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EU Cohesion Aid to Spain: a Data Set
Part II: 1994-99 Planning Period

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Abstract

In this paper we construct a data set on EU cohesion aid to Spain during the planning period 1994-99. The data are disaggregated by region, year and function and attempt to approximate the timing of actual executed expenditure on assisted projects.

Key words: Structural Funds, EU Cohesion policy

JEL Classification: R58

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1. Introduction

This paper is part of a larger project whose aim is to construct a data set on cohesion support to the Spanish regions that can be used as an input in ex-post evaluations of the macroeconomic effects of EU aid. In a previous paper (de la Fuente and Boscá, 2010) we constructed annual series of EU grants and total assisted expenditure linked to the Cohesion Fund and to all the Structural Funds for the planning period 2000-06. In this paper we partially extend these series back, reaching 1993 for the Cohesion Fund and 1994 for the Regional Development Fund. As in our previous paper, the series we construct are disaggregated by region and by function and try to approximate the timing of actual executed expenditure on assisted projects. In most cases, however, the quality of the approximation is somewhat more uncertain than for more recent years due to the limitations of the available primary data.

2. The Regional Development Fund

Data on ERDF assisted expenditure and EU grants have been provided by the State Comptroller's Office (IGAE) of the Spanish Ministry of Finance. They originally come from an early version of the information system described in our previous paper and refer to expenditure certifications, just as the more recent data described there (see de la Fuente and Boscá (2010) for further details). Since certifications can be expected to closely follow billings by final contractors, these data should provide a good approximation to the timing of actual expenditure on the ground. On the other hand, the approximation is likely to be somewhat less accurate than for the 2000-06 programming period because, according to ministry officials, the lag between actual expenditures and their certification may have been somewhat longer and more variable in the early years of the development of the Fund's management system.

The primary ERDF data for 1994-1999 also display other problems and limitations that are likely to have a negative effect on the quality of our final series for this period. The first problem is that the disaggregation of expenditure by heading and subheading is considerably coarser in 1994-99 than in 2000-06, particularly in the case of Objective 2 regions (see section b in Appendix 1). As a result, the share of expenditure that gets assigned to the wrong functional heading under our classification is almost certain to be higher than in 2000-06. Similarly, the share of expenditure that has not been allocated to a specific region is now considerably higher than in the 2000-06 period (6.9% rather than 0.01%).

A third complication is that the primary data on certified expenditure and on EU grants do not exactly match each other over time. While expenditure certifications extend to 2001 or 2002, two or three years beyond the theoretical end of the planning period, annual data on EU grants stop in 1999. Hence, grants seem to have been distributed only over the official duration of the planning period (presumably because they have to be charged to the allocations for commitments that were budgeted for a specific year of the planning period) while certifications track actual execution, which typically takes at least two additional years to complete. Given this discrepancy, it has been necessary to redistribute EU grants across time so that they match

certifications. To achieve this, we have first calculated a subsidy rate by dividing total assisted expenditure for each program and region by the corresponding total EU grant (where both totals are computed by adding up the corresponding nominal flows over the entire period, without any deflation or discounting). This rate is then applied to the yearly flow of certified expenditure to approximate EU grants in each period. While carrying out these calculations, a series of minor discrepancies and inconsistencies in the data became apparent. These problems, and the solution given to each one of them, are described in Appendix 2.

Table 1: ERDF, total assisted expenditure in Spain, 1994-99
Millions of current euros

	total expenditure	*% of total*	*subsidy rate*
1. Productive Infrastructure	***14,905***	***47.2%***	***57.9%***
1.1. Transport	12,082	38.2%	57.3%
1.2. Water	2,220	7.0%	64.7%
1.3. Urban structures	603	1.9%	44.1%
2. Other direct pub. investment	***6,002***	***19.0%***	***62.6%***
2.1. Environmental infrastructures	2,863	9.1%	66.4%
2.2. Information Society	67	0.2%	58.2%
2.3. Other investment	3,072	9.7%	59.1%
3. Aid to private enterprises	***8,780***	***27.8%***	***55.1%***
3.1. Subsidies to private investment	5,026	15.9%	51.3%
3.2. Current subsidies and services	3,755	11.9%	60.1%
4. Human resources	***274***	***0.9%***	***68.4%***
4.1. Training of researchers	0	0.0%	
4.2. Occupational training	4	0.0%	71.8%
4.3. Formal schooling	270	0.9%	68.4%
5. Research and development	***1,446***	***4.6%***	***60.3%***
6. Employment creation	***16***	***0.1%***	***70.7%***
6.1. Aid to disadvantaged groups	16	0.1%	70.7%
6.2. General programs	0	0.0%	
7. Other	***164***	***0.5%***	***65.4%***
7.1. Fight against discrimination	0	0.0%	
7.2. Technical assistance	164	0.5%	65.4%
TOTAL	**31,587**	**100.0%**	***58.2%***
Memo:			
1.1. Transport infrastructures	*12,082*	*38.2%*	*57.3%*
Airports	389	1.2%	58.5%
Roads and highways	8,650	27.4%	61.3%
Railways and subways	1,102	3.5%	57.5%
Ports	582	1.8%	58.7%
Multi-modal transport	64	0.2%	45.3%
Not specified	1,296	4.1%	30.7%

