

**THE PUBLIC CHOICE IN THE RAILWAY SECTOR:  
CASE STUDIES IN THE DOURO REGION**

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“Railway stations (...) do not constitute, so to speak, a part of the surrounding town but contain the essence of its personality just as upon their sign-boards they bear its painted name”

Marcel Proust



## **Abstract**

In this study, which is going to start by approaching the most important concepts of the public choice theory, such as the two main views of the State, we are going to focus our attention on five railway lines placed in the North Interior of Portugal.

Our journey is going to be initiated in the Douro Line. Then, we are going to travel along the four narrowed-gauge railway stretches which departed from some stations of the collector itinerary. Besides the Tua Line, there were three other stretches with architectural and tourism particular interest in this region of Portugal. All these itineraries were created not only to serve the most isolated populations but also to drain some regional products, such as the Reboredo Mountain iron mines, in Torre de Moncorvo.

The appearance of the *Plano de Modernização e Reversão dos Caminhos-de-Ferro* led to the closure of at least one linkage of these five railway lines, between 1988 and 1991. Two decades after, the new *Plano Estratégico dos Transportes*, launched in 2011, confirmed new suppressions in three of the four stretches which were still running. Using mainly qualitative methodology and approaching five case studies, this work has as the objective to enumerate the reasons which drove to the closure of the great majority of the Trás-os-Montes railway itineraries.

Key Words: Public Choice, Transportation, Railway Transportation, Douro Region

JEL Classification: H41, R41



## Resumo

Neste estudo, que começará por abordar os conceitos mais relevantes da teoria da escolha pública, tais como as duas principais visões do Estado, iremos focar a nossa atenção em cinco linhas férreas localizadas no Interior Norte de Portugal.

O nosso roteiro irá iniciar-se na Linha do Douro. De seguida, iremos viajar pelas quatro vias-férreas de bitola estreita que partiam de algumas das estações do itinerário colector. Para além da Linha do Tua, existiam três outras vias com particular interesse arquitectónico e turístico nesta região de Portugal. Todos estes itinerários foram criados não apenas para servir as populações mais isoladas como também para escoar alguns produtos regionais, como o ferro das minas da Serra de Reboredo, em Torre de Moncorvo.

O aparecimento do *Plano de Modernização e Reversão dos Caminhos-de-Ferro* conduziu ao encerramento de pelo menos um troço destas cinco linhas ferroviárias, entre 1988 e 1991. Duas décadas mais tarde, o novo *Plano Estratégico dos Transportes*, lançado em 2011, confirmou novas supressões em três das quatro vias que ainda se encontravam operacionais. Utilizando metodologia predominantemente qualitativa e abordando cinco estudos de caso, este trabalho tem como objectivo enumerar as razões que presidiram ao encerramento da grande maioria dos itinerários ferroviários de Trás-os-Montes.

Palavras-Chave: Escolha Pública, Transportes, Transportes Ferroviários, Região do Douro

Classificação JEL: H41, R41





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## I. Introduction

The railways vulgarization and prestige became evident in the entire world in the first half of the 19<sup>th</sup> Century. Few after, the necessity of introducing good communication means started to be felt in Portugal. Therefore, the construction of a railway network in the country would soon appear as a priority.

The first Portuguese railway connection, which linked Lisboa to Carregado, was opened on 28<sup>th</sup> October 1856. Along the following decades, many other itineraries were projected and constructed, not only in the littoral but also in the interior. One of these stretches was the Douro Line, which ensured a longitudinal linkage between the coast, since Porto – Campanhã, and the interior, until La Fuente de San Esteban, already in Spain. This itinerary, which was constructed as an Iberian-gauge railway stretch, celebrates in 2015 its 140<sup>th</sup> birthday. Nevertheless, besides having provided an international linkage, through Barca d’Alva, the Douro Line has also guaranteed the connection with other four railway itineraries. The first stretch to be built was the Tua Line, whose inauguration took place in 1887. By the time this itinerary arrived to Bragança, in 1906, the Corgo Line was opened until Vila Real. While the Tâmega Line would start to serve Amarante in 1909, the Sabor Line would be inaugurated until Carviçais two years later, in 1911. However, the construction project of these stretches was not fast. As we are going to analyze, their final configuration would only be achieved in 1949, 62 years after the Tua Line opening.

These last four railway itineraries, mainly built in “rough lands”, were already described as “low” traffic stretches, in the beginning of the 20<sup>th</sup> Century<sup>1</sup>. Thus, in order to avoid unnecessary expenditures, these four lines were constructed as narrowed-gauge railway itineraries, and not as Iberian-gauge railway stretches, which could cost “the double and the triple”<sup>2</sup>. By that time, it was thought “high velocities” were not needed, as long as the most important was to “proportionate the instrument to its modest but utile function and to the available resources”<sup>3</sup>. Hence, in these “secondary” lines what most mattered was to “serve well the region and to call to the railway all the traffic elements”<sup>4</sup>. “Not less important” was the road building, in order to turn the access to the stations easier<sup>5</sup>. It cannot be forgotten Trás-os-Montes is not only the remotest but also one of the less developed areas of the country. In fact, the sub-region of Trás-os-Montes is the poorest one of the 27 countries of the European Union (EU) (Pires, 2014: 84). In addition, the North region, considered the poorest one of Portugal, is also placed among the 30 of the 354 poorest regions of the 25 countries of

the EU (Pires, 2014: 84). Furthermore, despite occupying 65% of the North region, Trás-os-Montes only accounted for 0,5% of its exports, in 2008<sup>6</sup>. Therefore, the railways can assume a determinant role in the improvement of the Trás-os-Montes accessibilities, reducing its secular isolation and promoting the territorial cohesion. In addition, the railways not only encourage the settling of the population but also stimulate the provision of a local “public service”, which guarantees a communication mean to the inhabitants, mainly elderly in this region of Portugal.

Nevertheless, the approval of the *Plano de Modernização e Reversão dos Caminhos-de-Ferro*, in 1988, led to the suppression of at least one stretch of these five railway itineraries. Two decades after, in 2011, the appearance of the new *Plano Estratégico dos Transportes* turned definite a set of temporary closures, determined two years before. Despite having been started in 2009, the rehabilitation works would be stopped in the following year, thanks to the necessity of fulfilling the restrictions imposed by the Stability and Growth Plans. Hence, nowadays, only 179 of the 578 kilometres which composed these five railway lines remain working. However, the wave of suppressions was particularly severe above the narrowed-gauge railway stretches. Actually, in few more than two decades, the original 387 kilometres of this sub-network were reduced to only 16 kilometres.

Our work is divided in five big chapters. In the first one, we are going to focus our attention on the **Revision of the Literature**, where the public choice theory and the two main views of the State are going to be discussed. The next step is going to be the analysis of **The Railways in Portugal**. We are going to detail the three Portuguese main official plans for this sector: the *Decreto 18.190*, launched in 1930, which would guarantee the conclusion of the railway network in the country, the *Plano de Modernização e Reversão dos Caminhos-de-Ferro*, approved in 1988, which confirmed the intention of suppressing the great majority of the railway itineraries placed in the North Interior of Portugal, and the new *Plano Estratégico dos Transportes*, launched in 2011, which eliminated the scarce working linkages in the region. Then, in the **Methodology**, we are going to explain the procedure behind the elaboration of this study. The next step is going to be the characterization and the analysis of the Douro Line, of the Tâmega Line, of the Corgo Line, of the Tua Line and of the Sabor Line, in the **Case Studies**. Finally, the detailed reasons which led to the closure of almost 400 kilometres of the railway stretches placed in Trás-os-Montes are also going to be presented in the **Conclusion**. The limitations of the study and the suggestions for future investigation works can also be found in this final chapter.



