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#### Subnational and regional accounts

## **A regional estimate of General Government GFCF of Italy: different strategies for different assets and subsectors and implementation of European recommendations**

**Prepared by the Italian National Institute of Statistics<sup>1</sup>**

### *Summary*

Since 2020, Istat has been engaged in analysis aimed at realizing regional estimates for General Government sector GFCF. The paper describes the work carried out so far. The practice adopted was analyzed in light of the recommendations formalized by the Eurostat Task Force on Regional Investment. The potential in Local Government current data sources to provide accurate regional estimates has been tested, while the different issues in regionalizing GFCF of Central Government Units and Social Security Funds has been identified. The analysis was firstly aimed at regionalizing the GFCF expenditure in infrastructures, as a strategic asset for regional cohesion, but then also focused on remaining assets, and specifically on weapons and Research & Development. Therefore, exercises are described to obtain a regional distribution of General Government GFCF aligning them with the European recommendations, in order to achieve methodological harmonization in the international context and better data comparability. Finally, conclusions and future plans are presented.

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<sup>1</sup> Prepared by Nicola Vallo, Francesca Brunaccini.

## I. Introduction<sup>2</sup>

1. In June 2020, aware of the crucial relevance of monitoring public investment at regional level in order to provide proper indicators for cohesion policies, Eurostat launched the *Task Force on Regional Investments*, whose works continued until September 2023. As a member of the Task force, ISTAT participated to the debate and to the finalization of recommendations for regionalizing General Government GFCF. These recommendations were then collected in the final report of the Task Force. The participation of ISTAT was supported through a project granted by Eurostat titled “*Pilot project on regional gross fixed capital formation by the government sector*”. The project aimed at realizing test estimates of the regional distribution of General Government GFCF for the years 2018, 2019 and 2020.

2. The first section of this document describes of General Government GFCF of Italy by subsector and asset. Subsequently a description of how the regionalization has been realized is provided. Section number 3 focuses on the regionalization of Local Government units, while section 4 and 5 on Social Security Funds and Central Government. Section 6 is dedicated to R&D, while section 7 provides the results of the analysis for the year 2020. In Section 8 some provisional conclusions and future plans are presented.

## II. Public investments of Italy and structure of the analysis

3. Table 1 shows the split of Italy General Government GFCF expenditure by subsectors. The Public administration sector, S.13, is divided in three subsectors: Central Government (CG), S.1311, Local Government (LG), S1313, and Social Security Funds (SSF), S.1314. In Italy the State subsector, S.1312 is not present.

Table 1

**Split of Italy General Government GFCF expenditure by subsectors**

	2018	2019	2020
<b>GG</b>	37.766	41.470	43.077
<b>CG</b>	16.504	17.699	18.496
<b>LG</b>	20.859	23.461	24.322
<b>SSF</b>	403	310	259
<b>GG</b>	100%	100%	100%
<b>CG</b>	43,7%	42,7%	42,9%
<b>LG</b>	55,2%	56,6%	56,5%
<b>SSF</b>	1,1%	0,7%	0,6%

ISTAT, October 2023 release, dati.istat.it

4. LG plays constantly a prominent role in the overall level of Italian public investment. An effective regionalization of this subsector could give a good contribution to the regionalization of the entire GG sector. Nonetheless the contribution of CG is also very relevant, and in this subsector a big percentage of total expenditure in infrastructures is included. SSF instead represent the subsector with the smaller level of GFCF.

<sup>2</sup> 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, 6, 7, 8 were written by N. Vallo; § 5 by N. Vallo and F. Brunaccini.

Table 2  
General government GFCF division into subsectors, 2018

2018										
	GG	CG	LG	SSF		GG	CG	LG	SSF	
<b>Dwellings, Building other than dwellings and Other structures</b>	19.155	7.504	11.648	3		100,0%	39,2%	60,8%	0,0%	
<i>of which Other structures</i>	11.968	5.964	6.004	-		100,0%	49,8%	50,2%	0,0%	
<b>Machinery equipment and intellectual property products</b>	18.611	9.000	9.211	400		100,0%	48,4%	49,5%	2,1%	
<i>of which machinery equipment</i>	4.142	1.617	2.474	51		100,0%	39,0%	59,7%	1,2%	
<i>of which R&amp;D</i>	7.881	2.387	5.385	109		100,0%	30,3%	68,3%	1,4%	
<i>of which computer software and database and Entertainment, literary or artistic originals</i>	2.967	1.375	1.352	240		100,0%	46,3%	45,6%	8,1%	

