Ex post evaluation of cohesion policy programmes 2000-2006

Work Package 10:
"Efficiency: Unit costs of major projects"

Second Interim Report

Version 3.0

Final

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TABLE OF CONTENTS

SECTION **PAGE**

LIST OF FIGURES

LIST OF TABLES

1. Introduction

1.1. Background

1.1.1. This is the Second Interim Report on Work Package 10 (WP10) of the European Commission, Directorate-General for Regional Policy's ex post evaluation of Cohesion Policy programmes 2000-2006 financed by the European Regional Development Fund in Objective 1 and 2 regions. The title of Work Package 10 is "Efficiency – Unit costs of major projects".

1.1.2. The notion of efficiency under WP10 refers to the achievement of the desired or projected benefits at a reasonable cost. The concern is with "major projects", which includes large infrastructure and productive (or business support) investments.[1] The Commission distinguishes between two aspects of evaluating efficiency: (i) output efficiency: unit costs and completion times of major infrastructure projects, including an analysis of cost and time overruns; and (ii) result efficiency: the cost per job created by productive investments.[2]

1.1.3. The WP10 Tender Specifications set out a requirement for these efficiency evaluations to be undertaken for a sample of 115 infrastructure projects and 40 productive investments. This sample of 155 from 11 Member States is, in turn, derived from a population of 271 projects from across the EU. The total eligible expenditure involved in these projects amounts to €33 billion, of which approximately €15 billion is the ERDF contribution.

1.2. Purpose and structure of this Report

1.2.1. This Second Interim Report is the fourth deliverable for the project and, in carrying out this deliverable we were required to undertake Tasks 2.1, 2.2, 2.3, 3.1, 3.2 and 3.3 from the Tender Specifications. These tasks and the corresponding sections of the report are listed below in Table 1.

Table 1: How the tasks (as described in the tender specifications) are addressed in this Report

Task	Title	Section
2.1	Infrastructure – Definitions of unit costs	Section 3
2.2	Infrastructure – Calculation of estimated and actual completion times	Section 4
2.3	Infrastructure – Calculation of actual unit costs and completion times	Section 5

[1] In order for projects to be considered 'major', they must "comprise an economically indivisible series of works fulfilling a precise technical function and which have clearly identified aims". They must also be projects "whose total cost taken into account in determining the contribution of the Funds exceeds EUR 50 million". See Article 25 of Council Regulation 1260/1999 laying down general provisions on the Structural Funds.

[2] However, as well as evaluating the efficiency of major projects undertaken in the 2000-2006 period, it is the Commission's intention that WP10 will also develop and test a methodology for investigating unit costs which can later be applied in future evaluations, such as the planned ex post evaluations of Cohesion Fund and ISPA projects.

Task	Title	Section
3.1	Productive investments – definitions of employment effects and analysis of investments	Section 6
3.2	Productive investments – calculation of estimated costs per job created	Section 7
3.3	Productive investments – calculation of actual costs per job created	Section 8

1.2.2. As shown, each of the Tasks has a dedicated section in this report, Sections 3 to 8 respectively.

1.3. Report highlights

1.3.1. Section 2 provides a comprehensive description of our data gathering activities and a full report on our progress in extracting information on the projects in our sample.

Infrastructure

1.3.2. In Section 3, we set out our current thinking on the definition and measurement of unit costs for infrastructure projects (Task 2.1 in the WP10 tender specifications). For this Report, we have defined a set of indicators for which we could provide estimates and outturns based on the data that we have received so far from the Member States.

1.3.3. The number of potential unit cost indicators is shown in Table 2 below for each sector. The range of total indicators is 31 to 39. The number finally adopted will depend on the comparability that can be achieved for them with the data we receive from the Member States.

1.3.4. We also think it would be useful to examine the total cost data (that we use to calculate the actual and forecasted values for our indicators) for unusually high levels of particular categories of project costs (such as soft costs or contingencies). Given DG REGIO's Guidance[3] (from 1998 when DG REGIO was DG XVI) on the indicative shares of these cost categories for different types of infrastructure projects, we can consider whether there is a need to make adjustments (for Level 1 at least) in order to derive a more comparable set of 'adjusted' indicators.

[3] See Figure 1 in our First Interim Report.

Table 2: Number of unit cost indicators defined in each sector

	Rail	Road	Urban transport	Water	Energy
Level 1	**2 to 3**	**2 to 3**	**2 to 3**	**1 to 2**	To be included in final draft of this Report
Level 2	**4 to 5**	**4 to 5**	**4 to 5**	**1 to 2**	
Level 3	**5**	**4**	**2**	**0**	

Productive investments

1.3.5. Our assessment under Task 3.1 is, at this stage, limited to what might be revealed from the examination of the 17 productive investment projects on which we have so far received information from the Member States. However, Section 6 does provide a limited review of a preliminary examination of some ERDF applications.

1.3.6. Section 7 presents our analysis of the project cost and job creation estimates for the productive investments on which we have received information. We also briefly examine the potential relationship between cost per job created estimates and the type of funding used for the project, namely whether it is dominated by private or public funding.

1.3.7. Section 8 presents our analysis of how actual project cost and job creation data compare with the estimates presented in Section 7. We also examine the possible reasons for discrepancies where they exist.

1.4. Report limitations

1.4.1. We have endeavoured to provide as detailed an analysis as possible based on the information we have received from the Member States so far. The delays in the data gathering timetable have effectively squeezed the overall WP10 timetable, and certain items within the Tasks mentioned above have had to be deferred until the next stage of the study.

1.4.2. We would also note that it was not possible to commence the analysis of the data presented in this Report until late January 2009. The results will, during the next stages of the study, undergo a careful process of refinement to help achieve results that meet the requirements of comparability and that are, therefore, potentially useful going forward.

2. Progress on the data gathering exercise

2.1. Introduction

2.1.1. We commenced the data gathering exercise in early September 2008. However, by the time of delivery of our First Interim Report in November and as noted therein, we were only beginning to have success in contacting the relevant people from the appropriate agencies in each of the 11 Member States.

2.1.2. Since then, the data gathering team has continued to exert significant effort in making contact, translating our questionnaires, sending reminders, and following up with telephone calls. In doing so, we have endeavoured to remind respondents of the merits of the exercise, the potential benefits to them as well as our need for reliable information to make the study worthwhile.

2.1.3. Problems have been encountered, but none as severe as for those projects for which there are no ERDF applications. There are now 19 projects for which we do not have application forms, 3 infrastructure projects and 16 productive investments.

2.1.4. For another subset of projects, the contact details in the application forms were, for one reason or another, incorrect. In such cases, it has been difficult to find relevant agencies and people and, therefore, to establish contact. However, we are still working with the Commission to resolve these issues.

2.1.5. Data returns trickled in until late November (when we had preliminary information relating to 2 or 3 projects at most). It was only in December and January that (relatively) substantial numbers of data returns were submitted. By mid-February 2009, we had received a total of 66 data returns. Following presentation of our first draft of this second interim report, the Evaluation Unit of DG Regio undertook to work with the desk officers from the Geographical Units in order to put pressure on the Member States to respond to our information requests. Since then, we have received information on an additional 16 projects, bringing our total data returns to 82 (out of the required 155 and out of 173 on which we have been actively seeking data).

2.1.6. The results of the data gathering effort to date are set out in detail in Annex A and summarised in Table 3 below.

Table 3: Summary of progress with the data gathering exercise

Numbers of projects	**Total**	**Infrastructure**	**Productive investments**
Target sample size	**155**	**115**	**40**
Actively seeking or already sought information	**173**	128	45
Unfinished projects	**28**	17	11
Data returns received	**82**	**62**	**20**
Possible data returns (expected March-April)	**35**	35	0
Contacts just received (also possibilities)	**19**	8	11

Numbers of projects	Total	Infrastructure	Productive investments
No willing respondent in Member State	**10**	6	4
No ERDF application form	**19**	3	16
Projected sample size	**134**	**104**	**30**
Sample size assuming 50% possibilities	**100**	**75**	**25**

Source: RGL Forensics

2.1.7. Going forward, the 'best case' sample size would be as indicated in the penultimate row of Table 3, if we were to receive all of the current 'possible' data returns (including the projects on which we have just received contact details. We have also presented the expected sample size, assuming that data on (what we believe might be a more reasonable) 50 per cent of these possibilities are submitted.

2.1.8. In the remainder of this Section, we describe and assess the data gathering exercise and assess the implications of the poor response rate in terms of the timetable for the project, the size of the sample and the likelihood of achieving meaningful results. However, before proceeding, we note, importantly, that there was no obligation on Member States to monitor major projects separately for the 2000-2006 programmes. They were not, therefore, legally obliged to collect or provide the information about the individual projects that we have been requesting.

2.2. Data gathering from the Member States

2.2.1. Our data collection strategy was summarised in our Inception Report, and again in Section 7 of our First Interim Report. For the sake of convenience, we present it again here. Our strategy has involved the following:

- making telephone or email contact with the relevant parties listed on the ERDF project application forms, beginning with the contact listed for the organisation responsible for project implementation (usually local government in the case of infrastructure projects) and/or the organisation empowered to issue certificates;
- where this was a private firm (as in the case of some productive investments) or a contractor (as was the case with certain infrastructure projects) and the contact cannot be located (either due to staff turnover or dissolution/acquisition of the firm itself), we are endeavouring to contact a relevant government department, ministry or agency;
- otherwise, where necessary, we are elevating our information requests to a relevant national government department or agency, which have, in general, been notified in any case when the local government authority or private firms are reluctant, or do not have authority, to provide the required information.

2.2.2. Having found a contact that is willing and able to assist in the provision of information, we have proceeded to describe the objectives of the project and the kinds of information that we are seeking.

2.2.3. In approaching the Member States, we had started with requests for official project completion reports and/or progress reports. However, the responses we received

to these requests suggested that the Member States do not have in place the kinds of official reporting structures or outputs that could provide us with the level of detail of information we were seeking.[4]

2.2.4. In the small number of cases where 'completion' reports were provided (namely for German road projects), they provided an insufficient amount and level of detail of information to be counted as useful.

2.2.5. In late September, we changed our approach to the data gathering and developed questionnaires to serve as a more detailed guide to our data requirements. We based our questionnaires on the spreadsheet data templates that were presented in our Inception Report. These templates reflected our ambitions in the sense of achieving a level of detail required to facilitate a robust and comprehensive analysis. Sample questionnaires for the different sectors (road, rail, urban transport, water and wastewater and productive investments are provided in Annex B. Questionnaires were sent to Member States once we had established contact with someone willing and able to assist.

2.2.6. By end March 2009, we had received information relating to 62 of the target 115 infrastructure projects and relating to 20 of the target 40 productive investments. We discuss below the possible reasons for receiving so few data returns in the following subsections. Of the 82 data returns received so far in total, we have received 16 since, as noted above, DG Regio undertook to apply pressure on the Member States to respond to our data requests.

2.2.7. In subsection 2.3, we explore the reasons for the reduced sample size illustrated in Table 3 above, including the fact that some projects are unfinished and that the information required to pursue others was not available.

2.2.8. In subsection 2.4, we explore the potential reasons for the lack of information provision in the case of many of the projects on which we had established contact prior to December 2008 (the 36 possibilities in Table 3 above, as well as the 12 in the third-to-last row that, in the absence of contact details being provided, we believe no longer present a realistic prospect for inclusion in our sample). Here we will be concerned with the potential non-existence of the data we require.

2.3. Reasons for reduced sample size

Incomplete projects

2.3.1. We began the data gathering exercise with a total sample of 161 projects. These had been chosen in cooperation with the Commission from the information provided at the beginning of the study. This number fell initially to below the required 155 projects because, as we discovered, some projects belonged to sectors beyond the scope of the WP10 study, namely communications, ports and airports.

[4] On the other hand, in one country (Ireland), it was indicated that the authority for urban transport projects had assembled information on the project that we are interested in "in response to a number of ongoing financial audits" and that this information deals with contract overruns for the utility diversion and main infrastructure contracts. The authority also indicated that it was preparing a lessons learned document and that it was considering unitising budget and actual costs on a per kilometre basis for utility diversions, structures, track and track bed. We are currently seeking clarification on the unitisation issue and we have requested sight of the lessons learned document.

2.3.2. Moreover, once we began to establish contact on the remaining projects, it also became apparent that many had not been finished yet. This had the effect of further reducing our sample size below the required number.

2.3.3. In order to ensure that we had at least a chance of achieving the required 155 projects, we searched the information that had been provided by the Commission for other projects, particularly those for which there was at least some details that might provide, or lead us to acquire, information about them. These were added to the sample. Also, in another block of information sent by the Commission in November, in response to our requests for missing ERDF applications (see below), the Commission sent us information on a number of projects that weren't in the original data.

2.3.4. Having removed the projects from sectors beyond WP10's scope (approximately 10) and added these 'new' projects, we had, by the end of November, 173 projects (128 infrastructure and 45 productive investments) on which we have been actively seeking data since September. However, 17 of the 128 infrastructure projects and 11 of the 45 productive investments have been reported as unfinished (28 in total). These primarily include Greek road and rail projects, one Italian and several Spanish water projects.

2.3.5. Whilst a few German productive investments are due to be finished in March 2009, at which point information has been promised, we no longer hold any reasonable expectation of receiving information relating to the other unfinished projects. This is the most significant contributor to our current expectations of the smaller than required sample size, on which we may need to settle.

Lack of information and/or contact details

2.3.6. For several projects, we did not receive ERDF applications from the Commission at the beginning of WP10. In some cases such as, for example, a lot of Spanish and some French projects, we were able to establish contact nonetheless. This was achieved through research based on the names of projects. In other cases, such as other projects in France and projects in Portugal and Slovakia, we have not been able to establish contact independently.

2.3.7. In a significant number of cases where the applications are available, we have encountered difficulties in establishing contact with the right people from the relevant agencies that are able and willing to assist. In the case of Spanish and French projects, for example, changes that had taken place in the national telephone numbering system since the preparation of the applications caused immediate setbacks for the data gathering team.

2.3.8. However, the difficulties tended not to stop there. There were many cases where, even having established contact with the agency, we were unable to find people able and willing to assist us. Whether this was due to people not wanting to get involved, fearing the outcome of questions, whether they just couldn't be bothered or they had other priorities is unknown to us.

2.3.9. In November and January, we received information on projects for which we had no ERDF applications. While there are still a number of these applications outstanding, we have, nevertheless, been able to establish contact on several of these projects. In some other of these cases, we have only just made contact for the first time.

2.3.10. For projects on which we have had no means of establishing relevant contacts in the Member State (either due to a missing application or some other reason), the Commission sent us (more recently, during January) contact details, which the team is now actively pursuing. Some of these projects have already been reported as finished and are realistic possibilities in terms of the receipt of information from the Member States.

2.4. Reasons for high number of 'possible' responses

2.4.1. As already noted, for a large number of projects, information has not been provided despite finding persons in relevant agencies that have stated their ability and willingness to assist. Their number is 35, as shown in Table 3 above.

2.4.2. In a smaller number of cases, we have either made contact and a relevant person has not been forthcoming, made contact with relevant persons but no response has been received, or we have been unable to establish contact at all due to the lack of contact details. These are represented by the 10 projects in the fourth-to-last row of Table 3 that we believe no longer present a realistic possibility for inclusion in the WP10 sample.

2.4.3. There are several potential explanations for these results and we thought it might be appropriate to explore some of the most likely in this Section. These include:

- Bureaucratic issues in the Member States;
- Potential for the non-existence of the data altogether.

Bureaucratic issues

2.4.4. The task of finding the agency or person who might hold the data we have been seeking has not been as straightforward as one might expect. For some projects, particularly road projects (in Germany, Greece, Ireland and Spain), there have been significant delays while bureaucratic responsibilities are clarified in the Member States. However, in several of these cases we have now received assurances that the information is forthcoming.

2.4.5. In Germany, for example, the relevant Ministry referred us to the contractor that it claimed was responsible for implementation of the road projects in our sample and that should have the information we are requesting. Having assumed that the Ministry had communicated our requirements, we allowed the contractor some time to gather the information. However, when we called the contractor, they informed us that the Ministry had failed to communicate the urgency of our requirements. We do not expect to see information on these projects until March-April at the earliest.

2.4.6. In Ireland, we initially called and then emailed the relevant contact at the National Roads Authority (NRA). Having received no response to various emails and voicemails, we proceeded to contact the local government authorities, which put us in contact with their respective Road Development Offices (RDOs). However, having established and emailed the relevant contacts as communicated to us, we received no response to our requests. Soon after, we were contacted by the NRA and informed that the information would issue from the RDOs to the NRA and that, following an NRA assessment, the information would issue to us through the

Departments of Transport and Finance. This was promised to us around mid-October 2008 with an indicative timetable for provision of late November / early December. The information relating to these projects was finally received on 18 March, 2009 (the date of this Report) we have not seen any information relating to Irish road projects.

Difficulties in providing data

2.4.7. We encountered a number of cases where the project, as defined for the ERDF application, appears not to correspond with what is monitored in practice. For example, Deutsche Bahn (DB) informed us that most of its projects defined for ERDF funding, were part of wider national projects or investment programmes. As a result, the impression given to us by DB was that, in order to provide us with the level of detail of information we sought, it was necessary to undertake a cost allocation exercise, in order to achieve correspondence between actual project costs and the estimates contained in the ERDF applications.

2.4.8. In the case of one Greek road project, we were informed that it was not possible to complete our questionnaire because the purpose of the project was to fill gaps and omissions from the other main road contracts. This project appears, therefore, to constitute small parts of several projects, and was not separately monitored as a stand-alone project.

2.5. Other potential data sources

European Investment Bank (EIB)

2.5.1. The European Investment Bank (EIB) has already identified for us the subset of major projects (15 or so) in our sample that match the names of projects in its databanks. But EIB's view was that ERDF funded projects usually form part of larger national investment programmes. The Bank asked us, therefore, to identify the parts of these wider programmes that we are interested in.[5]

2.5.2. However, while the Bank's thinking is confirmed by the data gathering experiences outlined in the previous subsection, our view is that those experiences suggest that it is this fact alone that may be a contributory factor to the poor provision of information so far.

2.5.3. We thought there might be value, therefore, in requesting from the bank whatever information it has available for the sub-sample of overlapping projects, regardless of whether that information applies to particular sections of projects or to projects as a whole. In response, EIB indicated that its information relates only to EIB-financed sections of projects and that, in the absence of information about the programme as a whole and without knowing the ERDF-funded parts of larger projects, the information about the EIB-financed sections might be useless if they are not the same as the ERDF-funded sections.

2.5.4. We are, therefore, currently endeavouring to establish the relevant (ERDF-funded) sections of the subset of overlapping projects. If these sections are the same as

[5] This would, the Bank hoped, avoid unnecessary data gathering where the EIB's co-financing role was on a different part of the broader investment programme.

the EIB-financed parts, the Bank will search its databanks for relevant information. Otherwise, the Bank is of the view that data searches would be fruitless.

JASPERS & ARUP

2.5.5. We also met with JASPERS (Joint Assistance to Support Projects in European Regions), which has commissioned a somewhat similar study in the European accession countries. Their study is aimed at improving the management of investment programmes and the technical parts of project preparation in JASPERS beneficiary countries.

2.5.6. The scope of JASPERS' study, for which it has commissioned ARUP, includes roads, railways and urban transport. Two of the countries in our sample are also in ARUP's, namely Poland and Slovakia. Since our meeting, ARUP has provided us with information on four projects from these countries that are potentially overlapping with the projects in our sample. We are currently examining this information to assess its usefulness for WP10.

2.5.7. We would recommend that the Commission consider setting up a formal information-sharing programme with the other agencies in order to fully understand the overlap between the two studies.

2.6. Implications for the WP10 timetable

2.6.1. The implications of the difficulties experienced with the data gathering process on the WP10 project timetable is illustrated in Figure 1 below.

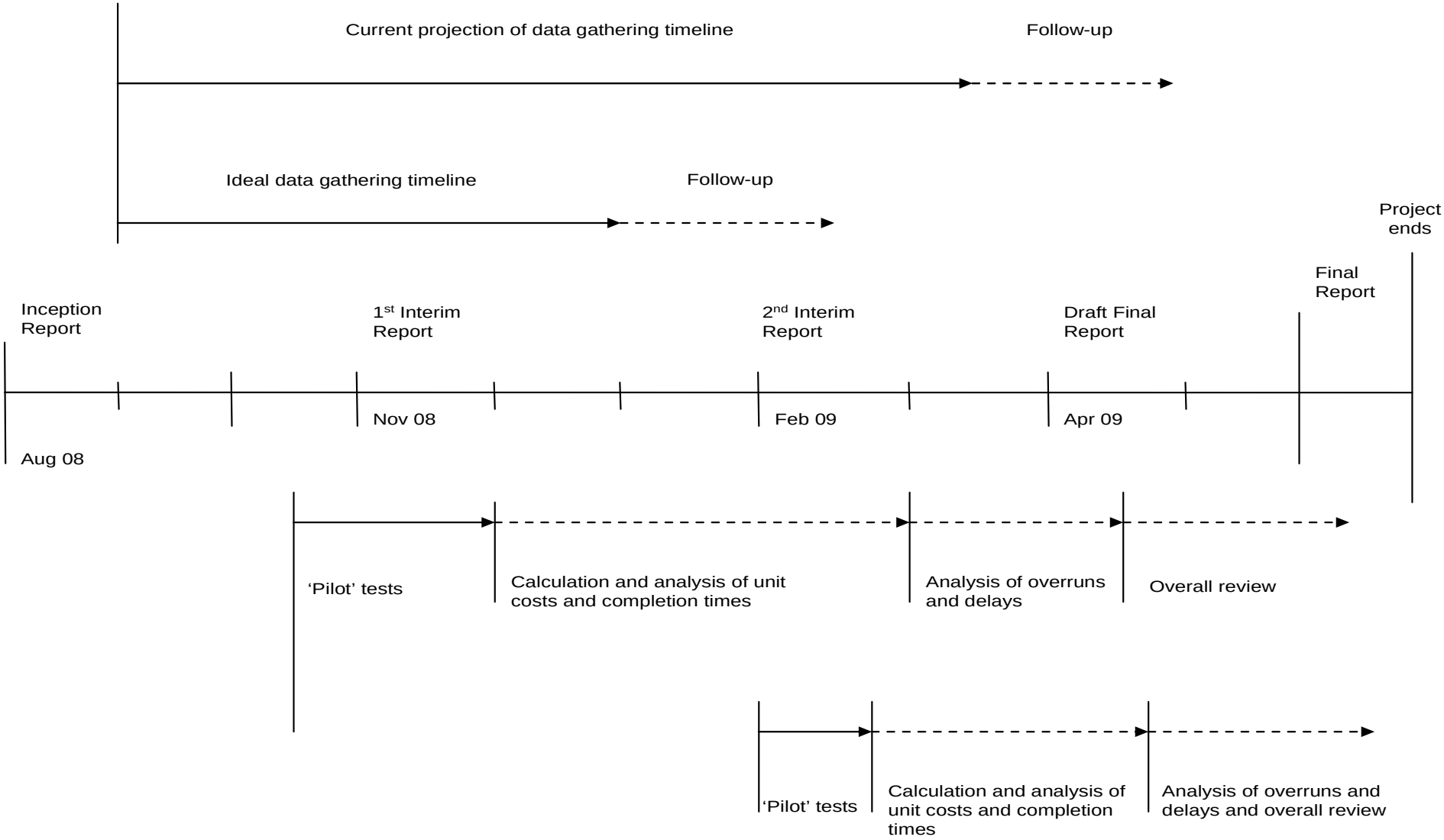
2.6.2. The middle of the diagram shows the timeline for WP10 along with the timing of the project deliverables. In the top part is a comparison between the ideal timing of the data gathering exercise and what we anticipate in practice based on current expectations. The implications are shown in the bottom part of Figure 1.

2.6.3. By last November 2008, we had expected to be able to undertake some 'pilot' analysis, involving comparisons between a sub-sample of initial data returns from the Member States with the benchmarks identified in our review of the literature and available databases in Task 1. This would have allowed us to check whether the unit costs calculated on the basis of the information received appeared plausible.

2.6.4. However, because most of the information we have so far received only arrived during January, it has been necessary to skip the pilot analysis step and move straight onto the formal calculation of estimates and actuals for our unit cost indicators. We have presented those calculations for the projects on which we have so far received information in Sections 4, 5, 7 and 8 below.

2.6.5. Overall, the data gathering delays have effectively squeezed the WP10 project timetable. Most of the formal calculation and analysis of actual and estimated unit costs and completion times is necessarily deferred until the next stage of the project, and is likely to be only completed in time for the Draft Final Report. During that stage, it will also be necessary to undertake the analysis of cost overruns and the role of ex ante risk assessment and to begin to think about the overall review of all WP10 tasks.

Figure 1: The data gathering timeline and its effect on delivering against WP10's timeline



2.7. Implications for the structure of the WP10 project sample

2.7.1. Table 4 shows the indicative structure of the WP10 sample of major projects, as outlined by the Commission in Annex 3 of the Call for Tenders.[6]

Table 4: Indicative structure of WP10 sample of major projects

		Infrastructure projects							
Country	# of projects	Road	Rail	Urban transport	Water supply	Wastewater treatment	Energy	Total infrastructure	Business support
Germany	25	8	6					14	11
Greece	23	10	7	3			3	23	
Spain	39	12	8		5	1	1	27	12
France	16	3	2	1		2		8	8
Ireland	8	5	3					8	
Italy	20	6	7	3	1		1	18	2
Austria	1							0	1
Poland	5	3	1	1				5	
Portugal	15	1	3	2			3	9	6
Slovakia	2	2						2	
UK	1						1	1	
Totals	**155**	**50**	**37**	**10**	**6**	**3**	**9**	**115**	**40**

2.7.2. Table 3 shows the structure of the current WP10 sample, based on the results of the data gathering exercise presented in Table 3 above, that is, the distribution of the 68 projects on which we have received information so far. As can be seen, the sample of infrastructure projects is, at present, heavily skewed towards the road and rail sectors. However, we hope that this will improve over the next month or two as further information is received.

Table 5: Structure of current WP10 sample

		Infrastructure projects							
Country	# of projects	Road	Rail	Urban transport	Water supply	Wastewater treatment	Energy	Total infrastructure	Business support
Germany	15	3	6					9	6
Greece	16	8	3	1			4	16	
Spain	19	1	6		3			10	9
France	4			2				2	2
Ireland	8	5	2	1				8	
Italy	4	3			1			4	
Austria	1							0	1
Poland	6	2	1	3				6	
Portugal	6		1	1			4	6	
Slovakia	0							0	
UK	3						1	1	2
Totals	**82**	**22**	**19**	**8**	**4**	**0**	**9**	**62**	**20**

[6] See "Call for tenders by open procedure no. 2008.CE.16.0.AT.019…" Document reference REGIO.C.2./JS D(2008) 680043, published on 22nd February, 2008.

2.8. Conclusions

2.8.1. The data gathering exercise has not been as straightforward as expected. Data on actual costs and outputs are not kept by the Commission and has been difficult to obtain from the Member States in some cases.

2.8.2. Projects as defined for the purposes of ERDF applications do not, in some cases, match 'actual' projects, as monitored in practice. In these cases, projects may not be monitored in a manner that would allow comparisons with the ERDF estimates, which has necessitated a cost allocation exercise, certainly in the case of Deutsche Bahn.

2.8.3. In more general terms, very little formal monitoring of projects appears to be undertaken by the Member States.

2.8.4. For these and other reasons, we have encountered difficulties in establishing contact with appropriate agencies and, even when we have managed to find the relevant agency, it has often been difficult to find people who are willing and able to assist us.

2.8.5. The implications of this for the Commission are significant and will be explored in the Draft Final Report on this study.

3. Infrastructure: Unit cost definition and measurement

3.1. Introduction

3.1.1. There are, as noted in our First Interim Report, a number of important dimensions to the definition of unit cost indicators. These are:

- The categories of cost to be included in the numerator;
- Disaggregating the physical components (and their associated costs) of projects; and
- Methods required in achieving comparability to overcome the wide diversity of circumstances.

3.1.2. Reaching decisions on these aspects of the process of defining unit cost indicators is described in each of the following subsections. In doing so, we have paid attention to the requirements of Tasks 2.2 and 2.3, which are concerned with, respectively, the calculation of estimated and actual unit costs for the sample of major projects. The set of indicators that are eventually adopted will also depend crucially on the level of detail of the data that's available.

3.1.3. However, the level of detail is also important in terms of the expected robustness of the analysis of cost overruns and time delays under Task 2.4 and in assessing the potential importance of effective ex ante risk assessment in forecasting the costs of future projects under Task 2.5. For example, the magnitude of observed cost overruns will depend on the unit cost definitions and calculation methods adopted, as well as on the quality and comparability of cost estimates and outturns. Consistency in their application is essential to ensure that differences between estimates and outturns can legitimately be called cost overruns.

3.1.4. This Section of the current report is structured as follows:

- Subsection 3.2 considers the categories of cost that should and will be included in the numerator of our calculations of the unit cost indicators;
- Subsection 3.3 is concerned with the disaggregation of the physical components (and their associated costs) of projects;
- Subsection 3.4 is concerned with defining unit cost indicators for the specific purposes of WP10. We have not, at this stage, provided an exhaustive list of unit cost definitions. Rather, we have limited their number to what it has been possible to calculate based on the information received so far;
- Subsection 3.5 examines the types of adjustments that are required to the cost estimates and actuals data in order to make projects, and projects from different countries, comparable.

3.2. Categories of cost to be included

3.2.1. The estimates of unit costs presented in Section 4 are based on the project cost estimates available in the major project dossiers. In most cases, we found the ERDF application forms to be the most informative in terms of project cost estimates. The dossiers also included the Commission decision granting the requested funds and various reports, largely on the cost-benefit analysis supporting

the application. However, in general, these revealed nothing that wasn't in the application forms.

3.2.2. Figure 3 below is an adapted version (for presentation purposes) of the relevant section of the ERDF application form for a sample major infrastructure project, namely the LUAS urban rail project in Dublin. The example illustrates the type of breakdown that one can expect of a 'best in class' application form, in terms of how detailed and informative it was.

Figure 2: Cost categories provided in ERDF application forms

6. COSTS OF PROJECT

6.1 Cost breakdown

Eligibility date for expenditure: 1 January 2000 (date of receipt of application)

Euro x 1000 (1999 prices)

	'ALL-IN' PROJECT COST € MILLION	INELIGIBLE EXPENDITURE	ELIGIBLE COSTS** € MILLION
Enabling works	**45.637**	**Nil**	**45.637**
Utilities	**18.509**	**Nil**	**18.509**
Construction + infrastructure	**173.302**	**Nil**	**173.302**
Rolling Stock	**36.049**	**36.049**	**Nil**
Property	**39.914**	**39.914**	**Nil**
Project Management during implementation	**20.102**	**2.402**	**17.700**
Technical assistance		**Nil**	
Publicity	**Included in PM costs**	**Nil**	
Contingency	**3.472**	**Nil**	**3.472**
Sub-TOTAL		**Nil**	
Tax (VAT)		**Nil**	
TOTAL	**336.985**	**78.365**	**258.620**

3.2.3. We discussed the categorisation of costs in our First Interim Report (Section 2.5), where we decided on the following (the manner in which these appear in Figure 3 is also outlined):

- Construction or 'build' costs. The costs associated with all aspects of project implementation. In the example above, this category of cost is further broken down between enabling works, utility diversions as well as the infrastructure 'build'.
- Soft costs. Project management during implementation, technical assistance and publicity in the example in Figure 3 fall into this category. Another common example is planning and design costs and costs associated with stakeholder consultation.
- Contingencies. This is explicitly allowed for in the example above and constitutes 1.4 per cent of total eligible project expenditure.

- Taxes. In the example above, it was noted that, during the course of the project, its VAT status was changed. Therefore, VAT incurred up to the end of 2001 was deemed to be non-reclaimable, but reclaimable thereafter. As another example, in the case of UK road projects, non-recoverable VAT applies to works costs only; other project costs such as preparation, supervision and land are all expected to be VAT recoverable. These measures effectively reduce the VAT liability of the implementing authority.
- Land acquisition costs. In the example above, €40 million of projected expenditure on property acquisition was considered ineligible under the rules of the fund.

3.2.4. Many of the ERDF project application forms did not provide this level of detail, which has implications for the types of unit cost indicators for which project cost estimates can be provided (see following section.)

3.2.5. We are also actively considering the following issues:

- The varying treatment of the indirect taxes levied by contractors on contracting authorities across the Member States for certain types of project.
- The lack of consistent and comparable information on estimated contingency allowances. Some are broken down, as in the example in Figure 3 above. Others indicate a percentage built into the cost estimates, while others say nothing at all.
- The issues surrounding land acquisition costs and whether their exclusion from 'infrastructure' cost estimates merits reliance on project cost estimates contained in the responses to our questionnaires.

3.2.6. In our First Interim Report, we presented DG REGIO's guidance on the major elements of cost and the indicative shares of total cost for seven types of infrastructure project.[7] Given the wide divergence in the quality and level of detail of the information provided, we think it will be useful to present total estimates and outturns in the form of cost stacks, showing the relevant shares of each of the different categories of cost outlined above.

3.2.7. We would then analyse the data against what should be reasonably expected based on DG REGIO's Guidance. At that point, we will assess whether the reasonable requirements of comparability merit adjustments where unusually high levels of particular categories of cost are included for certain projects. Our belief is that it would be premature, in the absence of all the data, to attempt to make decisions about such adjustments at this stage.

3.2.8. We note that, while WP10's specifications are clear that cost estimates should be based on what is contained in the project dossiers, we did, in seeking information about outturn costs from the Member States, make the following request:

We have extracted the estimated cost information available from the ERDF project application forms supplied by the Commission. Where it is possible to provide more detailed breakdowns (for estimates and actuals), please do so.

3.2.9. Therefore, where further breakdowns of project cost estimates underlying those included in the application were provided, we have included them in the dataset and in our analysis. This is true in only a small number of cases.

3.2.10. Note that the questionnaires developed for the purposes of gathering data from the Member States reflect the various categories of cost outlined above. This can be seen in Table 6 below, which presents an extract from one of our early

[7] See Figure 1 in our First Interim Report.

questionnaires for road projects that was sent to Member States. (Note that examples of the questionnaires that were sent Member States are provided in Annex B.)

Table 6: Extract from questionnaire for road projects sent to Member States

Cost category	Estimate	Actual
Total cost		
Planning/design cost		
Land acquisition cost		
Pavement construction cost		
- one carriageway		
- two carriageway		
Pavement rehabilitation cost		
- one carriageway		
- two carriageway		
Bridges		
Tunnels		
Other		
- project management		
- publicity		
- technical assistance		
- contingency		
- other (please specify)		

3.3. Disaggregating the physical components of projects

3.3.1. We have adopted the use of different 'levels' of indicator to reflect the different levels of cost disaggregation of projects. In every sector, no two projects are likely to be the same in terms of the quantities of key components (such as bridges and tunnels in a road project) required.

3.3.2. These levels of indicator are summarised as follows:

- Level 1. Indicators that reflect the 'all in' costs of a project, including all appropriate categories of cost outlined in the previous section and including all project components.
- Level 2. Indicators that reflect the 'build' cost of individual key components of projects such as, bridges and tunnels in road and rail projects.[8]
- Level 3. Indicators that distinguish further between different types of key components such as the different types of bridges and tunnels.[9]

3.3.3. The most important distinctions were provided in Table 3 of our First Interim Report. That table is presented again as Table 7 below. If we take roads as an example, Level 1 indicators will include the costs of all the components of the project,

[8] Where soft costs, contingencies and taxes are built into the project component estimates, it may be necessary to consider whether to make adjustments to separate them out and achieve comparability with projects that separately identify these categories of cost.
[9] Note the relevance of footnote 8 here also.

including the pavement itself, bridges, tunnels etc. Level 2 indicators will involve separating out the 'build' costs of those key components. Level 3 indicators would distinguish between, for example, different grades of pavement or the different types of bridges and tunnels that are built, all factors that cause cost variability across projects in the roads sector.

Table 7: Project disaggregation and corresponding Levels 1-3 unit cost indicators

Level 1 costs ('all in')	Level 2 costs (key components)	Level 3 costs (different types of key components)
ROADS 1 carriageway / 2 carriageway 2 lanes / 3 lanes / 4 lanes or greater	Pavement construction Bridges Tunnels	Grade of pavement Types of bridge Types of tunnel
RAIL Single track Twin track	Track construction Stations Bridges Tunnels Rolling stock	At grade Elevated In tunnel Types of bridge Types of tunnel
URBAN TRANSPORT Metro Tramway Buses / taxis	Network (track, road) Stations / stops Bridges / tunnels Rolling stock	At grade Elevated In tunnel Types of bridge Types of tunnel
ENERGY Electricity / gas Nuclear / wind	Generation Networks (transmission / distribution) Supply	
ENVIRONMENTAL Water Wastewater	Extraction / treatment Distribution Supply	Gravity or rising mains Pipes or culverts

Source: RGL

3.3.4. For the unit cost estimates to be provided under Task 2.2 (Section 4 below), we have only been able to make calculations for Level 1 indicators. However, as noted in paragraph 3.2.7, it may be useful to consider the proportions of the various cost categories (that were the subject of Section 3.2 above) incorporated in estimates for these Level 1 indicators. Following this assessment we will consider the need for adjustments to ensure consistency between comparisons.

3.3.5. For the actual unit costs to be provided under Task 2.3 (Section 5 below), our initial assessment is that it will not be possible to make calculations for Level 2 indicators for all projects in our sample. Likewise, due to the absence of the required information in the data returns, the calculation of Level 3 indicators may only be possible in an even fewer number of cases.

3.4. Defining unit cost indicators for Work Package 10

3.4.1. At this stage of the analysis, we have been able to gather comparable cost information for infrastructure projects in four sectors: Rail, Road, Urban Transport and Water.

3.4.2. After transforming all data into the same price level, we have calculated unit costs in order to allow comparison of projects of different magnitude. We have calculated these ratios for the required different levels of aggregation. Specifically, for each project we calculated Level 1 unit costs ('all-in' project cost) and, whenever the data were available, disaggregated Level 2 unit costs (costs of specific project components, such as, for example, land, stations and track work). In a couple of cases, we have also been able to calculate Level 3 unit cost data.

3.4.3. Within each sector, we have also grouped projects according to their type. For example, for Rail, in addition to calculating overall unit costs for all projects, we also distinguish between "Single track" projects and "Twin track" projects.

3.4.4. For Level 1 indicators, we have, where possible, illustrated the amounts of the different categories of cost that have been included in the project cost estimates and outturns. This will provide insights into the reasons for cost differences between projects. Moreover, as indicated in subsection 3.2, we will examine the data (once more is received) against what should be reasonably expected based on DG REGIO's Guidance. We will, at that point, assess whether adjustments are required where, for example, unusually high levels of particular categories of cost are included. Such adjustments would be designed to make the data more comparable and would result in what we might call a set of 'adjusted Level 1' indicators.

3.4.5. Specifically, we have, where possible, broken Level 1 costs down into Build, Soft, Contingency, Taxes and Land costs. Soft costs group all costs related to Project management, Planning, Publicity, Supervision, Technical assistance, External controls, Works of art and any undefined "other" costs.

