

11. THE INFRASTRUCTURAL ENDOWMENT¹

The endowment of public capital is one of the factors that determine an economy's growth potential. The impact of investment spending on the well-being of the population and economic activity depends on how efficiently financial resources are employed and on the subsequent utilization of the public works. Italian public infrastructural expenditure has been higher than the average for France, Germany and the United Kingdom for the last three decades, but Italy still suffers a gap in physical infrastructural endowment with respect to those countries. Within Italy, the endowment is lower in the South than in the Centre and North. Comparing the amount of spending with the infrastructural endowment shows that there is room for improvement in the use of financial resources, especially in the South. This opportunity has to be seized in order to provide all parts of the country with adequate infrastructural facilities.

In the last decade, since the enactment of the Objective Law in 2001, some progress has been made in public works planning, but time to completion is still long and costs remain high by international standards, as do budget overruns. Apart from widespread illegality, this reflects the uncertainty of the funding framework, weakness in project selection and assessment, overlapping powers and responsibilities among different levels of government, and the shortcomings of the rules governing contract awards and the monitoring of works.

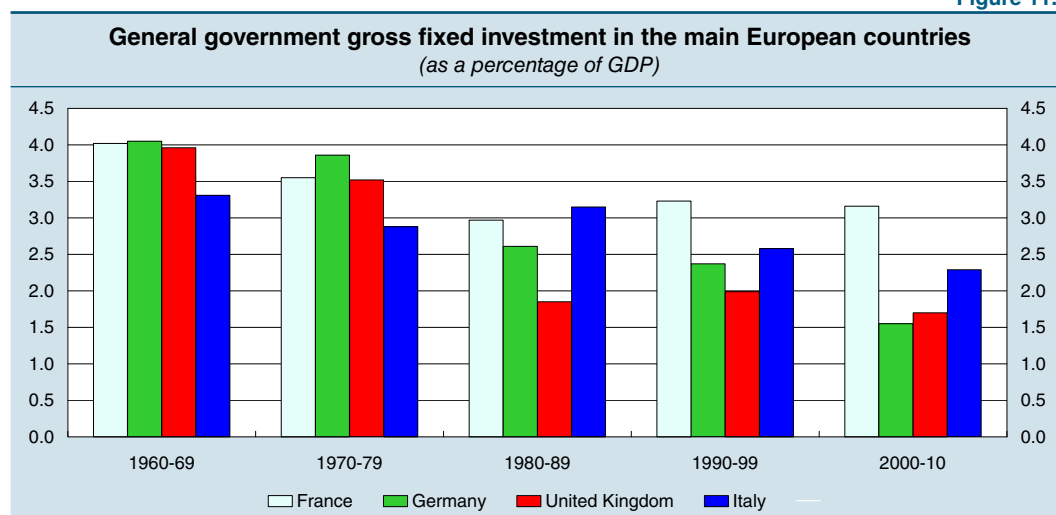
Italy's relatively low project realization capacity for a given amount of financial resources is likely to have especially adverse consequences at a time of adjustment of the public finances. The ratio of general government investment to GDP averaged 2.3 per cent from 2000 to 2009, fell to 2.1 per cent in 2010 and is expected to fall further to 1.6 per cent in 2012. Systematic cost-benefit analysis, which is envisaged in the enabling act for the reform of public works legislation, could foster the selection of the projects that, for a given appropriation, have the greatest impact on the functioning of the infrastructural network by eliminating bottlenecks and permitting the full utilization of existing structures. So far, Italy's public-private partnerships – recourse to which is still fairly limited – have stressed the financial side, i.e. the possibility of limiting the debt of the contracting entity. Rules facilitating clear and efficient allocation of risks among the parties would provide the incentives needed to capitalize on the private sector's technical and management expertise.

¹ This chapter is based on the papers making up the volume "Le infrastrutture in Italia: dotazione, programmazione, realizzazione", Banca d'Italia, *Seminari e convegni*, 7, April 2011.

Public investment expenditure and infrastructural endowment

From 1990 through 2010, general government investment expenditure averaged 2.4 per cent of GDP in Italy, just below the euro-area average of 2.5 per cent. Italy's outlay was less than that of France (3.2 per cent) but more than that of Germany (1.9 per cent) and the United Kingdom (1.8 per cent). By comparison with the 1960s and 1970s, as all countries reduced their expenditure, Italy's relative position has improved (Figure 11.1).

Figure 11.1



Sources: Based on OECD and Eurostat data.

General government gross fixed investment is an imprecise and incomplete measure of public infrastructure spending: imprecise because it includes not only construction but also purchases of machinery and equipment; and incomplete because many infrastructures are actually realized by government-controlled enterprises and public service concession-holders that are not within the general government perimeter. No comparable international statistics are available either on the share of public investment expenditure going to construction or on the infrastructural spending of entities outside general government. The portion of total infrastructural spending accounted for by these entities' works varies from country to country and over time.

Between 1990 and 2010, total general government expenditure on capital account, which comprises transfers (including grants to government-owned enterprises that realize infrastructures) came to 4.0 per cent of GDP in Italy, in line with the euro-area average. It was just below the ratio for France (4.2 per cent) and higher than for Germany (3.5 per cent) and the United Kingdom (2.9 per cent).