- *Note*: Planning period 1994-99, certified expenditure between 1994 and 2002. Includes national cofinancing.

Table 1 shows the functional breakdown of ERDF-assisted total expenditure in Spain during the period of interest using the same classification scheme as in our previous paper. The table also shows the weight of each function in total spending and the average EU subsidy rate for each

type of expenditure. ERDF-assisted expenditure in Spain corresponding to the 1994-99 planning period amounted to 31.6 billion euros, 58% of which was financed by EU grants. The largest share of expenditure corresponds to productive infrastructure, which absorbed 46.9% of total spending, followed by various types of aids to enterprises (26.3%), other direct public investment (20.4) and R&D spending (4.7%)

3. The Cohesion Fund

Data on Cohesion Fund assisted expenditure and EU grants have been provided by the Directorate General for European Funds of the Spanish Ministry of Finance. They refer in principle to payment flows of Cohesion Fund (CF) grants for individual projects, i.e. to ex-post reimbursements by the Commission's Central Services of part of the expenditure on assisted projects.[1] One drawback of these data is that the time lag between reimbursements and the actual execution of the assisted projects is both longer and more uncertain than the lag between actual expenditure and certifications. Fortunately, in 56.6% of the cases (accounting for 64.5% of total grants), we also know the date on which the reimbursement claim was filed by the Spanish authorities.[2] Since reimbursement claims should be a much better indicator of the timing of actual expenditure, we have estimated claim dates for those records for which this information is missing and relied on this variable to approximate the timing of expenditure flows.

Missing dates for reimbursement claims are estimated by subtracting from the date of the corresponding payment the mean delay between claims and payments in the subsample for which both dates are known. This delay is calculated separately for the final payment of each project and for all other payments. As expected final payments take considerably longer to be processed (with a mean delay 6.9 months vs. 3.3 months for all other payments), as the Commission services take some time to certify that the project has been satisfactorily completed.

Observed or estimated claim dates are used to classify payment flows by year. Claims filed during the second to fourth trimesters of year t and the first trimester of year $t+1$ and are assumed to correspond to actual expenditure on the ground during year t. Projects are then aggregated by region and function (see below) and total assisted expenditure is estimated by scaling up grant payments using an estimate of the EU subsidy rate that applies to different types of projects. This rate has been computed using a listing of the CF projects approved in 1993-99 (not broken down by year) taken from the Ministry's website (MEH, 2011) which includes both the expected cost of each project and the amount of the EU grant. Subsidy rates for CF projects during this period range between 80% and 85% with very few exceptions. According to this source, the average subsidy rate was 82.6% for transport projects and 81.8% for environmental projects, including water supply infrastructures.

[1] Before the introduction of the euro, payment data are expressed in ecus. The Ministry, however, also provides an exchange rate that we have used to convert these data to pesetas and then to euros, using the official conversion rate of 166.386 pesetas per euro. Since the ecu-peseta exchange rate corresponds to the date of the reimbursement and not to the date of execution, its fluctuations may introduce some minor noise in the data.

[2] In a few cases, reimbursement claims have been assigned an earlier date than the corresponding payment. In such cases, we have deleted the claim date and treated it as a missing observation.

