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EXECUTIVE SUMMARY

Introduction

As in previous editions, this **seventh edition of the Observatory of Transport and Logistics in Spain (OTLE)** has continued to deepen and disseminate knowledge about the reality of transport and logistics. This dissemination has been carried out with the participation and collaboration of a large team of professionals, management centres of the Ministry of Transport, Mobility and Urban Agenda, their companies and associated entities, as well as other entities of the General State Administration and others in general.

In this edition, **a new element has been added in the OTLE**, in addition to the 5 main elements already known from previous editions (database, indicators, reports, website and conferences). This new element consists of the **publication of the results and the methodology used to define the interprovincial mobility of travellers through a pilot and experimental study, applying Big Data technology.**

Additionally, along with the continuous improvement scheme and in order to provide a holistic and analytical vision of transport, the main novelty implemented in this seventh edition can be summarised in the update and **improvement of the graphic design of the reports**, in line with the design of the website. In particular, this improvement in graphic design has focused on a more current interface in the graphics of this and the **monographic report**, which in this edition deals with **urban and metropolitan mobility** as one of the great challenges of the cities of the twenty-first century.

Finally, it should be noted that in this edition the **annual conference took place in January**, which allowed a reduction in the time window between the data presented and the event itself. In this regard, this progress was due to the effort made by the management centres and associated companies and entities of the Ministry of Transport, Mobility and Urban Agenda in providing the information that fed the OTLE at earlier dates as they had been doing in previous editions.

General mobility and economic cycle

In **2018, the mobility growth trend started in 2013 was maintained.** In particular by areas, inland passenger transport increased by +3.1% in 2018 to reach 440,184 million passengers/km, while inland freight transport experienced a slightly higher growth (+4.4%), mobilising a total of 1,472 million tons. In turn, international transport showed a similar trend, with an increase in passenger mobility (in this case the data is for 2016) of +4.6%, and in international freight transport of +4.2% in 2018.

In the **segment of travellers, mobility as a whole increased in 2018** in relation to the figures observed a year earlier. Both national and international[1] transport recorded **positive growth figures in all modes**. A major evolution is the **growth of passenger air transport** (+9.3% in internal mobility and +4.1% in external mobility), with larger growth rates than the others modes of transport.

Freight transport also registered positive growth figures as a whole in 2018. In this sense, internal freight transport registered an overall growth in all its modes with the exception of air transport (-0.2%), which is similar to international freight transport, where only rail transport experienced a decrease in its activity (-10.0%).

As in previous years, it can be stated that the evolution of mobility in Spain in the last year has followed a pattern marked by higher domestic demand coupled with a favourable international context that continues to expand. As a consequence, 2018 is the fifth consecutive year of growth in freight transport, as well as passenger mobility.

[1] In air and maritime transport for which consolidated data is available for 2018

Road transport

In **2018, the trend of vehicle traffic growth on Spanish roads as a whole was once again confirmed,** totalling 250,192 million vehicles/km, +2.3% over 2017 figures according to data from the General Directorate of Roads (DGC). When analysing both the ownership and the type of road, a general growth is perceived, and of particular importance in the State Highway Network (+3.1%) and in main roads and others free of tolls (+3.4%).

This growth in supply figures can also be seen in demand, where **both passenger and freight transport recorded positive growth figures** according to data provided by the DGC. In particular, road passenger transport experienced an increase of +2.5% reaching 378,048 million passengers/km, with bus passenger transport showing the most significant relative growth (+5.5%). On the other hand, freight transport showed a better performance than that of travellers, totalling 290,678 million tons/km, which represents an increase of +3.6% compared to 2017 figures.

The analysis of the **freight transport by road through the data of the Permanent Survey of the Transport of Goods by Road (EPTMC) and Eurostat** shows that 2018 is the **fifth consecutive year with positive figures,** when all transport figures (tons and tons/km) and areas (national and international) experienced positive growth.

If the focus is placed on the **transport carried out by Spanish vehicles** that characterises the EPTMC, in 2018 the **transported tons increased again by +4.6%**, which includes both national and international flows. A breakdown of movements shows that intermunicipal transport registered the largest growth (measured in tons) (+6.4%), although other routes also registered positive growth rates.

