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THE PUBLIC PROJECT FEASIBILITY STUDY IN LOCAL PPPs: A GUIDE AND A TOOLKIT

EXTRACT OF THE ORIGINAL ITALIAN PAPER

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S. Rosignoli, P. Rubino

The Public Investment Evaluation Unit (UVAL) provides technical support to government bodies by preparing and disseminating methods for evaluating public investment programmes and projects before, during and after the projects themselves, in part to optimise the use of EU Structural Funds. The Unit is part of the network of central and regional evaluation teams.

UVAL was set up in its current form in 1998 as part of the reorganisation of development promotion functions previously assigned to the Ministry for Economy and Finance. It reports to the Head of Department for Development and Economic Cohesion of the Ministry for Economic Development, to which it was transferred by Prime Ministerial Decree on 28th June 2007, as published in Issue 218 of the *Gazzetta Ufficiale* of 19th September 2007.

The Unit currently reports to the Prime Minister within the framework of cohesion policy, as per article 7, para 26, of Decree Law No. 78 of 31st May 2010 (see *Gazzetta Ufficiale* Issue 176 of 30th July 2010) and Decree Law No. 101 of 31st August 2013, converted with amendments into Law No. 125 of 30th October 2013 (see *Gazzetta Ufficiale* Issue 255 of 30th October 2013).

The Unit determines whether investment programmes and projects comply with economic policy guidelines, assesses the financial and economic feasibility of the initiatives, and determines whether they are compatible and appropriate as compared with other solutions, while also evaluating their social and social and economic impact in the areas concerned.

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The public project feasibility study in local PPPs: a Guide and a Toolkit

Abstract

Public investment project design in Italy does not always include the compilation of dedicated feasibility studies, despite a legislative drive aimed at their implementation. Several manuals have been released over the last few decades, both in Italy and abroad, but these have largely failed to achieve operational status in terms of financial viability and economic project impact assessment. This Guide and related software have been developed to equip public decision makers with a useful toolkit for carrying out pre-feasibility studies for public projects. The application lends itself to the appraisal of projects financed either through public funding or under Public-Private Partnership (PPP) schemes. Adopting the standard approach of feasibility study manuals, the package breaks down into several connected sections such as demand analysis, financial assessment and the conversion of market values into economic ones by means of imputed shadow prices. Because the application was purposely developed for the Tuscan context, some of the basic data used for the economic analysis were uniquely calibrated to that particular territory. However, the financial analysis modules can equally be used to assess the feasibility of projects located elsewhere in Italy. The Guide recalls the main steps required in project evaluation through a practical case study. It is complemented by two monograph papers: the first is of a more methodological nature, describing the approach used for performing the economic analysis, while the second focuses on some of the characteristics, principles and operational issues in PPP schemes.

Lo Studio di fattibilità nei progetti locali realizzati in forma partenariale: una guida e uno strumento

Sommario

La realizzazione di un progetto di investimento pubblico non è sempre preceduta da uno specifico studio di fattibilità, sebbene il legislatore abbia sollecitato, con tempi e modi differenti, le Amministrazioni a dotarsi di metodi e strumenti utili a sviluppare valutazioni preventive di convenienza economica dei progetti d'investimento. Nell'ultimo decennio sono stati prodotti diversi manuali per orientare la valutazione dei progetti pubblici, sia in Italia, sia in ambito comunitario. Si tratta di guide di diversa ampiezza e profondità che raramente, però, sono divenuti strumenti operativi impiegati in modo abituale dai decisori pubblici per valutare la sostenibilità finanziaria e l'utilità economica delle iniziative. Questa Guida e l'applicativo che l'affianca, un vero e proprio *software* operativo realizzato in ambiente *excel*, intendono offrire al *management* pubblico uno strumento chiaro e di semplice applicazione in supporto all'analisi di prefattibilità di un investimento pubblico. Lo strumento consente di valutare la fattibilità di progetti caratterizzati da diverse combinazioni di fonti di finanziamento, tanto il caso del totale ricorso al finanziamento pubblico quanto lo schema partenariale pubblico-privato (PPP). Seguendo l'impostazione di base dei manuali sulla redazione degli studi di fattibilità, l'applicativo sia articola in più fasi: dallo sviluppo della domanda, all'analisi finanziaria, fino al passaggio ai valori economici attraverso i coefficienti di conversione dei prezzi di mercato. L'applicativo è stato specificatamente sviluppato per il contesto toscano, cosicché alcuni dati di base sono calibrati su quella realtà regionale. Essendo questi dati esclusivamente funzionali alla parte economica dell'analisi, i moduli relativi alla parte di analisi finanziaria sono fin d'ora utilizzabili per valutare la prefattibilità di investimenti localizzati su tutto il territorio nazionale. Nella guida vengono ripercorsi i principali passaggi valutativi richiesti all'analista, anche attraverso lo sviluppo empirico di un caso di studio. La Guida è integrata da due allegati monografici, di cui il primo, di natura più metodologica, descrive l'approccio impiegato per l'analisi economica, mentre il secondo si sofferma su caratteristiche, principi e indicazioni operative degli istituti del PPP.

