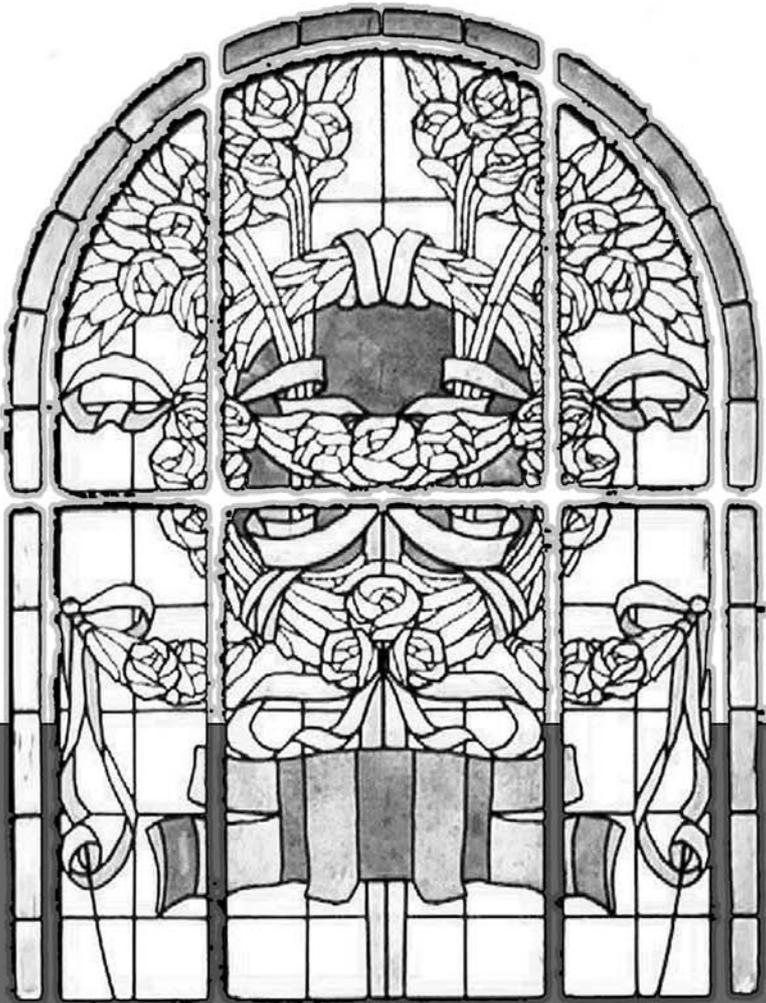


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THE PUBLIC CAPITAL EXPENDITURE INDICATOR: THE ANNUAL REGIONAL ESTIMATE

EXTRACT OF THE ORIGINAL ITALIAN PAPER

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**Ministero dell'Economia e delle Finanze
Dipartimento per le Politiche di Sviluppo
Unità di Valutazione degli Investimenti Pubblici**



The *Public Investment Evaluation Unit* (UVAL) provides technical support to public administrations, by developing, testing and disseminating ex-ante, ongoing and ex- post evaluation methods for public investment projects and programmes. One of the aims is to improve effective spending and better performance of European structural funds. The Unit is part of the network of national and regional evaluation units.

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The public capital expenditure indicator: the annual regional estimate

Abstract

The implementation of regional development policies, especially at a time of rapid change in regional spending capacity and of stringent constraints on the public finances, requires that information on the territorial allocation of public capital expenditure flows be available with the briefest time lag possible. The public capital expenditure indicator is a statistical tool that provides data, with a reduced lag of only six months, on the distribution by macro-area and region of direct investments and transfers on capital account to enterprises and households by general government, also identifying the entity making the expenditure.

The creation of the indicator has brought about major innovations, including organizational changes, in the collection and use of scattered administrative data sources and in the application of statistical estimation and processing methods to them. This paper provides a detailed description of these features and contextualises the contribution of the indicator to the in-depth analysis of public expenditure. The scope this tool offers to track current trends enables policymakers to evaluate and direct financial resources for public investments in a more informed manner.

L'Indicatore anticipatore della spesa pubblica in conto capitale: la stima regionale annuale

Sommario

La realizzazione di politiche regionali di sviluppo, specie in una fase di rapida evoluzione delle capacità di spesa dei territori e di stringenti vincoli di finanza pubblica, richiede di conoscere con il minor ritardo possibile la dimensione dei flussi di spesa pubblica in conto capitale secondo la loro destinazione territoriale. L'Indicatore anticipatore è lo strumento statistico che fornisce, con un ritardo di soli sei mesi, la distribuzione per macroarea e regione degli investimenti diretti effettuati dalla Pubblica Amministrazione e dei trasferimenti di capitale a imprese e famiglie, identificando anche il soggetto erogatore della spesa.

La costruzione dell'Indicatore anticipatore ha comportato forti innovazioni, anche organizzative, nella ricerca e utilizzo di fonti amministrative disperse e nell'applicazione a esse di specifici metodi statistici di stima e trattamento dei dati.

In questa pubblicazione si dà conto in modo dettagliato di questi aspetti e si inquadra il contributo fornito dall'Indicatore anticipatore nell'approfondimento dell'analisi della spesa pubblica. La possibilità di cogliere con tempestività le tendenze in atto fornisce ai *policy maker* l'opportunità di valutare e orientare con maggiore consapevolezza le risorse finanziarie per l'intervento pubblico.

This publication was prepared by the following staff within the working group dedicated to the public capital expenditure indicator at the Public Investment Technical Evaluation and Monitoring Unit (composed of the Evaluation Unit, UVAL, and the Monitoring Unit, UVER):

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with Simona De Luca and Mariella Volpe acting as coordinators.*

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Brendan Jones translated into English the extract of the original Italian version of the paper.

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I. Estimation of the Regional Public Accounts: building a statistical system and early results

I.1 The indicator in brief: why and what

The public capital expenditure indicator is a statistical tool that provides information on the geographical distribution (by macro-area and region) of public capital expenditure with just a six-month lag.

Data on overall government revenues and expenditures in individual regional areas are generated by the Regional Public Accounts (RPA)¹ database. However, this database produces annual data with a lag of around 24 months² after the reference period.

The time lag and the annual frequency create a number of problems:

- when using the database for planning purposes:
 - a two-year delay in accessing information, even if the quality of the data is high, hampers the ability to monitor current trends and, where necessary, intervene appropriately.
- for current business cycle analysis:
 - more timely information is required, ideally at a frequency of less than a year. Because they draw predominantly on accounting sources (the final accounts of government bodies), the RPAs can only provide annual data.

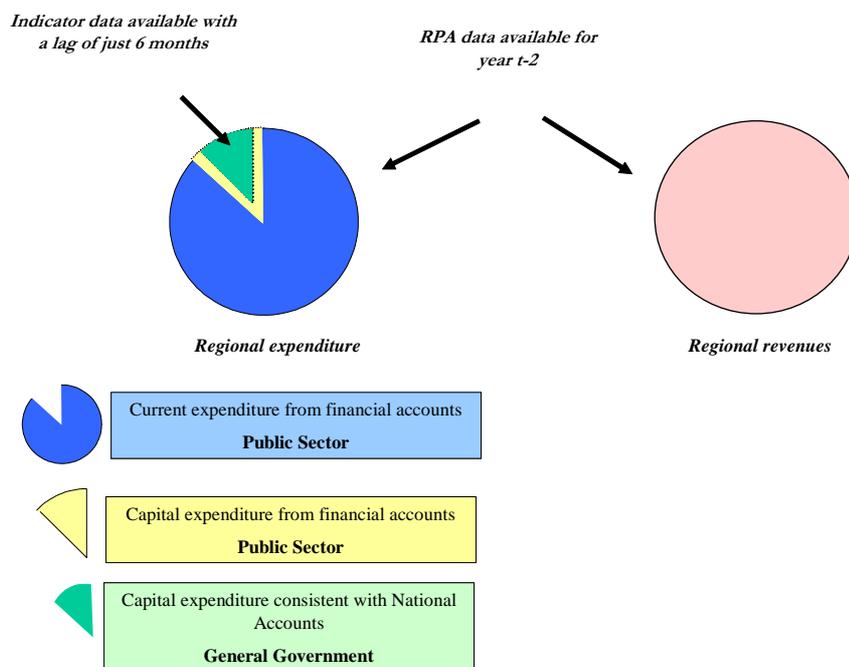
The project to construct the indicator commenced in 2002 at the Department for Development Policies (DPS) at the Ministry for the Economy and Finance (MEF). It was designed to overcome the RPAs' timeliness and frequency limitations.

¹ The information in the RPA database, which goes back to 1996, is complete, flexible and geographically detailed. In addition to covering an especially broad universe of spending entities and all public financial flows (current and capital account revenue and expenditure), the data can be flexibly grouped into a large number of sub-aggregates including, among others, macro areas and administrative regions, various sectoral classifications, types of expenditure and final expenditure entities. The RPA system is thus a tool for conducting structural analysis. It is widely used to define and assess economic policy at the local level and to draft official Ministry for the Economy and Finance (MEF) documents. More information is available at www.dps.mef.gov.it/cpt.asp

² The lag will be reduced to 12 month as from 2005, thanks in part to a financial incentive mechanism for the 21 Regional Teams that make up the RPA data gathering network. Disbursements from the "performance reserve", established with CIPE resolution no. 36 of 3 May 2000, are contingent on the generation of complete, timely data. The 12-month lag cannot, for the time being, be reduced further owing to the necessity of obtaining the accounts of the various government entities to produce the RPAs.

The indicator covers a specific subset of public expenditure reconstructed from the RPAs, namely only public expenditure on capital account under a definition that is consistent with that used in the National Accounts (NAs) (see section II.1).

Figure I.1 RPAs and the indicator: purpose of analysis and data release timetable



Source: DSP – Public Investment Technical Evaluation and Monitoring Unit

The indicator “anticipates” (using estimates where necessary) the systematic information generated by processing official data available with a lag. This makes it possible to identify trends as they unfold and significantly enhances the availability of information used to analyse economic conditions.

This report draws on the results of the model used for the annual estimate. The quarterly estimate is currently undergoing validation and will soon be published. It is analysed in this report to the extent that it has had an impact on the structure of the indicator and the methodological approach used.

I.2 Organisation of the project

The methodological approach for the indicator was developed by an interdepartmental working group at the MEF, participated by the DPS and the State General Accounting Department (RGS), which provided the main information data sources.

The project was supervised by the Public Investment Technical Evaluation and Monitoring Unit at the DPS (Evaluation Unit and Monitoring Unit), with significant methodological input from a monitoring committee consisting of representatives from the aforementioned departments at the MEF, ISTAT (the National Statistical Institute) and the Bank of Italy. A joint working group was set up to create this instrument, with the specific purpose of systematically sharing methods, information and results. There were a number of immediately positive repercussions. Work conducted jointly by the DPS, RGS and ISTAT not only strengthened the practice of collaboration between these bodies and institutions, it also offered an opportunity to standardise a number of different information systems, which led to a substantial refinement of methodological approaches in handling definitions and reference aggregates.