As usual, the **autonomous communities with the greatest intra-regional freight transport are those of Catalonia, Andalusia and the Valencian Community.** These three communities total more than 52% of the tons transported in this area according to information published by the EPTMC.

In the **international sphere,** the growth in transport figures was more significant than at a national level. Specifically, goods with origin or destination in Spain showed a growth rate of +5.5% in 2018, exceeding 111 million tons according to Eurostat data. As it has been observed, the weight of Spanish carriers in this type of transport continues to be a majority in 2018 (64.4%), and the main receiving or shipping countries of goods are France, Portugal and Germany.

Railway transport

In 2018, **railway transport registered a positive balance**, although this growth was more evident in the passenger segment. If passenger transport has experienced positive growth rates almost generally (with the exception of Renfe Metrica), freight transport has less homogeneous figures.

Rail passenger transport consolidates its upward trend observed in recent years. In particular, both the number of travellers (+4.3% and 628 millions) and the number of travellers/km (+3.4% and 28,331 millions) recorded clearly positive growth figures. This growth has been quite homogeneous among the different services, although it should be noted that the **largest increase occurred in medium-distance services** (+4.9% in terms of travellers and +4.1% in travellers/km). On the other hand, a comparison between the supply and demand of travellers once again shows an **improvement in the use of trains.**

On the other hand, **freight transport performance has been somewhat irregular** given that despite a **growth of +2.7% in tons/kilometres** transported in 2018 (10,792 million t-km), **net tons transported suffered a slight reduction** (-0.2% and 28.2 millions). The better performance of the kilometre/tons implies a shift towards longer journeys, which contrasts with figures from the previous year. With respect to the liberalisation of the sector, the share of Renfe Mercancías decreased again, in comparison with 2017. This has meant that the market share of private operators reached a new maximum by placing it in 2018 at 33.2% in net tons and 41.0% in net tons/kilometres, respectively.

Air Transport

2018 was once again a positive year for air transport. In terms of supply, both the number of flights (+5.3%) and seats (+4.4%) increased, a growth which was homogeneous in all areas - national and international - although of greater relative intensity in the former.

Passenger transport experienced a growth in line with the rates recorded in the supply quantities exceeding 222 million travellers, that is **+5.1% more than the figures for 2017.** Focusing on the type of traffic, **transport of travellers at the national level registered a higher growth rate (+10.1%),** in line with figures registered for supply variables. This growth of domestic air transport has taken place both in peninsular and island routes, the latter registering greater intensity. On the other hand, in the international sphere, relations with Schengen EU countries registered a better performance (+6.2%) while other international destinations also experienced positive growth figures although of less intensity (+1.9%).

These favourable figures in passenger air transport growth are even **better for air freight transport,** which reached 948,540 tons transported in 2018, representing +10.7% more than the previous year. The main factor responsible for this two-figure growth rate is the **international scope in non-Schengen flows (+14.3%),** given that the increase in Schengen destinations is lower (+3.2%) and the national flows have slightly decreased (-0.2%). It should be noted that, although lower volumes of goods are transported by air compared to other modes, it is the third year with double-digit growth rates.

Spanish airports in the AENA network experienced positive growth figures in the main variables analysed. In particular, in 2018 these airports managed more than 2 million aircraft operations (+6.3%), 263 million passengers (+5.8%) and more than one million tons of goods (+10.0%). The airports of Madrid and Barcelona remain at the forefront both in terms of the volume of passengers and goods being managed, but their importance differs depending on the segment analysed.

Maritime transport

2018 was also positive for maritime transport, in line with figures registered for other modes. In terms of supply, **both the number of vessels (+7.4%) and GT units (+3.8%) grew in 2018,** although this growth was very intensive in freight ships as opposed to the decrease experienced by passenger ships for both parameters.

This irregular behaviour in supply was not apparent in demand variables, which has registered a positive and homogeneous growth in the passenger and goods segments. Therefore, **maritime passenger transport** in the State Port Authorities and the dependent ports of the autonomous communities **experienced a growth in 2018 of +6.6% reaching 27,954,249 passengers.** This growth has been homogeneous for all types of traffic analysed, which is most significant in that recorded by cruise ships (+9.3%), followed by external transport (+6.6%) and cabotage (+5.0%).