This Guide and the development of the Excel application are the fruit of an inter-institutional collaboration launched in the second half of 2010 between financial bodies and central and territorial technical organisations, represented by the Deposit and Loan Bank, the Public Investment Evaluation Unit (UVAL) of the Department for Economic Development and Cohesion and the Technical Project Funding Unit (UTFP) of the Department for the Planning and Coordination of Economic Policy, established at the Presidency of the Council of Ministers (DIPE-PdCM), and the Tuscan. In particular, the work was carried out by:

- *Giuseppe Gori - IRPET, Regional Institute for Economic Planning of Tuscany;*
- *Patrizia Lattarulo - IRPET, Regional Institute for Economic Planning of Tuscany;*
- *Stefano Maiolo - Public Investment Evaluation Unit, DPS-UVAL;*
- *Francesca Petrina- Expert in public spending evaluation matters;*
- *Stefano Rosignoli - IRPET, Regional Institute for Economic Planning of Tuscany;*
- *Piero Rubino - Public Investment Evaluation Unit, DPS-UVAL.*

The Guide is published along with the Excel application and two annexed monograph papers, which form an integral part thereof:

- *Methodological note for the economic cost-benefit analysis of public investment projects;*
- *Project financing and other Public-Private Partnership institutes for carrying out public works and works of public worth in Italy: principles, ideas and operational guidance.*

The Guide, the application and the two annexes are available at the following website: www.dps.gov.it/it/pubblicazioni_dps/materiali_uval

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I. Introduction

Public investment project design in Italy does not always include the compilation of dedicated feasibility studies, despite a legislative drive aimed at their implementation. Several manuals have been released over the last few decades, both in Italy and abroad, but these have largely failed to achieve operational status in terms of financial viability and economic project impact assessment. This Guide and related software have been developed to equip public decision makers with a useful toolkit for carrying out pre-feasibility studies for public projects.

The application lends itself to the appraisal of projects financed either through public funding or under Public-Private Partnership (PPP) schemes. Adopting the standard approach of feasibility study manuals, the package breaks down into several connected sections such as demand analysis, financial assessment and converting market values into economic ones by means of imputed shadow prices.

Because the application was purposely developed for the Tuscan context, some of the basic data used for the economic analysis were uniquely calibrated to that particular territory. However, the financial analysis modules can equally be used to assess the feasibility of projects located elsewhere in Italy. The Guide recalls the main steps required in project evaluation through a practical case study. It is complemented by two monograph papers: the first is of a more methodological nature, describing the approach used for performing the economic analysis, while the second focuses on some of the characteristics, principles and operational issues in PPP schemes.

The first monograph paper proposes a method for evaluating investment projects to be developed under Public-Private Partnership schemes when the promoter and the lender differ considerably in size. The implied asymmetry underlines the importance of employing a common tool for assessing the financial viability and likely economic impact of projects. The proposed method uses an input-output model to fiscally adjust the project market values, to estimate its indirect effects and to gauge the related environmental impacts through parametric coefficients. Hedonic price methods applied to real estate market values help overcome the long-standing issue of monetising project externalities.

The second monograph paper aims to clarify and streamline some of the defining questions relating to PPPs: balancing the various stakeholder interests (industrial and financial sponsors, banks, grantors, builders, operators); establishing a special purpose vehicle; enacting shareholder agreements; identifying and allocating project risks; contract negotiation and signing.

It sets out to draw public managers' attention to the fundamental issue of optimally sizing projects for tender under PPP schemes. This can be achieved through careful assessment of the aim for vertical aggregation and/or horizontal integration of multiple smaller-size projects into a single project that will lead to its acceptance or, conversely, its dismissal by market forces and, ultimately, to persuade a potential concessionaire to commit to investing in it.

II. Aim of the Guide

Among the many reasons for the gradual weakening of Italy's competitive position in comparison to its major trade partners, are the high infrastructural needs of those sectors providing public services to citizens, businesses and territories.[1] Outdated water systems, environmental infrastructures in need of modernisation, dilapidated school buildings and congested urban networks are just some of the more obvious signs of the backwardness of human capital resources.

Infrastructural inadequacy impacts particularly heavily on local bodies, to which the majority of resources set aside for public investment are channelled.[2] The decentralised administrations that work with them, municipal ones especially, play a determining role in the process of public accumulation: they are responsible for planning, project selection, management concession, local market regulation and for financing the works.