ISTAT, October 2023 release, dati.istat.it

Table 3  
General government GFCF division into subsectors, 2019

2019										
	GG	CG	LG	SSF		GG	CG	LG	SSF	
<b>Dwellings, Building other than dwellings and Other structures</b>	21.253	7.802	13.475	-	24	100,0%	36,7%	63,4%	-0,1%	
<i>of which Other structures</i>	14.037	6.663	7.374	-		100,0%	47,5%	52,5%	0,0%	
<b>Machinery equipment and intellectual property products</b>	20.217	9.897	9.986	334		100,0%	49,0%	49,4%	1,7%	
<i>of which machinery equipment</i>	4.795	1.655	3.095	45		100,0%	34,5%	64,5%	0,9%	
<i>of which R&amp;D</i>	8.123	2.455	5.562	106		100,0%	30,2%	68,5%	1,3%	
<i>of which computer software and database and Entertainment, literary or artistic originals</i>	3.038	1.526	1.329	183		100,0%	50,2%	43,7%	6,0%	

ISTAT, October 2023 release, dati.istat.it

Table 4  
General government GFCF division into subsectors, 2020

2020	GG	CG	LG	SSF		GG	CG	LG	SSF
<b>Dwellings, Building other than dwellings and Other structures</b>	21.207	7.773	13.556	- 122		100,0%	36,7%	63,9%	-0,6%
<i>of which Other structures</i>	13.443	6.737	6.706	-		100,0%	50,1%	49,9%	0,0%
<b>Machinery equipment and intellectual property products</b>	21.870	10.723	10.772	381		100,0%	49,0%	49,3%	1,7%
<i>of which machinery equipment</i>	6.607	2.714	3.830	63		100,0%	41,1%	58,0%	1,0%
<i>of which R&amp;D</i>	8.262	2.618	5.529	115		100,0%	31,7%	66,9%	1,4%
<i>of which computer software and database and Entertainment, literary or artistic originals</i>	3.329	1.719	1.413	203		100,0%	51,6%	42,4%	6,1%

ISTAT, October 2023 release, dati.istat.it

5. Tables 2-4 show how, for the years considered, the general government GFCF is divided into subsectors and kind of asset. Regarding CG is clear that a big part of the expenditure is related to *Other Structures* and *R&D*. The strategy adopted in regionalizing CG took into consideration this relevance, isolating the specific subgroups of units responsible for this part of GFCF and assessing the possibility of including complementary information to those already present in their data sources currently used for national accounts.

6. Similarly to what is done for the estimates of annual accounts, realized for homogenous group of units within each subsector and then assembled to obtain the GG figures, the regionalization has been realized in the same way, not considering the subsector as a whole, but each group of units within a given subsector.

7. For central administration this groups are: the State group (including Ministries and Prime Minister's Office, the Chamber of Deputies, the Senate, the Presidency of the Republic, the Constitutional Court, Other Bodies of Constitutional status, which constitutes the core central administration), Anas, RFI, National Research Bodies, National Television, National Economic Bodies and other minor central units.

8. Local Government includes Regions, Provinces, Municipalities, Local Health Units, Universities, Chambers of Commerce, Port Authorities and other minor local units.

9. Social Security Funds are a group of 22 institutions. Despite their lower impact on GG investments, this group of units is characterized by a strong level of dwellings disposals, and this element has been carefully considered in distributing by regions their investments.

10. At first for each group of unit the availability of regional information in the data sources already used for annual accounts has been checked; if not available, the characteristics of the unit have been considered: when uniregional, the GFCF has been allocated to the region where the unit was located, if multiregional, additional other resources have been explored to obtain the regional distribution of their assets. Within each group of units the total GFCF expenditure has been split in three parts regionalized separately:

- (a) Assets other than R&D and Weapons
- (b) R&D
- (c) Weapons (only for State)

11. Within the GFCF portion of “Assets other than R&D and Weapons” - which includes *Dwellings, Buildings other than dwellings, Other structures, Transport equipment, Machinery equipment, ICT, Software and Entertainment, literary or artistic originals* – all the imputations, i.e. elements of expenditure included in P51g according to ESA 2010 and Manual on Government Deficit and Debt (Eurostat, 2022), have been regionalized separately: own account software, financial leasing, decommissioning costs, expenditure related to PPP and EPC contracts classified as *on balance*, to rerouted assets in the context of concession contracts.

12. Own account software has been regionalized using regional distribution of the single group of units compensation of employees, information from PPP and EPC contracts has been used to locate the work realized in the specific region of the unit involved, decommissioned assets has been located in the region of the actual decommissioning, and similarly happened for road works realized by concessionaires classified in S.13 and construction assets rerouted to S.13 perimeter.