On the other hand, **maritime freight transport re-registered its historical maximum with 526 million tons in 2018, +3.6%** more than the previous year. As usual, this increase was concentrated in foreign transport (+4.0%) and to a lesser extent in cabotage (+2.0%), given that both fishing, supplies and inland traffic (-0.7 %) as well as transfers (-59.3%) suffered decreases in their activity.

On the other hand, **the ports of the State Ownership Port System managed in 2018 a total of 36.1 million passengers (+6.0%) and 563.5 million tons (+3.4%),** with a similar distribution for the main ports that manage passengers (Port Authorities of the Balearic Islands, Santa Cruz de Tenerife, Bay of Algeciras or Barcelona) and goods (Bay of Algeciras, Valencia and Barcelona).

Urban and metropolitan transport

According to the data provided by the latest edition of the **Metropolitan Mobility Observatory** (MMO), **the aggregate supply in the 6 main metropolitan areas of Spain** (Madrid, Barcelona, Valencia, Seville, Malaga and Asturias) grew by +1.1 % in 2017 in terms of seats/km. This supply growth was more intense in intercity buses (+4.7%), and less intense in urban buses (+0.8%) and rail modes, that is, the subway and tram, (+0.1%).

In terms of **aggregate demand, the growth experienced by the 6 previous metropolitan areas was greater than that registered by the supply.** Specifically, the rebound in passenger/km transported in 2017 was +3.6%, highlighting in this case the growth in rail transport (+4.4%), compared to that registered by intercity (+4.0%) and urban (+1.6%) buses.

On the other hand, the information from the Traveller Transport Survey prepared by the National Statistical Institute of Spain reflects an increase in metropolitan mobility of +2.4% in 2018, with the growth of urban transport (+3.3%) being more intense than interurban (1.6%). In addition, it also highlights the increase in passenger transport by rail (metro +4.8% and commuter rail +3.7%) compared to road transport.

Modal split

As usual in **internal passenger transport, in 2018 the road and more specifically the private vehicle continues to be the predominant mode used in domestic travel.** Specifically, the private vehicle quota stood at 78.6% in travellers/km in 2018, with total road transport (including the bus) registering 85.9%. This figure is slightly lower than the previous year as a result of the better performance of the other modes, where air transport is consolidated as the second most important (7.4%) compared to the railway (6.4%), and maritime transport is much lower (0.3%). With regard to **international passenger transport,** in 2016 (a year in which complete data is available for all modes) the **air transport share in number of travellers (49.3%) is higher than that of the road (48.4%) for the first time since the historical series is analysed.**

On the other hand, the hegemony of **road transport in national travel is even greater in the internal transport of goods than in passenger transport.** In particular, 94.8% of the tons were transported by road, which is even higher than in 2017. However, in **international freight transport, the preponderance of maritime transport is observed**, which brings together a 79.7% share of the tons transported. It is followed by road transport (19.4%), with the joint contribution of rail and air modes being less than 1% as a whole.

Investment and capital

In 2018, the **investment in transport infrastructure made by all public administrations exceeded 7,200 million euros,** which was -5.3% lower than that registered in 2017. This decrease in investment figures follows the path of the decrease registered since the beginning of the crisis and that seemed to have been left behind with the growth of investment in 2017.

The distribution of investments according to the different public administrations shows that the one made by the **Ministry of Transport, Mobility and Urban Agenda continues to register the greatest weight, representing 68.7% of the total in 2018.** A breakdown of transport modes shows that all Public Administrations as a whole have invested more in roads (49%), while if only the Ministry's investments are taken into account, the railway remains the predominant mode (44%).

Regarding the **Gross Formation of Fixed Capital of the public sector, in 2018 it reached 25,440 million euros (+10.5%)**, which represents the third consecutive year of growth. However, its participation in GDP has hardly changed (2.11%), still being far from pre-crisis values (5.1% in 2009) as well as the average of the EU-15 countries (2.73%).

Value added and productivity

The Gross Value Added (GVA) of the "Transport and Storage" sector reached its historical maximum in 2018, both in real and nominal terms. It **experienced a growth of +5.2%** in constant 2015 prices, **higher than the Spanish economy as a whole** (+2.4%).