## **II. Revision of the Literature**

### **1. The Public Good Concepts**

#### **1.1. Definition of Public Concepts**

##### **1.1.1. The Public Policy**

First of all, as Parsons (1995: 2) stresses, before starting to discuss the public policy concept, we need to consider “what we mean by the idea of ‘public’”. According to Parsons (1995: 3), the ‘public policy’ has simply “to do with those spheres which are so designated as ‘public’”. Thus, by another words, we are assuming “there is a sphere or domain of life which is not private or purely individual, but held in common” (Parsons, 1995: 3). Therefore, it can be said Parsons highlights the “necessity of bordering the public activity field and the private activity field” (Chenrim, 2008: 5).

Furthermore, for Parsons (1995: 3), the public concept includes the “dimension of human activity which is regarded as requiring governmental or social regulation or intervention, or at least common action”. This action is taken not only so that the common good interests can be safeguarded but also so that the market imperfections can be corrected (Chenrim, 2008: 3).

Nevertheless, the dichotomy between the ‘public’ and the ‘private’ is not recent. Actually, according to Parsons (1995: 3), this “relationship” dates back “to the beginning of the civilization”. In fact, the Greeks and the Romans have already considered the “tension” and the “conflict” between “what is held to be ‘public’ and what ‘private’” (Parsons, 1995: 3). However, the demarcation between the ‘public’ and the ‘private’ has only started to be clearer defined since the end of the 1970’s decade (Chenrim, 2008: 4-5), with the emergence of the public choice theory.

##### **1.1.2. The Public Opinion**

For Parsons (1995: 110), the public opinion is “to the political market what consumer demand is to the economic market place”. This concept was especially developed in the 19<sup>th</sup> Century, in the Great Britain, “in the sense of being an identifiable body of views held by a defined group and to whose opinion Government attached a standing and a significance” (Parsons, 1995: 111). It was also a concept which “evolved with the development of political institutions and of modes for its dissemination” (Parsons, 1995: 111).

Furthermore, according to Parsons, Lasswell was one of the most important economists who dealt not only with the public policy concept but also with the public opinion idea. Actually, the concept of policy analysis, developed in the 1930's decade, rather before of the public choice theory emergence, would be introduced by Lasswell (Chenrim, 2008: 4). This new idea tried not only to "conciliate the scientific and academic knowledge with the Governments empirical work" but also to "establish inter-relations between the investigators, the interest groups and the Government" (Chenrim, 2008: 4). Therefore, Lasswell was clearly "in advance of opinion research and content analysis", as long as he argued "the study of public opinion was a core part of policy studies", already in a premature period (Parsons, 1995: 110).

All in all, we can conclude as long as the "public policy is a function of public opinion", the "policy demand determines policy supply" (Parsons, 1995: 110). Hence, Parsons (1995: 110) sustains the "policy agenda is set by the interplay of public opinion and public power".

## **1.2. Definitions of Policy Concepts**

The State has been providing a huge variety of goods, since its foundation. Nowadays, we are provided not only defense and justice services but also health cares. Nevertheless, the State also guarantees the education and the transport services, in the majority of the countries. Therefore, Musgrave defines and summarizes provision as "the political process by which such goods are made available, and not their public production" (Buchanan and Musgrave, 1999: 37).

Many of these services were developed with the democratic process. In fact, the National Health Service would only appear in Portugal after the Carnation Revolution, which occurred on 25<sup>th</sup> April 1974. However, according to Pereira, the concept of 'democracy' has two main senses. Actually, by one hand, it is the "institutional arrangement" which creates "political decisions in order to reflect the common good" and, by another hand, it is the method which listens to the "people's wishes" (Pereira, 1997: 426).

The critics of policy analysis, such as Lindblom, consider "without addressing the wider context within which analysis takes place all social inquiry is impaired and fundamentally biased against the disadvantaged and information-poor and in favour of those

with power who are information-rich” (Parsons, 1995: 396). Hence, for Parsons (1995: 397), “analysis for decision-making necessarily involves analysis of the existing policy space”.

## **2. The Public Choice**

### **2.1. The Scarcity**

The scarcity of resources is a well known characteristic of Economics. Actually, this scarcity constraint is in the basis of the necessity of picking only some particular choices, rather than all the possible choices. Finally, it is necessary to confirm if these choices were correctly allocated. In fact, according to Dahl and Lindblom (1992: 162), “scarcity, choice and allocation are the distinguishing problems of economic calculation”. Furthermore, “the choice and allocation processes have traditionally been bound together in theoretical economics” (Dahl and Lindblom, 1992: 161).

The important concept of scarcity was especially considered by these authors, who sustain “economizing begins with scarce resources and ends with goods, services, leisure and other values in the hands of consumers” (Dahl and Lindblom, 1992: 134). In addition, we only achieve efficiency “if the right goods, services and other values get into the right hands” (Dahl and Lindblom, 1992: 134). Finally, it cannot be forgotten the “scarcity of resources stands in the way” (Dahl and Lindblom, 1992: 165).

### **2.2. The Economic Calculation**

After realizing the inevitability of the scarcity, the next step is to ensure the best possible choice. Now, the economists have to determine “which ends are worth sacrificing, and to what degree, in order to make possible the attainment of others” (Dahl and Lindblom, 1992: 164).

So that we can prosecute our way, we need to deal with “calculation problems”, which are “the distinctive skill of the economist” (Dahl and Lindblom, 1992: 162). In fact, in order to solve the best choice problem, the modern economist should be “a specialist in supply and demand, relative prices, utility and marginalism” (Dahl and Lindblom, 1992: 162). This task is not easy, because there is a “multiplicity of possible desired ends for given means, inadequacy of the means to attain all desired ends and a consequent necessity of sacrificing one end to another” (Dahl and Lindblom, 1992: 164).

Therefore, Dahl and Lindblom (1992: 164) stress the rational choice “calls for a more complicated process than merely ranking preferences”. As a consequence, a particular theoretical frame of Economics also considers the necessity of dealing with a “problem of maximization”, which tells us “which of all the combinations to be acquired from given claims is preferred to all others” (Dahl and Lindblom, 1992: 165). According to it, to reach a good choice, it is necessary to compare “an increment with a decrement, this is, a marginal gain with a marginal loss” (Dahl and Lindblom, 1992: 165). By another words, a comparison between the “marginal value received” and the “marginal cost” is needed (Dahl and Lindblom, 1992: 165).

Furthermore, for Dahl and Lindblom (1992: 165-166), the relevant cost can be defined as “the alternative of which is immediately contingent upon the particular alternative” the economist “chooses and which he can escape if he does not make the choice”. It can be concluded while the choice depends “on cost” the cost depends “on the total of demands on resources” (Dahl and Lindblom, 1992: 167).

All in all, according to this particular theoretical frame of Economics, the rational allocation is achieved when “no marginal units of any resource can advantageously be moved to another use” (Dahl and Lindblom, 1992: 164). Hence, “the resource’s capacity for satisfying the choices of those with claims” (Dahl and Lindblom, 1992: 164) is the test of the “usefulness, productivity or value of a resource” (Dahl and Lindblom, 1992: 167). We have to consider the “allocation is correct when the marginal cost of using a resource is equal to the marginal value received from its use” (Dahl and Lindblom, 1992: 167).

## **2.3. The Choice and the Allocation Provision**

### **2.3.1. The Importance of Rationality**

For Perry, who sustains the importance of rationality, it can be considered “rational is the key word” (Parsons, 1995: 122). Actually, we are talking about “rational decisions, rational issues, rational campaign itineraries, rational television and rational literature” (Parsons, 1995: 122). Parsons (1995: 382) also stresses all the models consider the “relationship between knowledge and power”, without forgetting the “nature of rationality”. This issue is also developed by Pereira (1997: 424), who sustains as long as individuals are “instrumentality rational” each “collective choice” is the result of their “preferences”.