3.4.6. The following tables summarise the unit cost indicators on which we have so far been able to make calculations for each sector. More analogous indicators will be added as required according to how further data we receive is presented. In Sections 4 and 5, we present the results of our analysis, both for estimated unit costs and for actual unit costs. We note, however, that the data available is sparse and, therefore, unit cost comparisons at this level of detail are more difficult to undertake.

3.4.7. Note that, for our Level 2 and Level 3 indicators, we have referred to 'build' costs only. Where respondents to our questionnaires have not provided a breakdown of the other categories of cost involved in the project (i.e., soft costs etc.), we may also need to consider adjustments that would try to isolate the 'build' costs in order to achieve comparability across projects. We will assess the need for such adjustments in the next stage of the study, when the data gathering exercise is complete.

Table 8: Unit cost indicators for rail projects

RAIL Indicators	Units
Level 1	
'All in' unit cost	EURm/km
'All in' unit cost - single track group	EURm/km
'All in' unit cost - twin track group	EURm/km
Level 2	
Unit 'build' cost of trackwork	EURm/km
Unit 'build' cost of trackwork – single track group	EURm/km
Unit 'build' cost of trackwork – twin track group	EURm/km
Unit 'build' cost of stations	EURm/nr
Unit 'build' cost of bridges	EURm/nr
Level 3	
Unit 'build' cost of single track - at grade *	EURm/km
Unit 'build' cost of twin track – at grade	EURm/km
Unit 'build' cost of twin track - elevated	EURm/km
Unit 'build' cost of twin track – in tunnel	EURm/km
Unit 'build' cost of beam bridges ^	EURm/nr

Notes:

* Track 'at grade' means that the trackwork is at ground level, rather than elevated or in a tunnel.

^ 'Beam' bridges are the simplest kind of bridge that exist today and consist of a single horizontal beam with 2 supports, usually one on either end.

Table 9: Unit cost indicators for road projects

ROAD Indicators	Unit
Level 1	
'All in' unit cost	EURm/km
'All in' unit cost - two carriageway two lane	EURm/km
'All in' unit cost - two carriageway three lane	EURm/km
Level 2	

ROAD Indicators	Unit
Unit cost of land	EURm/Ha
Unit 'build' cost of pavement work – two carriageway two lane	EURm/km
Unit 'build' cost of pavement work – two carriageway three lane	
Unit 'build' cost of bridges	EURm/m2
Unit 'build' cost of tunnels	EURm/km
Level 3	
Unit 'build' cost of bridges – cantilever *	EURm/m2
Unit 'build' cost of tunnels – bored	EURm/km
Unit 'build' cost of tunnels - cut and cover	EURm/km
Unit 'build' cost of tunnels – other	EURm/nr

Notes:

'Cantilever' bridges are bridges built using cantilevers, structures that project horizontally into space, supported on only one end. For small footbridges, the cantilevers may be simple beams. However, large cantilever bridges designed to handle road or rail traffic use trusses built from structural steel or concrete box girders. The photo below is a balanced cantilever.

'Bored' tunnels are what most people understand as a tunnel. It is normally constructed by one of two methods: (i) a tunnel boring machine (TBM), which is a large drill-like machine which bores through the rock using cutting teeth on the front face, usually resulting in circular tunnels; and (ii) the New Austrian Tunneling Method (NATM), during which a hole (which may be circular or more commonly oval) is cut through the rock using a combination of excavators, manual labour and occasionally explosives. Concrete is then sprayed on the rock to hold it in place until rings (usually of concrete) are inserted inside the tunnel and grout placed on the space between.

'Cut and cover' tunnels are a simple method of construction for shallow tunnels, where a trench is excavated and roofed over. A strong overhead support system is required to carry the load of the covering material. These tunnels are usually square in shape.

Table 10: List of unit cost for Urban Transport projects

Urban transport projects	Unit
Level 1	
'All in' unit cost	EURm/km
'All in' unit cost - metro	EURm/km
'All in' unit cost - tramway	EURm/km
Level 2	
Unit cost of land	EURm/Ha

Urban transport projects	Unit
Unit 'build' cost of trackwork – metro twin track	EURm/km
Unit 'build' cost of trackwork – tramway twin track	
Unit 'build' cost of stations	EURm/nr
Unit 'build' cost of bridges	EURm/m2
Level 3	
Unit 'build' cost of metro twin track trackwork - at grade	EURm/km
Unit 'build' cost of metro twin track trackwork - elevated	EURm/km

Table 11: List of unit cost for Water projects

Water projects	Unit
Level 1	
'All in' unit cost	EURm/km
'All in' unit cost – water supply	EURm/km EUR/inhabitant
Level 2	
Unit cost of land	EURm/Ha
Unit 'build' cost - water supply	EURm/km EUR/inhabitant

3.5. Methods for achieving data comparability

3.5.1. As described in subsections 3.2 and 3.3 above, there is a variety of elements that need to be taken into account when making the cost information from different infrastructure projects comparable. We identified a variety of approaches in the literature review, as presented in our First Interim Report. Unfortunately, the lack of information available at this stage has prevented us from making most of these adjustments.

3.5.2. As the data collection process is still ongoing, we have decided not to apply any of these adjustments for the time being and to use the cost information at face value. Once the data collection process is complete, we will assess whether the information available will allow us to make a consistent adjustment to the cost information for all projects.

3.5.3. We note, however, that the need for such adjustments would be much stronger when comparing data from very different jurisdictions. In the case of the 11 Member States involved in our data sample, such differences are probably less remarkable.

Moreover, the cost data presented in this report originate from a subset of EU Member States, most of which are EU-15 countries with the exception of Poland. This has, in our view, further reduced the need for these adjustments at this stage.

3.5.4. We have adjusted all cost data for inflation, in order to transform it to a common price base. To do so, we have used Eurostat's inflation rates, calculated using the Harmonised Index of Consumer Prices (HICP). We understand, however, that it might be more appropriate to use an index of construction prices, especially given the nature of the projects being compared. The merits of this will be considered in the next phase of the study.

3.5.5. In the meantime, Table 12 summarises the price indices that we have used for each of the EU member states in the current sample. In order to obtain cost data in 2007 prices, we have multiplied the nominal values by the index for the corresponding year.

Table 12: Price indices used for inflation adjustment

Country	1999	2000	2001	2002	2003	2004	2005	2006	2007
France	1.165	1.144	1.124	1.103	1.079	1.055	1.035	1.016	1.000
Germany	1.142	1.126	1.106	1.091	1.079	1.061	1.041	1.022	1.000
Greece	1.300	1.263	1.219	1.173	1.134	1.101	1.064	1.029	1.000
Ireland	1.315	1.249	1.202	1.147	1.103	1.078	1.056	1.028	1.000
Italy	1.207	1.177	1.149	1.120	1.089	1.066	1.043	1.020	1.000
Poland	1.308	1.188	1.129	1.107	1.099	1.061	1.039	1.025	1.000
Portugal	1.269	1.234	1.182	1.140	1.104	1.077	1.055	1.024	1.000
Spain	1.289	1.246	1.211	1.169	1.134	1.101	1.065	1.028	1.000

Source: Eurostat

3.5.6. The inflation adjustment improves the level of comparability between cost data calculated in different years, but it does not address the issue of data normalisation across different countries. To do so, it is necessary to convert the cost data into a common currency.

3.5.7. In this case, all the data collected have already been provided in Euros by our sources. We have therefore not operated any currency conversion. Indeed, they would not have been necessary for most countries as, currently, the oldest project in the dataset is an Irish project from 2000, that is after the exchange rates between the national currencies of the Eurozone Member States and the Euro had been frozen. The only exception at present is Poland, for which, however, the information provided already converted into Euros.

3.5.8. Despite almost all countries using the same common currency, intrinsic differences in costs may still remain. The common currency eliminates the price level differences, but does not address possible purchasing power differences, i.e. it does not fully take into account the differences in the purchasing power of the same monetary amount in different countries. These adjustments are commonly made

using Purchasing Power Parity (PPP) indices, which are calculated to take into account price and purchasing power differences between countries.

3.5.9. We note that Eurostat and the OECD warn against using PPP indices for specific goods and services. Specifically, they state that *"PPPs are statistical constructs rather than precise measures. While they provide the best available estimate of the size of a country's economy, of the economic well-being of its residents and of its general price level in relation to the other countries in the comparison, they are, like all statistics, point estimates lying within a range of estimates – the "error margin" – that includes the true value. The error margins surrounding PPPs depend on the reliability of the expenditure weights and the price data as well as on the extent to which the particular goods and services selected for pricing by participating countries actually represent the price levels in each country. As with national accounts data generally, it is not possible to calculate precise error margins for PPPs or for the real final expenditure levels and comparative price levels derived from them."*[10]

3.5.10. While PPP estimates are commonly used to compare national economic aggregates such as GDP per capita, they become less reliable for lower levels of aggregation and certainly for the comparison of individual cost items. Again, according to the OECD, *"below the level of the main aggregates, error margins are compounded by differences in the national classifications used by participating countries in their national accounts. Because the margins of error increase as the level of aggregation gets lower, neither Eurostat nor the OECD publish results of their comparisons below a certain level of detail".*[11] This implies that, in this case, PPP indices specific to the industries under analysis in this case are not readily available and that using off-the-shelf PPP adjustment factors may not be appropriate.

3.5.11. While we have not applied PPP corrections to the data at this stage, we will consider the need for them in the next stage of this study.

[10] Eurostat –OECD (2006), *Methodological Manual on Purchasing Power Parities,* European Commission ISBN 92-79-01868-X

[11] Eurostat–OECD, *ibid.*

4. Infrastructure: Unit cost estimates and planned completion times

4.1. Introduction

4.1.1. This Section presents the estimates for the unit cost indicators set out in subsection 3.4 for infrastructure projects in Rail, Road, Urban Transport and Water. Whenever possible, the estimated Level 1 unit costs are compared with the relevant benchmarks identified in the First Interim Report. All cost data have been converted into 2007 prices, to make them comparable

4.1.2. For Level 1 costs, when the relevant information has been provided, we present a breakdown of the categories of cost that make up the total cost estimates. Unfortunately, this information is not available for all projects. In several cases, total cost estimates are provided under the 'build' category only. We have interpreted this to mean 'all in' project costs, that is, that the other categories (like soft, contingencies etc) are built-in to these 'all in' estimates.

4.1.3. At the time of writing, we have had at our disposal a sufficiently consistent set of information for 31 infrastructure projects. Due to the issues raised in the previous Section, it has not been possible to consistently provide the same set of information for each project. Therefore, the number of projects presented in each comparison chart below varies according to the availability of data for that specific level of cost (i.e., Level 1, 2 or 3) and category of cost.

4.1.4. This Section also presents a summary of the average expected completion times (in months per kilometre) for each group of projects. Whenever possible, we have presented this information by project phase, namely Planning, Funding, Permissions, Site preparation, Construction and Testing.

4.1.5. The following Section 5 considers actual unit costs and completion times for the same 31 projects. Its structure mirrors that of this section, thereby facilitating comparison of the results.

4.2. Rail

4.2.1. This sector includes the majority of infrastructure projects in the sample, accounting for 17 projects out of a total of 31. The information presented in this subsection is therefore richer that that available for the other three sectors.

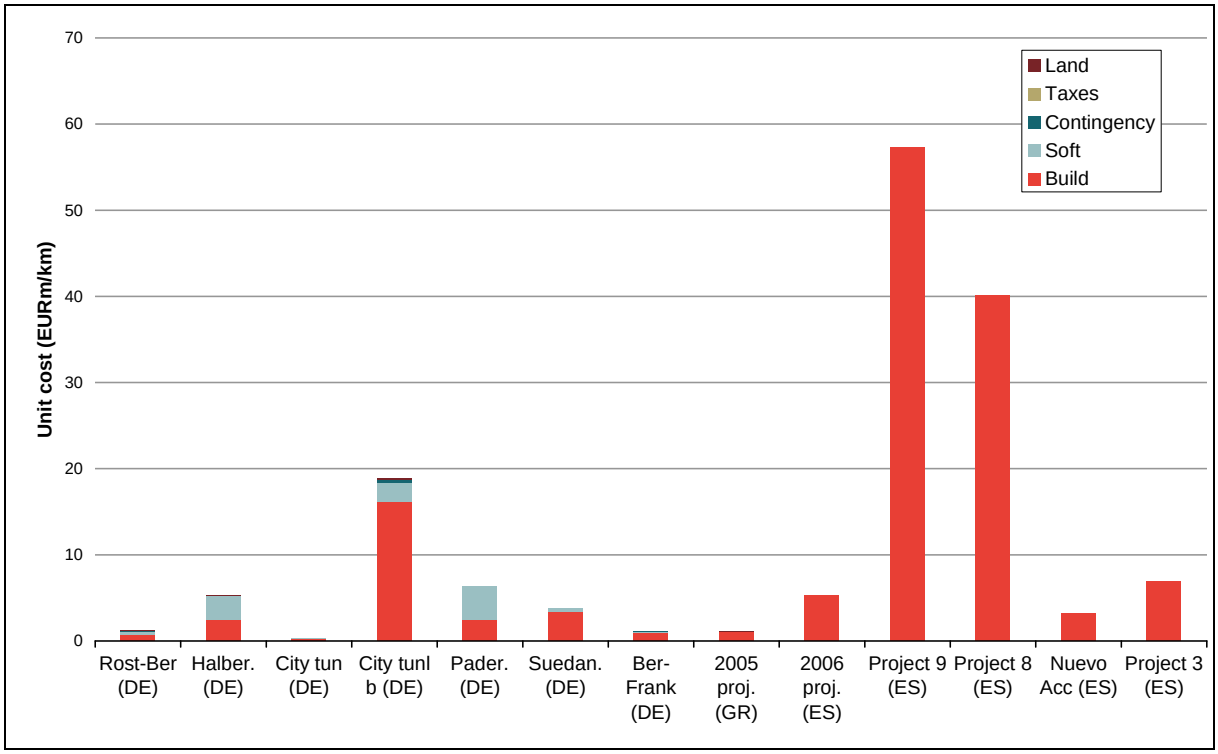
Level 1

4.2.2. Figure 3 provides a comparison of the Level 1 'all-in' unit costs of all rails projects. When the data allowed, the chart also provides a breakdown of the cost categories making up the total cost of the project. Unfortunately this information is not available consistently for all projects.

4.2.3. It can be seen that unit costs present a high level of variance. In particular, the unit cost expected for two Spanish Rail projects is particularly high. This can possibly be explained by the fact that these project, albeit of relatively short length, were planned to be carried out in an entirely mountainous terrain, characterised by a hard

geology. Most of the length of these tracks was also planned to be in tunnel. This may also explain the higher unit cost of the German City Tunnel projects.

Figure 3: Level 1 Rail: 'All in' unit costs



4.2.4. Figure 4 and Figure 5 provide a more narrow comparison, presenting Level 1 unit costs only for similar types of projects. Specifically, Figure 4 shows the unit cost for two single track rail projects. Figure 5, on the other hand, shows the unit costs for twin track projects and compares them to the benchmarks for this type of project identified in the first Interim Report.

Figure 4: Level 1 Rail: 'All in' unit cost – single track group

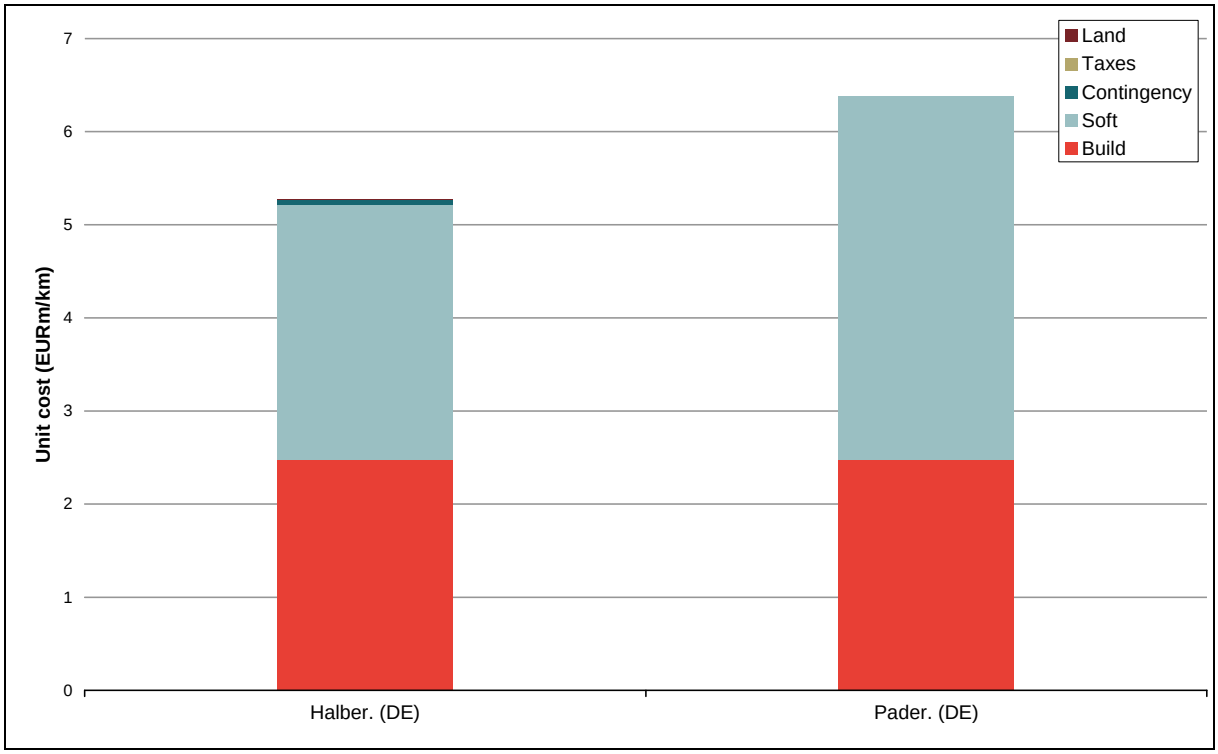
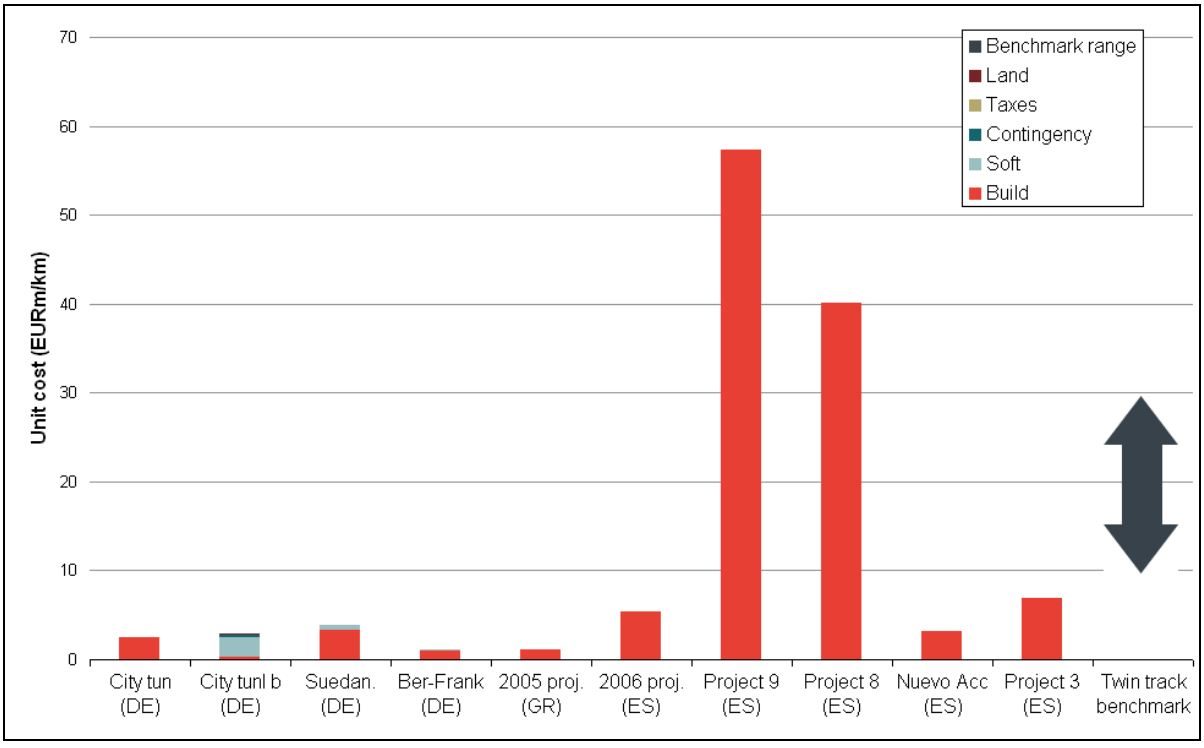


Figure 5: Level 1 Rail; 'All in' unit cost – twin track group



4.2.5. The expected Level 1 unit costs for most twin track projects are below the lower bound of the benchmark range identified for this type of project. The only exceptions are, as noted above, the rail projects involving extensive tunnel excavation and construction. Therefore, it would appear that, on average, the

projects in the sample are consistent with the benchmark. A projected of average complexity, such as the City Tunnel B, in Germany, shows an 'all in' unit costs that appears in line with the benchmark.

Level 2

4.2.6. The following charts show a comparison of some of the Level 2 unit build costs for Rail projects. Specifically, these are the unit costs for trackwork, stations and bridges. Each chart summarises all the information available for its specific level 2 unit costs. As noted, the same information is not always available for all projects.

4.2.7. The additional technical difficulties associated with the Spanish rails projects are reflected also in the Level 2 Build costs shown below. While this information is not available for these projects for all three categories, it can be seen that the unit costs for trackwork and bridges are higher than those for similar projects.

Figure 6: Level 2 Rail: Unit 'build' cost of trackwork

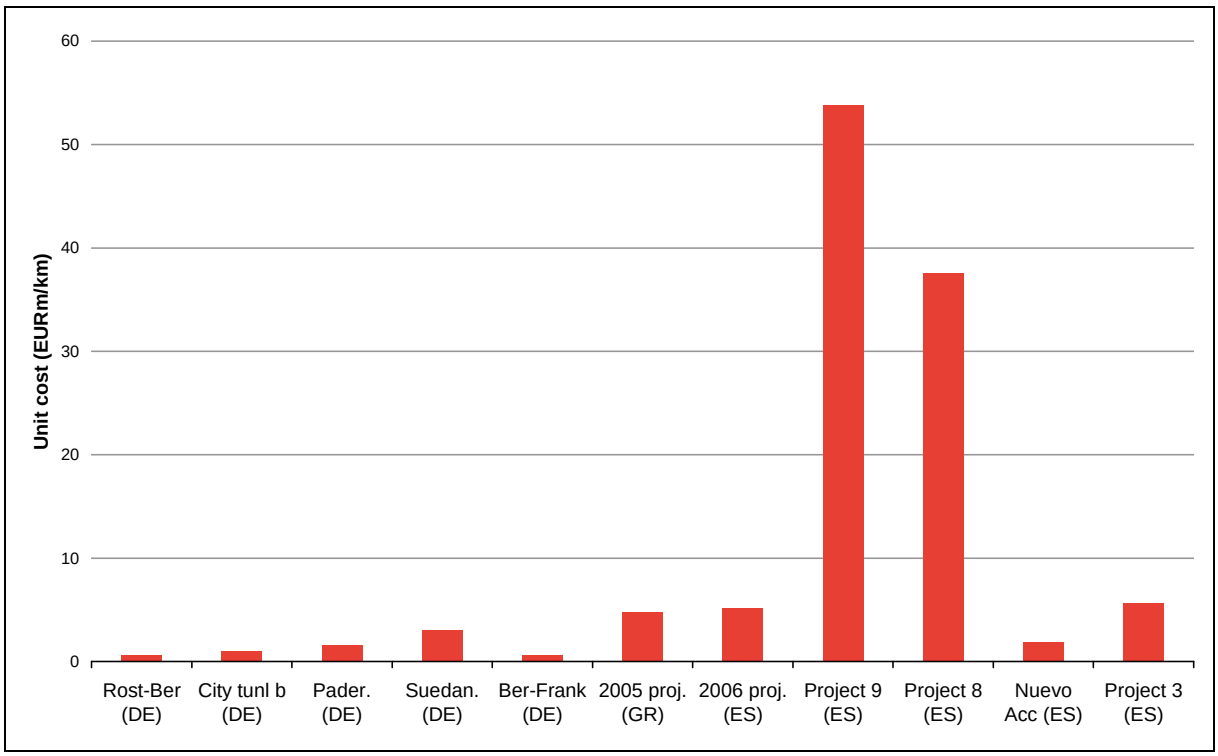


Figure 7: Level 2 Rail: Unit ‘build’ cost of stations

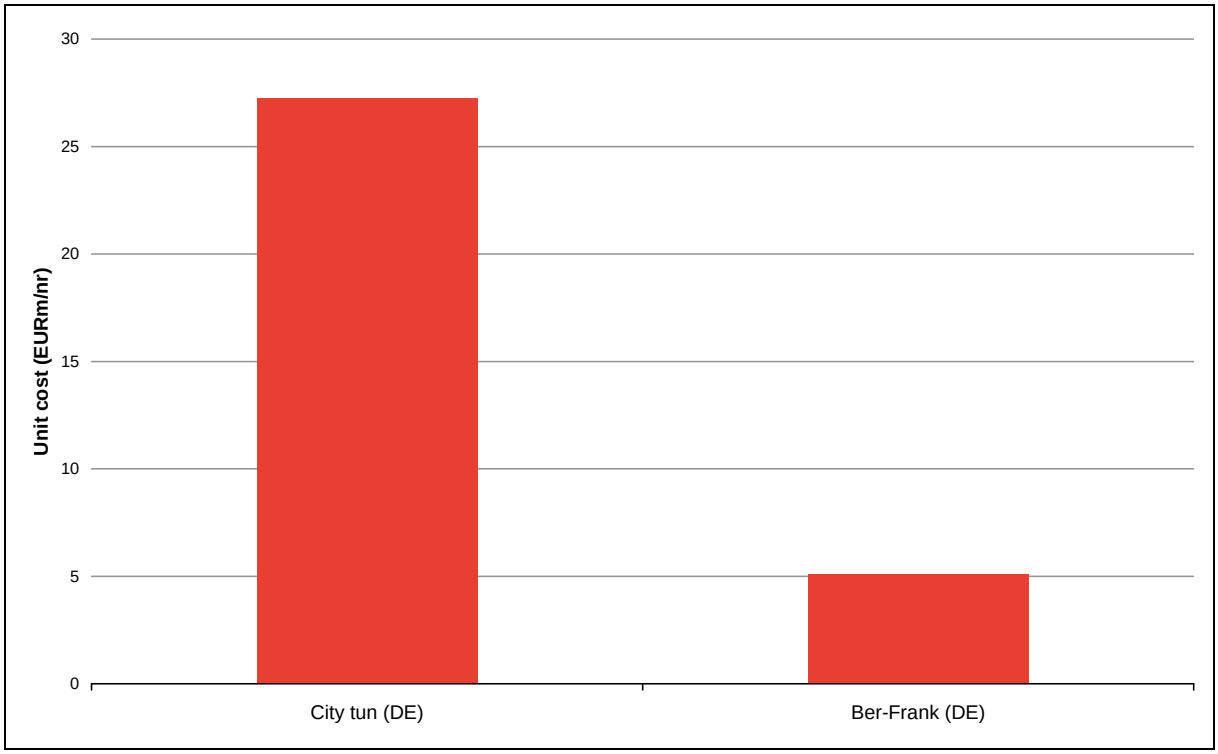
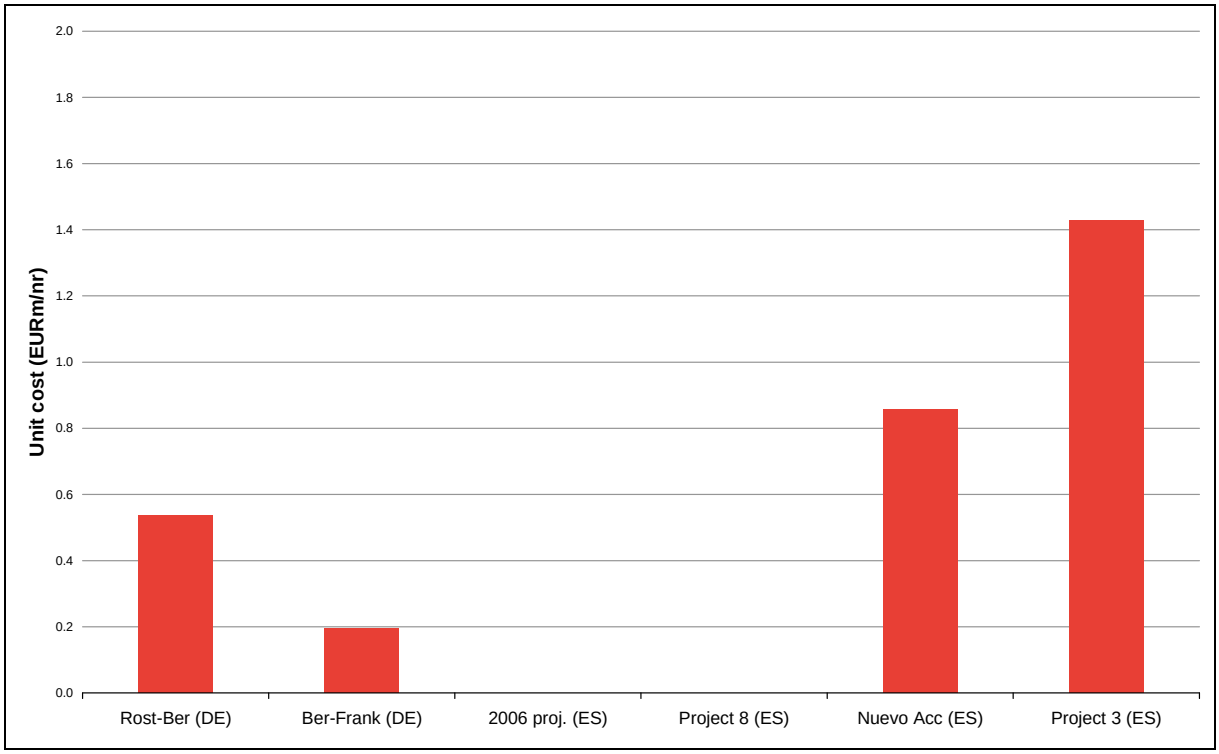


Figure 8: Level 2 Rail: Unit ‘build’ cost of bridges



Level 3

4.2.8. Finally, the following selection of charts provides an illustration of the unit cost estimates for a limited selection of level 3 indicators. Unfortunately, the information available does not allow for a more comprehensive comparison at this level of granularity. Therefore, only the level 3 categories for which there is meaningful comparable information are reported in this section. These are the unit costs for a single track at grade, for a twin track at grade, elevated and in tunnel, and for beam bridges.

4.2.9. We note that, in some cases, the differences between unit costs for similar projects are high. However, based on the information currently available, we have not been able to pinpoint the causes for such discrepancies. We will continue to gather information for these types of projects and we will explore the causes for these differences in the next phase of the analysis.

Figure 9: Level 3 Rail: Unit 'build' cost of single track at grade

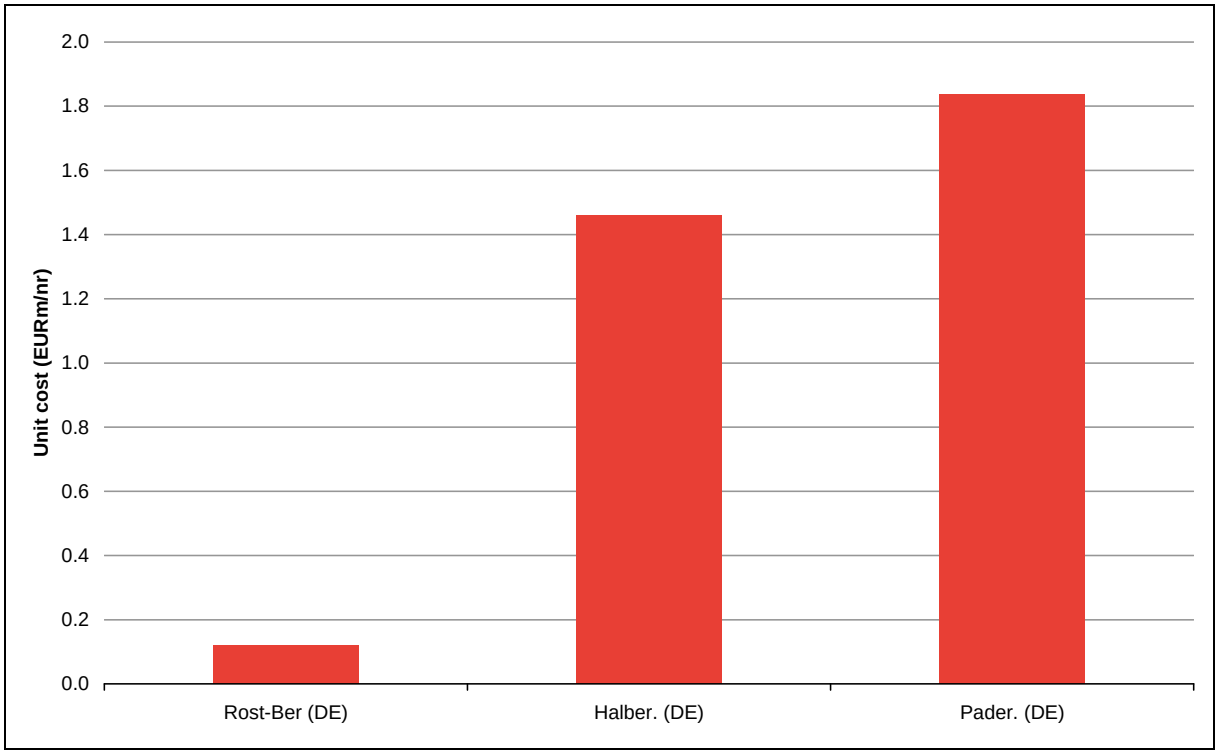


Figure 10: Level 3 Rail: Unit 'build' cost of twin track at grade

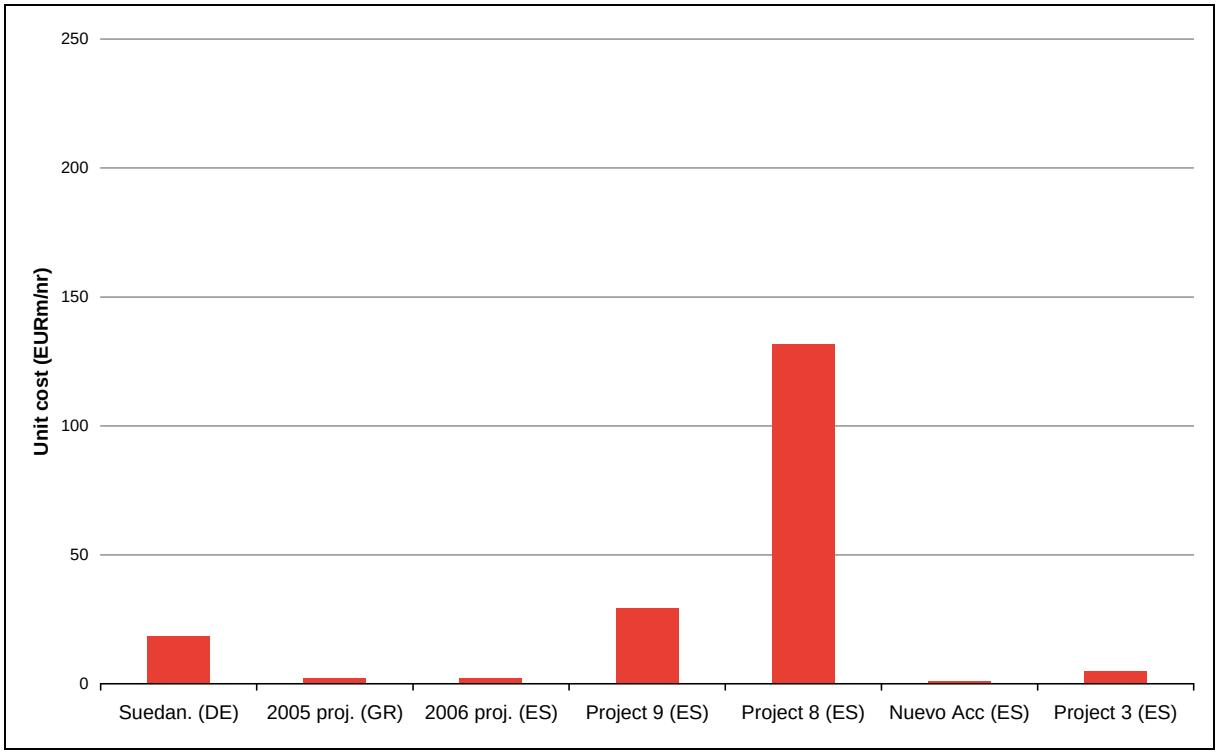


Figure 11: Level 3 Rail: Unit 'build' cost of elevated twin track

Figure 12: Level 3 Rail: Unit 'build' cost of twin track in tunnel

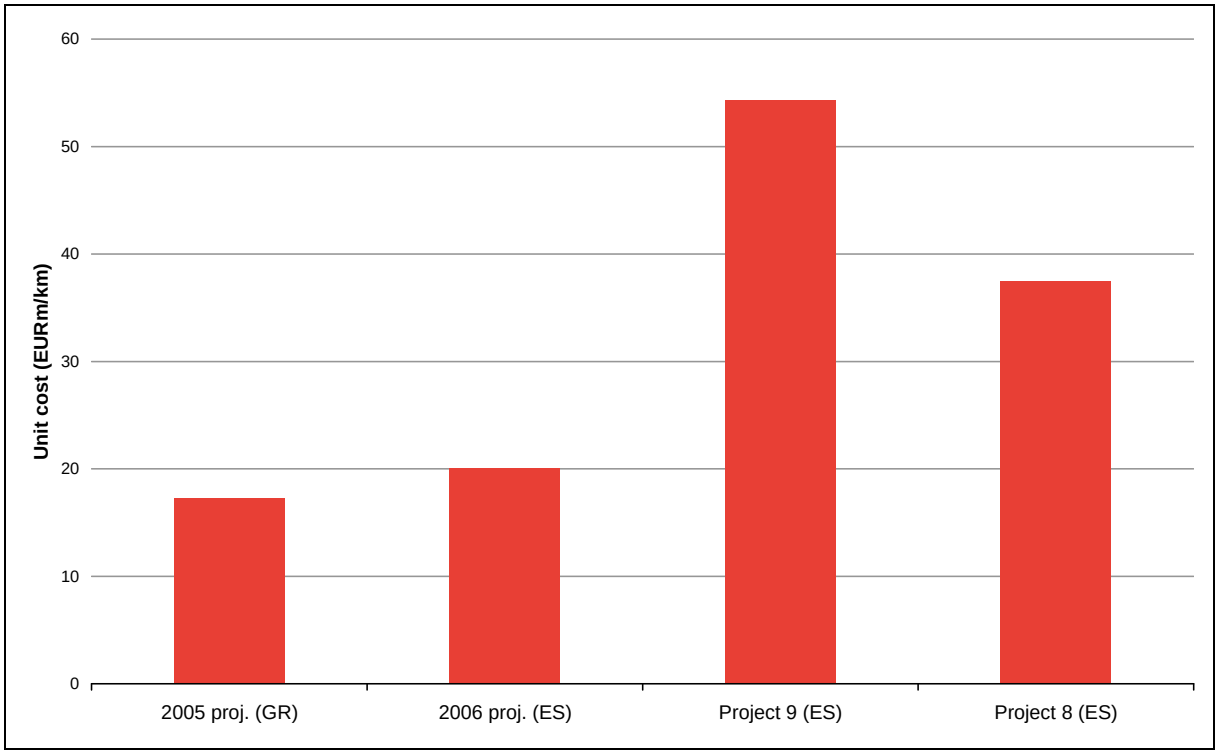
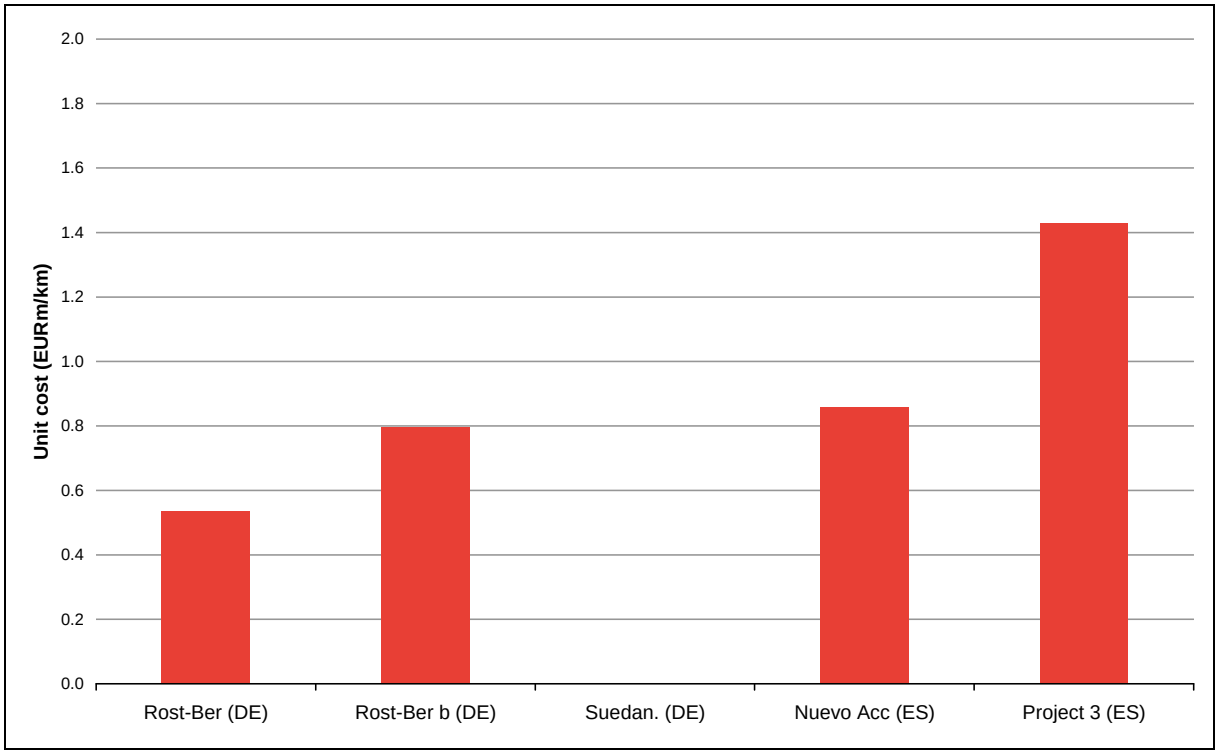


Figure 13: Level 3 Rail: Unit 'build' cost of beam bridges



4.3. Roads

4.3.1. At the time of this analysis, our dataset contains information on four road projects. As for the Rail sector, the following charts provide an illustration of the range of unit costs identified for this type of project.

