

# **EVOLUTION AND SOCIOECONOMIC EFFECTS OF ROAD INVESTMENT IN SPAIN DURING THE TWENTIETH CENTURY**

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*DRAFT PAPER*

## **ABSTRACT**

Since the beginning of the 20th Century, Spain has done its best to ratchet up road investment so as to bridge the gap with most advanced counterpart countries. A deed which turns out to be especially relevant from a socioeconomic standpoint -- given its geographical background and the significant role of tourism in the Spanish economy. In its pursuit of road investment increase, Spain has tried to combine public budgetary financing with the participation of the private sector by way of concessions. The various stages through which Spain has undergone throughout these years are analysed in this paper -- in light of the profound political and social changes that this country has experienced during the twentieth Century. This paper draws on the Spanish experience in the subject matter. Furthermore, the current trends regarding the combination of public and private resources to meet the needs for road investment are examined -- as far as maintenance and greenfield projects are concerned. In addition, this paper goes over and analyzes the main effects of transport infrastructure, specifically roads, on the Spanish economy.

## **1. INTRODUCTION**

Throughout the 20th century, Spain has had a roads stock second to other European countries [1], which has tried to deal with in a number of ways during the different stages this country has undergone, both by means of public investment from the National budget and by means of motorway concessions in which the private sector has contributed its own initiative as well as its financing and management capacity.

In this paper, the Spanish road evolution throughout the 20th century is analyzed, pointing out briefly the most relevant features socially, politically and economically of the main phases this country has undergone during the aforementioned period. Having undertaken this itinerary, the private sector participation evolution in road financing and management through motorway concessions is delved into -- an area in which Spain has come a long way in recent decades. Finally, the most important socio-economic impact of roads in Spain is studied during the period analyzed. Throughout this paper, priority has been given to a historical perspective in the analysis undertaken.

## **2. ROAD INVESTMENT EVOLUTION IN SPAIN THROUGHOUT THE TWENTIETH CENTURY**

The situation in which Spain found itself at the start of the 20th century was underscored by the weakness of the constitutional framework, the strain among labour struggles, the appearance of terrorist attacks, the boom of nationalist movements and what was coined as "the disaster of 1898", that is to say, the loss of Cuba and the Philippines. Since the crisis of 1909, provoked by the ill riots that took place in Barcelona, the situation worsened

till 1917, the year of the great crisis, in which, in a formal fashion, the constitutional system that was in place till then, broke down. The set up of a Dictatorship in 1923 – at the forefront of the cause was one General Primo de Rivera - on the Second Republic in 1929 and, lastly, the start of the Spanish Civil War, were the result of the process that had been started at the end of the previous century.

In the first three decades of the 20th century, there was great political instability and the governments succeeded one another expeditiously. Since the start of Alfonso XII reign, in 1902 until 1936 there were 55 different governments. This brevity and instability of the governments became a hindrance for the economic and legal framework development of the country, rendering its governability impossible.

The road network, reporting to the Administration that, at the start of the century had hardly overcome the 35,000 km longitude, fell under the road law of 1877 which was in place remarkably up until 1974. In it, the width of the road were established – 8 m. for those first rate, 7 for second-rate and 6 for third-rate – as well as the requirements for a newly built road to be included within the activities of the General Development Plan.

The first Minister of Development under Alfonso XIII prepared, at the start of 1903, a Project of a Royal Decree dictating the “Rules for the Order of Undertaking Road Construction”, with the end of sorting out the scandal of the so-called “parliamentary roads” that the Spanish Administration had received as an undesirable inheritance of the century just passed. Many a demagogue politician, relying on the current legislation, and with the goal of ingratiating themselves with the people they represented, forced the inclusion to the General Development Plan, sections of useless network for the general interest of the nation. As a result of these deeds, the difference between the network at the end of the century and the one approved in the Chamber of Deputies was remarkable - - reaching the latter a longitude greater than 75,000 km [2].

Among many, and as a new sporting activity, the automobile made its appearance in Spain. Halfway through 1897, the first normative was dictated that regulated the circulation of automobile cars on the roads. Nevertheless, it was in the regulations of 1900 where the speed limits were spelled out at which the different type of vehicles could circulate.