Furthermore, it has to be considered the public policies study absorbs the concepts of the most varied social sciences, such as Political Science or Economics (Chenrim, 2008: 3). Therefore, there are analyzed the “economic agents inter-relations”, by considering the decisions are done “in function of their interests” and not “in function of the common good interests” (Chenrim, 2008: 3). Hence, it can be stated agents are also “selfish” (Pereira, 1997: 424), and especially the ones who intervene in the democratic political process, who have “basically selfish intensions” (Pereira, 1997: 427). In fact, many times it is argued politicians want to “maximize their votes” (Pereira, 1997: 427), rather than serving the ‘common good’. Thus, it can be sustained “rational and selfish individuals can vote favorably proposals which might harm themselves in the present” (Pereira, 1997: 432).

### **2.3.2. The Rationality Processes**

Dahl and Lindblom argue there are six rationality processes. The first one is concerned with the distribution of claims on resources. Economizing “requires a process for determining whose goals shall have priority and to what extent” (Dahl and Lindblom, 1992: 129). Secondly, we can find the stability condition, which requires “resources are neither under-allocated nor over-allocated” (Dahl and Lindblom, 1992: 129). According to Dahl and Lindblom (1992: 129), “to describe stability is easy, to achieve it is not”. Thirdly, the choice can be synthesized in a “process of calculation and control by which those persons who have claims may choose among alternatives and signal the responses desired” (Dahl and Lindblom, 1992: 130). The “process of calculation and control for inducing responses to choice” corresponds to the allocation phase (Dahl and Lindblom, 1992: 130). Then, the resource development deals with a “process of calculation and control for increasing the quantity of resources” (Dahl and Lindblom, 1992: 130). Finally, the high resource output step, which can be summarized in a “process of calculation and control for achieving high output from resources in their allocations”, concludes the sixth and last stage (Dahl and Lindblom, 1992: 162).

### **2.3.3. The Rationality Techniques and the Evaluation Methods**

In order to evaluate correctly the application of the public policies, two very important concepts should be used: the efficiency and the efficacy (Chenrim, 2008: 16). Nevertheless, as we have already seen, so that the best choice problem can be answered correctly, the rationality has to be adopted.

According to Parsons, there are five big techniques of rational analysis. The first one is the Cost Benefit Analysis (CBA), which was especially developed in the 1960's decade (Buchanan and Musgrave, 1999: 34), "within the context of welfare economics" not only in the USA but also in Europe (Parsons, 1995: 400). As long as "the costs of a programme can be calculated and set against benefits", the CBA allows us to compute easily the "net benefit" (Parsons, 1995: 400). Therefore, we are provided an "apparently neutral technique for identifying goals, their impacts and their costs and benefits" (Parsons, 1995: 401). However, "the assumptions and values of welfare economics" might be not applicable to all the policy decisions (Parsons, 1995: 402). Nevertheless, in spite of its limitations, the CBA still provides us the "essential core of rational analysis in Government decision-making and in the legitimization of decisions", simply by choosing the alternative with the highest net benefit (Parsons, 1995: 402).

The economic forecasting is another technique of rational analysis. Also introduced in the 1960's decade, this "qualitatively different dimension" used a "distinctive methodology", by employing an "analytical precision with force" (Thompson, 2008: 360). Employing concepts such as an "individual utility maximization" (Thompson, 2008: 360), the economic models continue even nowadays to be seen as a "necessary tool of decision-making in the modern State" (Parsons, 1995: 405). It should be highlighted statistics were originally "numbers used by the State" (Parsons, 1995: 382). As long as the State acquired progressively "more power and control", "the need for numbers and a rational basis of decision" has been an increasing necessity (Parsons, 1995: 382). Therefore, this tendency was in the basis of the development of the word 'statistics'. According to Parsons (1995: 110), Habermas has stressed "the influence of positivism has been more strongly felt in those areas of social science which have employed statistical analysis".

For Parsons (1995: 410), the Operational Research (OR), the third technique of rational analysis, can be divided into "linear programming, decision theory, queuing theory and inventory control". Hence, the OR has a wide application, "especially in health, social services, transport, law enforcement and taxation" (Parsons, 1995: 410). For example, the queuing theory is connected to issues such as "the time spent waiting, when costumers arrive" and "how waiting time and length queues vary" (Parsons, 1995: 413). Therefore, the queuing theory can be especially applied in the transport sector, by using the "standpoint of CBA" (Parsons, 1995: 414).

The social indicators have an important place in the techniques of rational analysis. Actually, we are provided “a broad context within which governmental agenda-setting takes place” (Parsons, 1995: 416). Nevertheless, the critics of the social indicators argue this technique is “loaded with a bias in favour of State intervention” (Parsons, 1995: 416).

Finally, we can also find the financial planning and the impact assessment in the group of the techniques of rational analysis. However, if we do need to use qualitative techniques, we can also rely on “scenario writing, simulation, gaming and counterfactual analysis, cross-impact analysis, brainstorming and Delphi analysis” (Parsons, 1995: 421).

All in all, by evaluating not only the concepts of efficiency and efficacy but also these rationality techniques, the Governments can frequently “review the policy previously adopted” (Chenrim, 2008: 16). This *retreat* can occur when the evaluation and the impact of the prosecuted policy does not reflect the expected effect and when the target does not feel identified by the policy implementation (Chenrim, 2008: 16). Furthermore, this tendency can be said to be confirmed by the democratic process (Chenrim, 2008: 18). Actually, the parties in the power can be “legitimated” or “penalized” by the citizens votes (Chenrim, 2008: 18).

### **3. The Agenda**

A new focus has emerged in the 1970's decade in the political agenda. McCombs and Shaw sustain the “mass media set the agenda for each political campaign” (Parsons, 1995: 112). Actually, according to Parsons (1995: 113), “the more attention” is given to an issue, “the more does the public regard it as being a high agenda item”. It can be said when an issue appears in the agenda a politic factor “arouses” the politicians interest and drive them to discuss it and to eventually take a governmental decision (Chenrim, 2008: 12).

Dearing and Rogers argue there are three kinds of agenda: “media, public and policy” (Parsons, 1995: 114). These authors stress “on some issues the policy agenda has a considerable impact on the media agenda” (Parsons, 1995: 114). Nevertheless, for O’Riordan, the agenda can be said to be driven by four factors: “events, personalities, pressure groups and institutional failure” (Parsons, 1995: 116). In fact, according to McQuail and Windahl, we cannot exclude the possibility of “the public itself” influence the media agenda (Parsons, 1995: 114). In addition, these authors sustain “some media look for content selection clues in their estimation of public concerns, independently of events, other media or elite views” (Parsons, 1995: 114).

For Parsons (1995: 124), parties simply “advance policies upon which citizens vote”. However, Root highlights “citizens are becoming mere spectators in an increasingly media-dominated political system” (Parsons, 1995: 124). This tendency makes Parsons (1995: 125) to conclude “it may well be that political process in liberal democracies is becoming more involved in manipulating the voter *qua* consumer rather than mobilizing people *qua* citizens”.

Finally, Solesbury argues “the key to understand agenda formation is the relationship between issues and institutions” (Parsons, 1995: 117). This author supports “an issue only begins to become important when as institution within the political system becomes associated with it” (Parsons, 1995: 117).

#### **4. The Public Choice Theory: The Main Debates**

##### **4.1. The Transition to the 20<sup>th</sup> Century**

For Pereira, economists such as Viti de Marco, Panteleoni, Wickcell and Lindhal have started to give attention to the political process since the transition to the 20<sup>th</sup> Century. In fact, by that time, the object of the economic analysis was changing with the appearance of “monarchies or constitutional republics”, instead of “absolutist monarchies” (Pereira, 1997: 421). Hence, we can conclude the public choice theory is “heir”, by one hand, of the “democracy” and, by another hand, of the “the public finance” (Pereira, 1997: 421).

In addition, the Voluntary Exchange Theory of Public Finance sustains it should exist an exchange between the “taxes paid by the citizens” and the “goods and services received” (Pereira, 1997: 421). So that this exchange can be voluntary, the “public spent benefits” should be “greater” than “their costs”, by one hand (Pereira, 1997: 421). However, it should also be provided “the best application of private income, between public goods and private goods”, by another hand (Pereira, 1997: 421).