Level 1

4.3.2. The following charts provide an illustration of the Level 1 'All in' unit cost for Road projects. In Figure 15, all Level 1 unit costs are compared, while in the following two charts the projects are separated according to their characteristics and compared with the benchmarks previously identified.

4.3.3. Also in this case, the unit costs present a high degree of variation. For the Greek projects, this discrepancy is due to the difficulty of the projects. The first project has been classified as 'straightforward', due to the fact that it was planned to be built in a flat, rural locality. For the other two Greek projects, the terrain was described as 80% mountainous. The Spanish road project has been classified as '90% easy'. We believe this contributes to explain the lower unit cost of this project.

4.3.4. Due to the low number of projects in the dataset at this stage, it is difficult to draw direct comparisons with benchmarks in this case, as the sample does not provide the sufficient level of granularity. In this specific case, the characteristics of the projects make them more unique, and therefore less comparable with average comprehensive benchmarks.

Figure 14: Level 1 Road; 'All in' unit costs

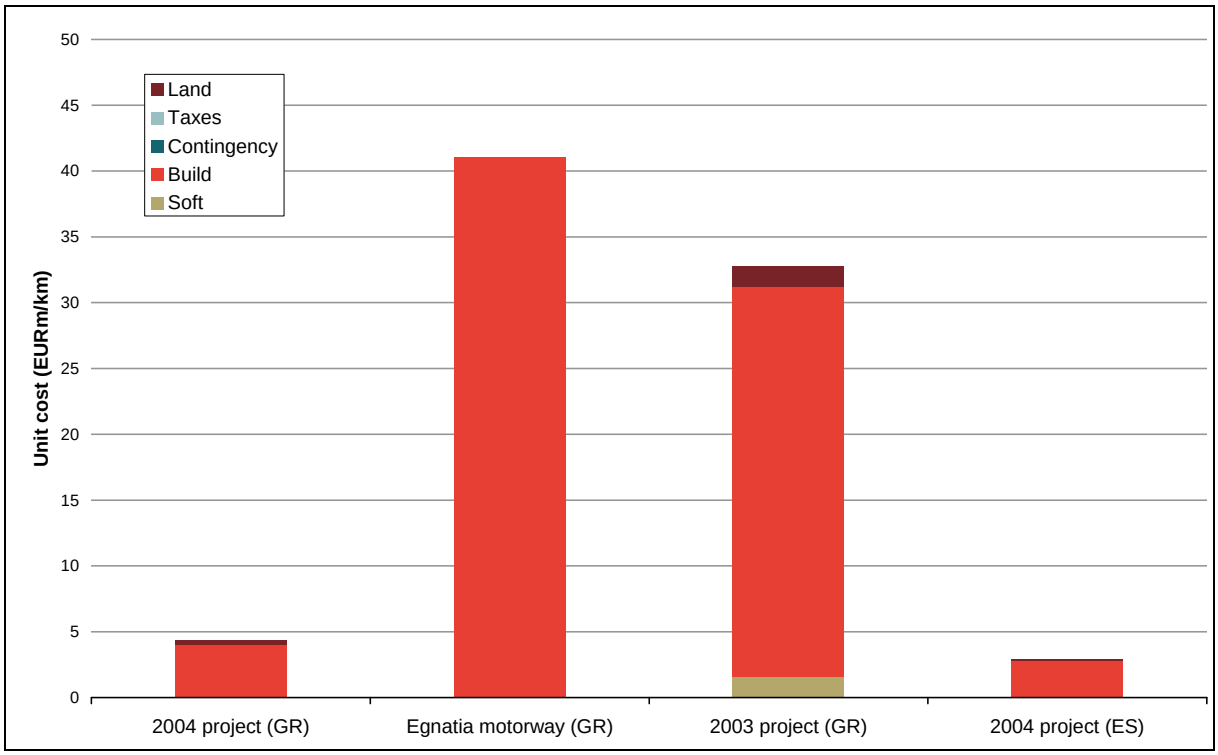


Figure 15: Level 1 Road: 'All in' unit cost – two carriageway two lane

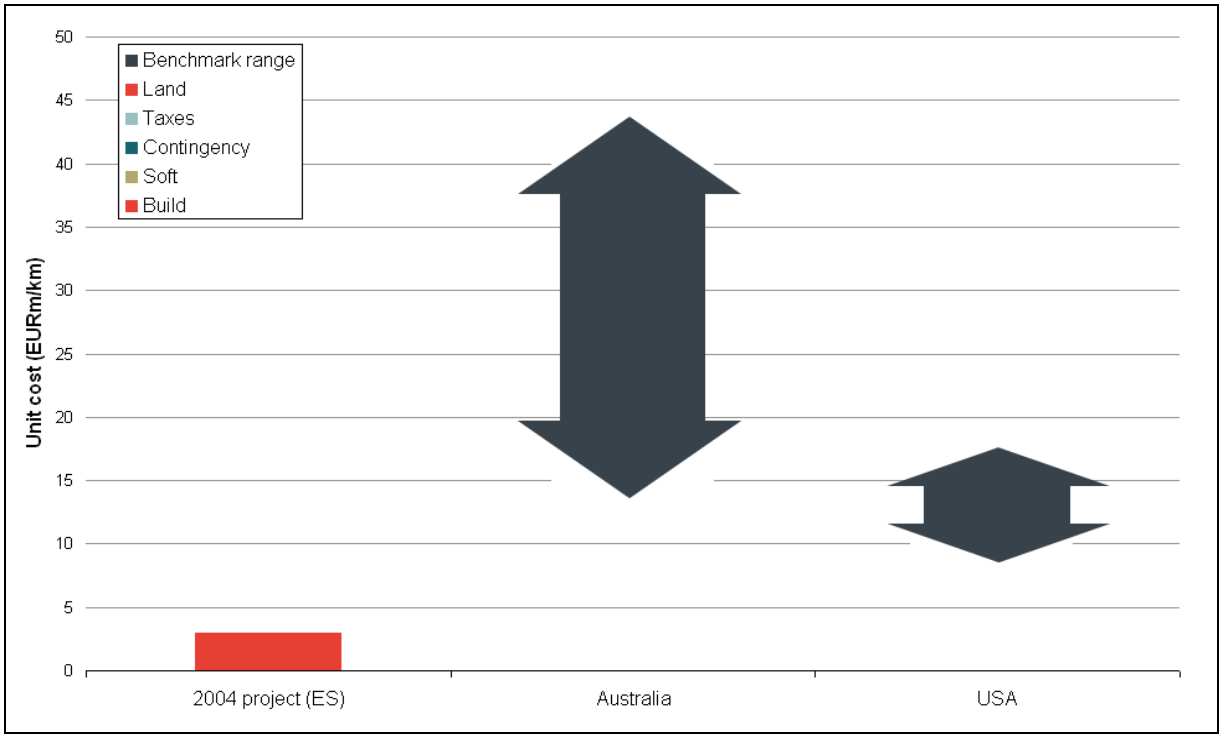
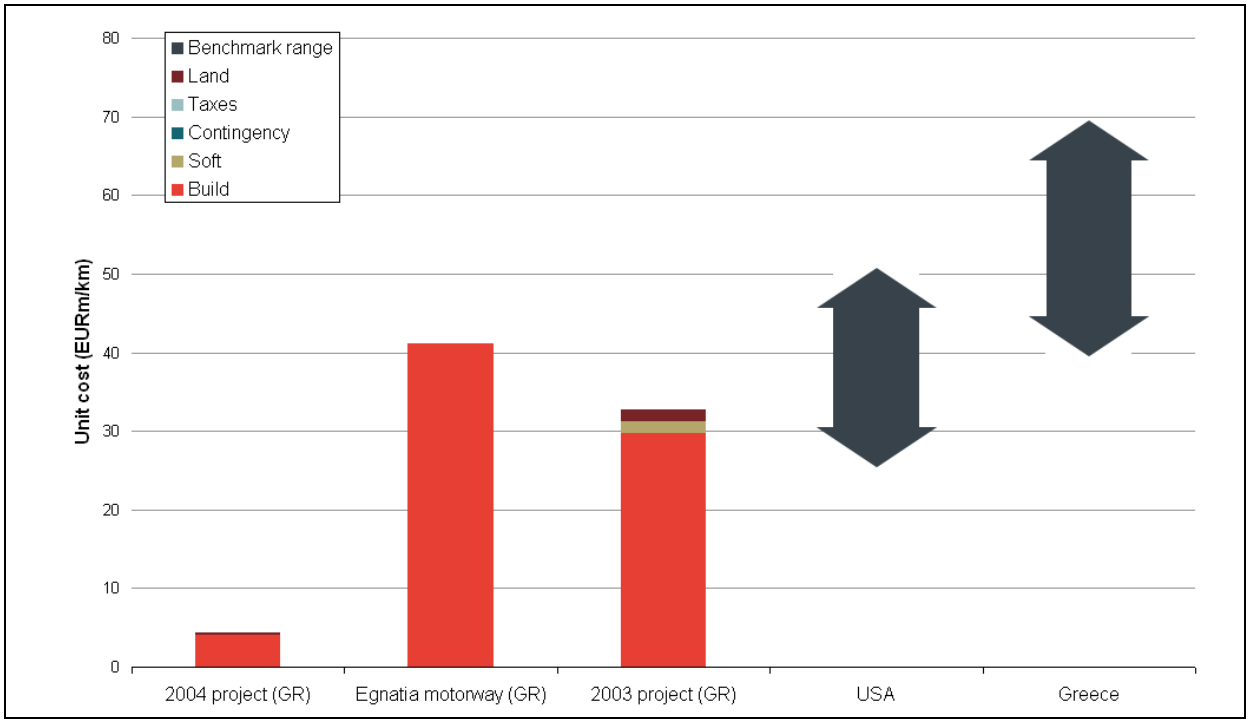


Figure 16: Level 1 Road: 'All in' unit cost – two carriageway three lane



Level 2

4.3.5. The following charts summarise some of the Level 2 unit cost for road projects. Specifically, Figure 18 provides a comparison of pavement work unit costs. Figure 19 illustrates the different unit costs for bridges and, finally, Figure 20 summarises the estimated unit costs for tunnels. Unfortunately, this information is not available for all projects in a consistent fashion.

Figure 17: Level 2 Road: unit 'build' cost of pavement work

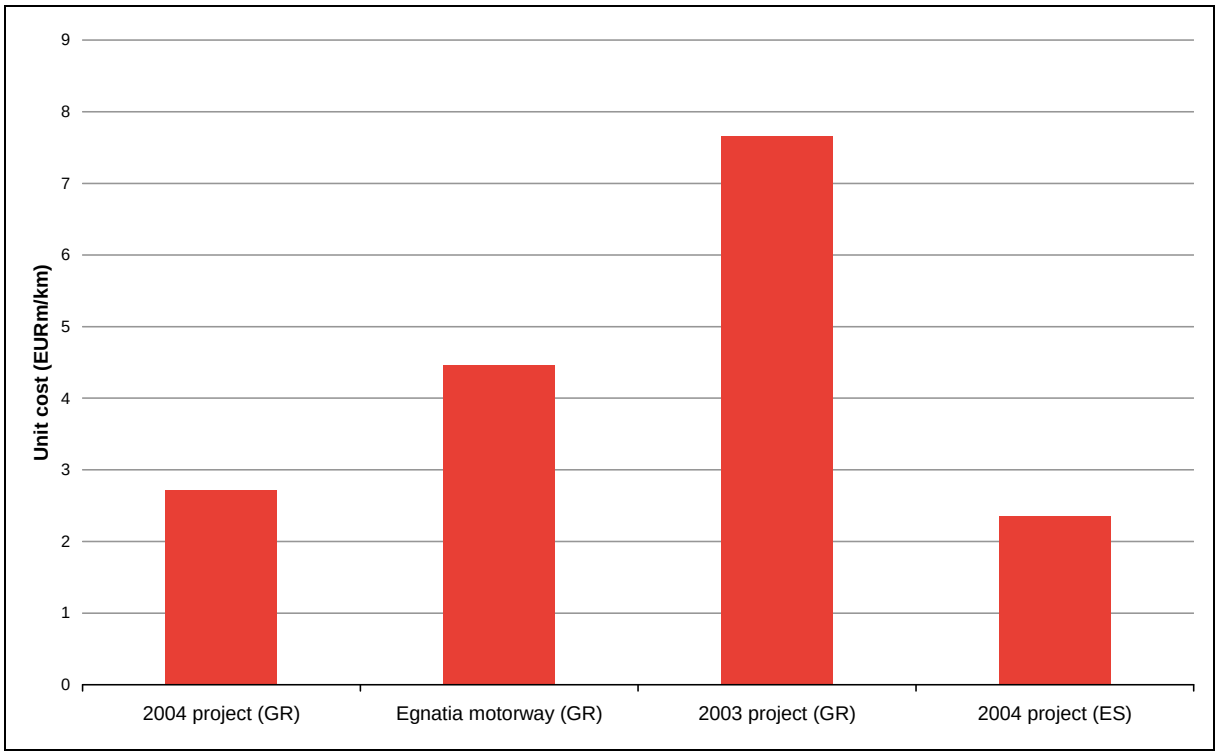


Figure 18: Level 2 Road: unit 'build' cost of bridges

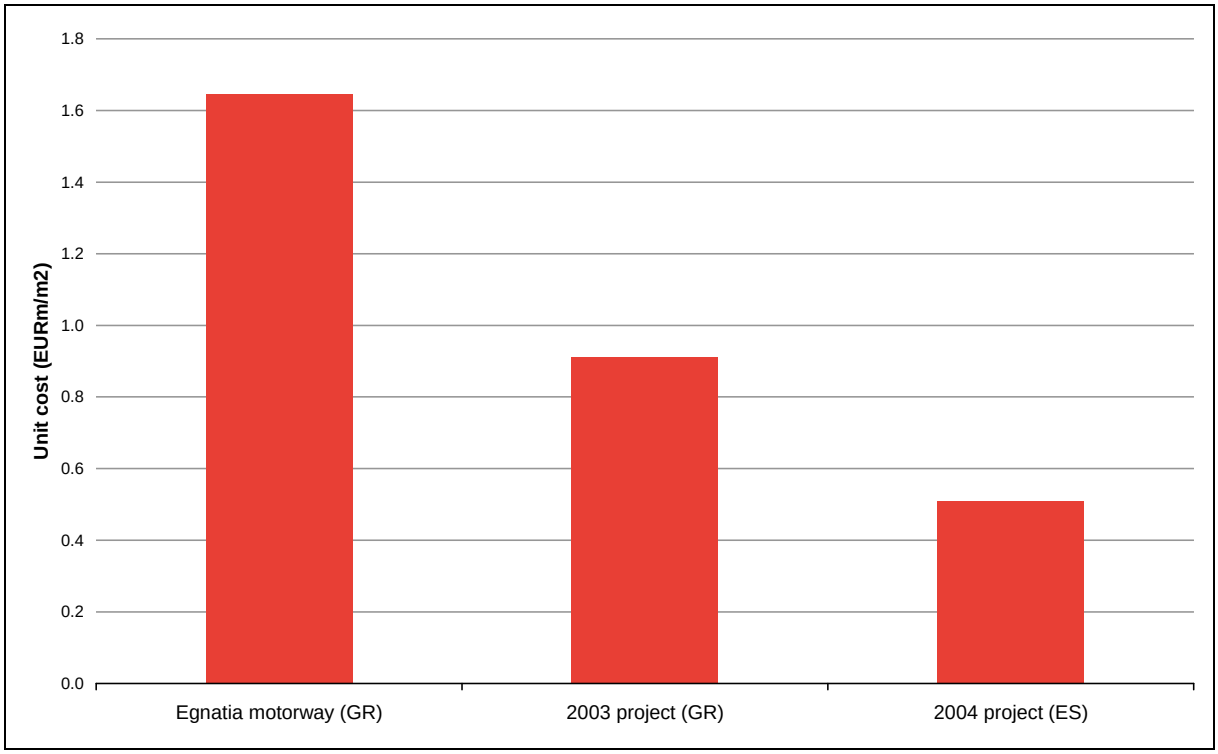
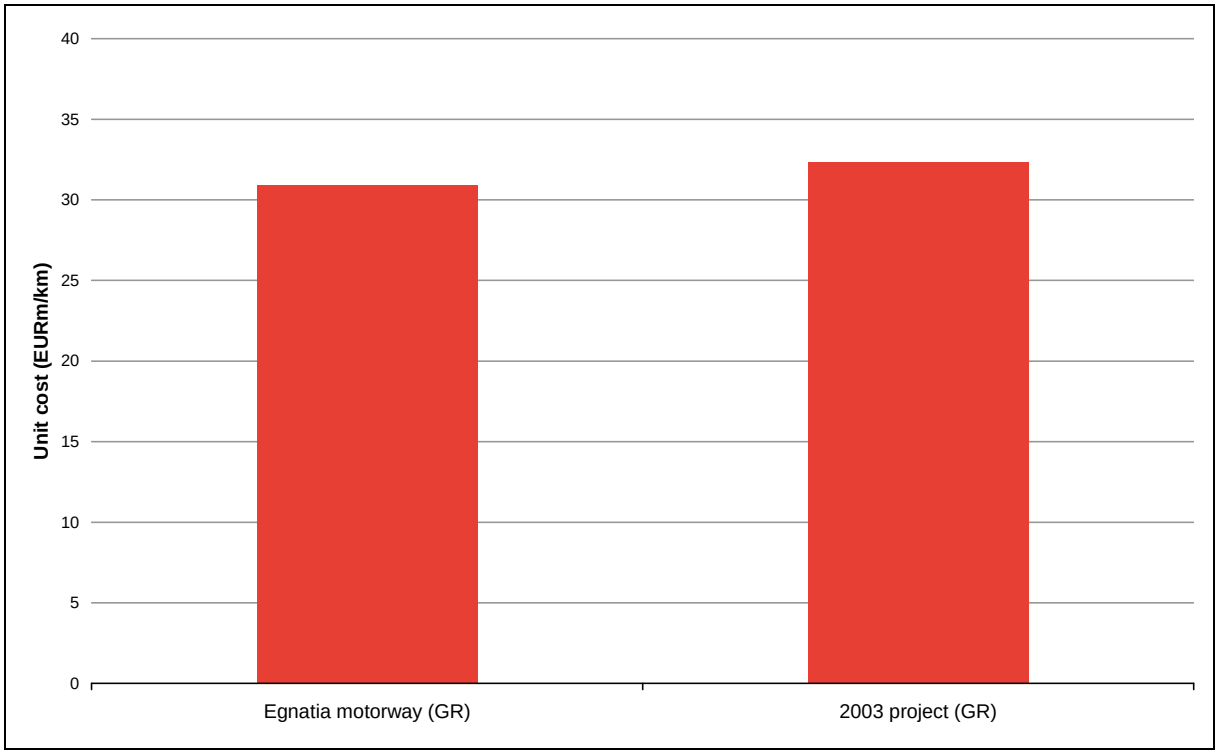


Figure 19: Level 2 Road: unit 'build' cost of tunnels



4.3.6. Also at this level, the different characteristics of these projects help explain at least part of the variability in unit costs. For example, as shown in Figure 19, it is to be expected that the unit cost of bridges in projects which are predominantly mountainous to be higher than for roads built on flat terrain.

Level 3

4.3.7. The following selection of charts provides an illustration of the unit costs for a very limited selection of level 3 unit costs. Unfortunately, the information available does not allow for a more comprehensive comparison at this level of granularity. Therefore, only the level 3 categories for there is meaningful comparable information are reported in this section.

Figure 20: Level 3 Road: unit 'build' cost of bridges - cantilever

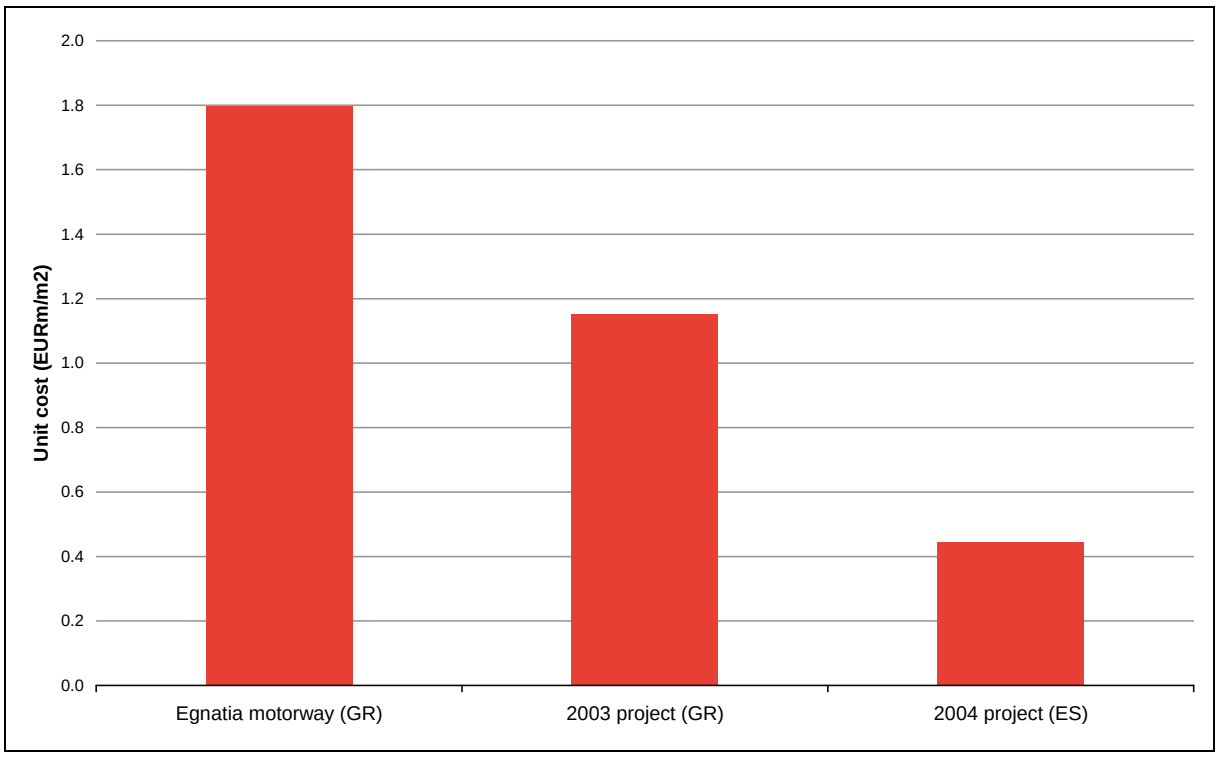
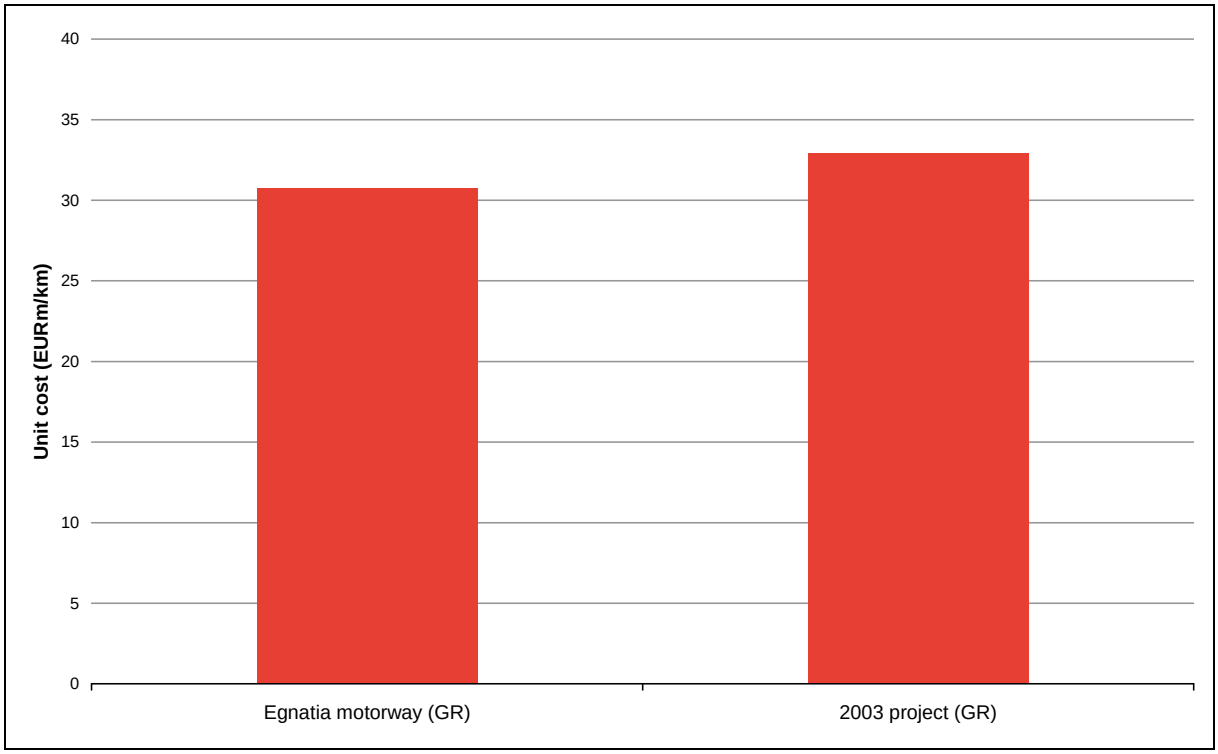


Figure 21: Level 3 Road: unit 'build' cost of bridge – cut and cover



4.4. Urban transport

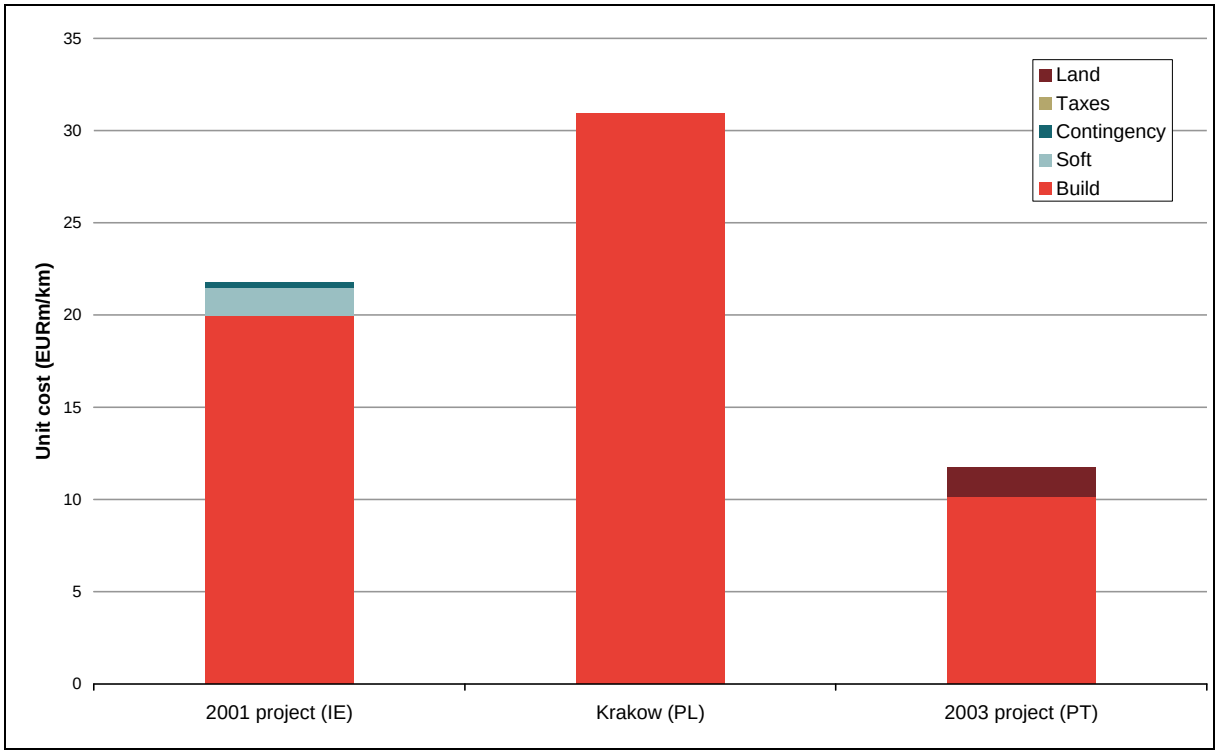
4.4.1. As for the other sectors, the following charts provide an illustration of the range of unit costs identified for these types of projects. Unfortunately, only a limited number of Urban transport projects are available for comparison at this stage. However, we expect that more information on these projects will be available in the next phase.

Level 1

4.4.2. Figure 22 compares the overall Level 1 unit costs for three urban transport projects. Unfortunately, on the basis of our current sample, no benchmarks appear to be directly comparable to the cost information available for these types of projects. Moreover, it has not been possible to break down this type of projects further and distinguish between metro and tramway projects.

4.4.3. Also in this case, the project unit costs show a high degree of variability. In particular, the Polish project was labelled 'complex', even if no further explanation appears to be available. This may explain the higher unit costs. Interestingly, however, the Irish project shows lower unit costs despite being described as 'very complex'. No details were provided for the last project.

Figure 22: Level 1 Urban Transport: 'All in' unit cost



Level 2

4.4.4. The available data on Level 2 costs for these projects only allow the comparison of two types of Level 2 categories. Specifically Figure 23 provides a comparison of the track unit costs, while Figure 24 illustrates the differences in station unit costs.

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Figure 23: Level 2 Urban transport: unit 'build' cost of trackwork

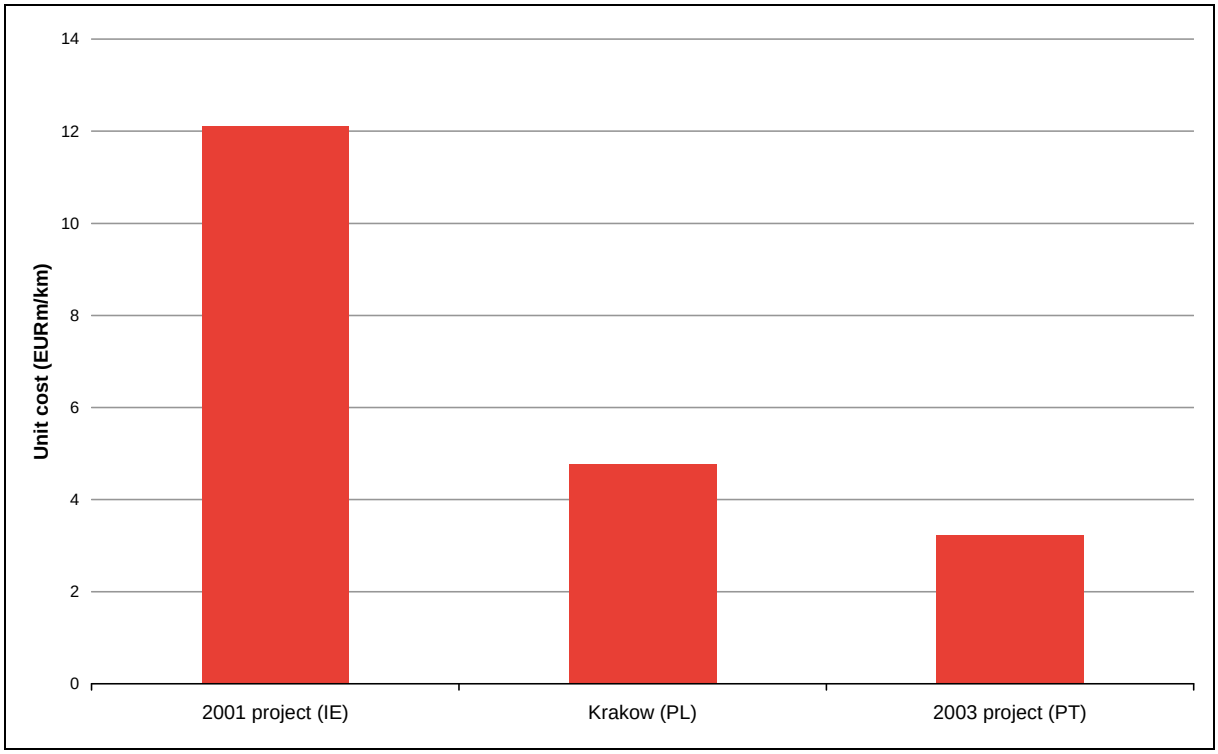
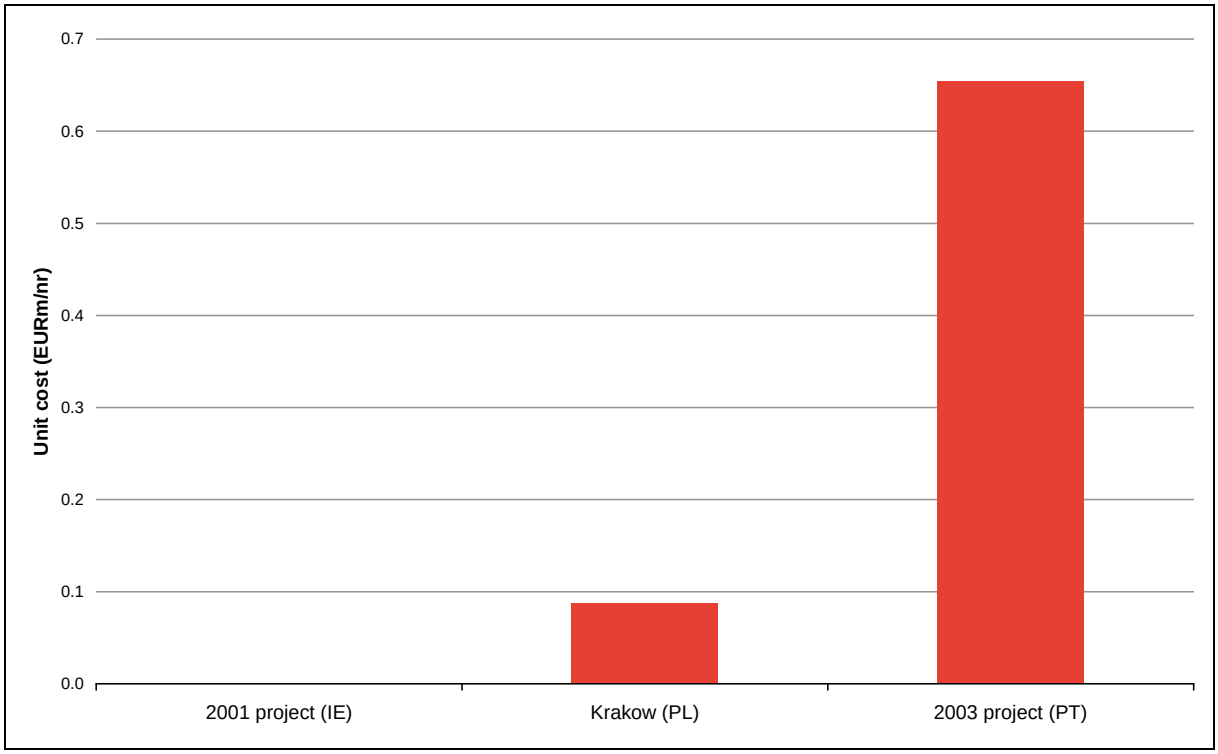


Figure 24: Level 2 Urban transport: unit 'build' cost of stations



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4.4.5. We note that the unit costs at Level 2 for trackwork appear to be more consistent with the stated level of complexity of each project. With regard to stations, no

information was provided to allow us to justify the much higher unit costs for the Portuguese projects.