Within Italy, regional public accounts are available from 1996 to 2008. Over that period the investment expenditure of the enlarged public sector, which in addition to general government comprises public enterprises (such as Enel and the State Railways), averaged 4.7 per cent of GDP in the South and 3.6 per cent in the Centre and North. The gap was greater before 2000 and narrowed thereafter, owing mainly to increased investment by government-owned corporations in the northern part of the country. Over the entire period, real per capita expenditure in the South, which had been higher than in the rest of the country in the previous decades, was on average only three-quarters of the amount spent in the Centre and North; since 2000 the gap has widened.

To quantify a territory's infrastructural endowment, three different types of indicator may be used: monetary, i.e. estimating the amount of infrastructure by applying permanent inventory accounting to expenditure flows; physical, based on the volumes of construction (e.g. number of kilometres of road and railway); and measures of the quality of the service provided by the infrastructures (e.g. travel time).

The measures of public capital endowment based on financial flows put Italy on a par with the other main European countries. At the turn of the century, the ratio of public capital to GDP was estimated at 48 per cent in Italy and 47 per cent, on average, in France, Germany and the United Kingdom. The physical measures of infrastructural endowment paint a different picture: setting the European average at 100, the index for Italy was 102, the same as France but significantly lower than Germany (123) and the United Kingdom (117).

As for the distribution of infrastructure within the country, the permanent inventory method shows the ratio of the stock of public capital to GDP to have been nearly twice as high in the South as in the Centre and North in the second half of the last decade. In per capita terms the disparity narrows very considerably, to just over 10 per cent. And if indicators of physical endowment are applied, the South lags behind. The *Istituto Guglielmo Tagliacarne* index puts the South's endowment at just over 80 in 2009 compared with an average of more than 110 for the Centre and North.

Such summary indices of infrastructural capital, whether monetary or physical, do not take account of the utilization of the structures or the quality of the service they provide. To that end, more detailed measures are needed. For instance, for transport one can refer to indicators of the time required to access the primary transport network (indices of accessibility) or to travel from one locality to another (indices of interconnection). That is, one may be interested in ease of access to the transportation network or in speed of connection within it. Both are important factors in determining the quality of the transport infrastructure from the standpoint, say, of freight shipments; the two indicators provide complementary information.

For Italy, both the accessibility index developed by *Istituto superiore di formazione e ricerca sui trasporti* and the interconnection index (for road transport only) show great variability even within macroregions. Relatively low index numbers are concentrated in the South and the Islands and are fairly common in the inland areas of the Centre; but they are also to be found in the North-East. A limitation of both types of indicator is their inability to distinguish between the diverse factors that affect service quality. Travel time, in fact, depends not only on the state of the infrastructure but also on the intensity of demand, as in the case of road congestion, and on organizational efficiency, which depends in turn on the degree of market competition and the quality of regulation.

An examination of the volumes of expenditure together with the physical endowment of infrastructure suggests that there is scope for improving the utilization of financial resources, especially in the South. Achieving efficiency in resource use will require integrated analyses to determine requirements based on effective and potential demand, plus cost-benefit analysis of the various alternative solutions. Quality indicators are necessarily analytical, which makes it evident that no single measure, by itself, is sufficient to determine the necessity of a given project in a given territory or to determine how it is to be realized.

The realization of public works

The data available do not allow systematic, detailed international comparison but only indicate that the average cost of public works is relatively high in Italy, both for motorway and for high-speed rail projects. Factors in the disparity with respect to other European countries include not only topography and patterns of settlement but also certain technical choices. There is also evidence that the average time required to complete projects is longer in Italy. And time and cost overruns are greater in Italy than in the other countries.

A survey conducted in 2008 by the Italian Authority for the Supervision of Public Contracts found that the per-kilometre cost of high-speed rail in Italy was three times higher than in France or Spain, and that there was a similar disparity in time to completion. For motorways, the average cost is more than twice as high as in Spain. A 2009 survey by the European Commission found that Italian time and cost overruns on public works projects were significantly worse than the European average: for medium-sized and large transport infrastructure projects co-financed by the European Regional Development Fund between 2000 and 2006, Italian time overshoots averaged 88 per cent of the initial schedule, compared with 26 per cent in the other countries; cost overruns averaged 37 against 21 per cent.

Overall time and cost overruns are only marginally less for smaller projects, which are less complex technically but more often managed by small contracting entities. Time to completion, for a given contract amount, is slightly longer in the South. During the planning phase in particular, the overall duration is significantly affected by the time needed to move from one administrative step to the next.

The Supervision Authority's data on public works contracts worth more than €150,000 indicate that in 2005-09 there were cost overruns greater than 20 per cent in 15 per cent of all projects, compared with 10 per cent in 2000-04. Between 2000 and 2007 the total time from planning to contract award lengthened considerably in the South and was 30 per cent longer, on average, than in the rest of the country. A recent study by the Ministry for Economic Development's public investment control unit analysing total realization time for a homogeneous set of infrastructures included in the Planning Framework Agreements between central and regional governments in the past 15 years found that nearly a third of the time was taken up by the dead interval between the completion of one bureaucratic phase and the start of the next.