Given the ongoing budget restrictions affecting all levels of government right across the board, the belief that these needs can only be catered to through a substantial input of private resources alongside the indispensible public contribution has become ingrained. This forms the basis for the growing interest in hybrid infrastructural investment funding schemes, which rely on a combination of public and private investment. The possibility of hiving construction and management off from the main body of public management is a distinctive facet: it means that the accounting for financial contingencies deriving from the works can be contained outside the projected budget calculations as per European regulations on excessive deficits, sterilising the effect of associated liabilities for the purposes of determining consolidated government debt.

This applies to concession and management contracts, to partnership-type schemes, right up to actual project financing operations, the cost of which exceeds traditional full public funding for works or tenders for carrying them out.

It is well known, however, that *Public-Private Partnerships (PPP)* outcomes in Italy are disappointing: between 2002 and 2011 only 44 per cent of public procurement concession contracts were awarded, demonstrating the high mortality rate of project financing initiatives.

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[1] Bank of Italy (2011), "Le Infrastrutture in Italia: dotazione, programmazione, realizzazione. Seminari e Convegni", No. 7.

[2] See some of the results of the research conducted and illustrated as part of the seminar days on 'Inner Areas and Territorial Cohesion' (Aree Interne e Coesione Territoriale), held on 15th December 2013 and 10-11th March 2013: http://www.dps.gov.it/

This is partly due to local administrations decisions to opt for PPPs rather than traditional tenders, often so as not to impact on levels of indebtedness or to bypass the spending constraints imposed by Italy's Stability Pact. The lack of market response to PPP initiatives launched by territorial bodies can also be ascribed to the weakness of prior analysis of the effective management profitability for private operators.

Despite the significance attributed by the Code of Contracts[3] to feasibility studies, the high mortality rate of initiatives is often due to a lack of adequate pre-feasibility studies and *ex ante* evaluations, especially in regard to the financial sustainability of projects and their so-called public *affordability* – the credible commitment of contracting authorities to financially supporting and subsequently managing the investment.

Performing feasibility studies is a crucial step in the correct setting up of PPP operations; they generally expose a lack of robustness in the key management stages, from the preliminary economic and financial analysis to the implementation of the work: analysing demand, operational and financial sustainability, the role of the public contribution, risk analysis and, lastly, impact assessment.

Without a solid body of this sort of critical information, the financial evaluations underpinning the project are destined to undergo continual adjustments, even once the concession contracts have been agreed, and they thus provide an unreliable gauge for formulating opinions about project sustainability.

In this regard, one of the most significant critical elements is undoubtedly the lack of techno-economic tools to assist local administrations in their duty to promote projects and oversee their management.

The situation is made worse by factors specific to sectoral contexts. Uncertainty over legislation and the actual availability of resources brings in an element of risk that discourages the inflow of personal and debt capital and can send costs spiralling.

The chronic fragmentation of the concessionary bodies on one hand, and of the business system on the other, does nothing to engender the necessary competency for the award of contracts; competition timescales then expand, leading to a delay in financial *close*.

The European countries that have enjoyed the greatest success with PPPs have indicated that following 'Guides' and standardised contractual models geared to facilitating the choice of the most appropriate procedures for the proposer administration is the best way to compensate for these shortcomings.

[3] Legislative Decree 152/2008, a.k.a III Corrective Decree of the Code of Contracts.

This *Guide to drawing up feasibility studies for local public partnership investment projects* – hereafter referred to as the Guide – and the accompanying Excel IT tool - responds to the need to provide local public administrations with a reliable, easy-to-use toolkit for *ex ante* financial and economic feasibility studies for public investments funded through a combination of private and public resources. The idea of this project was born out of an inter-institutional collaboration during the second half of 2010 between financial bodies and central and territorial technical organisations, represented by the Deposit and Loan Bank, the Public Investment Evaluation Unit (UVAL) of the Department for Economic Development and Cohesion and the Technical Project Funding Unit (UTFP) of the Department for the Planning and Coordination of Economic Policy, established at the Presidency of the Council of Ministers (DIPE-PdCM), and the Tuscan Region. The inter-institutional nature of the collaboration that generated the project is reflected in the decision to focus on the feasibility of investment projects within the Tuscan Regional territory. This is why the preliminary basic information for territorial and economic analyses refers exclusively to the regional situation in Tuscany. The gradual dissemination and use of the evaluation tool will enable it to be extended to other regional contexts in due course.

II.1 Using the Guide

The users of the Guide and accompanying Excel tool (hereafter: application) for performing Feasibility Studies (hereafter: FS) are the public bodies that will benefit from the investments.

In particular, the applications allows users to evaluate the overall financial sustainability of a project (construction and management), independently of the proposer, with a view to enabling public administrations to better assess the merits of potential private offers or to put forward genuinely sustainable private projects for co-funding.

In essence, employing the tool in the preliminary phase is a useful aid to the selection of valid projects from either a social point of view or a financial point of view.

The indications in the Guide cannot be indiscriminately applied to investments of all sizes, but should be calibrated to the cost and complexity of interventions, according to proportionality and suitability criteria.