This joint effort also provided an opportunity to share and monitor a variety of data sources, to learn about the characteristics and limitations of the data used with the different criteria and methods adopted by each entity and to expand the available data sources. Specific protocols of understanding were drafted to enshrine the systematic cooperation between departments at the government entities involved in order to ensure that the indicator receives a periodic, regular flow of the information required for the tool to function properly.

I.3 Regional Public Accounts and the indicator: tools for analysing public expenditure on capital account

The indicator and the RPAs are both part of DPS activities aimed at conducting a deeper analysis of public expenditure. Since 1998, the Department has been drawing up an annual Single Financial Framework (QFU) of overall general government expenditure on capital account by macro-area, with a special focus on Southern Italy.

The Single Financial Framework,³ which is based on historical and planning figures, is prepared to help pursue two key objectives: monitoring the achievement of economic policy targets for expenditure on capital account in Southern Italy (final figures); and

³ For more information on how the QFU is constructed, see DPS 2003 Annual Report, Appendice Metodologica at http://www.dps.mef.gov.it/documentazione/docs/App_rapporto2003/note/Cap_II_notaB.pdf (in italian).

providing policymakers with a clear idea of the financial resources available for public intervention over a time horizon exceeding five years (for planning purposes). Target setting is extremely important in the planning context, as it fixes an annual total of resources earmarked for Southern Italy within a nationally-defined reference framework.

Specifically, this approach makes it possible to:

- a) add clarity and certainty to resource planning by identifying ordinary public financial resources, Structural Fund resources, and “additional” national resources targeted at reducing regional disparities across the country;
- b) strengthen the process of integrating all sources of public funding in order to generate overall consistency between actions co-financed by the European Union under the Community Support Framework (CSF)⁴ and domestic economic policies;
- c) place the Italian Government’s European commitments on a solid foundation, particularly as regards assessing the principle of additionality.⁵

Inasmuch as the QFU provides a necessary link between national economic and financial planning and specific planning for the South (as it provides a single framework for internal consistency regarding financial resources and consistency in associated spending), it is often updated and amended in order to reflect changes in the macro environment and individual sources of financing. As a result, it is important to be able to closely monitor public expenditure on capital account and its components. The DPS closely and constantly monitors this through the RPA database and the indicator, two tools for monitoring developments in public expenditure and its geographical distribution.

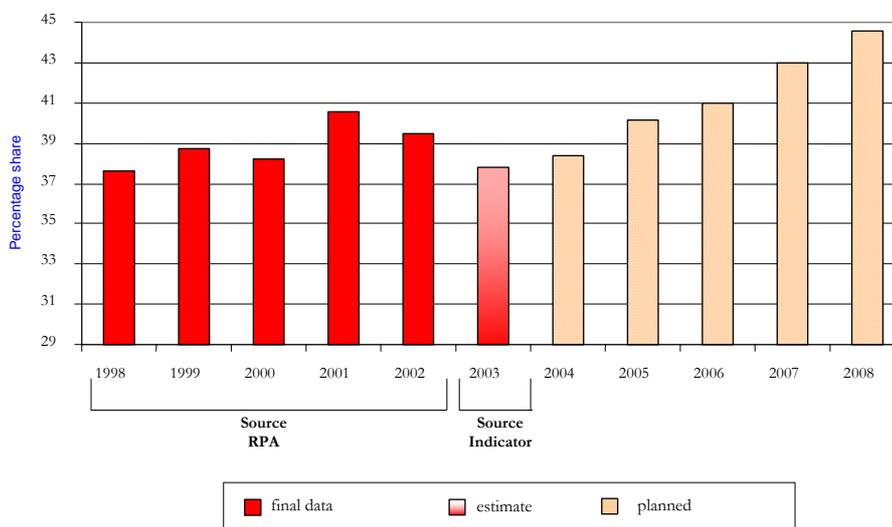
These two instruments have undergone steady qualitative and quantitative improvement in collaboration with ISTAT and RGS. This has resulted in significant enhancements, especially in the past year.

⁴ The CSF is a document approved by the European Commission in agreement with the Member State on the basis of an assessment of the economic development plan for areas benefiting from European Structural Funds as presented by the State concerned. The CSF provides a snapshot of the starting situation, the strategy, action priorities, specific objectives, allocation of financial resources and implementation terms and conditions. It is divided into priorities for the main areas of intervention (natural resources, cultural resources, human resources, local development systems, cities, networks and service hubs) and is implemented through one or more Operational Programmes run either by regional or central government.

⁵ The principle of additionality, pursuant to article 11 of Regulation (EC) 1260/99, is designed to ensure that Community resources do not replace but supplement national resources. It establishes that the Member State must maintain its own public expenditure for each territory receiving Community funds at a level at least as high as that spent during the previous programming period.

The RPAs supply data on the share of spending going to the South up to year t-2, whereas the indicator offers an estimate of the same data for year t-1, with a six-month lag. This estimate is used solely for the period in which no RPA data is available, and is modified as soon as such data becomes available. By way of example, for the QFU in the 2005-2008 Economic and Financial Planning Document (EFPD) issued in July 2004 (see Figure I.2), until 2002 the proportion of expenditure on capital account going to the South is sourced from the RPA, whereas the indicator is the source for 2003. This is the only information available until 2005, when it will be replaced with the 2003 data from the RPAs.

Figure I.2 2005-2008 EFPD. General government capital expenditure in Southern Italy as a proportion of national total (percentages)



Source: DPS statistics, see the 2005-2008 EFPD

As well as providing information on aggregate developments in capital expenditure items drawn from the RPA-indicator system, the QFU also identifies financial resources by type of source, differentiating between ordinary national resources, additional national resources, Community resources and related national co-financing. However, this level of detail is not available in the reconstruction of spending flows generated by the RPA and

indicator, which at this time cannot be broken down by financing source.⁶ Additional reconstructions and internal DPS statistics are therefore used to reconstruct historical developments for each item and forecast individual financial channels.⁷

I.4 The Regional Public Accounts and the indicator: complementary tools

The synergic combination of the RPAs and the indicator into a single “system” helps to enhance the quantity and variety of data available and improve its analytical utility. The timetable described below highlights the complementary nature of release of data generated by these two tools. By drawing on indicator-sourced estimates, the system has given policymakers access to 2003 data as early as the second quarter of 2004 (see Figure I.3). The latest data available from RPA sources at that time regarded year $t-2$, 2002. Though RPA data will be available more swiftly from 2005 onwards, indicator-generated data will still be available significantly earlier, thereby offering an effective instrument for monitoring public policy.

The system components - the public capital expenditure indicator and the RPAs - can be compared more closely to highlight similarities and differences. The complementarity of these tools required the use of common criteria and methodological approaches, as well as synergies in the use and generation of data.⁸

⁶ The “RPA study session” project under way at the DPS includes specific research into the preparation of a statistical accounting methodology to estimate ordinary and additional financing on a territorial basis with a sufficient degree of reliability.

⁷ The reconstruction of Community resource trends and related national co-financing is undertaken on the basis of data obtained from the Structural Fund expenditure monitoring system run by the MEF service responsible for managing such Funds. Expenditure in respect of additional resources specifically earmarked for under-utilised areas is reconstructed through a system of internal monitoring and an additional flow measurement tool, the Sources and Uses of Funds Account.

⁸ For instance, the inclusion of tax credits among capital transfers to enterprises, which until 2003 had been recognised under current spending; the non-consideration of transfers for Territorial Agreements and Area Contracts made by the State to Cassa Depositi e Prestiti, while taking into consideration data on amounts actually paid out by Cassa Depositi e Prestiti to companies, since this figure reflects the true benefit to the economy (see section I.7).

Figure I.3 RPA and indicator data releases for 2003, 2004 and 2005(*)

	2003			
	Q I	Q II	Q III	Q IV
Public Capital Expenditure Indicator	III-III-2002	IV-2002 ,	I-2003	II-2003
		2002		
Regional Public Accounts		2000		

	2004			
	Q I	Q II	Q III	Q IV
Public Capital Expenditure Indicator	III - 2003	IV 2003 ,	I-2004	II-2004
		2003		
Regional Public Accounts	2001			2002

	2005			
	Q I	Q II	Q III	Q IV
Public Capital Expenditure Indicator	III - 2004	IV 2004 ,	I-2005	II-2005
		2004		
Regional Public Accounts	2003			2004

(*) Chart refers to annual data release dates. Quarterly data is currently being validated
 Source: DSP – Public Investment Technical Evaluation and Monitoring Unit

The tools that make up the system – the indicator and the RPAs – differ in four fundamental ways:

➤ **By degree of maturity**

- The indicator is a tool developed recently, over the last two years, and is still *undergoing fine-tuning*;
- The RPAs were launched in 1994 to verify compliance with the principle of additionality of Community resources over national resources. The DPS has used this tool internally for some time, and it is now close to entering the *fully operational phase*.

➤ **By organisation**

- the indicator is fully centralised, created by an interdepartmental working group that functions with methodological support from a monitoring committee (see section I.2);

- RPA data gathering is carried out by a Central Team at the DPS and 21 Regional Teams, one in each of Italy's regions, making it a *federated* system. The network's comprehensive local coverage presence enables it to measure a number of local components, on which it has a true information monopoly.
- **By output**
- The indicator is a *statistical tool* that forecasts RPA results on *public expenditure on capital account at the regional level*, providing estimates with a *time lag of just six months*;
 - RPA output is a *consolidated account⁹ of the public sector broken down by region with data for year $t-2$* – it is a real financial account, i.e. without reclassifications or estimates of direct sources. Reconstruction of revenue and spending flows is undertaken on the basis of the final accounts of the public bodies concerned; that is, the final figures for actual financial flows. The public sector extends beyond general government to include the components of the wider public sector (see section II.1).
- **By the usability of the aggregates**
- Detailed reporting on the aggregate covered by the indicator – general government expenditure on the capital account at the regional level – is available by year, region, economic category and public entity. As this is a statistical estimation tool, the results must be used with due caution inasmuch as the significance of highly specific indicators diminishes as the degree of detail increases;
 - Information in the RPA database – total public sector expenditure and revenue at the regional level – is accessible without restriction using the following access criteria: year, region, economic category, area of intervention and entity.

⁹ Each entity is considered as a final expenditure unit. The consolidation process consists of eliminating flows between different levels of government.

I.5 The indicator and its potential uses

The indicator was designed to meet the specific information requirements of policymakers – trends in public spending on capital account – with as little delay as possible.

Currently, indicator results are used internally at the DPS, in *synergy* with the RPAs. The data is primarily *aggregate* (total capital expenditure, broad economic categories, macro-areas) and *annual*. At present, the most important use is as data input for constructing the QFU (see section I.3).

The indicator estimates also help to assess the policy mix of capital expenditure. This analysis involves drawing upon data broken down by overall economic category investment in tangible and intangible assets, capital transfers, incentives, subsidies and aid. In this case, the question to be answered is whether, at the territorial level, the policy mix between investment and transfers is appropriate to the varying local needs. Initial analyses conducted using RPA-sourced data provide a detailed view of capital expenditure trends between 1997 and 2000, while indicator data makes it possible to examine more recent trends (up to 2003).