The entangling problem in road network structure was sorted out by the Administration doing way with in 1911 the former Roads Plan and enacting a new one in 1914. This plan included a list of specific activities regarding roads of urgent construction, that added up to a total of 13,500 km on top of the 48,200 km already in service, roads of necessary construction – 11,000 km in total, and bridges and crossings. On the whole, it represented roughly a 73,000 km network and it represented a structure that as a result of the break of the civil war, would not consolidate until the decade of the fifties [2].

The adaptation of the roads network to the new means of transportation was one of the priority objectives in the Primo de Rivera Dictatorship (1923-1929). In 1926, having this idea in mind, the National Circuit of Special Road Surfaces” that would be managed by an autonomous patrimony within the Ministry of Development. Its undertaking ought to have focused on the application of the new technologies and pavement, tarring, bituminous irrigation, cobbling, etc. to some 7,000 km of roads, spread out in 14 itineraries that connected populations of great importance, as well as the routes of historical and artistic value which represented for the times an extraordinary new development [3]. From its vantage point, this paper that combines the evolution of road investment in Spain throughout the 20th century with socio-economic effects, it behoves of special relevance to

point out that the fundamental objective that had this new network was boosting tourism -- a key industry for the Spanish economy. The fall of the Dictatorship in 1929, did not develop on the whole the foreseen plan, limiting to 40 per cent approximately. Nonetheless, its service rollout meant a qualitative jump in the image of the Spanish road network.

The improvement of the road network gave way to a strong growth of automobile circulation and road transport for both travellers and merchandise. In 1924, the fleet of vehicles registered surpassed the 30,000 figure. This propelled the Government to establish a careful arrangement of the industry, differentiating the regular service from the discretionary, according to criteria not so different than the current one. On the other hand, during these years, and in the background of the nascent European experiences, the Government deemed it interesting the possible undertaking of a motorway plan, although it shelved from the get-go that it would have to be the private sector initiative that would be in charge of its execution and exploitation. This awakened the interest of companies and technicians who despite the reduced traffic intensity in the network, started to think about motorway construction [4].

At the end of 1950, the improvement of the Spanish economy -- due in great measure to the ceasing of recommendations against Spain by the United Nations -- allowed to roll out a new motorway plan, more realist than the previous one. It was about a five year plan, the Modernization Plan, that included an extensive program of undertakings in the matter of arranging and network improvement, designed so as to be able to faze strong traffic growth that was taking place as a consequence of the process of economic development that started to generate and absorb the traffic diverted from railway lines [5].

The decade of the sixties continued on the so called Stabilization Plan course of action of 1959 that set up the basis on the important economic growth that the Spanish economy underwent throughout the 1960-1975 period -- based mainly on the economic and social development plans and on the consulting advice and technical and economic assistance provided by the World Bank. At the end of 1963, a new road plan was approved. Nonetheless, the fast increase in the fleet of vehicles, that year on year, surpassed the most optimistic forecast, together with the growth in the number of tourists that came to Spain as a consequence of the opening of this country toward Europe, forced the Administration to overlap -- within the Plan undertakings, other specific ones -- short term, so as to improve as a whole a specific itinerary unit. Hence came about the birth of the REDIA program -- Network of Asphalt Itineraries -- that was executed in the 1967-71 period, which results were excellent having equipped the main roads of the country with a superb degree in quality as far as features such as road surface, signposting, slow lanes, etc., are concerned. Against the plan, we ought to point out, an exception of a couple of itineraries, the undertakings did contribute to consolidate a centre-periphery development model, lacking crosswise axis.

The oil crisis of the first years of the seventies did not allow the conclusion of the 1962-1978 Plan. The out of control increase in oil provoked an abrupt stop in the process of development and road investments hardly managed to keep up for some years only to decrease in real terms, under the levels of the sixties

The 1975-2000 period, started with the change of the political system that brought about, in 1978, the enactment of a new constitution to adapt the form of the State to the new demands of the Spanish society and establish a new administrative and territorial organization. This new context is the one that has underscored the field of road

undertakings throughout the last quarter of the twentieth century. Another significant fact to add to the previous one was the induction of Spain into the European Community, today the European Union, which has had a major impact in transport policy – given that as far international transport, the liberalizing communitarian policy, that in the industry was implemented since 1992, with more than a 20 year delay, is the one that has underscored the guidelines to follow by the Member States, exercising a dragging effect in national transport whose tendency has been transport liberalization and the harmonization of competitive conditions.

By the same token, economic convergence policy is influencing decisively the budgetary policies by the public Administrations and specifically in road investment and financing policy, likewise in the development policies that since the Paris Summit of Heads of State and Government of 1972 have been conditioned by environmental imperatives.

