineation of the Households sector. The crucial point is the kind of market producers classified in the sector.
- As to data availability, it proves to be maximum for Dwellings, Other buildings and structures, Machinery and equipment and Computer Software. Intangible fixed assets are available for DE (only the total), NL, DK, FR (except Other intangible fixed assets), AT and IT only compile stock of Computer software. Inventories are only available in FR and NL. Valuables only in FR. Total Land is only compiled by FR; an estimation of Land underlying buildings and other structures and of Land under cultivation exists in FR, IT, and NL; DE only produces Land underlying buildings and other structures; the value of Land underlying buildings and other structures is not valued in DK (perhaps included in the value of Dwellings). Subsoil assets only exist in FR and NL, Intangible non-produced assets only in FR. Annex 1 reports the availability of data on non-financial assets by institutional sector and the methodology used by each respondent country for each kind of asset (source: Istat, TF-Hp draft final report fostering the compilation of Balance sheets accounts of Households, February 2011).
- As to estimation methodology, generally the use of PIM proves to be quite widespread and mainly concentrated in Non residential buildings and other structures, Machinery and equipment and Computer Software, while direct estimation prevails for Land; in the case of Dwellings DK, IT and DE (both partially) use a direct method, while AT, FR and NL use PIM.
- Some countries publish the data on non-financial asset they produce (DE, FR, NL, DK), other countries are planning to publish them (IT, ECB).

Annex 1 - Summary of the answers to question B .1

	AT	DE	DK	F	IT	NL		AT	DE	DK	F	IT	NL	
AN.1 Produced Assets							S1	P	D	D	P		P/D	AN.1114 Cultivate Assets
							S11		O	D	P		P/D	
							S12		-	D	P		P/D	
							S13			D	P		P/D	
							S1M	P	O	D	P		P/D	
AN.11 Fixed Assets	P			P			S1		P		P		P	AN.112 Intangible Fixed Assets
				P			S11		P		P		P	
	P			P			S12		P		P		P	
	P			P			S13		P		P		P	
				P			S1M		P		P		P	
AN.111 Tangible Fixed Assets	P			P			S1			P	D		P	AN.1121 Mineral exploration
				P			S11			P	D		P	
	P			P			S12			P	D		P	
	P			P			S13			P	D		P	
				P			S1M			P	D		P	
AN.1111 Dwellings	P	P	D	P	P	P	S1	P		P	P	P	P	AN.1122 Computer Software
	P/D	D	P	D	P	P	S11			P	P	P	P	
	P/D	D	P	D	P	P	S12	P		P	P	P	P	
	P	P/D	D	P	P	P	S13	P		P	P	P	P	
	P	P/D	D	P	D	P	S1M			P	P	P	P	
AN.1112 Other Buildings and structures	P	P		P	P	P	S1	P		P	P		P	AN.1123 Entertainment literary or artistic originals
		P		P	D	P	S11	P		P	P		P	
	P	P		P	D	P	S12			P	P		P	
	P	P		P	P	P	S13			P	P		P	
		P		P	D	P	S1M			P	P		P	
AN.11121 Non residential buildings			P/D	P		P	S1			D			P	AN.1129 Other intangible fixed assets
			P/D	P		P	S11			D			P	
			P/D	P		P	S12			D			P	
	P	P/D	P		P	P	S13			D			P	
			P/D	P		P	S1M			D			P	
AN.11122 Other structures			P	P		P	S1				D		D	AN.12 Inventories
			P	P		P	S11				D		D	
			P	P		P	S12				D		D	
			P	P		P	S13				D		D	
			P	P		P	S1M				D		D	
AN.1113 Machinery and equipment	P	P	P/D	P	P	P	S1				D			AN.13 Valuables
	P	P	P/D	P	P	P	S11				D			
	P	P	P/D	P	P	P	S12				D			
	P	P	P/D	P	P	P	S13				D			
	P	P	P/D	P	P	P	S1M				D			
	AT	DE	DK	F	IT	NL		AT	DE	DK	F	IT	NL	

Label: P = PIM D = Direct estimation O = Other method

	AT	DE	DK	F	IT	NL		AT	DE	DK	F	IT	NL	
AN.2 Non produced Assets				D			S1			O(*)	D		D	AN.212 Subsoil assets
				D			S11				D		D	
				D			S12				D		D	
				D			S13				D		D	
				D			S1M				D		D	
AN.21 Tangible non-produced assets				D			S1							AN.213+AN.214 Non-cultivated biological and water resources
				D			S11							
				D			S12							
				D			S13							
				D			S1M							
AN.211 Land				D		D	S1				D			AN.22 Intangible non-produced assets
				D		D	S11				D			
				D		D	S12				D			
				D		D	S13				D			
				D		D	S1M				D			
Land underlying buildings and structures		O		D	P/D	D	S1							
		O		D	P/D	D	S11							
		O		D	P/D	D	S12							
		O		D	P/D	D	S13							
		O		D	P/D	D	S1M							
Land under cultivation				D	D	D	S1							
				D	D	D	S11							
				D	D	D	S12							
				D	D	D	S13							
				D	D	D	S1M							
Other land				D			S1							
				D			S11							
				D			S12							
				D			S13							
				D			S1M							
	AT	DE	DK	F	IT	NL								

(*) Refer to the value of oil and gas fields. The compilation method is the present value of the expected future net income streams from the fields

Label: P = PIM D = Direct estimation O = Other method

To step forward in enhancing the estimation of non financial assets for all the institutional sectors, a more detailed questionnaire concerning BS compilation has been presented in December 2010 at the last Taskforce on Quarterly Sector Accounts (TF QSA), co-chaired by Eurostat and ECB, that is the specific forum where methodological issues concerning sector accounts are treated.

The questionnaire has been circulated through the members of the TF QSA to the national experts in BS of the participating countries. It has to be compiled and sent back before the 11 March 2011. Outcomes will be discussed in June 2011 meeting.

The structure of the questionnaire is the following:

- Section A is devoted to the general aspects concerning current production, sector classification and organizational aspects;
- Section B asks information on data availability, specifying whether PIM or direct estimations are used;
- Section C concerns methodological issues.

In particular Section C.1 focuses estimates obtained by applying P.I.M. approach; in this respect the length, in number of years, of time series available for GFCF by institutional sector is a point of major importance.

Section C2 and C3 are, respectively, devoted to the estimates of the stock of Dwellings and of Other buildings and structures in case P.I.M. is not applied. The main methodological topics are investigated: prices, value of underlying land, demolitions...

Section C4 concentrates on Land.

Section D asks information on Work in progress and future plans.

This questionnaire will allow to share country practices in compiling BS, to underline the main problems faced (as to methodology, definitions, data availability...), in order to enhance the consistency and the comparability within European Statistical System (ESS).

1.3 Compiling annual Balance Sheets for Non financial assets by institutional sector: Italy at present

In 2007, thanks to an Eurostat grant, Istat Directorate of National Accounts started a project aimed at producing a first draft estimate of Balance sheets by institutional sector for the main non-financial assets.

To date, draft estimates by institutional sector have been produced for:

- Dwellings (AN.1111), years 1995-2008,
- Non residential buildings and other structures (AN.1112), years 2005-2008,
- Machinery and equipment (AN.1113), years 2005-2008,
- Computer software (AN.1122), years 2005-2008,
- Land underlying buildings and structures (AN.2111), years 2005-2008,

- Land under cultivation (AN.2112), years 2005-2006,

An estimate for Consumer durables (AN.m) is also available, years 2005-2006.

Despite the first transmission of BS to Eurostat was set by 2007, years 1995-2005 (ESA95 TP)⁴, Italy obtained a derogation and the first draft estimates of the stock of Dwellings by institutional sector were transmitted to Eurostat in December 2010 (years 1995-2008). This stock was arranged by applying P.I.M.

The work is not completed yet, as the methodological discussion has raised a number of issues which are still unsolved.

An overview of the performed activity, of the main open issues and of the obtained results is provided below. As to buildings, land underlying buildings, machinery and equipment and computer software, draft results for years 2006, 2007 and 2008 are presented while, as to land under cultivation and consumer durables, the estimates are limited to 2005 and 2006.

Chapters 2 and 3 are about buildings and underlying land: to comply with the present requirements of SNA93 and ESA95, for each institutional sector the value of Land underlying buildings should be isolated and registered in the item Land. This representation - that distinguishes between produced and non produced assets - looks quite functional to economic analysis.

Since the time series of Gross Fixed Capital Formation (GFCF) by institutional sector currently available are too short to apply P.I.M. we resorted to alternative procedures, mainly based on administrative data, which allow both to:

- estimating the total value of the stock of buildings (both residential and non-residential) by institutional sector, including underlying land;
- obtaining a separate estimation of the underlying land (the value of underlying land cannot be achieved by applying the P.I.M.: land is a tangible non-produced assets, so it is not a type of gross fixed capital formation, ESA95, 3.105).

Two different procedures have been chosen for Dwellings and for Non-residential buildings and Other structures. In order to apply these procedures, the available sources were subjected to a careful qualitative analysis, to identify the best one; an important agreement with the Osservatorio sul Mercato Immobiliare (Observatory of the Real Estate Market, OMI), a General Direction inside the Ministry of Finance, has been drawn to receive cadastral data and information on the market prices of buildings; trade associations (like ANCE, ABI, ANIA, CRESME etc.) have been contacted in order to verify the possibility of obtaining relevant information; Census data have been processed; the consistencies with the other relevant National Accounts data (GFCF, capital stock...) have been explored and verified.

As, to date, an estimation of the stock of Dwellings and Non residential buildings and other structures for the total economy is already performed by means of the P.I.M., the results of the

⁴ The only compulsory item is Dwellings.

work described hereafter have basically been used to attribute such stock to institutional sectors and to provide an estimate of the value of the underlying land. Nevertheless this work opens the floor to improve the estimation of the total fixed capital stock, in the future.

Chapter 4 describes the use of the Perpetual Inventory Method (P.I.M.) to estimate Machinery and equipment (AN1113) and Computer software.

As to Land (AN211), an estimation of Land underlying buildings and structures (AN2111) has been obtained as a by-product of the estimation of AN1111 and AN1112; chapter 5 provides details on the procedures used to estimate the value of Land under cultivation (AN2112), calculated by a quantity x price method, utilizing the agricultural surface by kind of crop (source "Census of agricultural holdings, year 2000" and "Structure and productions of the agricultural enterprises", 2003-2005, Istat) and the market prices of the regional surface provided by INEA (National Institute of Agricultural Economics).

Chapter 6 reports the results of the estimate of Consumer durables.

Finally, the main open issues and future plans are presented in chapter 7.

2 Estimating dwellings in the Balance Sheet by institutional sector

2.1 Definition

Dwellings (AN.1111) are “buildings that are used entirely or primarily as residences, including any associated structures, such as garages, and all permanent fixtures customarily installed in residences. Houseboats, barges, mobile homes and caravans used as principal residences of households are also included, as are historic monuments identified primarily as dwellings. Costs of site clearance and preparation are also included (ESA95, annex 7.1)”.

In Italy Dwellings represent the main item of the institutional sectors' stock of non-financial assets. Most dwellings are held by households. In order to analyze production and consumption functions separately, in Italian National accounts, S14 is split into two sub-sectors: Households (HH) as consumers (CH), whose main function consists in consumption and production of goods and services for own final use, and HH as producers (PH)⁵, where all the market activities of the sector are represented. **Since the production of housing services by owner-occupiers is considered in the system as own account production (ESA95, 7.15), all the dwellings held by HH for residential purposes are assigned to Consumer households, while those held by HH for rent purposes are attributed to Producer Households.**

Thus, in our scheme, residential buildings are to be divided between:

- a) Dwellings occupied by the owners (Consumer households);
- b) Dwellings for investment purposes held by Financial corporations, Non-financial corporations, Households, General Government, Non-profit Institutions Serving Households (NPISHs).

2.2 Sources and methodology

In Italy the stock of Dwellings and Other buildings and structures for the total economy (S1) is calculated and published by NA Directorate every year. Such a stock is obtained by applying the Perpetual Inventory Method (P.I.M.), under the hypothesis of constant average service life, normal distribution of retirements and linear consumption of fixed capital.

These series are calculated at replacement cost (the whole Gross Fixed Capital Formation series, GFCF⁶, on which the calculation is based, is computed at the prices of each year for which the stock of capital has to be valued). The price used is the purchasers' price of Gross Fixed Capital Formation, as defined in SUT system. As a consequence **the price (and the value of**

⁵ In Italian National Accounts only unincorporated enterprises other than partnerships (own account workers; sole proprietorships, “società semplici” and “società di fatto”) with up to 5 employees and all Financial auxiliaries with no employees are classified in Household sector (Producer households, PH).

⁶ Istat - “Gross fixed capital formation by owner industry, fixed capital stock and Consumption of fixed capital, years 1970-2009”, on www.istat.it.

the stock) does not include the net nominal holding gains accruing during the accounting period.

The series are calculated at chain-linked prices (reference year 2000), too.

The stock of dwellings does not include the value of underlying land, either.

Dwellings by institutional sector could be estimated by applying the P.I.M. too. At the moment, though, the time series of GFCF in dwellings by sector are far too short⁷ to allow the use of such a model.

As a consequence, it was decided to apply a direct estimation methodology, that is the valorisation of the sectors' residential stock as the product of three components:

- number of dwellings;
- average surface of the dwellings;
- average price per square meter.

Stock of Dwellings = NUMBER of dwellings x AVERAGE SURFACE x PRICE per m2 (2.1)

The available sources were subjected to a careful qualitative analysis, for each component of (2.1), to identify the best one from a statistical point of view (in terms of accuracy, timeliness, accessibility, transparency and comparability). Hereinafter the three components are analysed separately.

Number of dwellings

The 14th Population and Dwellings Census (CP)⁸ provides information on occupied and non-occupied dwellings (number and structural characteristics) on 21 October 2001 (Table 2.1).