The indicator will have many potential uses once it is fully operational. Significant demand exists among regional and local policymakers for more timely information. To meet this demand, data will be made available on the basis of specific monitoring thresholds for the various sub-aggregates, ensuring an adequate level of statistical significance for the data produced. The indicator is constructed using a bottom-up procedure: higher-level results are obtained by aggregating data for more circumscribed environments.

The annual indicator estimates have thus far only been available to national policymakers, and have been published in aggregate form in official MEF documents. Consolidation of the quarterly model will also make it possible to provide increasingly timely data on an intra-year basis. These developments will pave the way for publication of annual and quarterly estimates for a broader (public and private) user base than is currently the case.

I.6 The indicator as a modular tool

As illustrated in Figure I.4, the indicator incorporates differentiated analyses and statistical calculations for the various data sources that provide input to the system. The final estimate, which precedes RPA data, is generated by combining these different statistical processes.

The data system underlying the indicator has a modular structure. Each element functions independently and is subsequently assembled to form a single output estimate of general government expenditure on capital account. The tool's modular structure is a major strength, ensuring the scalability of the architecture over the long term. It will be possible to extend the analysis to the entire public sector (for the universe considered) or to current expenditure (for the variables being measured) by gradually adding inputs without impacting what has already been achieved.

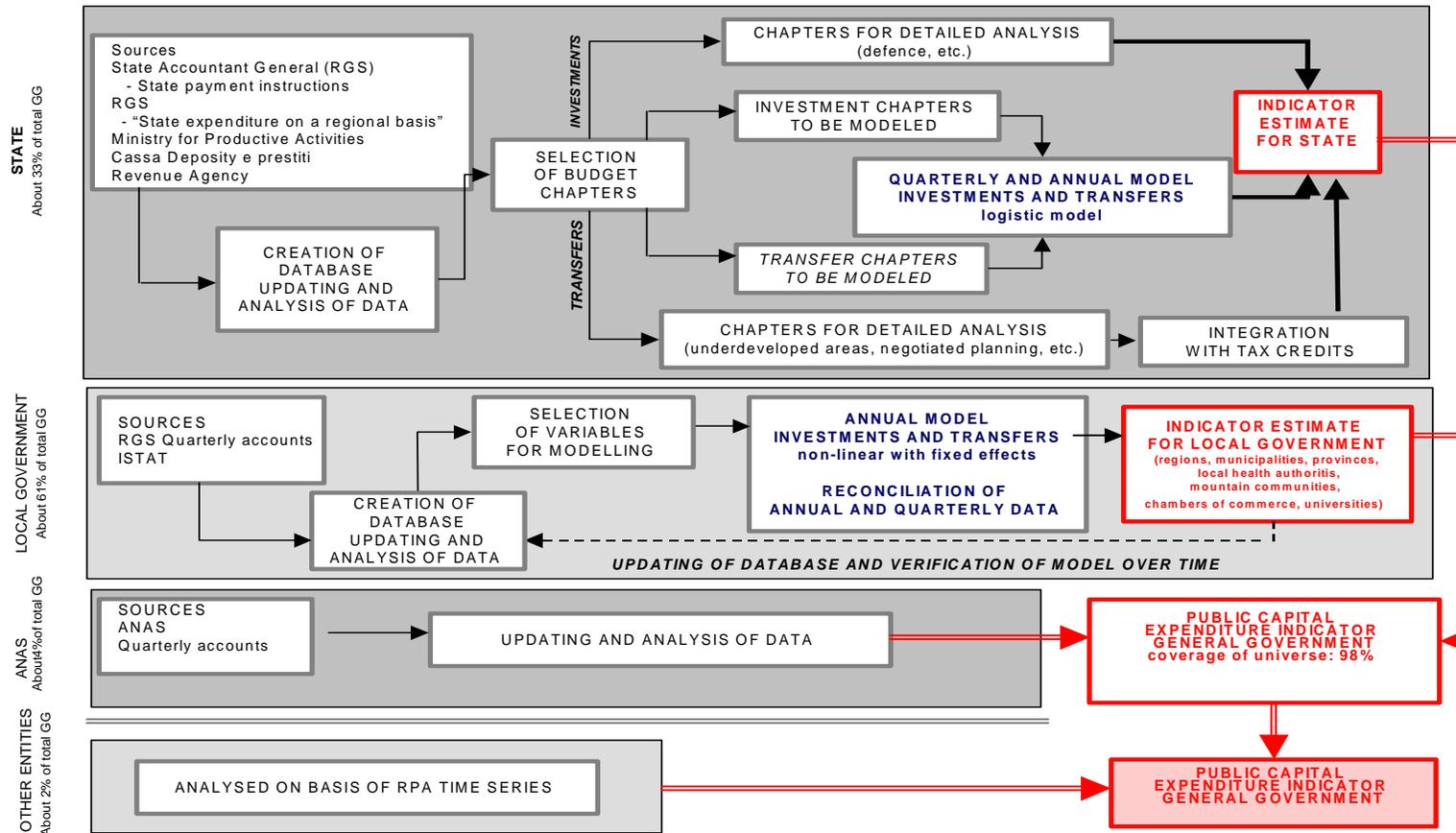
This section outlines the various methodological approaches used with regard to general government expenditure on capital account by:

- the State, which accounts for about 33 percent¹⁰ of the reference universe;
- local government: regions, provinces, municipalities, local health authorities, mountain communities, chambers of commerce and universities, representing around 61% of the reference universe;
- ANAS (the State Road Agency),¹¹ representing around 4 percent of the reference universe;
- Other entities: social security funds and other central and local government entities, accounting for around 2 percent of the reference universe.

¹⁰ Shares are calculated from the RPA database for the 1997-2000 average; see Table I.1

¹¹ ANAS is still considered to belong to general government, as the entity has yet to complete its transformation into a company producing market services.

Figure I.4 Structure of the public capital expenditure indicator



For **State** expenditure estimates (see section II.3.1 for greater detail on the methods and models employed), the information base to which statistical models are applied consists of the RGS payment order database from the State General Accounting Department Information System (SIRGS). A key element here was the selection of the payment orders to be used in the model, which involved an in-depth analysis of budget chapters. The data available – divided into investments, transfers to enterprises and transfers to households and private social institutions¹² – is examined historically and compared with all reference sources that may be utilised.¹³ In the case of transfers to enterprises, data from the RGS is supplemented by data from the Ministry for Productive Activities (MAP), tax credit data from the Revenue Office, and data from Cassa Depositi e Prestiti. The lack of certainty about the geographical location of each expenditure transaction recorded in payment orders has led to the adoption of a model capable of “geographically allocating” data already in the RGS database. The estimates adopted, which vary by expenditure items and are structured on a number of levels, are generated by a *logistic model*, which has proven to be better-suited to minimising territorial distortions in quarterly and annual input data.

Local government expenditure estimates draw on data from the RGS quarterly report on the borrowing requirement. The estimate is an aggregation of data from each individual government entity measured directly by the RGS – regions, provinces, municipalities, local health authorities, universities, chambers of commerce and mountain communities – broken down by expenditure item (investments, transfers to enterprises and transfers to households). After testing numerous alternative methods, a *non-linear fixed-effect model* has been adopted at the annual level, with a reconciliation procedure being used to go from annual to quarterly data owing to the fact that no infra-year data series are available for this category.

The **ANAS** component of general government expenditure is not subject to specific statistical processing, since the basic information is reconstructed from data supplied directly by the entity both for calculating the indicator and, subsequently, for the RPA figures. ANAS produces data on direct investment disbursements on a quarterly basis,

¹² For the sake of brevity, this aggregate will be referred to as transfers to households.

¹³ Data from different general government monitoring systems may overlap. For instance, transfers to enterprises for the special accounts of the Technological Innovation Fund (FIT) is measured through SAG and MPA payment orders. The MAP also supplies data on actual disbursements. In this case, the indicator (and the DPS when calculating all public expenditure analysis tools) draws upon the geographical distribution supplied directly by the MAP as the amount actually disbursed. Budget chapters associated with the FIT therefore do not draw on payment orders as an information base for modelling.

broken down by region. The indicator merely regionally redistributes the residual portion that is not directly attributed by ANAS.

Table I.1. **Distribution of consolidated general government public spending on capital account by expenditure entity (1997-2000 average; percentages)**

Final expenditure entity	Italy (*)	Southern Italy (*)
STATE	32.4	38.8
- of which investments	7.2	5.0
- of which transfers to households and enterprises	25.2	33.8
- private enterprises	17.4	27.3
- share sourced by MAP and Cassa Depositi e Prestiti	9.0	14.4
- public-sector enterprises	5.0	3.7
LOCAL GOVERNMENT	60.8	55.3
- regions	21.1	23.7
- municipalities	28.5	23.6
- provinces	3.4	3.4
- local health authorities	3.5	2.2
- mountain communities	1.3	1.2
- chambers of commerce	0.1	0.1
- universities	2.9	2.1
ANAS	4.4	3.2
OTHER ENTITIES	2.4	1.6
- other central and local government entities	0.9	0.5
- social security funds	1.5	1.1
TOTAL GENERAL GOVERNMENT	100.0	100.0
Indicator total - June 2003 and subsequent versions	97.6	97.3

(*) Percentages calculated on the 1997-2000 average. The weighting of individual entities may vary over time.

Source: DPS, RPA database

Estimation of the indicator is therefore based on a universe that accounts for about 98% of general government expenditure on capital account. Data is extrapolated to the entire universe, including **other entities** (social security funds and other central and local government entities), in order to ensure that the results are fully comparable. In order to process the data for this component, the RPA database was analysed to verify the historical trend in the Southern Italy/Italy ratio and the main items into which the indicator results are broken down.

I.7 The indicator and the Regional Public Accounts: comparing results

Numerous versions of the indicator have been developed in the time between the initial trials in April 2002 and its recent use in the 2005-2008 EFPD. Each version has refined the reference universe and the stimulation models adopted in the preceding version. Many of the estimates produced were have only been distributed internally and used to further improve the final result.

The latest estimate using the indicator, the *June 2004 version*, improves the statistical model adopted for local government entities and the extrapolation of data for minor entities not taken into account in previous versions. It also reflects the current revision of the entire RPA series,¹⁴ including reclassifications that enhance the comparability of the two tools.

It should be noted that the *estimated* RPA figures are the product of the best available information generated by indicator indications and complementary data regarding developments in a number of expenditure components for which direct information is available, although some of this information is exclusively qualitative.

Table I.2 presents the indicator estimate derived directly from statistical calculations, the available RPA series and the published RPA *estimate* based on the indicator. The latter figure may differ from the indicator estimate, as we have seen, because it takes account of a broader range of “contextual” information available to policymakers.

It should be noted that the RPA *estimate* incorporating the indicator figures is replaced as soon as final RPA data become available.