It was thought democracy should “serve the collectivity’s interests and the citizens’ preferences” (Pereira, 1997: 422). Thus, two types of proposals were possible to answer to this problem. Whereas in the first one all citizens would get some benefit, in the second one there would exist a “zero sum gain” (Pereira, 1997: 422). Actually, we cannot forget the gains of some people are the losses of the other in a redistributive process.

##### **4.2. The Post Second World War**



Immediately after the Second World War, economists started to “have a new role in the policy-making processes” (Parsons, 1995: 391). However, the impact of their advice had some fluctuations, along the time, as we are going to see, and also along countries.

In fact, three big founders of the public policies area have emerged in the 1950’s and in the 1960’s decades (Chenrim, 2008: 4). Firstly, Simon has introduced the “concept of the public decisors limited rationality”, based on problems such as the bias information, the time for the decision taking and the decisors auto-interest (Chenrim, 2008: 4). However, Simon has acknowledged the rationality “could be maximized” through the creation of rules and incentives (Chenrim, 2008: 4). Then, Lindblom has also proposed the incorporation of variables such as the “power relations” and the “integration” between the different steps of the decision process in the “public policies analysis and formulation” (Chenrim, 2008: 4). Finally, Easton defined this field as a “system”, where the “formulation”, the “results” and the “environment” are related (Chenrim, 2008: 4).

Having this temporal reference in mind, Pereira and Thompson do not place the public choice theory development before the 1950’s and the 1960’s decades. Actually, by one hand, “there were not very many people writing articles” in that area “in 1965 and 1966” (Thompson, 2008: 369). By another hand, “a dedicated journal”, such as the *Public Choice*, “did not emerge until 1972” (Thompson, 2008: 369).

Hence, the study of the public policies would only raise significantly in the 1980’s decade, when it became into “one of the most important public administration areas” (Chenrim, 2008: 6). At that time, the public process started not only to involve the political process but also to reveal what did the Government realize or not (Chenrim, 2008: 6). Nevertheless, the public process also centres its attention in what the Government intends or defends to realize in the future (Chenrim, 2008: 6). This development was very clear in the USA, where the study of these subjects was not associated to the “relations with the theoretical basis over the role of the State”, but to the “actions of the Governments” (Chenrim, 2008: 3). However, Germany and the United Kingdom (UK) have also turned the study of the public policies in a “very important area” (Chenrim, 2008: 3).

Despite having been called to give advice to the President of the USA, in 1944, the economists would progressively lost influence in countries such as Germany or Japan. For Klotten, this lost of influence, especially felt since the 1970’s decade, can be explained by the unexpected policies performances, by one hand (Parsons, 1995: 391). However, the

“disappointing results from the growing proportion of Gross National Product (GNP) spent on social and welfare policies” have also given an important contribution to this tendency, by another hand (Parsons, 1995: 391). According to Parsons (1995: 392), the “erosion of the Keynesian dominance” would make the policy advice “more pluralistic and ‘unorthodox’”, along the time.

### **4.3. The Evolution of the Public Choice Concept**

For Pereira (1997: 437), the public choice theory emerged originally, in the 1950’s and in the 1960’s decades, as a critical approach to the “welfare economy”. Therefore, according to Thompson (2008: 355), it was only necessary to wait some extra years, until the transition from the 1960’s decade to the 1970’s decade, to see mounted a “profound ideological assault”, not only “from the right” but also “from the left on Keynesian social democracy’s central tenets”. However, Tullock (1993: 9) sustains the public choice theory “started as a revolutionary science” and with the time “became a normal science”.

For Pereira (1997: 438), the public choice theory is supposed to “compare the Government failures with the market failures”. Therefore, the market failures analysis is not an alternative, but a complement (Pereira, 1997: 437). According to Pereira (1997: 439), the public choice theory should not be “mistaken” with the “neoliberal vulgarization”, which supports a “development of the markets” and a “reduction of the Government intervention in the economy”. Hence, while the public choice “is an investigation program”, the neoliberalism is simply “an ideology” (Pereira, 1997: 420).

Therefore, according to some authors, the existence of “market failures” justifies the “Government intervention”, so that they can be corrected (Pereira, 1997: 439). A similar process takes place with the externalities, which appear when “the consumption, production or other action, realized by an agent, affects significantly the well-being of another agent”, without being “transmitted by the price system” (Chenrim, 2008: 10). These “market failures”, in which the externalities can be included, did not constitute a “concern” for the economists until the appearance of the public choice theory (Chenrim, 2008: 11).

In conclusion, according to Pereira (1997: 439), the existence of “Government failures” does not mean the “market development” would have benefits or just benefits. Hence, the public choice theory points for a “better State”, and not for “less State” (Pereira, 1997: 439).

## **5. The Two Views of the State**

### **5.1. The Minimum State Perspective**

Many authors sustain the State should have the minimum possible participation in our society. In fact, this perspective was already supported by Smith, by Bentham or by Humboldt (Almeida, 1996: 18-23), between the end of the 18<sup>th</sup> Century and the beginning of the 19<sup>th</sup> Century.

Nowadays, Buchanan, who was “the principal founder of the school of public choice” (Buchanan and Musgrave, 1999: 4), is one of the voices which can be described as “antistate, antigovernment and antiestablishment” (Buchanan and Musgrave, 1999: 6). According to Buchanan, the Governments not only have “overreached themselves” but also have “failed to deliver what they had promised” (Buchanan and Musgrave, 1999: 22). Therefore, the periods of “fiscal irresponsibility” can be explained by the “dominance of Keynesian nostrums” (Buchanan and Musgrave, 1999: 23). Considering this thought, we can conclude the State should play a less interventionist role, for this group of economists.

Furthermore, Buchanan sustains the free market, “without transactions costs and with symmetric and complete information”, is the ideal one (Pereira, 1997: 435). For this group of economists, the Government not only should “know and satisfy the preferences of their citizens” but also should “impose its policies”, by playing as a “benevolent dictator” (Pereira, 1997: 436). According to Easton (1981: 306), the “economic liberal” considers the “rediscovery of the State as a concept” to “locate an easily defined source to blame for many of our social woes”. Nevertheless, the State remains an “undecipherable mystery” (Easton, 1981: 307).

Finally, Buchanan stresses the “democracy seemed unable to control its own excesses” (Buchanan and Musgrave, 1999: 22). Therefore, the tendency to produce constant “deficit budgets” in democracies can be highlighted (Pereira, 1997: 431). According to Pereira (1997: 431), in pre-electoral periods, Governments enroll in “political and economic cycles characterized by a public expenditures growth”. Later, in post-electoral periods, the “inflationary tensions” impose “restrictive policies” (Pereira, 1997: 431). However, this cycle simply results from the “democratic process itself” (Pereira, 1997: 431).

### **5.2. The Interventionist State View**

In the opposite side, we can find the ones who sustain the State should have a determinant role in the organization of our society.

Musgrave, considered the ‘father’ of the “postwar public economics” (Buchanan and Musgrave, 1999: 4), is one of the authors who stresses this necessity. In fact, for this group of economists, who believe the State is indispensable, a “balance of private and public concerns” is needed so that the society can work (Buchanan and Musgrave, 1999: 49). According to Musgrave, the State should be seen as “an association of individuals, engaged in a pressure group, formed to resolve problems of social coexistence” (Buchanan and Musgrave, 1999: 31). Nowadays, these pressure groups, also known as lobbies, can unite “individuals, enterprises, organizations or institutions” (Chenrim, 2008: 7). For Bentley, the aim of these pressure groups is to “exercise pressure over the political system”, in order to demonstrate “its values in the political decision process” (Chenrim, 2008: 7).