Table 2.1 : Occupied and non-occupied dwellings. Italy. Year 2001.

	Occupied			Non-occupied	Total
	By at least one resident person	Only by non-resident persons	Total		
Dwellings	21,653,288	314,228	21,967,516	5,324,477	27,291,993

Source: 14th Population and Dwellings Census.

The number of dwellings in Italy is also registered in cadastral data, managed by the Osservatorio del Mercato Immobiliare (Observatory of the Real Estate Market) (OMI)⁹, an Agency of the Ministry of Finance active since January 1 2001.

⁷ The service life of dwellings goes from a minimum of 51.35 years to a maximum of 106.65, with an average life of 79 years.

⁸ Istat – "14th Population and Dwellings Census", on www.istat.it

Despite the definitions are coherent ¹⁰, a comparison between OMI and CP data for the year 2001 shows that OMI data are higher about 5% than CP data. This is mainly due to two reasons: cadastral data also include houses in ruins, that is decaying constructions that are no longer used for housing purposes; more, in cadastral data dwellings include many constructions that are not used for residential purposes but for productive ones (such as private offices and studies): in some cases legal derogations allow registering offices as residences; moreover, dwellings owners often register non residential buildings as residential ones to avoid higher taxation (the tax on buildings - ICI - has a lower tax rate for dwellings than for offices).

On the other hand, OMI data do not include unauthorised buildings.

Hence, the number of dwellings in year t has been estimated starting from data provided by 2001 CP; this number has been updated, for each year, by adding the number of new constructions. In notation:

$$NDW_t = NDW_{t_0} + \sum_{i=t_0}^t NC_i \quad (2.2)$$

where:

NDW_t = number of dwellings at time t

NDW_{t_0} =number of dwellings as resulting in 2001 CP

NC_t = number of new constructions in year t

Three different sources for the number of new dwellings built in a given year are available:

1. Istat' s monthly "Survey on Construction Permits"; this survey does not provide the number of new dwellings but it just gives information on the number of construction permits issued by municipalities for new constructions, both residential and non residential, and for any extension of pre-existing structures;

⁹ The origin of the Observatory goes all the way back to 1993 when the ex-Department of Territory founded the Observatory of the Real Estate Values to manage a databank relative to the values of the real estate market in Italy. A special General Direction was then established when the Territorial Agency was created; the name of the Observatory subsequently changed into Observatory of the Real Estate Market. The changes through did not regard only the name but also its mission and object of observation. The objective is to transform the OMI from internal auxiliary (and self-defence) instrument for the estimation activity to an important external instrument that helps make transparent the real estate market through the knowledge, study and publishing of the information on the fluctuation range in the market price, price and volume trends, characteristics of demand and offer, main variables of the real estate market (of local real estate markets). For more information, see OMI Database Handbook, version 1.2 of October 31, 2006, Territorial Agency – Central Direction Observatory of the Real Estate Market.

¹⁰ According to Census definition, a dwelling is a house with one or more rooms that: 1. is fit for being a permanent residence for one or more persons (even when a part of it is used as office); 2. has at least one independent external entry (street, courtyard etc), that does not involve passing through other houses or common areas (landings, balconies, terraces, etc); 3. is separated from other housing units by walls and is part of a structure.

According to OMI definition, a dwelling is an urban building unit that includes one or more rooms that 1. is fit for being a permanent residence for one or more persons, 2. has at least one independent external entry (street, courtyard etc) or common areas (landings, balconies, terraces, etc), 3. is separated from other housing units

2. data collected by CRESME (Centre for Social and Economic Research on Construction and Territory). Data include dwellings completed during the reference year, whether in a new residential building or in the extension of a pre-existing building or in a new non-residential building.
3. data collected by OMI. New constructions are registered to the cadastral office by the owners through an apposite model (Docfa) within 30 days from the moment in which they became inhabitable or useable for residential purposes¹¹. OMI data are available only for the years 2005, 2006 and 2007.

As CRESME data on new dwellings cover all the period we are interested in, they have been used, at least in this first draft, to update the number of dwellings from 2001 on. Moreover, CRESME data also include an estimation of unauthorised constructions, thereby providing a complete picture of the number of new dwellings.

The number of new constructions according to OMI is higher than the one of CRESME (net of unauthorised buildings), except for the last available year, when the difference between the two estimates decreases.

Table 2.2 : New authorised dwellings, CRESME and OMI. Italy. Years 2001 – 2007.

	2001	2002	2003	2004	2005	2006	2007
CRESME (net of unauthorised buildings)	200,463	217,677	222,807	245,815	269,799	303,173	310,200
OMI ¹²	220,777	241,221	244,229	269,742	296,201	317,391	309,379
CRESME-OMI	-20,314	-23,544	-21,422	-23,927	-26,402	-14,218	821
CRESME/OMI	0.91	0.90	0.91	0.91	0.91	0.96	1.00

Source: OMI; CRESME.

Further analyses are needed to understand the differences between CRESME and OMI data.

The number of dwellings for each year should be adjusted for the number of demolitions. At present no information on the number of demolished dwellings in a given year is available. Only the value of demolitions is currently estimated in the framework of the definition of the output of Constructions in NA. No information can be even provided by OMI and CRESME.

However, as building demolitions represent a marginal phenomenon, its quantification can be neglected at the moment, until relevant data will be made available.

In Table 2.3 the number of dwellings estimated for the period 2001-2008 is provided.

¹¹ Law nr 80 of 09/03/2006 in force since 12/03/2006. Before the deadline was as the "31 January of the next year from the moment in which they became inhabitable or useable for residential purposes".

¹² OMI data do not include Trentino Alto Adige.

Table 2.3: Number of dwellings by region. Italy. Years 2001 - 2008.

Regions	2001	2002	2003	2004	2005	2006	2007	2008
Piemonte	2,214,164	2,228,814	2,243,066	2,258,767	2,276,534	2,293,943	2,312,542	2,331,174
Valle d'Aosta	100,540	100,914	101,136	101,650	102,235	102,930	103,574	104,372
Lombardia	4,143,870	4,188,796	4,237,059	4,289,965	4,349,080	4,413,585	4,479,281	4,541,384
Trentino Alto Adige	490,243	496,278	503,049	507,524	511,322	515,892	520,990	525,115
Veneto	2,017,576	2,048,424	2,084,087	2,090,909	2,097,469	2,106,566	2,115,895	2,123,330
Friuli Venezia Giulia	601,772	608,346	614,576	651,859	690,268	733,233	772,867	807,914
Liguria	991,029	993,612	996,684	1,004,160	1,012,730	1,021,259	1,029,685	1,037,319
Emilia Romagna	1,970,977	1,996,318	2,021,413	2,052,288	2,084,071	2,119,322	2,155,310	2,185,414
Toscana	1,667,100	1,679,533	1,691,892	1,704,923	1,721,158	1,737,692	1,757,254	1,773,033
Umbria	369,290	372,698	375,700	378,583	382,571	386,168	391,344	397,006
Marche	672,785	679,550	686,496	695,235	704,872	714,545	723,913	732,160
Lazio	2,433,815	2,451,523	2,468,187	2,485,062	2,503,819	2,530,526	2,556,669	2,585,229
Abruzzo	658,931	664,800	672,601	680,564	691,242	700,759	710,963	720,957
Molise	173,279	174,692	176,411	177,667	179,776	181,881	184,668	186,401
Campania	2,193,435	2,207,251	2,223,370	2,240,502	2,256,442	2,275,307	2,293,038	2,308,700
Puglia	1,845,622	1,860,644	1,875,130	1,891,649	1,908,401	1,928,007	1,948,371	1,965,978
Basilicata	284,467	286,748	288,739	290,802	292,933	295,255	296,980	300,291
Calabria	1,111,680	1,119,866	1,128,335	1,137,586	1,147,493	1,157,951	1,168,862	1,180,385
Sicilia	2,549,269	2,563,942	2,577,020	2,591,992	2,609,024	2,626,023	2,643,728	2,661,145
Sardegna	802,149	811,921	821,526	832,605	844,648	858,404	871,516	886,743
Italy	27,291,993	27,534,670	27,786,477	28,064,292	28,366,088	28,699,248	29,037,450	29,354,050

Source: Our elaborations; 14th Population and Dwelling Census; CRESME.

Table 2.4 provides a comparison between the estimated number of dwellings resulting from the methodology described above and the ones provided by OMI and CRESME for 2008.

Table 2.4: Number of dwellings. Italy. Year 2008.

Source	2008
Number of dwellings (see table 2.3)(A)	29,354,050
OMI ¹³ (B)	31,997,846
CRESME (C)	29,320,800
A-B	-2,643,796
A-C	33,250
C-B	-2,677,046
A/B	0.92
A/C	1.00
C/B	0.92

Source: Our elaborations; 14th Populations and Dwellings Census; OMI; CRESME.

¹³ OMI data do not include Trentino Alto Adige.

Even if CRESME data on new constructions also include unauthorised buildings, the number of OMI dwellings in 2008 is still much higher than A, probably because it includes units that are not used for residential purposes but for productive ones (see above).

Average surface of dwellings

In the CP questionnaire, respondents were asked to indicate the house's internal surface (in square meters, m²), that is the floor surface net of walls and excluding accessory areas. Hence, the CP does not include the external parts of the house (balconies, terraces...) and the incidence of the perimeter walls in the total surface, while both these components are quite relevant in defining the total market price of every real estate unit.

Table 2.5: Average surface (sqm) for non-occupied and occupied dwellings. Italy. Year 2001.

Dwellings	Average surface (m2)
Dwellings not occupied	75.97
Dwellings occupied	96.03
Total dwellings	91.88

Source: 14th Population and Dwellings Census.

As a consequence, to estimate the total gross average surface of dwellings, data provided by OMI were used. Such values are obtained by adding:

1. the surface of the rooms, including the share of surfaces occupied by the internal and outside walls;
2. the homogenised surface of the accessory areas exclusively used as:
 - Decoration (terraces, balconies, patios and gardens);
 - Service (basements, covered car places, garages, etc)¹⁴.

Data are available both on a national and regional basis (except for Trentino Alto Adige); the average gross surface of dwellings in Trentino Alto Adige for 2008 has been provided by the Statistical Office of Trento, the one for 2006 and 2007 has been estimated¹⁵.

¹⁴ PD 138/1998 annex C – Technical norms for determining the cadastral surface of the residential units for ordinary use. The surface of the main rooms and direct additional ones is determined measuring the surface gross of the internal and external walls. The latter, which are calculated in their entirety, are to be considered up to a thickness of 50 cm, while walls in common are calculated to a maximum of 50% and thus up to a thickness of maximum 25 cm.

The accessory areas, both for decoration and service, are measured in terms of homogeneous surfaces; the size calculated is a fixed percentage of their total surface.

¹⁵ To estimate the value for the year t , the ratio between the available value of Trentino Alto Adige average surface for 2008 and the national average surface net of Trentino Alto Adige provided by OMI for 2008 has been applied to the national average surface net of Trentino Alto Adige provided by OMI for t .

Table 2.6a: Average surface (m2) by region. Italy. Years 2006 - 2008.

Regions	2006	2007	2008
Piemonte	112.86	114.04	115.29
Valle d'Aosta	92.83	92.85	93.00
Lombardia	109.83	108.78	109.31
Trentino Alto Adige	106.99	107.39	108.00
Veneto	129.20	128.65	129.38
Friuli Venezia Giulia	129.13	129.43	129.99
Liguria	94.33	95.15	95.49
Emilia Romagna	114.96	115.25	115.60
Toscana	117.99	118.25	118.81
Umbria	128.29	130.56	131.39
Marche	125.84	126.01	126.11
Lazio	109.12	109.98	110.33
Abruzzo	115.96	117.23	117.86
Molise	112.44	113.14	113.92
Campania	115.54	116.13	116.96
Puglia	109.27	110.20	110.72
Basilicata	100.08	101.51	102.38
Calabria	105.92	106.80	107.46
Sicilia	108.34	109.36	110.07
Sardegna	121.18	122.61	123.94
ITALY	113.31	113.74	114.39

Source: OMI.

Table 2.6b: Total surface (m2) by region. Italy. Years 2006 - 2008.

Regions	2006	2007	2008
Piemonte	258,899,003.23	263,732,830.38	268,752,058.90
Valle d'Aosta	9,554,852.50	9,617,051.85	9,706,257.07
Lombardia	484,723,655.22	487,268,662.28	496,402,748.68
Trentino Alto Adige	55,195,315.60	55,947,658.34	56,712,420.00
Veneto	272,178,228.61	272,209,624.49	274,707,584.55
Friuli Venezia Giulia	94,685,492.75	100,029,673.77	105,017,400.00
Liguria	96,334,666.03	97,973,810.51	99,057,250.70
Emilia Romagna	243,636,794.33	248,390,344.02	252,633,084.37
Toscana	205,022,307.20	207,787,673.35	210,657,439.07
Umbria	49,540,020.32	51,094,962.37	52,164,599.87
Marche	89,917,129.58	91,223,205.04	92,331,084.05
Lazio	276,129,520.40	281,172,202.54	285,223,635.31
Abruzzo	81,260,416.35	83,348,612.18	84,968,610.08
Molise	20,451,161.09	20,894,018.47	21,234,078.51
Campania	262,887,960.30	266,297,347.70	270,034,801.08
Puglia	210,675,530.60	214,713,467.43	217,677,177.38
Basilicata	29,549,614.31	30,144,988.50	30,742,579.45
Calabria	122,646,420.99	124,830,382.48	126,848,118.90

Sicilia	284,498,996.77	289,129,922.60	292,904,966.42
Sardegna	104,023,817.20	106,854,223.81	109,902,474.29
ITALY	3,251,810,903.40	3,302,660,662.10	3,357,678,368.67

Source: Our elaborations; 14th Population and Dwellings Census; CRESME; OMI.