On the other hand, at the start of 1974, the Spanish Administration donned on a new roads law that substituted the ancient one of 1877, urging the Ministry of Public Works and Urban Development to develop a new General Roads Plan. The mandate was inevitably conditioned by the consecutive road transport responsibility transfers that, during the ensuing years, the State favoured upon the Autonomous Regions by constitutional demand, which implied the transfer of three quarters of its network. These ten years became actually a transition period underscored by a moving away from a road investment policy that gave way in 1983 to the problems of a lack of capacity, layout, conservation, urban access, crossings, and etc- having reached disturbing levels. At that time the country had at its disposal only 2,300 km of high capacity roads most of which were made up of toll motorways. On this other point, there were 9,500 km of state roads that represented crossing sections from 4 to 7 m. At this juncture, the network registered congestion problems along more than 2,000 km more often than not in urban and metropolitan areas.

In this framework, a planning process was started that bore as a fruitful by-product the approval of a new General Road State Plan for the 1984-1991 period that together with those under its responsibilities were developed in the years to come the Autonomous Regions, provided Spain a roads network of high capacity that currently are not undeserving of the economic unit of this country. The State Plan of General Interest – RIGE – that aimed at providing the country of a network that ensured its integration in the natural, historical and social environment searching a territorial and social equilibrium within technical and economic criteria, was spelled out in four major programs: dual carriageways, arrangement, replacement, maintenance and undertakings in urban surroundings. The first of them, the dual carriageways, aimed at doubling the paved roads of a number of itineraries specially through the national radial road and -- albeit controversial -- it became the star of the Plan as it reached a total longitude of 3,250 km of new roads of high capacity. It ought to be pointed out that despite the inherent difficulties of a Plan of this magnitude -- its fulfilment was more than adequate reaching performance levels of the lights of 90 per cent.

The investment effort of the Central Administration during this period together with the one undertaken by the Autonomous Regions was consequential managing to represent total road investment at 1.2% of GDP against values set at 0.3% reached in the first years of the decade of the eighties and at 0.8% belonging to more developed communitarian countries. However, as for the roads under the Local Administrations, the investment levels have been much more moderate. As to the legislative framework, the newest

development of those years is that in 1988 started a new legal framework with the approval of the Roads Law as well by different road laws of the Autonomous Regions.

### **3. MOTORWAY CONCESSION EVOLUTION**

Motorway concessions have a long standing tradition in Spain. The most immediate precedent of the current legal concessional network is the Law of 26th February, 1953 on toll-road building by individuals that set up a new legal framework in which a maximum period for concession of 75 years was established, not foreseeing any kind of financial aid by the State. This arrangement served as a based for the first concession that was granted to Spain, in 1960, the Guadarrama Tunnel under the Upper Harbour of the Castilla Leones, subsequently joined up to the toll motorway Villalba-Adanero.

Given the relatively low appeal that this normative entailed for private investors – at that juncture, building companies, unaware of the concessional business model – it was necessary the establishment of a new legal framework that offered certain incentives and fiscal benefits that the Law of 1953 did not allow. It was so the Law 55/1960 of 22nd December on road building, conservation and exploitation by individuals under a concessional regime that repealed the previous one, which extending to 99 years the maximum period of concession and allowing the possibility of granting certain subsidies as well as bonuses and fiscal exemptions, served as a base for the start and development of toll motorway in Spain – the Bridge over the Cadiz bay, being toll free since 1982 and the Cadiz Tunnel, currently being exploited by the Cataluna Generalitat, the first two concessions that in this regard were granted.

Since the year 1964, the then Minister of Public Works, as a consequence of traffic increase, the results and expectations that offered out the Economic and Social Development plan, the problem of road network extension was put forward and its transformation in a new motorway network of some 10,000 km of longitude, long term, similar to those being developed in France and Italy. To that end, the Preliminary Study on the Planning of a National Motorway System was drawn up that became the first report on a motorway plan in Spain, in which were figured a network of some 3,000 km of longitude circa 1980, including the main corridors and in which the financing system was not yet defined since it was believed in the possibility of setting aside to that end a part of the taxes raised from fuel.