Table 2: Correspondence between Cohesion Fund "axes" and our functional classification

Cohesion Fund axes	*Our functional classification*
Transport networks:	*1.1. Transport*
Airports	
Roads	
Ports and maritime traffic control	
Railroads	
Water supply:	*1.2. Water*
Water treatment and quality control	
Adequate water management	
Environmental protection:	*2.1. Environmental infrastructures*
Urban environment	
Waste treatment	
Soil erosion	
Studies and technical support	*7.2. Technical assistance*

Table 3: Cohesion Fund assisted expenditure in Spain, Planning period 1993-99 Millions of current euros

	total expenditure	*% of total*	*subsidy rate*
1. Productive Infrastructure	***9,053***	***84.3%***	82.6%
1.1. Transport	5,408	50.4%	
1.2. Water	3,645	34.0%	
2. Other direct pub. investment	***1,678***	***15.6%***	
2.1. Environmental infrastructures	1,678	15.6%	81.8%
7.2. Technical Assistance	***2***	***0.0%***	
Total	**10,733**	**100.0%**	82.2%
Memo:			
1.1. Transport infrastructures			
Airports	86	0.8%	
Roads and highways	3,067	28.6%	
Railways and subways	2,180	20.3%	
Ports and maritime traffic control	75	0.7%	

- *Note*: Projects approved during the period 1993-99, executed between 1993 and 2009. Includes estimated national cofinancing.

Cohesion Fund projects are classified by the Ministry into 10 functional areas or "axes" which we have mapped into our standard functional classification in the way shown in Table 2. Table 3 shows the functional breakdown of Cohesion Fund assisted expenditure in Spain approved during the planning period 1993-99, which amounted to 10.7 billion euros. A bit over 50% of this sum was devoted to transport infrastructures, with roads and railroads accounting for the lion's share of this item, while water supply infrastructures absorbed around 34% of the total and environmental protection the remaining 16%.

The Ministry has broken down by region 66.2% of total assisted expenditure, while the rest involves projects that affect several territories. In the case of rail infrastructures, we have allocated expenditure on several large projects (amounting to 1,465 meuros) to the relevant regions in proportion to their share in the length of the corresponding segment of the track. Track lengths are approximated by road distances between frontier towns along a route similar to the one followed by the train line.[3] This increases the fraction of expenditure that can be regionalized to 79.9%.

4. Data files and price deflators

The data constructed in this paper are summarized in the two attached Excel files (*CF+ERDF_94_99_total exp.xls* and *CF+ERDF_94_99_EUgrants.xls*). One file gives total assisted expenditure and the other total EU grants corresponding to the sum of the Regional Development and Cohesion Funds for the planning period 1994-99, disaggregated by year, region and function using the classification given in Tables 1 and 2. Expenditure and grant data are measured in thousands of current euros. There is a separate sheet for each region, counting the autonomous cities of Ceuta and Melilla as a single territory, and another sheet for those projects that could not be distributed by region.

The file also contains a sheet with price deflators (equal for all regions) that can be used to obtain expenditure data at constant prices of 2000. The construction of the deflators is described in de la Fuente and Boscá (2010). The only novelty is that the GDP deflator series (which is based on the 1995 and 2000 bases of the National Accounts) is extended backward from 1995 to 1993 using the growth rate of the same magnitude in the earlier 1986 base of the National Accounts.

[3] See Appendix 3 for further details.

Appendix 1: Correspondence between ERDF intervention measures and the expenditure types given in Table 1

The Spanish government classifies interventions financed by the Structural Funds into axes and subaxes. This section lists the subaxes that have been assigned to each of the expenditure categories and subcategories listed in Table 1 of the text. The identification code for each measure has been constructed as 100*Axis number + subaxis code according to the Ministry's classification scheme. We have retained the original names (in Spanish) of the different subaxes. An asterisk is used to identify those measures about whose classification we have doubts.

a. Classification scheme for Objective 1 regions (less developed regions)

1. Productive infrastructures

1.1. Transport infrastructures
101 carreteras y autovías
102 ferrocarriles
103 puertos
104 aeropuertos
106 otros medios de transporte

1.2. Water Works
601 agua

2. Other direct public investment

2.1. Environmental infrastructure
603 Protección y mejora del medio ambiente

2.2. Information Society
606 Sociedad de la información

2.3. Other investment

Agriculture
402 Agricultura y desarrollo rural: medidas estructurales

Educational centers
701 Equipamientos de formación

Social and medical facilities
605 Equipamientos sanitarios

Touristic and cultural infrastructures
302 Valorización recursos culturales de interés turístico

Sports installations

Industrial parks and similar installations
203 Zonas industriales y artesanales

3. Aid to enterprises

3.1. Subsidies to private investment
107 Telecomunicaciones
201B Otras industrias y artesanía
301A Ayudas a las inversiones turísticas
401 Desarrollo rural*

404 and 405*: These codes appear in the primary data although not in the key provided by the Ministry. At any rate, they are programs providing support for agricultural activities or rural development.
501 Pesca
602 Energía

