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Improvement of measures of consumption of fixed capital

A sensitivity test on stocks and CFC estimates of Italy: implementation of European recommendations for harmonization and comparability among Member States

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Summary

Since 2020, Istat has been engaged in research and analysis aimed at improving the use of the Perpetual inventory method (PIM) for estimating stocks and consumption in fixed capital (CFC) in the Italian national accounts. The paper describes the work carried out so far. Firstly, the current Italian practice was analyzed in the European context, in light of the recommendations formalized by the DMES Task Force on fixed assets and estimation of consumption of fixed capital under ESA 2010 (TF FIXCAP). The analysis allowed for a self-assessment of our estimation method, also considering the data sources used for the choice of functions and parameters in our practice: we identified the assumptions adopted in Italy underlying PIM that are robust, as they are based on empirical evidence, recent and specific to our country. In this regard, we describe the business surveys periodically conducted in Italy to measure the service lives of some capital assets. On the other hand, there are some current assumptions in the Italian practice that need to be revised, since they are based on hypotheses that lack empirical bases, are often dated and diverging from what is recommended at the European level. Therefore, exercises are described to measure the sensitivity of stock and CFC estimates by modifying these assumptions, aligning them with the European recommendations, in order to achieve greater methodological harmonization in the international context and better data comparability. These sensitivity tests are conducted on Total Economy and on General Government sector, for which the CFC estimates are particularly crucial given their impact on its output estimation. Finally, conclusions and plans are presented.

¹ Prepared by Paola Santoro and Nicola Vallo.

I. Introduction²

1. In Italian national accounts, the estimates of consumption of fixed capital (CFC) and capital stocks (net and gross) are obtained through the Perpetual Inventory Method (PIM). The gross capital stock is estimated by cumulating past flows of gross fixed capital formation (GFCF) of assets over their estimated service life, i.e. the length of time that assets are retained in the capital stock before being retired because the asset is exported, sold for scrap, dismantled or abandoned. Not all assets in a cohort (i.e. all the assets of a particular type that are acquired in a specific year) are removed at the same time, therefore retirement profile is required to model the retirement process of a cohort (frequently used distributions are normal, lognormal, Winfrey, or Weibull). Moreover, aggregate stock figures (namely, net capital stock) should reflect the fact that similar assets of different ages have different values because of depreciation (or CFC), that is the loss in value of an asset or a class of assets as they age. The depreciation function shows how the asset value declines due to physical deterioration (wear and tear), normal obsolescence or normal accidental damage. Under geometric depreciation, the value declines by a constant rate each period; under linear depreciation, the value declines by a constant amount each period.

2. The PIM is the most common method used worldwide but, in practice, National Statistical Institutes (NSIs) may apply it in very different ways, depending on their choices of functions and key parameters. The best option for determining them is to obtain empirical evidence at national level but, generally, this information is sparse and often dated. Consequently, national accountants are forced to make assumptions.

3. With the aim of supporting NSIs in the compilation of stocks of capital assets and CFC, in 2020 Eurostat established the *DMES Task Force on fixed assets and estimation of consumption of fixed capital under ESA 2010 (TF FIXCAP)*. It was closed in December 2022 and a set of recommendations was developed in order to improve harmonization of practices and comparability of data across countries. Istat participated in this international debate as a member of the TF FIXCAP, supporting its work also through a project granted by EUROSTAT titled “*Improvement in the quality of consumption of fixed capital and capital stock estimates in Italy*” (2020-2022).

4. In this paper we describe the work carried out by Istat with the aim of improving the Italian official estimates of CFC and capital stocks, in the context of the grant support and the TF FIXCAP work. First, the approach currently used and the main data sources are presented. We then compare the current Italian assumptions underlying the PIM (functions and service lives) with the practices of other countries and with the international recommendations of the TF FIXCAP, thus identifying the most robust assumptions and the weakest ones. The analysis takes into account the data sources used, i.e., we assess whether the divergences in our assumptions to the international guidelines are driven by Italian specific characteristics, based on empirical evidence or not (Sections 2 and 3). Then, the impact of revisions on our estimates of stocks and CFC through sensitivity analyses is measured (Section 4). Finally, conclusions and plans are presented (Section 5).

II. Depreciation function and retirements distribution in the Italian practice

A. Assumptions and data sources

5. In Italy, official estimates of net capital stocks and CFC are obtained assuming a straight line model of depreciation: an asset with a service life of T years loses a constant proportion (1/T) of the initial asset value each period, becoming zero at the end of year T.

² The views expressed in this paper are those of the authors and do not necessarily reflect the views of the Istat. The paper derives from the joint work of all authors; however, the paragraphs were authored as follows: §1, 2, 3, 4.1 and 5 were written by P. Santoro; § 4.2 by P. Santoro and N. Vallo.

6. Istat combines the straight line depreciation profile for single assets with a truncated normal retirement profile. The retirements are distributed around the average service life (constant over time) according to a truncated normal distribution (with truncation limits set at +/- 35% of average service life and the variance set so that 90% of retirements occur between +/- 25% of the average service life). A truncated normal distribution was chosen because we exclude that an asset, once entered, is never retired.

7. This approach is adopted to estimate the capital stock and CFC for all assets, except R&D and weapons systems, calculated using a geometric depreciation function. For them, net capital stock and consumption of fixed capital are obtained by means of the formula $K_t = K_{t-1}(1 - \delta) + I_t$ where K_t and K_{t-1} are, respectively, the net stock at the end of period t and $t-1$, I_t is the gross fixed capital formation (at chain-linked values) of year t and δ represents the depreciation rate. The constant annual depreciation rate (δ) is calculated using information about average service life of the two asseets with the “declining balance method”: $\delta = R/T$, where R is the declining-balance rate and T is the average service life. For R&D R is set to 2 (the double-declining balance rate is used), for weapons systems it is set to 1.65. Consumption of fixed capital in period t is simply obtained multiplying the depreciation rate δ for the capital stock at the end of period $t-1$.

8. Other countries’ practices, international manuals and guidelines are the main sources³.

9. The retirement function is assumed to be bell-shaped as in many other countries. The parameters (truncation limits and the variance) were defined on the bases of several tests and preliminary works carried out using alternative assumptions⁴. For R&D the main source is the “Manual on measuring Research and Development on ESA 2010”⁵; for weapons systems the depreciation rate was derived from a technical study on several type of assets (including weapons) made by the U.S. Bureau of Economic Analysis (BEA)⁶.

10. Almost all our assumptions about retirement and depreciation functions were made many years ago and they have never been reviewed.

B. International comparison

11. Italy is in line with the most chosen methods used by the other European countries. Based on the information collected by the TF FIXCAP⁷, eighteen EU/EFTA countries use a linear model of depreciation in combination with a retirement function. Assumptions could vary by asset, as also in Italy happens (i.e. for R&D and weapons system).

12. When a retirement function is used, almost all countries (17) use a bell-shaped retirement function (various mathematical functions), as also Italy does.

Table 1
Depreciation functions by country

Depreciation functions	Countries
Linear	BE, CZ, DE, EE, ES, FI, FR, HR, HU, IT, LU, LT, LV, MT, PT, RO, SI, SK
Others	AT, BG, DK, EE, EL, ES, FI, IE, IS, IT, LT, LV, NL, NO, PT, SE, SI

Source: Eurostat, (2023)

Table 2
Retirement functions used by country

Retirement functions	Countries
Bell-shaped	BE, CY, CZ (partly), DE, EE, ES, FI, FR, HU, HR, IE, IT, LT, LU, LV, MT, NL
Others	CZ (partly), RO, PT, SI SK

Source: Eurostat, (2023)

³OECD, (2009), OECD, (2010), Eurostat, (2014).

⁴Lupi, C., Mantegazza, S., (1994).

⁵Eurostat, (2014).

⁶BEA, (2003).

⁷Eurostat, (2023).

13. The European TF FIXCAP expresses the following recommendations⁸:
- *Recommendation 1: A bell-shaped retirement function should be used (without preferring a specific bell-shaped function).*
 - *Recommendation 2: Within the context set by ESA2010 regarding depreciation functions, the recommendation is limited to using a convex cohort depreciation function.*
14. The recommendation is to apply a convex cohort depreciation function. In the case of Italy, the combination of a straight line depreciation function for an individual asset in a given cohort and a normal (hence bell-shaped) function results into a convex cohort depreciation function: the asset cohort's value tends to decline more rapidly initially and less rapidly later. For R&D and weapons systems, the geometric depreciation function is used, coherently to the TF recommendations.

III. Service lives in the Italian practice

A. Assumptions and data sources

15. In our estimates, service lives (ASLs) are constant over time and are asset and industry specific. For all institutional sectors other than General Government, the same ASLs are used. For General Government they may differ.

16. Service lives were first set during the 1990s relying on expert advice, other countries' practices and the international manuals. Since then, they have been updated over time, on empirical evidence from business surveys or international recommendations. The following table presents the main data sources for the service lives currently used in Italy, by asset.

Table 3
Sources for service lives by asset

Asset	Source
N.111 Dwellings	Expert advice
N.112 Other buildings and structures	Buildings other than dwellings: expert advice; Road works and Other civil engineering works: recommendations from the GNP Committee on the Consumption of Fixed Capital on Roads, Bridges etc. (GNIC 011, 2003)
N. 1131 Transport equipment	Expert advice/other countries' practices
N. 11321 Computer hardware	Business surveys data: the survey on business confidence by Istat, 2018, and the survey of industrial and service firms by Bank of Italy, 2019
N. 11322 Telecommunications equipment	
N. 1139 Other machinery and equipment	
<i>of which Furniture</i>	
N. 114 Weapons system	Other countries' practices
N. 115 Cultivated biological resources	Expert advice/other countries' practices
N. 1171 Research and development	Manual on measuring Research and Development on ESA 2010, Eurostat, 2014
N. 1172 Mineral exploration and evaluation	Expert advice/other countries' practices/OECD "Handbook on deriving capital measures of intellectual Property Products", 2010
N. 1173 Computer Software and databases	Expert advice/other countries' practices/OECD "Handbook on deriving capital measures of intellectual Property Products", 2010
N. 1174 Entertainment, literary or artistic originals	GNP Committee on Entertainment, Literary and Artistic Originals (GNIC/010 and GNIC/022). OECD "Handbook on deriving capital measures of intellectual Property Products", 2010

⁸ Eurostat, (2023).