As a consequence of this process, towards the end of 1965 was promoted, based on the law of 1960 previously mentioned, the toll motorway concession La Junquera-Barcelona, extended to the Barcelona-Tarragona and Montgat-Mataro sections, in Cataluna, of 266 km of longitude, and Bilbao-Behobia of 106 Km, in the Cantabria axis. The concession of a State guarantee as insurance of the loans that the concessionaire companies would have to borrow from financial entities entailed for the private sector a new incentive to add up to the aforementioned benefits established.

However, it was circa 1967 when the Spanish National Motorway program was drawn up (PANE) for the 1968-79 periods that was placed in the General Roads Plan and entailed 3,160 Km toll motorways throughout seven major corridors–Mediterranean, Cantabria Costa del Sol, North-South, Northeast-Levante, Ebro Valley and Portugal–. For the first three year period, that is to say 1968-71, 1,000 Km were foreseen in which were included the aforementioned sections.

So as to develop as soon as possible the program approved, it was of an outmost urgent

necessity to establish the adequate legal framework. To that end, it was put forward the enactment of a series of the so-called specific Decree-Laws for each of the public competitions that were called indeed -- similar in large part to the ones called previously for the two motorways referred to, the Catalonia and the Basque Country ones. These normative granted new benefits to the concessionaire, the ensurance of exchange, by which the State, as far as loans in foreign exchange is concerned, committed to enabling the necessary currencies for the service debt at par with the current exchange rate at the date at which they were acquired.

Up to the year 1988, the concessionaire companies enjoyed these benefits, without which they would have agreed upon the concessional business model. Under this system, between 1966 and 1971 were awarded the two concessions aforementioned and three more, with a total longitude of 535 Km, Villalba-Adanero, Sevilla-Cadiz and Tarragona-Valencia-Alicante. Nonetheless, the dispersion and casuistry of the rules on toll-motorway concessions called for the preparation of a new legislation that gathering the collective experience and that of other countries, would establish a general normative system applicable to all motorways, without it being imperative in each case refer to a specific norm and of a special nature. The Law 8/1972, of the 10th of May, pertaining the building, conservation and exploitation for toll motorways under a concession regime and the Decree 215/1973, of 25<sup>th</sup> January, that includes the General Clause Specifications and the ensuing development of the same, thereby fulfilling the previous objective.

In July 1972, the Ministry of Public Works Published the Summary of the National Motorway Plan, that updated PANE and that according to the Motorway Law, recently approved, included all the advantages that it had introduced, consolidating the toll formula as a financing system. It continued to be, as it was the case with PANE, an ambitious plan, long term and scant specifics as to routes and programming were concerned. In total, it foresaw a network of 6,430 Km, of which excepting 900 KM in service, 1,423 KM were considered of outmost urgent execution -- as it was estimated that, for the year 1980, there would have been some 2,250 KM of congested sections or with forced circulation.

Up to the year 1982, based on the Law of 1972, six concessions were awarded (Zaragoza-Mediterranean, Bilbao-Zaragoza, El Ferrol-Tuy, Burgos-Arminon, Leon-Campomanes and Tudela-Irurzun), with a longitude of some 1,000 Km, approximately. The oil crisis of October 1973 and the economic crisis that unleashed gave way to a traffic decrease and an increase in building costs as well as financial which, in turn, gave way to the predicted motorway concession program be stopped due to a lack of interest by the private sector -- having seen a decrease in their financial profitability and attacked by the serious economic problems entailed in the concessional business model; did not see it suitable to undertake new projects. The situation of some concessionaires reached such a serious standpoint that, in 1984, the State bailed out three of them (AUDENASA, AUDASA and AUCALSA), which were integrated into the National Motorway Company Plc (ENA) -- created to that end. The recovery of ENA motorways traffic made that this company be privatized again in the year 2003. Notwithstanding the concessionaire companies aforementioned, the remaining motorways managed to overcome the crisis sustaining at all times their private nature.

Starting in 1982, the new Government failed the toll Motorway Plan and it replaced it with a Free Dual Carriageway, which came to be integrated into the State Roads Plan belonging to the 1984-1991 period to which we have already referred to.

So as to reduce building costs, the policy usually followed in the field of dual carriageways

was to divide up and improve already existing roads, leaving users in most cases without any other alternative road, which gave rise to that slow traffic, mainly that of tractors and agricultural machinery, and not have an option other than using the high capacity roads with the danger implied for speedy traffic. Although, at first, dual carriageways built differed greatly from the motorways, in its geometric and structural characteristics; however, the last ones built – some of them even with two paved newly built roads – have similar characteristics to that of the motorways.