Simplified feasibility studies, confined to demand analysis and financial feasibility, can be performed for small-scale or relatively uncomplicated projects. However, in the case of particularly complex projects (in terms of both planning and cost), contracting

authorities would do well to perform feasibility studies as discussed further on, and to carry out the following:

- a *Value for Money* analysis using *Public Sector Comparator* methodology;
- an analysis of supply and demand components using specific models;
- a comparison of economic and financial 'with-project' and 'without-project' analyses;
- a careful risk analysis and statement of project-related mitigation measures and their cost;
- a more detailed cost-benefit analysis.

II.2 Guide Structure

The Guide is a user manual for the Excel application. Written in the style of an 'operating manual', each stage of the information gathering and reasoned reading of the results is described below, along with tables taken from the application:

- *Input* modules *Output* modules
- Other modules Sensitivity analysis.

***Input* modules.** In this section the compiler provides information and data that describe the nature of the project, the aims of the intervention, the financial sustainability of the investment and its subsequent management. This information is needed in order to quantify and monetise the financial and economic benefits to the service users and the community as a whole, including those 'external' to the project itself.

This section contains five different *input* modules. The first contains the elements that identify the project (morphological data, awarding body, intervention features and context: location, socio-economic territorial characteristics, demographic traits). A mask constructor guided by external hypertext links is used to select the indicators needed to obtain the identifiers of the area in question.

The second module requires the insertion of variables relating to the cost of the investments and its financial coverage, as well as financial analysis parameters.

The third module represents the timeframe in which the demand is to be satisfied by the project, taking account of the tariffs applied and, therefore, of the relative progress of revenues achieved throughout the management period. There are two versions of the module, differentiated according to their underlying assumptions about the development

of expected demand during the management period and based on the number of services provided as part of the work. The third module also contains cost estimates.

The last two modules provide an *affordability* analysis of the promoter and public finance constraints (fourth module) and risk mapping and allocation (fifth module), respectively.

***Output* modules.** This section presents the results of the calculations performed by the application, in various forms. The results are presented in four modules. The first two relate to financial and economic analysis, while the last two present a synthesis of the results obtained. In particular:

a. **'Financial analysis.'** This subsection examines whether the project is capable of **remunerating** the funding sources covering the loans (credit institutions, public bodies, *private equity*, etc.), thus determining the key financial sustainability indicators (Net Present Value [NPV/F], and Internal Rate of Return [IRR/F]).

b. **'Economic analysis.'** The economic analysis subsection examines the socio-economic sustainability of the project and its direct and indirect effects on the area in question. Using coefficients derived from the calculation model, the application enables the likely impact of the work on the area in question to be assessed, calculating synthetic social and economic viability indices for the main types of work and each particular sector, (NPV/E and IRR/E).

c. **Summary of the assessment.** The main outcomes of the above methods of analysis are gathered into two summary reports ('Summary chart' and 'Summary graph' modules), which present in compact and graphic form the main financial and economic analysis indicators and the essential parameters characterising the project.

Finally, the application enables an appropriate **sensitivity analysis** to be performed. This step is useful for gauging the solidity of the project in terms of possible variations in the values assigned to the main *input* variables, and also to verify the 'robustness' of the project. The sensitivity analysis can be performed using the calculation basis employed by the application, to define the baseline scenario and make any necessary alterations to the critical variables thereafter.

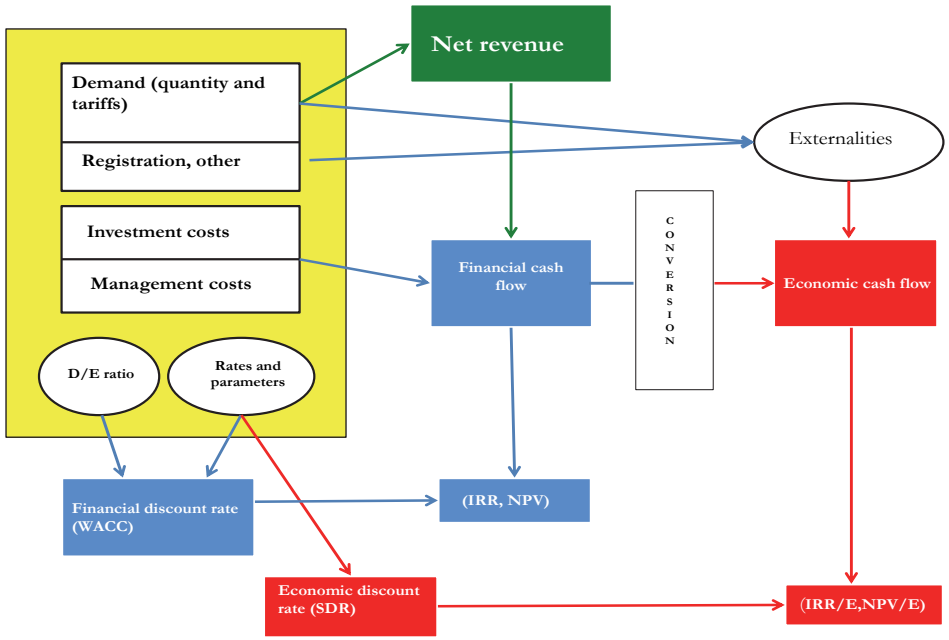
Figure II.1 is a graphic representation of the 'nucleus' of the application, made up of the functional relations between the main calculation modules.