### III. Local Government (S.1313) GFCF regionalization

13. For Local Government (S1313) a detailed regionalization by single asset has been realized. This was possible thanks to the structure of data sources already used for compiling annual accounts, reporting regional information both for accrual and cash amounts. Regions, Municipalities, Provinces and Local Health Units, which together represent the 94% of Local Government P51g expenditure, share this same level of detail.

14. For the residual 6% (Mountains Development Bodies, Chambers of Commerce, Port Authorities, and other local units) a similar approach has been used when possible.

15. The main components of the Local Government investments are *Building and Other structures* and *Research & Development*. Municipalities are responsible for the higher level of expenditure within the group and, with Regions and Provinces, cover more than the 80% of the expenditure in *Buildings and other structures* of the subsector. Universities alone cover almost entirely the expenditure of the subsector in R&D.

16. The data source for annual accounts of Regions and Autonomous Provinces is the *Istat Survey on Financial Statements of Regions and of Autonomous Provinces*. The data source is organized by region and for all the aggregates, including GFCF, is pretty straightforward to obtain regional accounts. The Regions and Autonomous Provinces subgroup of units is multiregional and constituted by single units resident in specific regions.

17. For Provinces and Municipalities the sources used for annual accounts are the “Final Accounting Reports” (*Certificati del rendiconto di bilancio*), collected every year by the Ministry of Internal Affairs. Since 2019 data are uploaded in the MoF General Government database (*Banca Dati Amministrazioni Pubbliche-BDAP*). In this case the overall amount of GFCF could be split by region using the split by region of the original data source, at asset level.

18. For Local Health Units, profit and loss accounts collected by the Ministry of Health are available. These data, consolidated at regional level, are transmitted by every LHU to the NSIS System (*Nuovo Sistema Informativo Sanitario*) of the Ministry of Health and then to Istat. The regional split of stocks, and consequently of flows of P51g, is available at asset level. In this case non-movable assets are only *Buildings other than dwellings*.

19. As for Universities, the data source is a census survey on the Universities accounting documents carried out by the Ministry of Education and Research. Also in this case the structure of the annual data source allowed a detailed split by asset. Universities, together with Research Bodies for Central Government, are mainly responsible for the expenditure in Research and Development. The regionalization of this specific asset will be described in section 6.

20. The nature of the units, the straightforward identification of the regional local-KAUS, and the use of surveys and administrative data as data sources allowed to use a bottom up approach in performing the GFCF regional estimates, with GFCF expenditure effectively allocated to the regions where is used and whose value added estimation contributes to.

21. S.1313 group of units are multiregional, with local KAUs resident in specific regions. For each local KAU information on the aggregates involved in the estimation of P.1 at costs (D1, P2, D29 paid, with the exclusion of P51c which follows the regional distribution of P51g) and on P51g is available. P51g is automatically allocated to the region of the owner (*owner principle*), and P51g and value added, resulting from the estimation of P1, are strictly associated.

22. This ascending/ bottom up approach is applicable almost for the entire S.1313 subsector. Being based on surveys and administrative data, this method of regionalization is an A-method in terms of accuracy, according to *Manual on regional accounts methods* (Eurostat,2013).

23. The “other local units” subgroup covers a residual part (6% on average for the years considered) of LG investments. This subgroup is composed by multiregional units like *Chambers of Commerce* or *Port Authorities* or *Mountain Development Bodies*, for which the sources are available at regional level, but also by units classified in the S.13 sector, most of them uniregional. This subgroup also contains local roads concessionaires classified in S.13. For these units a *pseudo-bottom up approach* has been applied in regionalizing P51g. This units are involved in the construction and maintenance of roads. In this cases the notional local KAU of the concessionaires has been estimated using as indicator the regional distribution of the road network, following a territorial criterion to allocate the P51g. Nonetheless, the percentage of S.1313 P51g regionalized using the pseudo bottom up approach is very low (1%).

24. Normally Local Government units are involved in realizing works via Public Private Partnership contracts (PPP). Regions, Municipalities and Local Health Units in particular. If the contract is classified as *on balance*, i.e. the entire cost of the works has to be included in

General Government net lending/net borrowing according to ESA2010, a regional distinction by asset (mostly *Buildings other than dwellings*, and *Other structures*), coming from PPP contracts is available and, in compiling the estimates, this particular expenditure has been regionalized accordingly.

#### IV. Social Security Funds (S.1314) regionalization

25. Social security Funds data source for annual accounts is a statistical survey, carried out by ISTAT, on final budgets of Social Security Funds.