Price of dwellings

Like all the other items in the balance sheet, dwellings should be valued as if they were being acquired on the date to which the balance sheet relates, any associated costs of ownership transfer included (ESA95 7.25). Dwellings must be valued at market prices (ESA 7.33).

The value of the land underlying dwellings (which makes up a different category of asset, namely AN.2111) must be excluded, while any profit margin has to be included.

At the moment, Istat does not estimate the market price of the residential and non-residential constructions, itself.

Currently, in NA practice, to valorise the output of Constructions in a given year, a "quantity x price" technique is essentially used. The average cost per square meter had been estimated in 1982 on the basis of the values provided by the Istituti Autonomi Case Popolari (Social Housing Institutes); it includes the profit margin but not the cost of the land underlying dwellings, thereby allowing to estimate the housing stock consistently with the NA definitions. A consulting with sector experts proved that such a price was in line with prevailing market prices. This value has then been updated by the dynamics of the cost of construction of a residential building¹⁶: it measures the variations in costs directly attributable to the work's realisation cost. Hence, it does not include the cost of the land, planning, transfer costs, profit margins and net nominal holding gains.

While, on the one hand, this methodology has made it possible to exclude the changes in prices due to the cost of land, on the other hand, it doesn't take into account the whole production costs of a dwelling (e.g. promotional and commercial charges are excluded), the variations in the profit margin¹⁷ and all nominal holding gains/losses.

As a consequence, this price does not fully represent the performances of the dwellings market prices (which, in the recent expansion phase of the real estate cycle, have mainly risen increasing the company profit).

Moreover, the average cost per m², estimated and updated in this way, is also used to deflate GFCF in dwellings. It thus represents the implicit price for valorising the housing stock estimated by the National Accounts through the Perpetual Inventory Method.

Information on market prices of dwellings is available from other sources: OMI, Consulente Immobiliare, Bank of Italy, CRESME.

¹⁶ Istat - "Index of cost of construction of a residential building", on www.istat.it.

¹⁷ Mantegazza S., La produzione delle costruzioni secondo le definizioni del SEC95, mimeo Istat.

OMI provides an average price per m² by region (except for Trentino Alto Adige) that is a market unit value that represents the purchase price of a building in the relevant period. It is calculated per cadastral micro-areas in which the Italian municipalities are divided¹⁸.

Prices are estimated by matching a number of sources, namely:

- the real estate agents which provide data on the market prices;
- the price registered in the dwellings purchase contracts stipulated during the year. Such a price is reliable, as it has no relevance for the direct taxation¹⁹;
- valuations on prices made by OMI technicians.

This price includes:

- the cost of construction,
- the profit margin,
- the value of the land underlying dwellings,
- net nominal holding gains.

Data on prices of dwellings are also elaborated and disseminated by the Consulente Immobiliare (CI), an economic newspaper published by "Il Sole 24 Ore Media Group".

CI prices are estimated on a sample basis as the average quotations per m² provided by real estate agents for the sales of dwellings in more than 1.200 municipalities, in a wide detail (centre, semi-centre, suburbs).

The Bank of Italy²⁰ has elaborated a methodology for estimating the prices of the households' dwellings, based on the information provided by OMI and CI, too.

Finally, the time series of prices published by CRESME is based on the analysis carried out on about 10.000 sales offers in large cities and other particularly significant markets that are then integrated with purchase simulations to determine the effective price and the possibility of negotiating for dwellings that are effectively on sales.²¹

¹⁸ The OMI quotations are the average of the 1st and 2nd semester values in year t. For more information (as to methodology to estimate quotations, their potentials and limits), see OMI Handbook, available on the Territorial Agency's website (www.agenziaterritorio.it).

¹⁹ The Financial Law for 2006 (Law 23 December 2005, nr 266) had a very positive impact on the correctness of the information held in the purchase acts: since January 1, 2006, the registration duty, due for each dwelling purchased, has to be calculated on the cadastral value of an asset, not on the actual value of the transaction any more. As a consequence there is no more any advantage in registering in the purchase contract a value of the dwelling lower than the one actually paid.

²⁰ Cannari L., Faiella I., House prices and housing wealth in Italy, Bank of Italy 2007.

²¹ CRESME, Real estate market 2008, XV Cyclical report, October 2007.

We decided to resort to OMI series of prices, that is the market values of the dwellings that well represent the market's overall performance. OMI data provide information on the price of dwellings for each Italian municipality, and represent an official and independent survey on the real estate quotations in Italy. Legislative Decree of 30 July 1999, nr 300, establishes in comma 3, art. 64, that one of the objectives of the Real Estate Market Observatory (OMI) is to help to make transparent the real estate market and to provide information to the Territorial Agency activities in its estimation process. On the one hand, it involves managing a database of real estate values that provides an independent survey on the whole national territory quotations on the real estate values and rents. On the other hand, it requires to valorise the administration's database for statistical purposes and for understanding the real estate market, and, more generally, to realise analyses and studies.

OMI prices are also used to construct the House Price Index in Italy. The construction of this index is the aim of a European Community pilot project, that consists in including in the inflation measurement, or in the Harmonised Consumption Price Index (HICP), the trend of prices of dwellings - purchased by households from all the other institutional sectors and occupied by the owners – considering them in the same way as consumer durables²².

The unit average price in Trentino Alto Adige has been estimated on the basis of information provided by the Statistical Office of Trento for 2008.

Table 2.7: Average price per m2, by region. Italy. Year 2006 - 2008. Euros.

Regions	2006	2007	2008
Piemonte	1,194	1,257	1,305
Valle d'Aosta	2,062	2,181	2,231
Lombardia	1,524	1,561	1,574
Trentino Alto Adige	1,673	1,673	1,673
Veneto	1,385	1,419	1,427
Friuli Venezia Giulia	1,072	1,158	1,169
Liguria	2,510	2,667	2,748
Emilia Romagna	1,676	1,734	1,749
Toscana	2,054	2,150	2,193
Umbria	1,116	1,151	1,176
Marche	1,350	1,407	1,436
Lazio	2,285	2,529	2,619
Abruzzo	979	1,023	1,059
Molise	759	764	775
Campania	1,502	1,636	1,714
Puglia	979	1,064	1,089
Basilicata	714	757	802
Calabria	639	685	732
Sicilia	908	962	997
Sardegna	1,016	1,122	1,208

²² For more information, see Monducci R., Moscufo M., Il progetto comunitario per la costruzione di indici dei prezzi delle abitazioni in Italia e in Europa, Roma, 26 September 2007.

Italy	1438.2	1519.3	1557.4
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Source: OMI.

2.3 The value of dwellings: comparisons

The stock of dwellings is thus estimated for every year through the identity (2.1) as the product of three components:

- CP number of dwellings updated with the number of new residential buildings provided by CRESME,
- OMI dwellings average surface (including an estimate for Trentino Alto Adige),
- OMI average price per square meter (including an estimate for Trentino Alto Adige).

Table 2.8: Value of the Stock of Dwellings, by region. Italy. Year 2006 - 2008. Thousands of Euros.

Regions	2006	2007	2008
Piemonte	309,000,032	331,481,464	350,641,776
Valle d'Aosta	19,702,626	20,977,678	21,658,735
Lombardia	738,830,813	760,511,295	781,368,005
Trentino Alto Adige	92,341,763	93,600,432	94,879,879
Veneto	376,985,778	386,190,292	392,089,365
Friuli Venezia Giulia	101,470,184	115,868,247	122,788,487
Liguria	241,796,736	261,324,026	272,222,269
Emilia Romagna	408,226,860	430,788,558	441,756,884
Toscana	421,068,308	446,699,106	461,906,131
Umbria	55,292,850	58,788,508	61,369,661
Marche	121,349,669	128,382,314	132,587,420
Lazio	630,848,829	711,209,522	747,042,226
Abruzzo	79,567,653	85,292,640	89,997,631
Molise	15,513,041	15,961,665	16,453,845
Campania	394,962,224	435,756,184	462,903,059
Puglia	206,173,652	228,366,499	237,089,896
Basilicata	21,099,434	22,814,410	24,661,736
Calabria	78,319,511	85,489,767	92,916,169
Sicilia	258,438,744	278,157,999	292,046,680
Sardegna	105,718,851	119,929,320	132,791,157
Italy	4,676,707,557	5,017,589,924	5,229,171,012

Source: Our elaborations; 14th Population and Dwellings Census; CRESME; OMI.

In cadastral data not all the accessory areas (garages and car places, canopies, cellars, lofts and storerooms) are registered together with the dwellings they belong to: some of them are registered separately, with their own cadastral code. OMI dwellings average surfaces and prices are calculated net of such accessory areas (they just include accessory areas registered together with dwellings).

An attempt has been made to include in the stock of dwellings the accessory areas with separate cadastral code: their value has been estimated on the basis of data provided by OMI for every year.

This is nothing but a first exercise, as the treatment and valuation of such accessory areas have to be studied more accurately with OMI experts.

Table 2.9 reports the final estimation of the stock of dwellings, including accessory areas recorded separately (stock of dwellings WAA).

Table 2.9: Stock of dwellings WAA. Italy. Years 2006 - 2008. Thousands of Euros.

Regions	2006	2007	2008
Piemonte	348,047,607	371,675,524	396,422,333
Valle d'Aosta	22,026,744	23,506,238	24,361,819
Lombardia	819,089,127	845,662,186	871,148,889
Trentino Alto Adige	100,528,011	101,971,316	103,591,042
Veneto	416,985,794	428,745,931	436,826,895
Friuli Venezia Giulia	107,795,698	122,813,733	130,030,580
Liguria	261,368,452	282,705,427	294,988,370
Emilia Romagna	444,803,431	469,664,662	482,890,573
Toscana	450,133,657	477,970,672	494,951,271
Umbria	60,880,283	64,873,529	67,957,852
Marche	131,985,138	139,957,700	145,043,159
Lazio	681,258,688	769,008,864	808,730,424
Abruzzo	86,582,162	93,052,300	98,617,940
Molise	16,945,300	17,479,002	18,069,873
Campania	424,592,401	468,896,644	498,485,255
Puglia	225,248,827	249,594,904	259,649,096
Basilicata	23,027,782	24,938,779	27,053,337
Calabria	82,077,378	89,599,887	97,530,892
Sicilia	277,949,960	299,420,584	314,621,848
Sardegna	109,978,866	124,785,688	138,303,080
Italy	5,091,305,306	5,466,323,573	5,709,274,527

Source: Our elaborations on OMI data.

A comparison among different estimations of dwellings stock is provided in table 2.10, where the following data are reported:

- the estimate of the stock of dwellings by P.I.M.,
- our estimate of the stock of dwellings including accessory areas recorded separately (stock of dwellings WAA),
- the stock of dwellings provided by OMI,
- the stock of dwellings provided by CRESME.

Table 2.10: Stock of dwellings, comparing different sources. Italy. Years 2006- 2008. Millions of Euros.

		2006	2007	2008
A	Stock of dwellings by P.I.M.	1,888,334	1,995,461	2,090,824
B	Stock of dwellings WAA	5,091,305	5,466,324	5,709,275
C	Stock of dwellings OMI	5,457,629	5,905,574	6,210,661
D	Stock of dwellings CRESME	4,645,000	4,830,000	4,738,000
A/B		0.37	0.37	0.37
A/C		0.35	0.34	0.34
A/D		0.41	0.41	0.44
B/C		0.94	0.93	0.92
B/D		1.10	1.14	1.21
C/D		1.17	1.22	1.31
(1-A/B)	<i>discrepancy</i>	0.63	0.63	0.63

Source: Our elaborations; OMI; CRESME; Istat.

The analysis of the data shows that:

1. our estimation of the stock of dwellings WAA (B) is higher than the one resulting from P.I.M. (A). The stock of dwellings calculated by applying the P.I.M. equals 37% of our estimate WAA.
2. our estimation of the stock of dwellings WAA (B) represents the 94% (2006), 93% (2007) and the 92% (2008) of the OMI stock (C), probably because OMI data also include dwellings used for productive purposes;
3. our estimation of the stock of dwellings is higher than the one of the CRESME (D) probably because we use total surfaces while CRESME uses internal surfaces;

2.4 The value of land underlying dwellings

The main difference between dwellings WAA and dwellings according to P.I.M. is the value of the underlying land, which is included in our estimate but not represented in P.I.M.. It can, therefore, be assumed that the difference between the two estimates represents the value of land underlying dwellings.

The weight of the land underlying dwellings on the total dwellings stock results to be 63%. According to some analysis performed together with OMI experts, the weight looks to be quite satisfactory even if more analysis is needed.

Since in P.I.M. the purchasers' price of GFCF is used, the value of the stock of dwellings does not include capital gains/losses. Therefore **all nominal holding gains/losses are assumed to accrue to the value of land underlying dwellings.**

Table 2.11: Value of dwellings and of underlying land. Italy. Years 2006- 2008. Millions of Euros.

	2006	2007	2008
Stock of dwellings (including underlying land) (b)	5,091,305	5,466,324	5,709,275
Stock of dwellings (net of underlying land)	1,888,334	1,995,461	2,090,824
Underlying Land (a)	3,202,971	3,470,863	3,618,451
Weight of underlying land (a/b)	63%	63%	63%

Source: Our elaborations.

2.5 The stock of dwellings by institutional sector

To allocate to institutional sectors the stock of dwellings estimated as described above, OMI data by kind of owner (Individuals or private persons – PP; Others or not private persons – NPP) have been processed. In particular PP are Households (S14), while NPP refer to all other units.

To take into account the distribution of the stock of dwellings both by institutional sector and by region, we have used the regional values of dwellings, by kind of owner (PP and NPP).

Table 2.12: Stock of dwellings WAA (including underlying land). Italy. Years 2006- 2008. Millions of Euros.

	2006	2007	2008
Total	5,091,305	5,466,324	5,709,275
PF	4,562,434	4,898,917	5,118,292
PNF	528,871	567,407	590,982

Source: Our elaborations; OMI; CRESME; Istat.