The yellow area in Figure II.1 contains the *input* information requested by the application of the user for producing economic and financial assessment indices reproduced in the rectangle in bold at the bottom right of the graph (Internal Rate of

Return [IRR] and Net Present Value [NPV]). The module also contains the key techno-economic project data (build time, duration of operation, frequency of extraordinary maintenance work …), and feeds into the following elaborations: on one hand, with information regarding the number of services required for managing the work because of the increased demand sparked by the project (supply, however, is fixed at the maximum capacity level: S=S*) and, where present, the individual supply tariffs; and on the other hand, with factors relating to the monetary cost of the investment and the variable resources employed in managing the operation.

The product generates the overall revenue through prices and quantities, expressed in current prices; the investment and management costs together determine the net cash flow for the project ('Financial flows' on the graph). The average capital cost depends on the impact of the various funding sources (debit [D], *equity* (E), as well as public capital) and the assumptions on the relative minimum rate of return. These values are used to determine the weighted average yield of the financial investment coverage. The application performs this calculation using the *Weighted Average Cost of Capital* (WACC) formula. This value constitutes the deflator of the *net cash flow* actualisation and enables the financial yield indices (RRI and NPV) to be calculated. Symmetrically, the external part of the diagram shows the generation and actualisation of the economic flows, preparatory to the calculation of the project economic yield indices (IRR/E and NPV/E).

Figure II.1 The basic structure of the application



Source: Processed by UVAL/DPS - IRPET

II.3 Performing Feasibility Studies (FS)

The operating tool described in the Guide is geared to providing qualitative and quantitative information that will enable an FS to be performed in support of PPP schemes.

The tool enables a Business Plan (BP), along with an economic analysis to be put together for each sector of intervention. The former allows project viability to be considered in terms of resources, the latter assesses the opportunity in terms of territorial needs.

As we know, methodological guidelines and primary legislation oblige *policy makers* to base their choice of public works - or works of public value - for funding on comparisons based on feasibility studies.[4]

Generally speaking, therefore, the main aim of an FS is to provide decision-makers with information on which to base their decisions to progress - or not progress - projects, contextually defining the financial effort required to set up and manage the public work. Technical and organisational information, benefits for and costs to the community concerned, potential risks, set-up times and business models are used to gauge the socio-economic worth of the project, its financial and management/operational sustainability, private investor yields and potential impacts on public finance.

In the application described in this Guide the information and data requested relate to a multi-year framework, including the realisation period of the investment (from the presumed year in which works commence) and the subsequent management phase of the infrastructure. This timeframe should not exceed the presumed useful economic life of the work (to be defined on the basis of technical and economic standards pertinent to the sector concerned). The multi-year framework involves putting together a dynamic service scenario, generated by the intervention, modelling demand and significant variables for its achievement.

Given the inter-temporal development of the service produced with the work in question, working assumptions must be identified in the relative sections of the application. In order to simplify its elaboration and to render the synthesis evaluation

[4] Law No. 144/1999 was a pioneering law introducing the obligation to perform feasibility studies for public works and works of public value. It also provided for the setting up of evaluation and verification nuclei for public investments. The legislator subsequently brought in further regulations, altering or adding to Law 144, latterly with Law No. 196/2009, and especially with the implementation of Art. 30 of that law, which led to Legislative Decree No. 228/2011 and subsequently to the relative Prime Ministerial Decree of 3rd August 2012, which contains information on the Guidelines applying "*to the ex ante evaluation of infrastructural needs, the ex ante and ex post evaluation of infrastructural investment projects and the involvement of evaluation bodies in such operations.*").

more transparent, the application adopts the assumption that anticipated price swings will be kept largely steady during the period in question. The nominal price and yield components must therefore be 'frozen' at Year One prices, without introducing future inflation components.

II.4 Rules for filling in application modules

The project leader, or the person filling in the FS, who intends to follow the methodological approach set out in this Guide, is asked to provide various information. To this end, only the cells highlighted in yellow, relating to the following five modules, should be filled in:

1. Project description
2. Investment assumptions
3. Demand analysis and Operating hypothesis
4. Budget data and public finance constraints
5. Risk allocation matrix

Appropriate checks embedded in the application make the user aware of the ways in which numerically inadmissible data or data that is not consistent with the size of the operation can be inserted.