If the different subsectors are analysed, the importance of both **"Land and Pipeline Transport"** and **"Storage and Related Activities"** continue to be appreciated, given that between the two of them, production figures registered 84.3% in 2017 and 88.2% of GVA.

On the other hand, the "Transport and Storage" sector has **continued its trend to decrease the hours worked per person**. Although they are still above the average of the Spanish economy as a whole, this difference was 32 more hours per year in 2018. Likewise, the trend of **convergence of the apparent productivity of labour with that of the economy as a whole** is also consolidated, registering around € 32/hour for both sectors. As usual, productivity is very different depending on the subsector analysed: if in "Land and Pipeline Transportation" productivity continues to be low (-27.5% lower than that of the Spanish economy as a whole), the subsector of "Storage and Annexed Activities" stands out for its high productivity, well above (+66.8%) the national average.

On the other hand, the remuneration of employees continues the growth path that has been observed since 2014, experiencing an increase of +6.3% in 2018, which contrasts with the decrease in operating surplus (-2.0%). However, despite this decrease, if the 2008-2018 period is analysed, it can be seen that while the operating surplus is +36.0% higher than in 2008, the remuneration of employees is barely +3.5% higher. Likewise, the proportion that represents the remuneration of employees in the "Transportation and Storage" sector (52.9%) is slightly higher than that of the economy as a whole (50.1%).

Employment

According to the data provided by the Active Population Survey prepared by the National Statistical Institute of Spain, **2018 is the fifth consecutive year with employment growth in the "Transportation and Storage" sector, registering a growth rate of +4.8%,** higher than that experienced by the whole of the Spanish economy (+2.7%). This growth was homogeneous in all subsectors, with the exception of postal and courier activities. An analysis of the two main subsectors shows that "Land and Pipeline Transportation" brings together 60.1% of those employed in the sector and experienced a growth of +5.0% in 2018, while on the other hand, "Storage and Annexed Activities" increased its year-on-year rate (+7.0%), although its weight over the total number of employees in the sector is significantly lower (22.3%).

On the other hand, the **total Social Security affiliates in the "Transportation and Storage" sector in 2018 was 925,469, +4.4% than the previous year.** It should be noted that, despite the growth in the number of self-employed workers in 2018, the quota continues to decrease for the fifth consecutive year, standing at 22.8% of the sector without taking into account postal activities.

Regarding the quality of employment, in the **transport sector wages are, in general, higher than the average in the services sector and in economy. The same goes for productivity, which has increased considerably in recent years.** However, this is not homogeneous in all subsectors, since "Land and Pipeline Transportation" continues to have low salaries and medium productivity. On the other hand, the net labour cost per employee in the sector experienced a slight rebound in 2018 of +1.3%, standing at 32,591 euros.

Prices and costs

The **price of oil,** based on the barrel of Brent, **continued to rise during most of 2018 until reaching +30.7%**. This fact has caused the **price of petrol** (**+5.7%**) and the **transport price index (3.6%)** to be dragged along by this rise, although to a lesser extent. However, if the price of transport services is analysed, this influence of oil is not as apparent, since the **price index for transport services decreased by -0.5% in 2018**, highlighting the reduction in air transport services (-1.6%) and interurban public transport (-1.5%).

In 2018, **the average expenditure per person in transportation grew above the average expenditure per person** (+3.5% against +2.5%). However, the percentage of transportation spending remains below pre-crisis levels (12.7% against 14.8%), suggesting a change in user preferences.

The prices and transport costs analysed show similar behaviours in 2018. With regard to road transport, the cost of transport by private vehicle grew by +2.6%, while the cost of collective passenger transport by road registered a growth of +3.1% and the transport of goods by road of +3.9%.

Rail transport showed a similar trend to that of previous years with the particularity that the Avant product (High speed - medium distance) has for the first time surpassed the long distance service with a higher reception at the national level. In relation to income, in 2018 there was an increase of +6.2% over the previous year motivated by both the increase in average revenue and the growth in demand. With regard to goods, prices and costs have hardly changed in the last year, the costs and the average revenue being identical with a decrease of -2.1% expressed in euros per ton/km net.