17. Three business surveys were run in Italy aimed to measure the service lives for some assets on empirical evidence:

- the first one involved a sub-sample of Italian firms participating in the Bank of Italy's annual Survey of industrial and service firms (Invind), in cooperation with Istat, in 2011⁹;
- a questionnaire on service lives was included in the Survey on business confidence conducted by Istat, in 2018¹⁰;
- a specific section was added in the questionnaire of the Bank of Italy's annual Survey Invind, in cooperation with Istat, in 2019¹¹.

18. The results of the three surveys (2011, 2018, 2019) were used to measure the service life of computer hardware, telecommunications equipment, other machinery and equipment, with a separate evidence for furniture. Other capital goods were excluded, because it is difficult to estimate their service lives through surveys (e.g., buildings)¹² or because other sources are available, such as administrative data (e.g., motor vehicles)¹³ or international guidelines (IPP).

19. Service lives for computer hardware, telecommunications equipment, furniture and other machinery and equipment were detected with different levels of breakdown by product in the three questionnaires. In the survey by Istat (2018) four types of assets were included (one-to-one correspondence between the goods included in the questionnaire and those on which PIM works in Italy). A very detailed glossary was provided to support respondents in identifying types of capital goods included in each category covered by the survey. In the two questionnaires of Invind (2011, 2019), three types of assets (computer hardware, telecommunications equipment and furniture) were uniquely identified by three assets covered by the survey; instead, other machinery and equipment was detailed in 23 (in 2011) and 5 (in 2019) categories of products. Then the service life for the total asset "other machinery and equipment" was obtained as an average of the service lives collected in the survey for all these products (identified at the 4-digit level of the CPA¹⁴, reclassified in Products used in the National Accounts Supply and Use table - SUT system), weighted with the relevant GFCF in these products.

20. In all the three surveys, the questionnaire was kept simple and convenient to fill in.

21. In 2011 and 2019, contacts and interviews were carried out by the Bank of Italy territorial branches. Questionnaires were administered by means of an electronic form, taking advantage of a web platform. Istat defined the questionnaires, the criteria for the treatment of data and provided useful information for the computation of the estimates, elaborated by the Bank of Italy.

22. In the Istat's survey on business confidence (2018), data collection was carried out using the CATI technique (computer assisted telephone interviewing). The questionnaire and some useful information were sent before the interview to all respondents by e-mail.

23. The three surveys (2011, 2018, and 2019) were all based on a sample, with different sizes, increasing over time:

⁹ Tartaglia-Polcini R., (2013).

¹⁰ <https://www.istat.it/it/files//2018/11/Business-and-consumer-confidence-November-2018.pdf>

¹¹ <https://www.bancaditalia.it/pubblicazioni/indagine-imprese>

¹² The standard approach to gather empirical evidence on average service lives of capital goods is to collect information on the age of the assets at the time they are retired from the production process. However, the standard approach cannot be adopted to estimate ASLs of buildings. In fact, they are not (usually) scrapped but they are subject to major maintenance and repair that it is needed in order to prevent it from falling into disrepair and from collapsing.

¹³ Forestieri P., Santoro P., (2023)

¹⁴ The Statistical classification of products by activity, abbreviated as CPA, is the classification of products (goods as well as services) at the level of the European Union.

- 359 firms belonging to the industry and service sector with at least 20 employees, in 2011
- 3,182 enterprises in the manufacturing sector with a size of 10-500 employees, in 2018
- 4,775 firms, with at least 20 employees belonging to the all private non-financial services industries and firms with at least 10 employees for construction, in 2019.

Table 4

Sample composition by size class and economic sector - business surveys on service lives, 2011, 2018 and 2019

	Number	%
2011		
Size class (employees)		
20-49	96	27
50+	263	73
Sector		
Manufacturing	271	76
Services	40	11
Construction	48	13
Total	359	100
2018		
Size class (employees)		
10 – 49	1,541	48
50-249	1,245	39
250-500	396	12
Sector		
Manufacturing	3,182	100
Total	3,182	100
2019		
Size class (employees)		
10-49	1,787	37
50 – 199	1,821	38
200 – 499	660	14
500+	507	11
Sector		
Manufacturing	2,996	63
Services	1,215	25
Construction	564	12
Total	4,775	100

Source: elaboration on business surveys

Table 5

Number of answers by asset - business surveys on service lives, 2011, 2018 and 2019

	2011	2018	2019
Computer hardware	170	1,786	1,395
Communication equipment	64	1,239	642
Furniture	97	556	543
Other machinery and equipment	625	1,600	1,697
Total	956	5,181	4,277

Source: elaboration on business surveys

24. Service life was defined on the basis of a notion of economic life, not physical or engineering life. The three surveys asked firms, as users of capital assets, to report the service

life (age) of assets retired from the production, in the previous five years, because they had reached the end of their life (discards due to physical deterioration or obsolescence). Firms had to report the age of the capital goods at the time of retirement from production, not the age of the assets at the moment of the write-off from the balance sheet.

25. It was indicated to exclude all productive assets transferred, for any reason, to other enterprises, because sales of productive assets to other firms are not included in the definition of service life.

26. For assets that were acquired new, firms were asked to indicate the service life from the time of acquisition; for assets that were acquired second-hand, firms were asked to indicate the total service life, i.e., that at the time of acquisition plus the number of years elapsed between acquisition and discard.

27. If more than one asset of the same type was disposed of, respondents had to indicate the average life of the assets for which the highest price had been paid at the time of purchase.

28. The main outcomes are reported in table 6.

29. Results indicate shorter service lives for telecommunication equipment in the two recent surveys compared to the one of 2011, while they are longer for hardware in all industries, for furniture in manufacturing, shorter for other machinery and equipment in manufacturing.

30. Based on these results, Istat updated the service lives for computer hardware, telecommunications equipment, other machinery and equipment, with a separate evidence for furniture, in occasion of the general revisions of the Italian national accounts in 2014 (the 2011 survey was used) and in 2019 (2018 and 2019 surveys were used). In both occasions, we decided to revise the time series backwards (stock and CFC), using the new service lives.

31. In 2019, revisions affected the final value of the total CFC by +0.3%, the total net capital stock by +0.4% and the total gross capital stock by +0.5%, with reference to the year 2016.

Table 6

Results - business surveys on service lives, 2011, 2018 and 2019

	Computer hardware	Telecommunications equipment	Furniture	Other machinery and equipment
2011				
Manufacturing	5.9	9.4	12.8	15.4
Other ind. excl. Constr.	6.1	13.7	15.1	23.5
Services	5.8	6.5	12.8	9.1
Construction	5.2	5.2	14.1	9.4
2018				
Manufacturing	7.0	7.3	14.5	14.4
2019				
Manufacturing	6.3	6.2	14.5	14.7
Other ind. excl. Constr.	7.2	6.7	9.4	14.7
Services	6.1	5.2	12.5	11.0
Construction	6.0	4.6	10.0	9.8

Source: elaboration on business surveys

B. International comparison

32. Table A.1 and table A.2 in the Annex show service lives currently used in Italy for S1 and S13 respectively. All industries are reported for each asset even if in some activities, GFCF, stock and CFC in that asset may be zero.

33. Service life can vary considerably from one country to another. Many Member States do not have direct evidence to establish assumptions on this crucial parameter. As different service lives could have important impacts on estimates of capital stock and CFC, the TF FIXCAP recommends average service lives by assets, as indicated in table A.3 of the Annex. In some cases, a range is specified. Member States that use an ASL outside the range should support their decision by evidence (recommendation 3)¹⁵.

34. Comparing Italian assumptions with the international recommendations, in some cases our service life differs from that expressed by the TF FIXCAP. A detailed comparison is described in paragraph 4.

35. Therefore, in 2021, Istat conducted a sensitivity analysis to measure the impact on estimates of introducing new harmonized service lives. The following section presents the methodological approach and main results.

IV. Sensitivity analysis on the service lives

A. Methodological approach

36. The sensitivity analysis has involved Total Economy (S1) and General Government (S13) sectors and has been conducted on all the fixed assets owned by the two institutional sectors.

37. In order to choose service lives for our exercise, we have compared the current Italian average service life to the ones recommended by the TF, for each asset.

38. First, we have removed decimals from our service lives in line with the other NSIs and the TF FIXCAP¹⁶.

39. In our current estimates, for some assets, the service life varies between the two sectors. In this analysis, we have used the same service life for Total Economy and General Government, by asset; in fact, no detailed empirical information is available to justify the differences for the two sectors in Italy. The goal is to ensure greater consistency.

40. For those assets for which the TF indicates a range, we first have checked whether or not the current parameter used in Italy is included in that range:

- when our ASL by asset (and industry) falls within the range indicated by the TF, we have confirmed our parameter;
- in case our ASL by asset (and industry) is out the range but empirical evidence exists (i.e. computer hardware, telecommunications equipment, other machinery and equipment, of which furniture, see section 3), we have confirmed the Italian current parameter;
- in case our ASL by asset (and industry) is not within the range and empirical evidence does not exist, we have revised our ASL: if our ASL is shorter, we have used the minimum level indicated by the TF; if our ASL is longer, we have chosen the maximum level recommended by the TF.

¹⁵ Eurostat, (2023).

¹⁶ Decimals of current Italian parameters are generated by averaging responses collected in the business surveys on service life or by averaging detailed data by product.

41. If a range is not indicated by the TF (few assets: aircrafts, trains, some types of weapons systems, computer software e databases), we have compared our service lives with the ASL by the TF directly and we have adopted TF indications for all assets for which our service life differs and no empirical evidence exists.

42. Based on the comparison between the current service lives used in Italy, by asset and industry, and those recommended by the TF, we have decided on the new parameters to be used in the PIM for this sensitivity analysis, as shown in the table A.4 of the Annex.

43. The following sections explain our choices in more detail, by asset; the described analysis refers, for simplicity, mainly to the S1 sector. Table A.5 and table A.6 of the Annex present the differences between the ASLs used for the sensitivity test and the ASLs currently adopted in Italy for S1 and for S13 (in empty cells the difference is zero). Then, the results for both sectors are presented in paragraph 4.2.