The FS described in this Guide consists of a three-stage analysis (cf. Figure II.2, which is the 'Master' application). Each of the three stages comprises several different models, consisting of linked Excel spreadsheets.

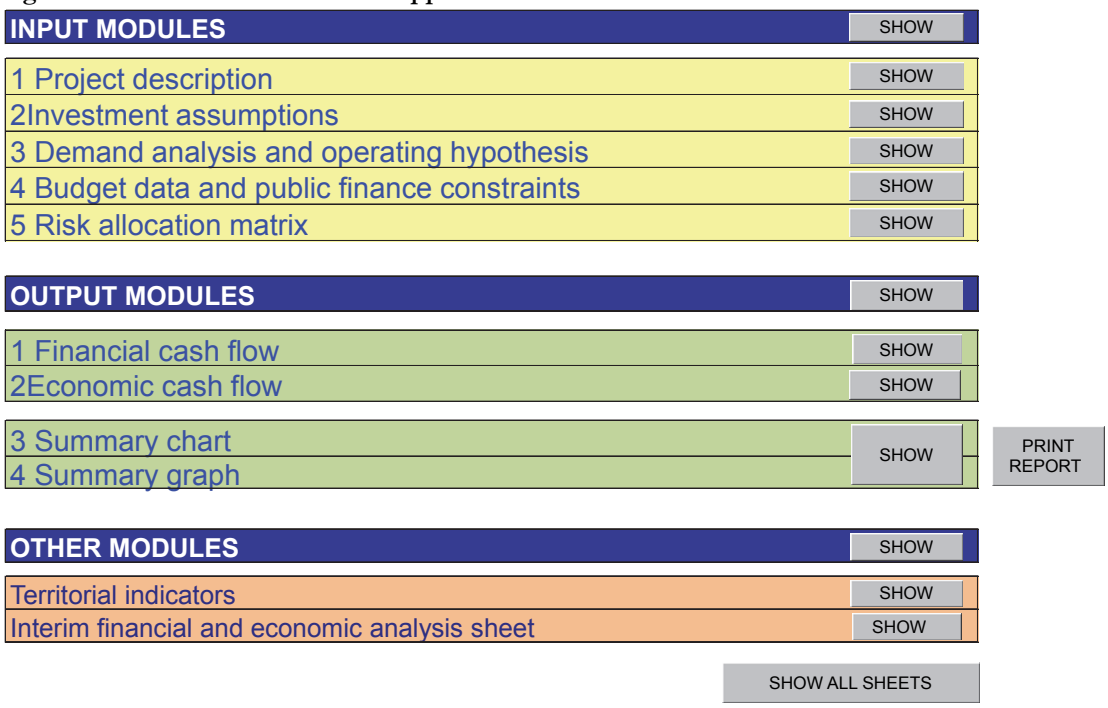
The first stage consists of the *input* modules, containing the data identifying the territorial context and the technical, economic and operational information, the economic-financial balance of which need to be ascertained. In particular, it contains technical details found in the preliminary project, demand analysis and a set of assumptions about various 'key parameters' characterising the economic and legislative framework surrounding the project.

The second stage consists of the *output* models, containing the economic and financial data. The calculations employ the techno-economic data from the *input* model to validate the financial and economic sustainability of the construction and management of the work, and formulate synthetic indicators used to identify the various combinations.

The third and final stage (other modules) brings together the interim operations and contains both data concerning the territorial context and interim financial and economic analysis calculations.

The first *Master* spreadsheet contains hypertext links to each of the application spreadsheets. Each spreadsheet heading contains a direct hypertext link to the Master spreadsheet.

Figure II.2 Master module of the application



**contains the calculation of net working capital, the amortisation plan and the calculation of final residual value*
Source: processed by *UVAL/DPS - IRPET*

III. Cost-Benefit Economic analysis for investment projects: a methodological note

The issue of the dynamic of public investment by decentralised administrations, which has been ongoing for a while, in Italy, at least, has focused for some time on forms of project financing designed and implemented with a view to overcoming increasingly stringent budget constraints induced by the credit crunch and national and Community fiscal policy (the European and Italian 'Stability Pacts'). This is the context in which forms of public-private partnership (PPP) operate.

PPPs are tools that introduce efficiency incentives and good practice in the management of the operational stages of local administration investment projects, as well as being a means of accessing additional resources. They are offset by another major methodological tool, *Public Sector Comparators* (PSC).

While public-private partnerships were originally designed to bring partners with private interests in alongside public territorial bodies, they also lend themselves well to situations in which the latter are also accompanied by stakeholders who are legal entities under private law but have a strong body of public shareholders. In this sort of situation, the stakeholders in question are often of different dimensions and have different economic and financial competencies (small municipalities and large public and private credit institutions or higher institutional levels such as States or Regions). Both counterparties are also bearers of public interests, although these generally belong to different *constituencies*.