A comparison of the most recent indicator and RPA series for 2000-2002 reveals a systematic underestimation by the indicator of the South’s share of spending (see Table I.2 and Figure I.5).

In calculating the estimated value for 2003, the observation of systematic differences between the two series prompted the exclusive use of analytical data regarding changes in the proportion of expenditure in the South compared with Italy as a whole with regard to 2002. The estimated value for 2003 – equal to 37.8% – was therefore obtained

¹⁴ Current account and capital account revenue and expenditure in the RPA database were undergoing a complete revision at the time of writing. In addition to the items specified in this document, the revision process also includes an extension of the reference universe that incorporates detailed input from the Regional Teams, enhanced definition of revenue categories and further methodological refinements regarding both revenue and expenditure.

by using the amounts for Italy as a whole available from the various official sources for each general government category,¹⁵ which was then stated on a regional basis with appropriate allocation shares between the South and the Centre and North by entity and expenditure category. Ratios were calculated on the basis of variations registered in corresponding indicator items between 2002 and 2003.

These estimates were used in the 2005-2008 EFPD expenditure planning framework (see Figure I.2), and were incorporated into the macroeconomic assessment of Southern Italy conducted using econometric methods as part of the 2000-2006 Community Support Framework (CSF) interim review.

Table I.2 Indicator estimates and RPA statistics regarding general government capital expenditure in Southern Italy as a proportion of the total (percentages)

	2000	2001	2002	2003
RPA	38.2	40.6	39.5	37.8 <i>estimate based on indicator</i>
Indicator <i>June 2004 version</i>	36.1	39.3	37.9	36.1

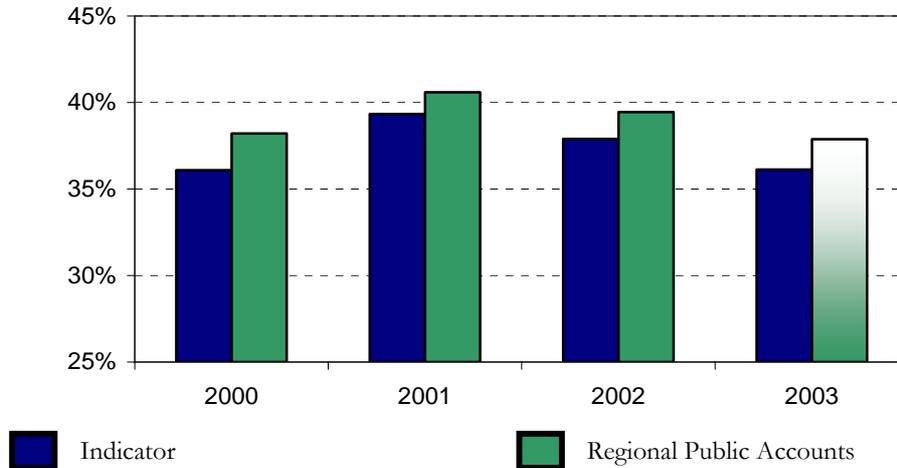
Source: DSP – Public Investment Technical Evaluation and Monitoring Unit

Analysis of the trend in this share for the main capital expenditure subcategories – general government entities and expenditure items – shows that the indicator underestimation mainly regards State spending, particularly the transfers aggregate.

Figure I.5 presents the data from Table I.2: capital expenditure in Southern Italy as a proportion of the total estimated by the indicator is lower than that yielded by the RPAs. The difference varies from a minimum of 1.3 percentage points in 2001 to a maximum of 2.1 percentage points in 2000. RPA data for 2003, estimated on the basis of the indicator, shows a differential of 1.7 percentage points compared with the value calculated directly by the indicator.

¹⁵ Specifically, the ISTAT General Government Account and preliminary State expenditure data available through the MEF.

Figure I.5 Southern Italy's share of general government expenditure on capital account. Comparison between indicator estimates and RPA data (*) (percentages)

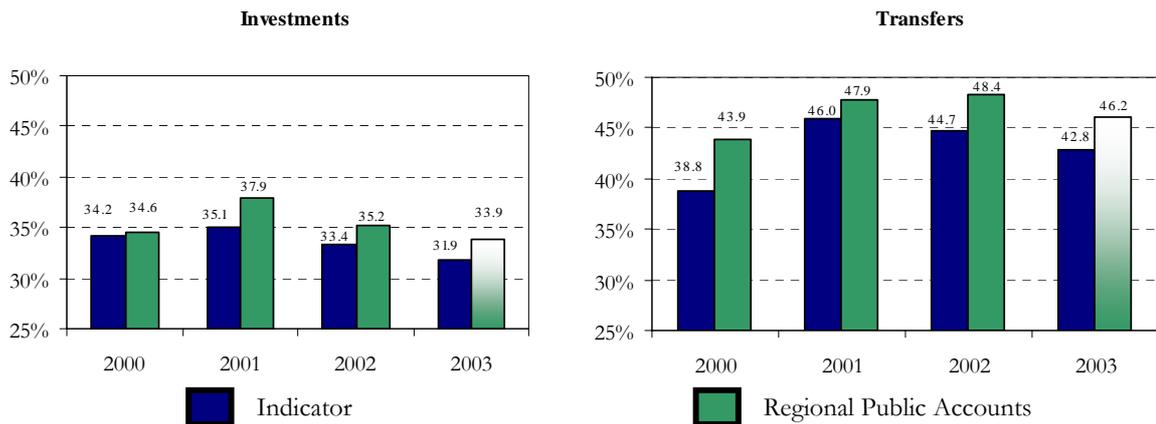


(*) The light-shaded histogram represents the *estimated* RPA series value drawn from indicator data.

Source: DSP – Public Investment Technical Evaluation and Monitoring Unit

Analysis of disaggregated capital expenditure for investments and transfers reveals a sharper difference for transfers (see Figure I.6). Here, the under estimate was 5.1 points in 2000 and 3.7 points in 2002. For 2003, the RPA value estimated on the basis of the indicator once again shows the greatest difference between the two tools coming under transfers.

Figure I.6 Southern Italy's share of investments and transfers in general government expenditure on capital account. Comparison between indicator estimates and RPA data (*) (percentages)

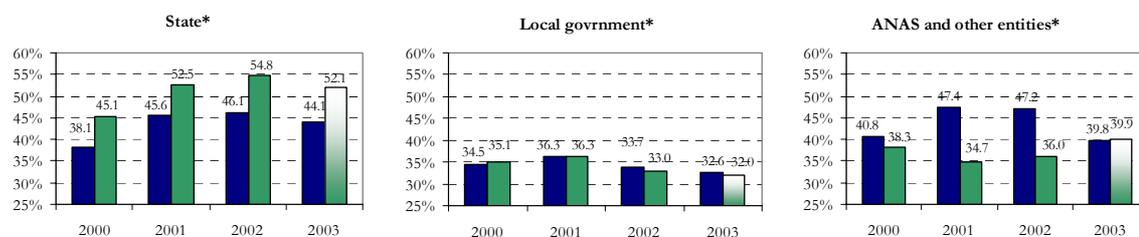


(*) The light-shaded histogram represents the *estimated* RPA series value drawn from indicator data.

Source: DPS – Public Investment Technical Evaluation and Monitoring Unit

The indicator and the RPAs can be read and compared from another perspective (see Figure I.7): the expenditure source broken down by State, local government, ANAS and other entities.¹⁶ The differentials between the RPA data and indicator estimates show a greater degree of variability, with very small differences in local government and gradually larger differences for the State, ANAS and other entities. It should nevertheless be remembered that the greater differential is associated with a reduction in the weighting of the individual components in terms of the amount of expenditure carried out (see Table I.1). This has the consequence of reducing the impact on the South's share of overall expenditure, which, as shown in Figure I.5, does not exceed two percentage points.

Figure I.7 Southern Italy's share of capital expenditure by the State, local government, ANAS and other entities. Comparison between indicator estimates and RPA data (*) (percentages)



*represents around 33% of overall general government expenditure on capital account

* represents around 61% of overall general government expenditure on capital account

* represents around 6% of overall general government expenditure on capital account (4% ANAS and 2% Other entities)

■ Indicator

■ Regional Public Accounts

(*) The light-shaded histogram represents the *estimated* RPA series value drawn from indicator data.

Source: DPS – Public Investment Technical Evaluation and Monitoring Unit

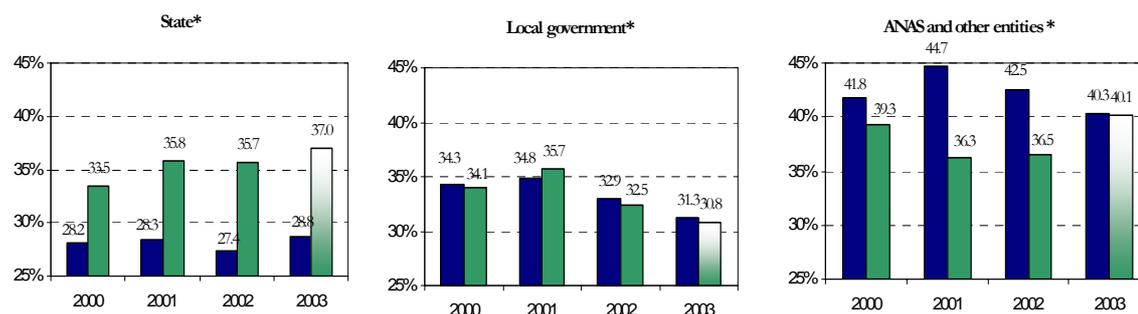
Crossing (see Figures I.8 and I.9) the information on expenditure type (investments and transfers) with expenditure origin (State, local government, ANAS and other entities), we can confirm the observations made at the aggregate level.

The difference between RPA data and indicator estimates is again smaller for local government than for State and other entities, both for investments and transfers. Nevertheless, it should be noted that the indicator underestimate shown in the aggregates in Figures I.5 and I.6 does not occur in certain cases:

¹⁶ Results for these two components of general government are presented together. It should nevertheless be borne in mind that expenditure totals under “other entities” are calculated by the indicator without recourse to any direct sources, whereas the ANAS data is received directly from the entity itself (see section I.7).

- local government investments and transfers, where, however, the differences remain very small, and therefore any reversal of sign is merely the result of estimate variability around the value being estimated;
- ANAS and other entity investments, whose weight in overall expenditure is, however, only marginal.