In addition, an “efficient provision of public goods requires political institutions and a collective process of policy determination”, according to Musgrave (Buchanan and Musgrave, 1999: 32). Hence, it can be said “the institution of the public sector is needed to complement, not replace, the private sector” (Buchanan and Musgrave, 1999: 37). For Musgrave, the public sector should constitute a “vital social capital, complementary and not rival, equal and not inferior to the market” (Buchanan and Musgrave, 1999: 49). According to Musgrave, “the need for state action in the provision of public goods” was also recognized by Smith (Buchanan and Musgrave, 1999: 38), who argued the State should have the smallest possible intervention in the economy.

This group of economists does not believe in the market perfectly competition (Pereira, 1997: 436). In fact, Pereira (1997: 436) stresses these economists believe the market is characterized by “asymmetric information”, by “uncertainty” and by “transaction costs”. As long as the State cannot know the preferences of their citizens, the Government needs the help of two groups of “intermediaries”: the “pressure groups” and the “decentralized public administration agencies” (Pereira, 1997: 435).

## **6. The Importance of the Railways**

As the majority of the academic authors, Dahl and Lindblom (1992: 140) sustained “the major resource is man himself” and his “claims to food, medical care or education”. Hence, the importance of the public transport seems to be forgotten in their works. In fact, as

Watters II (2007: 11) has considered, “economics as a discipline only slightly predates the railroad”. According to Watters II (2007: 47), railways are “often seen as an instrument of public policy”, not only to “combat auto congestion and pollution” but also to substitute “rail for truck transport of freight”.

Furthermore, as long as railways are said to play a “strong social role”, they should be seen as an important “public service”, which works as an “economic activity catalyst” (Pires, 2014: 30). If railways are understood as an “important exogenous factor for the regional development”, they are able not only to “guarantee the sustainable mobility” but also to “stimulate activities with multiplicative power” (Pires, 2014: 30). Actually, the lower costs and the higher safety and speed levels allow the multiplicative effects appearance (Watters II, 2007: 12). Therefore, railways can promote the “markets unification” and the “economies of scale” (Pires, 2014: 30).

In addition, the regional railway service is a “necessary ramification”, not only for the “urban services” but also for the collector and for the main lines (Pires, 2014: 35). However, it is necessary to remind fixed costs play a very important role in the transport sector (Watters II, 2007: 36). Furthermore, these costs “are sunk”, “once invested” (Watters II, 2007: 36).

Judt was probably one of the authors who had better considered the importance of the transports, and particularly of the railways, in the society organization. For Judt (2010b: 199), the public transport “is not just as another service”. In fact, more than “carrying people from point A to point B”, the railways are “a collective project with an individual benefit” (Judt, 2010b: 199). As long as they have “generated sociability”, their appearance has allowed the emergence of the “public life” concept (Judt and Snyder, 2012: 333). In this idea there are included not only aspects such as “public places, public access or public premises” but also the concept of “public transport” (Judt and Snyder, 2012: 333). According to Judt (2010b: 200), as long as railways are “eternally contemporaneous”, a country without an efficient railway network can be considered “undeveloped”.

Nevertheless, as long as “railways were and had to be socially responsible” (Judt, 2010b: 202), they “rarely were a source of profit” (Judt, 2010a: 233). In fact, the “appearance of commercial and private roadways” made indebted “the most part of the railways companies” (Judt, 2010a: 233). Hence, Judt (2010b: 194) concludes “it is not possible to manage railways competitively”.

Actually, “railways are an essential economic activity and also an essential public service” (Judt, 2010b: 194). According to Judt (2010b: 194), it is not possible to measure the railways efficiency by “putting two trains in a line and by seeing which of them has the best performance”, as “two butter brands in a supermarket shelf”. In fact, the passengers do not choose between two trains thought “aspect, comfort and price” (Judt, 2010b: 194). For Judt (2010b: 194), they simply pick the train which “arrives early”. Thus, the “railway lines” and the “railway time schedules” can be considered a “natural monopoly” (Judt, 2010a: 234).

As we can deduce, according to Judt (2010b: 195), the usual arguments of efficiency “do not hold on public transports”. Actually, “as better they are working, as less efficient they can be” (Judt, 2010b: 195). This thought explains why non-profitable and inefficient services, as the local ones, are frequently eliminated. Despite existing “economic advantages in short-term”, these surplus values are “annulated by the loss for the community in long-term”, which is “hard to estimate, but unquestionable real” (Judt, 2010b: 196). Even if driving a train to a remote region can be “economically non-viable”, the railway service “sustains local communities” (Judt, 2010b: 197). In fact, the “railways stations and their provided services to the smallest community are a symptom and a symbol of the society” (Judt, 2010b: 198). For Judt (2010b: 202), “it was not by chance that Margaret Thatcher never travelled by train”.

As long as railways are indeed a “public” (Judt, 2010a: 235) and a “social” (Judt, 2010b: 196) service, countries such as France, Germany, Italy or Spain have been investing strongly in them. The “enormous subsidy” granted to the railways is seen in these countries as an “investment”, not only “in national and local economies” but also “in environment, health, tourism and social mobility” (Judt, 2010a: 235).

Actually, for the majority of the French, the “railways are not a business”, but a “service provided by the State to citizens at the expense of a collective investment” (Judt, 2010a: 236). Even though “railways, lines or premises” can be non-profitable, their loss is “compensated by indirect benefits” (Judt, 2010a: 236). Treating the railways as “a business” reveals “not understanding their nature” (Judt, 2010a: 236).

## **7. Final Synthesis**

As we were able to attest, the State has been providing a huge variety of goods, since its foundation. Nevertheless, while some voices sustain the State should play an interventionist role in the organization of our society, other voices argue the State should have

the minimum possible participation in our society. In our perspective, this last ideology got stronger in the 1950's and in the 1960's decades, with the appearance of the public choice theory, which has emerged as a critical approach to the "welfare economy" (Pereira, 1997: 437). The "profound ideological assault" (Thompson, 208: 355), quickly mounted in the following decades, led to the rupture of the "Keynesian consensus" established since the 1930's decade (Judt, 2006: 608).

This ideology was also extended to the public transport. In fact, rather than being seen as an important "public service" (Pires, 2014: 30), the railways would soon start to be considered "a business" (Judt, 2010b: 196). Actually, by one hand, the railways "rarely were a source of profit" (Judt, 2010a: 233). As we are going to see, there were already been verified "deficit conditions" in the 1960's decade in the Tâmega Line, in the Corgo Line, in the Tua Line and in the Sabor Line<sup>7</sup>. By another hand, the railways started to face the *wild* concurrence of the "commercial and private roadways" (Judt, 2010a: 233). Along this work, we are going to found the trucking business could easily present a "better concurrence position" than the train<sup>8</sup>, not only in the velocity but also in the price<sup>9</sup>. Therefore, companies such as *Auto Viação do Tâmega* or such as *Santos Viagens e Turismo* would replace respectively the railway service in the Corgo Line<sup>10</sup> and in the Sabor Line<sup>11</sup>.

Meanwhile, the postponement of the railways investment and modernization, substantiated in the UK (Judt, 2006: 615), was also verified in Portugal. In fact, the secondary railway network, in which were included the Tâmega Line, the Corgo Line, the Tua Line and the Sabor Line, has only received 0,2% of the total funds forecasted for the Portuguese railway network between 1988 and 1994<sup>12</sup>. With a persistent disinvestment, the closure of the local railway services becomes inevitable, sooner or later.

Along this study, we are going to confirm the Portuguese railway suppressions were not based in a CBA. Actually, despite being by excellence a tourism railway stretch, neither demand studies were produced in order to evaluate the Tua Line potential market<sup>13</sup>. All in all, the closure of the railway itineraries represents an "unquestionable real" loss for the population (Judt, 2010b: 196). As it happened in the Sabor Line case, the inhabitants not only lose "their train" but also became poorer and even more isolated<sup>14</sup>. Besides the unquestionable high disinvestment, which other reasons explain the suppression of the railway stretches considered in this study?