AN. 111 Dwellings

44. For a consistent comparison, it is necessary to take into account the different composition of the assets to which the ASL refers.

45. Service life of 79.1 years for dwellings in Italy relates to the buildings (new buildings and renovation and upgrades) and not to the costs of ownership transfer; they are treated separately, with an ASL equal to 25 years. On the other hand, the recommended service life indicated by the TF (ASL 70, range 65-75) relates to a combined asset: new buildings, renovation and upgrades, costs of ownership transfer.

46. If the costs of ownership transfer were included, then the average service lives for dwellings would be shorter in Italy. Therefore, we have calculated a new service life for dwellings including costs of ownership transfer. It is an average of the Italian service lives of two components (79.1 and 25) weighted by the relevant gross fixed capital formation estimates cumulated for the years 1995-2020. The result is 72 for the combined asset, comparable to the one of the TF, and is within the international range. Accordingly, we have confirmed our service lives: 79 for dwellings (including renovation and upgrades) and 25 years for costs of ownership transfer, as we prefer to continue estimating the two components separately.

47. For General Government, service lives differ by industry. In this exercise, an ASL of 79 years has been used for all industries also for S13, consistent with S1 assumptions.

AN. 1121 Buildings other than dwellings

48. For this asset the average service life varies by industry in Italy (the minimum value is 35, the maximum one is 80). TF recommendations are expressed by type of buildings. We have used the type of industry as a proxy for the type of building, as shown in the table below.

Table 7
Correspondence between type of buildings and NACE¹⁷

TF recommendations	NACE
Warehouse and industrial buildings	B-F
Commercial buildings	G
Educational buildings	P
Health buildings	Q86
Buildings and structures for military use	-
Other buildings	All other industries

49. Also for buildings other than dwellings the Italian service lives relate just to the buildings (new buildings and renovation and upgrades) and not to the costs of ownership transfer (treated separately, with an ASL of 25 years), while the ones recommended by the TF refer to the combined asset (new buildings, renovation and upgrades, costs of ownership transfer). We have calculated a new service life for non-residential buildings including costs of ownership transfer as an average of the separate Italian service lives of two components weighted by the relevant GFCF estimates cumulated for the years 1995-2020. The results, which vary by industry, in some cases are within the range set by the TF, so we have confirmed our current parameter; in other cases they are outside it, so for this exercise we have adopted the extreme value of the range closest to our current parameter. This value has been adjusted (re-proportioned) to refer only to buildings net of costs of ownership transfer, since we intend to continue estimating the two components separately.

AN. 1122 Other structures

50. The comparison has led to very significant revisions for some industries. However, in those with the largest GFCF amounts in this asset (NACE H Transportation and storage, J61 Telecommunications, O Public administration and defence; compulsory social security), the current ASLs used in Italy are confirmed (they are all included in the TF range, 50-60 years).

AN. 1123 Land improvement

51. In Italy, the value of this asset is totally allocated in the activity A, Agriculture, where the Italian ASL (51) is included in the TF range (50-60 years). Therefore, we have confirmed it (removing decimals as for the other assets).

AN. 1131 Transport equipment

52. For vehicles, the Italian current service life is the same as the ASL recommended by the TF (10) for all industries except for NACE O. Therefore, we have changed this parameter just in this activity (from 14 years to 10 years).

53. The TF provides separate guidance for trains, aircraft, ships, while in Italy the PIM method runs on “other transport equipment” as a whole (sum of trains, aircraft, and ships), using a single parameter for it; separate ASLs are not available. For the exercise, it was necessarily to calculate a unique service life (ASL and range) based on the recommendations made by TF and to compare it with the parameter currently used in our estimation. The ASL and range have been obtained by averaging service

¹⁷ NACE is the “statistical classification of economic activities in the European Community” and is the subject of legislation at the European Union level which imposes the use of the classification uniformly within all the Member States; see <https://ec.europa.eu/Eurostat/documents/3859598/5902521/KS-RA-07-015-EN.PDF>

lives proposed by the TF (ASL and range) for trains, aircraft, ships, weighted by the relevant GFCF expenditure in Italy cumulated over several years (from 1995 onwards). The resulting ASL for “other transport equipment” is 24 year (the range is 21-26 years). Since the current Italian ASL is 18 years (20 years in the O activity), we have used the minimum value of the calculated range for the homogeneous asset “Other transport equipment” in our sensitivity analysis (21 years).

AN. 11321 Computer hardware and AN. 11322 Telecommunications equipment

54. For these assets, the ASLs in Italy are based on empirical evidence and are reviewed periodically (business surveys on the service life for fixed assets, see section 3). The rounded values of the parameter (computer hardware: 6 or 7 years; telecommunications equipment: 5 or 7 years, depending on the industry), without decimals, are within the range recommended by the TF (5-7 and 4-7 years, respectively). The exception is telecommunications equipment in NACE A (Agriculture, forestry and fishing), for which the Italian ASL is higher (9 years); since this activity is out of the scope of the surveys, the parameter has been reduced from 9 to 7 years, indicated as the maximum value by the TF.

AN. 1139 Other machinery and equipment

55. In Italy, separate estimates of capital stock and CFC are obtained for

- 1) other machinery and equipment (excluding furniture)
- 2) furniture.

56. Service lives for these two assets are based on empirical evidence and reviewed periodically through the business surveys. They vary by industry.

57. It is not possible to directly compare the service lives with those recommended by the TF for “other machinery and equipment” (expressed by CPA 2-digit), as there is no one-to-one correspondence, except for furniture (CPA 31). Therefore, for the comparison of this asset it was necessary to calculate a service life (ASL and range) by averaging service lives expressed by the TF for CPA (ASL and range) weighted by the relevant cumulated GFCF expenditure in Italy by CPA. For every industry, the parameter is calculated (ASL and range) and then compared to our ASLs. They are aligned, except for NACE F (Constructions) and G (Wholesale and retail trade; repair of motor vehicles and motorcycles), where the rounded service lives currently used in Italy (10 and 11 years respectively) are shorter than the minimum value of the calculated range (14 and 12 years respectively). However, since these industries are in the scope of the surveys, we have confirmed our current parameters for all industries.

AN. 1139 (CPA 31) Furniture

58. The range set by the TF for CPA 31 (furniture) includes the service lives used in Italy except for four industries (NACE B, D, E, and F). In any case, we have confirmed our parameters as they are based on empirical evidence (business surveys) and reviewed periodically.

AN. 114 Weapons systems

59. The TF recommendations and the Italian practice for this asset vary depending on the type of weapon. Although the breakdown is not exactly the same, the comparison is simple and fairly straightforward.

60. Because the service lives currently used in Italy for ships, armoured vehicles and tanks (27 years) are longer than the ones recommended by the TF, for our sensitivity analysis we modified the parameter for these types of weapon systems (25 years for ships, 20 years for armoured vehicles and tanks).

AN. 1151 Animal resources yielding repeat products and AN. 1152 Tree, crop and plant resources yielding repeat products

61. In Italy, capital stock for AN. 1151 is obtained through a direct approach (price x quantity). Service life is not used.

62. The ASL currently used in Italy for AN. 1152 is 18 years, included in the TF range (10-20). We have confirmed our value.

AN. 117 Intellectual property products

63. For all assets included in the intellectual property products (IPP), our service lives are included in the range recommended by the TF (except for software in NACE O, reduced from the current value of 7 years to the recommended value of 5 years, in line with all the other industries in Italy).

B. Main results

64. The following tables (tables 8 – 13) show the impact of introducing the new service lives on the estimates of the net stock and consumption of fixed capital in Italy, for S1 and S13.

65. Based on the exercise described, the effect is not material for both Total Economy and General Government in terms of levels, growth rates and composition.

66. Total net capital stocks for the two sectors increase (tables 8-9). For S1 the total value is higher than the current one from +0.3% to +0.4% over the time series 1995-2020 (+8 billion EUR in 1995, +21 billion EUR in 2020). For S13 the level changes from +0.1% to +0.4% (+615 million EUR in 1995, +4 billion EUR in 2020).

67. CFC revisions (tables 10-11) for S1 are -113 million EUR in 1995 (-0.1%) e +608 million EUR in 2020 (+0.2%); for S13, the impact on estimates is +128 million EUR in 1995 (+0.6%) and +191 million EUR (+0.4%) in 2020.

68. The impact on the total value of stocks and CFC is driven by revisions of opposite sign by asset.

69. The levels of the stock change in the same direction as changes in service lives: the value of each asset increases or decreases accordingly to changes in its service life.

70. Analyzing the impact on net capital stock for S1 by asset for the year 2016 (table 12):

- the main revisions are on buildings other than dwellings (-4.6%, -53 billion EUR), due to shorter service lives for almost all industries (mainly L Real Estate activities and G Wholesale and retail trade), except for Q86 Human health activities (where the revised service life is longer);
- with opposite sign, significant revisions are on other structures (+5.8%, +57 billion EUR), mainly for the longer service life in NACE D Electricity, gas, steam and air conditioning supply;

- estimates increase for transport equipment (+7.4%, +9.4 billion EUR), due to the longer service life for transport equipment other than vehicles (on the other hand, vehicles decrease slightly due to the reduction in the industry O);
- the level increases for the asset other machinery and equipment (+2.1%, +11 billion EUR), due to decimal rounding;
- in some cases, revisions are quite marginal in level: dwellings (-0.1%, -1,8 billion EUR), ICT (-1.1%, -379 million EUR), IPP (-0.8%, -1,5 billion EUR, due to software revision in the industry O). They depend on the elimination of decimals and/or revisions of service lives in very few industries (or just one industry).