4.4.6. No Level 3 data were available that would allow for a consistent set of comparisons for the urban transport projects currently available in the dataset.

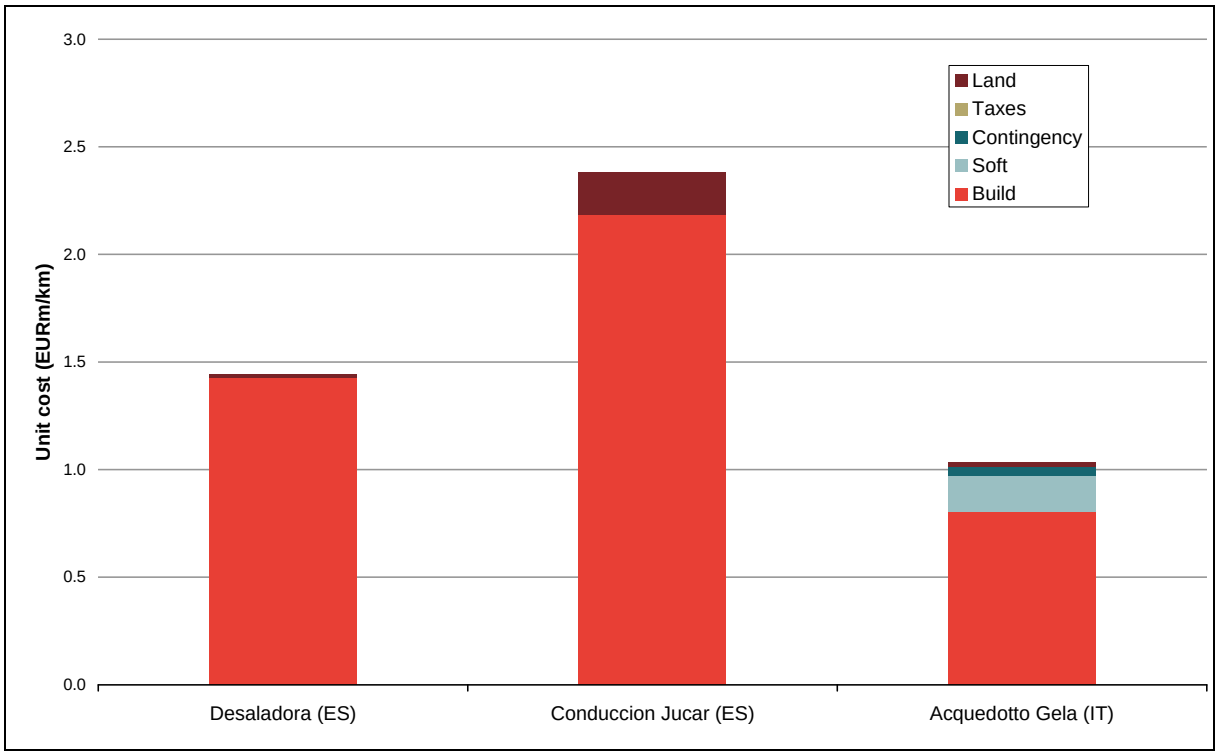
4.5. Water

4.5.1. Finally, as for the previous sectors, the following charts provide an illustration of the range of unit costs identified for this type of projects. As for Urban Transport, the number of projects available for comparison is limited.

Level 1

4.5.2. Figure 26 compares the overall Level 1 unit costs for three water projects. At this stage, no project in the sample appeared to be directly comparable with the benchmarks for these types of projects.

Figure 25: Level 1 Water: 'All in' unit costs



Level 2

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4.5.3. Only two types of level 2 Water projects unit costs were available for comparison. Specifically Figure 27 provides a comparison of the land unit costs, while Figure 28 illustrates the differences in the unit costs associated with water supply.

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Figure 26: Level 2 Water: unit cost of land

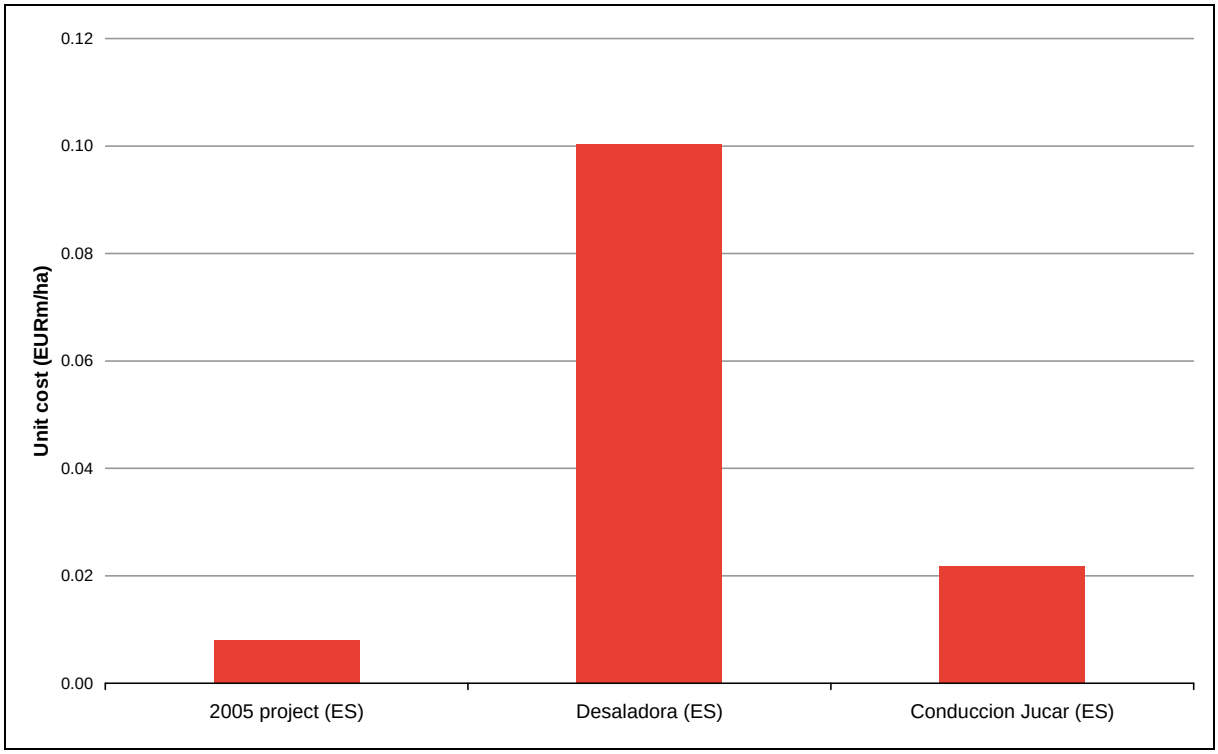
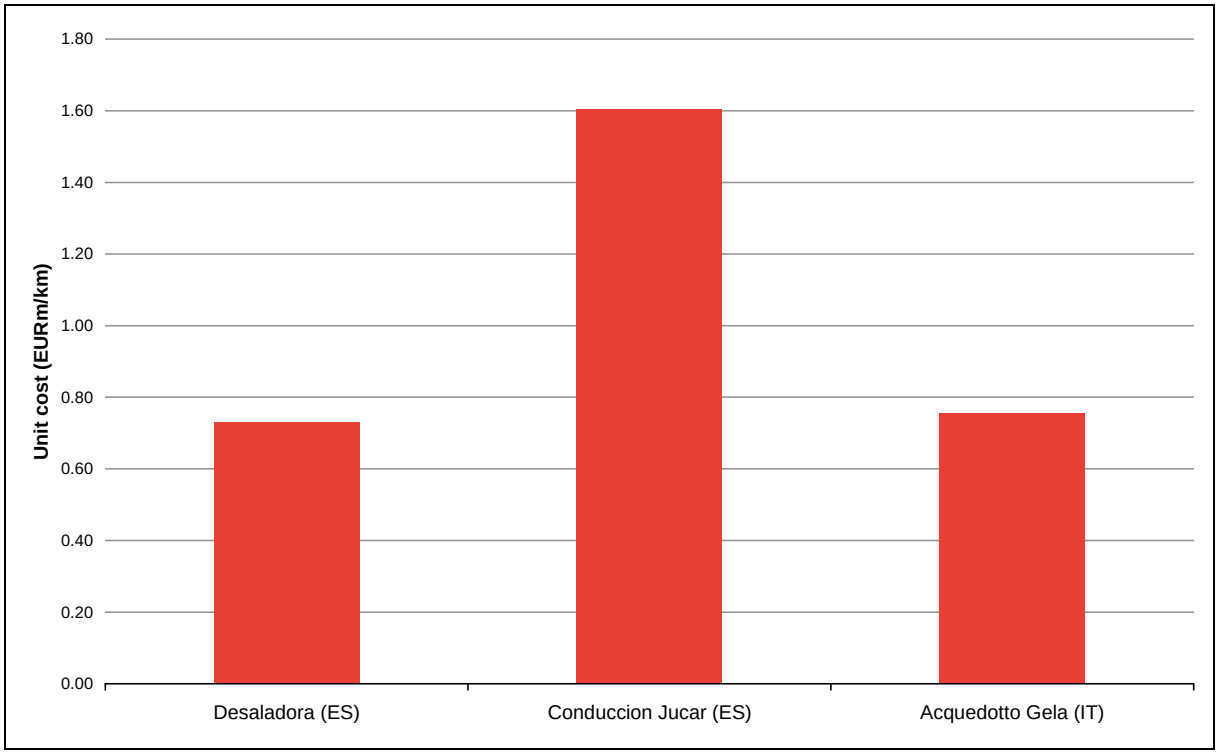


Figure 27: Level 2 Water: unit cost of water supply



4.5.4. No Level 3 data were available for a consistent set of comparisons for the water projects currently available in the dataset.

4.6. Average completion times

4.6.1. Table 13 provides a summary of the estimated average completion times for projects in Rail, Road and Urban Transport. The table presents the estimated completion times for the different typical phases of each project as well as the total completion time. Please note that the total average completion times reported in the table are an average of the completion times of individual projects, rather than the sum of the average completion times for each project phase.

4.6.2. In order to make the results comparable within each sector and across sectors, the estimated completion times have been measured in months per kilometre.. Finally, the table also provides the average estimated completion time across all three sectors.

Table 13: Estimated project completion times (months per kilometre)

Project phase	Rail	Road	Urban transport	Average
Planning	1.8	4.1	2.6	2.9
Funding	0.9	0.6	1.0	0.8
Permissions	1.2	0.6	1.6	1.1

Site preparation	0.5	0.6	1.0	0.7
Construction	2.5	5.6	1.9	3.3
Testing	0.4	n/a	0.3	0.4
TOTAL	7.0	9.0	7.6	7.9

5. Infrastructure: Actual unit costs and completion times

5.1. Introduction

5.1.1. This Section presents the actuals for the unit cost indicators set out in subsection 3.4 above. Whenever possible, the actual Level 1 unit costs are compared with the relevant benchmarks identified in the first Interim Report. All cost data have been converted into 2007 prices, to make them comparable.

5.1.2. The structure of this section mirrors that of Section 4 above, to facilitate comparison of the results. Also in this case, the data for some projects is missing. However, we have attempted to provide the corresponding information to that provided in Section 4. We have kept the same structure for all the charts, even though this has implied that, for some projects, no data is actually shown.

5.1.3. As for the estimated costs, whenever possible, the actual Level 1 unit costs are compared with the relevant benchmarks identified in the first Interim Report. As noted in section. In line with the normalisation of estimated unit costs, the data presented in this section have been converted into 2007 prices to make the comparable.

5.1.4. Likewise, this section also presents a summary of the average actual project completion times (in months per kilometre) for each group of projects. Whenever possible, we have presented this information by project phase, namely Planning, Funding, Permissions, Site preparation, Construction and Testing.

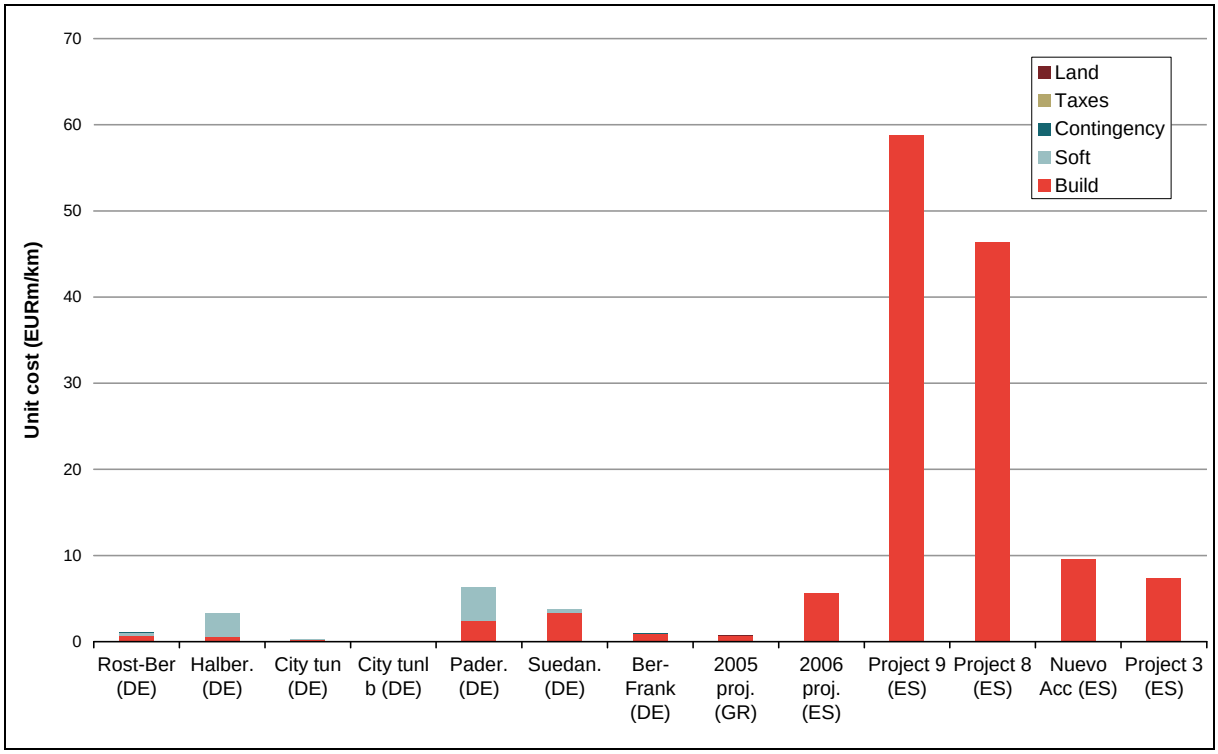
5.2. Rail

Level 1

5.2.1. Figure 28 provides a comparison of the Level 1 'all-in' unit costs of all rails projects, including, whenever possible, a breakdown of the categories of cost included in the 'all in' cost of the project. At this stage, unfortunately, this information is not available for all projects in a consistent fashion.

5.2.2. In general, the variance of the actual unit costs presented in this Section tends to mirror the variance of the estimated unit costs illustrated in Section 4. In the specific case of Figure 28, the higher unit costs for the two Spanish Rail projects are probably due to the fact that these projects have been carried out in an entirely mountainous terrain, which required a significant amount of tunnelled sections.

Figure 28: Level 1 Rail: 'All in' unit costs



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5.2.3. In Figure 30 and Figure 31, we present Level 1 data only for similar types of projects. Specifically, Figure 30 shows the unit cost for two single track rail projects. Figure 31 instead shows the comparison of unit costs for twin track projects. This chart also includes some of the benchmarks for this type of projects, as identified in the First Interim Report.

Figure 29: Level 1 Rail: 'All in' unit cost – single track group

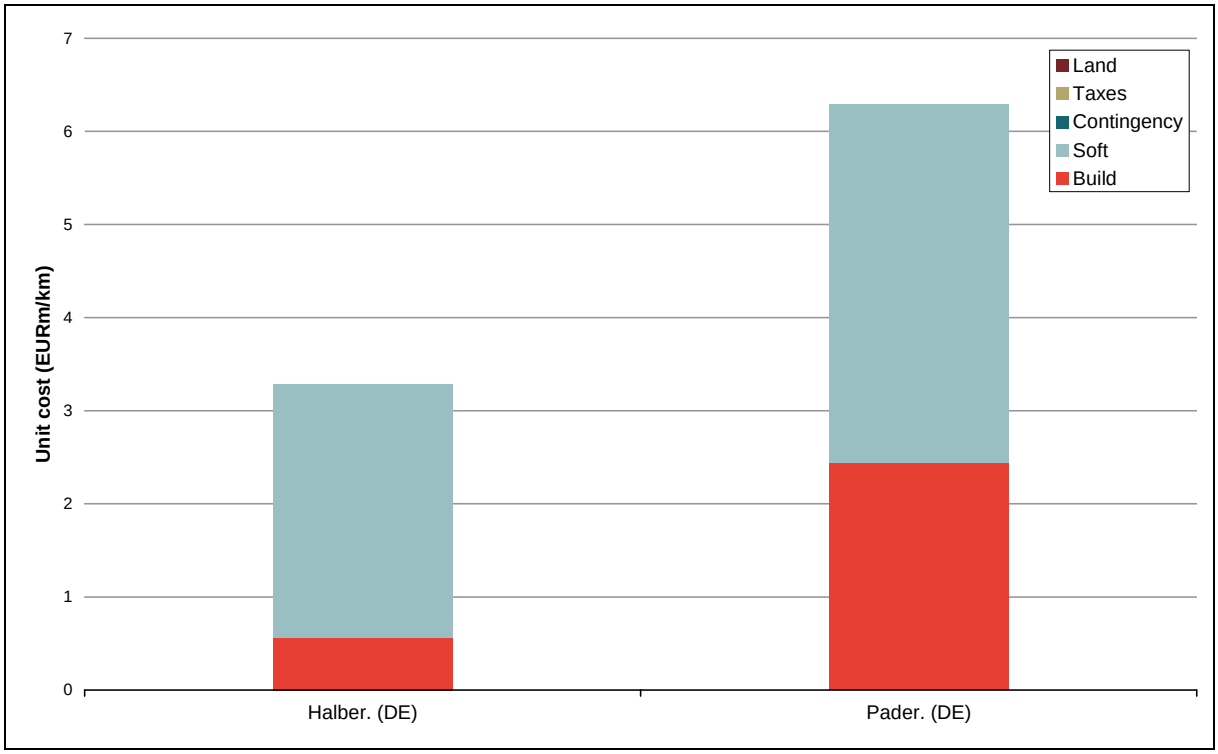
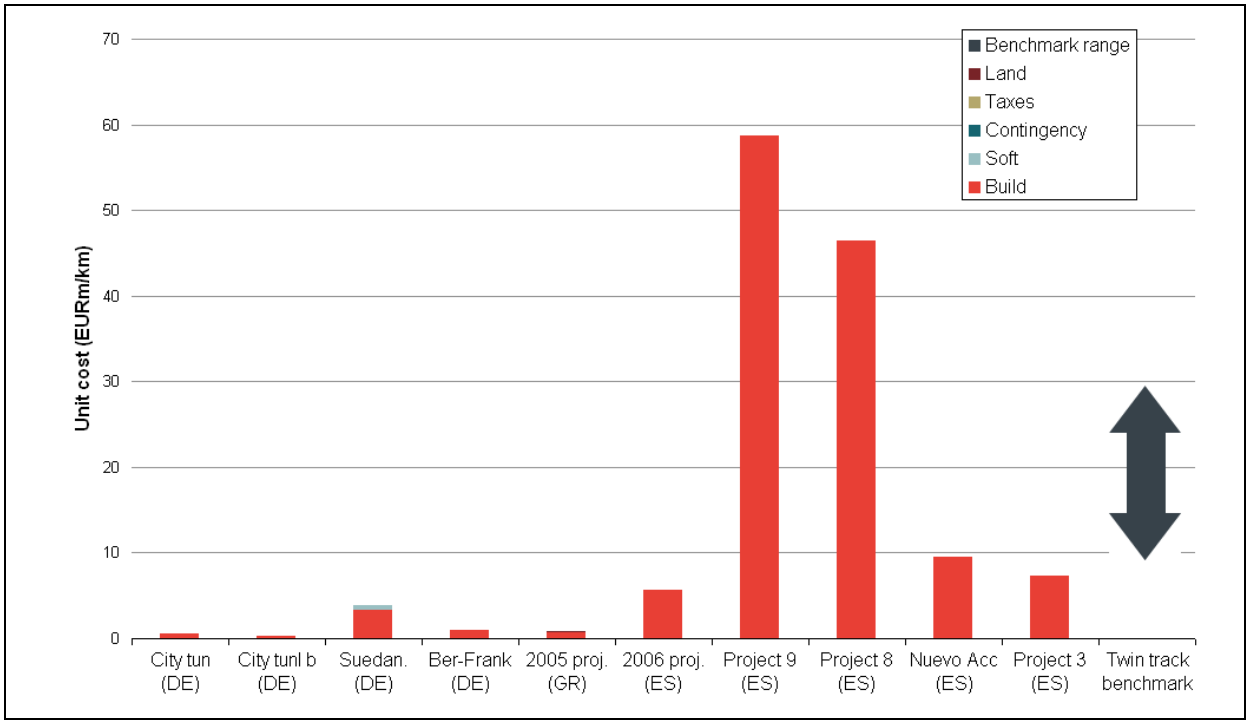


Figure 30: Level 1 rail: 'All in' unit cost – twin track group



5.2.4. The expected Level 1 unit costs for most twin track projects are below the lower bound of the benchmark range identified for this type of project. The only exceptions are two of the Spanish projects, due to the complexity of these projects.

Level 2

5.2.5. The following charts show a comparison of some of the Level 2 Build unit costs for Rail projects. Specifically, these are the unit costs for trackwork and bridges. With respect to the previous section, no information on Level 2 unit costs for station was available for the projects in our dataset. Each chart summarises all the information available for its specific Level 2 unit costs. As noted, the same information is not always available for all projects. This can be seen in both charts, where several bars have been left blank due the lack of reliable data.

Figure 31: Level 2 Rail: unit 'build' cost of trackwork

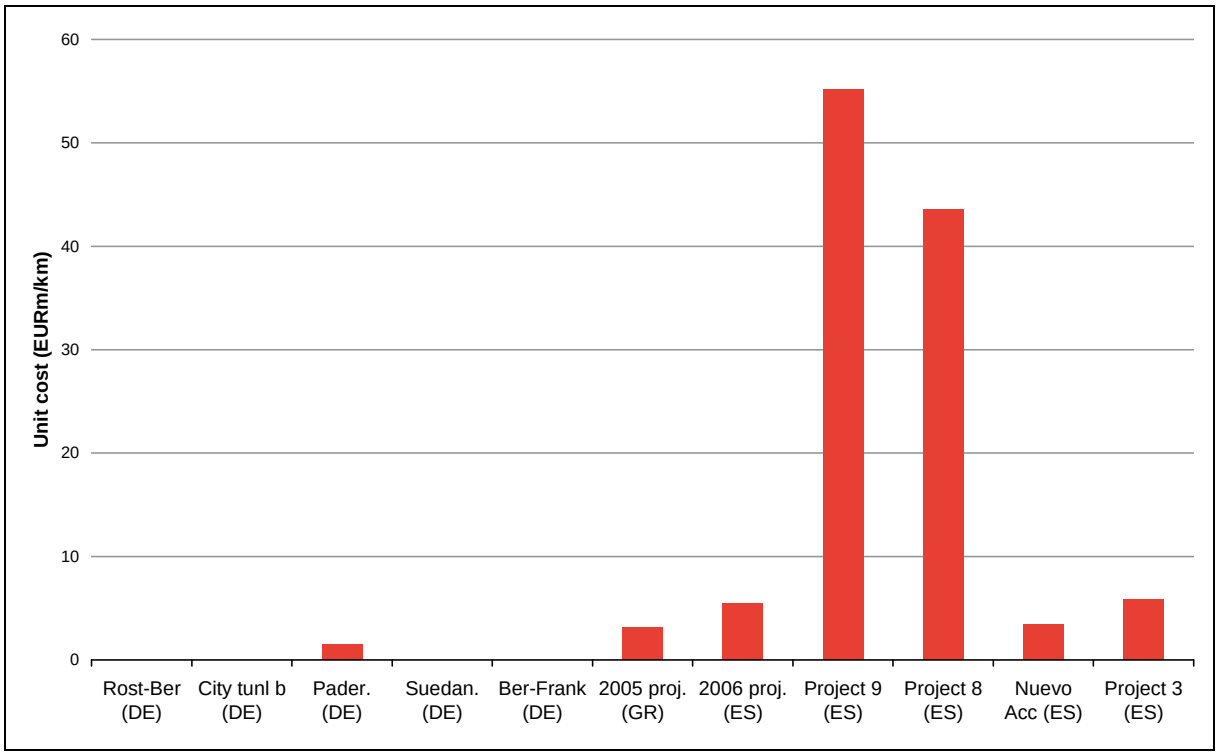
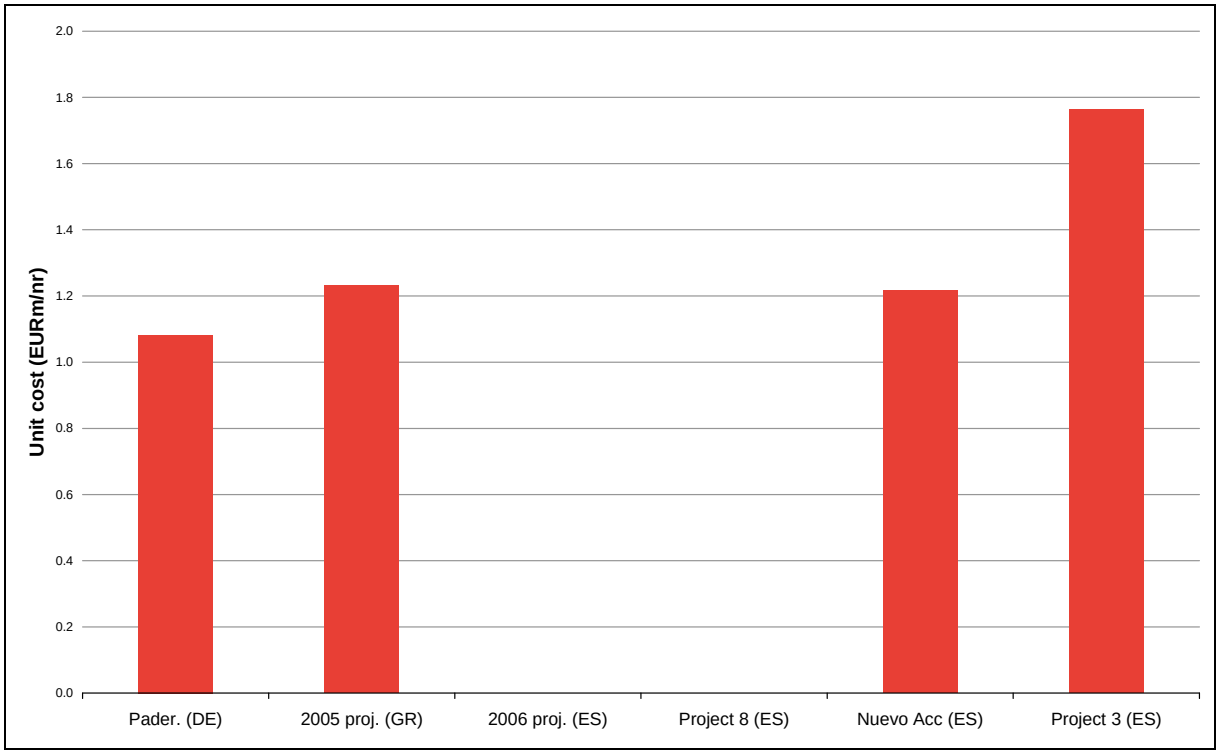


Figure 32: Level 2 Rail: unit 'build' cost of bridges



Level 3

5.2.6. Lastly, the following selection of charts provides an illustration of the unit costs for a limited selection of level 3 unit costs.. Only the level 3 categories for which there is meaningful comparable information are reported in this section. These are the unit costs for single rail track at grade, and for twin track at grade, elevated and in tunnel, and for beam bridges.

5.2.7. As for estimated unit costs, the differences between the actual unit costs of these projects are, in some cases, large. Unfortunately, the information we have been able to gather so far does not yet enable us to provide a satisfactory explanation for these differences.

Figure 33: Level 3 Rail: unit 'build' cost of single track at grade

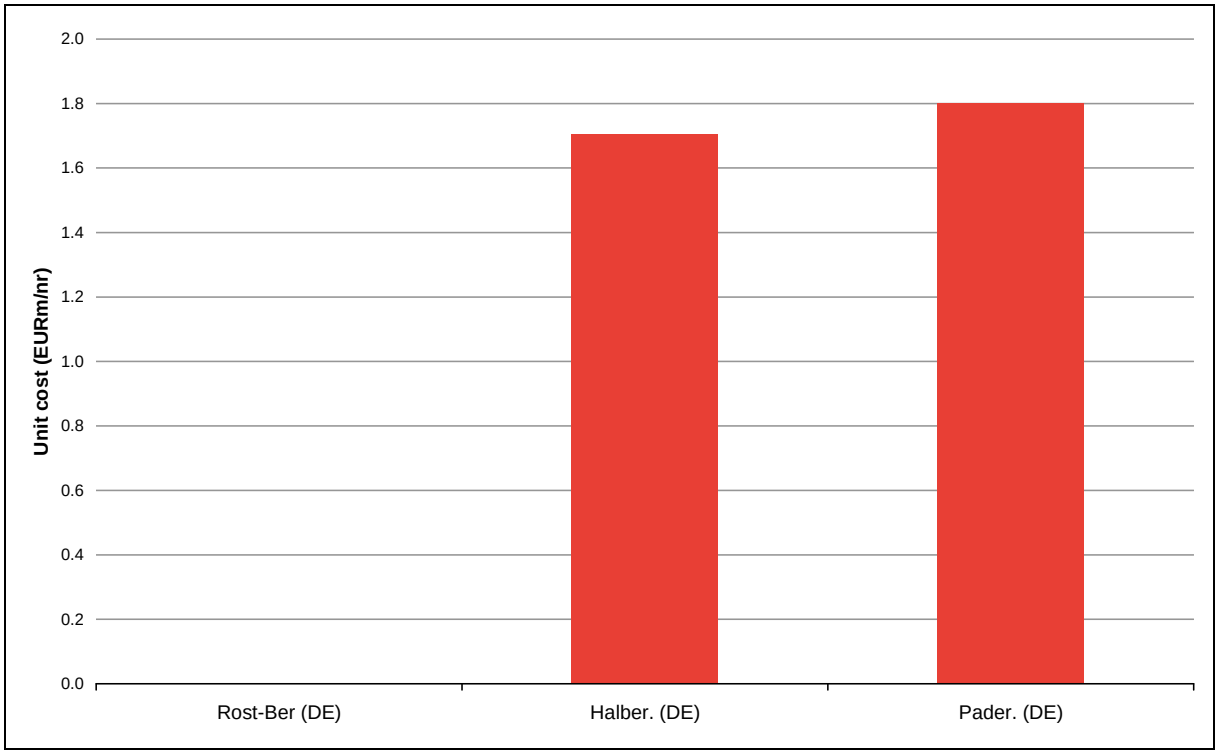


Figure 34: Level 3 Rail: unit 'build' cost of twin track at grade

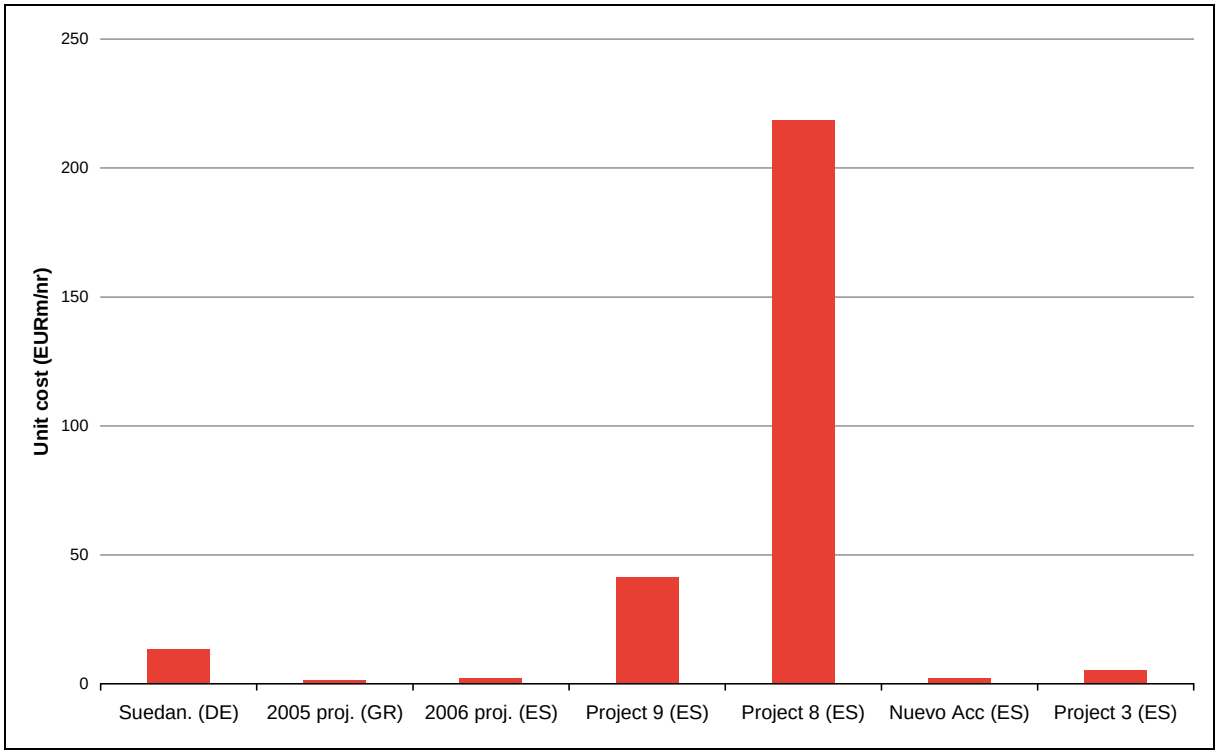


Figure 35: Level 3 Rail: unit 'build' cost of elevated twin track

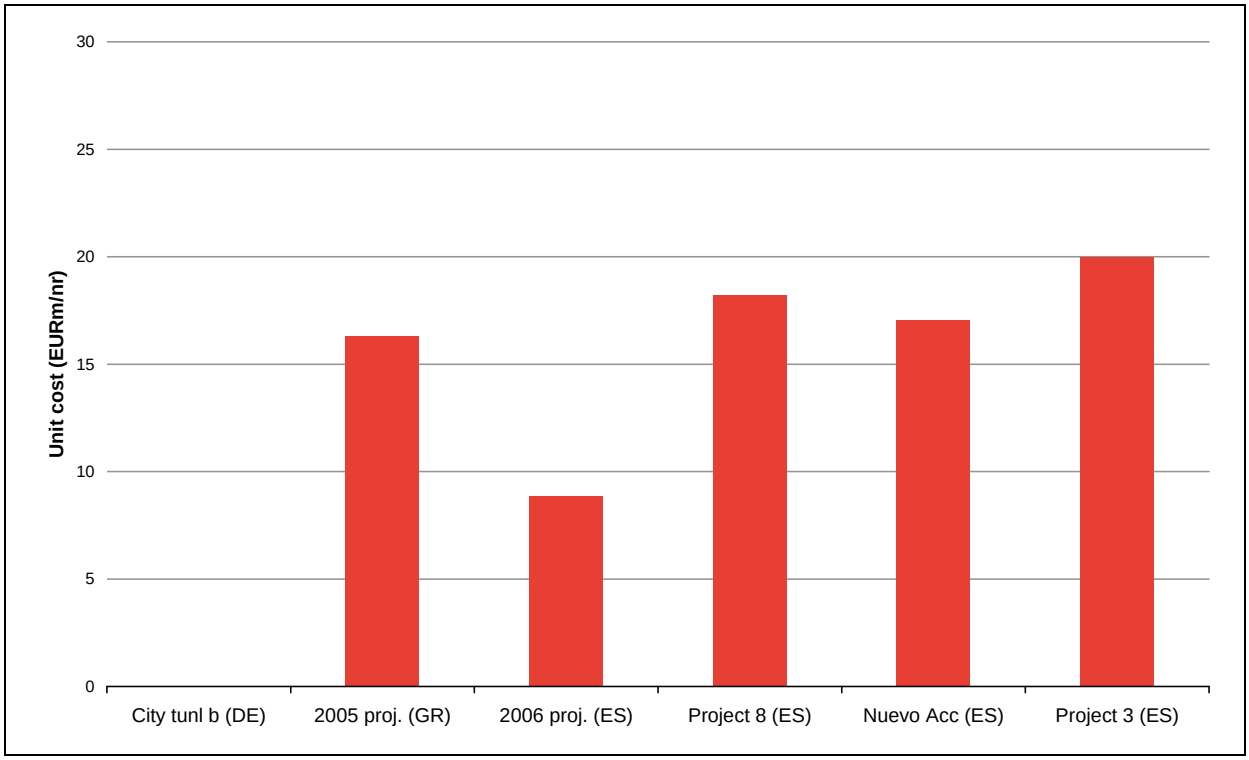


Figure 36: Level 3 Rail: unit 'build' cost of twin track in tunnel

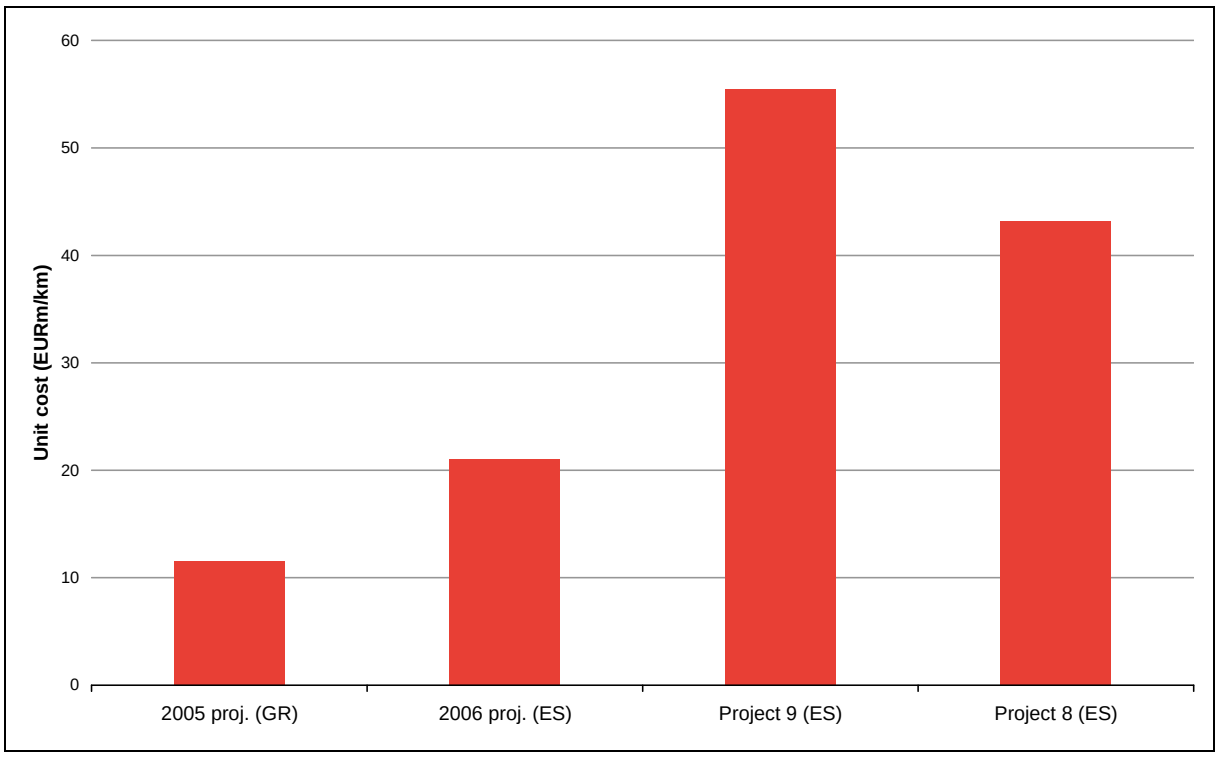
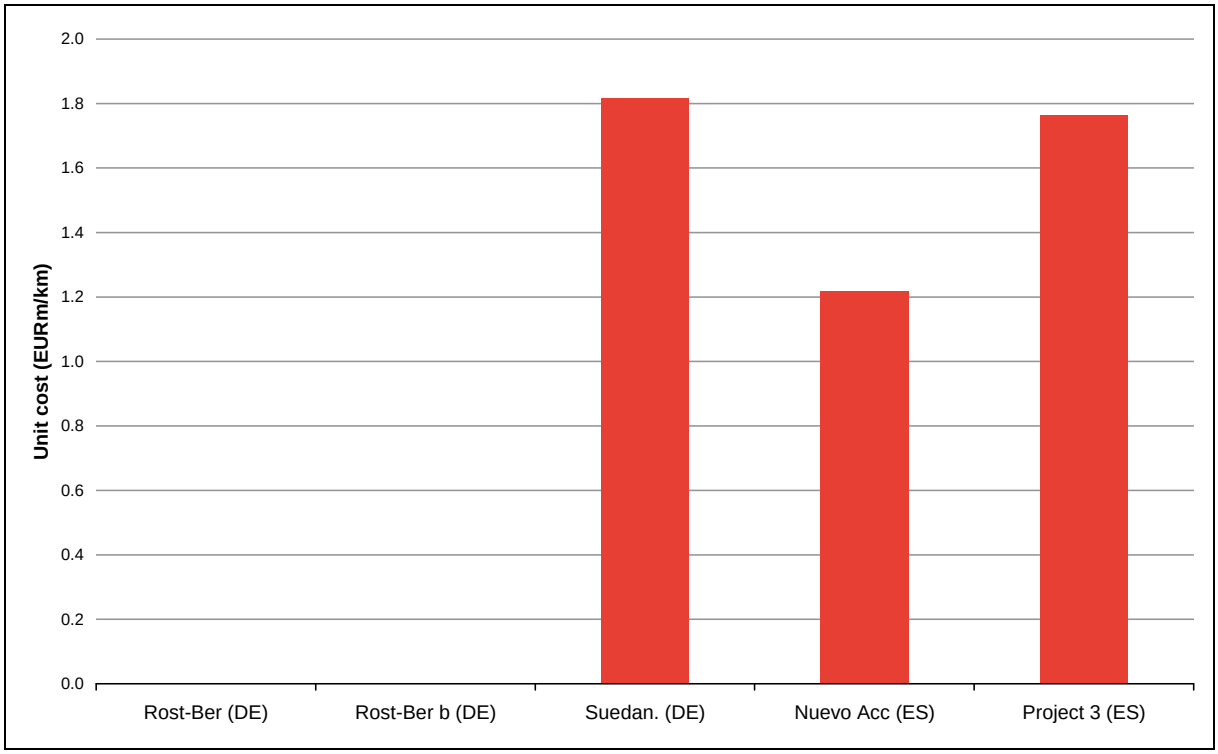


Figure 37: Level 3 Rail: unit 'build' cost of beam bridges



5.3. Road

5.3.1. In this section, we present unit cost information for four road projects. This ensure consistency with the data shown in the previous section. As for the Rail sector, the following charts provide an illustration of the range of unit costs identified for this type of projects

Level 1

5.3.2. The following charts provide an illustration of the Level 1 'All in' unit cost for Road projects. In Figure 38, all Level 1unit costs are compared, while in the following two charts the projects are separated according to their characteristics and compared with international benchmarks.