### III. The Railways in Portugal

#### 1. The 1930's Decade

##### 1.1. The Problems

As we have already seen, there were built four narrowed-gauge railway stretches in the North Interior of Portugal. In fact, the Tâmega Line, the Corgo Line, the Tua Line and the Sabor Line came down “sensibly parallel” until the Douro Line<sup>15</sup>. Therefore, as long as these four narrowed-gauge railway stretches had no linkage among them, they were completely “isolated”<sup>16</sup>. In fact, any “transversal communication” was done by going down until the Douro Line and by going up by another tributary<sup>17</sup>. Thus, it was necessary to do two transshipments and to take an “enormous route”<sup>18</sup>. In addition, it was impossible to exchange material and to have common workshops<sup>19</sup>.

Therefore, in order to solve these problems, it was thought to create a transversal line, which could “establish the linkage” with the four narrowed-gauge railway stretches<sup>20</sup>. This new itinerary would cut “by the centre”<sup>21</sup> the Trás-os-Montes “large lane”<sup>22</sup>, “in direct linkage to the littoral region”<sup>23</sup>. Furthermore, it would be possible not only to reach easily the Minho region lines but also to arrive faster to the city of Porto and to the Leixões Port<sup>24</sup>.

The first attempt to build this transversal stretch was done in the beginning of the 20<sup>th</sup> Century. However, as long as the construction terrain offered “severe difficulties”, the creation of a linkage close to the frontier, from Chaves through Vinhais until Bragança or from Valpaços to Mirandela and from Macedo de Cavaleiros to Mogadouro, would be very difficult to concretize<sup>25</sup>.

Nevertheless, the idea to construct this transversal line would reborn almost three decades later, in 1930, with the *Decreto 18.190*. At that time, it was understood this railway stretch should not be postponed<sup>26</sup>. Even though the Trás-os-Montes Transversal was said to be secondary, it was thought the “abated” and “exiguous” traffic would not be an “impediment” for its building<sup>27</sup>. In fact, it was only necessary to “proportionate the cost moderation to the function modesty”<sup>28</sup>. Actually, as we have already seen, the four narrowed-gauge railway lines were “tributaries of other ones”, to whom its “traffic” was brought and to whom “compensatory services” were done<sup>29</sup>. Therefore, as long as these four narrowed-gauge railway stretches were said to be in their “worst running conditions”<sup>30</sup>, because of their isolation, their longitudinal linkage was “imposed”<sup>31</sup>. This project would also have an



“incontestable value”, not only by the “traffic point of view” but also by the “military” perspective<sup>32</sup>.

## 1.2. The Official Project

The *Decreto 18.190* established the construction of several lines in the Trás-os-Montes region. The first one, the Ave Line, also known as the Basto Line, should depart from Caniços, in the Guimarães Line, and arrive to Arco de Baúlhe<sup>33</sup>, in the Tâmega Line, through Póvoa de Lanhoso and Cabeceiras de Basto<sup>34</sup>. Then, the Guimarães Line should depart from Guimarães, through Fafe, until Cavez<sup>35</sup>, where the Tâmega Line should be intersected. This last stretch should also intersect the Corgo Line, in a point to be defined, which could be established in Pedras Salgadas<sup>36</sup>. The Valpaços Transversal, the third railway line proposed in the *Decreto 18.190*, could depart precisely from Pedras Salgadas<sup>37</sup> or from Vila Pouca de Aguiar<sup>38</sup>. This new stretch should cross Carrazedo and Valpaços<sup>39</sup>, through a “rough” and “sinuous” outline<sup>40</sup>. From Valpaços it was “easy and smooth” the descent until Mirandela, in the Tua Line<sup>41</sup>. This new itinerary should serve the “rich” Valpaços region, in roughly 65 kilometres, and ensure the linkage “among all the narrowed-gauge railway lines”<sup>42</sup>. Finally, the Chacim Transversal should depart from Macedo de Cavaleiros, in the Tua Line, and arrive to Mogadouro, in the Sabor Line<sup>43</sup>. The “rough” outline<sup>44</sup> and the “exiguous” traffic<sup>45</sup> would soon threaten the construction of this stretch, which would leave the Sabor Line isolated from the other three narrowed-gauge lines<sup>46</sup>. A fifth itinerary was also proposed in the *Decreto 18.190*. The Vinhais Line, which would derive from Valpaços<sup>47</sup>, in the Valpaços Transversal, should reach the “province heart” in a “fertile region”, until Torre de Dona Chama and Vinhais<sup>48</sup>.

## 1.3. The Final Decision

As we have already seen, the construction of roads was considered a “not less important” challenge, in the beginning of the 20<sup>th</sup> Century, in order to facilitate the access to the stations<sup>49</sup>. Nevertheless, the roads would only know a high development in the 1930’s decade<sup>50</sup>. At that time, not only many road kilometres were built but also many bus lines were concession<sup>51</sup>. Hence, relevant innovations were introduced by the roadway transport. By one hand, it was a democratic mean, in which the passengers were not divided per classes<sup>52</sup>. By another hand, as long as it was by excellence a “door to door” mean, a higher accessibility than the train could be provided<sup>53</sup>. Thanks to these two unbeatable characteristics, the roadway transport would soon conquer the preferences of the citizens<sup>54</sup>. Therefore, the

*Decreto 18.190* can be said to “have appeared too late”<sup>55</sup>. Furthermore, in a first phase, this decree has only approved the Ave Line construction, between Caniços and Arco de Baulhe<sup>56</sup>.

Meanwhile, the ascension to the power of António de Oliveira Salazar led to the cut of almost all of the railway investments<sup>57</sup>. At that time, to allow not only a “traffic increment” but also a “considerable spends reduction”, it was expected the separation of the passengers and of the goods services<sup>58</sup>. That intention would be possible through the introduction of railcars to passengers and of diesel tractors to goods<sup>59</sup>. Therefore, as long as few lines would be built until the premature conclusion of the Portuguese railway network, concretized in 1949, the Trás-os-Montes Transversal would never be constructed. Hence, the Portuguese railway network would know no significant alterations until the 1980’s decade. This period of the time is going to deserve our attention in the next point.

## **2. The 1980’s and the 1990’s Decades**

### **2.1. The Problems**

The inauguration of the Celorico de Basto – Arco de Baulhe and of the Cabeço de Vide – Portalegre stretches, in 1949, determined the end of the railway expansion in the country. However, by that time, “no one” would believe the Portuguese railway network would not be concluded<sup>60</sup>. In fact, the railways were only composed by branches and by stretches which “arrived to nowhere” in the country<sup>61</sup>. Considering the lines did not “communicate among them”, the Portuguese railway network could hardly ever be considered a “network”<sup>62</sup>. Furthermore, no investments were done along decades<sup>63</sup>. Therefore, the degraded material and the reduced velocities were progressively dictating “the end of many lines”<sup>64</sup>.

Actually, in the 1960’s decade, there were already been verified “deficit conditions” in the four narrowed-gauge railway stretches considered in this work<sup>65</sup>. The situation was so worrying that *Comboios de Portugal* (CP), the entity responsible for the operation of the Portuguese railway network, was already studying their “running modification”<sup>66</sup>. Furthermore, it was feared the suppression of some of these itineraries in the near future<sup>67</sup>. However, as long as the potential closures would represent a “high loss for the economy of these regions”, no actions were taken<sup>68</sup>. Meanwhile, “many crowded villages”<sup>69</sup> were starting to be served by the roadway companies, whose development was becoming clear. Two

decades after, in 1988, the appearance of the *Plano de Modernização e Reversão dos Caminhos-de-Ferro* would lead definitely to the closure of these lines.

## 2.2. The Official Project

The aim of the *Plano de Modernização e Reversão dos Caminhos-de-Ferro* was to “recover the railway public service”, by ensuring the “commercial dynamics”, the “costs rationalization” and the “safety levels increase”<sup>70</sup>. It was felt the necessity of finishing with a “more than 10 years cycle” in which the railways had known a “sharp investment level decrease”<sup>71</sup>. Nevertheless, the “equally known” “insufficiency” of exploration financial resources was not forgotten<sup>72</sup>. Actually, as long as the “railway investment” only presented returns in “the medium term”, the “enterprise economic viability” could only be achieved with a bet on the “railway modernization and reversion”<sup>73</sup>.