This highlights the need for flexible tools that will provide immediate as well as transparent assessments of feasibility studies for such projects, from both a financial and an economic point of view. They fulfil two objectives: firstly they enable the proposer to measure the viability of his or her project and the consequences of its coming to term on the collective wellbeing of the community; secondly it enables potential co-founders with public interests to rank several different investment opportunities without necessarily having to rely on assessments of different provenance and analytical approach, by employing a methodology largely shared by all counterparties.

Another point regarding the asymmetry between stakeholders involved in public project funding is the size of the territory concerned: while the proposing entity's standpoint is necessarily distorted in favour of its institutional extension - which may also be extremely limited in the case of small municipalities - the funder/planner must, on the other hand, consider the likely effects of larger-scale projects, regional ones for example.

Drawing up (and implementing) a methodological approach, whether it be *standard* in terms of size of project and of size of territory, and can thus guarantee greater usability of the tool, then becomes the focal point of the exercise. It is here that the *trade-off* resides between the rigour and precision of the analysis on one hand and its immediacy of practical use on the other.

Various authors have already put the stress on using widely available tools and *standard* consolidated methods, such as *Input-Output* analysis. However, these have so far been largely confined to estimating shadow prices in cost-benefit analysis - see, for example Scandizzo & Maiolo (2006). A preliminary and more recent contribution, proposing that the entire analysis be based on *Input-Output* methodology can be found in P.L. Scandizzo, C. Ferrarese, A. Vezzani (2010). This suggests that the SAM Social Accounting Matrix is employed for estimating the direct and indirect and knock-on effects of public expenditure relating to the investment and for estimating its environmental impact.

This paper, which comes under the more general heading of cost-benefit analysis, proposes the following:

- extending the use of input-out methodology to other stages of economic cash flow calculation originating from the project, such as the calculation of fiscal conversion coefficients, for example;
- introducing a monetising method for externalities that is as homogeneous and easily standardised as possible. The economic assessment of each project is thus based on just a few indicators that summarise the worth of the public work to the local community. As a common factor for the evaluation of projects in most of the different spheres, we propose a method based on capitalising externalities in the real estate values of the territorial area covered by the project - on a trial basis and based on a hedonic price approach.

The appropriate territorial macro-level is still regional. This has clearly been identified by considering the nature of the models employed (available and largely consolidated in all Italian regions), and the size of projects for evaluation, which means keeping analysis to a smaller scale rather than a national one.

Our approach accounts for territorial variability by means of an extremely detailed database, especially in regard to the calculation of externalities. This work is largely based on defining practical implementation, and was first used as a methodological evaluation synthesis for an IRPET and UVAL pilot project on Tuscan investment schemes.

The economic evaluation process that we propose is split into five operational stages, as follows:

1. Reversal of the tax component of the project costs and benefits;
2. Correction of market distortion prices;
3. Inclusion of indirect and induced economic effects and handling of environmental effects;
4. Inclusion of externalities;
5. Actualisation.

IV. Project financing and related schemes in Public-Private Partnership for public projects in Italy: principles, insights and practical solutions

Project financing (PF) and the entire PPP institute sector are innovative tools that are widely used in Italy to incentivise and support the creation of public works and works of public value, through the contribution of private capital.

Of the overall volume of committed expenditure for public works put out to tender in the two year period 2011-2012, which fell drastically by 21.7 per cent, from 30.7 billion euros in 2011 to 24 million in 2012, the value of PPP operations accounted for a not insignificant slice of national infrastructural spending. At the start of this decade, PPPs accounted for only around 5 percent of the public works sector as a whole; they accounted for an overall value of 13.3 billion euros in 2011. 30 billion euros were spent on gross fixed investments during the same period (around one third of public work investments). *Project Financing* and other PPP institutes saw a sharp 43.7 per cent drop in 2012 compared with the previous year, with 8.7 billion euros' worth of works put out to tender.

On the basis of data posted by the National *Project Financing* Observatory,[5] this contraction can largely be ascribed to the limited number of large works put out to tender, especially those works over 50 million euros to be carried out in PPP. These fell 40 per cent during the two-year period 2011-2012.

Numerous sources provide clear evidence as to the efficiency and/or efficacy of PPPs in over a decade of demand (National Audit Office of Private Finance Initiatives [PFI], 2008; the Italian Association of Construction Contractors [ANCE]): according to the UK *National Audit Office*, the construction of projects in which public sector cost was higher than the price fixed at the time of contract was 73 percent in 'non PFI' cases and 22 percent in 'PFI cases'. Project delivery, moreover, was delayed with regard to the contractual timeframes in 70 per cent of 'non PFI' cases and only 24 per cent of 'PFI cases'. The latest ANCE report shows that PF works costing between 5 and 50 million euros took four years and nine months on average, compared with over seven years for works carried out through traditional public work contracts. Works costing over 50 million euros saw an even greater disparity: seven years in PF cases and more than 11 in others.

