



BESTUFS WP 3.1

Report on urban freight data collection in Spain

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1. OVERVIEW OF DATA COLLECTION IN SPAIN

1.1 Introduction

Urban freight distribution is not considered a relevant issue by the Spanish local authorities. Even though all the medium and large cities have some kind of traffic plan, traffic counts or models, delivery vehicles are only included in them as part of the general traffic flow, without any insight on the kind of vehicle, the goods delivered or the routes followed. While passenger traffic models are built based on data provided by surveys, shippers and carriers are extremely reluctant to provide any information on their logistic aspects, their route plans or their delivery practices. Lacking this complex information, local authorities are only able to address urban freight issues in a “short-sighted” way, providing load zones when requested by receivers or discussing accessibility permits with carriers associations, but without having a general knowledge about freight movement in the urban area.

The studies addressing urban freight in Spanish cities are normally incomplete and seldom updated and, with the exception of Barcelona, cities are not engaged in obtaining detailed urban freight information.

And the industry, on the other hand, does not consider urban freight distribution as a specific sub-sector. There are no lists of the companies whose business falls directly into urban deliveries, or reports on the aggregated revenue generated by the activity, or knowledge about the number of vehicles used. Nationwide carriers are not able to distinguish the fraction of their overall costs which corresponds to urban deliveries.

1.2 General figures

Freight transport in Spain splits in an 85% road, 12% ship, 3% rail and minimum amounts by air. Road freight transport is a 6.000 million-euro sector, attended by 500 firms which account for 99% of the activity. There is an accepted classification in several types of freight. The type most frequently related to urban distribution is usually included under the denomination of *fractionated freight*. It corresponds to approximately the 10% of road transport; that is 600 million euros. On the other hand full load freight transport is 25 % of the road freight activity, 1.500 million euros. Large commercial facilities located in urban areas make frequent use of full load freight transport. However, it is difficult to give an estimation on how much of this type of transport has the end of the supply chain located in urban areas. In the next section we discuss on the location of the commercial areas.

There are other two other types of freight transport that most often include urban areas in at least one of the extremes of the supply chain: *parcel and courier* services. This is a 3.000 million euro market attended by around 4.000 firms. Most of them are quite small and local. The five larger companies account for 40% of the activity. Besides, the third and fourth firms in the ranking of parcel and courier services are the first two in the ranking of fractionated freight, explaining 45% of the trade of this type of cargo. They are the larger logistic/transport companies active in urban distribution over all the metropolitan areas of Spain.

The house-moving transport has urban impact but it has a minor role in road transport with an activity of around 40 million euros. With respect to company-owned transport whose main activity is in urban areas, this type of transport is important in terms of urban freight distribution related to the areas of food and beverage businesses.

The transport operators that are active in road transport have created associations at the local, regional and Spanish level. But there are only a few associations whose main objective is urban freight distribution. Those that exist act mostly at the local level, without much co-ordination at other levels. The few large companies which act over all Spain are those more interested in the formulation of UFD issues at the general level, since the rest of the companies are rather small and perhaps active only at a few urban areas.

1.3 Sources of information

There are trade magazines of the transport sector that contain what the sector considers relevant for its own interest. That is the case of the bi-weekly newspaper *Transporte* (European Transport Press) and the monthly magazine *Logística, Transporte y Almacenaje*. They probably are the most representative ones. They contain periodical information on the activities of the transport sector by types of transport and geographical areas, but neither of them has a section on urban freight distribution. Other sources of information related to the supply side of urban freight are the professional associations such as CETM (*Confederación Española de Transporte de Mercancías*) and FENADISMER (*Federación Nacional de Asociaciones de Transporte por Carretera*). These two confederations are the final level of aggregation of the numerous transport associations by type and area that exist all over Spain, and their affiliates represent more than 90% of the activity of road transport.

On the demand side, information on the relevant characteristics of the location of urban receivers can be taken from the *Directorio Nacional de Centros Comerciales* (National Directory of Commercial Premises), edited by the Asociación Nacional de Centros Comerciales (ANCC). It contains information on the typology of commercial establishments, their characteristics, location and density in urban areas. Local Chambers of Commerce and Regional Statistics Centres also develop information on the location and activity sector of Spanish commercial premises.