The time and cost of realization are affected not only by widespread illegality but also by a series of additional factors: (i) the absence of multi-year spending targets and the incomplete set of instruments for coordination among different levels of government; (ii) the limited use of standardized valuations of projects' economic and social costs and benefits; and (iii) the shortcomings of the most common public procurement procedures, which often fail to select the best bid.

Italian public works planning has been reformed several times in the last ten years, along the lines indicated in the Objective Law of 2001. Comprehensive multi-year financial planning consistent with the broader objective of balance in the public finances is necessary on the one hand to provide certainty regarding the availability of resources and on the other to impose effective budget constraints. Certainty of resources serves to

avoid initiating works that cannot be completed on time for lack of funds. The budget constraint is an essential safeguard for the efficiency of expenditure.

If investment projects are not subjected to systematic comparative evaluation, it is impossible to guarantee the most productive use of public resources. Such evaluation is essential even when a project corresponds to definite and generally agreed priorities, in order to ensure that the most efficient of the technically practicable alternatives is chosen. The Accounting and Public Finances Law (Law 196/2009) provides for an enabling act empowering the Government to rationalize public works spending. The guidelines for this delegation of power call for alignment with international best practices in the use of cost-benefit analysis.

Furthermore, when choices are based on transparent analysis of costs and benefits this may defuse the opposition of local communities to the realization of works in their territory. Often such opposition is natural, since the benefits are distributed through the entire territory while the negative externalities, especially environmental, of many public works are highly localized. The request for additional works to compensate the local community for the adverse impact of a project raises its cost substantially. The problems have been aggravated by the powerful drive to administrative decentralization in recent years.

The need to combat widespread illegality and the fragmented structure of the market in public works has decreased the efficiency of the public procurement rules and thereby increased the cost of projects. The rules tend to limit the discretionary powers of the administrations conducting public procurement. The small size of the contracting entities, especially in the South, limits their capacity for technical evaluation of bids on their merits.

Between 2000 and 2007, more than 65 per cent of the competitive tenders examined by the Authority for the Supervision of Public Contracts had an auction base of less than €500,000. Consolidation and sharing of technical structures would permit economies of scale and more frequent application of selection criteria that include assessment of the quality of the tenders. The additional discretionary power thus accorded to the contracting administrations needs to be counterbalanced by stepped-up anti-corruption measures (certifying bodies, controls on sub-contracting, monitoring).

Private capital

Over the past decade, public procurement in Europe has increasingly resorted to forms of public-private partnership (PPP), i.e. cooperation between governmental authorities and private parties for the financing, construction, renovation, operation or maintenance of an infrastructure or the provision of a service.

The potential advantage of public-private partnership lies in optimizing the management of the various operational activities necessary to the project, in particular by integrating construction with subsequent utilization. PPP should also hold down total costs by suitable risk-sharing. The private party should assume the enterprise risk in both the construction and the operation phase. The public entity should bear the

regulatory and administrative risks. However, the inherent complexity of this type of agreement entails high fixed costs for instituting the partnership.

One – improper – incentive for PPP is the possibility of reducing public borrowing to fund the project. That is, the private party advances the construction cost in exchange for future public spending commitments.

In 2004, Eurostat laid down the rules for the treatment of PPP in defining member states' budget deficits and general government debt. The rules envisage three types of risk in public-private partnership: construction risk (lateness, cost overruns, technical problems and non-compliance with agreed standards); service availability risk (quality or quantity of service not up to agreed levels); and demand risk (actual utilization below the amount assumed in negotiating the contract). If the non-government party bears construction risk and at least one of the other two types of risk, the project is entered as a private-sector asset and its financing does not constitute public debt.

Although the traditional contracting methods are still the most common in Europe, PPP is winning an increasing portion of this market. Between 1990 and 2009, 67 per cent of all public works projects in the United Kingdom (53 per cent by value) were awarded on this basis. The incidence of PPP is also significant in Spain, less so in France and Germany. It is especially low in Italy, perhaps owing to the lack of guidelines and contractual standards allowing for clear and efficient allocation of the project risk.

Contracting via public-private partnership has increased significantly in Italy. The number of such tenders rose from 1 per cent of the total in 2002 to 4.1 per cent in 2010, and their value from 5 to 20 per cent. But there is very high project mortality: over that period, in almost half the tenders (46.3 per cent) the contract was never actually awarded. And PPP-financed projects in Italy have been relatively small, with an average size of around €17 million in 2002-10, compared with €123 million in the United Kingdom. Often these are “cold” works (those whose operation does not directly generate market revenue) and with charges, moreover, that bear little relation to service quality; or else they are relatively uncomplicated projects with readily predictable cash flow and presumably low management risk. Aside from a few major projects involving motorways, metros and hospitals, most of Italy's public works have consisted in local investment in parking facilities, sports facilities, or cemeteries. For such projects, the advantages of public-private partnership over traditional contract award procedures are not immediately clear. In other countries, recourse to this technique depends on prior assessment of its economic advantage over other formulas.