With regard to maritime passenger transport, passenger/km revenue increased in 2018 although very slightly. This, combined with higher demand, has resulted in an estimated increase in revenue of +6.9%.

Market and business structure

The variables analysed **(value added, production, number of companies and number of people employed) experienced positive growth figures in 2017.** This fact consolidates the 2016 trend change as it is the second consecutive year registering an increase in all variables analysed, **thereby curbing the accumulated decrease and the gap existing with large European economies (Germany, France, Italy and the United Kingdom).**

In relation to the two main subsectors, **"Land and Pipeline Transport" still registers low productivity compared to that registered in the 4 main European economies.** Specifically, in 2017, Spain still has many more companies than other countries, doubling the average number of entities that operate in those countries, to which we must add the low production value (45% of the G4 average) and employment (69% of the G4 average). One of the possible causes of this situation may be the existence of a large number of small businesses.

The subsector of **"Storage and Annexed Activities"** is characterised by production and employment values of only 44% and 47%, respectively, of the average of the G4 countries, while the number of companies record values similar to the weighted average of the main European economies in 2017.

Regarding the size of the companies of the subsectors in Spain, almost all of them in both subsectors are very small. Specifically, in 2017, in "Land and Pipeline Transportation" 95.6% were companies with less than 10 employees, and in "Storage and Annex Activities" they were 82.7%.

A specific analysis by activities shows the importance of **the weight of the production value of the "Transport of goods by road and removals" that, in 2017, reached 28%** of total production of "Transport and storage". Once again, **orientation towards smaller vehicles** and a **slight ageing of the fleet** is observed.

Financing

In 2018, the **indebtedness of the "Transportation and Storage" sector increased for the second consecutive year,** reaching 34,368 million euros, in comparison with the decrease recorded for the economy as a whole.

Doubtful credit continues to decline in all sectors. In particular, the **transport sector showed one of the lowest figures ever presented, standing at 4.9%.**

Research, development and innovation

2018 was another positive year for R&D spending (+7.7%) incurred by businesses in the "Transportation and Storage" sector. This growth in spending, in comparison with the previous year, has been accompanied by an increase in the number of companies and personnel dedicated to these types of activities.

Regarding spending on innovative activities other than internal R&D, a significant reduction (-13.9%) was registered in 2017, following the positive trend of the previous two years. As it is the main source of innovation spending on transport, this decrease has affected the sector's spending, reducing it by -8.7%.

Internationalisation

In terms of the **trade balance**, 2018 once again registers a higher increase in imports than in exports, so the internationalisation process of the Spanish economy associated with the export boom has suffered a disruption in the past two years.

The investment position of Spanish companies abroad registered a significant increase of +16% in 2017, reaching 20,500 million euros. The transport sector was the most favoured, with an above-average growth rate of 22%. In contrast, **investment by foreign companies in Spain** has grown at a slower pace, registering 17,900 million euros in 2017, and a growth of +7% compared to the previous year.

Finally, **foreign trade** also registered increases in its activity in 2018, although in disparate ways. **Physical units only showed a very slight increase in foreign trade of +0.7%, while monetary units registered a higher percentage (+4.4%).** This greater increase in monetary units has meant **a new historical maximum of the monetary value for goods (€ 1,348/ton transported)**, where the value of exports is above that of imports.

Security

First, with respect to **road transport safety**, in 2018 the **number of accidents involving victims** has remained at similar values (+0.1%) compared to the previous year. This distribution has not been homogeneous, as the interurban area experienced a slight increase in the number of accidents (+1.1%) compared to the slight decrease in the urban environment (-0.5%).

On the other hand, in 2018 **the number of fatalities also decreased (-1.3%).** This decline, which has been greater in the urban sphere (-3.9%) than in the interurban area (-0.3%), breaks the upward trend of the past 2 years and reflects a certain stability in figures since 2014.