According to the *Plano de Modernização e Reversão dos Caminhos-de-Ferro*, the Portuguese railway network was “aged”, “old-fashioned” and “degraded”<sup>74</sup>. These characteristics resulted from a “prolonged insufficiency of investments” and led to “losses from the quality of the produced service”<sup>75</sup>. In addition, there existed 2090 railway kilometres which “had never suffered any type of beneficitation”<sup>76</sup>. Therefore, their conservation costs were considered “very high”, especially in the narrowed-gauge railway stretches<sup>77</sup>. Actually, in these lines, almost 540 kilometres were based on the land<sup>78</sup>. Furthermore, most of the tracks were also said to be “very light” and “very old”<sup>79</sup>. In order to avoid accidents, CP had been reducing the running velocities<sup>80</sup>. Thus, in some cases, the trains could not exceed 30 kilometres per hour<sup>81</sup>. While it was necessary to wait 3 hours and 26 minutes to go from Porto to Vila Real, it would be needed to spend 7 hours and 1 minute to go from Lisboa to Vila Real. To reach Bragança, it was necessary to wait 7 hours and 12 minutes from Porto and 10 hours and 53 minutes from Lisboa<sup>82</sup>.

Therefore, it was understood the modernization of the Portuguese railway network could not be done supposing the “produced services” and the “current railway configuration” would be a “constant for the future”<sup>83</sup>. Furthermore, the maintenance and the modernization of the current railway network would be an “enormous material and human resources waste”, with no “economic and social benefits”<sup>84</sup>.

The secondary railway network, in which were included all the four narrowed-gauge railway stretches considered in this work, would only receive 0,2% of the total funds

forecasted between 1988 and 1994<sup>85</sup>. Therefore, there were only expected roughly less than 1,5 million of Euros to those itineraries for a seven years period<sup>86</sup>. These lines, which were said to have “no national interest”, should be “partially” or “totally” closed<sup>87</sup>. While the transports should be reduced, many stations should leave the “commercial service”<sup>88</sup>.

### **2.3. The Final Decision**

Hence, the *Plano de Modernização e Reconversão dos Caminhos-de-Ferro* was concluded by asking for the alternative bus service establishment in the railway stretches which should be closed<sup>89</sup>. However, these future suppressions should be “properly justified” and should not imply “losses for the populations”<sup>90</sup>.

In 1990, CP understood it was not possible to “maintain railway stretches without market perspectives and in full degradation state”<sup>91</sup>. Two years later, in 1992, CP continued thinking no “hesitations” could exist if it was indeed wanted to “eliminate one of the negative factors which has most affected the railway exploration: the provision of services with no economic or social interest”<sup>92</sup>.

In conclusion, there were abandoned 901 of the 3644 Portuguese railway network kilometres, between 1979 and 1995<sup>93</sup>. The narrowed-gauge railway stretches were the most affected. As we are going to see, it was not needed to wait too much time to see closed the great majority of the Douro region railway lines. A “formidable patrimony”, which took decades to be constructed and which cost the life to many employees, was suspended in less than five years<sup>94</sup>.

Meanwhile, the roads lobby started to be drawn<sup>95</sup>. Actually, the railway closures opened the way to the appearance of the trucking business<sup>96</sup>. Despite having launched a set of alternative bus services, CP would abandon them sometime later, by arguing the roadway was not its “vocation”<sup>97</sup>. Furthermore, many of the promises were not fulfilled. In fact, in the middle of the 1990’s decade, the Trás-os-Montes communication means continued to be “practically” resumed to the IP4, whose construction was done meanwhile the other regional transports were cut<sup>98</sup>. Hence, not even the building of new roads has totally ended with the Trás-os-Montes secular isolation<sup>99</sup>.

## **3. The 2000’s and the 2010’s Decades**

### **3.1. The Problems**

As we have already seen, the Portuguese railway network was never concluded. After the adhesion to the EU, in 1986, the country continued to bet on the roads development, leaving the regional railway service even more forgotten. Actually, between 1992 and 2008, per each Euro applied in the railways, there were invested 3,3 Euros in the roadways<sup>100</sup>. Furthermore, the tendency to the high disinvestment in the trains got clearly evident in the second half of the 2000's decade. In 2005, there were applied 426 million of Euros in the Portuguese railway network<sup>101</sup>. However, there would only be destined 307 million of Euros to the railways, in 2006, and just 264 million of Euros in the following year<sup>102</sup>. The investment would achieve a new minimum level in 2008, when there were only applied 250 million of Euros in the Portuguese railway network<sup>103</sup>.

After the last Tua Line accident, occurred on 22<sup>nd</sup> August 2008, a more careful monitoring started to be done in the railways<sup>104</sup>. Few time after, it became evident the situation was especially worrying in the lines where the velocities were lower and where the passengers were fewer<sup>105</sup>. In a country with high “regional asymmetries”, discovering the “older tracks” and the “rotten ties” were in the interior was not a surprise<sup>106</sup>. Even though the safety was not “in cause”, because the velocities were “adequate”, the lack of maintenance has reduced even more the velocities and has drawn even more the passengers away<sup>107</sup>. In addition, in some cases, the regional trains continued to leave some minutes earlier than the Alfa Pendular or than the Intercidades arrival<sup>108</sup>. In other cases, the passengers did not have correspondence in utile time with the regional train<sup>109</sup>. CP not only has abandoned the regional service but also has multiplied the transshipments, which discouraged even more the people from using the train<sup>110</sup>. The systematic postponement of the renovation works led to the achievement of a maintenance level not only “insufficient” but also “null”<sup>111</sup>.

### **3.2. The Crisis and the Official Projects**

A new austerity politics emerged in the Europe in the beginning of 2010. Hence, Portugal was forced to adopt a set of Stability and Growth Plans, as member of the EU and of the Euro Zone. In that year, the railway regional service would achieve a 56,6 millions of Euros deficit<sup>112</sup>. According to the Ministry of the Public Works, of the Transports and of the Communications, the “fixed costs” and the “semi-fixed costs” presented a “high preponderance” in the regional stretches<sup>113</sup>. Therefore, the “completely disproportionate costs” were in the “origin” of the “inadequacy of the railways to transport few quantities of passengers”<sup>114</sup>.

With the rejection of the fourth Stability and Growth Plan, which led to the demission of the Prime-Minister, Portugal was forced to request a financial help plan. The *Portuguese Memorandum of Understanding* forecasted the “review” of the “railway network dimension”, in order to “increase” the “financial sustainability” of the sector<sup>115</sup>. There were expected “reforms” which would “modify the way of ensuring the public transport service provided to the population”<sup>116</sup>. Therefore, there would be adopted “more efficient public transport modes”, in order to give an “adequate answer” to the population mobility necessities<sup>117</sup>.

The public decisors took different proposals in order to fulfil these exigencies. While *Rede Ferroviária de Portugal* (REFER), the entity responsible for the investments in the Portuguese railway network, suggested the suppression of 240 railway kilometres, the former Government proposed the closure of 794 railway kilometres, not only in Trás-os-Montes and in the Alentejo but also in the littoral, with the Oeste Line partial cut<sup>118</sup>. After having launched the new *Plano Estratégico dos Transportes*, the new Government not only suggested but also decided the closure of hundreds of railway kilometres.

The new *Plano Estratégico dos Transportes* recognized the “heavy fixed costs structure” of the railway sector, also known by presenting a “very low flexibility degree”<sup>119</sup>. The “financial disequilibrium” could be explained by a “very low cost coverage tax through the operational revenues”, especially in some of the regional lines, which presented an “extremely low” demand level<sup>120</sup>. In fact, it was sustained the “incurred cost” per “each passenger by kilometre” increased “exponentially in the less demanded lines”<sup>121</sup>. According to this plan, it could be “5000% higher than the incurred cost in the lines which constitute the true railway vocation”<sup>122</sup>. Nevertheless, this data can be considered “bias”<sup>123</sup>.