With respect to regulations, these are embedded in the more general Traffic and Transport Ordinances, some of them accessible from the web, and all of them addressing the issue of urban freight delivery in a very general way and in very similar terms. No Spanish city has different regulations for different types of goods transport (excluding moving companies and waste collection), or has specifically regulated environmental issues like noise or polluting emissions.

In terms of urban freight studies, only two are available, both carried out in Barcelona by consulting companies contracted by the City Hall:

- The first one, completed in 1991 by Doymo, included a commercial census, a census of load zones, a receiver survey, a carrier survey and an analysis of the rotation of freight vehicles in selected load zones.

- The second one, completed in 1997 by Asdoconsult, included a more extended receiver and carrier survey.

In other Spanish cities, only the following examples can be found:

- Vigo carried out a survey about double parking throughout the entire city. Even though much of this double parking was found to be due to urban deliveries, no further considerations were made about the issue.
- Malaga carried out a survey about deliveries to the city centre in order to open an urban distribution centre. The overall number of vehicles, trips and stops in the area were estimated.
- Granada assessed the delivery pattern in its central area in order to find out whether the existing number of load zones was sufficient. Delivery practices, frequencies and durations were monitored.
- Coruña is working on an initiative for collecting urban freight data.

Apart from these official studies, carried out by the local authorities themselves or by subcontracted companies, only certain institutions, like the Cenit centre in Barcelona, or research groups from the universities of Sevilla or Zaragoza, have tried to collect information and develop models on urban freight deliveries.

2. SUMMARY OF FREIGHT DATA SOURCES IN SPAIN

The following table shows all the relevant data sources identified with relation to city logistics which are available in Spain.

Summary of urban freight data collected in Spain

Type of data collection exercise/survey	Name of data collection/survey	Name of organisation collecting data	Reason for data collection	Is data used for modelling?	Frequency of data collection	Last time data was collected	Type of data collected	Method of data collection	Sample size	Units of measurement used	Geographical area over which data collected	How difficult to extract urban data
<i>Commodity flow survey</i>	Encuesta Permanente de Transporte de Mercancías por Carretera	Ministerio de Fomento	Transport Planning	No	Annual	Data have been collected uninterruptedly since 1993.	Number of transport operations, Tones carried, Ton-km	Postal survey	800 vehicles per week (41,600 vehicles per year)	Transport operation (trip)	Spain	Very difficult
<i>Site/Land Use/Establishment surveys</i>	Retail and wholesaler survey	Chamber of Commerce	Local taxes	Yes	Yearly	2005	No of premises per postcode	License statistics	Global	No of premises	Province of Seville	Easy
	Freight attractors	University of Zaragoza	Modelling	Yes	Occasional	2005	Size and location of premises	Official statistics	Global	N.A.	Zaragoza metropolitan area	Difficult
<i>Transport operator surveys (including driver diary surveys)</i>	On-street carrier survey	University of Seville	Modelling	Yes	Occasional	2003	Parking practices	Interviews	Small	Qualitative data	Commercial areas of Seville	Easy
	Encuesta Permanente de Transporte de Mercancías por Carretera	Ministerio de Fomento	Transport Planning	No	Annual	Data have been collected uninterruptedly since 1993.	Number of transport operations, Tones carried, Ton-km	Postal survey	800 vehicles per week (41,600 vehicles per year)	Transport operation (trip)	Spain	Very difficult
<i>Shipper surveys</i>												
<i>Receiver surveys</i>	Retail survey	University of Seville	Modelling	Yes	Occasional	2003	Type of carrier and time and frequency of deliveries	Interviews	Small	Deliveries per day	Commercial areas of Seville	Easy

(continued)