A specific analysis of the interurban area as regards mobility shows a reduction in accidents and fatalities through danger and mortality rates. Specifically, the decrease in the mortality rate (MR) was -2.5%, and the danger index (DI) was -5.6%, which supports the **good performance of road safety in 2018 despite the increase in the amount of vehicles circulating on Spanish roads.**

Regarding **rail safety, 2018 has been a good year in this area.** Both the number of accidents (in all its categories) and the number of fatalities experienced a decrease in the figures recorded a year earlier. This decrease reached -13.8% in the case of accidents, being even greater in the case of fatalities (-44.8%). These positive figures are also registered in indicators (both accident and risk), which have shown a significant reduction compared to those recorded a year earlier.

Regarding **air safety**, in 2018 there was an **increase in all the variables analysed**. In particular, the number of accidents increased by +50.0% and that of incidents by +47.1%, although the increase in the number of serious injuries (+25.0%) and fatalities (+14.3 %) was significantly lower. However, it should be pointed out that given the reduced accident and incident rate in this mode of transport, the fact that there is an increase in one unit can lead to significant percentage variations, such as those previously expressed.

In the area of **maritime safety,** in 2018 **the number of maritime emergencies increased** in the Spanish SAR zone to a total of 6,295 (+2.1%), reaching the historical maximum of the series. This large increase is a direct consequence of the high number of boats handled, and is, in turn, reflected in the numbers of fatalities and missing persons. The number of fatalities increased to 254 and the number of missing persons to 197, +54 and 31% more than in 2017, respectively.

Environmental sustainability

In 2017, energy consumption by transport in Spain grew by +3.5%, with road transport being considered responsible for more than 92% of final energy consumption. For comparative purposes, Spain continues to be above the EU-28 average.

Rail transport remains the most energy efficient in terms of final energy, due to the high number of passengers and volume of goods that can be transported on each trip. On the other hand, air transport shows the lowest efficiency. Also, rail transport **produces less direct emissions of GHG and other pollutants** because it uses electricity as its main source. The change in trend in the dieselisation of the vehicle fleet in the last decade should be noted in road transport, where the consumption of conventional fuels is beginning to undergo a major change. The use of **renewable energy in transport increased from 1% in 2014 to over 6% in 2017.**

With respect to transport pollutant emissions, the share of transport emissions increased by almost 3 points compared to 2016, while in the rest of the European Union the increase was only 1.5 points. This growth confirms the trend observed in 2016, since from 2007 to 2015, GHG emissions produced in transportation were reduced. In general, road transport registers the highest amount of emissions in all types of pollutants (GHG, acidifiers, etc.).

It should be noted that rail transport continues to have a clear advantage in terms of direct GHG emissions per transport unit/km. Whereas, in contrast, air transport produces more GHG emissions for each traveller/km and ton/kilometre transported.

Logistics

In 2017, the **economic weight of the logistics sector** represented 2.9% of the GDP of the Spanish economy, maintaining **levels similar** to the previous year and similar to the weight of the main European economies. Regarding employment, this sector registered a growth of +4.0%, reinforcing the increase achieved in 2016, which is 3.4% of the economy, and which is also similar to the participation of logistics in employment of the main European economies. This growth is based on higher employment rates in the "Freight transport by road and moving services" (which represents 50% of the workers).

A stable trend continues in areas associated with logistic nodes, showing hardly any changes, reaching 78.8 million m2 in 2018. These areas are **mainly linked to maritime transport** (50.2% share) and **road transport facilities** (37.8%). Regarding logistic intensity, (m2 logistics facilities/€ of GDP per capita), similar values to those of 2017 are observed.

In addition, the railway sector shows a trend towards flexible solutions in terminal management, which has been confirmed in the last three years.

Freight transport in 2018 maintained that growth started in 2014, with an overall increase of +4.3% which is somewhat lower than a year earlier. **All modes (except the railway) recorded growth** in both areas. Similarly, the predominant modes of transport reinforced their leadership, both nationally and internationally, with a 94.9% share in road transport at the national level, and 79.7% in maritime transport, at an international level.

Multimodal transport experienced a decrease of -1.8% in 2018, as opposed to unimodal chains, which registered an increase of +6.0%. On the other hand, with respect to **intermodal transport,** the growth experienced in 2018 was +2.3%, although it is lower than the previous year (+8.4%), which also applies to overall growth experienced for the freight transport (+4.4%) in 2018.