The incidence of the value of underlying land on the stock of dwellings of PP and NPP has been assumed to be the same obtained for the Total Economy.

Table 2.13: Stock of dwellings (net of underlying land) and underlying land. Italy. Years 2006- 2008. Millions of Euros.

	2006	2007	2008
Stock of dwellings (net of underlying land)	1,888,334	1,995,461	2,090,824
PF	1,692,179	1,788,331	1,874,397
PNF	196,155	207,130	216,427
Underlying land	3,202,971	3,470,863	3,618,451
PF	2,870,255	3,110,585	3,243,895
PNF	332,716	360,277	374,556

Source: Our elaborations; OMI; CRESME; Istat.

From the stock of dwellings of NPP, as a first step, the value of dwellings of General Government²³ (S13) and of Financial corporations²⁴ (S12) has to be subtracted.

The remaining part should be attributed to the Non-Financial corporations (S11) and to the small enterprises classified in S14. As explained above, in Italian NA only very small size enterprises are included in S14²⁵; insofar we can assume that their housing patrimony is rather negligible. More, the value of housing services for the market producers classified in S14 is rather low: in a first hypothesis, we assumed that the stock of dwellings of small enterprises classified in S14 is zero. Therefore, all the dwellings of NPP not assigned to S13 and S12 has been imputed to S11.

The PP's dwellings have been further divided between Consumer Households (as to the owner occupied dwellings) and Producer Households (as to the let dwellings). Data from Households Consumptions Survey²⁶ were used to this purpose. By matching the information on the "home tenure" (owner, tenant) and the "nature of dwelling owner" (individual, other private owner) it has been possible to identify the percentage of houses inhabited by the owners (assigned to Consumer households) and the percentage of let houses whose owner is an individual (assigned to Producer households).

Table 2.14: Share (%) of the stock of dwellings owned by Consumer households and Producer households. Italy. Years 2006- 2008.

Sub-sector	2006	2007	2008
Consumer households	0.85	0.86	0.86
Producer households	0.15	0.14	0.14

Source: Our elaborations, Istat – Households Consumptions Survey.

Table 2.15: Stock of dwellings (net of underlying land). Italy. Years 2006- 2008. Millions of Euros.

	2006	2007	2008
S1	1,888,334	1,995,461	2,090,824
S11	156,333	166,096	172,648
S12	3,499	2,736	2,927
S13	36,324	38,298	40,852
S14+S15	1,692,179	1,788,331	1,874,397
FC	1,439,739	1,534,291	1,603,692
FP	252,440	254,040	270,705

Source: Our elaborations.

Table 2.16: Stock of land underlying dwellings. Italy. Years 2006- 2008. Millions of Euros.

	2006	2007	2008
S1	3,202,971	3,470,863	3,618,451
S11	265,169	288,905	298,791

²³ These data are estimated by National Accounts' Public Finance Division, by applying the perpetual inventory method on the investments series drawn from the Institutions' accounts.

²⁴ See par. 2.6.

²⁵ See footnote 1 par. 2.1.

²⁶ Istat - Households Expenditure Survey, www.istat.it.

S12	5,935	4,759	5,065
S13	61,612	66,614	70,700
S14+S15	2,870,255	3,110,585	3,243,895
<i>FC</i>	<i>2,442,070</i>	<i>2,668,713</i>	<i>2,775,403</i>
<i>FP</i>	<i>428,185</i>	<i>441,872</i>	<i>468,492</i>

Source: Our elaborations.

2.6 The value of dwellings for Financial corporations (S12)

Financial corporations sector (S12) includes enterprises which are principally engaged in financial intermediation (financial intermediaries) and/or in auxiliary financial activities (financial auxiliaries). It is composed by the following institutional sub-sectors:

- Central bank authorities (S121)
- Other monetary financial institutions (S122)
- Other financial intermediaries (S123)
- Financial auxiliaries (S124)
- Insurance corporations (S125).

As a first step we decided to estimate the stock of dwellings for S122 (mainly banks), as their balance sheets are made available by the Italian Banking Association (ABI).

The introduction of International accounting standards (IAS/IFRS) in banks accounting practice, optional in 2005 and compulsory since 2006, proved to be very positive for the consistency between accounting registration of dwellings in the annual financial statements and their valuation in the National Accounts: dwellings (just as the equipments and machineries that meet the requisites to be classified as tangible assets) have to be registered at fair value.

Moreover, the IAS also introduced the application of a "financial criterion" to record assets on financial lease; so the material and immaterial activities registered in annual financial statements include also the assets on financial leasing (for the lessee) and operative leasing (for the lessor), in line with ESA95 rules ("Assets acquired under a financial lease are recorded as if the user becomes the owner when he takes possession of the goods" – ESA95 3.112).

The stock of dwellings of the Bank of Italy (BI - S121) is derived from the relevant balance sheet statements. The same approach is used for Insurance corporations (S125), whose annual financial statements are provided by the Supervisory Authority on Insurance Companies (ISVAP).

No information is available as to the other financial intermediaries (S123). As a consequence, their stock of dwellings has been estimated by applying to the stock of banks the ratio between the output of S123 to the output of S122 (both net of FISIM).

No ownership of dwellings has been assigned to financial auxiliaries (S124). This assumption has to be further discussed.

Table 2.17: Stock of dwellings of the Financial corporations. Italy. Years 2006- 2008. Thousand of Euros.

	2006	2007	2008
Other monetary financial institutions (mainly Banks)	1,451,597	841,739	906,857
Insurances corporations	1,705,165	1,648,334	1,766,500
BI	123,945	119,353	117,097
Financial Intermediaries	218,093	126,466	136,249
Financial Auxiliaries	0	0	0
Total	3,498,800	2,735,892	2,926,703

Source: Our elaborations on corporations accounts; ISVAP.

An evaluation of land underlying dwellings has been performed for S12, by applying the same incidence estimated for the total economy.

Table 2.18: Land underlying dwellings of the Financial corporations. Italy. Years 2006- 2008. Thousand of Euros.

	2006	2007	2008
Other monetary financial institutions (mainly Banks)	2,462,183	1,464,103	1,569,437
Insurances corporations	2,892,282	2,867,077	3,057,165
BI	210,235	207,601	202,651
Financial Intermediaries	369,926	219,971	235,797
Financial Auxiliaries	0	0	0
Total	5,934,627	4,758,753	5,065,050

Source: Our elaborations on corporations accounts; ISVAP.

3 Estimating non-residential buildings and other structures by institutional sector²⁷

3.1 Introduction

As already explained above, Istat produces and disseminates official statistics on fixed capital stock for Italy, including the stock in *buildings*²⁸. The methodology is based on the Perpetual Inventory Method (P.I.M.) applied to the time series of gross fixed capital formation (GFCF) in *buildings* by industries. Buildings are composed of *dwellings*²⁹ and *non-residential buildings*³⁰ and *other structures*³¹; a separate estimate of the two components is available, even if not published.

As to the allocation of the stock by institutional sector, an estimation of the stock in *non-residential buildings and other structures* for the General Government (S13) is also available, even if it is not published.

The stock in *non-residential buildings* for the Financial Corporations sector (S12) coincides with the stock of *Monetary and Financial Intermediation* industry (NACE REV1 65,66,67)³². Table 3.1 shows the stock in *buildings* for the total economy and the stock for General Government and Financial Corporations in the years 2006-2008.

The procedure to define the stock of *non-residential buildings and other structures* by institutional sector has been developed through the following steps:

1. processing cadastral statistics to derive a stock for individuals (PP) and others (NPP);
2. deducting the value of underlying land;
3. obtaining the value of the stock of *non-residential buildings and other structures* for the private sector by deducting S13 data from the total fixed capital stock as estimated in National Accounts;

²⁷ This chapter is taken from "Compilation of annual balance sheets for non financial assets", presented at the Task Force on Quarterly sector accounts Rome, 3-4 December 2009 (figures have been updated).

²⁸ See "Gross fixed capital formations by owner industry, fixed capital stock and Consumption of fixed capital, years 1970-2006", Istat, July 2007.

²⁹ See chapter 2 of this paper, by Paola Santoro.

³⁰ *Non-residential buildings* are defined as "buildings other than dwellings, including accessory areas, facilities and equipment that are integral parts of the structures and costs of site clearance and preparation. Historic monuments identified primarily as non-residential buildings are also included." (ESA95, Annex 7.1, AN.11121).

³¹ *Other structures* are defined as "Structures other than buildings, including the cost of the streets, sewers and site clearance and preparation other than for residential or non-residential buildings. Also included are historic monuments for which identification as dwellings or non-residential buildings is not possible and shafts, tunnels and other structures associated with mining subsoil assets. (Major improvements to land, such as dams and dikes for flood control, are included in the value of land.). Examples include highways, streets, roads, railways and airfield runways, bridges, elevated highways, tunnels and subways, waterways, harbours, dams and other waterworks, long distance pipelines, communication and power lines, local pipelines and cables, ancillary works, constructions for mining and manufacture, and constructions for sport and recreation. (ESA95, Annex 7.1, AN.11122).

³² For the estimate of the value in dwellings attributed to S12 see par. 2.6 .

4. estimating the stock for S11, S12 and S14+15.

Table 3.1 : Stock in buildings. Italy. Years 2006- 2008. Millions euros.

	2006	2007	2008
Total economy (S1)	3,575,864	3,767,016	3,949,454
<i> dwellings</i>	1,888,334	1,995,461	2,090,824
<i> non-residential buildings and other structures</i>	1,687,530	1,771,555	1,858,630
General Government (S13)	655,999	681,637	718,278
<i> dwellings</i>	36,324	38,298	40,852
<i> non-residential buildings</i>	187,712	197,142	209,412
<i> other structures</i>	431,963	446,197	468,014
Financial Corporations (S12)	47,332	48,907	50,368

Source: Our elaborations.

3.2 The OMI statistics building block

The Observatory of the Real Estate Market (OMI)³³ is committed to provide to Istat, on the basis of an official agreement settled in September 2006, a detailed scheme of regional data on referred to the following cadastral categories of *non-residential buildings* recorded in the Cadastral Offices (*Uffici del Catasto*) of each district:

- A / 10 – offices,
- C / 1 – shops,
- C / 3 – arts and crafts workshops,
- D – non-residential buildings for special destination in the productive sector,
- D / 8 – non-residential buildings for special destination in the trade sector .

Table 3.2 shows, for the year 2008, the statistics elaborated by OMI, referred to the total national economy ³⁴, for all the former categories as to the number of units, the total surface, the average surface, the average price per m2 and the cadastral rent³⁵. The share of ownership of *individuals* (PP - households) and *others* (NPP – basically enterprises) is also provided.

For offices (A / 10) and shops (C / 1), these shares are calculated in terms of the current value of NPP (or PP) on the total current value³⁶ ; for the other OMI categories (C / 3 , D, D / 8),

³³ See footnote 5 par. 2.2 .

³⁴ OMI does not provide statistics for *Trentino-Alto Adige*, thus the data in the Table 3.2 do not include this region.

³⁵ Cadastral rent is the legal remuneration per m2, used as a basis to calculate taxes on the ownership of buildings. Cadastral rent is available for C / 3, D and D / 8.

³⁶ See formula (3.1) for a description of the calculation of the current value for these category.

as the total surface is not available (D,D/8) or no distinction of the total surface between PP and NPP is available (C3), the shares are calculated in terms of the cadastral rent .

Buildings owned by General Government (S13) are not included in OMI statistics.

Table 3.2: OMI statistics for non-residential buildings. Italy. Year 2008. Thousands euros.

OMI Categories	number of units [A]	total surface (m2) [B]	average surface [A] / [B]	average price per m2	cadastral rent		
					total	per unit	
A / 10	588,689	66,890,512	113.6	2,177	n.a	n.a	
C / 1	1,873,861	133,442,401	71.2	2,120	n.a	n.a	
C / 3	614,947	98,819,423	160.7	n.a	316,086,319	514	
D	1,009,390	n.a	n.a	n.a	8,916,250,212	8,833	
<i>of which D / 8</i>	172,523	n.a	n.a	n.a	2,210,570,702	12,813	
NPP							
OMI Categories	number of units [A]	total surface (m2) [B]	average surface [A] / [B]	average price per m2	cadastral rent		% share of ownership of NPP
					total	per unit	
A / 10	258,989	37,182,061	143.6	2,348	n.a	n.a	59.96%
C / 1	362,773	37,380,409	103.0	2,361	n.a	n.a	31.19%
C / 3	130,014	n.a	n.a	n.a	116,134,570	893	36.74%
D	647,926	n.a	n.a	n.a	7,518,098,221	11,603	84.32%
<i>of which D / 8</i>	115,436	n.a	n.a	n.a	1,902,603,315	16,482	86.07%
PP							
OMI Categories	number of units [A]	total surface (m2) [B]	average surface [A] / [B]	average price per m2	cadastral rent		% share of ownership of PP
					total	per unit	
A / 10	329,700	29,708,452	90.1	1,915	n.a	n.a	40.04%
C / 1	1,511,088	96,061,992	63.6	1,917	n.a	n.a	68.81%
C / 3	484,933	n.a	n.a	n.a	199,951,749	412	63.26%
D	361,464	n.a	n.a	n.a	1,398,151,991	3,868	15.68%
<i>of which D / 8</i>	57,087	n.a	n.a	n.a	307,967,387	5,395	13.93%

* sm: squared meter

Source: Our elaborations; OMI.

As to the stock of offices (A10) and shops (C1), a current value is calculated by OMI according to the following formula:

$$\text{Current value} = \text{total surface} \times \text{average price per square meter} \quad (3.1) .$$

No average price per m2 is estimated by OMI for arts and crafts workshops (C / 3), non-residential buildings for special destination in the productive sector (D), non-residential buildings

for special destination in the trade sector (*D/8*), but only the cadastral rent is provided, distinguished between individuals (PP) and others (NPP).