Data from the National *Project Financing* Observatory (CRESME, 2013) has enabled analyses to be carried out, in terms of the number of competitions and the number of

[5] Il Partenariato Pubblico Privato in Italia nel 2012, Osservatorio Nazionale sul *Project Financing*, CRESME Europa Servizi, 2012.

PPP awards for public works and works of public value, based on two value groupings: below 5 million euros and over 5 million euros.[6] Figure VI.1 paints a fairly clear picture: the last decade has seen two significant and divergent patterns, both in terms of the number of projects proposed and in terms of the mortality rate of these projects.[7]

As regards the former, the number of competitions in 2002 almost matched the number of so-called small and large works (61 and 59 respectively). In 2012, 1,257 small works were up for tender, while there were only 127 works worth over 5 million euros, just 10 percent of the former. Furthermore, during the ten-year period under consideration, values were not provided in more than 6,000 competitions.[8] The same is true of the award process: there were 11 awards below 5 million euros and 10 above. In 2012 there were 288 and 95 awards, respectively.

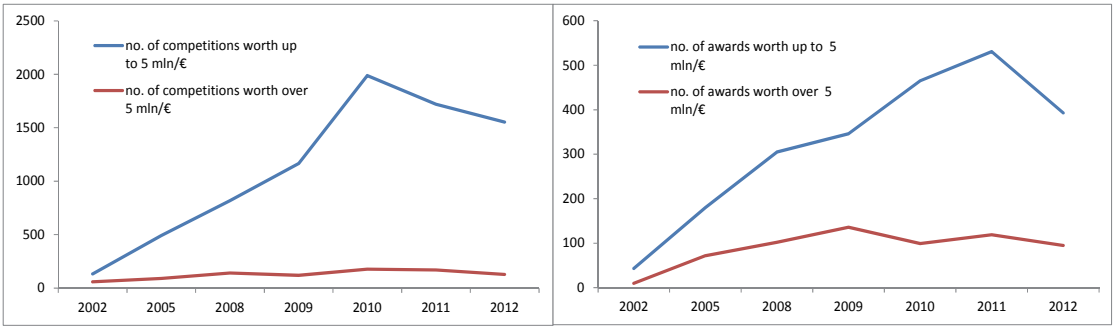
As regards the latter, concerning the efficacy of PPP tools, there was significant scattering of 'administrative resources' for small tenders during the period between the publication of a contract notice and its award. Analysis of the data published in the 2012 CRESME report on PPPs shows that this scattering continued to increase throughout the ten-year period. The 'viability' rate for works valued at over 5 million euros was 69 percent (the weighted average for the period 2002-2012, calculated from the ratio between the number of awards and the number of competitions for every year concerned). The average rate for smaller works was 23 per cent on average.

[6] The decision to use 5 million euros as the cut-off figure between small and large works was not arbitrary: there is a consistent number of PPP initiatives in Italy, although the European Investment Bank (EIB) does not regard initiatives below this threshold as PPPs. (ANCE, 2012, p. 25).

[7] The economic crisis and the mounting constraints imposed by the Italian Stability Pact on local bodies, reflect the drastic fall in the number of competitions during the three-year period 2010-2012, for both small and medium-large planned interventions, (20 and 28 per cent respectively).

[8] There was a 62 per cent leap in operations of this sort between 2011 and 2012, however, when the number of competitions of unknown value rose from 943 to 1,424. Most of these were works of lesser value, being service concession competitions (for sports facility management in particular), competitions for surface rights in public areas and in buildings (for installing photovoltaic power systems in particular).

Figure IV.1 The dimensional evolution of the works and the efficacy of PPPs in Italy during the ten-year period 2002-2012



Source: CRESME (2013) data processed by DPS-UVAL, net of the number of competitions and awards of unknown value.

The final critical stage of the award process is *financial close*, when the project-related funding agreements are signed by the concessionaire and the financing bank (or *pool* of banks). Here again, the Cresme statistics lead to the same conclusions: over 25 per cent of awards fail to make it to c*lose*.

The second annexed paper flags up points for reflection on *public* management and sets out some thoughts on salient questions regarding risk and success factors for designing interventions with PPP tools. The main *project funding* lifecycles are analysed in turn: from initial concept to the drawing up of feasibility studies, the identification of financial backers and the building and screening of works and their subsequent entry into service.

The main elements of *Project Financing* and other PPP institutes are examined, along with the role of the various stakeholders in PPP operations; key specific Italian project financing legislation, also in the light of new Directive 2014/23/UE in the matter of public works; the important and delicate role of risk management in PPP operations. Lastly, a call for the *management* of local bodies to pay greater attention to project feasibility studies, with particular reference to decisions on the size of investments as part of these feasibility studies, which in many cases influence market interest and thus the institutional investors that effectively regulate competing systems.

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