71. For the net capital stock of S13, in 2016 (table 13):

- the main significant revision is on dwellings (+48%, +13 billion). This asset is mainly owned by the industry O Public administration and defense compulsory social security; in this industry the ASL revision is +19 years (from 60 to 79). The remaining significant portion of GFCF in dwelling is allocated to the industry Education (P), where the average life has been increased of +21.8 years (from 57.2 to 79);
- the revision for buildings other than dwellings is with opposite sign (-2.9%, -9 billion). The NACE activity O Public Administration and Defense accounts for 75% of S13 GFCF in this asset (average calculated on 2018-2020) and its ASL has changed from the current 60 years to 56 years. A remaining 11% of GFCF is placed in the Q86 Human health activities, where the parameter has been increased of 11 years;
- the revision on other assets are not significant in level: other structures (+0.2%, 1 billion EUR); transport equipment (+6.1%, +495 million EUR), ICT (-7.5%, -272 million EUR), other machinery and equipment (-0.6%, -368 million EUR);
- IPP do not change.

72. Depreciation generally changes in the opposite direction of changes to service lives; that is, increasing the service lives reduces the amount of depreciation because with longer service lives each asset is written off over a longer period. In some years, however, the increase in the number of assets in the stock due to the use of longer service lives outweighs the reduction in the amounts of consumption of fixed capital charged to each asset and total consumption of fixed capital increases with longer service lives.

73. By asset, the main impact on CFC is for buildings other than dwellings and other structures for S1 (table 12) and dwellings and non-residential buildings for S13 (table 13).

74. Composition by asset does not changes significantly (tables 12-13).

75. Due to low revisions on levels, growth rates differ very marginally for both sectors (tables 8-11 and figure 1).

Table 8
The impact of service lives revisions on net capital stock estimates; levels at current replacement costs (million EUR) and growth rates. Total Economy, 1995-2020

Year	Level				growth rate		
	new ASL*	Istat ASL**	difference	Relative difference %	new ASL*	Istat ASL**	new ASL*
1995	2,866,292	2,858,147	8,145	0.3			
1996	2,986,876	2,978,318	8,558	0.3	4.2	4.2	- 0.00
1997	3,120,024	3,111,031	8,993	0.3	4.5	4.5	0.00
1998	3,244,575	3,235,223	9,353	0.3	4.0	4.0	0.00
1999	3,341,229	3,331,650	9,580	0.3	3.0	3.0	- 0.00
2000	3,533,121	3,522,738	10,383	0.3	5.7	5.7	0.01
2001	3,696,572	3,685,299	11,273	0.3	4.6	4.6	0.01
2002	3,908,104	3,896,238	11,866	0.3	5.7	5.7	- 0.00
2003	4,072,377	4,060,089	12,288	0.3	4.2	4.2	- 0.00
2004	4,301,327	4,288,241	13,086	0.3	5.6	5.6	0.00
2005	4,550,200	4,536,749	13,452	0.3	5.8	5.8	- 0.01
2006	4,786,913	4,772,489	14,424	0.3	5.2	5.2	0.01
2007	5,050,767	5,035,397	15,370	0.3	5.5	5.5	0.00
2008	5,299,914	5,283,245	16,669	0.3	4.9	4.9	0.01
2009	5,424,101	5,406,958	17,143	0.3	2.3	2.3	0.00
2010	5,595,411	5,577,290	18,121	0.3	3.2	3.2	0.01
2011	5,810,575	5,792,216	18,359	0.3	3.8	3.9	- 0.01
2012	5,887,528	5,867,916	19,612	0.3	1.3	1.3	0.02
2013	5,868,575	5,848,300	20,275	0.3	- 0.3	- 0.3	0.01
2014	5,851,288	5,830,555	20,733	0.4	- 0.3	- 0.3	0.01
2015	5,862,496	5,841,397	21,099	0.4	0.2	0.2	0.01
2016	5,870,694	5,849,624	21,070	0.4	0.1	0.1	- 0.00
2017	5,926,875	5,905,459	21,416	0.4	1.0	1.0	0.00
2018	6,027,878	6,006,382	21,496	0.4	1.7	1.7	- 0.00
2019	6,065,882	6,044,614	21,268	0.4	0.6	0.6	- 0.01
2020	6,048,728	6,027,613	21,116	0.4	- 0.3	- 0.3	- 0.00

Source: elaboration on Istat data

* ASLs used in the sensitivity analysis

** ASLs currently used in Italy

Table 9
The impact of service lives revisions on net capital stock estimates; levels at current replacement costs (million EUR) and growth rates. General Government, 1995-2020

Year	Level				growth rate		
	new ASL*	Istat ASL**	difference	relative difference %	new ASL*	Istat ASL**	new ASL*
1995	509,329	508,713	615	0.1			
1996	525,327	524,657	671	0.1	3.1	3.1	0.01
1997	544,847	544,121	726	0.1	3.7	3.7	0.01
1998	564,389	563,650	738	0.1	3.6	3.6	- 0.00
1999	577,718	576,922	796	0.1	2.4	2.4	0.01
2000	608,134	607,112	1,022	0.2	5.3	5.2	0.03
2001	663,118	661,746	1,371	0.2	9.0	9.0	0.04
2002	685,688	684,129	1,559	0.2	3.4	3.4	0.02
2003	711,162	709,445	1,718	0.2	3.7	3.7	0.01
2004	751,368	749,536	1,832	0.2	5.7	5.7	0.00
2005	791,717	789,809	1,909	0.2	5.4	5.4	- 0.00
2006	832,765	830,868	1,897	0.2	5.2	5.2	- 0.01
2007	873,249	871,225	2,024	0.2	4.9	4.9	0.00
2008	915,696	913,512	2,184	0.2	4.9	4.9	0.01
2009	946,611	943,888	2,723	0.3	3.4	3.3	0.05
2010	990,610	987,829	2,781	0.3	4.6	4.7	- 0.01
2011	1,035,919	1,033,103	2,816	0.3	4.6	4.6	- 0.01
2012	1,037,275	1,034,035	3,240	0.3	0.1	0.1	0.04
2013	1,028,326	1,024,959	3,367	0.3	- 0.9	- 0.9	0.01
2014	1,028,882	1,025,408	3,474	0.3	0.1	0.0	0.01
2015	1,020,662	1,017,063	3,599	0.4	- 0.8	- 0.8	0.01
2016	1,014,540	1,009,540	5,000	0.5	- 0.6	- 0.7	0.14
2017	1,012,613	1,010,850	1,763	0.2	- 0.2	0.1	- 0.32
2018	1,018,171	1,013,967	4,204	0.4	0.5	0.3	0.24
2019	1,020,783	1,016,670	4,113	0.4	0.3	0.3	- 0.01
2020	1,016,784	1,012,586	4,198	0.4	- 0.4	- 0.4	0.01

Source: elaboration on Istat data

* ASLs used in the sensitivity analysis

** ASLs currently used in Italy

Table 10
The impact of service lives revisions on CFC estimates; levels at current replacement costs (million EUR) and growth rates. Total Economy, 1995-2020

Year	Level				growth rate		
	new ASL*	Istat ASL**	difference	relative difference %	new ASL*	Istat ASL**	new ASL*
1995	144,509	144,621	- 113	- 0.1			
1996	151,376	151,499	- 123	- 0.1	4.8	4.8	- 0.01
1997	158,360	158,511	- 151	- 0.1	4.6	4.6	- 0.01
1998	165,582	165,788	- 206	- 0.1	4.6	4.6	- 0.03
1999	171,744	171,989	- 245	- 0.1	3.7	3.7	- 0.02
2000	182,583	182,841	- 258	- 0.1	6.3	6.3	0.00
2001	192,460	192,709	- 249	- 0.1	5.4	5.4	0.01
2002	203,671	203,926	- 256	- 0.1	5.8	5.8	0.00
2003	211,882	212,137	- 255	- 0.1	4.0	4.0	0.01
2004	222,920	223,186	- 266	- 0.1	5.2	5.2	0.00
2005	233,566	233,837	- 271	- 0.1	4.8	4.8	0.00
2006	244,939	245,257	- 319	- 0.1	4.9	4.9	- 0.01
2007	256,781	257,160	- 379	- 0.1	4.8	4.9	- 0.02
2008	268,357	268,793	- 436	- 0.2	4.5	4.5	- 0.02
2009	273,557	273,947	- 390	- 0.1	1.9	1.9	0.02
2010	282,177	282,532	- 355	- 0.1	3.2	3.1	0.02
2011	291,067	291,378	- 310	- 0.1	3.2	3.1	0.02
2012	296,368	296,632	- 264	- 0.1	1.8	1.8	0.02
2013	295,266	295,414	- 148	- 0.1	- 0.4	- 0.4	0.04
2014	296,149	296,166	- 17	- 0.0	0.3	0.3	0.04
2015	300,079	299,993	85	0.0	1.3	1.3	0.03
2016	300,873	300,686	187	0.1	0.3	0.2	0.03
2017	306,059	305,792	267	0.1	1.7	1.7	0.03
2018	311,557	311,196	361	0.1	1.8	1.8	0.03
2019	315,700	315,214	486	0.2	1.3	1.3	0.04
2020	317,507	316,900	608	0.2	0.6	0.5	0.04

Source: elaboration on Istat data

* ASLs used in the sensitivity analysis

** ASLs currently used in Italy

Table 11
The impact of service lives revisions on CFC estimates; levels at current replacement costs (million EUR) and growth rates. General Government, 1995-2020

Year	Level				growth rate		
	new ASL*	Istat ASL**	difference	relative difference %	new ASL*	Istat ASL**	new ASL*
1995	22,865	22,737	128	0.6			
1996	23,340	23,221	119	0.5	2.1	2.1	- 0.05
1997	24,009	23,904	105	0.4	2.9	2.9	- 0.07
1998	24,884	24,788	96	0.4	3.6	3.7	- 0.06
1999	25,552	25,463	89	0.3	2.7	2.7	- 0.04
2000	27,081	26,972	109	0.4	6.0	5.9	0.06
2001	29,369	29,240	129	0.4	8.5	8.4	0.04
2002	31,022	30,863	159	0.5	5.6	5.6	0.08
2003	32,591	32,440	151	0.5	5.1	5.1	- 0.05
2004	34,583	34,440	143	0.4	6.1	6.2	- 0.05
2005	36,466	36,344	122	0.3	5.4	5.5	- 0.08
2006	38,469	38,359	110	0.3	5.5	5.5	- 0.05
2007	40,390	40,284	106	0.3	5.0	5.0	- 0.03
2008	42,408	42,287	121	0.3	5.0	5.0	0.02
2009	43,688	43,522	166	0.4	3.0	2.9	0.10
2010	45,852	45,643	209	0.5	5.0	4.9	0.08
2011	47,665	47,415	250	0.5	4.0	3.9	0.07
2012	47,978	47,770	208	0.4	0.7	0.7	- 0.09
2013	47,958	47,794	164	0.3	- 0.0	0.1	- 0.09
2014	48,187	48,048	139	0.3	0.5	0.5	- 0.05
2015	48,220	48,084	136	0.3	0.1	0.1	- 0.01
2016	48,413	48,187	226	0.5	0.4	0.2	0.19
2017	48,827	48,629	198	0.4	0.9	0.9	- 0.06
2018	49,184	49,016	168	0.3	0.7	0.8	- 0.06
2019	49,568	49,385	183	0.4	0.8	0.8	0.03
2020	49,832	49,641	191	0.4	0.5	0.5	0.01