26. A regional distribution of gross fixed capital formation of SSF is not available in the data sources, so different strategies have been used according the peculiar characteristics of this part of GFCF expenditure of GG, which nonetheless normally amounts to a residual percentage of it, as you can see in Table 1, reported in section 1.

27. The gross fixed capital formation of Social Security Funds consists mainly of *software, acquired R&D, ICT equipment, buildings other than dwellings* and *dwellings*. For *dwellings* in particular, the level of disposal – realized in the past also via securitizations - is historically quite relevant. This is especially true for the years 2001- 2005, but all the following years, including the years 2018, 2019 and 2020 analyzed for the project, were affected.

28. A first test estimate has been realized using a top down indicator: the regional information on fixed assets expenditure of Public Administration contained in the *Territorial Public Accounting System (CPT)*<sup>3</sup> survey, provided by the Italian Agency of Cohesion. This survey collects cash payments related to different aggregates realized by each unit of general government participating to the survey. Given the level of aggregation of the information collected (the assets are grouped in moveable assets and non-moveable assets only) and considering a difference of perimeter between the SSF participating to the survey and the universe of SSF included in S.13 perimeter, this first option has been abandoned.

29. The second test estimate aimed at giving also particular attention to disposals of Dwellings. This led to a separate regionalization of acquisitions and disposals. The acquisition and disposals of new Machinery and equipment, ICT and software has been regionalized using the regional distribution of SSF employees. The acquisition of new and used *dwellings* and *building other than dwellings* has been regionalized using the regional distribution of areas of these assets owned by SSF reported in the annual survey *Patrimonio della PA*<sup>4</sup> realized by the Treasury Department (Ministry of Finance): each General Government unit communicates data on public real estate (buildings and land), providing information on area, location, type of use, real estate characteristics of the asset. The database of the Department of the Treasury contains information on the properties of approximately 11,000 public administrations, both central and local, using homogeneous criteria and classification systems. The regional distribution of the areas of *dwellings* and *Building other than dwellings* owned by SSF and contained in this survey has been used.

30. The disposal of dwellings has been regionalized separately using information contained in the balance sheets of Funds involved in the disposals, indicating the location and the region of the sold dwellings.

#### V. Central Government (S.1311) GFCF regionalization

31. The regionalization of GFCF of Central Government (S.1311) was more difficult due to the absence of regional information in the data sources used for compiling annual accounts. The regionalization of S.1311 GFCF needs necessarily to rely on external indicators.

32. Excluding weapons, in charge of State, and R&D, mainly realized by Central Research Bodies, the remaining assets are 90% covered by the regionalization of three

<sup>3</sup> <https://www.agenziacoesione.gov.it/sistema-conti-pubblici-territoriali/>

<sup>4</sup> <https://portalesororo.mef.gov.it/>

subgroup of units: State, Anas and RFI. The last two are mainly engaged in realizing roads and railways.

33. The remaining Other Central Units group (National Economic Bodies, National Assistance Bodies, National Television) is mainly constituted by uniregional units. The RIDDCUE<sup>5</sup> survey used for annual accounts estimation of these units contains the region where each unit is located and allows a proper regionalization.

34. For State subgroup the *State Budget Reporting* provided by the State General Accounting Department (*Ragioneria Generale dello Stato*) of the Ministry of Economy and Finance contains only aggregated information for the total annual expenditure with no indication about the counterpart or the local office responsible for the expenditure.

35. Initially a *counterpart approach* (Eurostat, 1999) in regionalizing this expenditure was considered, trying to allocate the expenditure to the region where the asset is purchased and the seller located, but this hypothesis has been subsequently abandoned due to the lack of complete and reliable information in the sources available. Also in this case, a first test estimate was realized using the regional distribution of expenditure provided by the Territorial Public Accounting System (CPT). Finally a second estimate has been realized using a top down approaches for different assets: for moveable assets, the regional distribution of employees of Ministries, Schools and National Security has been used; for *dwelling*s and *buildings other than dwelling*s, instead, the information on stocks of these assets, owned by State Administration, reported in the *Patrimonio della Pa* survey realized by the Treasury Department of the Ministry of Finance, also mentioned in section 4, was used. The regional distribution of the areas of *dwelling*s and *building other than dwelling*s owned by State has been used as indicator.

36. Finally, more than the 50% of State GFCF consists of weapons systems. For this type of asset, according to Task Force recommendations, the allocation of movable expenditures (warships, submarines, military aircraft, tanks, missile carriers and launchers) to central headquarters has been avoided. The compensation of employees, of military staff, has been considered a better indicator to allocate by region this category of assets. In particular different types of military personnel (terrestrial, navy and air force) has been used for the different assets included in military expenditure.