As a consequence, to obtain the current value of these categories the cadastral rent has to be multiplied by a legal parameter (50 for *D - D / 8* and 100 for *C / 3*)³⁷ and a revaluation coefficient³⁸ has to be applied. The deflator of Gross Domestic Product (1988 as basis deflator [$t/1988$]) has been chosen as the revaluation coefficient.

In general terms:

$$\text{Current value} = \text{cadastral rent} \times \text{legal parameter} \times \text{revaluation coefficient} \quad (3.2)$$

in the year t and for each category

$$\text{Current value } C / 3 = \text{cadastral rent } C / 3 \times 100 \times (\text{GDP deflator } t / 1988) ;$$

$$\text{Current value } D = \text{cadastral rent } D \times 50 \times (\text{GDP deflator } t / 1988) ;$$

$$\text{Current value } D / 8 = \text{cadastral rent } D / 8 \times 50 \times (\text{GDP deflator } t / 1988) .$$

Table 3.3 (Hypothesis I) provides current values for the stock of *non-residential buildings* by OMI category in the years 2006-2008, where the stock of *A/10* and *C/1* are estimated by 3.1 and *C/3*, *D* and *D/8* by 3.2.

Table 3.3: Stock of non-residential buildings by OMI category. Italy. Years 2006- 2008.

Thousands euros.

Year 2008	Hypothesis I		
OMI Categories	stock	stock owned by NPP	% share owned by NPP
<i>A / 10</i>	145,601,475	87,308,555	59.96%
<i>C / 1</i>	282,927,858	88,253,342	31.19%
<i>C / 3</i>	68,331,094	25,105,807	36.74%
<i>D</i>	1,009,644,101	851,322,399	84.32%
<i>of which D / 8</i>	250,317,075	215,443,955	86.07%
Total	1,506,504,527	1,051,990,103	69.83%

Year 2007	Hypothesis I		
OMI Categories	stock	stock owned by NPP	% share owned by NPP
<i>A / 10</i>	139,020,778	83,734,713	60.23%
<i>C / 1</i>	272,830,379	85,348,765	31.28%

³⁷ 50 and 100 are the parameters fixed by fiscal law (art. 52 D.P.R. 26th April 1986, n. 131, *Testo Unico dell'imposta di registro*), which have to be applied to cadastral rent to determine the amount of taxes due on this kind of building.

³⁸ The cadastral rent is valued at 1988 prices.

C / 3	66,046,477	24,350,846	36.87%
D	931,122,684	786,045,129	84.42%
<i>of which D / 8</i>	236,246,594	203,954,050	86.33%
Total	1,409,020,319	979,479,454	69.51%

Year 2006	Hypothesis I		
OMI Categories	stock	stock owned by NPP	% share owned by NPP
A / 10	126,687,314	76,459,627	60.35%
C / 1	254,203,578	79,243,671	31.17%
C / 3	64,075,448	23,637,071	36.89%
D	862,250,536	730,728,551	84.75%
<i>of which D / 8</i>	210,454,922	169,754,179	80.66%
Total	1,307,216,877	910,068,920	69.62%

Source: Our elaborations; OMI.

As to category C / 3 , this evaluation probably reflects a bias due to the level of cadastral rent, which is lower than the one of non-residential buildings for special destination in the productive sector (D). In Table 3.3 bis (Hypothesis II), an estimate of the stock of arts and crafts workshops (C / 3), based on the average price per square meter of C / 1 category³⁹ times the total surface of the units recorded as C / 3, is provided. This second Hypothesis probably provides more reliable results.

The share of stock in *non-residential buildings* assigned to NPP (66.99% in 2008, 66.60% in 2007, 66.69% in 2006: Hypothesis II in Table 3.3 bis) results as a weighted average of the stock shares of NPP for the categories A / 1, C / 1, C / 3, D with weights equal to the current values owned by NPP of each category.

To attribute the stock to the owners (NPP, PP):

- as to offices (A / 10) and shops (C / 1) the share of *non-residential buildings* attributed to NPP on the total stock of this categories is calculated on the basis of the current value (see formula 3.1) owned by NPP;
- for arts and crafts workshops (C / 3), non-residential buildings for special destination in the productive sector (D), non-residential buildings for special destination in the trade sector (D / 8), it is estimated by applying the percentage share of cadastral rent attributed to NPP to the total stock of these categories.

³⁹ This choice streams by the consideration that the units of C / 1 and C / 3 have the same reference market, even if the purposes are different.

Table 3.3 bis: Stock of non-residential buildings by OMI category. Italy. Years 2006- 2008.
Thousands euros.

Year 2008	Hypothesis II		
OMI Categories	stock	stock owned by NPP	% share owned by NPP
<i>A / 10</i>	145,601,475	87,308,555	59.96%
<i>C / 1</i>	282,927,858	88,253,342	31.19%
<i>C / 3</i>	209,519,369	76,980,370	36.74%
<i>D</i>	1,009,644,101	851,322,399	84.32%
<i>of which D / 8</i>	250,317,075	215,443,955	86.07%
<i>Total</i>	1,647,692,803	1,103,864,666	66.99%

Year 2007	Hypothesis II		
OMI Categories	stock	stock owned by NPP	% share owned by NPP
<i>A / 10</i>	139,020,778	83,734,713	60.23%
<i>C / 1</i>	272,830,379	85,348,765	31.28%
<i>C / 3</i>	204,337,333	75,337,659	36.87%
<i>D</i>	931,122,684	786,045,129	84.42%
<i>of which D / 8</i>	236,246,594	203,954,050	86.33%
<i>Total</i>	1,547,311,176	1,030,466,266	66.60%

Year 2006	Hypothesis II		
OMI Categories	stock	stock owned by NPP	% share owned by NPP
<i>A / 10</i>	126,687,314	76,459,627	60.35%
<i>C / 1</i>	254,203,578	79,243,671	31.17%
<i>C / 3</i>	192,555,048	71,032,470	36.89%
<i>D</i>	862,250,536	730,728,551	84.75%
<i>of which D / 8</i>	210,454,922	169,754,179	80.66%
<i>Total</i>	1,435,696,477	957,464,319	66.69%

Source: Our elaborations; OMI.

The stock of *non-residential buildings* for PP is the difference between the total stock and the stock of NPP.

OMI valorisations of the stock for the categories A / 1 and C / 1 as reported in table 3.3 bis and our elaborations for the categories C / 3, D, D / 8 include the value of underlying land, as all the price components in the acquisition of a building are included.

In order to estimate a net value, that is to exclude the underlying land⁴⁰, for A / 1, C / 1, C / 3, D, D / 8, the current estimate of these categories has been reduced on the basis of coefficients stated by *art. 7 of D.l. n. 223/2006*. Art.7 fixes accounting rules for the corporations to calculate the depreciation of the *non-residential buildings* excluding the value of the underlying land: the weights of land for the *instrumental non-residential buildings* is set equal to 20 % of the total value, while for the *industrial non-residential buildings* it is set equal to 30 %. We assume that the categories A / 1, C / 1, C / 3, D / 8 are used for instrumental tasks, while D for industrial ones.

Table 3.4 provides the gross and net value of the stock by OMI category.

As OMI data do not include Trentino Alto Adige a provisional estimate has been carried out, by assuming that the incidence of non-residential buildings of the region on the total stock of Italy is the same as the one of dwellings.

The share of C / 2 (depositories), C / 6 (stables, garages) and C / 7 (open or closed sheds), which have not been included in the estimate of the stock of dwellings (see para.2.3) have been added.

Table 3.4 : Value of the land underlying the non-residential buildings by OMI category. Italy. Years 2006- 2008. Thousands euros.

Year 2008				
OMI Categories	gross value=stock	net value*	value of the underlying land	% underlying land incidence**
A / 10	145,601,475	116,481,180	29,120,295	20.00%
C / 1	282,927,858	226,342,286	56,585,572	20.00%
C / 3	209,519,369	167,615,495	41,903,874	20.00%
D (without D / 8)	759,327,026	531,528,918	227,798,108	30.00%
D / 8	250,317,075	200,253,660	50,063,415	20.00%
C / 2, C / 6, C / 7	24,810,124	18,704,743	6,105,381	24.61%
Trentino-Alto Adige	33,875,529	25,539,294	8,336,234	24.61%
Total	1,706,378,455	1,286,465,577	419,912,878	24.61%

* net value is the stock without the value of the underlying land

** the value of the underlying land / gross value * 100

⁴⁰ The total fixed capital stock in *buildings*, (see Istat, July 2007), does not include the value of underlying land.

Year 2007				
OMI Categories	gross value=stock	net value*	value of the underlying land	% underlying land incidence**
A / 10	139,020,778	111,216,623	27,804,156	20.00%
C / 1	272,830,379	218,264,304	54,566,076	20.00%
C / 3	204,337,333	163,469,867	40,867,467	20.00%
D (without D / 8)	694,876,090	486,413,263	208,462,827	30.00%
D / 8	236,246,594	188,997,275	47,249,319	20.00%
C / 2, C / 6, C / 7	23,176,988	17,500,744	5,676,244	24.49%
Trentino-Alto Adige	32,101,162	24,239,310	7,861,851	24.49%
Total	1,602,589,325	1,210,101,385	392,487,939	24.49%

* net value is the stock without the value of the underlying land

** the value of the underlying land / gross value * 100

Year 2006				
OMI Categories	gross value=stock	net value*	value of the underlying land	% underlying land incidence**
A / 10	126,687,314	101,349,852	25,337,463	20.00%
C / 1	254,203,578	203,362,863	50,840,716	20.00%
C / 3	192,555,048	154,044,038	38,511,010	20.00%
D (without D / 8)	651,795,614	456,256,930	195,538,684	30.00%
D / 8	210,454,922	168,363,938	42,090,984	20.00%
C / 2, C / 6, C / 7	21,390,079	16,140,969	5,249,110	24.54%
Trentino-Alto Adige	30,028,978	22,659,889	7,369,089	24.54%
Total	1,487,115,534	1,122,178,479	364,937,056	24.54%

* net value is the stock without the value of the underlying land

** the value of the underlying land / gross value * 100

Source: Our elaborations; OMI.

3.3 The estimation by institutional sector

Starting from the stock of fixed capital in *non-residential buildings and other structures* for the total Economy (S1) [A] as reported in Table 3.1, and deducting the *non-residential buildings and other structures* of General Government (S13) [B], also reported in Table 3.1, table 3.5 shows how we obtain as a residual the total stock of *non-residential buildings and other structures* for

the private sector (S11,S12,S14), [C]. Such stock is, by construction, net of the value of the underlying land.

The total [C] has now to be divided into its two components, AN11121 and AN1112, in order to properly assign them to the relevant sectors.

Two different methodologies have been carried out.

In a first Hypothesis (see Table 3.5), the net value of *non-residential buildings* [D] has been made equal to OMI data (table 3.4) : thus the difference between [C] and [D] has been assumed as an estimation of the stock in other structures (AN11122) of the private sector [H]: by definition it has to be allocated to Non-Financial Corporations (S11).

The remaining stock of *non-residential buildings* [D] is assigned to Corporations (S11,S12) or Households (S14+S15) by applying the percentages of NPP⁴¹ and PP provided by OMI.

The share of *non-residential buildings* for S12 is drawn from the fixed capital stock series for *Monetary and Financial Intermediation* industry (NACE REV1 65,66,67) (see par. 3.1 Introduction) and then it has been detracted from Corporations stocks (see above) in order to obtain the Non-financial corporations (S11) stock in *non-residential buildings*.

As NPP also include sole partnerships with up to 5 employees, the relative share of *non-residential buildings* stock has to be moved from S11 to S14. This has been performed considering the same incidence of the rent of *non-residential buildings* accruing to market producers in S14⁴².

Table 3.5: Stock of non-residential buildings and other structures for private sector, Hypothesis I. Italy. Years 2006- 2008. Millions euros.

		2006	2007	2008
Total economy (S1)	A	1,687,530	1,771,555	1,858,630
General Government (S13)	B	619,675	643,339	677,426
Private sector (S11,S12,S14)	C = A - B	1,067,855	1,128,215	1,181,204

Source: Our elaborations; OMI.

In Hypothesis II (see Table 3.5 bis), an independent estimate has been carried out for "other structures" (AN11122) by applying the P.I.M. to the GFCF series in *other structures* of the total economy [I], which have been expressly elaborated from 1870 up to 2008 on a provisional basis. The stock in other structures has then been estimated by applying

⁴¹ See the percentage share of the non-residential building owned by NPP in the last column of Table 3.3 bis par. 3.2, Hypothesis II,.

⁴² An alternative hypothesis is to assign to market producers in S14 a share of the stock of non-residential buildings of S11 in proportion to GFCF (or to the sum of GFCF) in non-residential buildings of market producers in S14 and S11.

the P.I.M. with an average life of 60 years and by using the deflator of the GFCF series in buildings at chain-linked prices.

The difference between [I] and the stock in *other structures* of S13 [J], for which a draft estimate is available for internal use only, gives the stock in *other structures* of the Private Sector [K]. This estimate [K] has been deducted from the total stock of *non-residential buildings and other structures* for the private sector [C] to obtain the stock of the Private Sector in *non-residential buildings* [L]. In this case OMI data have only been used to derive the percentages to assign the stock of non-residential building to NPP and PP. A correction to S11 and S14 to include sole partnerships in the Households has been made like in Hypothesis I .