Source: elaboration on Istat data

* ASLs used in the sensitivity analysis

** ASLs currently used in Italy

Table 12

The impact of service lives revisions on net capital stock and CFC estimates, by asset; levels at current replacement costs (million EUR) and composition (%). Total Economy, 2016

Asset	Level		difference	relative difference %	Composition	
	new ASL*	Istat ASL**			new ASL*	Istat ASL**
Net capital stock, S1						
Dwellings including ownership transfer costs	2,807,616	2,809,412	- 1,796	- 0.1	48%	48%
Buildings other than dwellings including ownership transfer costs	1,099,458	1,152,415	- 52,957	- 4.6	19%	20%
Other structures and land improvements	1,040,211	983,474	56,737	5.8	18%	17%
Transport equipment	137,913	128,419	9,494	7.4	2%	2%
ICT	35,095	35,474	- 379	- 1.1	1%	1%
Other mach. and equip. Including furniture and weapons systems	557,336	545,872	11,464	2.1	9%	9%
Biological resources	5,867	5,867	-	-	0%	0%
IPP	187,197	188,690	- 1,493	- 0.8	3%	3%
Total	5,870,694	5,849,624	21,070	0.4	100%	100%
CFC, S1						
Dwellings including ownership transfer costs	66,657	66,614	44	0.1	22%	22%
Buildings other than dwellings including ownership transfer costs	41,985	40,541	1,444	3.6	14%	13%
Other structures and land improvements	35,054	36,548	- 1,494	- 4.1	12%	12%
Transport equipment	20,630	20,731	- 102	- 0.5	7%	7%
ICT	11,297	11,281	16	0.1	4%	4%
Other mach. and equip. Including furniture and weapons systems	79,209	78,944	265	0.3	26%	26%
Biological resources	348	348	-	-	0%	0%
IPP	45,694	45,679	15	0.0	15%	15%
Total	300,873	300,686	187	0.1	100%	100%

Source: elaboration on Istat data

* ASLs used in the sensitivity analysis

** ASLs currently used in Italy

Table 13

The impact of service lives revisions on net capital stock and CFC estimates, by asset; levels at current replacement costs (million EUR) and composition (%). General Government, 2016

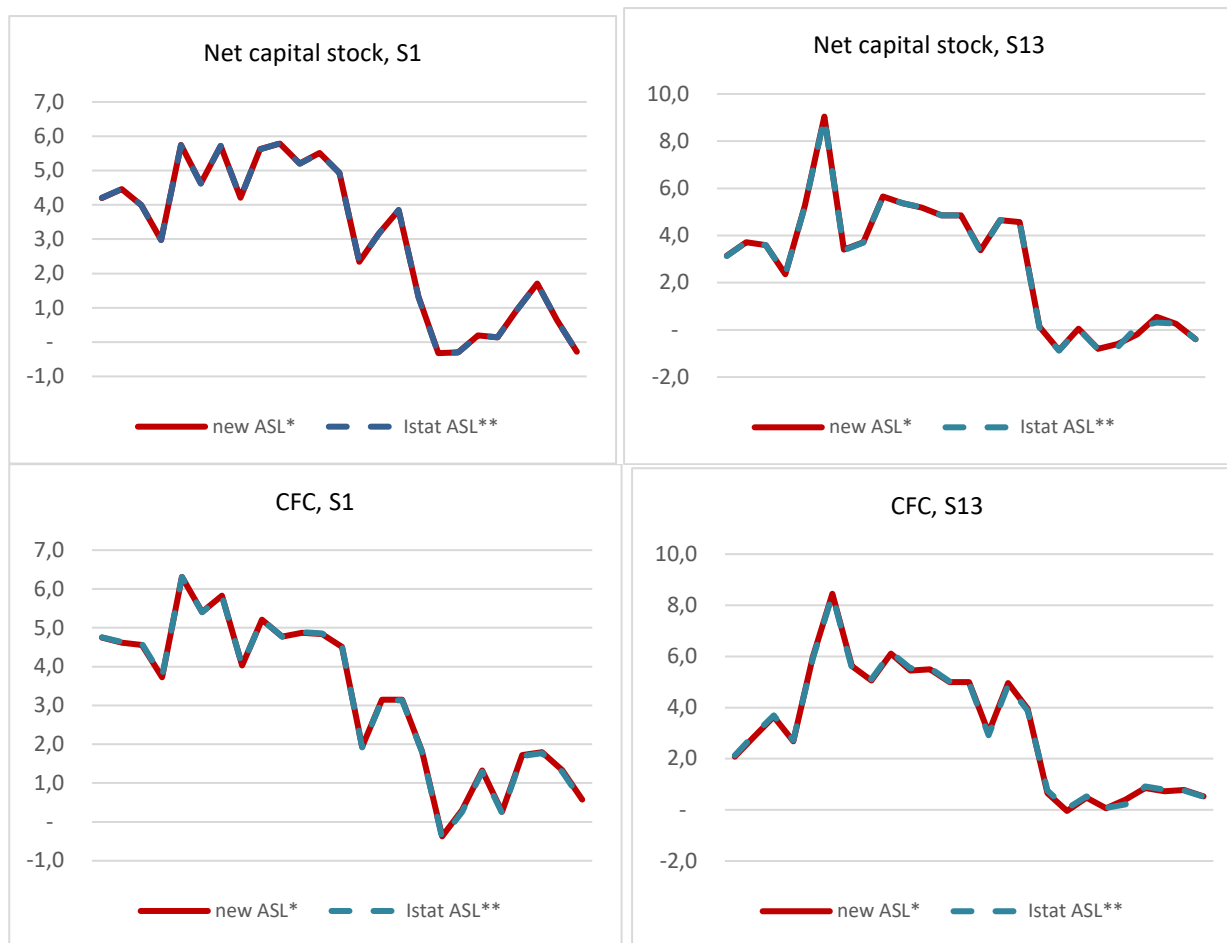
Asset	Level		difference	relative difference %	Composition	
	new ASL*	Istat ASL**			new ASL*	Istat ASL**
Net capital stock, S13						
Dwellings including ownership transfer costs	39,733	26,880	12,853	47.8	4%	3%
Buildings other than dwellings including ownership transfer costs	291,948	300,683	- 8,735	- 2.9	29%	30%
Other structures and land improvements	563,918	562,891	1,027	0.2	56%	56%
Transport equipment	8,637	8,142	495	6.1	1%	1%
ICT	3,379	3,651	- 272	- 7.5	0%	0%
Other mach. and equip. Including furniture and weapons systems	59,272	59,639	- 368	- 0.6	6%	6%
Biological resources						
IPP	47,654	47,654	-	-	5%	5%
Total	1,014,540	1,009,540	5,000	0.5	100%	100%
CFC, S13						
Dwellings including ownership transfer costs	1,111	1,262	- 151	- 12.0	2%	3%
Buildings other than dwellings including ownership transfer costs	9,665	9,484	180	1.9	20%	20%
Other structures and land improvements	18,447	18,450	- 3	- 0.0	38%	38%
Transport equipment	1,038	1,109	- 72	- 6.5	2%	2%
ICT	1,103	1,302	- 199	- 15.3	2%	3%
Other mach. and equip. Including furniture and weapons systems	6,303	5,833	470	8.1	13%	12%
Biological resources						
IPP	10,747	10,747	-	-	22%	22%
Total	48,413	48,187	226	0.5	100%	100%

Source: elaboration on Istat data

* ASLs used in the sensitivity analysis

** ASLs currently used in Italy

Figure 1
The impact of service lives revisions on net capital stock and CFC growth rates, Total Economy and General Government, 1995-2020



Source: elaboration on Istat data

* ASLs used in the sensitivity analysis

** ASLs currently used in Italy

V. Conclusion

76. In recent years, harmonizing compilation practices and improving the quality and comparability of estimates of capital stock and CFC have gained importance and attention. In this context, Istat has conducted numerous studies and tests in order to review and update its practice of measuring stocks of fixed assets and CFC in the Italian national accounts.

77. Based on the results of our analyses, some Italian assumptions are empirically based and/or are aligned with international guidelines (the depreciation function and the retirements distribution; service lives for many assets, such as dwellings, buildings other than dwellings in some industries, other structures in some industries, land improvements, IPP, ICT equipment and other machinery and equipment). In contrast, some hypotheses should be revised as they differ from the recommendations made by the TF and they are not justified by empirical evidence (service life for buildings other than dwellings in some industries, other structures in some industries, transport equipment, some types of weapons systems). Also, the same service life for all sectors should be adopted, if the current ASLs differ by sector and specific detailed information is not available, in order to have greater methodological harmonization.

78. A sensitivity analysis has measured the effect of revisions on our estimates of stocks and CFC. The exercise shows that no significant impacts are expected on the estimates of stocks and CFC and on key macroeconomic indicators, through the measurement of non-market output by the sum of costs. Changing these parameters, the total net capital stocks for S1 is higher than the current one from +0.3% to +0.4% over the time series 1995-2020, CFC revision is from -0.1% to +0.2% over the same period. The impact on the total value is determined by revisions with opposite signs by asset. Growth rates differ very marginally.

79. However, these are provisional estimates and plans, as the works are not yet completed.

80. First, the new survey is underway to update the service life of computer hardware, communication equipment, other machinery and equipment, furniture (a specific questionnaire has been included in the annual Invind survey, conducted by the Bank of Italy, in collaboration with Istat, in 2024).