37. ANAS (acronym for "*Azienda Nazionale Autonoma delle Strade*") activity is road design and construction and subsequent ordinary and extraordinary maintenance. It manages the road system and road safety along the entire network of state roads and freeways under direct management and in coordination with other bodies. RFI - Rete Ferroviaria Italiana is a public company whose activity is the management and maintenance of the railway network. The level of difficulties in splitting by region the GFCF realized by these two units is quite similar: both the units have a balance sheet and a profit and loss accounts, both the units are exclusively engaged in realizing public infrastructure. In both cases the information and tables contained in the balance sheets did not provide any useful indication for the regional distribution of the works realized.

38. ANAS and RFI are annually responsible for more than the 40% of the expenditure in *Other structures* (tab. 5), and while a remaining relevant part is realized by Municipalities, whose regionalization is much more accurate giving the data sources available, it is indeed important to achieve an accurate regionalization of this two big central units responsible for the main infrastructures included in General Government GFCF.

39. In a first test estimate the regionalization of these two units has been realized using the length of the infrastructures network by region, available on ANAS and RFI websites. A territorial criterion appeared the best approach to define the economic owner of the infrastructures. Nonetheless this estimation strategy had its weakness: using the network structure as indicator is implicitly assuming that all the annual expenditure is distributed to all the regions where the network is, each year for the same quota. Even if assuming that only

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<sup>5</sup> Rilevazione di informazioni, dati e documenti necessari alla classificazione di unità economiche nei settori istituzionali stabiliti dal sistema europeo dei conti 2010 (sec 2010). [www.istat.it](http://www.istat.it)



maintenance could follow this pattern (and is debatable), this indicator does not capture the realization of new works, that could happen in a given region on a given year.

40. To face this problem a further exploration of ANAS and RFI available published reports and documents has been done to separate extraordinary maintenance from realization of new works and try a separate regionalization. These additional documents, multiyear investments plans and planning contracts, although extensively providing details on planned and approved works, concluded works, nature of the works (ordinary and extraordinary maintenance and new works) even at regional level, does not allow an effective reconciliation between this set of information and the works then realized and reported in a given year balance sheet – and subsequently classified in national accounts as P51g. At the moment, provisionally, the use of the roads and railways network as an indicator remains the only available choice.

Table 5

**Contribution of groups of units within each subsector to Other structures expenditure**

			CG			LG		
			ANAS	RFI	OTHER CENTRAL UNITS	REGIONS	MUNICIPALITIES	OTHER LOCAL UNITS
2.018	<b>Other structures</b>	<b>100%</b>	<b>10%</b>	<b>35%</b>	<b>5%</b>	<b>10%</b>	<b>32%</b>	<b>8%</b>
	<i>of which roads</i>		30%	0%	2%	18%	42%	8%
	<i>of which other structures other than roads</i>		0%	53%	6%	6%	27%	8%
2.019	<b>Other structures</b>	<b>100%</b>	<b>9%</b>	<b>32%</b>	<b>7%</b>	<b>8%</b>	<b>34%</b>	<b>11%</b>
	<i>of which roads</i>		24%	0%	1%	12%	47%	15%
	<i>of which other structures other than roads</i>		0%	50%	10%	5%	26%	8%
2.020	<b>Other structures</b>	<b>100%</b>	<b>11%</b>	<b>33%</b>	<b>7%</b>	<b>7%</b>	<b>34%</b>	<b>9%</b>
	<i>of which roads</i>		28%	0%	1%	8%	46%	16%
	<i>of which other structures other than roads</i>		0%	52%	10%	7%	27%	4%

41. The final subgroups of central units consists of Research Bodies, whose expenditure is mainly due to own account R&D (and this asset regionalization is described in section 6), and other central units such as National Economic Bodies and National Assistance Bodies. For these last group the regional information again comes directly from the ISTAT survey RIDDCUE used for annual accounts estimation. Most of the units included in this subgroup are uniregional, and the overall expenditure in P51g of this units is only the 10% of the total S.1311 P51g. This subgroup of units contains the decommissioning costs included in GFCF, allocated to the region where the nuclear site to be decommissioned is.

42. The regionalization for S.1311 has been mainly realized using a top down approach and a territorial criterion. For State subgroup the indicators used come from administrative data and surveys, and in this case in terms of accuracy an A-method has been applied. On the contrary, the use of the length of the network for ANAS and RFI led to a classification of this choice as B-Method in terms of accuracy. For the remaining uniregional and multiregional units included in Other Central Units, local KAUS can be identified and a bottom up approach based on a survey has been applied. Also in this case an A-Method is used. Overall, for CG a mixed methods choice has been applied.