3.2. Current subsidies and services to firms and entrepreneurs
202 Desarrollo local y ayudas servicios a empresas*

4. Human resources

4.1. Training of researchers and support personnel

4.2. Occupational training programs for employed and unemployed workers
703 Formación continua de los trabajadores

4.3. Formal education, including vocational training programs
702 Reforzamiento educación técnica profesional

5. Research and development
604A Ayudas a la investigación, desarrollo e innovación

6. Employment creation and employability

6.1. Aid to disadvantaged groups
705 Integración en el mercado de trabajo de personas con discapacidades especiales

6.2. General programs
704 Inserción y reinserción solicitantes de empleo

7. Other

7.1. Combatting discrimination

7.2. Technical assistance

801 Asistencia técnica, acompañamiento, seguimiento e información

b. Classification scheme for Objective 2 regions (restructuring of declining regional areas)

The available data are disaggregated only at the level of six axes, several of which seem to include measures of very different nature. We have used the regional reports given in CE (1999) to try to identify dominant expenditure items in each category. In most regions, Axis 4 (communications) funding seems to have been spent mostly on road infrastructure, but there are some exceptions. In the Basque country some resources were also devoted to railroads and ports and in the case of Catalonia no specific information is provided in the regional report. In these two cases, Axis 4 spending has been included in transport infrastructure but not broken down by type of infrastructure. In Table 1, spending on transport infrastructure in these two regions is integrated in the "not specified" category.

Axis 5 (local and urban development) seems to finance many different types of measures with weights that vary significantly across regions. The measures subsidized under this axis include urban infrastructures of various types and support to enterprises. Since there is no breakdown

of expenditure by type, we have included this axis in category 1.3 (urban infrastructures) but the margin for error is quite considerable in this case.

1. Productive infrastructures

1.1. Transport infrastructures
Eje 4: Desarrollo de las comunicaciones ligadas a las actividades económicas

1.3. Urban infrastructures
Eje 5: Desarrollo local y urbano***

2.1. Environmental infrastructure
Eje 2: Protección del medioambiente

3.2. Current subsidies and services to firms and entrepreneurs
Eje 1: Apoyo al empleo, la competitividad y la internacionalización de la actividad económica

5. Research and development
Eje 3: Fomento de la investigación, tecnología e innovación

7.2. Technical assistance
Eje 6: Asistencia Técnica

c. Classification scheme for Objective 5b regions (development of vulnerable rural areas)

2.1. Environmental infrastructure
531 Protección y mejora del medio ambiente

2.3. Other investment, agriculture
511 Infraestructura rural
521 Infraestructuras básicas de apoyo
541 Mejora del habitat rural

3.1. Subsidies to private investment
522 Acciones a favor de la localización de inversiones productivas
523 Turismo rural.

Appendix 2: Minor discrepancies between data on certified expenditures and on EU grants

As noted in the text, a comparison of the data on EU grants and expenditure certifications reveals a number of minor inconsistencies. The most common problem is that the standard procedure for calculating the average subsidy rate yields an implausible value. In these cases, we disregard suspect values, approximate subsidy rates by weighted averages of those corresponding to other related programs or to the same program in other territories and estimate grants by applying these approximate rates to the annual flows of certified expenditures (which are therefore assumed to be correct in all cases). In a few cases, the problem is that we have data on grants but not on certifications. Since these cases are rare and not significant,[4] we have decided not to take any corrective action because doing so would require us to estimate the subsidy rate and the "real" timing of the flow of grants which, as we have seen, seem to have been artificially compressed to match the official duration of the planning period.

The problematic cases are listed below, indicating the corrections we have introduced in order to deal with the problem.

1. Objective 5B

- In the case of the Basque Country, there are data on certified expenditure but not on EU grants. For each relevant program, we have assigned to the Basque country the (weighted) average subsidy rate in the remaining Objective 5b territories. Annual grants are then estimated in the standard way, i.e. by multiplying this subsidy rate by each year's certified expenditure.

2. Objective 2, 1994-96

- In the case of Madrid, the subsidy rate obtained by the standard procedure for Axis 6 (technical assistance) is 85.3%, which seems too high to be plausible. We have replaced this figure by the weighted average subsidy rate in the rest of the Objective 2 regions (46.6%). The calculations are carried out working only with data for the 1994-96 subperiod, which are given separately in the primary data.

3. Objective 1

- *Local operative program:* EU grants corresponding to sub-axis 81 (technical assistance) have not been allocated across regions. A single aggregate figure is given which seems to be consistent with total certified expenditure (which is, however, regionalized). We have assumed that the subsidy rate is constant across regions and calculated it as the ratio between the two aggregates.