Table 3.5 bis: Stock in *non-residential buildings and other structures*, Hypothesis II. Italy. Years 2006- 2008. Millions euros

		2006	2007	2008	
Total economy (S1)	A	1,687,530	1,771,555	1,858,630	
General Government (S13)	B	619,675	643,339	677,426	
Private sector (S11,S12,S14)	C = A - B	1,067,855	1,128,215	1,181,204	
Total economy (other structures by P.I.M) (S1)	I	822,250	857,278	892,778	
General Government (other structures by P.I.M) (S13)	J	431,963	446,197	468,014	
Private sector (other structures by P.I.M) (S11,S12,S14)	K = I - J	390,287	411,081	424,764	
Private sector (non-residential buildings by difference) (S11,S12,S14)	L = C - K	677,568	717,134	756,440	
	S12	M	47,332	48,907	50,368
	S11	N	400,492	424,398	451,841
	S14+S15	O	229,744	243,830	254,230

Source: Our elaborations; OMI.

Hypothesis II has been preferred, as it appears more consistent with NA general framework.

In Table 3.6 the draft estimate of the stock of *non-residential buildings and other structures* by institutional sector for 2006, 2007 and 2008 is provided.

Table 3.6: Stock in AN1121 and AN112 by institutional sector. Italy. Years 2006 - 2008.

Millions euros

year 2008	Institutional Sectors				
	S1	S11	S12	S13	S14+15
Other buildings and structures	1,858,630	876,606	50,368	677,426	254,230
Non-residential buildings	965,852	451,841	50,368	209,412	254,230
Other structures	892,778	424,764	0	468,014	0
year 2007	Institutional Sectors				
	S1	S11	S12	S13	S14+15
Other buildings and structures	1,771,555	835,479	48,907	643,339	243,830
Non-residential buildings	914,277	424,398	48,907	197,142	243,830
Other structures	857,278	411,081	0	446,197	0
year 2006	Institutional Sectors				
	S1	S11	S12	S13	S14+15
Other buildings and structures	1,687,530	790,779	47,332	619,675	229,744
Non-residential buildings	865,280	400,492	47,332	187,712	229,744
Other structures	822,250	390,287	0	431,963	0

Source: Our elaborations.

In Hypothesis II the value of the land underlying the *non-residential buildings* for the Private Sector has been assumed equal to the difference between the total gross value of the *non-residential buildings* by OMI category (see *total* in the Table 3.4) and the private sector stock in *non-residential buildings* [L] (see Table 3.5 bis). The incidence of the underlying area on the gross value of the *non-residential buildings* for Private Sector is 54.44% for 2006, 55.25% for 2007 and 55.67% for 2008. The same percentage has been applied to the *non-residential buildings* for S13. The value of underlying land of non residential building by institutional sector is reported in Table 3.7.

As to the value of the land underlying the *other structures*, we tried to use a methodology based on the costs of expropriation of building areas: an analysis of the legal rules as stated in art. 5 bis DLL 359/92 suggests that such costs can be assumed equal to 50 % of the market value of the building area. Considering as a proxy of the incidence of the value of the area on the total value of the *other structures* the same one of *non-residential buildings* (55.67% for 2008, see above), the value of land underlying the *other structures* may be calculated by applying the following formula:

Value of land underlying OS = value OS X % area incidence NRB X % expropriation costs (3.3).

where

OS = *other structures*

NRB = *non-residential buildings*

% expropriation costs = 50 %

Table 3.7 : Land underlying non-residential buildings-other structures by Institutional sector. Italy. Years 2006- 2008. Millions euros.

year 2008	Institutional Sectors				
	S1	S11	S12	S13	S14+15
Other buildings and structures	1,557,274	731,260	63,252	443,499	319,263
Non-residential buildings	1,212,919	567,424	63,252	262,980	319,263
Other structures	344,355	163,837	0	180,519	0
year 2007	Institutional Sectors				
	S1	S11	S12	S13	S14+15
Other buildings and structures	1,456,098	680,922	60,386	413,730	301,060
Non-residential buildings	1,128,869	524,009	60,386	243,414	301,060
Other structures	327,229	156,912	0	170,317	0
year 2006	Institutional Sectors				
	S1	S11	S12	S13	S14+15
Other buildings and structures	1,341,326	624,460	56,551	385,820	274,494
Non-residential buildings	1,033,822	478,501	56,551	224,275	274,494
Other structures	307,505	145,959	0	161,545	0

Source: Our elaborations.

4 Estimating Machinery and equipment (AN1113) and Computer software (AN1122) by institutional sector⁴³

The Perpetual Inventory Method (P.I.M.) is utilized in National Accounts (NA) to estimate the gross fixed capital stock for the following categories of goods⁴⁴ :

1. *Machinery and equipment,*
2. *Office machinery and computers,*
3. *Communication equipment and apparatus,*
4. *Furniture,*
5. *Road transport equipment,*
6. *Air sea and rail transport equipment,*
7. *Buildings,*
8. *Software,*
9. *Other intangible and services.*

The gross fixed capital formation time series⁴⁵, both at current prices and at chain-linked prices, and the average remaining service life for each kind of good are the input data to apply P.I.M. by owner industry.

Inside National Accounts Directorate (NAD) the gross fixed capital formation (GFCF) time series by industry are available, for internal use only, for *Buildings, Software, Other intangible and services* since 1870, and since 1951 for the other categories.

The GFCF time series by institutional sector are published for the years 1992-2009; an estimate since 1980 is also available, even if not published.

The classification of GFCF by institutional sector by category of good is the following:

- 1) *Machinery and Furniture, (which includes these categories: Machinery and equipment, Office machinery and computers, Communication equipment and apparatus, Furniture)*
- 2) *Road transport equipment,*
- 3) *Air sea and rail transport equipment,*
- 4) *Buildings,*
- 5) *Software,*
- 6) *Other intangible and services.*

We can not apply P.I.M. to estimate the fixed capital stock by institutional sector in *Buildings*⁴⁶ and *Other intangible and services*, because the gross fixed capital formation time

⁴³ This chapter is taken from "Compilation of annual balance sheets for non financial assets", presented at the Task Force on Quarterly sector accounts Rome, 3-4 December 2009 (figures have been updated).

⁴⁴ See Annex I Table A for a classification by NACE REV1 of these categories of goods.

⁴⁵ See "Gross Fixed Capital Formation Investments by owner industry, fixed capital stock and Consumption of fixed capital, years 1970-2006", Istat, July 2007.

series by institutional sector is far too short to comply with the maximum service life⁴⁷ for these goods.

Table 4.1 shows the minimum, average and maximum service life for each category of good (excluding the *Buildings*⁴⁸ and the *Other intangible and services*): they have been used to estimate the gross fixed capital stock by institutional sector by applying the P.I.M.

Such service lives have been calculated starting from the ones used for the estimate of capital stock by industry. For *Machinery and Furniture* the service life is a weighed average of the ones of each kind of good included in this category.

Table 4.1: Service lives by kind of good.

kind of good	service life		
	minimum	average	maximum
1) <i>Machinery and furniture,*</i>	10.39	15.98	27.57
2) <i>Road transport equipment,</i>	10.40	10	21.60
3) <i>Air sea and rail transport equipment,</i>	6.50	18	13.50
5) <i>Software</i>	3.25	5	6.75

Source: Our elaborations.

* the average service life for S12 is 11.86 years.

In order to calculate GFCF in *Machinery and Furniture* for the period 1981-2008 at chain-linked prices (2000 as base year) by institutional sector, an implicit deflator to be applied to the time series at current prices has been obtained for each kind of good, by dividing GFCF at current prices by GFCF at chain-linked prices (2000 as base year).

The draft estimate of the stock in *Machinery and equipment* and *Computer Software* by institutional sector for the years 2006, 2007 and 2008 is reported in Table 4.2 . The percentage discrepancy between the sum of the stock by institutional sector and the national total⁴⁹ is negligible, and has been assigned to S11.

⁴⁶ See chap. 2 and chap. 3.

⁴⁷ See Istat, July 2007.

⁴⁸ See chap. 2 and chap. 3.

⁴⁹ See Istat, July 2007.

Table 4.2 : Stock of Machinery and equipment and Computer Software by institutional sector. Italy. Years 2006, 2007 and 2008. Millions euros.

	Institutional Sectors				
	S1	S11	S12	S13	S14+15
Machinery and equipment					
2006	1,786,580	1,393,392	32,127	94,425	266,636
2007	1,876,526	1,473,468	33,353	90,325	279,380
2008	1,973,638	1,565,588	33,679	90,325	284,045
Computer software					
2006	60,406	42,031	8,783	6,776	2,816
2007	60,363	42,028	8,514	6,801	3,021
2008	60,655	43,805	7,114	6,801	2,935

Source: Our elaborations.

Annex 2

Table A : Classification by kind of good by NACE REV1

***NACE
REV1***

Classification by kind of good

1. Machinery and equipment

1
2
3
4
5
6
1.1
1.2
5
17.4
17.5
19.1
19.2
20.1
22
25.2
26.1
26.2
26.6
27.2
28.1
28.2
28.3
28.6
28.7
29.1
29.2
29.4
29.5
29.6
29.3
29.7
31.1
31.2
31.5
31.6
33.1
33.2
33.3
33.4
33.5
36.4
36.5
36.6

2. Office machinery and computers

30

3. Communication equipment and apparatus

32.1
32.2
32.3

4. Furniture

36.1
36.3

NACE
REVI

Classification by kind of good

5. Road transport equipment

34.1
34.2
34.3
35.4
35.5

6. Air sea and rail transport equipment

35.1
35.2
35.3

7. Buildings

45

8. Software

8

9. Other intangible and services

9
72
50.2
70.3
74.1
74.2
92

Source: Our elaborations.

5 Estimating land (AN211) by institutional sector⁵⁰

5.1 Land underlying buildings and structures (AN2111)

For an explanation of the methodology to estimate land underlying dwellings, please refer to par. 2.4 , while for land underlying non- residential buildings and other structure, see par. 3.3.

5.2 Land under cultivations (AN2112)

Land under cultivation is defined as "Land on which agricultural or horticultural production is carried on for commercial or subsistence purposes, including, in principle, land under plantations, orchards and vineyards" (ESA95, Annex 7.1, AN.2112). No estimate of such stock for Italy exists yet. The starting point of our estimation of the value of the *land under cultivation* is the *utilized agricultural area* (UAA)⁵¹, as surveyed by Istat⁵² in "*Structure and productions of the agricultural enterprises*" (SPA), years 2003-2005, and in "*Census of agricultural holdings, year 2000*" (CAH 2000). SPA data are updated with a lag of 2 years. The *utilized agricultural area*(UAA) is the pool of arable land cover, agricultural woody crops, kitchen gardens, perpetual meadow and pasture and fruit chestnut woods⁵³.

In general terms the UAA is made up of:

- arable land;
- permanent meadow and pasture;
- land under permanent crops.

The *total agricultural area* (TAA) is given by the UAA plus :

- wooded area;
- other land.

The *other land* refers to areas occupied by buildings, courtyards, ditches, farm tracks, channels, caves, ,sterile land, rocks, parks and origin gardens⁵⁴.

Table 5.1 shows the components of the TAA and UAA in hectares for the Italian regions in the years 2005, 2003 (source SPA). According the European Regulations⁵⁵ target population does not include agricultural partnerships whose agricultural area utilized for farming is less than one hectare or whose agricultural traded output is less than 2066 Euros⁵⁶.

⁵⁰ This chapter is taken from "*Compilation of annual balance sheets for non financial assets*", presented at the Task Force on Quarterly sector accounts Rome, 3-4 December 2009.

⁵¹ *superficie agricola utilizzata*, SAU.

⁵² See Commission Regulation (EC) No 2004/2006.

⁵³ The mushrooms cultivation in caves and in buildings is excluded by the UAA.

⁵⁴ The mushrooms cultivation in caves and in buildings is included in the other land.

⁵⁵ COMMISSION REGULATION (EC) No 1555/2001 of 30 July 2001, COMMISSION REGULATION (EC) No 204/2006 of 6 September 2006, COMMISSION REGULATION (EC) No 2139/2004 of 8 December 2004.

⁵⁶ See "*Structure and productions of the agricultural enterprises*" (SPA), years 2005-2003.