81. Furthermore, Istat is testing the use of time-varying service lives for some assets (i.e., the average service life changes over time). The standard approach adopted by Istat (and by many other National Statistical Institutes) involves using constant average service lives over the time series. However, this approach does not take into account changes in the composition of gross fixed capital formation over time in products with different service lives (e.g. new constructions vs major maintenance) nor the fact that lives of assets of the same type may change over time due to variations in the rate of obsolescence.

82. Revision will be introduced in our estimates during the next EU harmonized benchmark revisions of national accounts, scheduled for 2024.

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ANNEX

Table A.1
ASLs currently used in Italy, by industry and asset, S1

Industry		N111	N1121	N1122	N1123	N111	N112	N1131	N1131	N11321	N11322	N1139	N1139	N114	N1152	N1171	N1172	N1173	N1174
		Dwellings	Buildings other than dwellings	Other structures	Land improv.	Ownership transfer costs	Vehicles	Other transport equipment	Computer hardware	Telecomm. equipment	Other mach. and equip.	Furniture	Weapons systems	Tree, crop and plant resources	R&D	Mineral exploration and evaluation	Computer software and databases	Entert., literary or artistic originals	
A	Agriculture, forestry and fishing	79.1	51.1	51.1	51.1	25	10	18	6.0	9.4	13.9	12.8		18	10	34	5	10	
B	Mining and quarrying	79.1	35	35	35	25	10	18	7.2	6.7	14.7	9.4		18	10	34	5	10	
C10T12	Manufacture of food products, beverages and tobacco products	79.1	35	35	35	25	10	18	6.7	6.8	14.5	14.5		18	10	34	5	10	
C13T15	Manufacture of textiles, wearing apparel, leather and related products	79.1	35	35	35	25	10	18	6.7	6.8	14.5	14.5		18	10	34	5	10	
C16T18	Manufacture of wood and of products of wood and cork, paper and paper products and printing and reproduction of recorded media	79.1	35	35	35	25	10	18	6.7	6.8	14.5	14.5		18	10	34	5	10	
C19	Manufacture of coke and refined petroleum products	79.1	35	35	35	25	10	18	6.7	6.8	14.5	14.5		18	10	34	5	10	
C20	Manufacture of chemicals and chemical products	79.1	35	35	35	25	10	18	6.7	6.8	14.5	14.5		18	10	34	5	10	
C21	Manufacture of basic pharmaceutical products and preparations	79.1	35	35	35	25	10	18	6.7	6.8	14.5	14.5		18	10	34	5	10	
C22_23	Manufacture of rubber and plastic products and other non-metallic mineral products	79.1	35	35	35	25	10	18	6.7	6.8	14.5	14.5		18	10	34	5	10	
C24_25	Manufacture of basic metals, fabricated metal products, except machinery and equipment	79.1	35	35	35	25	10	18	6.7	6.8	14.5	14.5		18	10	34	5	10	
C26	Manufacture of computer, electronic and optical products	79.1	35	35	35	25	10	18	6.7	6.8	14.5	14.5		18	10	34	5	10	
C27	Manufacture of electrical equipment	79.1	35	35	35	25	10	18	6.7	6.8	14.5	14.5		18	10	34	5	10	
C28	Manufacture of machinery and equipment n.e.c.	79.1	35	35	35	25	10	18	6.7	6.8	14.5	14.5		18	10	34	5	10	
C29_30	Manufacture of motor vehicles, trailers and semi-trailers, and other transport equipment	79.1	35	35	35	25	10	18	6.7	6.8	14.5	14.5		18	10	34	5	10	
C31T33	Manufacture of furniture, other manufacturing, repair and installation of machinery and equipment	79.1	35	35	35	25	10	18	6.7	6.8	14.5	14.5		18	10	34	5	10	
D	Electricity, gas, steam and air conditioning supply	79.1	35	35	35	25	10	18	7.2	6.7	14.7	9.4		18	10	34	5	10	
E	Water supply; sewerage, waste management and remediation activities	79.1	40	40	40	25	10	18	7.2	6.7	14.7	9.4		18	10	34	5	10	
F	Construction	79.1	35	35	35	25	10	18	6.0	4.6	9.8	10.0		18	10	34	5	10	
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	79.1	65	65	65	25	10	18	6.1	5.2	11.0	12.5		18	10	34	5	10	
H	Transportation and storage	79.1	50	50	50	25	10	18	6.1	5.2	13.9	12.5		18	10	34	5	10	
I	Accommodation and food service activities	79.1	65	65	65	25	10	18	6.1	5.2	11.0	12.5		18	10	34	5	10	
J58T60	Publishing, audiovisual and broadcasting activities	79.1	65	65	65	25	10	18	6.1	5.2	11.0	12.5		18	10	34	5	10	
J61	Telecommunications	79.1	50	50	50	25	10	18	6.1	5.2	11.0	12.5		18	10	34	5	10	
J62_63	IT and other information services	79.1	65	65	65	25	10	18	6.1	5.2	11.0	12.5		18	10	34	5	10	
K	Financial and insurance activities	79.1	65	65	65	25	10	18	6.1	5.2	11.0	12.5		18	10	34	5	10	
L	Real estate activities	79.1	80	80	80	25	10	18	6.1	5.2	11.0	12.5		18	10	34	5	10	
M69T71	Legal and accounting activities, activities of head offices, management consultancy, architecture and engineering activities, technical testing and analysis	79.1	65	65	65	25	10	18	6.1	5.2	11.0	12.5		18	10	34	5	10	
M72	Scientific research and development	79.1	65	65	65	25	10	18	6.1	5.2	11.0	12.5		18	10	34	5	10	
M73T75	Advertising and market research, other professional, scientific and technical activities, veterinary activities	79.1	65	65	65	25	10	18	6.1	5.2	11.0	12.5		18	10	34	5	10	
N	Administrative and support service activities	79.1	65	65	65	25	10	18	6.1	5.2	11.0	12.5		18	10	34	5	10	
O	Public administration and defence; compulsory social security	79.1	60	60	60	25	14	20	6.1	5.2	11.0	12.5	10-30	20	10	34	7	10	
P	Education	79.1	57	57	57	25	10	18	6.1	5.2	11.0	12.5		18	10	34	5	10	
Q86	Human health activities	79.1	35	35	35	25	10	18	6.1	5.2	11.0	12.5		18	10	34	5	10	
Q87_88	Residential care and social work activities	79.1	56	56	56	25	10	18	6.1	5.2	11.0	12.5		18	10	34	5	10	
R	Arts, entertainment and recreation	79.1	56	56	56	25	10	18	6.1	5.2	11.0	12.5		18	10	34	5	10	
S	Other services activities	79.1	56	56	56	25	10	18	6.1	5.2	11.0	12.5		18	10	34	5	10	
T	Act. of HH as employers; undif. G&S-producing activities of HH for own use	79.1	56	56	56	25	10	18	6.1	5.2	11.0	12.5		18	10	34	5	10	
U	Activities of extraterritorial organizations and bodies	79.1	56	56	56	25	10	18	6.1	5.2	11.0	12.5		18	10	34	5	10	

Table A.2
ASLs currently used in Italy, by industry and asset, S13

Industry		N111	N1121	N1122	N1123	N111 N112	N1131	N1131	N1132	N1139	N1139	N114	N1152	N1171	N1172	N1173	N1174
		Dwellings	Buildings other than dwellings	Other structures	Land improv.	Ownership transfer costs	Vehicles	Other transport equipment	ICT	Other mach. and equip.	Furniture	Weapons systems	Trec, crop and plant resources	R&D	Mineral exploration and evaluation	Computer software and databases	Entert., literary or artistic originals
A	Agriculture, forestry and fishing	51.1	51.1	51.1		25	10	18	6.3	15	12.8			10		5	10
B	Mining and quarrying	35.0	35.0	35.0		25	10	18	6.3	15	12.8			10		5	10
C10T12	Manufacture of food products, beverages and tobacco products	35.0	35.0	35.0		25	10	18	6.3	15	12.8			10		5	10
C13T15	Manufacture of textiles, wearing apparel, leather and related products	35.0	35.0	35.0		25	10	18	6.3	15	12.8			10		5	10
C16T18	Manufacture of wood and of products of wood and cork, paper and paper products and printing and reproduction of recorded media	35.5	35.5	35.5		25	10	18	6.3	15	12.8			10		5	10
C19	Manufacture of coke and refined petroleum products	35.0	35.0	35.0		25	10	18	6.3	15	12.8			10		5	10
C20	Manufacture of chemicals and chemical products	35.0	35.0	35.0		25	10	18	6.3	15	12.8			10		5	10
C21	Manufacture of basic pharmaceutical products and preparations	35.0	35.0	35.0		25	10	18	6.3	15	12.8			10		5	10
C22_23	Manufacture of rubber and plastic products and other non-metallic mineral products	35.0	35.0	35.0		25	10	18	6.3	15	12.8			10		5	10
C24_25	Manufacture of basic metals, fabricated metal products, except machinery and equipment	35.0	35.0	35.0		25	10	18	6.3	15	12.8			10		5	10
C26	Manufacture of computer, electronic and optical products	35.0	35.0	35.0		25	10	18	6.3	15	12.8			10		5	10
C27	Manufacture of electrical equipment	35.0	35.0	35.0		25	10	18	6.3	15	12.8			10		5	10
C28	Manufacture of machinery and equipment n.e.c.	35.0	35.0	35.0		25	10	18	6.3	15	12.8			10		5	10
C29_30	Manufacture of motor vehicles, trailers and semi-trailers, and other transport equipment	35.0	35.0	35.0		25	10	18	6.3	15	12.8			10		5	10
C31T33	Manufacture of furniture, other manufacturing, repair and installation of machinery and equipment	35.0	35.0	35.0		25	10	18	6.3	15	12.8			10		5	10
D	Electricity, gas, steam and air conditioning supply	40.0	40.0	40.0		25	10	18	6.3	23	12.8			10		5	10
E	Water supply; sewerage, waste management and remediation activities	40.0	40.0	40.0		25	10	18	6.3	23	12.8			10		5	10
F	Construction	35.0	35.0	35.0		25	10	18	6.3	9	12.8			10		5	10
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	65.0	65.0	65.0		25	10	18	6.3	9	12.8			10		5	10
H	Transportation and storage	50.0	50.0	50.0		25	10	18	6.3	9	12.8			10		5	10
I	Accommodation and food service activities	65.0	65.0	65.0		25	10	18	6.3	9	12.8			10		5	10
J58T60	Publishing, audiovisual and broadcasting activities	56.2	56.2	56.2		25	10	18	6.3	9	12.8			10		5	10
J61	Telecommunications	50.0	50.0	50.0		25	10	18	6.3	9	12.8			10		5	10
J62_63	IT and other information services	56.2	56.2	56.2		25	10	18	6.3	9	12.8			10		5	10
K	Financial and insurance activities	65.0	65.0	65.0		25	10	18	6.3	9	12.8			10		5	10
L	Real estate activities	79.1	79.1	79.1		25	10	20	7.5	9	18.0			10		5	10
M69T71	Legal and accounting activities, activities of head offices, management consultancy, architecture and engineering activities, technical testing and analysis	79.1	79.1	79.1		25	10	18	6.3	9	12.8			10		5	10
M72	Scientific research and development	79.1	79.1	79.1		25	10	18	6.3	9	12.8			10		5	10
M73T75	Advertising and market research, other professional, scientific and technical activities, veterinary activities	79.1	79.1	79.1		25	10	18	6.3	9	12.8			10		5	10
N	Administrative and support service activities	79.1	79.1	79.1		25	10	18	6.3	9	12.8			10		5	10
O	Public administration and defence; compulsory social security	60.0	60.0	60.0		25	10	18	6.0	15	13.0	10-30		10		5	10
P	Education	57.2	57.2	57.2		25	10	18	6.3	9	12.8			10		5	10
Q86	Human health activities	35.1	35.1	35.1		25	10	18	6.3	9	12.8			10		5	10
Q87_88	Residential care and social work activities	35.1	35.1	35.1		25	10	18	6.3	9	12.8			10		5	10
R	Arts, entertainment and recreation	56.2	56.2	56.2		25	10	18	6.3	9	12.8			10		5	10
S	Other services activities	56.2	56.2	56.2		25	10	18	6.3	9	12.8			10		5	10
T	Act. of HH as employers; undif. G&S-producing activities of HH for own use	0	0	0		0	0	0	0	0	0			0		0	10
U	Activities of extraterritorial organizations and bodies	0	0	0		0	0	0	0	0	0			0		0	10