[4] The one region where the problem may conceivably introduce a significant distortion is Castilla and León. But even here the error should be small. Grants not matched to certifications add up to close to 93 million euros, which is around 5% of grants that are matched to certifications (over 1.800 million).

- In certain region-program cells, the subsidy rate calculated in the standard way exceeds one or is too close to this number (or to zero) to be plausible. In these cases, we use either a) the average subsidy rate for the same program in the remaining regions (where such rate seems plausible) or b) the average subsidy rate across similar programs within the same region in order to estimate EU grants, while preserving the data on certified expenditure.[5]

- In a few cases, we have non-zero entries for grants that have no match in the certifications data.[6] As noted above, no corrective action is taken in this case (which amounts to disregarding the grant data and setting it equal to zero in the final series).

Appendix 3: Approximate regional breakdown of some large rail projects

Table A3.1 lists several railroad projects cofinanced by the Cohesion Fund (CF) which are not regionalized in the Ministry's data because they affect several autonomous communities. Some of these projects are part of the Madrid-Barcelona High Speed Train (AVE) and the rest have financed improvements of the conventional rail line that runs along the Mediterranean coast. CF grants linked to these projects add up to around 1.2 billion euros.

As noted in the text, we have estimated the regional breakdown of these grants by allocating the expenditure stream linked to each project to the regions involved in proportion to the length of the track segments that run within each one of them. Track lengths are approximated by road distances between the relevant locations taken from Google Maps. The relevant data are shown in Table A3.2. In the case of the Mediterranean Corridor, we are using the distance between Barcelona and Alicante. This is a bit arbitrary, since it is not obvious where the corridor begins and ends and we don't know the segments affected by the CF assisted projects.

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[5] The problematic region-program cells are as follows. The letter shown in parenthesis shows which of the two alternatives described in the text is used in each case to estimate the average subsidy rate.

Andalucía: PYME Sevilla program, subaxes 21B and 22 (b).

Asturias: Desarrollo y diversificación económica de las zonas rurales, subaxis 42 (a).

Cantabria: Desarrollo y diversificación económica de las zonas rurales, subaxis 44 (a).

Castilla y León: Castilla and León Operative Program, subaxis 75 (a)

Canarias: Desarrollo y diversificación económica de las zonas rurales, subaxis 45 (a).

Galicia: Galicia Operative Program, subaxis 75 (a)

Melilla: Pactos territoriales a favor del empleo, subaxis 81 (a)

Murcia: Murcia Operative Program, subaxis 81 (a)

Several regions: Programa operativo de asistencia técnica, subaxis 81 (a).

[6] The affected regions and programs are the following:

Castilla y León: Fomento Investigación y Desarrollo, II P. O. De Infraestructura Cientifica Obj.1, P. desarrollo y diversificación económica de las zonas rurales y Subvención Global FEDER-SODICAL.

Valencia: : Desarrollo y diversificación económica de las zonas rurales

Several regions: P. O. Medio Ambiente Local (subaxis 63) and P. O. Local (subaxis 81).

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Table A3.1: Some railroad projects cofinanced by the Cohesion Fund
Total EU grants in millions of current euros

AVE Madrid-Barcelona	*Meuro*
Calatayud-Ricla and Zaragoza-Lerida platform	395
Madrid-Chiloeches	132
Chiloeches- Calatayud, platform	341
Calatayud-Ricla and Zaragoza-Lerida, studies	7
total	*876*
Mediterranean Corridor	
adaptation to speed of 200-220 kmh	177
various projects	153
studies	4
total	*334*

Table A3.2: Approximate length of different track segments

Track segment	*Kms.*	*region*
Madrid-Azuqueca de Henares	47.1	Madrid
Azuqueca de Henares-Chiloeches	10.5	Castilla la Mancha
total: Madrid-Chiloeches	*57.6*	
Chiloeches-Alcolea del Pinar	85.6	Castilla la Mancha
Alcolea del Pinar-Calatayud	97	Aragón
total: Chiloeches-Calatayud	*182.6*	
Calatayud-Ricla	*36.4*	Aragón
Zaragoza-Fraga	122	Aragón
Fraga-Lérida	35	Cataluña
total: Zaragoza-Lérida	*157*	
Barcelona-Ulldecona	217	Cataluña
Ulldecona-Alicante	348	Valencia
total: Barcelona-Alicante	*565*	

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