Table 5.1 : Utilized Agricultural Area (UAA) by region and by kind of crop (surface in hectares)

Regions	arable land (A)	permanent meadow and pasture (B)	land under permanent crops (C)	UAA (D=A+B+C)	wooded area (E)	other land (F)	TAA (G=D+E+F)
year 2005							
Piemonte	520,985	410,958	97,245	1,029,189	269,373	72,195	1,370,757
Valle d'Aosta	279	67,122	990	68,391	15,062	65,894	149,347
Lombardia	703,140	242,785	32,743	978,667	159,252	95,656	1,233,575
Trentino-Alto Adige	7,556	350,499	43,023	401,078	530,359	68,845	1,000,281
Bolzano/Bozen	4,352	229,679	21,636	255,668	236,767	55,600	548,034
Trento	3,203	120,820	21,386	14,541	293,592	13,245	452,247
Veneto	551,986	137,152	108,433	797,571	168,854	127,922	1,094,347
Friuli-Venezia Giulia	160,491	40,221	23,809	224,521	104,505	48,936	377,962
Liguria	7,490	26,808	14,783	49,082	75,846	10,642	135,569
Emilia-Romagna	803,305	92,886	133,725	1,029,916	155,317	120,777	1,306,010
Toscana	527,446	124,528	157,512	809,487	508,420	106,763	1,424,670
Umbria	216,692	77,235	43,988	337,915	229,194	26,604	593,713
Marche	386,416	74,749	35,976	497,141	119,407	65,954	682,502
Lazio	343,258	212,690	128,988	684,936	220,879	61,467	967,282
Abruzzo	185,711	169,921	69,547	425,179	168,580	50,761	644,520
Molise	156,498	36,627	19,483	212,608	45,775	16,655	275,038
Campania	291,362	110,053	162,251	563,666	174,984	51,242	789,892
Puglia	659,290	81,093	476,541	1,216,924	59,810	35,882	1,312,616
Basilicata	357,287	139,746	56,556	553,589	151,353	50,127	755,068
Calabria	185,831	115,884	212,628	514,343	195,384	52,411	762,138
Sicilia	617,471	235,184	398,049	1,250,703	78,103	73,910	1,402,716
Sardegna	392,731	600,809	69,400	1,062,940	339,768	122,303	1,525,011
ITALY	7,075,224	3,346,951	2,285,671	12,707,846	3,770,223	1,324,945	17,803,014
North	2,755,232	1,368,432	454,750	4,578,414	1,478,568	610,868	6,667,849
Center	1,473,813	489,202	366,464	2,329,479	1,077,900	260,788	3,668,166
South and Islands	2,846,180	1,489,317	1,464,456	5,799,953	1,213,756	453,290	7,466,999
year 2003							
Piemonte	560,605	426,323	88,010	1,074,939	257,078	135,250	1,467,267
Valle d'Aosta	310	53,005	932	54,246	17,077	56,135	127,458
Lombardia	727,007	218,738	35,200	980,945	163,071	91,432	1,235,447
Trentino-Alto Adige	8,076	372,615	46,678	427,368	497,084	67,221	991,674
Bolzano/Bozen	2,890	251,684	22,761	277,335	217,827	56,341	551,503
Trento	5,186	120,931	23,917	150,034	279,257	10,880	440,170
Veneto	548,195	164,954	119,027	832,177	211,940	127,487	1,171,604
Friuli-Venezia Giulia	168,107	26,149	24,556	218,812	43,848	36,943	299,603
Liguria	7,931	28,411	13,971	50,313	82,715	5,480	138,509
Emilia-Romagna	835,067	93,116	146,369	1,074,552	163,715	130,644	1,368,911
Toscana	525,803	109,199	174,311	809,312	579,876	106,141	1,495,329
Umbria	245,682	70,870	44,278	360,829	237,933	35,853	634,615
Marche	414,181	63,923	34,274	512,378	113,287	60,886	686,552
Lazio	387,290	199,421	138,615	725,326	222,685	76,690	1,024,701
Abruzzo	165,303	180,154	72,415	417,872	150,909	54,560	623,341
Molise	161,079	31,086	21,446	213,611	29,029	19,237	261,876
Campania	290,889	96,771	175,517	563,177	147,606	58,415	769,198
Puglia	637,245	77,307	564,252	1,278,804	55,158	43,759	1,377,721
Basilicata	344,949	150,699	58,239	553,886	107,806	40,725	702,417
Calabria	190,324	121,730	233,494	545,548	184,188	52,157	781,893
Sicilia	663,956	210,682	395,368	1,270,005	92,183	97,424	1,459,612
Sardegna	435,207	641,254	75,249	1,151,710	309,029	154,104	1,614,842
ITALY	7,317,204	3,336,405	2,462,201	13,115,810	3,666,216	1,450,544	18,232,570
North	2,855,298	1,383,311	474,743	4,713,352	1,436,528	650,592	6,800,472
Center	1,572,955	443,412	391,478	2,407,845	1,153,781	279,570	3,841,197
South and Islands	2,888,951	1,509,681	1,595,980	5,994,613	1,075,907	520,382	7,590,902

Source: Our elaborations, Istat - "Structure and productions of the agricultural enterprises" (SPA).

5.3 The value of land under cultivations (AN2112) by region.

The value of *land under cultivation* is calculated by applying a direct estimation methodology, as follows:

$$\text{Value of the land under cultivation} = \text{UAA in ha} \times \text{market price per ha} \quad (5.1) .$$

The regional market prices per hectare are provided by INEA (National Institute of Agricultural Economics⁵⁷): the annual “*Survey on the land market*” provides an in-depth analysis of the average prices by kind of crop and by territorial areas according to ISTAT classification of “*Census of agricultural holdings, year 2000*” (CAH 2000). The average prices do not include the value of woods and of *other areas*, because they only refer to the *utilized agricultural area*.

The *land improvements*⁵⁸ are not included in the INEA's average prices which take into account the value of “*natural*” *land under cultivation*, it is the value of a plot of land in its unimproved state

Table 5.2 reports the type of crops considered in the “*Survey on the land market*”, year 2006.

Table 5.2 : Kind of crops

Kind of crops utilized in the “*Yearly Survey on the land market*” by INEA

ISTAT classification	further classification
1 - arable land cover (excluding horticultural)	irrigated arable land cover (excluding horticultural)
2 -	dry arable land cover (excluding horticultural)
3 - permanent meadow	
4 - pasture	
5 - horticultural, floricultural and nurseries	
6 - fruit tree orchard	
7 - citrus plantation	
8 - olive plantation	
9 - DOC vineyard	
10 - table grapes vineyard	
11 - non-DOC vineyard and other	
12 - other land under permanent crops	
13 - poplar plantation	
14 - wood	
15 - other area	

Source: Our elaborations; INEA.

The value of *land under cultivation* for the Italian regions has been calculated for the years 2003-2006⁵⁹ according the equation (5.1). The results are reported in Table 5.3.

⁵⁷ Istituto Nazionale di Economia Agraria - INEA

⁵⁸ Major improvements to land, such as dams and dikes for flood control, are included in the value of land (ESA95, Annex 7.1, AN.211).

The average price for Italy and for the three macro-regions comes to be a weighted average area of the regional prices.

Table 5.3 : Value of land under cultivation by region. Millions euros.

Regions	UAA				regional average prices				value of land underlying cultivation			
	SPA 2003-2005				INEA				UAA x INEA prices			
	(surface in hectares)				(euro per ha)				(millions euros)			
	2003	2004	2005	2006	2003	2004	2005	2006	2003	2004	2005	2006
Piemonte	1,074,939	1,074,939	1,029,189	1,029,189	12,570	12,851	13,229	13,500	13,512	13,814	13,615	13,894
Valle d'Aosta	54,246	54,246	68,391	68,391	6,607	6,808	6,970	7,143	358	369	477	488
Lombardia	980,945	980,945	978,667	978,667	30,599	32,140	32,223	32,650	30,016	31,528	31,535	31,954
Trentino-Alto Adige	427,368	427,368	401,078	401,078	25,681	25,582	25,785	26,253	10,975	10,933	10,342	10,530
Veneto	832,177	832,177	797,571	797,571	40,597	41,842	40,948	40,306	33,784	34,820	32,659	32,147
Friuli-Venezia Giulia	218,812	218,812	224,521	224,521	26,154	27,226	27,528	27,285	5,723	5,957	6,181	6,126
Liguria	50,313	50,313	49,082	49,082	13,798	14,092	14,384	14,706	694	709	706	722
Emilia-Romagna	1,074,552	1,074,552	1,029,916	1,029,916	23,042	24,089	23,623	23,770	24,760	25,885	24,330	24,481
Toscana	809,312	809,312	809,487	809,487	9,574	9,602	9,576	9,713	7,748	7,771	7,752	7,863
Umbria	360,829	360,829	337,915	337,915	10,047	10,055	10,065	10,078	3,625	3,628	3,401	3,406
Marche	512,378	512,378	497,141	497,141	12,395	12,712	13,287	13,517	6,351	6,513	6,606	6,720
Lazio	725,326	725,326	684,936	684,936	13,647	13,663	13,911	13,911	9,899	9,910	9,528	9,528
Abruzzo	417,872	417,872	425,179	425,179	10,876	10,823	10,648	10,811	4,545	4,522	4,527	4,597
Molise	213,611	213,611	212,608	212,608	12,045	12,339	12,536	12,745	2,573	2,636	2,665	2,710
Campania	563,177	563,177	563,666	563,666	18,204	18,708	19,278	19,826	10,252	10,536	10,866	11,175
Puglia	1,278,804	1,278,804	1,216,924	1,216,924	8,516	8,538	8,534	8,522	10,891	10,918	10,385	10,370
Basilicata	553,886	553,886	553,589	553,589	6,391	6,595	6,554	6,788	3,540	3,653	3,628	3,758
Calabria	545,548	545,548	514,343	514,343	10,996	11,145	11,145	11,578	5,999	6,080	5,733	5,955
Sicilia	1,270,005	1,270,005	1,250,703	1,250,703	10,064	10,097	10,112	10,142	12,782	12,824	12,648	12,685
Sardegna	1,151,710	1,151,710	1,062,940	1,062,940	6,239	6,243	6,269	6,419	7,186	7,190	6,663	6,823
ITALY	13,115,810	13,115,810	12,707,846	12,707,846	15,646	16,026	16,073	16,205	205,213	210,197	204,247	205,931
North	4,713,352	4,713,352	4,578,414	4,578,414	25,422	26,312	26,176	26,285	119,823	124,016	119,845	120,342
Center	2,407,845	2,407,845	2,329,479	2,329,479	11,472	11,555	11,714	11,812	27,623	27,823	27,287	27,516
South and Islands	5,994,613	5,994,613	5,799,953	5,799,953	9,636	9,735	9,848	10,013	57,767	58,358	57,115	58,073

Source: Our elaborations; INEA.

⁵⁹ For the year 2004 the UAA is the one of the year 2003, while for the year 2006 the UAA is the one of the year 2005, because SPA has not been conducted for the years 2004 and 2006.

5.4 The value of land under cultivations (AN2112) by institutional sector

To attribute the value of *land underlying cultivation* to the institutional sectors, the distribution of UAA by legal form⁶⁰ of the owner, for the year 2000 (see Table 5.4, source "Census of agricultural holdings, year 2000"), has been used.

In Italian NA all corporations and partnerships are classified in S11. For these units a direct correspondence between legal form and institutional sector can thus be derived (see Table 4⁶¹).

Sole partnerships with up to five employees are classified in S14, all the others in S11. To assign the relevant share of UAA to be classified to S11 and S14, a ratio based on the number of employees (in Full Time Equivalent Units, FTEUs) in sole partnerships, active in the agricultural sector over and under the threshold of five employees, has been applied.

Table 5.4 : Utilized Agricultural Area by legal form.

year 2000

legal form	classification by institutional sector	utilized agricultural area - UAA - (hectares)	% share of UAA by legal form of enterprise
sole partnership	Households up to 5 employees	10,456,097	79.2%
collective communality	Households up to 5 employees	154,267	1.2%
partnership and capital companies	Non-Financial Corporations	1,425,655	10.8%
<i>simple partnership</i>	Households up to 5 employees	1,059,964	8.0%
<i>partnership</i>	Non-Financial Corporations	42,626	0.3%
<i>private limited company</i>	Non-Financial Corporations	174,338	1.3%
<i>limited partnership</i>	Non-Financial Corporations	54,074	0.4%
<i>partnership limited by shares</i>	Non-Financial Corporations	2,560	0.0%
<i>public limited company</i>	Non-Financial Corporations	72,780	0.6%
<i>other</i>	Non-Financial Corporations	19,313	0.1%
cooperative society	Non-Financial Corporations	114,854	0.9%
producers' association	Non-Financial Corporations	4,617	0.0%
Public authority	General Government	999,468	7.6%
<i>Central Government</i>	Central Government	26,058	0.2%
<i>Regions</i>	Local Government	37,844	0.3%
<i>Distircts</i>	Local Government	5,882	0.0%
<i>Conuncil Houses</i>	Local Government	782,931	5.9%
<i>Upland authority associations</i>	Local Government	15,366	0.1%
<i>Other</i>	General Government	131,386	1.0%
other legal form	Non-Financial Corporations	51,339	0.4%
<i>consortium</i>	Non-Financial Corporations	22,294	0.2%
<i>other</i>	Non-Financial Corporations	29,045	0.2%
Total		13,206,297	100.0%

Source: Our elaborations, "Census of agricultural holdings, year 2000"

In the years 2005-2006 the sole partnerships with up to five employees in agriculture account for the 99.8 % of the total.

Units classified in S12 are deemed not to own cultivated land.

⁶⁰ See table 1.13 in "Agricultural Statistics - year 2000", Istat, Yearbook 48 – 2005.

⁶¹ The total UAA in Table 4 is referred to *Italy Universe* (see footnote 5).

General Government (S13) owns the 7.6 % (see Table 5.4, year 2000) of UAA of the total Economy.

A share of land used by Households for own-account production of agricultural products has been identified, too, on the basis of the estimated volume of labour input underlying own-account agricultural production, with respect the total FTEUS of S14 in agriculture: in percentage terms it accounts for 18.8% of total land under cultivation for Households in 2005 and for 18.2% in 2006.

Table 5.5 shows, for the years 2005 and 2006, the value of land underlying cultivation of S14, separately for Consumer Households and Producer Households, on the basis of the share of land used by Households for own-account production of agricultural products.

Table 5.5 : Value of land under cultivation for Households. Millions euros.

	Households		
	Own-account production	Market production	Total S14
year 2006	32,448	145,901	178,350
year 2005	33,270	143,682	176,952

Source: Our elaborations.

The allocation by institutional sector of the value of *land underlying cultivation* is provided in Table 5.6 .

Table 5.6 : Value of land under cultivation by institutional sector. Millions euros.

	Institutional Sectors				
	S1	S11	S12	S13	S14+15
year 2006	205,931	11,996	0	15,585	178,350
year 2005	204,247	11,838	0	15,458	176,952

Source: Our elaborations.

6 Estimating consumer durables⁶²

6.1 The method

In the framework of the Balance sheets for non-financial assets by institutional sectors, an estimate of the households' stock of durable goods, as part of personal sector wealth has been drafted.

The estimates are the results of an application of the "Perpetual Inventory Method" (P.I.M.), that generates an estimate of the stock by accumulating past purchase of assets over their estimated service life.

According to the traditional procedure, the P.I.M. is used to estimate gross stock of consumer durable goods, to apply a retirement model and a depreciation function to calculate the consumption of the gross stock and then to obtain the net stock, by subtracting accumulated consumption from the gross stock of durable goods.