Figure I.8 Southern Italy's share of investment by the State, local government, ANAS and other entities. Comparison between indicator estimates and RPA data (*) (percentages)



* represents around 33% of overall general government expenditure on capital account

* represents around 61% of overall general government expenditure on capital account

* represents around 6% of overall general government expenditure on capital account (4% ANAS and 2% Other entities)

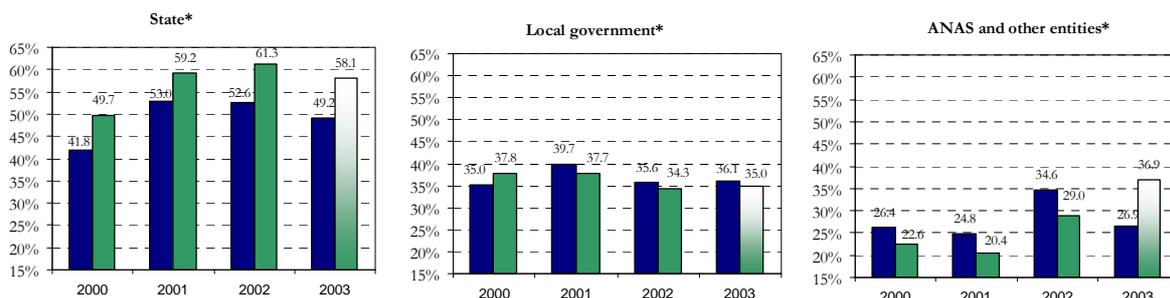
Indicator

Regional Public Accounts

(*) The light-shaded histogram represents the *estimated* RPA series value drawn from indicator data.

Source: DPS – Public Investment Technical Evaluation and Monitoring Unit

Figure I.9 Southern Italy's share of capital transfers by the State, local government, ANAS and other entities. Comparison between indicator estimates and RPA data (*) (percentages)



* represents around 33% of overall general government expenditure on capital account

* represents around 61% of overall general government expenditure on capital account

* represents around 6% of overall general government expenditure on capital account (4% ANAS and 2% Other entities)

Indicator

Regional Public Accounts

(*) The light-shaded histogram represents the *estimated* RPA series value drawn from indicator data.

Source: DPS – Public Investment Technical Evaluation and Monitoring Unit

II. The indicator system: universe, sources and estimation models

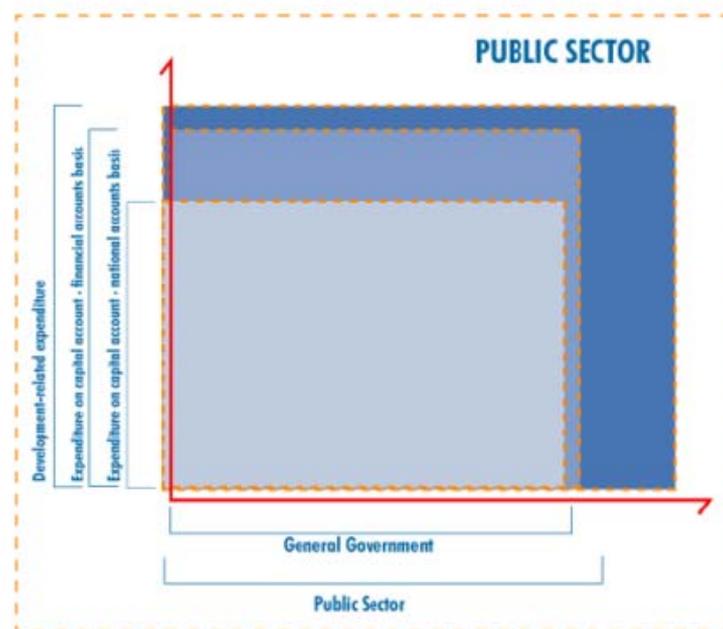
II.1 The universe of the indicator and the Regional Public Accounts

The reference universe for the indicator is a combination of the *public sector* and *public expenditure*. The RPAs cover an especially broad universe, so it is necessary to specify precise boundaries and definitions to be used for the indicator estimate.

The RPA database provides information on revenue and expenditure flows not only for general government, but also for the public sector, which is a significantly broader aggregate than the one normally used in public accounting. The indicator, on the other hand, currently limits its scope to general government capital expenditure consistent with the National Accounts.

The various possible combinations of *public expenditure* and the *public sector*, as described in detail in this section, are shown in Figure II.1, which shows the aggregate chosen for the indicator.

Figure II.1 Public sector and public expenditure aggregates



Source: DPS – Public Investment Technical Evaluation and Monitoring Unit

II.1.1 Public sector

According to the definition adopted by the RPAs, the wider public sector includes all bodies that fall within the realm of public action.

This sector can be divided into two segments:

a) General government

This includes (in accordance with the international definition used for the calculation of National Accounts estimates and the checks required at the Community level for the excessive deficit procedure) entities that primarily deliver non-market goods and services - mainly financed by mandatory payments made by units belonging to other sectors - and units whose main function is redistributing the income and wealth of the country.

In order to delineate the boundaries of this sector more clearly, the appendix includes a detailed list (source: ISTAT) of the bodies classified under general government.¹⁷ This segment essentially includes: the State; Cassa Depositi e Prestiti; other central government entities; ANAS; social security institutions; ordinary and special-statute regions and the autonomous provinces; local health authorities, public hospitals; provinces; mountain communities; chambers of commerce; universities and entities for the right to higher education; municipalities; and other local government entities.

b) Public sector component

This includes the entities that meet the following requirements:

- formally belong to the public sector, in that public-sector bodies exercise direct or indirect control over their management and/or provide financing to these entities,
- effectively a part of the public sector, in that they produce goods and services that can be considered to be of public utility;
- have in the past received or may in the future be eligible to obtain Structural Funds.

¹⁷ The list is the official definition of the entities that are included within general government. The RPA project uses this universe excluding certain minor entities that account for less than 2% of the total. The burden of direct inclusion of these entities is, for the moment, deemed to be excessive, given the limited benefit in terms of more accurate information. A study is currently under way to determine the feasibility for the RPA Regional Teams to include these entities, most of which are within the local government component.

Accordingly, the RPA system also includes entities formed as companies (i.e. State Railways, the Italian Post Office, Former IRI companies, or ENI) over which there is public sector control and which contribute to public capital expenditure.

The perimeter of these components is not fixed over time. Many changes, especially in recent years as a result of extensive privatisation, are made to public entities, which may result in them becoming companies that are no longer considered a part of general government. The universe currently monitored in the RPA database is that agreed with the European Union and confirmed in 1999,¹⁸ but developments within the various bodies are monitored constantly in order to determine whether different aggregates need to be considered.

In setting the boundaries of the universe, the indicator takes general government as a point of reference. Numerous protocols of understanding have been implemented with government entities governing the provision of the information generated within their monitoring systems. Establishing bilateral agreements was more immediate within general government, given the long-standing relationships and constant contact between the various bodies involved. Verifying the availability within the public sector of data that meets the requirements of the indicator and the implementation of similar agreements is an especially complex issue given the nature of the entities this segment includes, in that they are generally not required to have detailed, timely systems for monitoring financial flows and are less restricted than general government bodies by requirements handed down by the MEF to broaden their data supply.

¹⁸ In 1999, an *ex ante* verification of compliance with the principle of additionality was carried out for the current EU programming period. The reference universe to be monitored through 2006 was defined at that time.

II.1.2 Public expenditure

In line with the items included in the accounts of public entities, the RPAs and, consequently, the indicator break expenditures down into items that represent the various types of spending effected by the public entity. The RPA expenditure categories for which the methodology and analysis is most detailed and mature, and which are used in the calculation of the indicator, are those regarding consolidated general government capital expenditure, i.e. the portion of public spending that includes flows that directly or indirectly enable public entities to contribute to the formation and/or expansion of the productive capital within the national economy.

By aggregating the various items, a variety of capital account definitions can be used depending on research and analysis needs. An evaluation of the uses of the information is important in the selection of the most appropriate definition. The modular nature of the RPA database makes it possible to perform specific re-elaborations of the data - without altering the financial nature of the basic data related to the aggregates drawn from the accounts - in order to comply with EU rules or to compare the data with other public finance aggregates, notably the official National Accounts figures published by ISTAT.

Analyzing the economic aggregates of public capital expenditures in detail, we can define:

- Gross fixed investment:

$$\mathbf{Gross\ fixed\ investment} = \mathit{property} + \mathit{movables}$$

which represents direct public spending in fixed assets.

- Expenditure on capital account consistent with the National Accounts (NAs):

$$\mathbf{Expenditure\ on\ capital\ account\ (consistent\ with\ NAs)} = \mathit{Gross\ fixed\ investment} + \mathit{capital\ transfers\ to\ households} + \mathit{capital\ transfers\ to\ private\ corporations} + \mathit{capital\ transfers\ to\ public\ corporations}^{19}$$

This definition differs from the aggregate normally used for the accounts of the public entities in that it excludes two categories related to financial items.

- Expenditure on capital account from accounts:

$$\mathbf{Expenditure\ on\ capital\ account\ (from\ accounts)} = \mathit{Expenditure\ on\ capital\ account\ (consistent\ with\ NAs)} + \mathit{equity\ investments\ and\ capital\ injections} + \mathit{loans}.$$

¹⁹ This last item may or may not be included, depending on whether we are considering the reference universe to be general government or the public sector.

Then there is the aggregate required of EU Member States in order to verify additionality²⁰, which includes both financial expenditure on capital account and current expenditure for vocational training.

- Development-related expenditure:

Development-related expenditure = Expenditure on capital account (consistent with NAs) + *current expenditure for training*

The various definitions of expenditure on capital account, both for the RPAs and the indicator, can be broken down into the following items:

- *Gross fixed investment:*

This can be divided into property and moveable goods. Property includes expenditure related to building construction, completion, development, adaptation, initial fitting, or the purchase of buildings and other structures or major extraordinary maintenance.

Moveable goods, on the other hand, involve the direct purchase of intangible assets that the entity uses for investment purposes. In other words, the assets in this category must be durable and capable of generating future earnings. The category includes the purchase of software and capital expenditure for scientific research.

It is also important to note that movables also include purchases of public or private securities that are not intended to provide financing to companies or organizations (which would fall under the category of equity investments) but rather constitute assets that generate earnings directly.

- *Capital transfers to households and private social institutions:*

This includes both transfers to households and transfers to non-profit organizations not controlled by the public sector. A brief analysis of the expenditures classified within this category shows that the greatest amounts are paid for initiatives and contributions for the refurbishment, restoration, conservation, redevelopment, and use of buildings and for contributions to restore and enhance the value of monuments not owned by the State. These transfers also include contributions to the special account of the national guarantee fund established for intermediation activities; the construction and completion of parish churches; contributions for the repair or reconstruction of buildings damaged or destroyed by earthquake.

²⁰ See note 4.

- *Capital transfers to enterprises:*

This includes allocations, contributions and subsidies in favour of third parties for the purchase of moveable goods or the execution of investment works. The category therefore includes items such as transfers by the Ministry for Productive Activities for technological innovation and transfers related to Programme Agreements. It also includes charges for principal and interest borne by the State for the payment of loans taken out by former management agencies; amounts to be paid to increase the fund at the artisans credit bank; contribution for ship construction, transformation and major repair; contributions for the purchase and replacement of buses, as well as for the purchase of other means of public transport; interest subsidies on loans by Istituto Mobiliare Italiano (IMI) for research projects; permanent employee training; contributions to the social fund for agricultural consortia; amounts to be allocated to the portion of the unified fund for the performing arts used to finance activities; the State contribution for interest on loans taken out to finance investment programs.

To these examples, we can also add, where applicable, transfers to companies that provide public services, such as the State Railways, the Italian Post Office, Former IRI companies, or ENI, which fall under the public sector rather than general government.