As it was indicated, since the year 1982 the national motorway program was interrupted with the exception of some extensions of existing concessions. Only some Autonomous Regions, specifically Cataluna and Galicia, making use of the responsibilities having been transferred, granted certain toll concessions, with certain benefits granted by their regional Governments that made attractive private sector participation. This was the case, in Cataluna, for three concessions (Terrasa-Manresa-San Cugat, Castelldefels-Sitges-The Vendrell and the Vallvidriera Tunnels) of 112 Km of total longitude and, in Galicia, for two (La Coruna-Carballo and Puxeiros-Val Miñor) of 60 Km.

The approach carried out by the Government during the eighties changing with the time. Actually, the Infrastructure Managing Plan (PDI) for the 1993-2007 period, approved by the Government in 1994 and ratified by Parliament at the end of 1995, having been debated at length by the Economic and Social Council, advocated the possibility of once again turning to extra-budgetary financing as an infrastructure financing method. Within this process and before the change in Government in may 1996, there was one last toll motorway concession of 54 Km, between Malaga and Estepona.

The result of this 30 year process, 1967-1996, was the establishment of a road network of high capacity of some 6,500 km of longitude, 2,200 Km of which approximately belonging to toll motorway in exploitation or construction phase; some 300 Km to free motorways and about 4,000 Km to dual carriageways, also toll-free, most of which without an alternative itinerary. Therefore, it deals with a very scattered and heterogeneous network in which meet different management and financing systems, as well as different areas of responsibility and decision-making.

In the legislature corresponding to the 1996-2000 period, the first phase for the Toll Motorway Plan for the Ministry of Development was launched that entailed ten motorways (503 Km total) that meant an investment of more than 3,000 million euros. The motorways that were bided out in that period were Alicante – Cartagena, Avila – Segovia, Estepona – Guadiaro, Leon – Astorga, Santiago – The Upper Santo Domingo, Madrid Radial (II, III, IV and V) more the works of the M-50 belt.

Although, the bidding out of those motorways had a major significance so as to get extra-budgetary resources in corridors where that investment was deemed necessary, the development for concessions was not without its problems, specifically in the process of choosing concessionaires – which rolled out an overhauling reform of the concessional system in Spain, both pertaining to general legislation and the drawing up of concession specifications.

#### **4. SPANISH ROAD SOCIOECONOMIC EFFECTS THROUGHOUT THE 20<sup>TH</sup> CENTURY**

Throughout the 20th century, as the economic and social development was taking place that has highlighted the Spanish evolution in this period, transport infrastructures in general, and road ones in particular have served as backing support for the development

of the economic and social activity in Spain. Its competition has been present in the running of almost all sectors and has represented one important component of the capital “stock” of the Spanish economy. The roads have made possible the displacement of people and merchandise and have become the physical support for many of the commercial exchanges, which have contributed decisively to the integration of the different markets—both within the Iberian peninsula and the rest of the European countries – with the profits that it implies for the efficiency of the economic system.

Given that roads have become throughout the 20th century in Spain a decisive factor in territory accessibility, its development has also had a favourable impact on the position and standard of living of its citizens. These positive effects of the roads have shown themselves, first of all, in providing a better access to several services that are deemed essential and, second of all, favouring a more equitable distribution of income and wealth, through the powerful redistributive effects that always accompany road investment.

From the vantage point of the areas where they are located, roads have to contribute to driving their competitiveness and have set up the basis for a greater regional equity. The appearance of the well known “overflowing effect” (the impact of a certain infrastructure more often than not goes beyond the territory itself where it is located, thanks to the network effect) has done nothing but strengthen this conviction. It has also played a significant role in the growth that Spain has experienced throughout the recent decades, the technical progress and the economic efficiency that road investment has provided, through productivity increases in work and private capital [6].

All of these characteristics turn roads into essential elements in the articulation and cohesion of the Spanish territory throughout the 20th century, providing a physical and economic sense to the nation concept and make the infrastructure policy to have become one of the more outstanding tools of economic policy.

Finally, we would like to point out that one of the more remarkable points within the socioeconomic effects of roads in Spain in the 20<sup>th</sup> century has been its impact on tourism development [7]. It is very meaningful what it is stated in his article in Civil Engineering magazine Publisher in 1959: “For tourism that grows with great speed, road is fundamental. First of all, because through it enters the greatest share. And we must take into account that even for travellers who come by other means of transport, the road is the one which they use to get to know and appreciate the country” [8].

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