5.3.3. Consistently with the estimated unit costs, the Greek road projects that were characterised as complex show higher unit costs. However, we note that while the estimated unit cost for the Egnatia motorway project was over 41 EURm/km, the outturn unit costs was approximately 15 EURm/km. Unfortunately, the data we have collected so far does not provide an insight on the reasons for this discrepancy.

5.3.4. Due to the lack of projects in the dataset at this stage, the comparison with benchmarks does not appear to offer meaningful insights. This is due to the lack of granularity in the sample, which provides only information for few very specific projects.

Figure 38: Level 1 Road: 'All in' unit costs

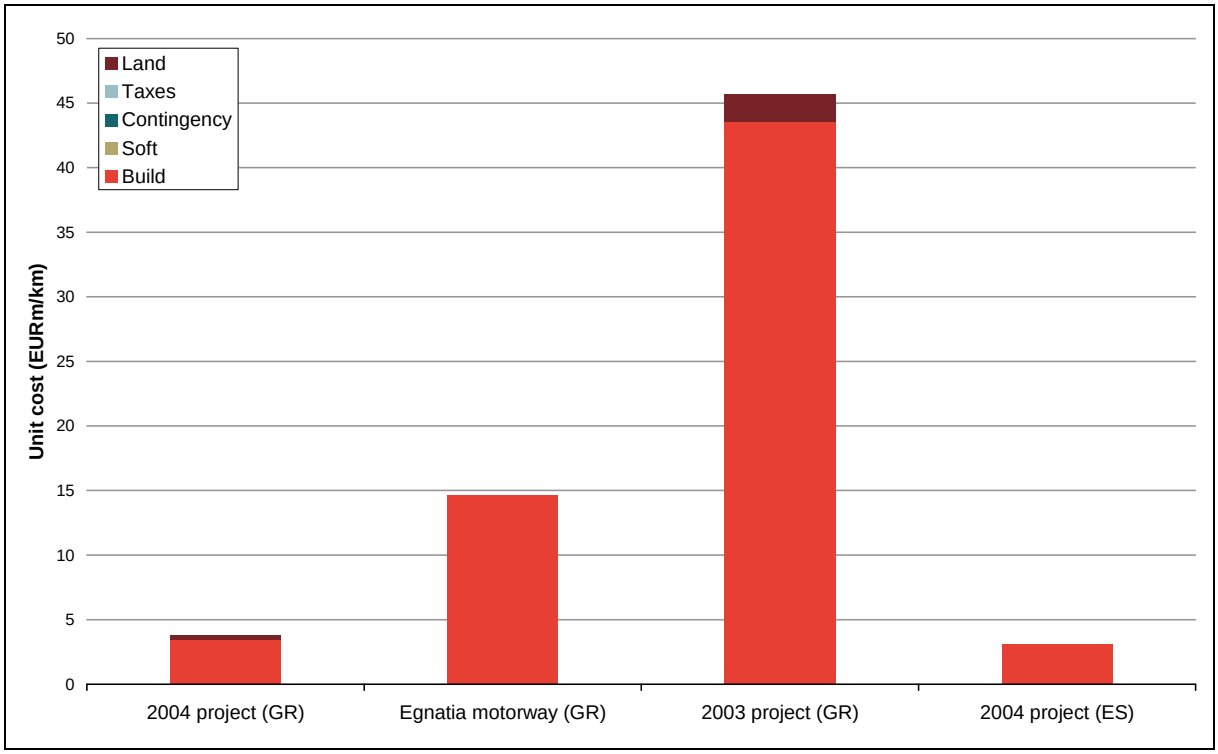


Figure 39: Level 1 Road: 'All in' unit cost – two carriageway two lane

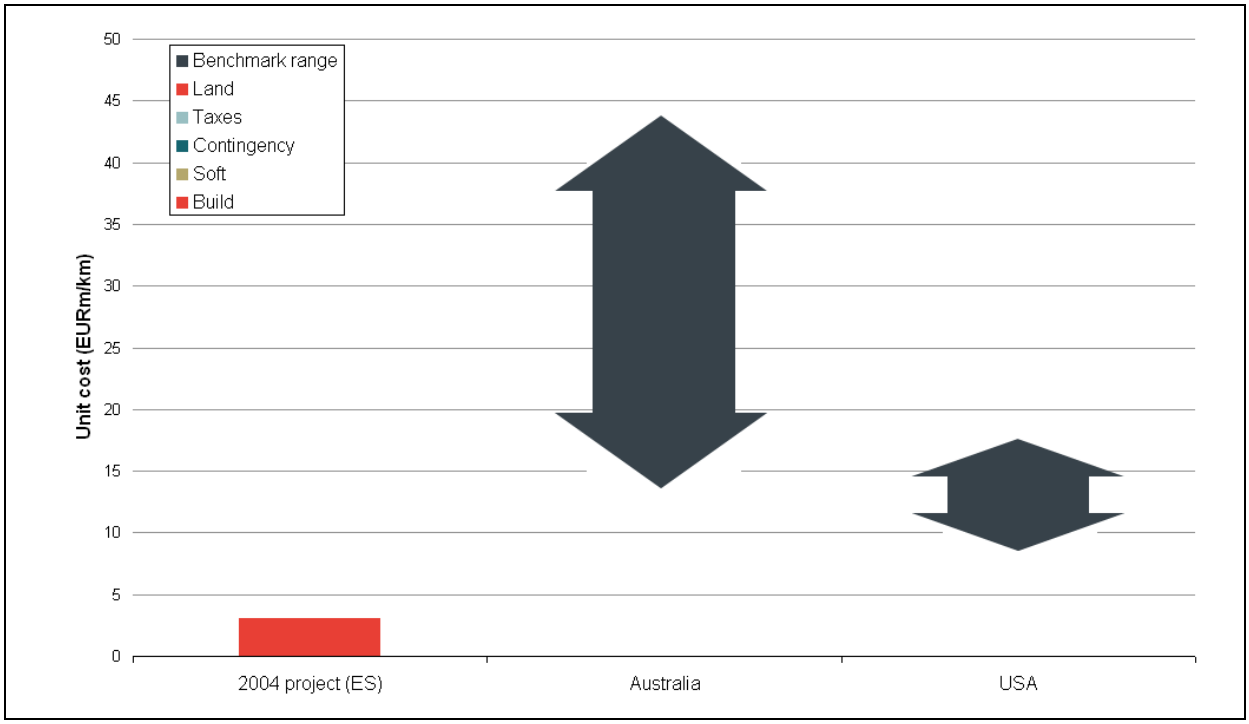
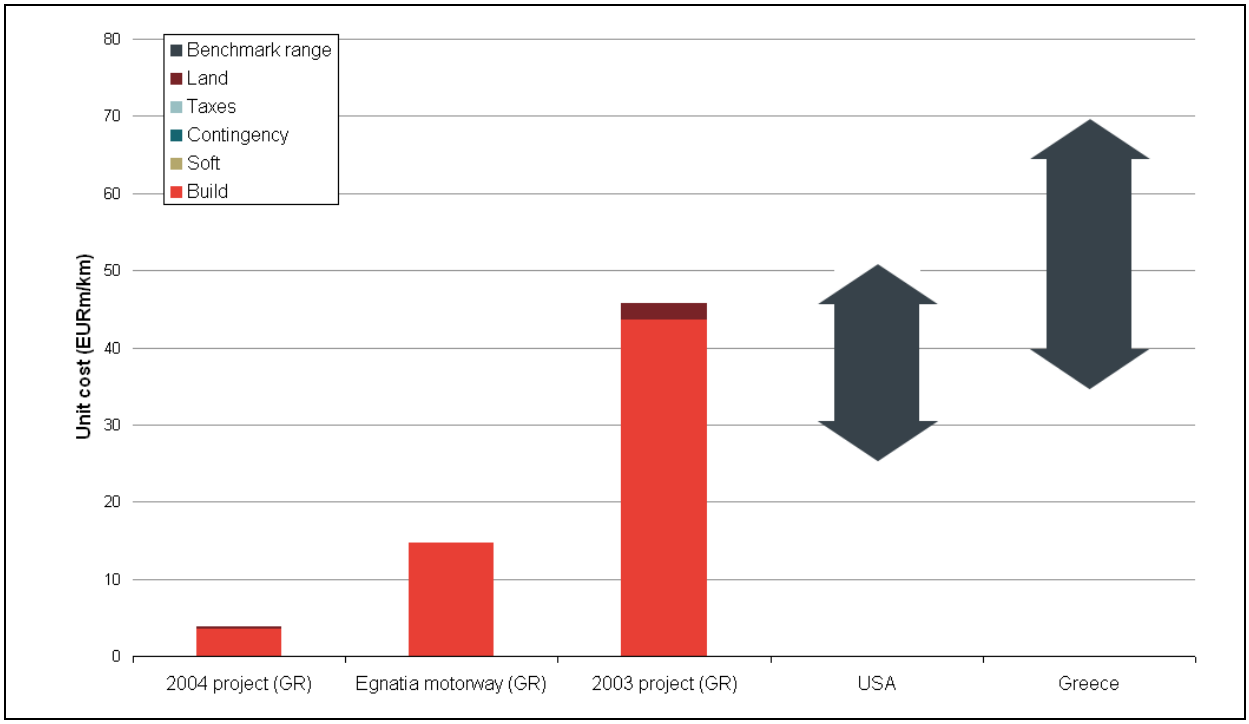


Figure 40: Level 1 Road: 'All in' unit cost – two carriageway three lane



Level 2

5.3.5. The following charts summarise some of the Level 2 unit cost for road projects. Specifically, Figure 41 provides a comparison the unit cost for pavement work, Figure 42 illustrates the different unit costs for bridges and, finally, Figure 43 summarises the estimated unit costs for tunnels. Unfortunately, this information is not available for all projects in a consistent fashion.

Figure 41: Level 2 Road: unit 'build' cost of pavement work

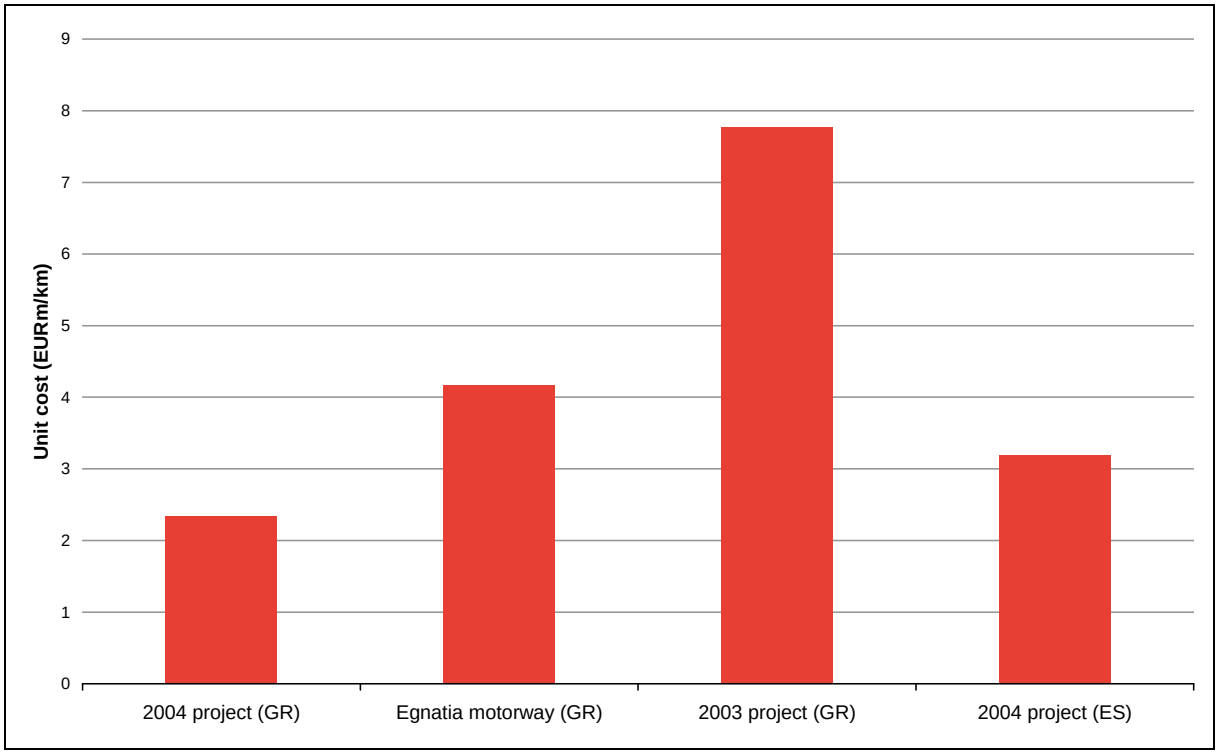


Figure 42: Level 2 Road: unit 'build' cost of bridges

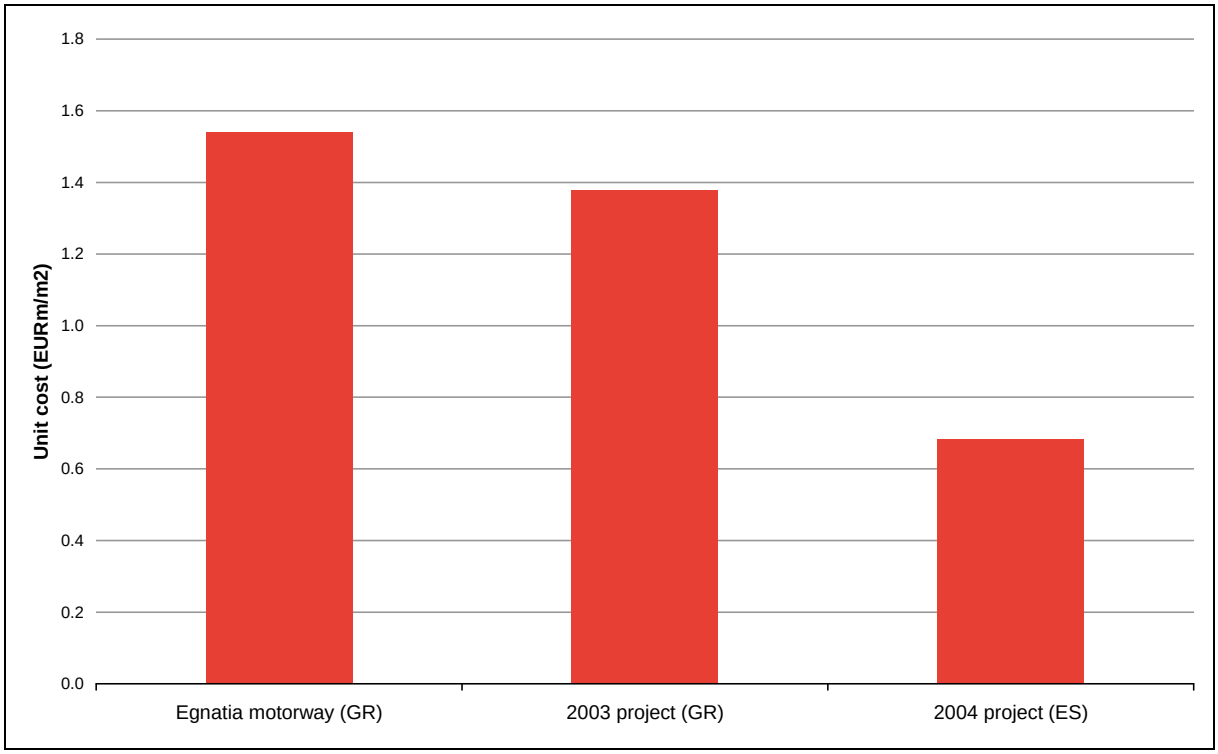
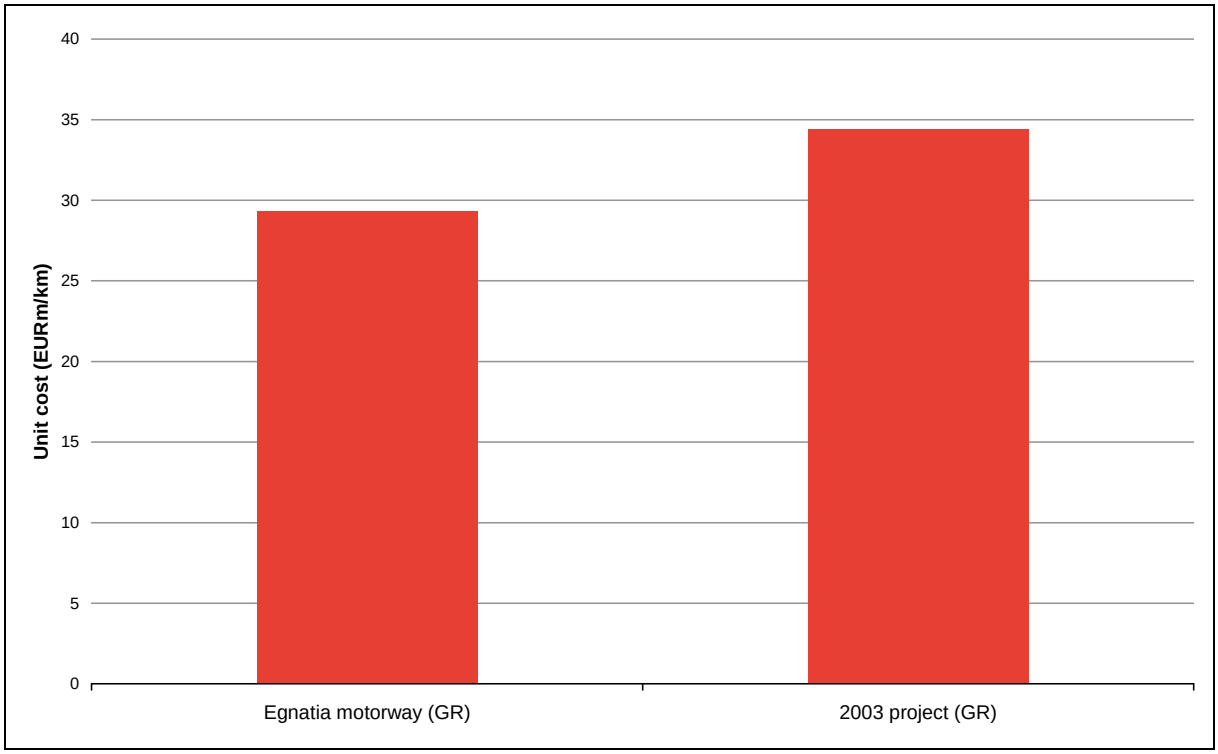


Figure 43: Level 2 Road: unit 'build' cost of tunnels



5.3.6. The relative magnitude of these Level 2 unit costs appear to be consistent with the Level 1 'all in' unit costs presented above.

Level 3

5.3.7. To conclude, the following selection of charts provides an illustration of the unit costs for a limited selection of Level 3 unit costs. Unfortunately, the information available does not allow for a more comprehensive comparison at this level of granularity. Therefore, only the level 3 categories for there is meaningful comparable information are reported in this section.

Figure 44: Level 3 Road: unit 'build' cost of bridges - cantilever

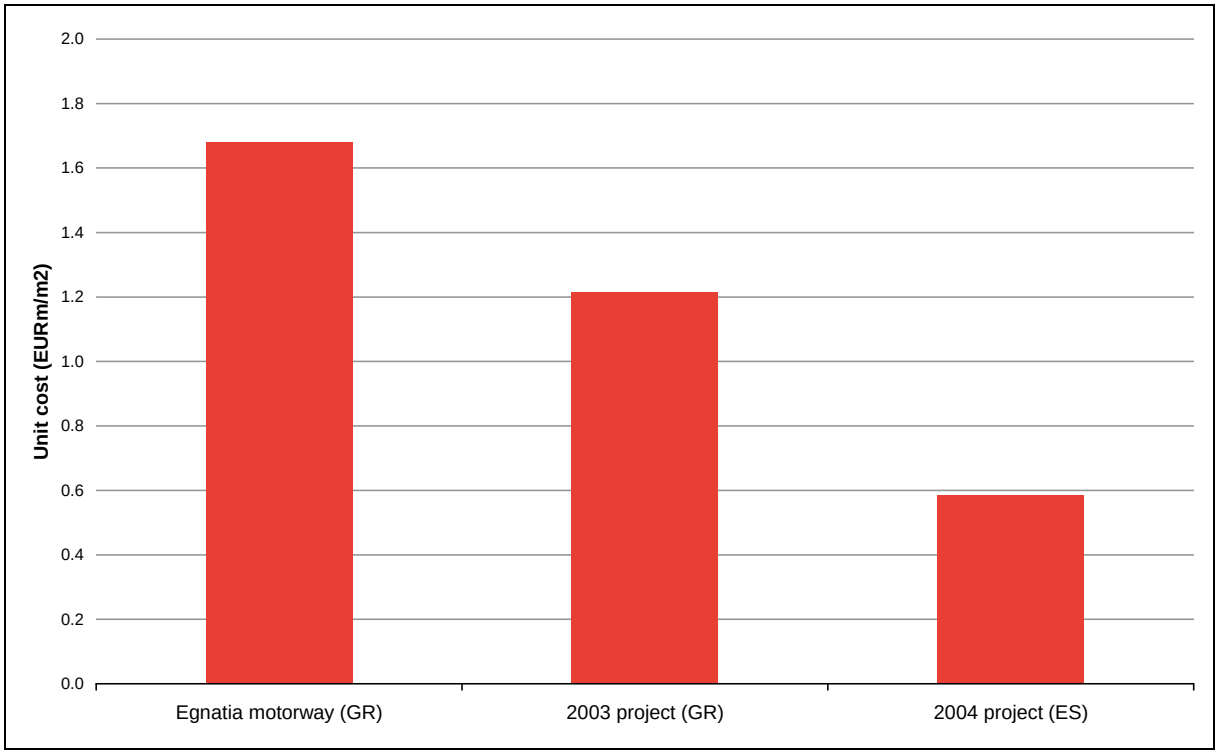
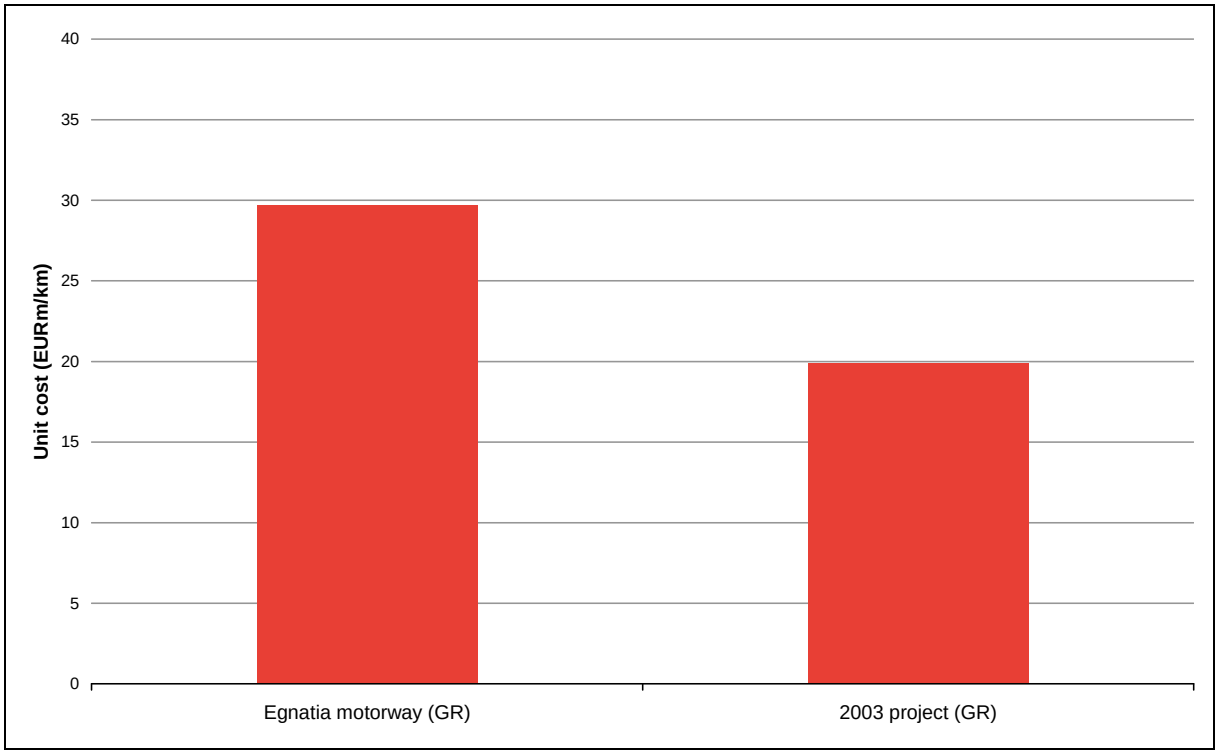


Figure 45: Level 3 Road: unit 'build' cost of bridges – cut and cover



5.4. Urban transport

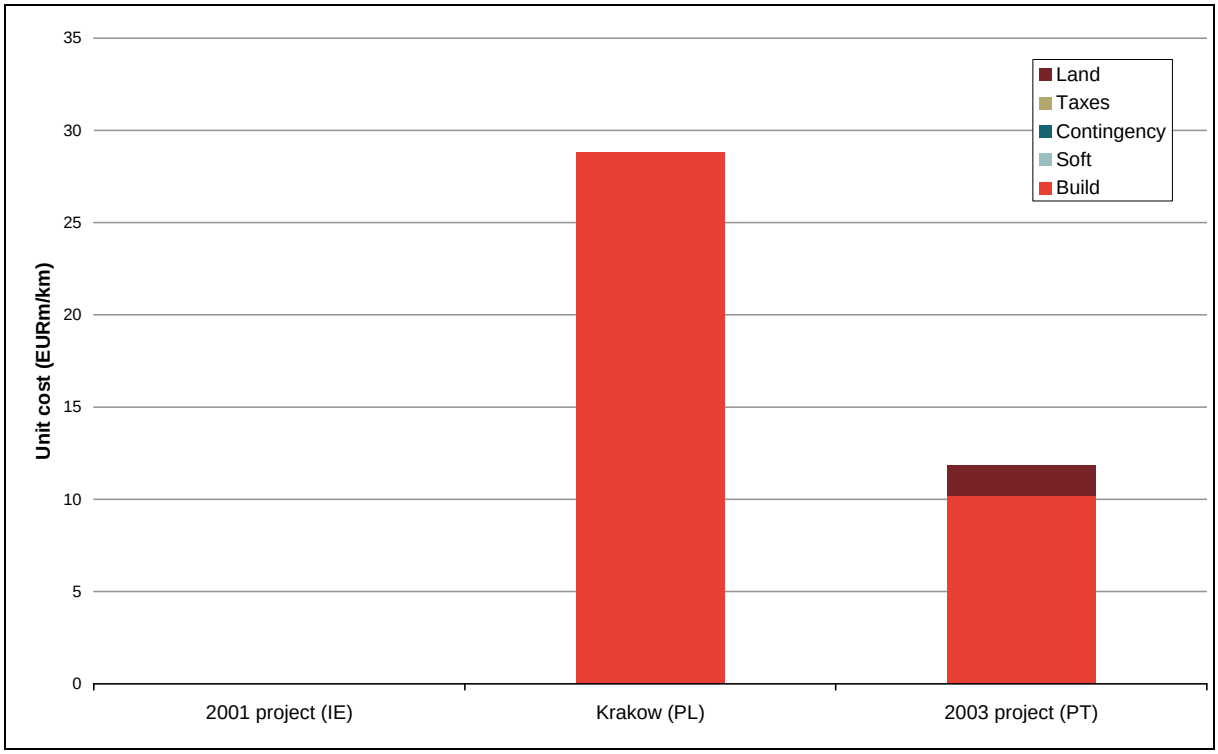
5.4.1. As for the other two sectors, the following charts illustrate of the range of actual unit costs identified so far for this type of projects. Unfortunately, only a limited number of Urban Transport projects are available for comparison at this stage. We expect that more information will become available during the next phase of this study.

Level 1

5.4.2. Figure 47 compares the overall Level 1 unit costs for three urban transport projects. We have not included any benchmarks, as the information currently contained in the dataset do not appear to be to be directly comparable to the cost information available for these types of projects.

5.4.3. We have not been able to collect actual unit cost information for the Irish Urban Transport projects. The unit costs for the other two projects appear to be consistent with the corresponding estimates.

Figure 46: Level 1 Urban Transport: 'All in' unit costs



Level 2

5.4.4. The data available for Level 2 Urban Transport projects allows the comparison of only two categories of costs. Specifically, Figure 48 provides a comparison of the track unit costs, while Figure 49 illustrates the differences in station unit costs

Figure 47: Level 2 Urban Transport: unit 'build' cost of trackwork

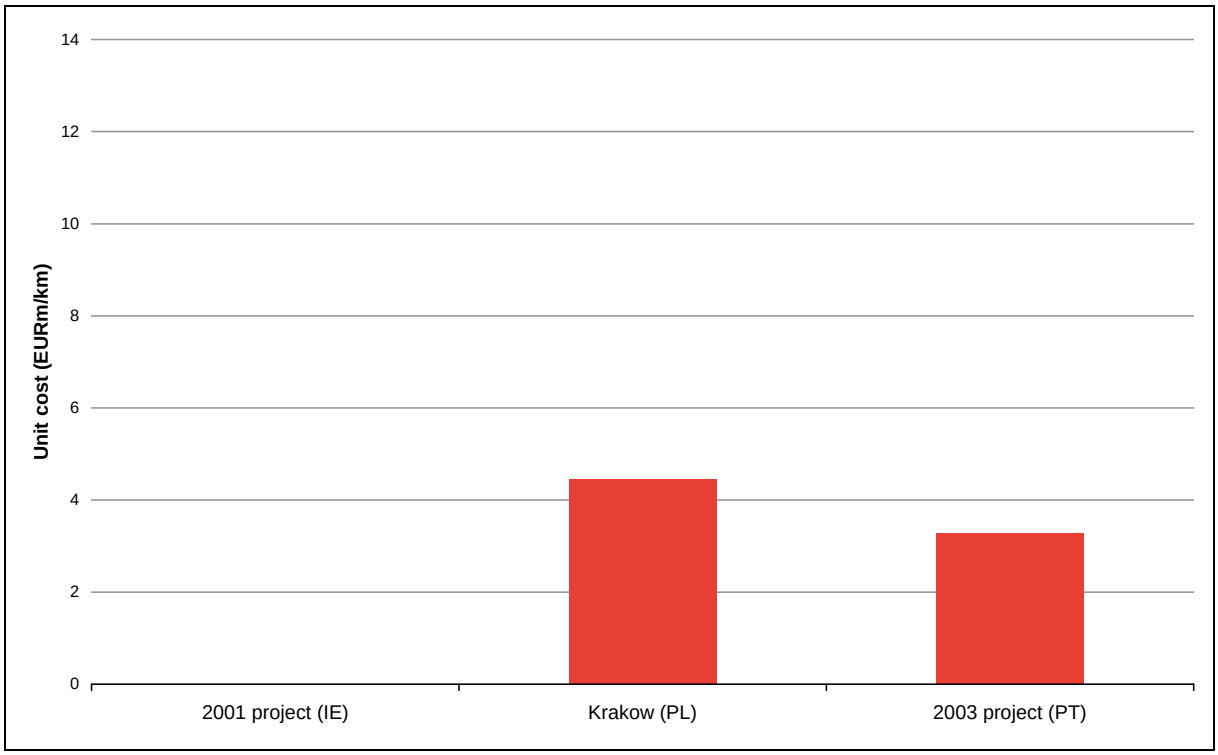
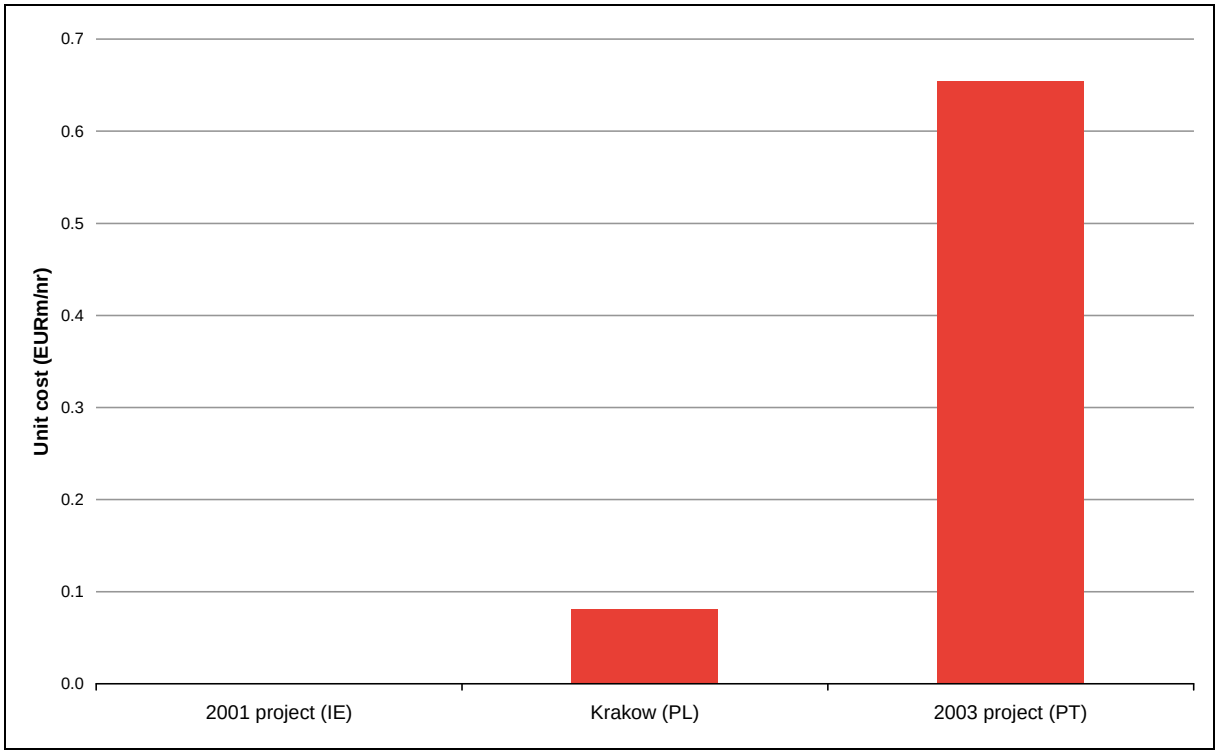


Figure 48: Level 2 Urban Transport: unit 'build' cost of stations



5.4.5. Unfortunately, no Level 3 data were available for a consistent set of comparisons for the urban transport projects currently available in the dataset.