Ten different categories of durables goods have been considered:

- furniture
- big household appliances
- medical equipment
- personal transport equipment
- non mobile telephones and telefax equipments
- mobile telephones
- personal computers
- tv, radio,hi-fi, photographic equipment
- jewellery
- other durables goods (small electric appliances, small durable goods for recreation)

These categories have been determined by disaggregating the six items of expenditure of durable goods considered in NA: furniture and electric household appliances, medical equipment, personal transport equipment, telephones and telefax equipment, durable goods for recreation and culture (audio-visual, photographic and information processing and other major goods), jewellery.

The combined use of the consumption transition matrix⁶³ and of the Households' Budget Survey (HBS) data made it possible to have a more detailed list of durable goods, starting from the six items mentioned above.

The related maintenance and repair expenditure have been added for each of the ten considered categories of durable goods, in line with what is usually done for capital goods.

⁶² This chapter is taken from "Compilation of annual balance sheets for non financial assets", presented at the Task Force on Quarterly sector accounts Rome, 3-4 December 2009.

⁶³ The consumption transition matrix allow the households' final consumption expenditures to be simultaneously classified by purpose of consumption and product

The P.I.M. has been applied under the assumption of fixed average service lives that are reported in the following table:

Table 6.1: Average service life for the categories of durables goods

Furniture	5
Big household appliances	
Medical equipment	
Personal transport equipment	
Non mobile telephones and telefax equipments	
Mobile telephones	
Personal computers	
Tv, radio,hi-fi, photographic equipment	
Jewellery	9
Other durables goods	

Source: Our elaborations.

The retirement pattern determines the distribution of the retirements around the average service lives. A truncated bell-shaped mortality function has been chosen to represent the removal of the assets from the stock, being the lower cut-off value fixed in the minimum of the service-life and the upper cut-off limit in the maximum of the service life.

In particular, the depreciation function is such that the asset is consumed by a constant amount every year of its life (straight-line depreciation model).

1990 is the first year for which the estimates of the gross and the net stock are available. In choosing the starting point for the evaluation of the stock, it is necessary to consider the durable goods service lives and the length of the households' final consumption expenditure time series (starting from 1970, with the exception of jewellery). Using some Bank of Italy data, for jewellery a reconstruction has been made up to 1951, in order to consider an average service-life longer than 20 years.

The P.I.M. provided the estimates of the gross and the net stock at current replacement cost and as chained-linked values (reference year: 2000). Prices indices were used in both cases: in the first case, assets acquired in earlier periods had to be revaluated each year to bring them to the prices of the current year; in the second case, assets acquired in years other than the reference year had to be converted from the prices actually paid to those of the selected year.

6.2 The results

The application of the P.I.M. resulted the 1990-2007 time series of gross and net stock of consumer durable goods, retirements, consumption of the stock.

In the following tables the results concerning gross and net stock for years 2005-2007 are reported.

Table 6.2: Gross stock of consumer durables (current replacement costs). **Millions euros.**

	2005	2006	2007
Furniture	386,017.0	392,508.0	399,713.0
Big household appliances	52,109.0	54,095.0	56,697.0
Medical equipment	6,346.8	6,272.8	6,237.7
Personal transport equipment	507,107.0	529,323.0	551,383.0
Non mobile telephones and telefax equipment	4,572.3	4,567.0	4,580.8
Mobile telephones	10,541.0	11,107.0	11,215.0
Personal computers	14,939.0	13,853.0	13,611.0
Tv, radio, hi-fi, photographic equipment	25,560.0	26,295.0	26,548.0
Jewellery	139,187.0	145,713.0	152,287.0
Other durable goods	12,460.0	13,826.0	14,456.0
Total durable goods	1,158,839	1,197,560	1,236,729

Source: Our elaborations.

Table 6.3: Net stock of consumer durables (current replacement costs). **Millions euros.**

	2005	2006	2007
Furniture	193,501.0	196,055.0	198,780.0
Big household appliances	27,310.0	28,402.0	29,899.0
Medical equipment	3,131.2	3,075.2	3,100.2
Personal transport equipment	259,718.0	269,537.0	280,553.0
Non mobile telephones and telefax equipment	2,633.2	2,592.1	2,575.0
Mobile telephones	5,849.7	6,075.1	5,949.0
Personal computers	7,756.4	7,248.1	7,193.2
Tv, radio, hi-fi, photographic equipment	13,833.0	14,199.0	14,238.0
Jewellery	86,004.0	89,405.0	92,818.0
Other durable goods	6,229.1	6,825.2	7,073.1

Total durable goods	605,965.6	623,413.7	642,178.5
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Source: Our elaborations.

Table 6.4 : Gross stock of consumer durables (chained-linked values). **Millions euros.**

	2005	2006	2007
Furniture	346,406	345,611	344,113
Big household appliances	50,881	52,719	54,884
Medical equipment	5,923	5,803	5,705
Personal transport equipment	454,828	463,729	472,020
Non mobile telephones and telefax equipment	8,340	9,831	11,623
Mobile telephones	19,319	24,047	28,649
Personal computers	26,930	28,648	30,638
Tv, radio, hi-fi, photographic equipment	27,985	29,971	31,801
Jewellery	126,046	129,768	133,566
Other durable goods	10,632	10,384	10,047
Total durable goods	1,077,290	1,100,510	1,123,046

Source: Our elaborations.

Table 6.5: Net stock of consumer durables (chained-linked values). **Millions euros.**

	2005	2006	2007
Furniture	173,645	172,630	171,130
Big household appliances	26,666	27,680	28,943
Medical equipment	2,922	2,845	2,836
Personal transport equipment	232,943	236,136	240,171
Non mobile telephones and telefax equipment	4,803	5,580	6,534

Mobile telephones	10,721	13,153	15,197
Personal computers	13,983	14,989	16,192
Tv, radio, hi-fi, photographic equipment	15,146	16,185	17,055
Jewellery	77,885	79,621	81,408
Other durable goods	5,315	5,126	4,916
Total durable goods	564,030	573,945	584,382

Source: Our elaborations.

**Table 6.6 : Gross stock of consumer durables-Growth rates on chained-linked values.
Millions euros.**

	2006/ 2005	2007/ 2006
Furniture	-0.2	-0.4
Big household appliances	3.6	4.1
Medical equipment	-2.0	-1.7
Personal transport equipment	2.0	1.8
Non mobile telephones and telefax equipment	17.9	18.2
Mobile telephones	24.5	19.1
Personal computers	6.4	6.9
Tv, radio, hi-fi, photographic equipment	7.1	6.1
Jewellery	3.0	2.9
Other durable goods	-2.3	-3.2
Total durable goods	2.2	2.0

Source: Our elaborations.

Table 6.7: Net stock of consumer durables-Growth rates on chained-linked values.

	2006/ 2005	2007/ 2006
Furniture	-0.6	-0.9
Big household appliances	3.8	4.6
Medical equipment	-2.6	-0.3
Personal transport equipment	1.4	1.7
Non mobile telephones and telefax equipment	16.2	17.1
Mobile telephones	22.7	15.5
Personal computers	7.2	8.0
Tv, radio, hi-fi, photographic equipment	6.9	5.4
Jewellery	2.2	2.2
Other durable goods	-3.6	-4.1

Total durable goods	1.8	1.8
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Source: Our elaborations.

7 Open issues and future plans

7.1 Main open issues

What is described above is a first attempt to compile non financial BS by institutional sector. The results are encouraging, still room for improvement exists for a number of aspects, namely:

1. **Identification of nominal holding gains/losses should be further investigated.**

As explained above, since in P.I.M. the purchasers' price of GFCF is used, the value of the stock of buildings does not include capital gains/losses and all nominal holding gains/losses are assumed to accrue to the value of underlying land.

This implicit assumption should be further investigated to verify its correctness and plausibility.

To attribute nominal gains/losses both to buildings and to underlying land, separate market prices for the two assets should be available, which are not (at least not in Italy). Other procedures to pursue this distinction should be searched.

Since recording the value of buildings separately from the value of underlying land proves to be hard to be achieved and could even hamper international comparability among countries and among economic areas (rich versus developing countries), buildings and underlying land should be record as a combined asset in BS (ESA 95, 7.40 "*If the value of the land cannot be separated from that of buildings or other structures situated on it, the combined assets are classified together in the category of the asset that has the greater value*").

2. The evaluation of **non financial assets of General Government** is a crucial point as it is quite a sensitive information. In particular the value of monuments and state land is hardly available.

3. Information on **demolitions** is not always available and an estimate should be improved.

4. An evaluation of **other structures used for housing purposes** (trailers, tents, caravans, campers, containers, cabins, huts, very small little houses, caves; depots, garages, attics, basements...) would be desirable, even if their relevance is probably unimportant.
5. The **change of ownership of assets among sectors** has to be carefully traced.
6. The value of **dwellings owned by non-residents** should be identified and moved from Households to Quasi-corporations (notional units).
7. The **quality changes of land** (e.g. from cultivated land to building land) needs to be traced and the resulting extra income has to be correctly recorded.
8. New challenges will result from the **introduction of new categories of asset** in BS (according to SNA 2008), for example weapons and R&D.

An electronic group of discussion would be useful to allow experts to share opinions, experiences and main outcomes.

7.2 Future plans

Istat plans to:

- refine the methodologies to achieve estimates for the most relevant kinds of non financial assets of Households within 2011, to tackle with the most recent emerging issues;
- work together with experts to agree on the estimate of non financial assets for General Government (in the medium term);
- compile the whole system of accounts from the opening to the closing BS (Capital account, other changes in the volume of assets account, Revaluation account) for non financial assets for all the institutional sectors (in the medium/long term).

Compiling BS together with revaluation accounts is a challenging and very demanding goal. This proves to be particularly true in those countries whose economic structure is characterised by a huge number of small enterprises, which hampers the use of administrative data, as in Italy. Moreover, the choice and the soundness of the methodological approaches are strongly affected by the organisation of the administrative system and by the availability of statistical information.

It is clear that compiling BS has to be attached a high priority in setting statistical programmes and an appropriate endowment of resources needs to be devoted to it.

ANNEX 3

Balance sheet for non-financial assets by institutional sector, Italy. Years 2006- 2008. Millions of Euros.

Year 2006

Code	List of variables	Institutional Sectors				
		S1	S11	S12	S13	S14+15
AN.1	1. Produced assets	5,422,850	2,382,534	91,740	757,200	2,191,375
AN.11	2. Fixed assets	5,422,850	2,382,534	91,740	757,200	2,191,375
AN.111	3. Tangible fixed assets	5,362,444	2,340,503	82,957	750,424	2,188,560
AN.1111	4. Dwellings	1,888,334	156,333	3,499	36,324	1,692,179
AN.1112	5. Other buildings and structures	1,687,530	790,779	47,332	619,675	229,744
AN.11121	6. Non-residential buildings	865,280	400,492	47,332	187,712	229,744
AN.11122	7. Other structures	822,250	390,287	0	431,963	0
AN.1113	8. Machinery and equipment	1,786,580	1,393,392	32,127	94,425	266,636
AN.112	10. Intangible fixed assets	60,406	42,031	8,783	6,776	2,816
AN.1122	12. Computer software	60,406	42,031	8,783	6,776	2,816
AN.2	17. Non-produced assets	4,750,229	901,626	62,486	463,017	3,323,100
AN.21	18. Tangible non-produced assets	4,750,229	901,626	62,486	463,017	3,323,100
AN.211	19. Land	4,750,229	901,626	62,486	463,017	3,323,100

Year 2007

Code	List of variables	Institutional Sectors				
		S1	S11	S12	S13	S14+15
AN.1	1. Produced assets	5,703,905	2,517,071	93,510	778,762	2,314,562
AN.11	2. Fixed assets	5,703,905	2,517,071	93,510	778,762	2,314,562
AN.111	3. Tangible fixed assets	5,643,542	2,475,043	84,996	771,962	2,311,541
AN.1111	4. Dwellings	1,995,461	166,096	2,736	38,298	1,788,331
AN.1112	5. Other buildings and structures	1,771,555	835,479	48,907	643,339	243,830
AN.11121	6. Non-residential buildings	914,277	424,398	48,907	197,142	243,830
AN.11122	7. Other structures	857,278	411,081	0	446,197	0
AN.1113	8. Machinery and equipment	1,876,526	1,473,468	33,353	90,325	279,380
AN.112	10. Intangible fixed assets	60,363	42,028	8,514	6,801	3,021
AN.1122	12. Computer software	60,363	42,028	8,514	6,801	3,021
AN.2	17. Non-produced assets	4,926,960	969,826	65,145	480,344	3,411,645
AN.21	18. Tangible non-produced assets	4,926,960	969,826	65,145	480,344	3,411,645
AN.211	19. Land	4,926,960	969,826	65,145	480,344	3,411,645

Year 2008

Code	List of variables	Institutional Sectors				
		S1	S11	S12	S13	S14+15
AN.1	1. Produced assets	5,983,746	2,658,647	94,088	815,403	2,415,608
AN.11	2. Fixed assets	5,983,746	2,658,647	94,088	815,403	2,415,608
AN.111	3. Tangible fixed assets	5,923,091	2,614,842	86,974	808,603	2,412,673
AN.1111	4. Dwellings	2,090,824	172,648	2,927	40,852	1,874,397
AN.1112	5. Other buildings and structures	1,858,630	876,606	50,368	677,426	254,230
AN.11121	6. Non-residential buildings	965,852	451,841	50,368	209,412	254,230
AN.11122	7. Other structures	892,778	424,764	0	468,014	0
AN.1113	8. Machinery and equipment	1,973,638	1,565,588	33,679	90,325	284,045
AN.112	10. Intangible fixed assets	60,655	43,805	7,114	6,801	2,935
AN.1122	12. Computer software	60,655	43,805	7,114	6,801	2,935
AN.2	17. Non-produced assets	5,175,725	1,030,051	68,317	514,198	3,563,158
AN.21	18. Tangible non-produced assets	5,175,725	1,030,051	68,317	514,198	3,563,158
AN.211	19. Land	5,175,725	1,030,051	68,317	514,198	3,563,158

Source: Our elaborations.

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