- *Expenditure on capital account not elsewhere classified:*

This category includes expenditure on capital account whose nature or variety precludes allocation under the categories above. However, a number of specific studies carried out by ISTAT show that by analyzing the individual items in detail, most of these expenditures can be placed in the above categories. An analyst's skill lies in keeping this category to a minimum when preparing the consolidated accounts.

For the sake of completeness, we should reiterate that the definition of expenditure on capital account (from final accounts) available in the RPAs includes two additional categories (both financial items) that are not taken into consideration in the definition used for the indicator, namely:

- *equity investments and capital injections:*

Equity investments represent the purchase of shares in a joint-stock company, while capital injections are participating interests acquired through financial contributions to the capital endowments of entities or companies not limited by shares;

- *loans*:

This includes expenditures related to the granting of loans, advances and any other credits to be used by the beneficiaries for investment purposes. This category also includes expenditures of the same legal nature as the previous category, but which are not used for investment purposes, such as the elimination of interest-bearing liabilities or the coverage of operating losses.

Having seen the general outline, and given our previous comments on the comparability of the data produced by the two DPS tools with official sources, we should also point out the differences between the definitions of economic categories used in the RPAs and indicator and those used by ISTAT for the National Accounts.²¹

Apart from the different objectives pursued by the RPAs and the National Accounts and the different sources and reference universes, the RPA system uses an economic classification similar to the one used for the accounts of public entities, whereas ISTAT uses the classification called for by the European System of Accounts (ESA95). Practically speaking, this essentially results in lexical differences – e.g. RPA uses the expression “Capital transfers” (“*Trasferimenti in conto capitale*” in Italian), while the NAs uses “Investment grants” (“*Contributi agli investimenti*” in Italian) – with the exception of certain items called for in the public accounts but not in the ESA95 classification.

One example is the so-called “Expenditure not elsewhere classified”, a category which the RPA distinguishes, whereas ESA has no residual categories, which means that the actual nature of the flow must be determined in order to classify it among one of the accounts.

Similarly, the consolidated income statement for general government does not report flows originating from financial transactions (which are recorded on the financial account), so the items “Loans” and “Equity investments and capital injections” are excluded.

Table II.1 provides a reconciliation of the terminology used by the two instruments.

²¹ The outcome of this comparison is reported in the 2002 DPS report, the 2003 DPS report, and in Nusperli F. and Tancredi A. “*Conti Pubblici Territoriali e Contabilità Nazionale dell’ISTAT: strumenti e risultati a confronto*” in “Atti del convegno La regionalizzazione della spesa pubblica: migliorare la qualità e la tempestività delle informazioni. I progetti Conti Pubblici Territoriali e IA” available for download (in italian) at http://www.dps.mef.gov.it/documentazione/convegni/16_10_2003/inter_Nusperli-Tancredi.pdf.

Table II.1 Comparison of the definitions of capital expenditure for the Regional Public Accounts and the National Accounts

REGIONAL PUBLIC ACCOUNTS	NATIONAL ACCOUNTS
Property and moveable goods	Gross fixed capital formation
Capital transfers to households and social institutions	Investment grants to households
Capital transfers to private and public enterprises	Investment grants to enterprises
Rxpenditure not elsewhere classified	Included in the items above
Equity investments and capital contributions	Not applicable
Loans	

Source: DPS – Public Investment Technical Evaluation and Monitoring Unit

Having defined these differences, we can see a number of reclassifications are made at the National Accounts level. To be more complete, we need to distinguish between the various components concerned, namely:

- investments;
- capital transfers;
- expenditure not elsewhere classified.

For gross fixed capital formation, defined as the acquisition of fixed assets under ESA95, net of disposals, ISTAT:

- recognizes acquisitions net of sales;
- excludes from the income statement all items related to transactions of a purely financial nature, which are often included among expenditures on capital account;
- includes software expenditures;
- reclassifies purchases of durable goods, which are recognized among the purchase of goods and services in the financial statements, from current spending to capital expenditures;
- recognizes the purchase of land as net purchases of non-financial non-produced assets.

For capital transfers, which are defined by ESA95 as unilateral transfers of ownership of one or more assets without a counterpart, ISTAT reclassifies interest subsidies from capital expenditure to current expenditure.

For capital expenditure not elsewhere classified, found in the accounts of the various entities, given that ESA95 does not envisage the use of residual items, ISTAT reallocates the various items of the account after careful analysis. This is done for the regional governments in particular; this means that the NA amounts include a variable portion of this expenditure, while the RPAs include the entire amount.

II.2 The data sources for the indicator

The statistical estimation models used in the indicator for general government are based on a number of data sources that meet the standards of reliability and timeliness necessary to generate quarterly estimates of public capital expenditure.

The databases that currently provide input to the system cover about 98 percent of the universe of general government capital expenditure. They regard the State, local government and ANAS. The final 2 percent not covered (see Table I.2) includes the capital expenditure of other entities (social security funds and other central and local government bodies).

The data sources were selected on the basis of the following criteria:

- a) regional breakdown;
- b) quarterly availability with a lag of around three months;
- c) regular generation of data;
- d) sufficiently long time series;
- e) breakdown between investments and transfers (and for the latter, if possible, breakdown of expenditure by beneficiary);
- f) reconciliation with National Accounts system possible.

Failure to satisfy the above requirements led to the exclusion of a number of data sources that had initially been considered strong candidates for the construction of the indicator. For investment spending, these included the substantial databases on tenders (which do not satisfy requirement f) because they do not permit monitoring of actual expenditure or the timing of such expenditure) and the information from ISTAT's Public Works Survey, which owing to the large number of missing or incomplete responses does not meet requirements c) and d) since they do not provide regular, homogeneous time series.

The data sources that did meet these standards and which now form the indicator database are as follows:

- a) the data gathered by the State General Accounting Department (RGS) used in the preparation of the reports on the quarterly accounts of the main local government entities: regions, provinces, municipalities, mountain communities, chambers of commerce, universities and local health authorities;
- b) the data gathered by the State General Accounting Department (RGS) on State payment orders, supplementing the publication “*La spesa dello Stato regionalizzata*” (State expenditure on a regional basis);
- c) data sources maintained by the Ministry for Productive Activities regarding State transfers to enterprises under a number of specific expenditure laws;
- d) monitoring of amounts offset in respect of tax credits by the Revenue Agency;
- e) transfers by the Cassa Depositi e Prestiti to enterprises (specifically, a number of negotiated planning instruments);
- f) the data in ANAS’s quarterly accounts for direct investment by region.

Table II.2 details the sources, availability and frequency of updating of the databases used in the public capital expenditure indicator project.

Table II.2 The database of the public capital expenditure indicator

SOURCE	AVAILABILITY*	FREQUENCY
STATE GENERAL ACCOUNTING DEPARTMENT (RGS)		
Local government quarterly accounts	1991 – 2004/2	quarterly
State payment orders	1996 – 2004/2	quarterly
Annual report on state expenditure on a regional basis	1996 – 2002	annual
MINISTRY FOR PRODUCTIVE ACTIVITIES (MAP)		
Annual report on incentives for enterprises	1998 - 2003	annual
Data on initiatives under Law 219/81, Law 46/82, Law 64/86, Law 215/92, Law 488/92 – Territorial Agreements (1 st generation) and Programme Contracts	From inception of instrument 2004/2	quarterly
CASSA DEPOSITI E PRESTITI		
Data on Area Contracts and Territorial Agreements (other than 1 st generation)	1998 – 2004/2	quarterly
REVENUE AGENCY		
Tax credits	2001 – 2003	quarterly
ANAS		
Quarterly accounts	1996/2 – 2004/2	quarterly

(*)If available on a quarterly basis, the year and quarter are shown

Source: DPS – Public Investment Technical Evaluation and Monitoring Unit

To ensure a constant flow of updated data, the Department for Development Policies (DPS) has entered into specific agreements with the entities providing the data.

The construction of the database, a key phase of estimating the indicator, is accompanied by an analysis of the quality of the available information, which includes verification of the congruity of the data drawn from different archives, the treatment of outliers, identification of any structural changes in the series associated with legislative developments and the evaluation of the need for seasonal adjustment.

The selection of the various information sources for the construction of the database on which the indicator would be estimated led to the creation of a database that receives input from numerous government sources, each with specific objectives and purposes. Not all the information collected is used to estimate the indicator for capital expenditure. Nevertheless, the database is constantly updated with all the available information and constitutes an extremely important and significant foundation for various internal studies and detailed analyses.

II.3 The statistical models used to estimate the indicator

The indicator is constructed using a modular approach, as described in section I.6, and envisages differentiated statistical analyses and data treatment depending on the various data sources used.

The final indicator estimate of regional capital expenditure by general government is based on four separate components (State, local government, ANAS and other entities), the data for which are processed differently.

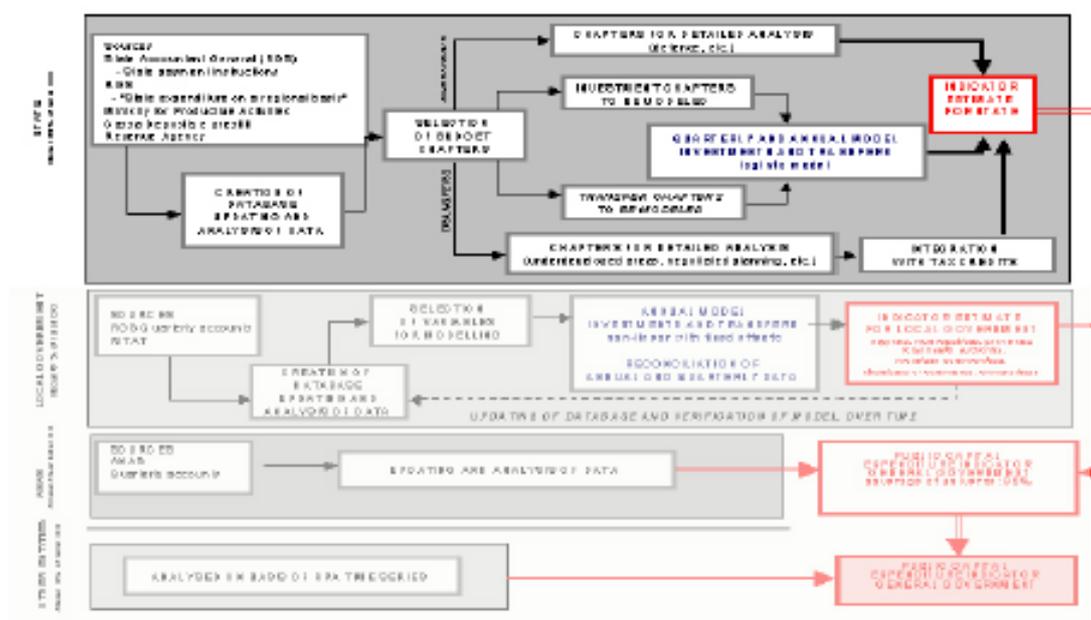
As discussed earlier, the components represented by ANAS and other entities are not modelled specifically to anticipate the corresponding aggregate of the RPAs. In the case of ANAS, the basic data are received from the agency directly and at the same time by both the RPAs and the indicator. The data for other entities is extrapolated from the RPA series without the contribution of elementary data.