Table A.3

Recommendations for ASL by the TF FIXCAP

Asset code	Asset	ASL Years	Range
AN.111	Dwellings	70	65-75
AN.1121	Buildings other than dwellings		
	Warehouse and industrial buildings	30	25-35
	Commercial buildings	50	45-55
	Educational buildings	50	45-55
	Health buildings	50	45-55
	Buildings and structures for military use	50	45-55
	Other buildings	50	45-55
AN.1122	Other structures	55	50-60
AN.1123	Land improvements	55	50-60
AN.1131	Transport equipment		
	Aircraft	20	
	Trains	25	
	Ships	25	20-30
	Vehicles (possible differentiation e.g. trucks, trailers, buses, cars)	10	8-12
AN.11321	Computer hardware	6	5-7
AN.11322	Telecommunications equipment	5	4-7
AN.1139	Other machinery and equipment		
	CPA 26: computer, electronic and optical products (except groups 261 and 262)	10	8-12
	CPA 27: electrical equipment	15	12-18
	CPA 28: machinery and equipment n.e.c.	20	15-25
	CPA 31: furniture	15	12-18
	CPA 32: other manufactured goods	10	8-12
AN.114	Weapons systems		
	Aircraft	25	20-30
	Ships	25	
	Tanks	20	
	Armoured vehicles	20	
	Electronic equipment	10	
	Other	15	5-25
AN.1151	Animal resources yielding repeat products (no CFC)	10	
AN.1152	Tree, crop and plant resources yielding repeat products	15	10-20
AN.1171	Research and development	10	8-12
AN.1172	Mineral exploration and evaluation	30	20-40
AN.1173	Computer software and databases	5	
AN.1174	Originals	7	5-10
AN.1179	Other intellectual property products	No recommendation	

Table A.4
ASLs used in the sensitivity analysis for S1 and S13, by industry and asset

Industry		N111	N1121	N1122	N1123	N111	N112	N1131	N1131	N11321	N11322	N1139	N1139	N114	N1152	N1171	N1172	N1173	N1174
		Dwellings	Buildings other than dwellings	Other structures	Land improv.	Ownership transfer costs	Vehicles	Other transport equipment	Computer hardware	Telecomm. equipment	Other mach. and equip.	Furniture	Weapons systems	Tree, crop and plant resources	R&D	Mineral exploration and evaluation	Computer software and databases	Entert., literary or artistic originals	
A	Agriculture, forestry and fishing	79	51	51	51	25	10	21	6	7	14	13		18	10	34	5	10	
B	Mining and quarrying	79	35	50	50	25	10	21	7	7	15	9		18	10	34	5	10	
C10T12	Manufacture of food products, beverages and tobacco products	79	35	50	50	25	10	21	7	7	15	15		18	10	34	5	10	
C13T15	Manufacture of textiles, wearing apparel, leather and related products	79	35	50	50	25	10	21	7	7	15	15		18	10	34	5	10	
C16T18	Manufacture of wood and of products of wood and cork, paper and paper products and printing and reproduction of recorded media	79	35	50	50	25	10	21	7	7	15	15		18	10	34	5	10	
C19	Manufacture of coke and refined petroleum products	79	35	50	50	25	10	21	7	7	15	15		18	10	34	5	10	
C20	Manufacture of chemicals and chemical products	79	35	50	50	25	10	21	7	7	15	15		18	10	34	5	10	
C21	Manufacture of basic pharmaceutical products and preparations	79	35	50	50	25	10	21	7	7	15	15		18	10	34	5	10	
C22_23	Manufacture of rubber and plastic products and other non-metallic mineral products	79	35	50	50	25	10	21	7	7	15	15		18	10	34	5	10	
C24_25	Manufacture of basic metals, fabricated metal products, except machinery and equipment	79	35	50	50	25	10	21	7	7	15	15		18	10	34	5	10	
C26	Manufacture of computer, electronic and optical products	79	35	50	50	25	10	21	7	7	15	15		18	10	34	5	10	
C27	Manufacture of electrical equipment	79	35	50	50	25	10	21	7	7	15	15		18	10	34	5	10	
C28	Manufacture of machinery and equipment n.e.c.	79	35	50	50	25	10	21	7	7	15	15		18	10	34	5	10	
C29_30	Manufacture of motor vehicles, trailers and semi-trailers, and other transport equipment	79	35	50	50	25	10	21	7	7	15	15		18	10	34	5	10	
C31T33	Manufacture of furniture, other manufacturing, repair and installation of machinery and equipment	79	35	50	50	25	10	21	7	7	15	15		18	10	34	5	10	
D	Electricity, gas, steam and air conditioning supply	79	35	50	50	25	10	21	7	7	15	9		18	10	34	5	10	
E	Water supply; sewerage, waste management and remediation activities	79	36	50	50	25	10	21	7	7	15	9		18	10	34	5	10	
F	Construction	79	35	50	50	25	10	21	6	5	10	10		18	10	34	5	10	
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	79	58	60	60	25	10	21	6	5	11	13		18	10	34	5	10	
H	Transportation and storage	79	50	50	50	25	10	21	6	5	14	13		18	10	34	5	10	
I	Accommodation and food service activities	79	58	60	60	25	10	21	6	5	11	13		18	10	34	5	10	
J58T60	Publishing, audiovisual and broadcasting activities	79	59	60	60	25	10	21	6	5	11	13		18	10	34	5	10	
J61	Telecommunications	79	50	50	50	25	10	21	6	5	11	13		18	10	34	5	10	
J62_63	IT and other information services	79	60	60	60	25	10	21	6	5	11	13		18	10	34	5	10	
K	Financial and insurance activities	79	57	60	60	25	10	21	6	5	11	13		18	10	34	5	10	
L	Real estate activities	79	58	60	60	25	10	21	6	5	11	13		18	10	34	5	10	
M69T71	Legal and accounting activities, activities of head offices, management consultancy, architecture and engineering activities, technical testing and analysis	79	58	60	60	25	10	21	6	5	11	13		18	10	34	5	10	
M72	Scientific research and development	79	59	60	60	25	10	21	6	5	11	13		18	10	34	5	10	
M73T75	Advertising and market research, other professional, scientific and technical activities, veterinary activities	79	58	60	60	25	10	21	6	5	11	13		18	10	34	5	10	
N	Administrative and support service activities	79	58	60	60	25	10	21	6	5	11	13		18	10	34	5	10	
O	Public administration and defence; compulsory social security	79	56	60	60	25	10	21	6	5	11	13	10 - 30	20	10	34	5	10	
P	Education	79	56	57	57	25	10	21	6	5	11	13		18	10	34	5	10	
Q86	Human health activities	79	46	50	50	25	10	21	6	5	11	13		18	10	34	5	10	
Q87_88	Residential care and social work activities	79	56	56	56	25	10	21	6	5	11	13		18	10	34	5	10	
R	Arts, entertainment and recreation	79	56	56	56	25	10	21	6	5	11	13		18	10	34	5	10	
S	Other services activities	79	56	56	56	25	10	21	6	5	11	13		18	10	34	5	10	
T	Act. of HH as employers; undif. G&S-producing activities of HH for own use	79	56	56	56	25	10	21	6	5	11	13		18	10	34	5	10	
U	Activities of extraterritorial organizations and bodies	79	56	56	56	25	10	21	6	5	11	13		18	10	34	5	10	

Table A.5
Differences between the ASLs used in the sensitivity analysis and the ASLs currently used in Italy, by industry and asset, S1