Type of data collection exercise/survey	Name of data collection/survey	Name of organisation collecting data	Reason for data collection	Is data used for modelling?	Frequency of data collection	Last time data was collected	Type of data collected	Method of data collection	Sample size	Units of measurement used	Geographical area over which data collected	How difficult to extract urban data
<i>Good vehicle fleet licensing data</i>	No of licensed vehicles	Regional Federations of Transport	Payment of fees	Yes	Yearly	2005	No of licensed vehicles	Owners signing up for licenses	Global	No of vehicles	Regional	Difficult
	Local council statistics	Local authorities	City planning	No	Annual	2004	number of freight vehicles growth	Data derived from local licences and local planning	All of them	Licences	Local	Easy
<i>Traffic counts</i>	Freight vehicle flows	University of Seville	Modelling	Yes	Occasional	2005	Vehicle flows	CCTV cameras	Medium, in relevant streets	No of freight vehicles per hour	Seville	Difficult
	Freight vehicle counts	University of Zaragoza	Modelling	Yes	Occasional	2005	Vehicle flows in selected links	CCTV cameras	All the main accesses to the city, and several main urban streets	No of vehicles per hour	Zaragoza	Easy
	Local council traffic data	Local authorities	City planning	No	Annual	2004	Trips	Detectors	--	Vehicles	Local	Easy
<i>Distribution industry surveys</i>												
<i>Vehicle operating cost surveys</i>	Observatori o del Transporte	Catalonia Government (Regional authority)	Regional planning	No	Quarterly	June 2005	Vehicle operational cost	Assess of transport related variables	--	(€/veh-km;€/veh)	Regional	Easy

(continued)

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<i>Loading/unloading/parking infrastructure data for goods vehicles</i>	Load zone locations	Local authorities	Local planning	No	Occasional	?	Location of load zones on a map	?	Global	Qualitative data	Local	Easy
	Local council statistics	Local authorities	City planning	No	Annual	2004	Load-unload places growth,	Data derived from local licences and local planning	All of them	Load-unload places	Local	Easy
<i>Data on road accidents involving goods vehicles</i>	Local council statistics	Local authorities	City planning	No	Annual	2004	Typologies of accident	Data derived from city police.	All of them	Accidents, injured, fatalities	Local	Easy
<i>Data on lorry/lorry load thefts</i>												
<i>freight transport and logistics industry</i>	Observatorio Social del Transporte por Carretera	Ministerio de Fomento	National planning	No	Annual	2005	Employments	Survey and national statistics	--	Employees	National	Difficult
<i>Land use databases for town/city needed for freight modelling</i>												
<i>Port freight traffic data in the urban area</i>												
<i>in the urban area</i>												

(continued)

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<i>Inland waterway freight traffic data in the urban area</i>												
<i>Airport freight traffic data in the urban area</i>												
<i>(from cameras, sensors & other automatic data capture devices)</i>												
<i>freight data</i>	Urban freight regulations	Local authorities	Traffic regulations	No	Occasional	2005	Transport ordinances	Web access, official request	Most large cities in the country	N.A.	Local	Difficult to match regulations and actual practices

3. DETAILS OF SPECIFIC DATA COLLECTION SURVEYS

“Situación de la carga y descarga de mercancías en el centro de Barcelona. (State of art of load and unload freight operations at the CBD of Barcelona)”. Barcelona Council. 1991.

1. Frequency of data collection. Is it a:

The study was not part of an ongoing process, it was carried out to describe the situation of freight movements in Barcelona.

2. If regular or occasional – how long has data collection been taking place for?

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3. Organisation collecting/owning the data

Consultancy: DOYMO

Contractor: Barcelona Council

4. Purpose of data collection (why it is carried out)

Characterization of supply and demand of load-unload places in CBD of Barcelona.

5. Uses of data (what the organisation collecting the data use it for e.g. for producing freight data reports, for use in modelling, for monitoring work, decision-making, for sustainable city considerations etc.)

Decision-making about load-unload infrastructures

6. If the data is used for modelling purposes, please summarise the models/modelling work for which it is used.

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7. Methodology – i.e. data collection method,

Survey

8. Sampling and sample size

Transport operator surveys: 35 meetings and 100 postal surveys

Shipper and receiver surveys: 226 meetings (10% of the total amount of companies in the area of study)

9. Reliability of the data collected

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10. Difficulties experienced in collecting the data

Low number of answered postal surveys

11. Advantages and disadvantages (strengths and weaknesses) of the data collection methods used

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12. Your evaluation of the data collection: has the data collection been a success or failure

It was a success

13. Lessons learned in collecting the data

It is preferable to develop the survey process by personal meetings.

14. Cost of data collection/survey

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15. Content of data collection (details of the specific topics about which data is collected)

- Number of shipper and receiver in Barcelona
- Number of load-unload freight places
- Number of own freight vehicles
- Number of freight operations (load-unload) per shop-week.
- Operation time (minutes)
- Scheduling of the operations
- Number of vehicles for transport operator
- Mean value of freight operations for vehicle-day
- Mean distribution cost in Barcelona
- Occupancy of load-unload places (hours/place)
- Amount of time that load-unload place is occupied (minutes)

16. Units in which the data is collected and analysed

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17. Is the data freely available to people and organisations that wish to use it?