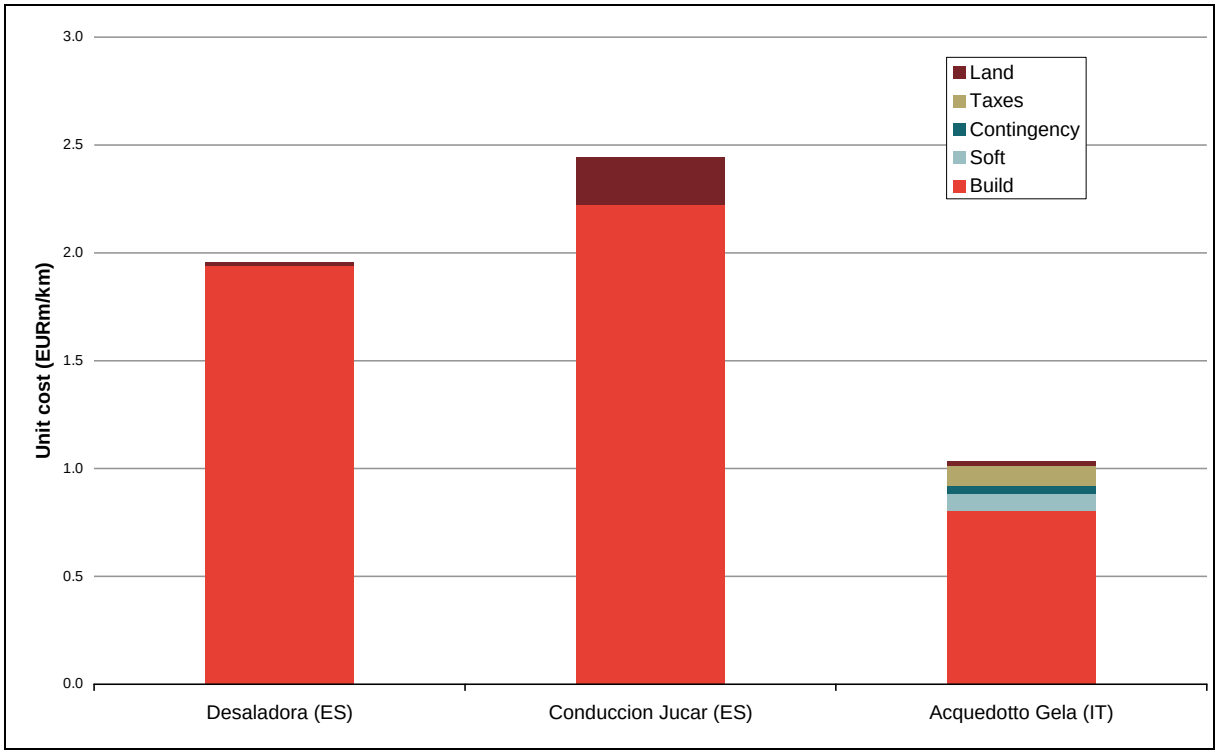
5.5. Water

5.5.1. The information on actual unit costs for Water projects is consistent with that on the estimated unit costs, as presented in the previous Section.

Level 1

5.5.2. Figure 50 compares the overall Level 1 unit costs for three water projects. Similarly to the case of Urban Transport, no benchmarks appeared to be directly comparable to the cost information available for these types of projects.

Figure 49: Level 1 Water: 'All in' unit costs



Level 2

5.5.3. Only two types of Level 2 Water projects unit costs were available for comparison. Specifically, Figure 51 provides a comparison of the land unit costs, while Figure 52 illustrates the differences between the unit costs associated with water supply.

Figure 50: Level 2 Water: unit cost of land

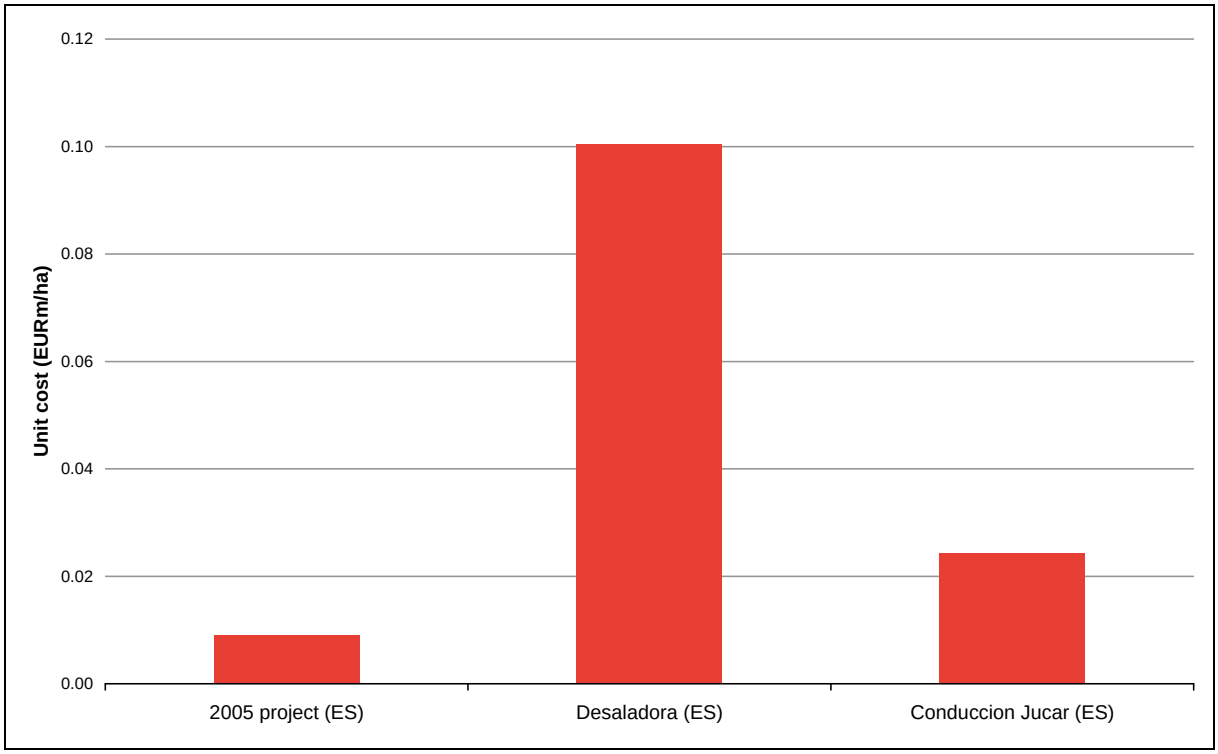
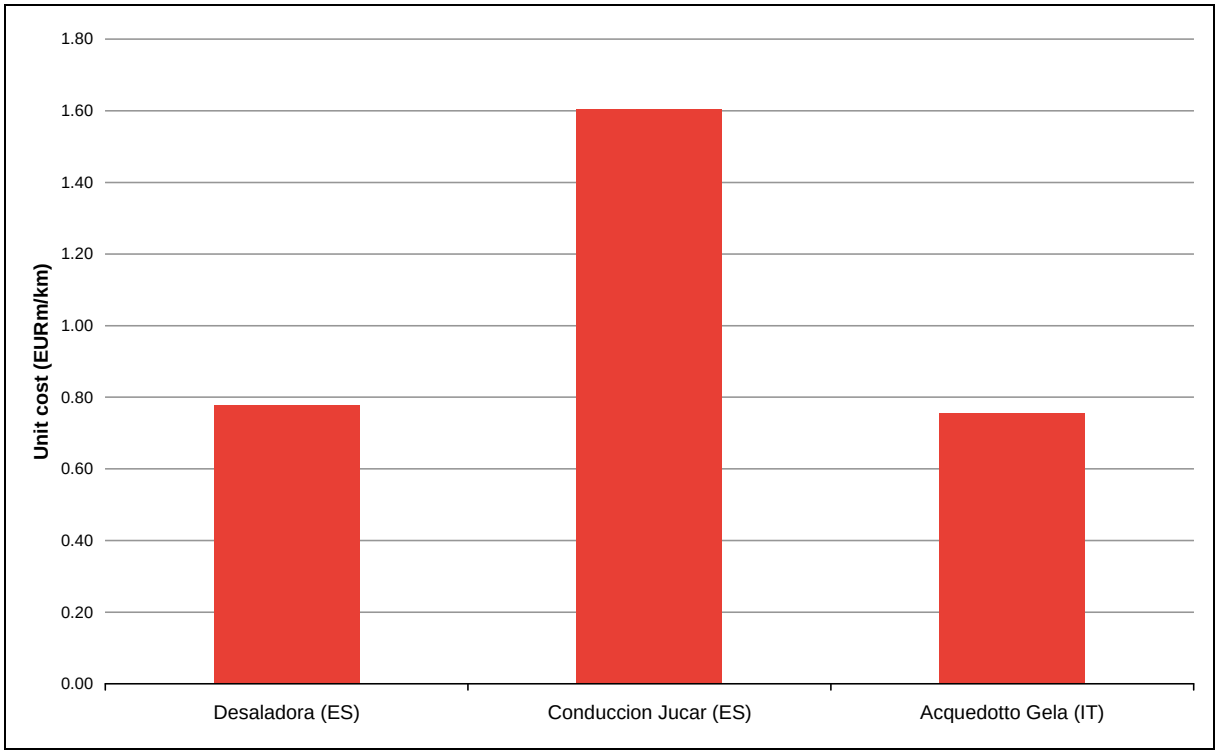


Figure 51: Level 2 Water: unit cost of water supply



5.5.4. No Level 3 data were available for a consistent set of comparisons for the water projects currently available in the dataset

5.6. Average completion times

5.6.1. Table 14 provides a summary of the actual average completion times for projects in Rail, Road and Urban Transport. The table presents the actual completion times for the different typical phases of each project as well as the total completion time. Please note that the total completion times reported in the table is an average of the completion times of individual projects, rather than the sum of the average completion times for each project phase.

5.6.2. In order to make the results comparable within sectors and across sectors, the estimated completion times have been measured in months per kilometre. Actual completion times for Water projects are not available at this stage. Finally, the table also provides the average actual completion time across all three sectors.

Table 14: Actual project completion times (months per kilometre)

Project phase	Rail	Road	Urban transport	Average
Planning	1.8	7.1	3.7	4.2
Funding	1.3	0.8	1.4	1.2
Permissions	1.1	0.7	1.1	1.0
Site preparation	0.6	0.6	0.9	0.7
Construction	3.4	8.3	2.3	4.7
Testing			0.3	0.3
TOTAL	7.6	12.2	9.8	9.9

6. Productive investment: Definitions of employment effects and analysis of investment

6.1.1. As noted in the Introduction, our assessment under Task 3.1 has, at this stage, been largely limited to what might be revealed from our examination of the 17 productive investment projects on which we have so far received information from the Member States.

6.1.2. Our assessment under Task 3.1 is, in some respects, limited to or (perhaps) implicit in the data analysis presented in the following two sections of this report. This includes:

- the assessment of the scope for comparability of the different cost per job figures that are to be calculated by assessing definitions and methods used for the estimation of project employment effects reported in ERDF applications;
- based on the findings of Task 1 of WP10 (literature and benchmarking reviews), an assessment of the appropriateness of the these different methods in terms of comparability for WP10.

6.1.3. The applications typically provide forecasts of the number of full-time equivalent (FTE) jobs created and safeguarded as a result of the investment and, while NACE sector codes tend not be provided, the nature of the investment has been identified in most cases. Moreover, the applications we have reviewed provide quite a lot of detail, which should facilitate the above assessments, at least in qualitative terms, in the draft final report stage of WP10.

6.1.4. We have, in some respects, reviewed investment typologies and how different types of project components (such as plant and equipment, construction etc) can affect project outcomes. While we have not yet been able to associate the ERDF funding with particular types of project expenditures, in Section 7 below as already noted, we have illustrated the potential affect that the overall balance of public and private funding could have on the “result efficiency” of projects (i.e., costs per job created).

7. Productive investment: Calculation of estimated cost per job created

7.1. Introduction

7.1.1. In this Section, we present the results of our examination of the cost and job creation estimates contained in the ERDF applications. We have limited what we present to the 17 projects on which we have so far received outturn data, so that a preliminary comparative analysis can be presented in Section 8 below.

7.1.2. We have only presented raw data from the applications. The data in the applications are stated in current price terms as of the eligibility date of the application. While this is slightly more varied for productive investments than for infrastructure projects, we expect adjustments for inflation to yield only small changes in the data, given the highly-developed Member States involved.

7.1.3. We will carry out these adjustments for a later version of this Report or in the next stage of the project, by which time we hope also to have received data for projects in Italy, Portugal and the UK. The data in this Section, and the following, are presented for projects in Austria, Germany, Spain and France.

7.1.4. The sample is currently dominated by manufacturing projects. The majority involve expansions, but there are also half as many 'new build' projects. We have also received data relating to one R&D-related investment. We have referred to these as the type of investment throughout, but these types correspond with section 2.2.3 of the ERDF application, which refers to the "nature of the investment".

7.1.5. This Section is structured as follows:

- Subsection 7.2, we examine the estimated total cost of projects from the information provided in ERDF applications.
- Subsection 7.3 examines estimated numbers of jobs created that the project is expected to yield;
- In subsection 7.4, we illustrate and describe estimates of the cost per job created that can be implied from the information presented in subsections 7.2 and 7.3;
- Subsection 7.5 we provide a preliminary assessment of the potential role that different types of funding (public or private) has in explaining the levels of expected unit costs.

7.2. Total forecast cost of projects in our sample

7.2.1. We begin this (and all other) subsection by presenting the orders of magnitudes of the costs involved in the productive investments that we have examined so far. We begin with an examination of 'new build' manufacturing projects, followed by the expansion-based ones.

'New build' manufacturing projects

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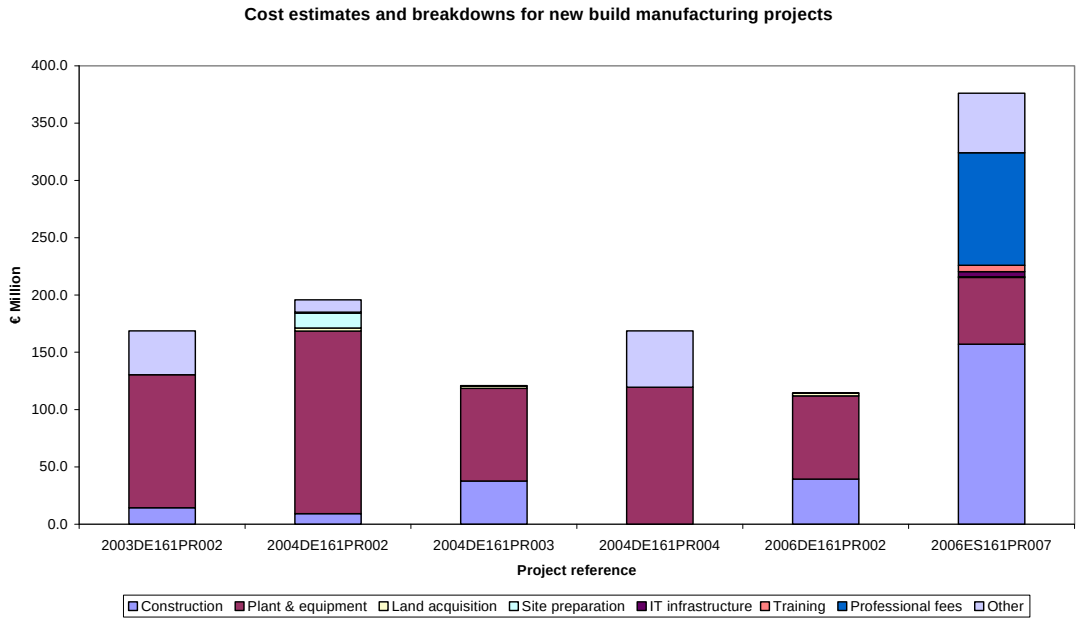
7.2.2. The magnitudes and breakdowns of the costs involved in our six new build manufacturing projects are illustrated in Figure 53 below. These projects have resulted in the creation of jobs only, as opposed to the expansion-based projects which have also led (according to respondents) to the preservation of existing jobs.

7.2.3. Five of the projects are from Germany, where total forecasted costs did not exceed €200 million. In all cases, plant and equipment costs constitute the greatest proportion of total cost.

7.2.4. On the other hand, the project from Spain on the far right of Figure 53 below, which is of a greater magnitude (with forecast costs at about €375 million), is dominated by building costs and professional fees.

Figure 52: Total cost estimates and cost breakdowns for 'new build' projects



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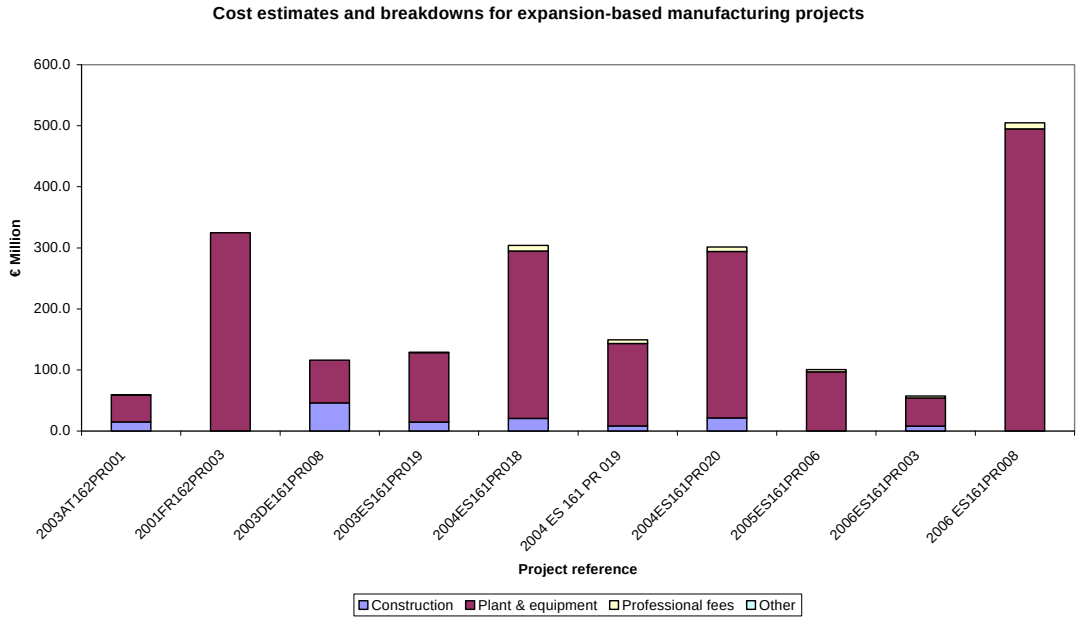
7.2.5. The 'other' categories of cost in Figure 53 include, in a couple of the German projects, costs associated with planning and design and the purchase of used machines and equipment, as well as IT infrastructure, professional fees and training that could not be allocated.

Expansion-based manufacturing projects

7.2.6. The total costs and breakdowns for manufacturing projects that involve expansion are presented next, in Figure 53 below.

7.2.7. First, we note the difference in scale between Figure 53 and Figure 54. While six of the expansion projects in Figure 54 are of the same order of magnitude as the new build projects, there are three that are of the same order of magnitude as the large new build project above, and a further one that far exceeds it.

Figure 53: Total cost estimates and breakdowns for expansion projects



7.2.8. According to the data, plant and equipment costs dominate these projects according to the data. This is to be expected as the companies involved are most likely to be simply rolling out new tranches of existing capacity. The data might be deemed consistent with this line, if one considers that the range of actual building costs involved is €8 to €45 million, which is consistent with the costs of manufacturing buildings (or building expansions) of different sizes and specification.[12]

Other productive investment projects

7.2.9. As well as the 16 manufacturing-based projects presented in Figure 53 and 54, we have information on an additional R&D-based project from France. The total estimated cost of the project is €304.9 million, which was all presented as R&D expenditure.

[12] It might be relevant to note, perhaps, that we have to assume that the configuration of existing capacity – in terms of buildings and fixtures/fittings that meet the needs of existing plant – is efficient. If this were not the case, we would expect the company to have commenced with a 'new build' instead.

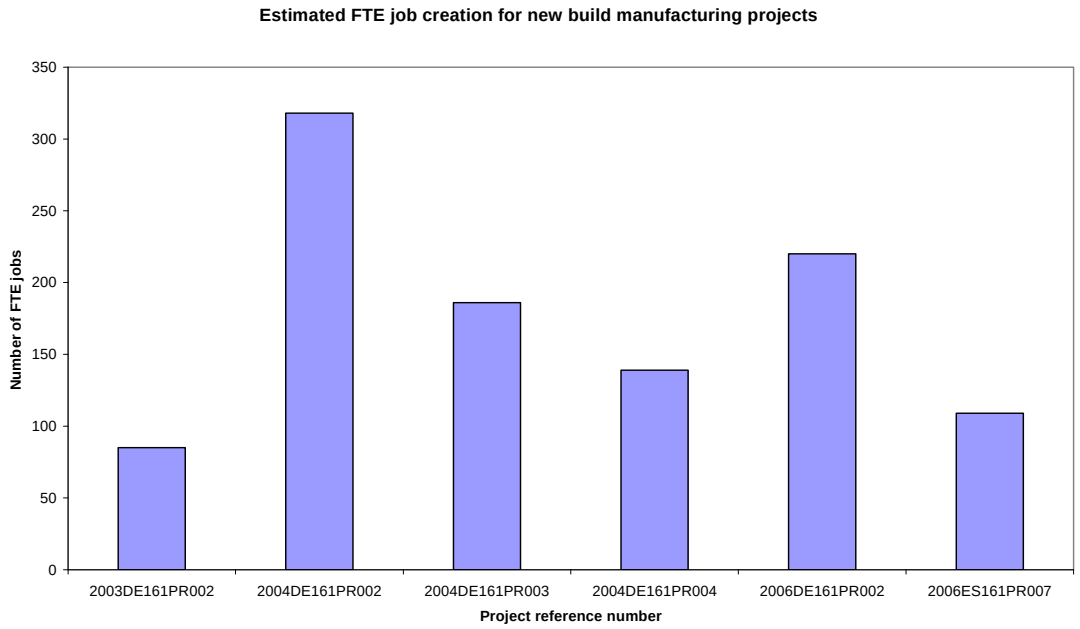
7.3. Job creation estimates

7.3.1. In this subsection, we present the corresponding estimates of the number of jobs to be created by the projects we have analysed. We present the results in the same order as above.

'New build' manufacturing projects

7.3.2. Job creation estimates for the new build manufacturing projects are illustrated in Figure 55 below. As can be seen, the estimated job creation numbers range from between 70 to 350 FTEs.

Figure 54: Estimates of full-time equivalent (FTE) jobs created by 'new build' projects

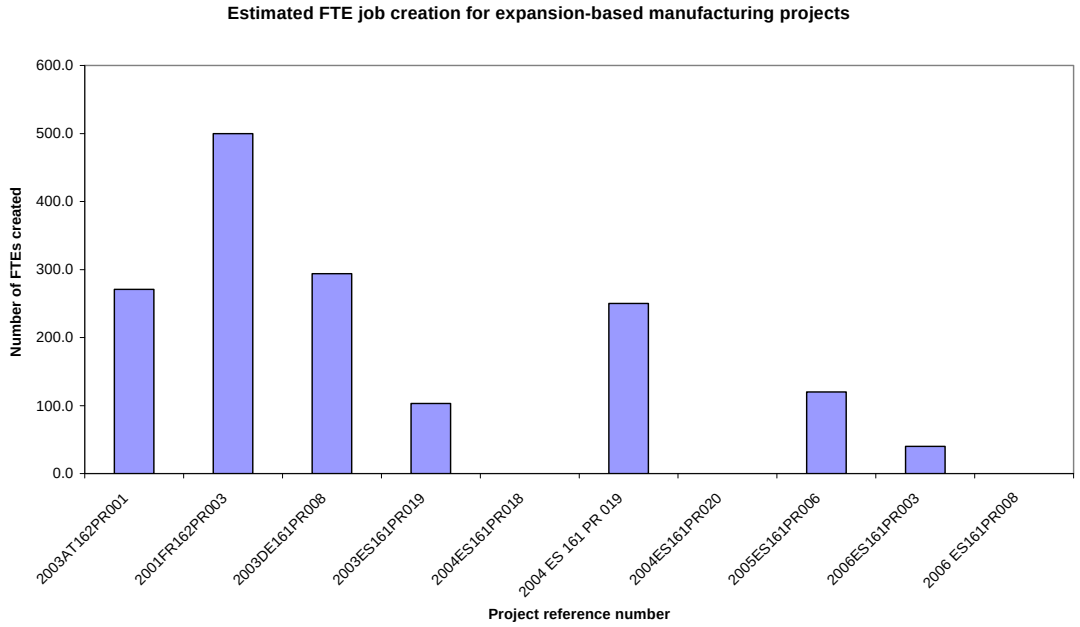


7.3.3. As noted already, these projects have led only to the creation of jobs, rather than also to the safeguarding of existing jobs.

Expansion-based manufacturing projects

7.3.4. Equivalent estimates for the expansion-based manufacturing projects are presented in Figure 56 below. The range of job creation estimates is analogous to those for 'new build' projects, bar the single project from France, for which 500 new jobs was the estimate.

Figure 55: Estimates of FTE jobs created for expansion projects



7.3.5. All of these expansion-based projects involved the safeguarding of existing jobs. The stated numbers of jobs projected to be safeguarded were, in some cases, broadly equivalent to the job creation estimates, suggesting straightforward doublings of capacity. However, in other cases, job creation estimates are much higher, reaching nearly 10,000 in one case.

7.3.6. As can be seen from Figure 56 above, there are no job creation estimates, rather only job safeguarding estimates, presented in the applications for three of the projects.

Other projects

7.3.7. For the additional French R&D-based project, the ERDF application estimated the creation of 415 FTEs.

7.4. Estimated cost per job created

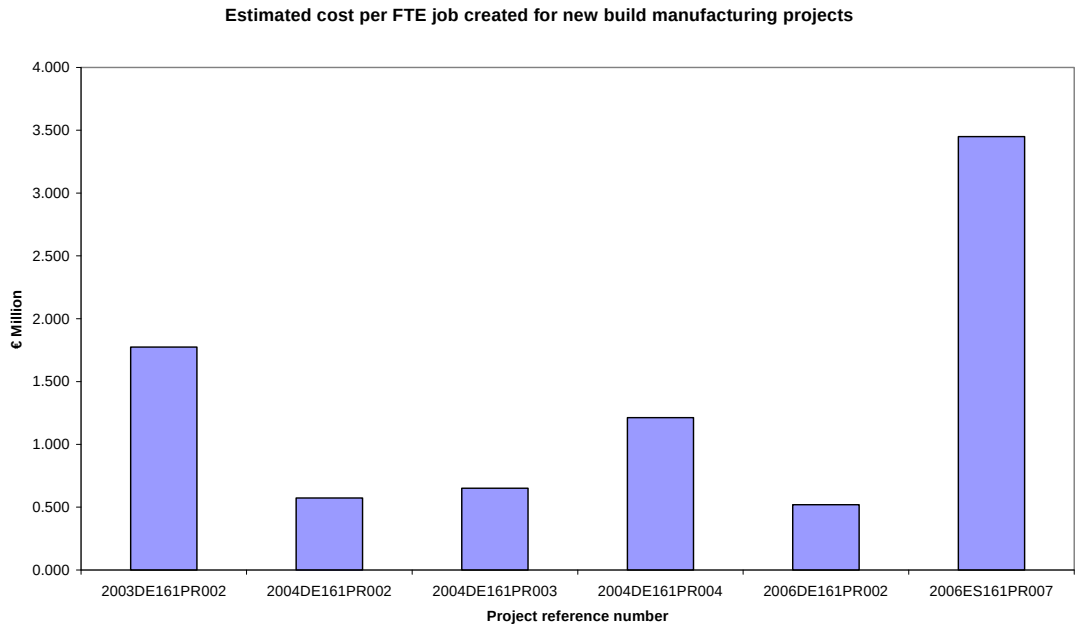
7.4.1. We continue by using the data presented so far to calculate estimates of the cost per job created for each of the productive investments that we have examined.

7.4.2. We note, however, that the data presented is what we have calculated based on the total cost and job creation estimates only. In most cases, this number wasn't presented by the respondents to our questionnaires.

'New build' manufacturing projects

7.4.3. Figure 56Figure 57 shows the forecasted cost per FTE job created for new build manufacturing projects. We calculated these forecasted costs by dividing the total project cost estimate by the estimated number of jobs to be created.

Figure 56: Estimated cost per job created by new build projects



7.4.4. The range of estimates suggested by this data is wide, anywhere from €500,000 to nearly €3.5 million per job created. However, we do note that the estimates for the majority of projects presented lie in a range from €500,000 to about €1.75 million.

7.4.5. The outlier is the high-cost project from Spain identified in subsection 7.2 above. This is because the total cost of the project is very high for a relatively moderate amount of new jobs created. On the surface, this might suggest the creation of very high value jobs. However, we suggest another proposition in subsection 7.5 below.

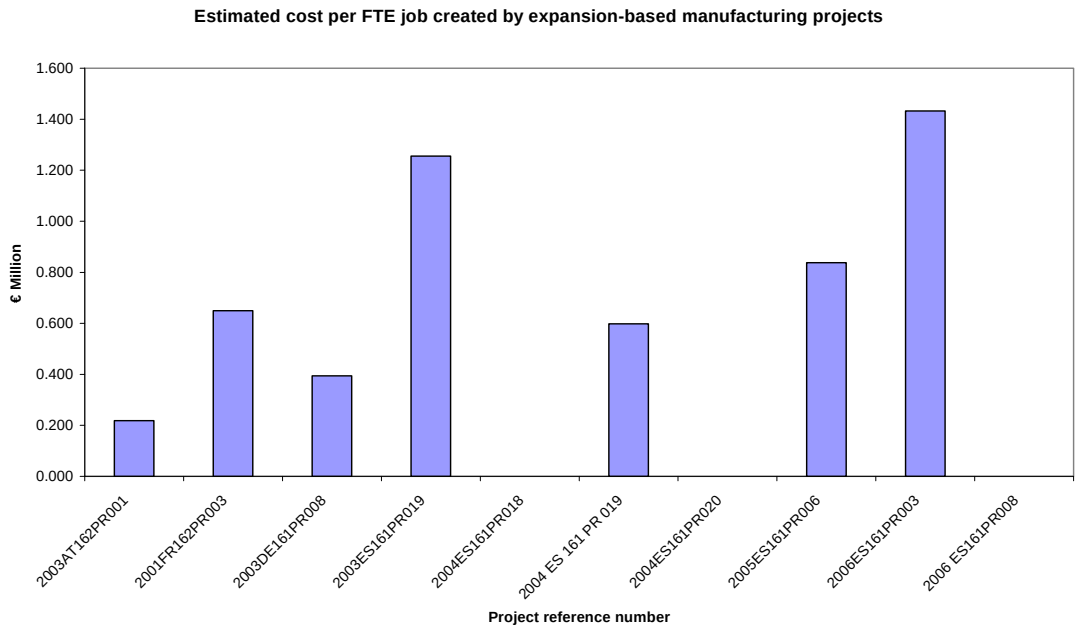
Expansion-based manufacturing projects

7.4.6. In Figure 58Figure 57 below, we present the estimated cost per job created by expansion-based manufacturing projects.

7.4.7. We note the smaller range of estimated costs per job created of between €200,000 in Austria to €1.4 million in Spain. While there is significant variation within that range, estimates for the majority of projects presented do lie in a range of €350,000 to €800,000 per FTE created.

7.4.8. The outliers, at €1.2 - €1.4 million, are both projects from Spain.

Figure 57: Estimated cost per job created by expansion projects



Other productive investment projects

7.4.9. For the additional French R&D-based project, an estimate of €735,000 per FTE job created was found in the ERDF application.

7.5. Topic for discussion

7.5.1. Most projects have various sources of funding, including private investment and other local, regional and state funding in the various Member States.. Figure 58 below shows the proportions of three different types of funding used in the productive investments that we have so far examined. Figure 59 presents the data in Figure 57 and Figure 58 above, as well as the data for the R&D project from France, together in one chart.

7.5.2. We have presented these data together with a view to establishing whether there were any discernible patterns emerging that would suggest a relationship between the types of funding used on projects and the ultimate cost of creating jobs.

Figure 58: Proportions of different types of funding used for productive investments

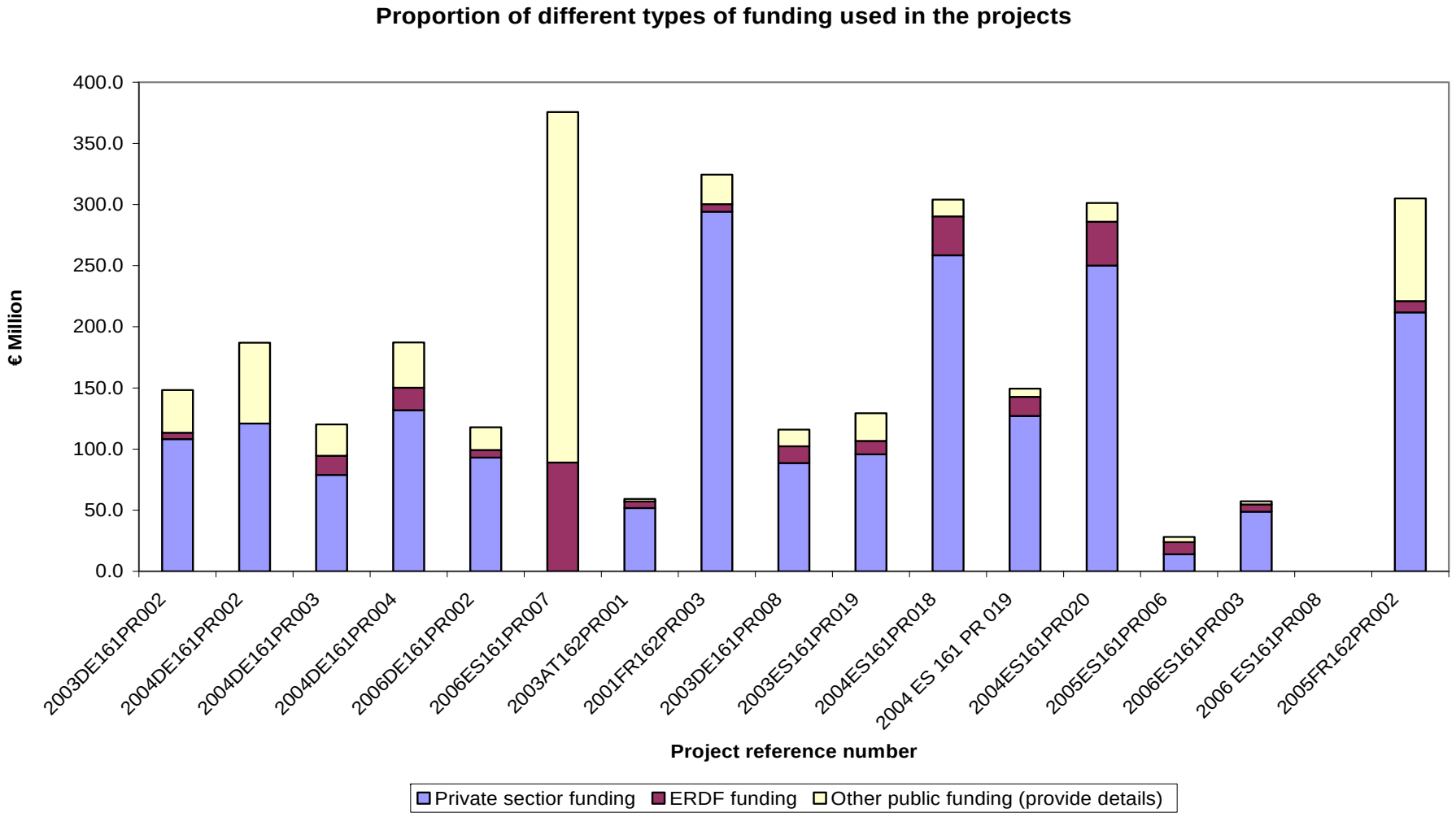
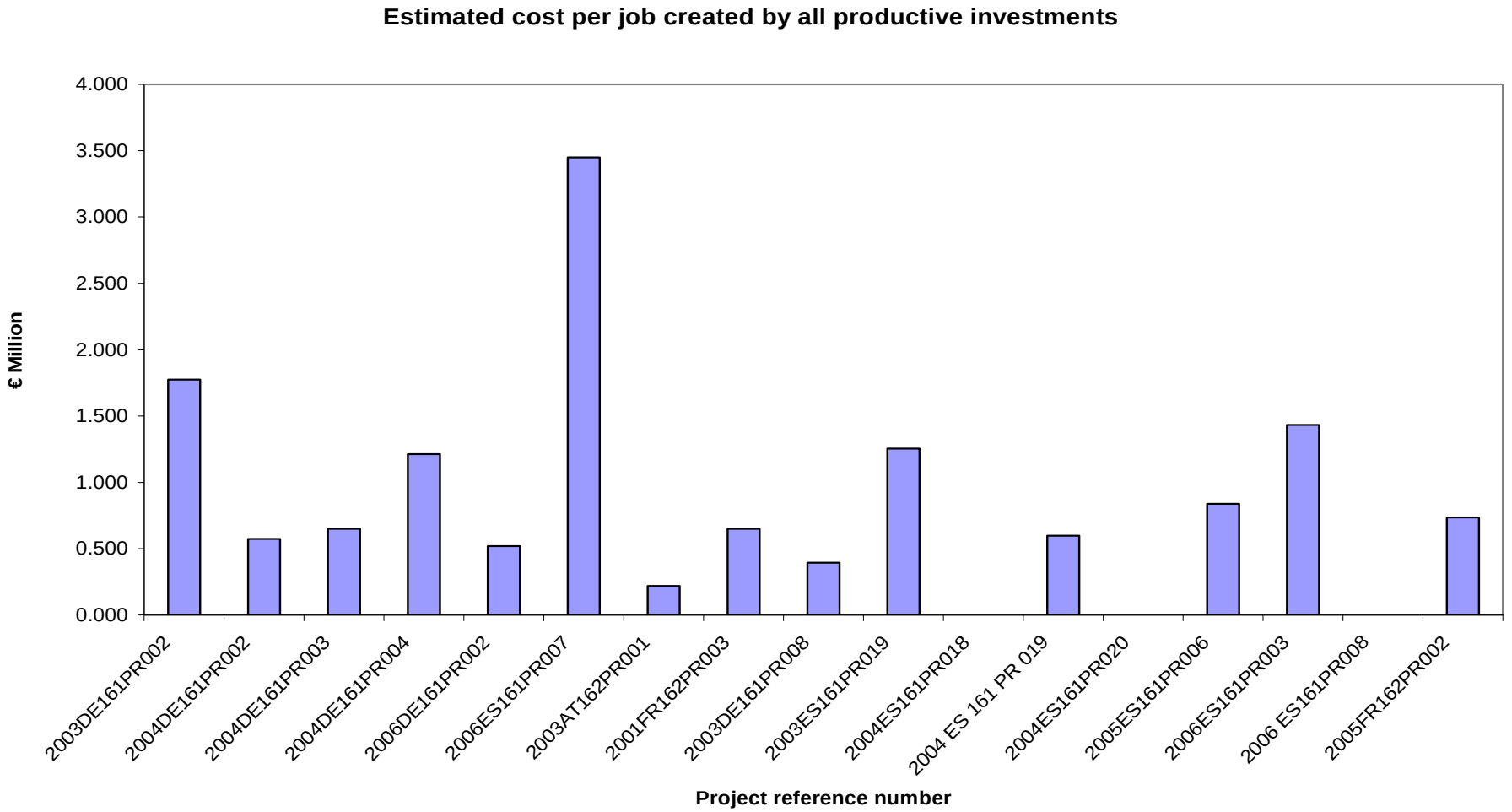


Figure 59: Estimated cost per FTE job created by all productive investments



7.5.3. So far, most of the projects that we have been able to examine received the majority of funding from the private sector. However, it is useful to compare project 2006ES161PR007, which received all funding from ERDF and other public sources, with projects 2001FR162PR003 and 2005FR162PR002, which received most of their funding from private sources and which are of a comparatively similar size.