## VI. Research & Development

43. For R&S the main data source is the survey “Rilevazione statistica sulla Ricerca e Sviluppo nelle Istituzioni Pubbliche”<sup>6</sup>, carried out by ISTAT. The survey is exhaustive and it is methodologically based on the OECD Frascati Manual (Oecd, 2015). It collects data on expenditure for research, staff, types of research and funding sources, and considers two type of the expenditures: those for the institutional mission of the unit (intramural) and those for the research commissioned by external institution (extramural).

44. Research and development represents approximatively the 20% of General Government GFCF. It consists mainly on research realized by National Research and Development Bodies included in Central Government and Universities and Local Health Units for Local Government.

45. As discussed in the Task Force on Regional Investments, for R&D it is desirable to follow in regional accounts the same methodology used at national level and explained in Manual on measuring Research and Development in ESA 2010 (Eurostat, 2014). Nonetheless all the elements necessary at national level for the estimates are hardly available at regional level. A possible alternative envisaged is to use the compensation of employees.

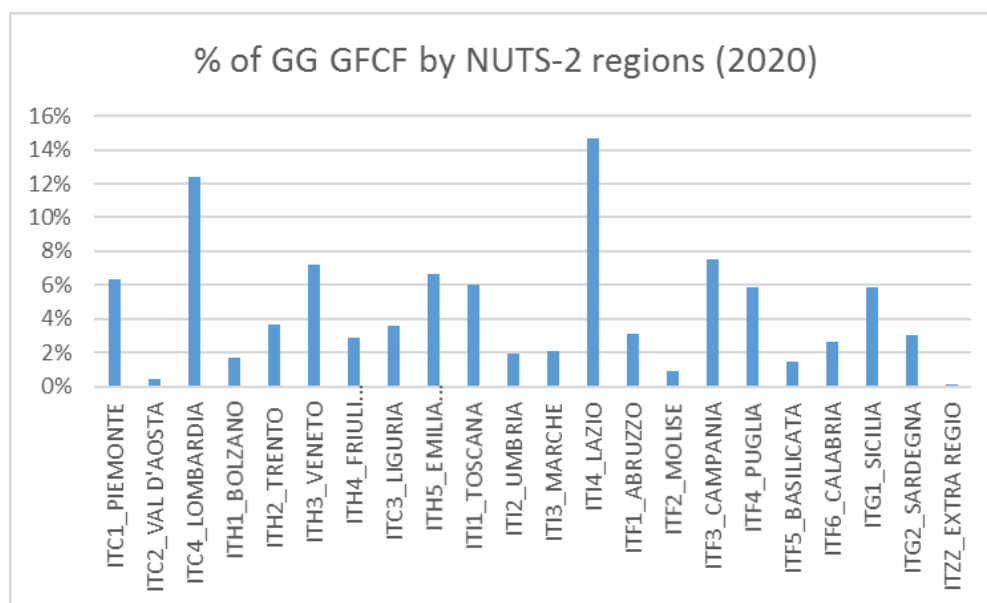
46. Following the recommendation expressed in the Task Force, a stronger link with regional information coming from the survey on R&D has been ensured for National Research Bodies and Local Health Units. In this case the regional distribution of costs for intramural R&D reported in the survey has been used as in indicator to regionalize their R&D expenditure. For Universities, not covered by the survey, and other units involved in this kind of expenditure, a separate regionalization has been realized using compensation of employees.

## VII. Results of the analysis

47. In the following graphs the regional distribution at NUTS-27 level for the year 2020 is showed. Graph 1 below shows the distribution of General Government GFCF by NUTS-2.