The following sections describe in detail the methods and results of the statistical models used for the regional estimate of capital expenditure by the State and local government entities.

II.3.1 The model for allocating State capital expenditure on a regional basis

In order to estimate the regional distribution of State capital expenditure (which accounts for about 33 percent of the total of general government capital expenditure) the basic data is drawn from the payment order database of the SIRGS. The lack of reliable information on the territorial location of each expenditure operation registered in the payment orders makes it necessary to use a statistical model to formulate the regional distribution. In order to generate estimates for the regional location of expenditure (broken down into investments, transfers to enterprises and transfers to households), an automated, modular system was developed. Figure II.3 (which maps the overall structure of the indicator, highlighting the component addressed in this section) provides an aggregate description of the various stages of the estimation process.

Figure II.3 The structure of the public capital expenditure indicator: the State



Source: DPS – Public Investment Technical Evaluation and Monitoring Unit

Examining the procedure for handling the data on State capital expenditure in greater detail, it helps to break the process down into a number of information subsystems that process the input data and transfer the results to another module, which in turn uses them as input. The model has a modular architecture and is structured into separate

levels, reflecting the progressive refinement of the analysis in what is essentially a bottom-up approach. Each level processes the data and returns the output to the higher level, with the information become more “readable” with each step.

The data is used for modelling purposes only at the final step of the system, and even this section of the “State subsystem” allows certain degree of flexibility in the choice of solution to adopt, thereby facilitating alternative strategies.

The SIRGS’s payment order database contains data on *orders to pay* and *orders to credit*, but the same variables are not available for both forms of payment.

The variable “zone of intervention” (*rz*) records - for *orders to pay* (OP) only - the actual location of the expenditure carried out with the individual payment order. This information is considered reliable although it is largely incomplete (more than 50 percent of the amount of OPs is not attributed to any region in any given reference year). The variable modalities are the 20 Italian regions as well as “Italy” and “Foreign”.

The information is modelled in order to identify territorial proxies to cover the data gaps in the “zone of intervention” variable and to associate the payment orders without a specific destination with a probability for each Italian region.

The desired output is not the assignment of a unique geographic destination for each payment order but rather the allocation of the amount of the order among the 20 regions, with larger shares going to those regions that the model considers to be more likely recipients of the funds.

The proxy variables considered most suitable to identifying the location of expenditure are the following:

- the region identified by the treasury section issuing the order (*rt*);
- the region identified by the tax code of the enterprise or person from whom the expenditure was commissioned (*rc*);
- the region identified by the bank branch code of the enterprise or person receiving the payment (*ra*);
- the region extracted from the description string of the beneficiaries themselves (*rb*)

With the exception of the treasury sections, the other territorial variables are present only in part of the OP database and are absent in *orders to credit* (*OA*).

Three separate models with the same functional form were estimated for State investments, transfers to enterprises and transfers to households. There are, however, differences in the selection of the budget chapters to be modelled.

In some cases, alternative sources of data on the geographical location of certain expenditures or other detailed information are available.

As regards investments, the chapters regarding fund transfers abroad are excluded from the model and, more generally, from the calculation of gross fixed investment for both the RPAs and the indicator.

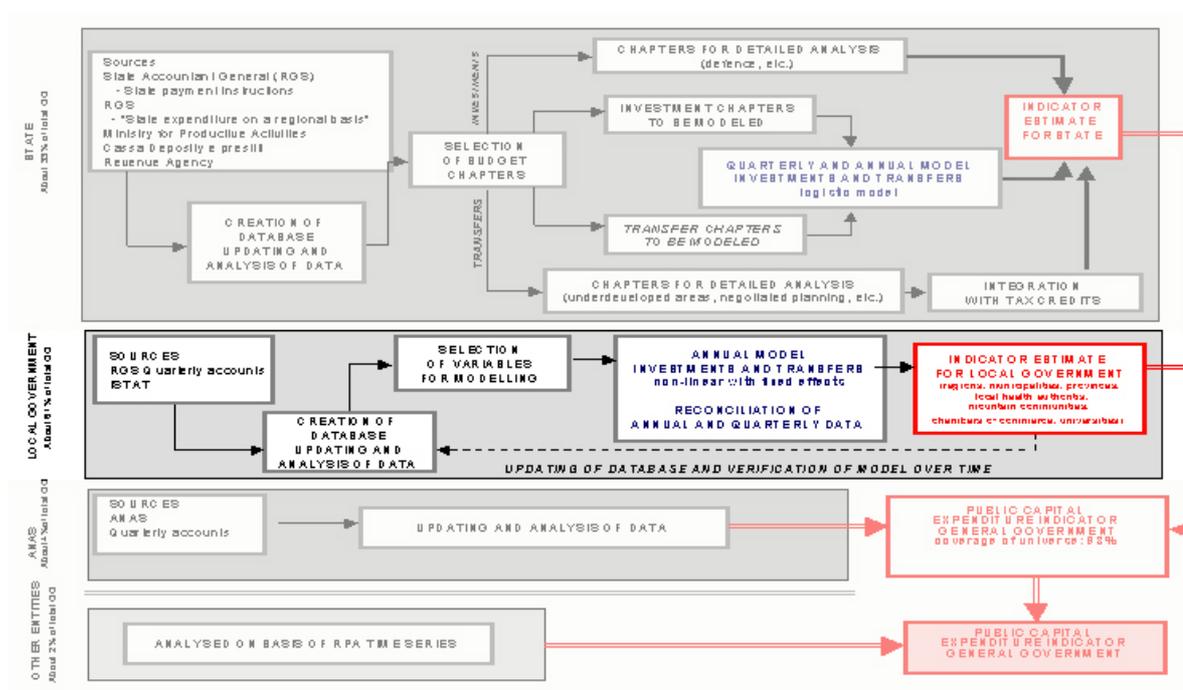
For transfers to enterprises, the model isolates the budget chapters regarding tax credits (since 2003, these have been recognized under expenditure on capital account and no longer under current expenditure), which are associated with the regional distribution provided by the Revenue Agency. The Ministry for Productive Activities (MAP) supplies the data on the special accounts of the Technological Innovation Fund (FIT) and first-generation Territorial Agreements and Programme Contracts. Other data is supplied by Cassa Depositi e Prestiti on the regional distribution of the budget chapters for Negotiated Programming.

The regional distribution thus obtained, supplemented with the data described, represents the final estimate of State expenditure on capital account.

II.3.2 The model for allocating local government capital expenditure on a regional basis

The estimation model for local government (LG) in the indicator is applied to regions, provinces, municipalities, mountain communities, chambers of commerce and local health authorities, which account for about 61 percent of total general government expenditure (see Figure II.10).

Figure II.8 The structure of the public capital expenditure indicator: local government



Source: DPS – Public Investment Technical Evaluation and Monitoring Unit

The aim of the LG model, in line with the structure of the indicator, is to obtain a separate estimate of regional expenditure for investments, transfers to enterprises and transfers to households.

The statistical model has been improved and revised over time thanks to the increasingly consistent and stable information base and a better understanding of the problems associated with the estimation. The model adopts a fixed-effect approach. It was initially a linear model with distinct parameters for each “expenditure item-entity” combination to estimate.²² It is now non-linear with a single set of parameters (more “parsimonious” than the previous approach). This section describes the non-linear fixed-effect version of the model.

²² For a closer examination of the model, see Barbaro F. “Il modello econometrico per la stima delle Amministrazioni Locali” in “Atti del convegno La regionalizzazione della spesa pubblica: migliorare la qualità e la tempestività delle informazioni. I progetti Conti Pubblici Territoriali e Indicatore Anticipatore” available (in Italian) at http://www.dps.mef.gov.it/documentazione/convegni/16_10_2003/inter_Barbaro.pdf.

The exogenous variable series is represented by the data in the State General Accounting Department's quarterly report on the borrowing requirement and accounts (*Relazione Trimestrale di Cassa*), while the target series is currently the RPA series.

The estimates effected prior to the June 2004 version of the indicator used the special ISTAT series produced specifically for the project as the target series, as it was initially felt that using the RPA data was not immediately feasible. The RPA series were constructed as from 1996, and so at the time could not provide a sufficiently long time series (only the data for 1996-1999 and preliminary estimates for 2000 were available). The substantial reduction in the significance of the results therefore initially prompted the decision to use the ISTAT series, which for most public entities was available as from 1991.²³ We noted earlier that estimates of the RPAs were recently produced for 2002: this made it possible to use the latter as a target variable in the model, since the time series now available is considered sufficiently extensive to ensure an adequate level of reliability for the estimates.

With the adoption of the new target series, the estimation capacity of the indicator has obviously improved, since it is no longer impacted by the differences between the data produced by ISTAT and the RPAs, which from the outset were the target variables for the estimation. It was also possible to introduce the "unclassified expenditure" component (available for the RPAs), which accounted for a significant share of capital expenditure, especially for regional governments. Previously, such amounts could not be quantified directly because the ISTAT series included them under the various economic categories of the capital account, in line with the SEC95 system, which does not provide for residual items.

The estimation of capital expenditure by local government entities has three main steps:

- preliminary processing;
- estimation of the model;
- aggregation of the estimated results at the local government level.

The estimation stage is the final step in a process in which the data from the various information sources are re-elaborated to tailor them to the characteristics required by

²³ The ISTAT series was not reconstructed for previous years because the indicator's database did not contain information for the years prior to 1991.

the model. Quality control of input data also ensures the reliability (the “soundness”) of the final estimates.

The first stage of the process involves the creation of a “good”²⁴ data matrix (the information base for the estimation). It essentially consists of two stages: loading the data and structuring the variables.

The model estimated to state local government capital expenditure on a regional basis, which is the product of the methodological developments we have discussed, is a dynamic one. As such, it is no longer time-independent and considers non-linear relationships between variables. It is therefore possible to capture variations both within a given unit and between different data groups, and to take account of the time dimension using lagged exogenous and endogenous variables.

The dynamic effect introduced in the model – the relationships contain variables referring to different moments in time – enhances its capacity to reflect the nature of the economic phenomena being analysed, which change over time.

The fixed-effect approach makes it possible to exploit the longitudinal nature of the data. The available time series are a typical example of panel data (repeated observations of the same set of units), for which the use of a simple linear model, in which each observation is considered to be independent identically distributed, could overlook heterogeneity between observations and links in their temporal replication.

The non-linear fixed-effect model is used for all entities for which the quarterly accounts from the State General Accounting Department (RGS) are available, with the exception of local health authorities. The RPA data for the latter (as well as the data in the series prepared by ISTAT used previously to estimate the indicator) coincide exactly with the State General Accounting Department data. In order to generate the regional estimate of expenditure on capital account by local government entities, the results of the model are supplemented with the information on local health authorities drawn directly from the quarterly reports.