7.5.4. The cost per job created by the first is estimated to be almost €3.5 million, while the other two are in or around the €500,000 mark for reasonably similar sized projects (as measured by total cost).

7.5.5. While we note that the cost per job created is, based on the data, generally higher for 'new build' projects (which might partly explain the divergence), there is a strong suggestion from the data that the result efficiency of projects involving largely publicly funded projects is generally expected to be lower than those dominated by private sector funding.

7.5.6. We must also note that the other 4 projects that exceed €1 million per job created in Figure 59 are, however, dominated by private sector funding.

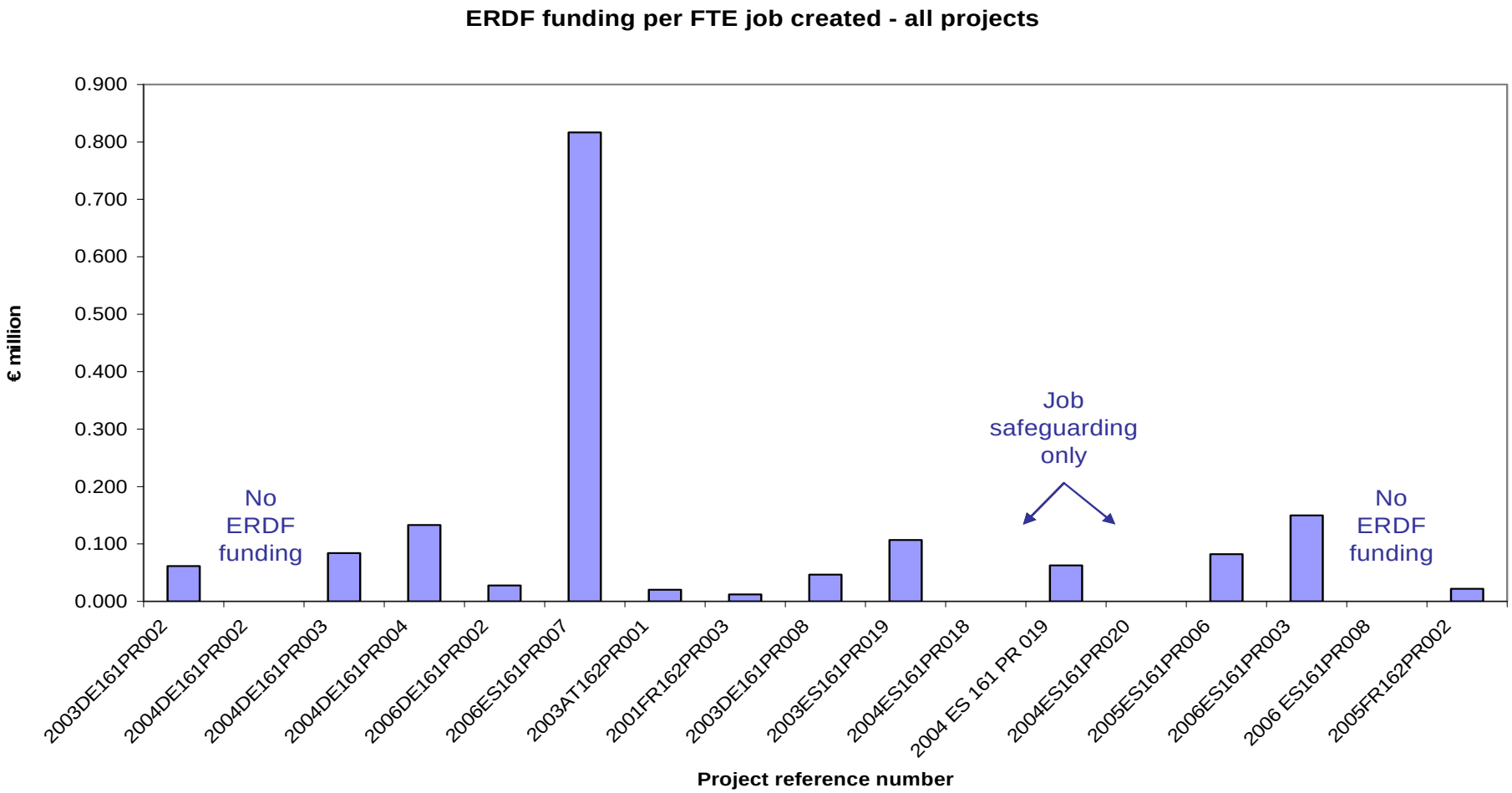
7.6. The amount of structural funds per job created

7.6.1. We conclude this Section with an illustrative comparison across the types of investment of the amount of Structural Funds involved in the estimates from the ERDF applications.

7.6.2. For 'new build' manufacturing the full range is €61,000 to €817,000 of funding per job created. However, in four of the five that received funding, the amount did not exceed €150,000. The data suggests that the project from Spain highlighted earlier is an outlier amongst all projects. We will investigate this further for a final draft of this Report.

7.6.3. The ERDF funding contribution to the manufacturing expansion projects and the R&D projects was estimated at between €1,200 and €15,000 per job created.

Figure 60: ERDF funding per estimated job created



8. Productive investment: Calculation of actual cost per job created

8.1. Introduction

8.1.1. In this Section, we present the results of our preliminary comparative analysis of the 17 projects on which we have so far received responses to our questionnaire.

8.1.2. As in the previous Section, we have presented below the raw data only. Likewise, we will carry out appropriate inflationary adjustments for a later version of this Report or in the next stage of the project.

8.1.3. Further dialogue is required with the individual data gatherers (covering the different Member States) to understand more about the projects in our sample and to assess the scope for comparability between them. We will also make this more explicit in a later (final) draft of this Report or in our draft Final Report.

8.1.4. We have organised this Section of the Report in much the same way as Section 7 above. In each of the first three of the following subsections, we present differences between actual and forecast data for each of the indicators produced in the previous Section, namely for total project costs, the number of jobs created and the cost per job created. In addition, subsections 8.5 and 8.6 provide, respectively, the an assessment of the potential role of project delays and the potential role of other factors, in explaining discrepancies between actual and forecast unit costs.

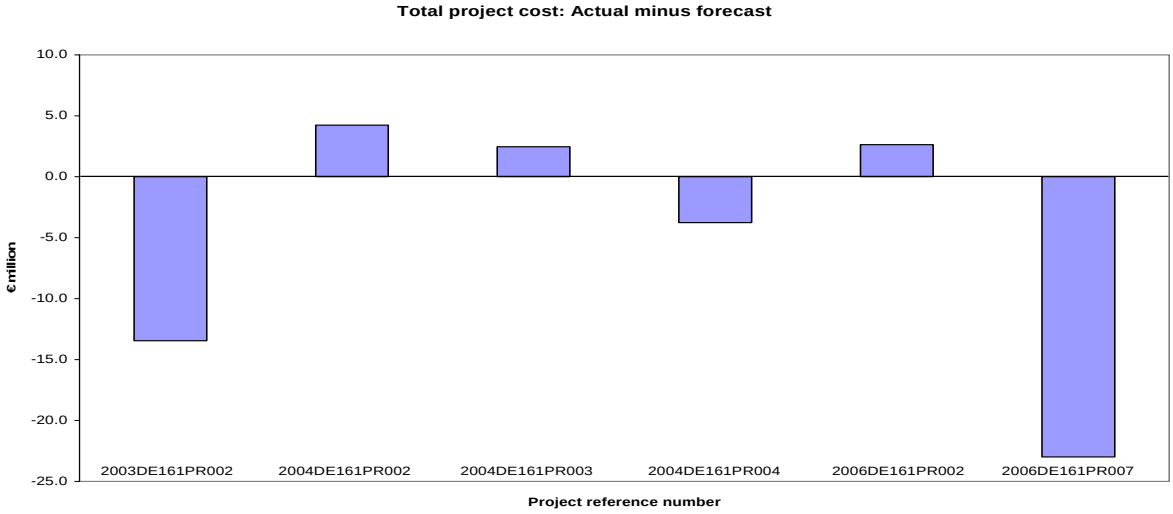
8.2. Comparison between forecast and actual total costs

8.2.1. In this subsection, we compare the actual and forecast total costs of projects.

'New build' manufacturing projects

8.2.2. Figure 62 shows the net position, as measured by subtracting the total cost forecasts from the actuals, of the six new build manufacturing projects in our current sample. The bars above the line (or x-axis) are, therefore, what might be described as cost overruns, while those below the line show cost savings. (The validity of these descriptions will be assessed below.)

Figure 61: Net position (actual *minus* forecast) of 'new build' manufacturing projects

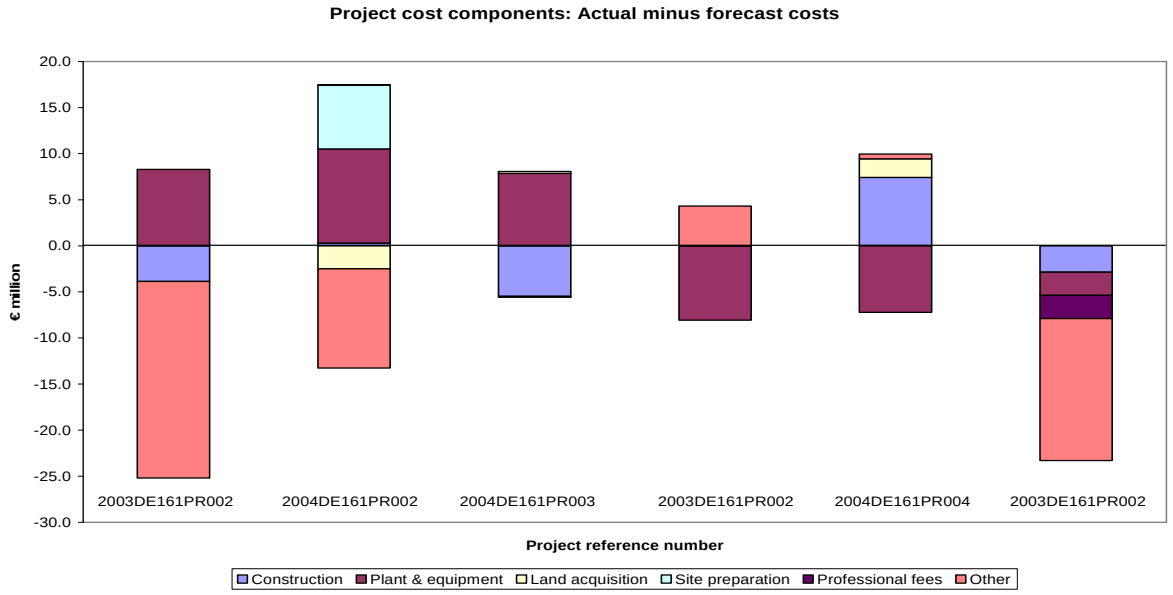


8.2.3. The positions of the individual project components are shown in Figure 62 below. There, the net position of each project (shown in Figure 61 above) is calculated by adding what is above and below the x-axis.

8.2.4. Furthermore, if the difference for an individual project component appears above the line, it suggests a cost overrun on that component. Likewise, a difference below the line suggests a cost saving on the relevant component.

8.2.5. In the next subsection, we will illustrate how these differences filter through to the cost per job created results.

Figure 62: Net positions of 'new build' project components and impact on overall positions

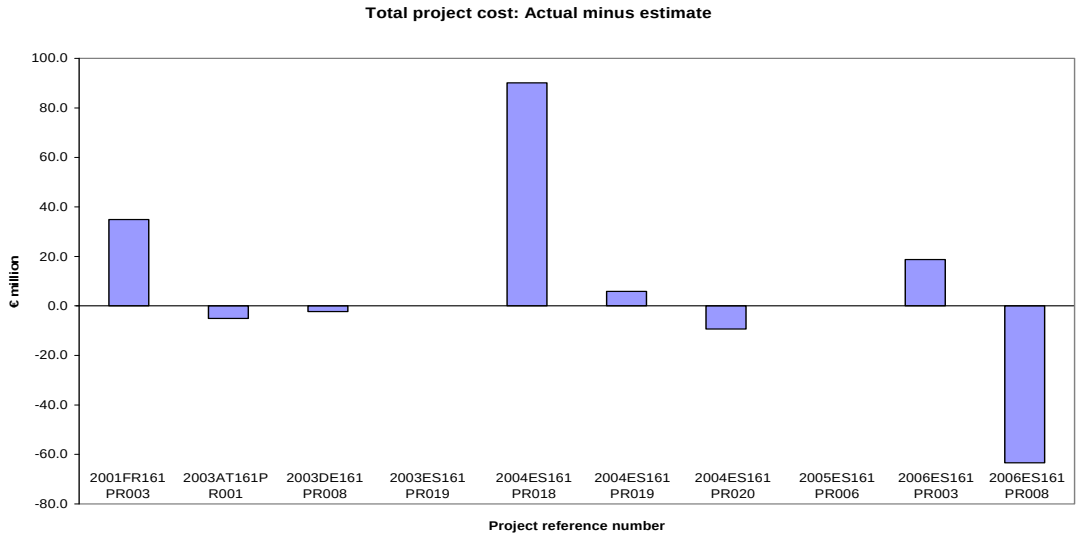


8.2.6. In the case of three of the projects, there were significant savings in the 'other' category of costs. The detail of what is included in this category was specified in paragraph 0 above for the German projects. This information was not disclosed for the project from Spain. Otherwise, the overruns and savings are (as expected) dominated by what happened with building and plant and equipment costs.

Expansion-based manufacturing projects

8.2.7. Figure 64 below shows the net position of the expansion-based manufacturing projects. As before, bars above the line show cost overruns, while bars below the line show cost savings.

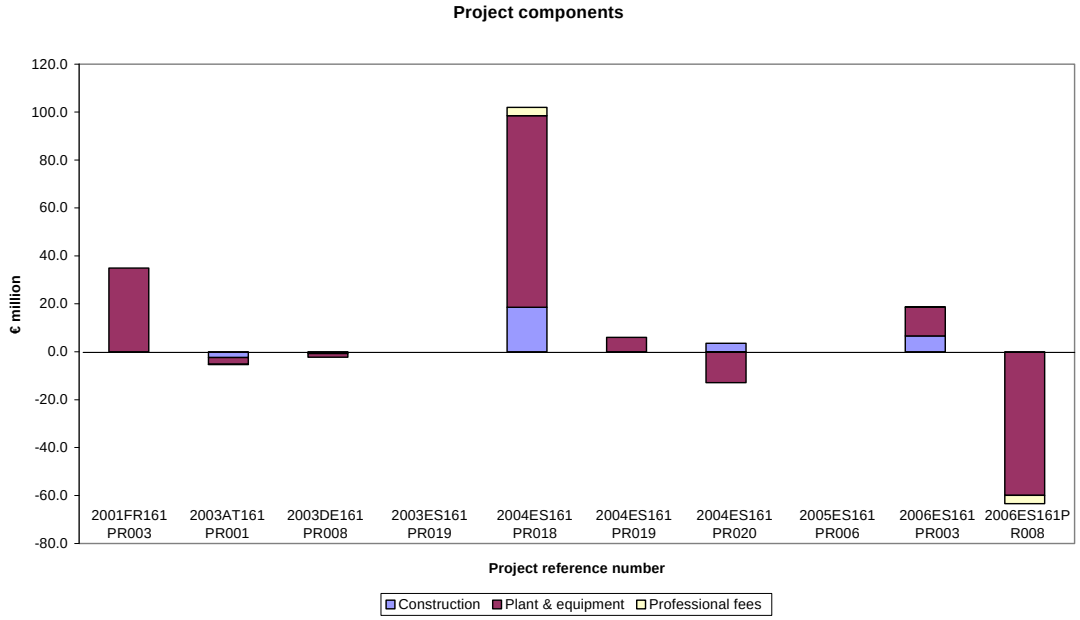
Figure 63: Net position of expansion projects



8.2.8. As in Section 7, we note the difference in scale between Figures 62 and 63 above and between Figure 64 above and 65 below. For these projects, the scale of cost overruns and savings is greater than for the 'new build' projects. In the case of one project from Spain, the overrun is around the €90 million mark, while a cost saving of over €60 million can be observed for another. This compares with the 'new build' projects, where the maximum cost overrun is less than €20 million and the greatest cost saving is less than €25 million.

8.2.9. The positions of the individual project components are shown in Figure 65 below.

Figure 64: Net positions of expansion project components and impact on overall positions



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8.2.10. In this case the relationship between the overall net positions and positions of the individual project components is clearer. However, as before, the overall net positions as shown in Figure 64 above, are calculated by adding what is above and below the x-axis.

8.2.11. Furthermore, if the difference for an individual project component appears above the line, it suggests a cost overrun on that component. Likewise, a difference below the line suggests a cost saving on the relevant component. For these projects, the overruns and savings are dominated by what happened with plant and equipment costs.

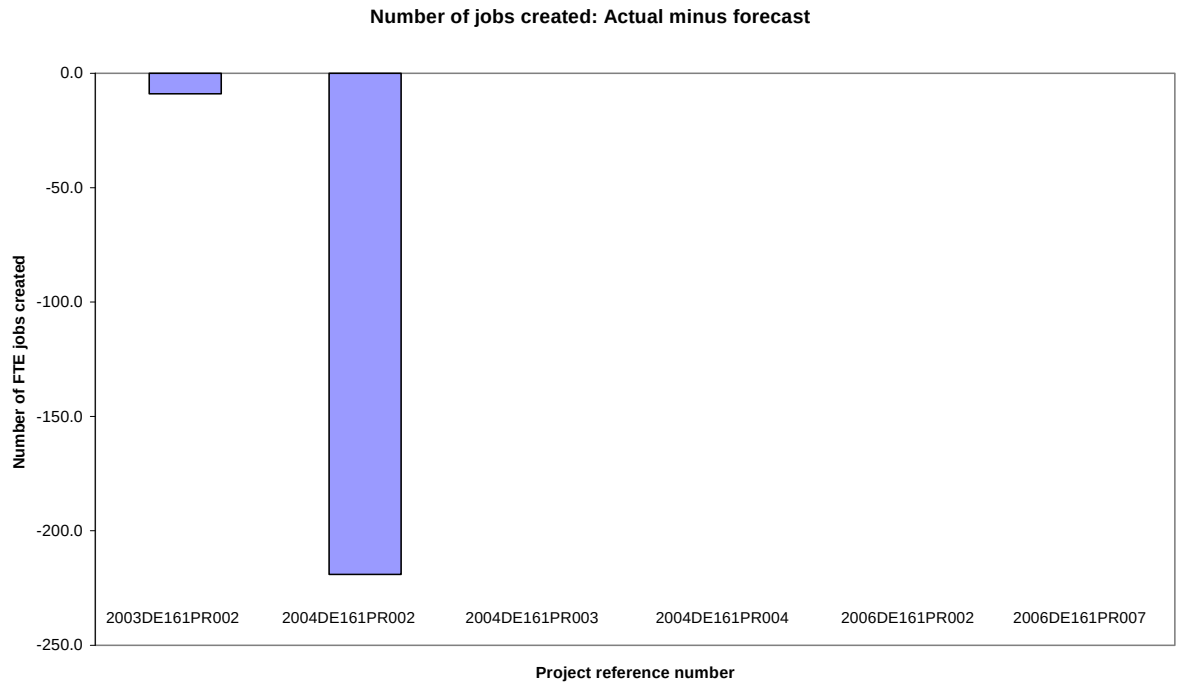
8.3. Comparison between actual and forecast numbers of jobs created

8.3.1. In this subsection, we compare forecasted and actual numbers of jobs created by the projects we have examined. We begin again with 'new build' manufacturing and then consider the other types of project.

'New build' manufacturing

8.3.2. The differences between actual and forecasted numbers of jobs created are shown in Figure 66 below for 'new build' manufacturing projects.

Figure 65: Actual *minus* forecast number of jobs created by'new build' projects



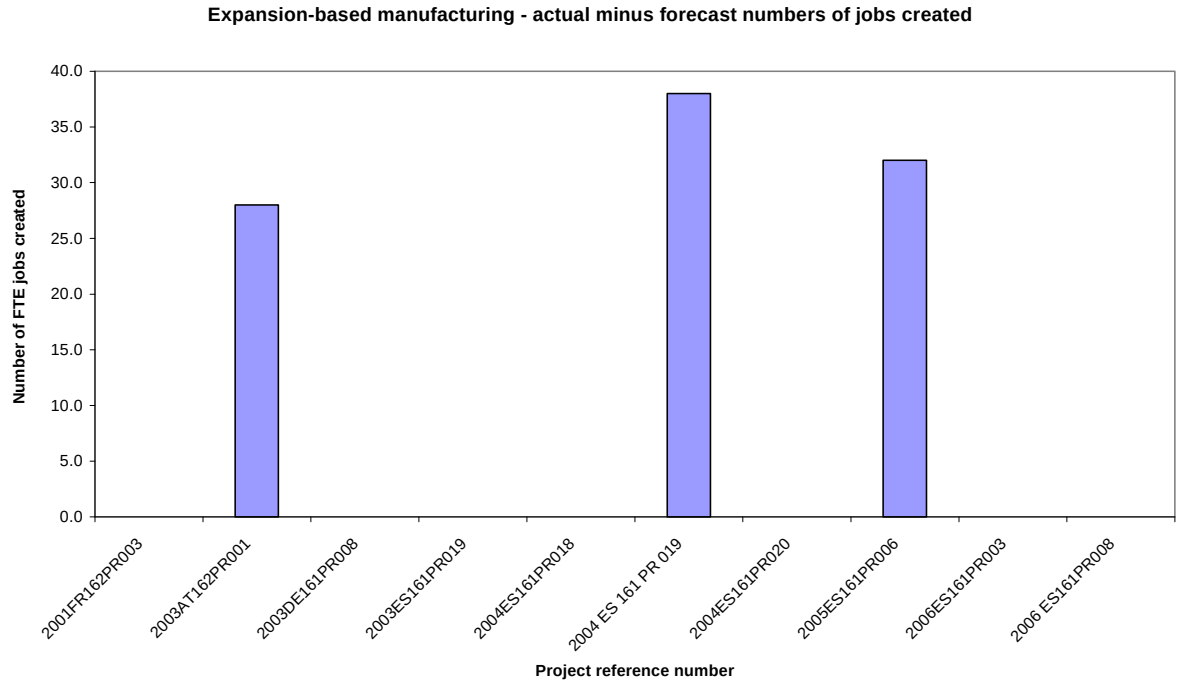
8.3.3. While the majority of these projects appear to have created exactly the number of jobs projected, two of the German projects have resulted in the creation of fewer jobs than anticipated. In the case of 2004DE161PR002, only 99 of the anticipated 318 jobs have been created. Taken together with the information on the net position of this project above (i.e., a cost overrun), we can anticipate significant implications for the cost per job created.

Expansion-based manufacturing projects

8.3.4. The differences between actual and forecasted numbers of jobs created are shown in Figure 67 below.

8.3.5. As with the 'new build' projects, most of the expansion-based projects have resulted in the creation of the same number of jobs as forecasted. Where this is not the case, the projects appear to have performed better, with more jobs created than anticipated.

Figure 66: Actual *minus* forecast number of jobs created by expansion projects



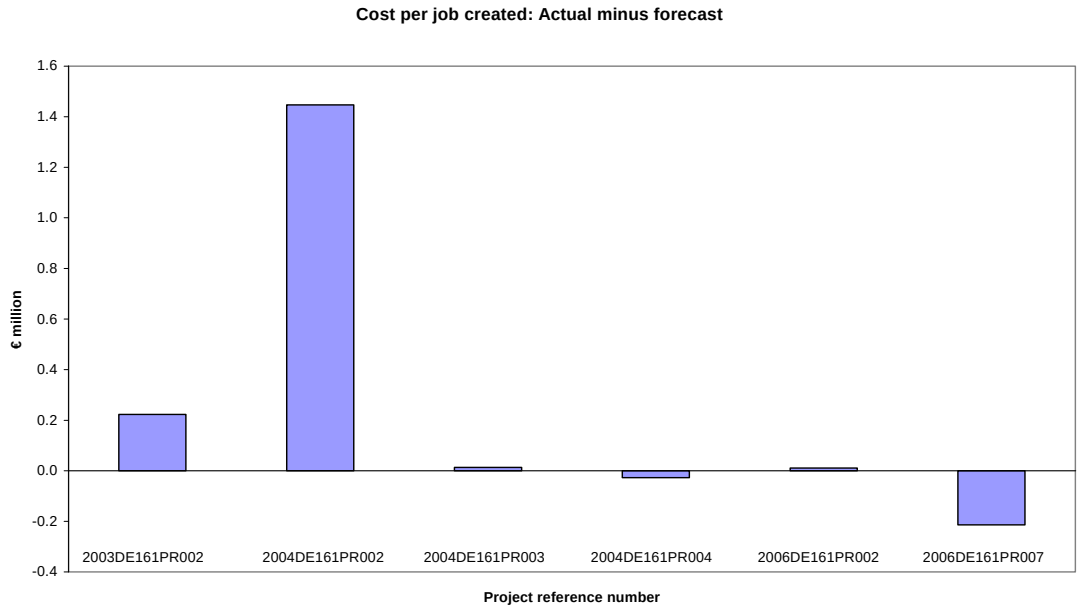
8.4. Preliminary review of cost per job created relative to forecasts

8.4.1. In this subsection, we assess whether there are significant differences between forecasted and actual cost per job created.

'New build' manufacturing

8.4.2. These differences are shown for our 'new build' manufacturing projects in Figure 68 below.

Figure 67: Actual *minus* forecast cost per job created by 'new build' projects

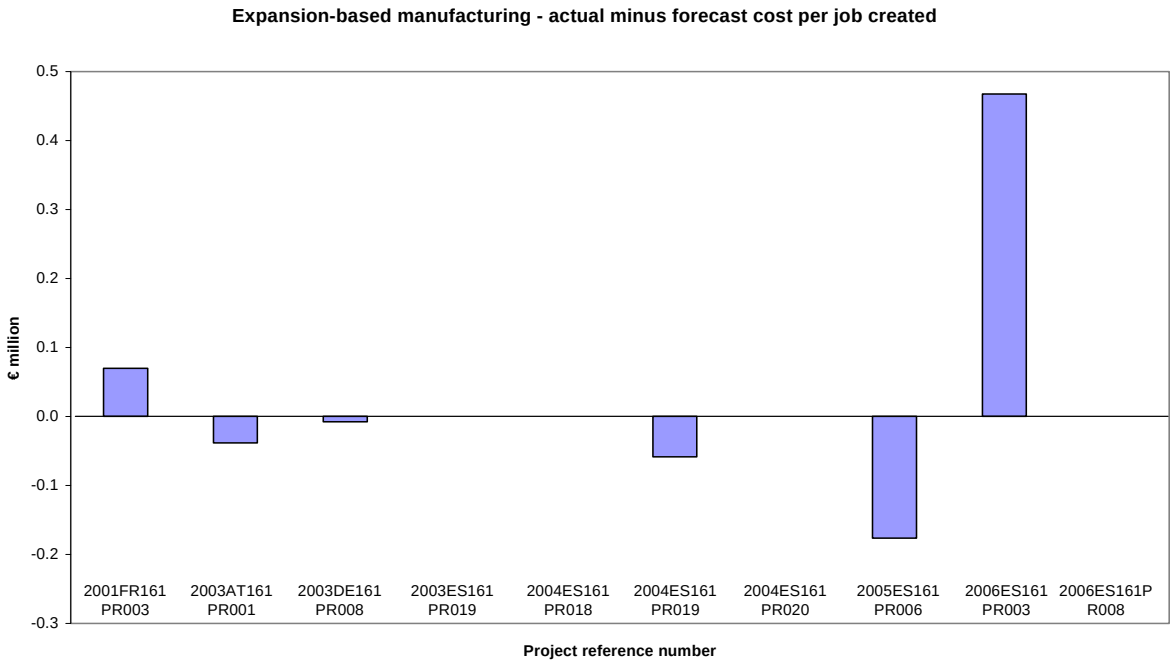


8.4.3. The largest deviation from what was expected occurred on project 2004DE161PR002, with the resulting cost per job created exceeding the expected amount by over €1.4 million. This is the same project on which we observed a relatively small cost overrun, but a significant reduction in the number of jobs created from what was forecasted.

Expansion-based manufacturing projects

8.4.4. The differences are shown for our expansion-based manufacturing projects in Figure 69 below.

Figure 68: Actual *minus* forecast cost per job created by expansion projects



8.4.5. The majority of jobs appear to have outperformed forecasts by leading to the creation of more jobs than forecasted. On one project from Spain, the actual cost per job was €200,000 less than the estimate of €838,000. This is because, according to the data presented above, this project was completed on budget but led to the creation of more jobs than anticipated.

8.4.6. In the one case where the cost per job created is significantly higher than forecasted (2006ES161PR003), the overrun is not as severe as in the 'new build' example above. This particular project suffered a relatively moderate total cost overrun, but only led to the creation of the same number of jobs as originally forecasted.

8.5. The role of delays in causing discrepancies

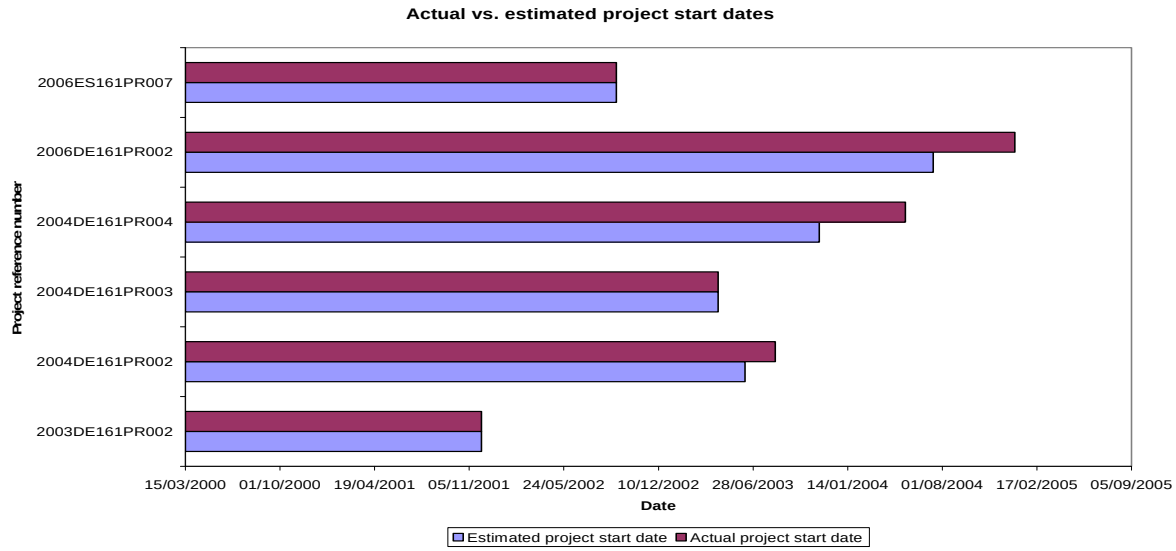
8.5.1. In this subsection, we assess whether project delays can be identified as playing a role in discrepancies between actual and forecast costs, where these discrepancies are observed.

'New build' manufacturing projects

8.5.2. We begin, as before, with an examination of 'new build' manufacturing projects, for which the projected and actual starting date are illustrated in Figure 70 below. Under normal circumstances, one would expect a project that begins late to cost more because with the passage of time, comes rising input prices.

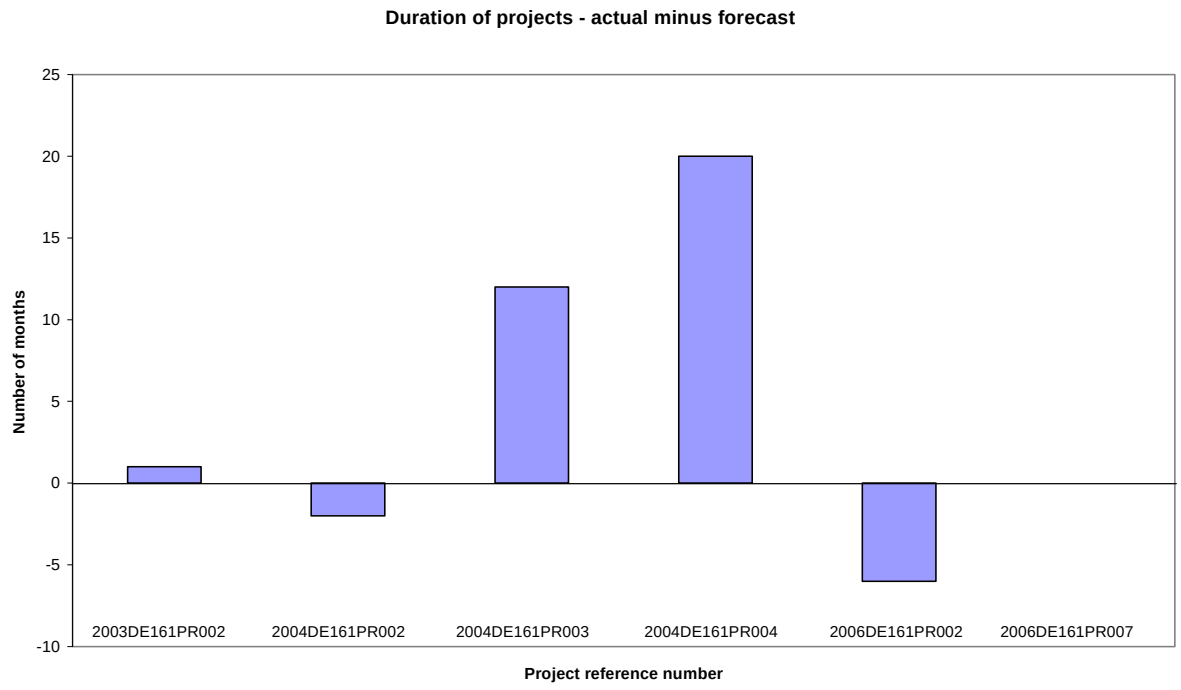
8.5.3. A simultaneous examination of Figure 70 and Figure 62 above reveals that the three projects on which cost savings were achieved all started on time and that all of the projects that delivered total cost overruns also started late.

Figure 69: Actual and projected start dates of 'new build' projects



8.5.4. In Figure 71 below, we show the differences between actual and forecasted project durations. In this case, bars above the line indicate that the project has taken longer than forecast, while bars below the line indicate a project that has been completed sooner than expected.

Figure 70: 'New build' project durations (actual *minus* projected start dates)



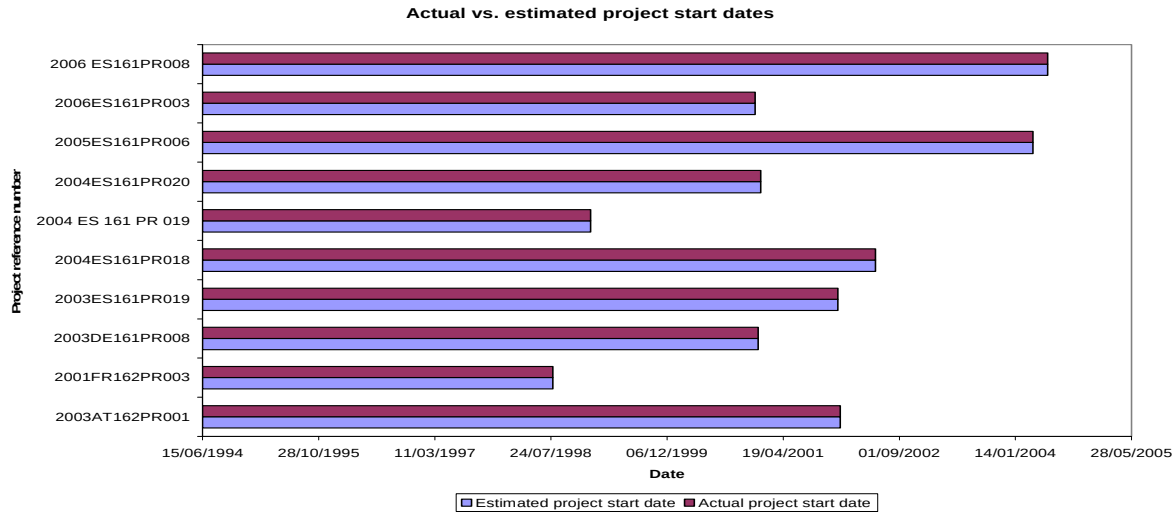
..

8.5.5. The relationship between Figure 71 and Figure 62 above is less discernible. Two of the projects that took longer than their estimated durations experienced cost savings. Likewise, both projects that had a shorter duration than estimated experienced cost overruns. Only one project was completed according to the anticipated timetable. This project also started on time and achieved a cost saving.