Industry		N111	N1121	N1122	N1123	N111	N112	N1131	N1131	N11321	N11322	N1139	N1139	N114	N1152	N1171	N1172	N1173	N1174
		Dwellings	Buildings other than dwellings	Other structures	Land improv.	Ownership transfer costs	Vehicles	Other transport equipment	Computer hardware	Telecomm. equipment	Other mach. and equip.	Furniture	Weapons systems	Tree, crop and plant resources	R&D	Mineral exploration and evaluation	Computer software and databases	Entert., literary or artistic originals	
A	Agriculture, forestry and fishing	-0.1	-0.1	-0.1	-0.1			3.0			-2.4	0.1	0.2						
B	Mining and quarrying	-0.1		15.0	15.0			3.0	-0.2	0.3	0.3	-0.4							
C10T12	Manufacture of food products, beverages and tobacco products	-0.1		15.0	15.0			3.0	0.3	0.2	0.5	0.5							
C13T15	Manufacture of textiles, wearing apparel, leather and related products	-0.1		15.0	15.0			3.0	0.3	0.2	0.5	0.5							
C16T18	Manufacture of wood and of products of wood and cork, paper and paper products and printing and reproduction of recorded media	-0.1		15.0	15.0			3.0	0.3	0.2	0.5	0.5							
C19	Manufacture of coke and refined petroleum products	-0.1		15.0	15.0			3.0	0.3	0.2	0.5	0.5							
C20	Manufacture of chemicals and chemical products	-0.1		15.0	15.0			3.0	0.3	0.2	0.5	0.5							
C21	Manufacture of basic pharmaceutical products and preparations	-0.1		15.0	15.0			3.0	0.3	0.2	0.5	0.5							
C22_23	Manufacture of rubber and plastic products and other non-metallic mineral products	-0.1		15.0	15.0			3.0	0.3	0.2	0.5	0.5							
C24_25	Manufacture of basic metals, fabricated metal products, except machinery and equipment	-0.1		15.0	15.0			3.0	0.3	0.2	0.5	0.5							
C26	Manufacture of computer, electronic and optical products	-0.1		15.0	15.0			3.0	0.3	0.2	0.5	0.5							
C27	Manufacture of electrical equipment	-0.1		15.0	15.0			3.0	0.3	0.2	0.5	0.5							
C28	Manufacture of machinery and equipment n.e.c.	-0.1		15.0	15.0			3.0	0.3	0.2	0.5	0.5							
C29_30	Manufacture of motor vehicles, trailers and semi-trailers, and other transport equipment	-0.1		15.0	15.0			3.0	0.3	0.2	0.5	0.5							
C31T33	Manufacture of furniture, other manufacturing, repair and installation of machinery and equipment	-0.1		15.0	15.0			3.0	0.3	0.2	0.5	0.5							
D	Electricity, gas, steam and air conditioning supply	-0.1		15.0	15.0			3.0	-0.2	0.3	0.3	-0.4							
E	Water supply; sewerage, waste management and remediation activities	-0.1	-4.0	10.0	10.0			3.0	-0.2	0.3	0.3	-0.4							
F	Construction	-0.1		15.0	15.0			3.0		0.4	0.2								
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	-0.1	-7.0	-5.0	-5.0			3.0	-0.1	-0.2		0.5							
H	Transportation and storage	-0.1						3.0	-0.1	-0.2	0.1	0.5							
I	Accommodation and food service activities	-0.1	-7.0	-5.0	-5.0			3.0	-0.1	-0.2		0.5							
J58T60	Publishing, audiovisual and broadcasting activities	-0.1	-6.0	-5.0	-5.0			3.0	-0.1	-0.2		0.5							
J61	Telecommunications	-0.1						3.0	-0.1	-0.2		0.5							
J62_63	IT and other information services	-0.1	-5.0	-5.0	-5.0			3.0	-0.1	-0.2		0.5							
K	Financial and insurance activities	-0.1	-8.0	-5.0	-5.0			3.0	-0.1	-0.2		0.5							
L	Real estate activities	-0.1	-22.0	-20.0	-20.0			3.0	-0.1	-0.2		0.5							
M69T71	Legal and accounting activities, activities of head offices, management consultancy, architecture and engineering activities, technical testing and analysis	-0.1	-7.0	-5.0	-5.0			3.0	-0.1	-0.2		0.5							
M72	Scientific research and development	-0.1	-6.0	-5.0	-5.0			3.0	-0.1	-0.2		0.5							
M73T75	Advertising and market research, other professional, scientific and technical activities, veterinary activities	-0.1	-7.0	-5.0	-5.0			3.0	-0.1	-0.2		0.5							
N	Administrative and support service activities	-0.1	-7.0	-5.0	-5.0			3.0	-0.1	-0.2		0.5							
O	Public administration and defence; compulsory social security	-0.1	-4.0					-4.0	1.0	-0.1	-0.2	0.5						-2.0	
P	Education	-0.1	-1.0					3.0	-0.1	-0.2		0.5							
Q86	Human health activities	-0.1	11.0	15.0	15.0			3.0	-0.1	-0.2		0.5							
Q87_88	Residential care and social work activities	-0.1						3.0	-0.1	-0.2		0.5							
R	Arts, entertainment and recreation	-0.1						3.0	-0.1	-0.2		0.5							
S	Other services activities	-0.1						3.0	-0.1	-0.2		0.5							
T	Act. of HH as employers; undif. G&S-producing activities of HH for own use	-0.1						3.0	-0.1	-0.2		0.5							
U	Activities of extraterritorial organizations and bodies	-0.1						3.0	-0.1	-0.2		0.5							

Table A.6

Difference Differences between the ASLs used in the sensitivity analysis and the ASLs currently used in Italy, by industry and asset, S13

	Industry	N111	N1121	N1122	N1123	N111 N112	N1131	N1131	N1132	N1139	N1139	N114	N1152	N1171	N1172	N1173	N1174
		Dwellings	Buildings other than dwellings	Other structures	Land improv.	Ownership transfer costs	Vehicles	Other transport equipment	ICT	Other mach. and equip.	Furniture	Weapons systems	Tree, crop and plant resources	R&D	Mineral exploration and evaluation	Computer software and databases	Entert., literary or artistic originals
A	Agriculture, forestry and fishing	27.9	-0.1	-0.1				3.0	-0.3	-1.0	0.2						
B	Mining and quarrying	44.0		15.0				3.0	0.7		-3.8						
C10T12	Manufacture of food products, beverages and tobacco products	44.0		15.0				3.0	0.7		2.2						
C13T15	Manufacture of textiles, wearing apparel, leather and related products	44.0		15.0				3.0	0.7		2.2						
C16T18	Manufacture of wood and of products of wood and cork, paper and paper products and printing and reproduction of recorded media	43.5	-0.5	14.5				3.0	0.7		2.2						
C19	Manufacture of coke and refined petroleum products	44.0		15.0				3.0	0.7		2.2						
C20	Manufacture of chemicals and chemical products	44.0		15.0				3.0	0.7		2.2						
C21	Manufacture of basic pharmaceutical products and preparations	44.0		15.0				3.0	0.7		2.2						
C22_23	Manufacture of rubber and plastic products and other non-metallic mineral products	44.0		15.0				3.0	0.7		2.2						
C24_25	Manufacture of basic metals, fabricated metal products, except machinery and equipment	44.0		15.0				3.0	0.7		2.2						
C26	Manufacture of computer, electronic and optical products	44.0		15.0				3.0	0.7		2.2						
C27	Manufacture of electrical equipment	44.0		15.0				3.0	0.7		2.2						
C28	Manufacture of machinery and equipment n.e.c.	44.0		15.0				3.0	0.7		2.2						
C29_30	Manufacture of motor vehicles, trailers and semi-trailers, and other transport equipment	44.0		15.0				3.0	0.7		2.2						
C31T33	Manufacture of furniture, other manufacturing, repair and installation of machinery and equipment	44.0		15.0				3.0	0.7		2.2						
D	Electricity, gas, steam and air conditioning supply	39.0	-5.0	10.0				3.0	0.7	-8.0	-3.8						
E	Water supply; sewerage, waste management and remediation activities	39.0	-4.0	10.0				3.0	0.7	-8.0	-3.8						
F	Construction	44.0	0.0	15.0				3.0	-0.3	1.0	-2.8						
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	14.0	-7.0	-5.0				3.0	-0.3	2.0	0.2						
H	Transportation and storage	29.0						3.0	-0.3	5.0	0.2						
I	Accommodation and food service activities	14.0	-7.0	-5.0				3.0	-0.3	2.0	0.2						
J58T60	Publishing, audiovisual and broadcasting activities	22.8	2.8	3.8				3.0	-0.3	2.0	0.2						
J61	Telecommunications	29.0						3.0	-0.3	2.0	0.2						
J62_63	IT and other information services	22.8	3.8	3.8				3.0	-0.3	2.0	0.2						
K	Financial and insurance activities	14.0	-8.0	-5.0				3.0	-0.3	2.0	0.2						
L	Real estate activities	-0.1	-21.1	-19.1				1.0	-1.5	2.0	-5.0						
M69T71	Legal and accounting activities, activities of head offices, management consultancy, architecture and engineering activities, technical testing and analysis	-0.1	-21.1	-19.1				3.0	-0.3	2.0	0.2						
M72	Scientific research and development	-0.1	-20.1	-19.1				3.0	-0.3	2.0	0.2						
M73T75	Advertising and market research, other professional, scientific and technical activities, veterinary activities	-0.1	-21.1	-19.1				3.0	-0.3	2.0	0.2						
N	Administrative and support service activities	-0.1	-21.1	-19.1				3.0	-0.3	2.0	0.2						
O	Public administration and defence; compulsory social security	19.0	-4.0					3.0		-4.0							
P	Education	21.8	-1.2	-0.2				3.0	-0.3	2.0	0.2						
Q86	Human health activities	43.9	10.9	14.9				3.0	-0.3	2.0	0.2						
Q87_88	Residential care and social work activities	43.9	20.9	20.9				3.0	-0.3	2.0	0.2						
R	Arts, entertainment and recreation	22.8	-0.2	-0.2				3.0	-0.3	2.0	0.2						
S	Other services activities	22.8	-0.2	-0.2				3.0	-0.3	2.0	0.2						
T	Act. of HH as employers; undif. G&S-producing activities of HH for own use																
U	Activities of extraterritorial organizations and bodies																