Graph 1

**Percentage of General Government gross fixed capital formation by NUTS-2, year 2020**



<sup>6</sup> <https://www.istat.it/it/archivio/210604>

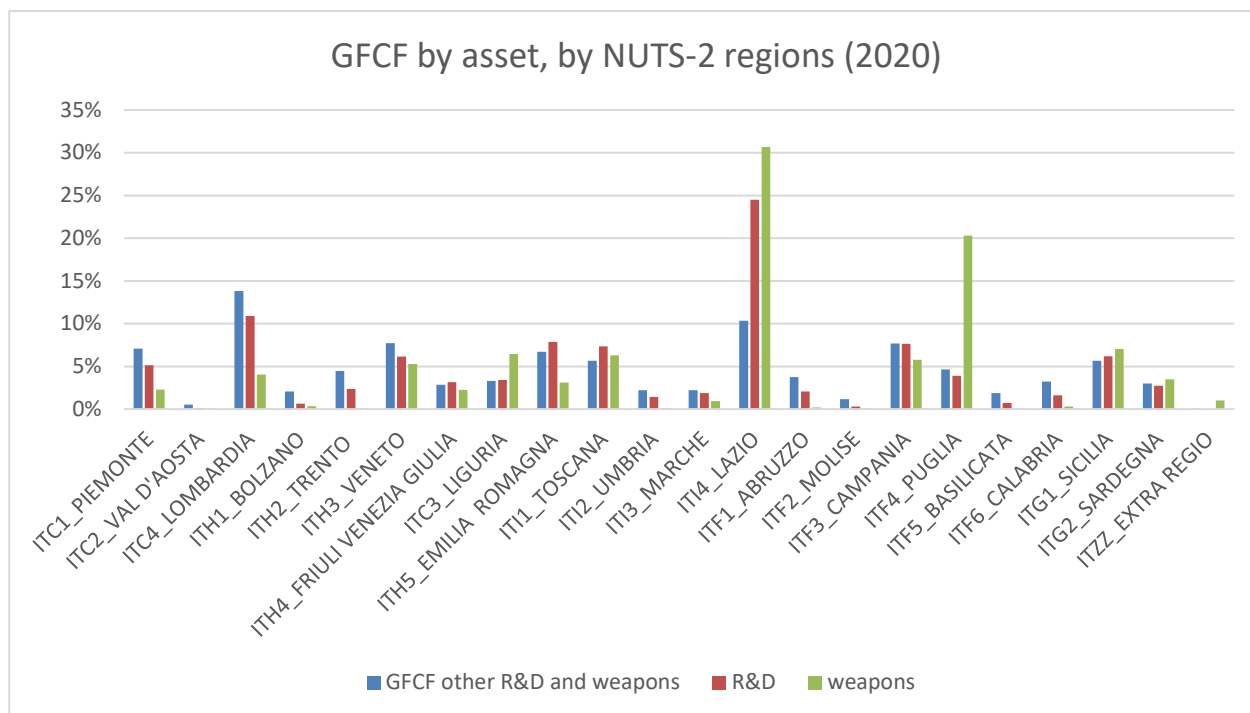
<sup>7</sup> Regulation (EC) No 1059/2003

48. Considering the total amount of GFCF and the entire General Government sector, Lazio and Lombardia regions seem to be the regions where the higher percentage of General Government gross fixed capital formation is concentrated.

49. Graph 2 below shows the regional distribution by group of assets of General Government GFCF.

Graph 2

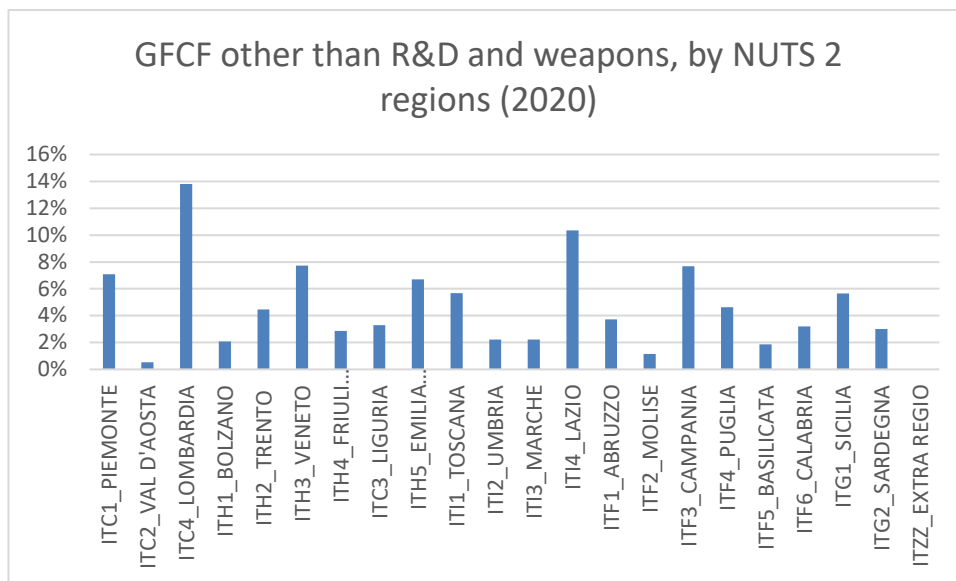
**Percentage of General Government gross fixed capital formation by group of assets by NUTS2 (year 2020)**



50. Considering the split of R&D, weapons and GFCF other than R&D and weapons is evident the relevance of weapons and R&D in the composition of Lazio region investments. In this region is concentrated the higher level of terrestrial and air military forces, and this led to an higher level of expenditure of weapons allocated to this region. Only Puglia region has a comparable level of weapons expenditure allocated, due to the higher concentration of navy forces. As for R&D, more than the 50% of the intramuros research activity of National Research Bodies is concentrated in Lazio, and a high percentage of R&D realized by Universities is also allocated to the same regions.