No. It is necessary to demand officially the study to the Barcelona Council

18. Is the data collected only about urban freight transport or is it broader? (e.g. non-urban freight, all motorised road traffic freight etc.)

Only urban freight transport

19. If the data collected is about more than just urban freight transport, can the urban freight data be easily extracted?

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20. Does the data collected and analysed help to provide insight into the total freight transport in an urban area? If so, what units is this data expressed in? (e.g. total number of deliveries, total goods vehicle kilometres, total goods vehicle trips etc.)

Yes, it does.

“Estudio metodológico y desarrollo de proyectos sobre propuestas de mejora de la distribución urbana y de las operaciones de carga y descarga para la distribución de mercancías en Barcelona. (Methodological study and project development of improving initiatives about urban freight transport at Barcelona City)”. Barcelona Council. 1997

1. Frequency of data collection. Is it a:

Again, the study was not part of any ongoing process.

2. If regular or occasional – how long has data collection been taking place for?

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3. Organisation collecting/owning the data

Consultancy: ASDOCONSULT

Contractor: Barcelona Council

4. Purpose of data collection (why it is carried out)

The aim of this study is to reach a sufficient know-how of freight operations in Barcelona in order to develop test-bed initiatives.

5. Uses of data (what the organisation collecting the data use it for e.g. for producing freight data reports, for use in modelling, for monitoring work, decision-making, for sustainable city considerations etc.)

Decision-making about the application of new initiatives

6. If the data is used for modelling purposes, please summarise the models/modelling work for which it is used.

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7. Methodology – i.e. data collection method,

Survey

8. Sampling and sample size

Transport operator surveys: 52 postal surveys

Shipper and receiver surveys: 1,350 meetings (2.9 % of the total amount in Barcelona)

9. Reliability of the data collected

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10. Difficulties experienced in collecting the data

Low number of answered postal surveys

11. Advantages and disadvantages (strengths and weaknesses) of the data collection methods used

--

12. Your evaluation of the data collection: has the data collection been a success or failure

It was a success

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20. Does the data collected and analysed help to provide insight into the total freight transport in an urban area? If so, what units is this data expressed in? (e.g. total number of deliveries, total goods vehicle kilometres, total goods vehicle trips etc.)

Yes, it does.

Carrier and retailer survey in the centre of Seville. “Ingeniería de Organización” group, University of Seville.

a) Frequency of data collection

This is not an ongoing survey. It was carried out four times in four different areas of the Seville city centre.

b) Length of time data collection has been carried out

The data collection process took two weeks in each one of the four areas. In each case, the first week was used for the retailer survey, and the second one for the carrier survey and traffic counts.

c) Organisation collecting/owning the data

The whole process was designed and managed by the Industrial Organisation group of the University of Seville.

d) Purpose of data collection (why it is carried out)

The objective of the data collection process was gaining and insight on city logistics practices in the centre of Seville. As it was, the local authorities were aware of certain specific issues regarding city logistics, like the need for load zones or the double-parking problem, but they did not have any references on the overall freight movement. In particular, aspects like delivery frequencies, routes, type of vehicles used, load factors, etc, were totally unknown to them.

e) Ways in which the data is used

The data was used in two different ways:

- First of all, in a more qualitative approach, in order to describe general practices, and to confirm general impressions regarding the need to park illegally in order to make deliveries, the impossibility to observe time window regulations, and the fact that different types of transport (full truckload, less-than-truckload, couriers, etc.) have completely different ways of operating, even though they are subject to the same regulations.
- Besides, in a more quantitative approach, in order to build models and develop analytical tools for the estimation and assessment of city logistics.

f) Summary of ways in which the data is used for modelling purposes

Two types of models were derived from the data collected:

- Microscopic simulation models, in order to predict the possible effects of the implementation of certain city logistics solutions in the analysed areas.
- Macroscopic simulation models, generalising for the rest of the city the data obtained in the city centre and thus deriving a model for the estimation of an O-D matrix for freight movements in the whole urban area.

g) Methodology (data collection method)

Once the areas subject to analysis were delimited, the data was collected in two different ways. Traffic counts were carried out by direct observation in order to determine the flows of different types of vehicles in each one of the areas.