²⁴ That is, a matrix that represents the available information with respect to the exogenous variables and the target series in the most complete and detailed manner possible.

Glossary

Additionality

Addizionalità

The principle of additionality (Article 11 of Regulation (EC) 1260/99) is designed to ensure that Community resources shall be additional to national public expenditure. . It establishes that the Member State must maintain its own public expenditure for each territory receiving Community funds at a level at least as high as that spent during the previous programming period.

Objective 1 Areas

Are Obiettivo 1

Pursuant to Regulation (EC) 1260/1999, laying down general provisions on the Structural Funds, Objective 1 regions are those whose regional per capita GDP , measured in purchasing power parities and calculated on the basis of the last three years available, is less than 75% of the Community average.

The reference period for the current programming period is 1994-1996.

Objective 1 regions in Italy are: Basilicata, Calabria, Campania, Puglia, Sicily and Sardinia.

In view of the amount of financial resources available and the substantial territory covered, there is a major national coordination effort and integration (on at least the formal level) of all Structural Funds for Objective 1 regions.

The central government, the regions, and the European Union have agreed a Community Support Framework document that sets out the financial framework and criteria and guidelines for the specific strategies to be implemented through the Regional and National Operational Programmes, which are financed jointly by the Structural Funds.

Under-utilised areas

Are Sottoutilizzate

The definition (under Article 27(16) of Law 488/99 – the 2000 Finance Act) comprises:

- the six Objective 1 regions (Basilicata, Campania, Calabria, Puglia, Sardinia and Sicily);
- Abruzzo, in view of the short duration in the past programming cycle of the support for phasing out from Objective 1 status;
- Molise, currently phasing out from Objective 1 status;
- the areas of the Centre and North that have received funding in the current programming period (Objective 2 regions);
- the areas of the Centre and North included in the previous programming cycle that received support for phasing out from Objectives 2 and 5b;
- areas that have received State Aid pursuant to Article 87.3.c.

Tax credits

Crediti di imposta

Tax credits are used to provide subsidised financing to enterprises in the form of tax savings. This grant mechanism has taken on increasing importance in recent years within the scope of subsidised financing programmes to encourage investment by Italian businesses.

Numerous laws have introduced measures that envisage tax credits: Law 341/1995, Law 140/1997, which granted tax benefits for industrial research activities, the 1998 and 1999 Finance Acts, which extended the incentives for scientific research to wholesale and retail distribution, tourism, enterprises creating new jobs and enterprises participating in “Negotiated Planning” agreements.

Area Contracts

Contratti d'Area

Area Contracts are an operational tool used by local authorities, the social partners and other actors with a view to boosting employment in a given circumscribed area. They mainly involved the crisis areas specified in Law 263/93, but also include Objective 1, 2 and 5b regions. Contracts are also signed by the public entities responsible for the area.

The public entities involved in the contract must appoint a sole manager responsible for ensuring execution of the contract.

The regional government and the State must ensure the consistency of the contract with planning tools and State and regional resources.

Programme Contracts

Contratti di Programma

Programme Contracts were first established with Law 64/1986. They subsequently underwent complex regulatory development characterized by considerable administrative stratification.

Programme Contracts are governed by Law 488/92 as regards the incentives that can be granted, while procedures and application processing criteria are set out in CIPE resolution no. 26 of 2002 (regionalisation of Negotiated Planning) and two decrees of the Minister for Productive Activities of 12 November 2003, setting out application processing procedures, and 19 November 2003, setting out the criteria for ranking applications.

Programme Contracts can be proposed by large enterprises, consortia of small and medium-sized enterprises and representatives of industrial districts. The contract is drafted between the latter and the State entities responsible for the implementation of comprehensive productive investment plans (including in multiple sectors, which can comprise research activities and consortium management services) in a given area.

Fund for Under-Utilised Areas (FUA)

Fondo per le Aree Sottoutilizzate (FAS)

The Fund for Under-Utilised Areas is essentially the union of two intercommunicating funds managed by the Ministry for the Economy and Finance and the Ministry for Productive Activities. The funds were established pursuant to Articles 60 and 61 of Law 289 of 27 December 2002. Given their common purpose and joint management, the funds can be considered as a "Single Fund for Under-Utilised Areas". This approach to financing regional development policy was adopted as from the 2003 Finance Act, thereby unifying all additional national resources, of which 85 percent go to the South and 15 percent to the Centre-North.

FUA: CIPE INSTRUCTIONS FOR USE	
Ministry for the Economy and Finance	Ministry for Productive Activities
<ul style="list-style-type: none">- Public investment to finance Institutional Programme Agreements- Self-entrepreneurship and self-employment- Tax credit for investment- Tax credit for employment in the South- Investment in local advertising campaigns- Food processing contracts- Completion of public investments launched under extraordinary intervention for the South	<ul style="list-style-type: none">• Incentives for enterprises for calls under Law 488/1992• Programme Contracts• Territorial Agreements• Area Contracts

Source: CIPE resolution no. 16/2003

For a description and analysis of the operation of the fund in its first year, see the MEF-DPS report “*Il Fondo per le Aree Sottoutilizzate. Elementi informativi sull’attuazione 2003*”, May 2004, available at www.dps.mef.gov.it (in italian).

Territorial Agreements

Patti Territoriali

Territorial Agreements are agreements between a range of local actors, such as enterprises, local authorities, industrial and labour associations and so on, that seek to set shared objectives and identify the integrated productive and infrastructure initiatives necessary to achieve them. The instrument is governed by Law 662/96 (Article 2(203d), which defines Pacts as “agreements promoted by local authorities, the social partners or other public or private actors ... for the implementation of a programme of initiatives specifically targeted at fostering local development”.

Responsibility for managing Territorial Agreements was recently transferred to the Ministry for Productive Activities and is now being transferred to the regions.

Negotiated Programming

Programmazione Negoziata

Negotiated Programming is intended to “regulate initiatives involving multiple public and private entities in complex decision-making processes and the unified management of the related financial resources”. The instruments available to implement this programming include:

- Institutional Programme Agreements, implemented through Framework Programme Agreements
- Territorial Agreements,
- Programme Contracts,
- Area Contracts.

Negotiated Planning was established with Law 662/1996, Article 203 (1997 Finance Act). The same law charged the CIPE with regulating the tools for implementing national economic policy, delegating it with responsibility for approval and the allocation of public financial resources intended for the development of under-utilised areas.

Community Support Framework (CSF) Objective 1 - 2000-2006

Quadro comunitario di sostegno (QCS) Obiettivo 1 - 2000-2006

The CSF, or “Community Support Framework for Italian Objective 1 Regions 2000-2006”, approved by the European Commission on 1 August 2000, is managed by the Ministry for the Economy and Finance. It is the programming document for the use of Structure Funds for Italian regions whose development is lagging behind. The framework is the outcome of a long process of discussion and negotiation that, in addition to the Ministry for the Economy and the EU, also involved regional governments, national government departments and local authorities and economic agents. It concluded with the preparation of the “Development Programme for the South” and the regional and national operational programmes.

The CSF therefore contains strategies, action priorities and related specific objectives and defines the role of the Structural Funds and other financial resources. It is implemented through 14 Operational Programmes, of which 7 regional (PORs) and national (PONs), managed by central government. In view of the imminent devolution of responsibilities from central government to the regions, about 80 percent of resources for 2000-2006 have been allocated to the 7 PORs, with the remainder going to the PONs.

Bibliography

- Cappucci, N. and Orsi, R.. (1991), *Econometria*, Il Mulino, Bologna
- Coppi, R. (1998), *Lezioni di analisi statistica multivariata*, Dipartimento di statistica, probabilità e statistiche applicate, Università degli studi di Roma “La Sapienza”, Rome
- De Luca, G. (2002), *Contabilità di Stato e degli Enti Pubblici*, XIV Edizione aggiornata alla L. 289/2002 (Finanziaria 2003), Edizioni Giuridiche Simone, Rome
- Dipartimento per le Politiche di Sviluppo, Ministero dell’Economia e delle Finanze, Atti del convegno *La regionalizzazione della spesa pubblica: migliorare la qualità e la tempestività delle informazioni*, Roma, 16 October 2003 available at <http://www.dps.tesoro.it/convegni.asp#16ottobre>
- Dipartimento per le Politiche di Sviluppo, Ministero dell’Economia e delle Finanze, Atti del convegno *Federalismo e politica per il territorio: la svolta dei numeri* - Rome, 6 November 2003 available at <http://www.dps.tesoro.it/convegni.asp#6novembre>
- Dipartimento per le Politiche di Sviluppo, Ministero dell’Economia e delle Finanze (Anni vari), *Rapporto Annuale*, available at http://www.dps.tesoro.it/documenti_elenco.asp
- Dipartimento per le Politiche di Sviluppo, Ministero dell’Economia e delle Finanze (2000), *Guida metodologica per la costruzione di conti consolidati della finanza pubblica a livello regionale*, available at http://www.dps.tesoro.it/cpt/cpt_guidametodologica.asp
- Direzione Generale Coordinamento Incentivi alle Imprese, Ministero delle Attività Produttive (Anni vari), *Relazione sugli interventi di sostegno alle attività economiche e produttive*, available at http://www.minindustria.it/organigramma/documento.php?id=2850&sezione=organigramma&tema_dir=tema2
- Eurostat (1996), *European System of Accounts – ESA 1995*, Luxembourg
- Hsiao, C. (1986), *Analysis of Panel Data*, Cambridge University Press, UK
- ISTAT (2004), *Conti ed aggregati economici delle Amministrazioni pubbliche Serie SEC95 - anni 2000-2003*, in “Statistiche in Breve”, 5 July 2004, available at <http://www.istat.it/Comunicati/Fuori-cale/allegati/Conti-ed-a1/AP03bis-.pdf>
- ISTAT (2004), *Conti economici regionali - anno 2002*, in “Statistiche in Breve”, 13 September 2004, available at <http://www.istat.it/Comunicati/Fuori-cale/allegati/Conti-regi2/reg.li20022bis.pdf>
- Ministero Economia e Finanze (various years), *Documento di Programmazione Economico-Finanziaria*, available at http://www.mef.gov.it/web/docu_indici/DPEF/index.asp
- Ministero Economia e Finanze (various years), *Relazione Trimestrale di Cassa*, available at http://www.mef.gov.it/web/docu_indici/relazione_stima_fabbisogno_cassa/index.asp
- Pindyck, R. and Rubinfeld, D. (1981), *Econometric Models and Econometric Forecasts*, McGraw-Hill Book Co, UK
- Ragioneria Generale dello Stato, Ministero Economia e Finanze (various years), *La spesa statale regionalizzata*, Rome
- European Union and Ministero dell’Economia e delle Finanze (2000), *Quadro Comunitario di Sostegno per le regioni italiane dell’Obiettivo 1 2000-2006*, available at <http://www.dps.tesoro.it/documentazione/docs/all/doc16.pdf>
- Vitali, O. (1993), *Statistica per le scienze applicate*, Volume II, Cacucci Editore, Bari

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