51. It is useful to isolate the regional distribution of the GFCF other than R&D and weapons only.

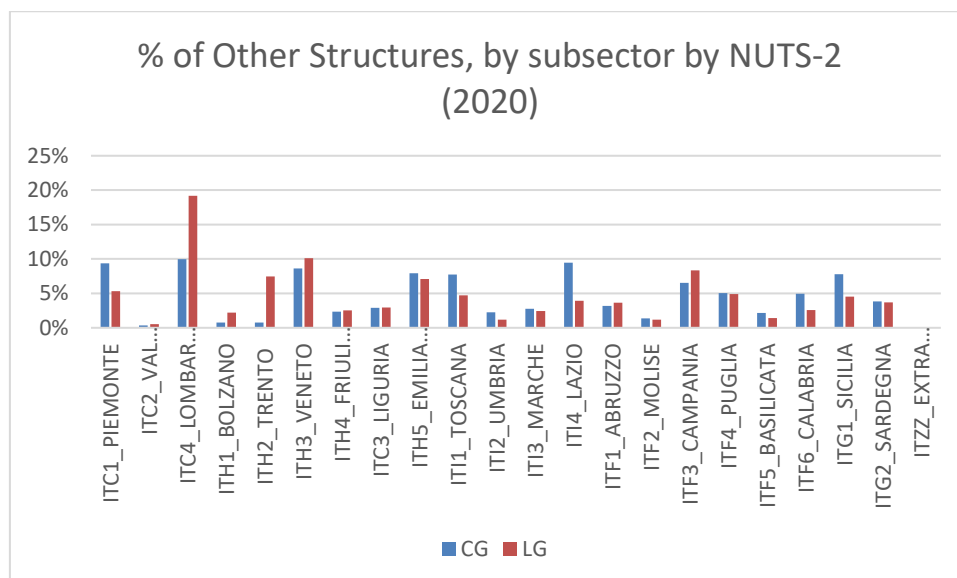
Graph 3  
**Percentage of General Government GFCF other than R&D and weapons by NUTS-2 (year 2020)**



52. Graph 3 shows that, isolating this part of GFCF, while Lazio and Lombardia are still the regions where the higher percentage of public investments are allocated, Lombardia region appears the region with a more relevant role. Also other regions of the North and the south of Italy show important percentage of public investments, especially Veneto and Campania.

53. A further level of analysis is isolating within this group of assets the expenditure in Other structures, where public investments in roads, railways and infrastructures are recorded. Graph 4 shows the percentage of expenditure in infrastructure allocated by regions.

Graph 4  
**Percentage of Other structures by subsector by NUTS2 (year 2020)**



54. Local Government –especially Municipalities- plays the most important role in this part of GFCF expenditure, this is particularly true for the Autonomous Provinces of Trento and Bolzano, but also for Campania, Veneto and Lombardia, which benefits of the highest percentage of expenditure both from Central Government and Local Government.

## VIII. Conclusions

55. In realizing a regional distribution of public investments, it was useful to disaggregate the General Government GFCF not only by subsectors, but also by different groups of unit within each subsectors and, within each group of units, by different assets. Additionally, for certain asset, it was helpful to regionalize separately particular operations which led to imputations on P51g.

56. In doing so, different strategies needed to be applied in regionalizing, in order to capitalize on the information available in data sources already available to compile S.13 annual accounts and to obtain usable information from additional data sources, where needed.

57. The tests realized represents a first provisional result in regionalizing Italy General Government gross fixed capital formation. They show that a big percentage of S.13 GFCF could be easily allocated by region, but also highlight areas where work still needs to be done to obtain a reliable regional estimate.

58. If for Local Government the structure of data sources available for Italian national accounts allows easily a bottom up approach, Central Government and SSF regionalization necessarily need to rely on indicators and a top down approach. For some assets this indicators come from additional administrative data or surveys, in other cases a territorial criterion of regionalization was provisionally chosen. This last choice, especially for central government infrastructure, given their strategic relevance, does not describe well the regional distribution of these assets. For this reason in the next future for this part of expenditure a further research of more suitable indicators or the possibility of obtaining direct information from the data source providers will be explored.

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