Besides, and in order to obtain a general impression about the logistic practices, two types of surveys were carried out in the specified areas, each one aiming to find out a certain type of information: a Carrier Survey and a Retailer Survey. These surveys were passed on-site by direct interviews.

h) Sampling and sample size

Traffic counts were taken during several working days of a week, in different points of the analysed area over 10-minute intervals, in order to estimate the traffic flow levels for the whole day.

Retail premises in the area were classified according to the type of activity sector. Then, Retailer Surveys were passed to at least two shops, of different sizes if possible, in each sector, or more if a certain sector had a large number of premises in the area.

Carrier Surveys were passed to drivers of the most relevant companies operating in the area.

i) Reliability of the data collected

The sample size was appropriate for analysing the selected areas, but the reliability of the data was not fully clear when expanding it to the rest of the city. No connection was made, for example, between the size of the premises (or the number of employees, etc.) or the socio-economic factors of the area and the delivery practices.

j) Difficulties experienced in collecting the data

The collection of the survey data was easier than expected, because retailers and carriers viewed it as a possibility of expressing their problems and concerns related to freight deliveries. Besides, since the surveys were passed during interviews, the response rate was very high and it was possible to focus more on the most sensitive aspects. The main obstacle that had to be faced was the inconvenience of carrying out the interviews during working hours, which meant that retailers or drivers had to stop their work to answer the questions.

k) Advantages and disadvantages (strengths and weaknesses) of the data collection methods used

The main advantage was the direct contact between the interviewer and the respondent, which provided better quality data, and the possibility to connect the answers regarding delivery practices with direct observation. The main drawback was the impossibility of extending this technique to other parts of the city, due to the large amount of resources that would be needed.

l) Evaluation of the data collection: has the data collected been a success or a failure

Given that no information was available on city logistics practices in Seville, the data collected was a success in terms of gaining some insight on them. However, after analysing the data collected it became evident that it described the existing behaviours, but not the reasons for those behaviours.

m) Lessons learned in collecting the data

Along with the comments in the previous paragraph, it was clear that, in order to have a full representation of city logistics in Seville, it would be necessary to have something like a supply-chain approach when collecting the data. The surveys were useful to determine the final on-street practices, but no information was obtained with respect to the origins of those deliveries, the related warehousing and inventory policies, the route design, the direct and indirect costs, etc. The problem is that all the shippers that were contacted in the past completely refused to provide any information along those lines, deeming it strictly confidential.

n) Cost of data collection/survey

The surveys were carried out using the University of Seville's own personnel, and therefore no direct costs can be associated to the process.

- o) Content of data collection (details of the specific topics about which data is collected)

The specific topics about which data was collected in these surveys were:

Traffic counts: flows of different types of vehicles

- Cars, Buses and Taxis
- Number and type of freight vehicles delivering in the area
- Number and type of freight vehicles passing through the area

Receiver Survey, concerned with:

- Frequency of incoming deliveries
- Usual schedule of arrivals
- Type of company delivering the goods
- Type of vehicle used for delivery
- Parking practices
- Final delivery practices (from the vehicle to the shop)
- Duration of the unload/delivery process

Carrier Survey, concerned with:

- Type of vehicle used
- Route followed in the area
- Frequency of the route (daily, weekly, monthly, etc.)
- Number of deliveries in the area
- Average duration of each delivery
- Parking practices

- p) Units in which the data is collected and analysed

The information that was suitable for quantification in units was the following:

- Traffic counts: vehicles per 10-minute period
- Frequency of incoming deliveries: deliveries per day
- Duration of the unload/delivery process: minutes

- q) Availability of data to people and organisations that wish to use it

The data was collected by the University of Seville of its own account and is therefore not freely available. Some of it, and the results of some of the models, have however been published in scientific journals and books.

- r) Geographical breadth of data captured (i.e. only urban freight transport or non-urban freight transport as well)

The data corresponds only to certain areas in the city centre of Seville and is therefore specifically related to urban freight transport.

- s) If the data collected is about more than just urban freight transport, whether the urban freight data can be easily extracted

N.A.

- t) Whether the data collected and analysed helps to provide insight into the total freight transport in an urban area, and the units this data is expressed in

The insight in the overall Seville comes for the generalisation of the collected data to the rest of premises in the city, which, as commented before, lacks full reliability.

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