Expansion-based manufacturing projects

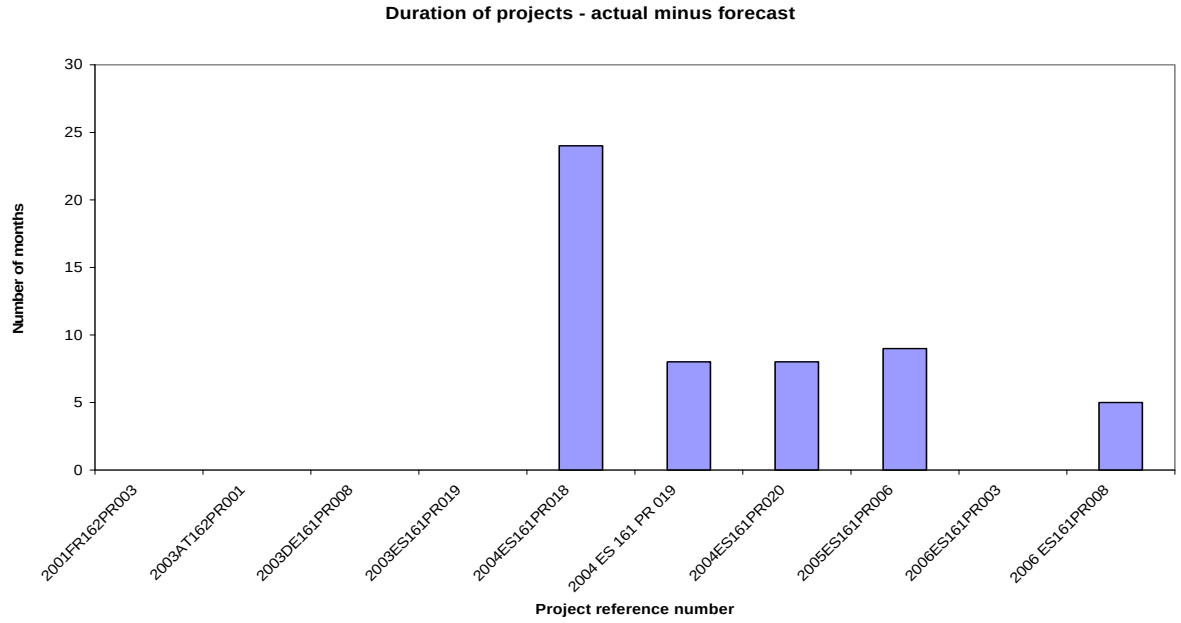
8.5.6. The projected and actual starting dates of our expansion-based manufacturing projects are shown in Figure 72. As can be seen, all of these projects started on time.

Figure 71: Actual and projected start dates of 'new build' projects



8.5.7. The differences between actual and forecast project durations for these projects are illustrated in Figure 73 below. Half of these projects were of a longer duration than anticipated, mostly by between 4 and 9 months, but one by about 2 years.

Figure 72: Expansion project durations (actual *minus* projected start dates)



8.5.8. An examination of Figure 73 and Figure 64 above reveals that the project with a much longer duration than anticipated also suffered a significant overrun on cost. The relationship is less discernible for the rest of the projects that took longer than expected.

8.6. Other causes of discrepancies identified by questionnaire respondents

8.6.1. In our questionnaire, we asked respondents to rate a list of potential causes of cost overruns and a lower than expected number of jobs created as a result of the investment. It is interesting to note that only two respondents cited delays as a reason for their projects costing more than expected or leading to the creation of less jobs than anticipated.

8.6.2. A number of respondents cited inflation as a factor is causing projects to cost more than forecast which is likely, in most cases, to be down to delays or longer project durations.

8.6.3. The other important factors identified included:

- Project design changes;
- Business plan changes;
- Lower demand for the goods or services to be produced as a result of the project;
- Increases in funding costs; and
- Material changes in the costs of the different components of the project.

8.6.4. We will be exploring these issues in the draft final report stage of the project.

9. Annex A: Country-by-country and project-by-project report on data gathering progress

Please note that blue-shaded cells are projects with potential EIB overlap.

9.1. Infrastructure

France

COUNTRY	SECTOR	PROJECT CODE	LEVEL 1 COSTS	LEVEL 2 COSTS	LEVEL 3 COSTS	GENERAL INFO	OVERRUN / DELAY ANALYSIS	Project incomplete	Possibles	Contacts just rec'd	No contact	No application form
France	Road	2004FR162PR001								Yes		
France	Road	2004FR161PR004								Yes		
France	Road	2005FR161PR001								Yes		
France	Urban tran	2003FR162PR002							Yes			
France	Urban tran	2004FR162PR005								Yes		
France	Urban tran	2006FR161PR001	Yes									
France	Urban tran	2006FR161PR002							Yes			
France	Urban tran	2006FR161PR003	Yes	Yes	Yes	Yes	Yes					
France	Energy	2005FR162PR003							Yes			
France	Water	2006FR162PR001								Yes		
France Count		**10**	**2**	**1**	**1**	**1**	**1**	**0**	**3**	**5**	**0**	**0**

Germany

COUNTRY	SECTOR	PROJECT CODE	LEVEL 1 COSTS	LEVEL 2 COSTS	LEVEL 3 COSTS	GENERAL INFO	OVERRUN / DELAY ANALYSIS	Project incomplete	Possibles	Contacts just rec'd	No contact	No application form
Germany	Road	2002DE161PR003							Yes			
Germany	Road	2002DE161PR004							Yes			
Germany	Road	2002DE161PR005							Yes			
Germany	Road	2002DE161PR006	Yes	Yes		Yes						
Germany	Road	2002DE161PR007	Yes			Yes	Yes					
Germany	Road	2003DE161PR006	Yes			Yes	Yes					
Germany	Rail	2002DE161PR002	Yes	Yes	Yes	Yes	Yes					
Germany	Rail	2003DE161PR004	Yes	Yes		Yes	Yes					
Germany	Rail	2003DE161PR005	Yes	Yes	Yes	Yes	Yes					
Germany	Rail	2003DE161PR007	Yes	Yes		Yes	No					
Germany	Rail	2005DE161PR002	Yes	Yes	Yes	Yes	Yes					
Germany	Rail	2005DE161PR005	Yes	Yes	Yes	Yes	Yes					
Germany Count		**12**	**9**	**7**	**4**	**9**	**8**	**0**	**3**	**0**	**0**	**0**

Greece

COUNTRY	SECTOR	PROJECT CODE	LEVEL 1 COSTS	LEVEL 2 COSTS	LEVEL 3 COSTS	GENERAL INFO	OVERRUN / DELAY ANALYSIS	Project incomplete	Possibles	Contacts just rec'd	No contact	No application form
Greece	Road	2003GR161PR008						Yes				
Greece	Road	2003GR161PR014	Yes	Yes	Yes	Yes	Yes					
Greece	Road	2003GR161PR015	Yes	Yes	Yes	Yes	Yes					
Greece	Road	2004GR161PR001	Yes									
Greece	Road	2004GR161PR002	Yes			Yes	Yes					
Greece	Road	2004GR161PR003									Yes	
Greece	Road	2005GR161PR008						Yes				
Greece	Road	2005GR161PR012	Yes	Yes	Yes	Yes	Yes					
Greece	Road	2005GR161PR014	Yes	Yes	Yes	Yes	Yes					
Greece	Road	2005GR161PR015	Yes	Yes	Yes	Yes	Yes					
Greece	Road	2005GR161PR017	Yes	Yes	Yes	Yes	Yes					
Greece	Rail	2003GR161PR013										
Greece	Rail	2003GR161PR016						Yes				
Greece	Rail	2005GR161PR001						Yes				

Greece (cont'd)

COUNTRY	SECTOR	PROJECT CODE	LEVEL 1 COSTS	LEVEL 2 COSTS	LEVEL 3 COSTS	GENERAL INFO	OVERRUN / DELAY ANALYSIS	Project incomplete	Possibles	Contacts just rec'd	No contact	No application form
Greece	Rail	2005GR161PR002	Yes			Yes	Yes					
Greece	Rail	2005GR161PR010	Yes					Yes				
Greece	Rail	2005GR161PR011	Yes	Yes	Yes	Yes	Yes					
Greece	Rail	2006GR161PR004						Yes				
Greece	Rail	2006GR161PR005						Yes				
Greece	Urban tran	2003GR161PR001	Yes	Yes	Yes	Yes	Yes					
Greece	Unknown	2003GR161PR010						Yes				
Greece	Urban tran	2004GR161PR005						Yes				
Greece	Energy	2003GR161PR002	Yes			Yes	Yes					
Greece	Energy	2005GR161PR005	Yes	Yes		Yes	Yes				Yes	
Greece	Energy	2005GR161PR006	Yes			Yes	Yes					
Greece	Energy	2006GR161PR007	Yes			Yes	Yes				Yes	
Greece	Unknown	2003GR161PR003									Yes	
Greece Count		**27**	**16**	**9**	**8**	**14**	**14**	**9**	**0**	**0**	**4**	**0**

Ireland

COUNTRY	SECTOR	PROJECT CODE	LEVEL 1 COSTS	LEVEL 2 COSTS	LEVEL 3 COSTS	GENERAL INFO	OVERRUN / DELAY ANALYSIS	Project incomplete	Possibles	Contacts just rec'd	No contact	No application form
Ireland	Road	2002IE161PR003	Yes	Yes		Yes	Yes					
Ireland	Road	2002IE161PR004	Yes	Yes		Yes	Yes					
Ireland	Road	2002IE161PR005	Yes			Yes	Yes					
Ireland	Road	2002IE161PR006	Yes			Yes	Yes					
Ireland	Road	2005IE161PR002	Yes	Yes		Yes	Yes					
Ireland	Urban tran	2001IE161PR001	Yes	Yes		Yes	Yes					
Ireland	Rail	2002IE161PR001	Yes	Yes		Yes	Yes					
Ireland	Rail	2005IE161PR001	Yes	Yes		Yes	Yes					
Ireland Count		**8**	**8**	**6**	**0**	**8**	**8**	**0**	**0**	**0**	**0**	**0**

Italy

COUNTRY	SECTOR	PROJECT CODE	LEVEL 1 COSTS	LEVEL 2 COSTS	LEVEL 3 COSTS	GENERAL INFO	OVERRUN / DELAY ANALYSIS	Project incomplete	Possibles	Contacts just rec'd	No contact	No application form
Italy	Road	2003IT161PR003	Yes	Yes	Yes	Yes	Yes					
Italy	Road	2003IT161PR005							Yes			
Italy	Road	2005IT161PR005							Yes			
Italy	Road	2006IT161PR002	Yes	Yes	Yes	Yes	Yes					
Italy	Road	2006IT161PR005	Yes	Yes	Yes	Yes	Yes					
Italy	Road	2006IT161PR006							Yes			
Italy	Rail	2003IT161PR001							Yes			
Italy	Rail	2003IT161PR002							Yes			
Italy	Rail	2003IT161PR012							Yes			
Italy	Rail	2004IT161PR006							Yes			
Italy	Rail	2004IT161PR007							Yes			

Italy (cont'd)

COUNTRY	SECTOR	PROJECT CODE	LEVEL 1 COSTS	LEVEL 2 COSTS	LEVEL 3 COSTS	GENERAL INFO	OVERRUN / DELAY ANALYSIS	Project incomplete	Possibles	Contacts just rec'd	No contact	No application form
Italy	Rail	2004IT161PR010							Yes			
Italy	Rail	2004IT161PR011							Yes			
Italy	Rail	2006IT161PR003							Yes			
Italy	Urban tran	2003IT161PR007							Yes			
Italy	Urban tran	2003IT161PR011							Yes			
Italy	Urban tran	2005IT161PR004							Yes			
Italy	Urban tran	2006IT161PR013							Yes			
Italy	Urban tran	2006IT161PR008							Yes			
Italy	Energy	2005IT161PR001								Yes		Yes
Italy	Water	2005IT161PR006						Yes				
Italy	Water	2005IT161PR007	Yes	Yes	No	Yes	Yes					

Poland

COUNTRY	SECTOR	PROJECT CODE	LEVEL 1 COSTS	LEVEL 2 COSTS	LEVEL 3 COSTS	GENERAL INFO	OVERRUN / DELAY ANALYSIS	Project incomplete	Possibles	Contacts just rec'd	No contact	No application form
Poland	Road	2005PL161PR003	Yes	Yes								
Poland	Road	2005PL161PR004	Yes	Yes								
Poland	Rail	2005PL161PR002	Yes	Yes		Yes						
Poland	Urban tran	2005PL161PR001	Yes	Yes	Yes	Yes	Yes					
Poland	Urban tran	2006PL161PR001	Yes			Yes	Yes					
Poland	Urban tran	2006PL161PR002	Yes	Yes		Yes	Yes					
Poland Count		**6**	**6**	**5**	**1**	**4**	**3**	**0**	**0**	**0**	**0**	**0**

Portugal

COUNTRY	SECTOR	PROJECT CODE	LEVEL 1 COSTS	LEVEL 2 COSTS	LEVEL 3 COSTS	GENERAL INFO	OVERRUN / DELAY ANALYSIS	Project incomplete	Possibles	Contacts just rec'd	No contact	No application form
Portugal	Road	2001PT161PR003									Yes	
Portugal	Rail	2005PT161PR001	Yes	Yes	Yes	Yes	Yes					
Portugal	Urban tran	2001PT161PR006									Yes	
Portugal	Urban tran	2003PT161PR005	Yes	Yes	Yes	Yes	Yes					
Portugal	Energy	2002PT161PR001									Yes	
Portugal	Energy	2005PT161PR003	Yes	Yes		Yes	Yes					
Portugal	Energy	2006PT161PR001	Yes	Yes		Yes	Yes					
Portugal	Energy	2006PT161PR002	Yes	Yes		Yes	Yes					
Portugal	Energy	2006PT161PR003	Yes	Yes		Yes	Yes					
Portugal Count		**9**	**6**	**6**	**2**	**6**	**6**	**0**	**0**	**0**	**3**	**0**

Slovakia

COUNTRY	SECTOR	PROJECT CODE	LEVEL 1 COSTS	LEVEL 2 COSTS	LEVEL 3 COSTS	GENERAL INFO	OVERRUN / DELAY ANALYSIS	Project incomplete	Possibles	Contacts just rec'd	No contact	No application form
Slovakia	Road	2004SK161PR001							Yes			
Slovakia	Road	2005SK161PR002							Yes			
Slovakia Count		**2**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**

Spain

COUNTRY	SECTOR	PROJECT CODE	LEVEL 1 COSTS	LEVEL 2 COSTS	LEVEL 3 COSTS	GENERAL INFO	OVERRUN / DELAY ANALYSIS	Project incomplete	Possibles	Contacts just rec'd	No contact	No application form
Spain	Road	2002ES161PR004							Yes			
Spain	Road	2002ES161PR009								Yes		Yes
Spain	Road	2002ES161PR013							Yes			
Spain	Road	2002ES161PR020							Yes			
Spain	Road	2002ES161PR026							Yes			
Spain	Road	2003ES161PR001							Yes			
Spain	Road	2003ES161PR005							Yes			
Spain	Road	2003ES161PR006							Yes			
Spain	Road	2004ES161PR023	Yes	Yes	No	Yes	Yes					
Spain	Rail	2002ES161PR012	Yes	Yes	Yes	Yes	Yes					

Spain (cont'd)

COUNTRY	SECTOR	PROJECT CODE	LEVEL 1 COSTS	LEVEL 2 COSTS	LEVEL 3 COSTS	GENERAL INFO	OVERRUN / DELAY ANALYSIS	Project incomplete	Possibles	Contacts just rec'd	No contact	No application form
Spain	Rail	2003ES161PR016							Yes			
Spain	Rail	2005ES161PR003	Yes	No	Yes	Yes	Yes					
Spain	Rail	2005ES161PR005	Yes	No	Yes	Yes	Yes					
Spain	Rail	2005ES161PR008	Yes	No	Yes	Yes	Yes					
Spain	Rail	2005ES161PR009	Yes	No	Yes	Yes	Yes					
Spain	Rail	2006ES161PR001	Yes	No	Yes	Yes	Yes					
Spain	Rail	2006ES161PR018									Yes	
Spain	Water	2002ES161PR025	Yes	Yes	Yes	Yes	Yes					
Spain	Water	2003ES161PR021								Yes		Yes
Spain	Water	2005ES161PR004	Yes	Yes	Yes	Yes	Yes					

Spain (cont'd)

COUNTRY	SECTOR	PROJECT CODE	LEVEL 1 COSTS	LEVEL 2 COSTS	LEVEL 3 COSTS	GENERAL INFO	OVERRUN / DELAY ANALYSIS	Project incomplete	Possibles	Contacts just rec'd	No contact	No application form
Spain	Water	2005ES161PR010	Yes	Yes	No	Yes	Yes					
Spain	Water	2005ES161PR011							Yes			
Spain	Water	2006ES161PR010						Yes				
Spain	Water	2006ES161PR011							Yes			
Spain	Water	2006ES161PR012						Yes				
Spain	Water	2006ES161PR013						Yes				
Spain	Water	2006ES161PR014						Yes				
Spain	Water	2006ES161PR016						Yes				
Spain	Water	2006ES161PR017						Yes				
Spain	Water	2006ES161PR015						Yes				
Spain Count		**30**	**10**	**10**	**10**	**10**	**10**	**7**	**10**	**2**	**1**	**2**

UK and total

COUNTRY	SECTOR	PROJECT CODE	LEVEL 1 COSTS	LEVEL 2 COSTS	LEVEL 3 COSTS	GENERAL INFO	OVERRUN / DELAY ANALYSIS	Project incomplete	Possibles	Contacts just rec'd	No contact	No application form
UK	Urban tran	2004GB161PR003							Yes			
UK	Energy	2002GB161PR005	Yes			Yes	Yes					
UK Count		**2**	**1**	**0**	**0**	**1**	**1**	**0**	**1**	**0**	**0**	**0**
Grand Count		**128**	**62**	**48**	**30**	**57**	**55**	**17**	**35**	**8**	**8**	**3**

9.2. Productive investments

Austria and France

Country	Project code	Outputs	Total expenditure	Investment cost breakdown	Number of jobs created	Cost overrun / delay analysis	Project incomplete	Possibles	Application / contacts just rec'd	No application form	No contact
Austria	2003AT162PR001	Yes	Yes	Yes	Yes	Yes					
Austria Count	**1**	**1**	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**
France	2001FR162PR003	Yes	Yes	Yes	Yes	Yes					
France	2005FR162PR002	Yes	Yes	Yes	Yes	Yes					
France Count	**2**	**2**	**2**	**2**	**2**	**2**	**0**	**0**	**0**	**0**	**0**

Germany

Country	Project code	Outputs	Total expenditure	Investment cost breakdown	Number of jobs created	Cost overrun / delay analysis	Project incomplete	Possibles	Application / contacts just rec'd	No application form	No contact
Germany	2003DE161PR002	Yes	Yes	Yes	Yes	Yes					
Germany	2003DE161PR008	Yes	Yes	Yes	Yes	Yes					
Germany	2004DE161PR002	Yes	Yes	Yes	Yes	Yes					
Germany	2004DE161PR003	Yes	Yes	Yes	Yes	Yes					
Germany	2004DE161PR004	Yes	Yes	Yes	Yes	Yes					
Germany	2005DE161PR001						Yes				
Germany	2006DE161PR001						Yes				
Germany	2006DE161PR002	Yes	Yes	Yes	Yes	Yes					
Germany	2006DE161PR008						Yes				
Germany Count	**9**	**6**	**6**	**6**	**6**	**6**	**3**	**0**	**0**	**0**	**0**

Italy and Portugal

Country	Project code	Outputs	Total expenditure	Investment cost breakdown	Number of jobs created	Cost overrun / delay analysis	Project incomplete	Possibles	Application / contacts just rec'd	No application form	No contact
Italy	2003IT161PR010										Yes
Italy	2004IT161PR002										Yes
Italy Count	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
Portugal	2002PT161PR002								Yes		
Portugal	2003PT161PR001								Yes		
Portugal	2003PT161PR002								Yes		
Portugal	2003PT161PR003								Yes		
Portugal	2004PT161PR001								Yes	Yes	
Portugal	2005PT161PR002								Yes		
Portugal Count	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**1**	**0**

Spain

Country	Project code	Outputs	Total expenditure	Investment cost breakdown	Number of jobs created	Cost overrun / delay analysis	Project incomplete	Possibles	Application / contacts just rec'd	No application form	No contact
Spain	2002ES161PR022									Yes	Yes
Spain	2003ES161PR002								Yes	Yes	
Spain	2003ES161PR019	Yes	Yes	Yes	Yes				Yes	Yes	
Spain	2003ES161PR020									Yes	Yes
Spain	2003ES161PR023						Yes			Yes	
Spain	2003ES161PR026								Yes	Yes	
Spain	2004ES161PR004								Yes	Yes	
Spain	2004ES161PR009						Yes			Yes	
Spain	2004ES161PR010						Yes			Yes	
Spain	2004ES161PR013	Yes	Yes	Yes	Yes					Yes	
Spain	2004ES161PR017						Yes			Yes	
Spain	2004ES161PR018	Yes	Yes	Yes	Yes	Yes				Yes	

Spain (cont'd)

Country	Project code	Outputs	Total expenditure	Investment cost breakdown	Number of jobs created	Cost overrun / delay analysis	Project incomplete	Possibles	Application / contacts just rec'd	No application form	No contact
Spain	2004ES161PR019	Yes	Yes	Yes	Yes	Yes				Yes	
Spain	2004ES161PR020	Yes	Yes	Yes	Yes	Yes				Yes	
Spain	2005ES161PR006						Yes				
Spain	2005ES161PR007	Yes	Yes	Yes	Yes	Yes					
Spain	2006ES161PR003	Yes	Yes	Yes	Yes	Yes					
Spain	2006ES161PR004						Yes				
Spain	2006ES161PR006						Yes				
Spain	2006ES161PR007	Yes	Yes								
Spain	2006ES161PR008	Yes	Yes								
Spain	2006ES161PR009								Yes		
Spain	2006ES161PR019						Yes				
Spain Count	**23**	**9**	**9**	**7**	**7**	**5**	**8**	**0**	**5**	**14**	**2**

UK and total

Country	Project code	Outputs	Total expenditure	Investment cost breakdown	Number of jobs created	Cost overrun / delay analysis	Project incomplete	Possibles	Application / contacts just rec'd	No application form	No contact
UK	2001GB161PR001	Yes	Yes	Yes	Yes	Yes				Yes	
UK	2005GB161PR001	Yes	Yes	Yes	Yes	Yes					
UK Count	**2**	**2**	**2**	**2**	**2**	**2**	**0**	**0**	**0**	**1**	**0**
Grand Count	**45**	**20**	**20**	**18**	**18**	**16**	**11**	**0**	**11**	**16**	**4**

10. Annex B: Sample questionnaires

ROADS

Project: **Project Ref No:**

COST – Insert total cost of the project and final year of expenditure.

Year		Estimated Cost - €	Actual Cost - €
Total Cost of Project			

LAND – Estimate the area of land acquired and the estimated and the out-turn cost.

Area - Ha	Estimated Cost - €	Actual Cost - €

SITE CONDITIONS – Please insert percentage of project attributes most appropriate

Attribute		%		%		%
Terrain	Mountainous		Hilly		Level	
Locality	Urban		Semi		Rural	
Ground Conditions	Hard		Normal		Soft	
Environmental Constraints	Difficult		Normal		Easy	

CARRIAGEWAY – Whether new construction or rehabilitation insert number of carriageways and lanes per carriageway. Include the shoulder in the number of lanes if the width exceeds 3m, also the length, the estimated cost and the actual cost.

i) New Construction

	No	km	Est Cost - €	Act Cost - €
Carriageways				
Lanes / carriageway				

ii) Rehabilitation

	No	km	Est Cost - €	Act Cost - €
Carriageways				
Lanes / carriageway				

BRIDGES / TUNNELS – Insert the number of bridges and tunnels and the total area or length.

Bridge Type	No	Deck Area – m^2	Est Cost - €	Act Cost - €
Beam				
Cantilever				
Arch				
Suspension				
Cable Stay				
Truss				
Tunnels	No	Total Length	Est Cost - €	Act Cost - €
Bored				
Cut and Cover				

OTHER – Please insert any other relevant information.

	Description / Quantity	Est Cost - €	Act Cost - €

TIME – Please provide the estimated and actual periods for the following stages.

Attribute	Estimated Time Period - months	Actual Time Period - months
Planning Stage		
Securing Funding		
Permissions / Consents		
Procurement / Preparation		
Construction		

PROCUREMENT – Please provide information on the Contract procurement process. Insert or delete as appropriate

Attribute	Response
Contract Type	ICE, NEC, FIDIC, Bespoke etc
Project Complexity	Range from straightforward to complex
Procuring Agency	
Fixed Cost / Remeasure	
Design responsibility	Client, Designer, Contractor
Funding Structure	Public, PPP etc

COST / TIME OVER-RUNS – Provide an assessment of the impact relating to cost or time over-runs.
Score 1 to 5, Minimum 1 if little impact, maximum 5 if major impact. Enter zero if not applicable.

Level 1	Level 2	Cost	Time	Level 1	Level 2	Cost	Time
Procurement	Complexity of Contract Structure			Project Environment	Public Relations		
	Design Changes				Site Characteristics		
	Contractor specific difficulties				Permits/Consents/Approvals		
	Disputes with suppliers and subcontractors			External Factors	Changes in Legislation / Regulations		
	Poor Planning/Methodology errors				Political		
Project Specific	Design Complexity				Technology		
	Degree of Innovation				Inflation		
	Environmental Impact				Exchange Rates		
	Site access difficulties				Force Majure		
	Suspension of works				Other (specify)		
	Delays by statutory authorities and/or contractors			Other (Please specify)			
	Late commencement of work						
	Construction period						
Client Specific	Inadequacy of the Business Case						
	Large Number of Stakeholders						
	Funding Availability/Problems						
	Project Management Team						

RAIL

Project: **Project Ref No:**

COST – Insert total cost of the project and final year of expenditure.

Year		Estimated Cost - €	Actual Cost - €
Total Cost of Project			

LAND – Estimate the area of land acquired and the estimated and the out-turn cost.

Area - Ha	Estimated Cost - €	Actual Cost - €

SITE CONDITIONS – Please insert percentage of project attributes most appropriate

Attribute		%		%		%
Terrain	Mountainous		Hilly		Level	
Locality	Urban		Semi		Rural	
Ground Conditions	Hard		Normal		Soft	
Environmental Constraints	Difficult		Normal		Easy	

RAIL– single or twin track, elevated, at grade or in tunnel insert estimated cost, actual cost and length.

	Diesel /	At Grade			Elevated			In Tunnel		
	Electric	Est Cost - €	Act Cost - €	km	Est Cost - €	Act Cost - €	km	Est Cost - €	Act Cost - €	km
Single										
Twin										

STATIONS / ROLLING STOCK–Surface, underground or elevated, insert estimated and actual cost and size.

					Rolling Stock			
Station Type	Station Area m^2	Platform Area m^2	Est Cost - €	Act Cost - €	Type	Nr	Est Cost - €	Act Cost - €
Surface Level								
Underground								
Elevated								

BRIDGES / TUNNELS – Insert the number of bridges and tunnels and the total area or length.

Bridge Type	No	Deck Area – m^2	Est Cost - €	Act Cost - €	Bridge Type	No	Deck Area – m^2	Est Cost - €	Act Cost - €
Beam					Suspension				
Cantilever					Cable Stay				
Arch					Truss				

Tunnels	No	Total Length	Est Cost - €	Act Cost - €
Bored				
Cut and Cover				

OTHER COSTS – Please insert any other relevant information.

	Description / Quantity	Est Cost - €	Act Cost - €
Utilities			
Power Supply			
Signalling			
Communication			
Park & Ride			
Depot			
Other			
Other			
Other			

TIME – Please provide the estimated and actual periods for the following stages

Attribute	Estimated Time Period - months	Actual Time Period - months
Planning Stage		
Securing Funding		
Permissions / Consents		
Procurement / Preparation		
Construction		

PROCUREMENT – Please provide information on the Contract procurement process. Insert or delete as appropriate

Attribute	Response
Contract Type	ICE, NEC, FIDIC, Bespoke etc
Project Complexity	Range from straightforward to complex
Procuring Agency	
Fixed Cost / Remeasure	
Design responsibility	Client, Designer, Contractor
Funding Structure	Public, PPP etc

COST / TIME OVER-RUNS – Provide an assessment of the impact relating to cost or time over-runs.
Score 1 to 5, Minimum 1 if little impact, maximum 5 if major impact. Enter zero if not applicable.

Level 1	Level 2	Cost	Time	Level 1	Level 2	Cost	Time
Procurement	Complexity of Contract Structure			Project Environment	Public Relations		
	Design Changes				Site Characteristics		
	Contractor specific difficulties				Permits/Consents/Approvals		
	Disputes with suppliers and subcontractors			External Factors	Changes in Legislation / Regulations		
	Poor Planning/Methodology errors				Political		
Project Specific	Design Complexity				Technology		
	Degree of Innovation				Inflation		
	Environmental Impact				Exchange Rates		
	Site access difficulties				Force Majure		
	Suspension of works				Other (specify)		
	Delays by statutory authorities and/or contractors			Other (Please specify)			
	Late commencement of work						
	Construction period						
Client Specific	Inadequacy of the Business Case						
	Large Number of Stakeholders						
	Funding Availability/Problems						
	Project Management Team						

URBAN TRANSPORT

Project: **Project Ref No:**

COST – Insert total cost of the project and final year of expenditure.

Year		Estimated Cost - €	Actual Cost - €
Total Cost of Project			

LAND – Estimate the area of land acquired and the estimated and the out-turn cost.

Area - Ha	Estimated Cost - €	Actual Cost - €

SITE CONDITIONS – Please insert percentage of project attributes most appropriate

Attribute		%		%		%
Terrain	Mountainous		Hilly		Level	
Locality	Urban		Semi		Rural	
Ground Conditions	Hard		Normal		Soft	
Environmental Constraints	Difficult		Normal		Easy	

FORM OF TRANSPORT– Whether metro, tram or guided bus, single or twin track, elevated, at grade or in tunnel insert estimated cost, actual cost and length.

		Diesel /	At Grade			Elevated			In Tunnel		
		Electric	Est Cost - €	Act Cost - €	km	Est Cost - €	Act Cost - €	km	Est Cost - €	Act Cost - €	km
Metro	Single										
	Twin										
Tram	Single										
	Twin										
Guided Bus	Single										
	Twin										

STATIONS / ROLLING STOCK– Whether metro, tram or guided bus, surface or underground, insert estimated and actual cost and size.

	Surface Level Station / Stop			Underground Station / Stop			Rolling Stock			
	m^2	Est Cost - €	Act Cost - €	m^2	Est Cost - €	Act Cost - €	Type	Nr	Est Cost - €	Act Cost - €
Metro										
Tram										
Guided Bus										

BRIDGES / TUNNELS – Insert the number of bridges and tunnels and the total area or length.

Bridge Type	No	Deck Area – m^2	Est Cost - €	Act Cost - €
Beam				
Cantilever				
Arch				
Suspension				
Cable Stay				
Truss				
Tunnels	No	Total Length	Est Cost - €	Act Cost - €
Bored				
Cut and Cover				

OTHER – Please insert any other relevant information.

	Description / Quantity	Est Cost - €	Act Cost - €
Utilities			
Power Supply			
Signalling			
Communication			
Park & Ride			
% Fixed Link			
Depot			
Other			
Other			

TIME – Please provide the estimated and actual periods for the following stages.

Attribute	Estimated Time Period - months	Actual Time Period - months
Planning Stage		
Securing Funding		
Permissions / Consents		
Procurement / Preparation		
Construction		

PROCUREMENT – Please provide information on the Contract procurement process. Insert or delete as appropriate

Attribute	Response
Contract Type	ICE, NEC, FIDIC, Bespoke etc
Project Complexity	Range from straightforward to complex
Procuring Agency	
Fixed Cost / Remeasure	
Design responsibility	Client, Designer, Contractor
Funding Structure	Public, PPP etc

COST / TIME OVER-RUNS – Provide an assessment of the impact relating to cost or time over-runs.
Score 1 to 5, Minimum 1 if little impact, maximum 5 if major impact. Enter zero if not applicable.

Level 1	Level 2	Cost	Time	Level 1	Level 2	Cost	Time
Procurement	Complexity of Contract Structure			Project Environment	Public Relations		
	Design Changes				Site Characteristics		
	Contractor specific difficulties				Permits/Consents/Approvals		
	Disputes with suppliers and subcontractors			External Factors	Changes in Legislation / Regulations		
	Poor Planning/Methodology errors				Political		
Project Specific	Design Complexity				Technology		
	Degree of Innovation				Inflation		
	Environmental Impact				Exchange Rates		
	Site access difficulties				Force Majure		
	Suspension of works				Other (specify)		
	Delays by statutory authorities and/or sub-contractors			Other (Please specify)			
	Late commencement of work						
	Construction period						
Client Specific	Inadequacy of the Business Case						
	Large Number of Stakeholders						
	Funding Availability/Problems						
	Project Management Team						

WATER / WASTE WATER

Project: **Project Ref No:**

COST – Insert total cost of the project and final year of expenditure.

Year		Estimated Cost - €	Actual Cost - €
Total Cost of Project			

LAND – Estimate the area of land acquired and the estimated and the out-turn cost.

Area - Ha	Estimated Cost - €	Actual Cost - €

POPULATION – Estimate the number of people benefiting from the project.

Population Served - No	

SITE CONDITIONS – Please insert percentage of project attributes most appropriate

Attribute		%		%		%
Terrain	Mountainous		Hilly		Level	
Locality	Urban		Semi		Rural	
Ground Conditions	Hard		Normal		Soft	
Environmental Constraints	Difficult		Normal		Easy	

WATER MAIN / SEWER – Insert the length of main or sewer provided broken down into whatever details of pipe, main or culvert size is available. If this information is not available estimate the maximum size.

Pipe Dia - mm	Gravity main / sewer Length - km	Pressure main / sewer Length - km	Est Cost - €	Act Cost - €
Total - km				

INFRASTRUCTURE – estimate the volume or area of building if any (either not both) and the estimate and out-turn cost. If roads are involved estimate the number of lanes, the length and the costs.

Buildings				
Type	Volume – m^3	Area – m^2	Est Cost - €	Act Cost - €
Roads				
Description	No Lanes	Length	Est Cost - €	Act Cost - €

For Mechanical & Electrical and other infrastructure insert a description and estimated and actual costs.

Mechanical & Electrical			
Description	Quantity	Est Cost - €	Act Cost - €
Other Infrastructure - 1			
	Quantity	Est Cost - €	Act Cost - €
Other Infrastructure - 2			
Description	Quantity	Est Cost - €	Act Cost - €

TIME – Please provide the estimated and actual periods for the following stages.

Attribute	Estimated Time Period - months	Actual Time Period - months
Planning Stage		
Securing Funding		
Permissions / Consents		
Procurement / Preparation		
Construction		

PROCUREMENT – Please provide information on the Contract procurement process. Insert or delete as appropriate

Attribute	Response
Contract Type	ICE, NEC, FIDIC, Bespoke etc
Project Complexity	Range from straightforward to complex
Procuring Agency	
Fixed Cost / Remeasure	
Design responsibility	Client, Designer, Contractor
Funding Structure	Public, PPP etc

ENERGY – WIND FARMS

Project: **Project Ref No:**

COST – Insert total cost of the project and final year of expenditure.

Year		Estimated Cost - €	Actual Cost - €
Total Cost of Project			

LAND – Estimate the area of land acquired and the estimated and the out-turn cost.

Onshore/ Offshore	Area - Ha	Estimated Cost - €	Actual Cost - €

SITE CONDITIONS – Please insert percentage of project attributes most appropriate

Attribute		%		%		%
Terrain	Mountainous		Hilly		Level	
Ground Conditions	Hard		Normal		Soft	
Environmental Constraints	Difficult		Normal		Easy	

WIND TURBINES

Type	Capacity (MW)	Rotor Diameter (m)	Tower Height (m)	Number	Estimated cost - €	Actual cost - €

OTHER COSTS - Please insert any other relevant information

	Description/ Quantity	Estimated cost - €	Actual cost - €
Electrical substations			
Cabling/ power lines			
Earthworks			
Turbine foundations			
Other			
Other			
Other			

TIME – Please provide the estimated and actual periods for the following stages.

Attribute	Estimated Time Period - months	Actual Time Period - months
Planning Stage		
Securing Funding		
Permissions / Consents		
Procurement / Preparation		
Construction		

PROCUREMENT – Please provide information on the Contract procurement process. Insert or delete as appropriate

Attribute	Response
Contract Type	ICE, NEC, FIDIC, Bespoke etc
Project Complexity	Range from straightforward to complex
Procuring Agency	
Fixed Cost / Remeasure	
Design responsibility	Client, Designer, Contractor
Funding Structure	Public, PPP etc

COST / TIME OVER-RUNS – Provide an assessment of the impact relating to cost or time over-runs.
Score 1 to 5, Minimum 1 if little impact, maximum 5 if major impact. Enter zero if not applicable.

Level 1	Level 2	Cost	Time	Level 1	Level 2	Cost	Time
Procurement	Complexity of Contract Structure			Project Environment	Public Relations		
	Design Changes				Site Characteristics		
	Contractor specific difficulties				Permits/Consents/Approvals		
	Disputes with suppliers and subcontractors			External Factors	Changes in Legislation / Regulations		
	Poor Planning/Methodology errors				Political		
Project Specific	Design Complexity				Technology		
	Degree of Innovation				Inflation		
	Environmental Impact				Exchange Rates		
	Site access difficulties				Force Majure		
	Suspension of works				Other (specify)		
	Delays by statutory authorities and/or contractors			Other (Please specify)			
	Late commencement of work						
	Construction period						
Client Specific	Inadequacy of the Business Case						
	Large Number of Stakeholders						
	Funding Availability/Problems						
	Project Management Team						

PRODUCTIVE INVESTMENTS

Costs

Please indicate clearly the dates for which estimated and actual cost data are stated (to facilitate adjustments to a common price base).

We have extracted the estimated cost information available from the ERDF project application forms supplied by the Commission. Where it is possible to provide more detailed breakdowns (for estimates and actuals), please do so.

Cost category	**Estimate**	**Actual**
Total project cost (€)		
Private sector funding (€)		
ERDF funding (€)		
Other public funding (€) (please provide details)		
Cost breakdown:		
- construction works		
- plant & equipment		
- land acquisition		
- site preparation		
- IT infrastructure		
- training		
- professional fees		
- other (1) provide details		
- other (2) provide details		
- other (3) provide details		
FTE jobs created		
FTE jobs safeguarded		
Total cost per FTE job created		

Delivery time

Please provide estimated and actual delivery times in months.

Project stage	Estimate	Actual
Start date		
Finish date		

General attributes

Attribute	Description
Project name	
Project reference	
Country	
Approval date	
Project type*	
Amount of ERDF funding	

*Please choose from:

- Manufacturing – expansion
- Manufacturing – rehabilitation
- Manufacturing – new build
- Transport infrastructure
- Training
- Sports/leisure facilities
- Investment fund
- Other (please specify)

Cost overrun analysis

Please rate the reasons for cost overruns according to the following guidelines.

Scoring for cause of overruns and delays	
No or insignificant cause of over run or delay	0
Minor factor contributing to overrun or delay (<20%)	1
Major factor contributing to overrun or delay (20%- 50%)	2
Very significant contributing factor (>50%)	3

Issue	Score
Delays in implementation – planning	
Delays in implementation – construction	

Design changes	
Material cost increases/decreases	
Inflation	
Funding costs	
Other 1 (please specify)	
Other 2 (please specify)	
Other 3 (please specify)	

Job creation variance analysis

Please rate the reasons for deviations from expected levels of job creation.

Scoring for cause of overruns and delays

No or insignificant cause of over run or delay	0
Minor factor contributing to overrun or delay (<20%)	1
Major factor contributing to overrun or delay (20%- 50%)	2
Very significant contributing factor (>50%)	3

Issue	**Score**
Delays in implementation – planning	
Delays in implementation – construction	
Design changes	
Changes in business plan	
Demand for services lower/higher than planned	
Lack of suitable staff	
Other 1 (please specify)	
Other 2 (please specify)	
Other 3 (please specify)	