The *Plano Estratégico dos Transportes* supported also it was possible to “compare directly” the efficiency level of the railway mode with the roadway mode, in the Tâmega Line, in the Corgo Line, in the Tua Line and in the Figueira da Foz Line<sup>124</sup>. According to the plan, the railway mode was “very little efficient” in the less demanded railway stretches, where it was possible to ensure an “adequate satisfaction” of the population mobility necessities through an alternative bus service<sup>125</sup>. However, these alternative bus services would soon disappear, after CP having said it was thinking it should not continue to transport passengers in buses<sup>126</sup>.

Furthermore, the *Plano Estratégico dos Transportes* sustained the consumptions of the “conventional diesel railcars” were “rather higher” than “the bus alternative transport”<sup>127</sup>.

However, a study made by the *Associação Portalegre em Transição*, which established local strategies to fight against the energetic crisis, with the collaboration of *Instituto Superior Técnico*, showed precisely the opposite<sup>128</sup>. Between Lisboa – Santa Apolónia and Marvão – Beirã, the train took 3 hours and 40 minutes, only more 31 minutes than the alternative transport<sup>129</sup>. Nevertheless, while the alternative transport cost 28,20 Euros, in average, the train cost between 19,50 and 23 Euros<sup>130</sup>. In addition, the environmental costs were greater than 17 Euros in the alternative transport, whereas in the train they reached only 5,26 Euros by passenger<sup>131</sup>.

### 3.3. The Final Decision

The new *Plano Estratégico dos Transportes* opened the way to a new suppression of hundreds of railway kilometres. While in 2011 it was decided to “suspend the reactivation process” of the Tâmega Line, of the Corgo Line, of the Tua Line and of the Figueira da Foz Line<sup>132</sup>, for the following year it was expected its “deactivation”<sup>133</sup>. These decisions can be understood as the “corollary” of the railway disinvestment<sup>134</sup>. In fact, a closure starts to be prepared with a 20 years advance<sup>135</sup>.

### 3.4. The Current Scenario

As we have seen, Portugal has mainly bet on the roadways along the last decades, leaving the railways in an unquestionable high disinvestment level. Between 1989 and 2009, the number of railway passengers dropped from 229,4 millions to 131,2 millions<sup>136</sup>. Therefore, the country is moving every year almost less 100 million of passengers, which represents a 43% fall. However, Portugal was the unique European country where the railway passengers traffic has dropped along this period<sup>137</sup>. Actually, between 1989 and 2009, the number of passengers moved by the trains increased from 181,8 millions to 466,6 millions, in the neighbourhood country<sup>138</sup>. Surprisingly, the railway passengers traffic was lower in Spain than in Portugal, in the end of the 1980’s decade<sup>139</sup>. Nevertheless, after closing the great majority of the regional railway stretches, the main Portuguese lines were progressively stopped to be fed<sup>140</sup>.

These illustrative values led also to a remarkable reduction in the Portuguese number of passengers by covered kilometre, which decreased from 6 million to 3,7 millions, between 1988 and 2009<sup>141</sup>. While there were done 22 railway journeys per year by each Portuguese, in 1989, there were only done ten, in 2009<sup>142</sup>. Therefore, the railways market share in the

passengers transport dropped by 66% between 1990 and 2008<sup>143</sup>. In that last year, the railways market share was only equal to 4,4% in the country<sup>144</sup>.

Furthermore, in 2008, whereas Portugal had 31 railway metres by squared kilometre, the European average was equal to 47 railway metres<sup>145</sup>. However, while the country had 20 motorway metres by squared kilometre, the European average was equivalent to 16 motorway metres, in 2008<sup>146</sup>. After the new set of closures, concretized by the new *Plano Estratégico dos Transportes*, Portugal achieved a ratio of 1,17 motorway kilometres per railway kilometre, which can be considered an “European unique case”<sup>147</sup>.

Faced with these indicators, many voices sustain there is “no global plan for the railways” in the country, where the “lack of planning and of political will” seems to be evident<sup>148</sup>. This Portuguese “lack of interest” explains why railway works are considered “a spent and not an investment”<sup>149</sup>, contrarily to what happens abroad<sup>150</sup>. This thought, which highlights mental, cultural and structural problems, explains also why Portugal has no railway tourism culture<sup>151</sup>. In addition, while roads are seen as a “benefit without losses”, trains are considered a “loss without benefits”<sup>152</sup>. This perspective highlights why there was constructed a so high number of motorways in Portugal along the last decades. Meanwhile, the scarce improvements introduced in the Portuguese railway network were resumed to the most important stretches.

Nevertheless, the problems of the Portuguese railways are not recent. As we have seen, the abandon of the *Decreto 18.190* turned impossible to conclude the national railway network. Therefore, many were the railway projects suppressed in Portugal, precisely due to this kind of thoughts<sup>153</sup>. In the North Interior, the best example was probably the suspension of the works which would link the Guimarães Line, the Tâmega Line and the Corgo Line<sup>154</sup>. Many years after, this project would be concluded not by the railway but by the roadway<sup>155</sup>. In fact, the A7 links Guimarães and Fafe and crosses the Basto region. As we are going to see, the Tâmega Line building was stopped precisely in this local, which serves Cabeceiras de Basto, Celorico de Basto and Mondim de Basto. Finally, the A7 also arrives to Vila Pouca de Aguiar, where the Corgo Line had one station.



#### IV. Methodology

The nature of our analysis made us to use in this work especially qualitative data, which is not said to “study many cases” (Guerra, 2006: 40). In fact, rather than a “statistics representation”, a “social representation” is mainly supposed (Guerra, 2006: 40).

We chose to centre your attention in the railway lines placed in the North Interior of Portugal. However, we cannot forget “the sample is not constituted by chance, but in function of specific characteristics” which are wanted to search (Guerra, 2006: 43). In fact, our goal is to understand why the great majority of the railway stretches located in this region has been closed, despite being one of the poorest of the country.

Therefore, we had analyzed not only the four narrowed-gauge railway lines placed in the Douro region but also the Douro Line, which ensured the linkage with all the others. As long as these stretches shared interesting characteristics, we were able to find a “sample by homogeneity”, where it is wanted to “study a homogeneous group” (Guerra, 2006: 46). Hence, our sample was composed by “multiple cases”, as it is “sociologically more frequent” (Guerra, 2006: 45).

Nevertheless, these five railway lines do not express perfectly homogeneous cases. In fact, even though all these itineraries have lost at least one stretch between 1988 and 1991, the Douro Line and the Tua Line are still partially working nowadays, while the Tâmega Line, the Corgo Line and the Sabor Line are already totally closed. Actually, in the qualitative information, “the diversity is demanded”, instead of the “homogeneity” (Guerra, 2006: 41).

In the end, we were able to consider five case studies, which could provide us an “intensive” (Guerra, 2006: 44) and a “deep” (Guerra, 2006: 47) analysis. However, as we have already seen, these five railway stretches share some remarkable characteristics, even though each case is distinct and unique.

We have started by picturing the Portuguese railway network, in different periods of time, using official sources. For the 1930’s decade, we have focused our analysis on the *Decreto 18.190*, approved in 1930. More recently, we have used the *Plano de Modernização e Reconversão dos Caminhos-de-Ferro*, launched in 1988, and the new *Plano Estratégico dos Transportes*, dated from 2011.

Nevertheless, we had to date our analysis back to the last quarter of the 19<sup>th</sup> Century, in order to cover the history of these five railway lines. While the main historical source was the *Gazeta dos Caminhos-de-Ferro*, two other important works were considered, especially to characterize historically the Tua Line: the *Apontamentos para a História dos Caminhos-de-Ferro em Portugal*, published in 1892, from *Tipografia Universal* and the *Guia de Portugal*, launched in 1995, from *Fundação Calouste Gulbenkian*.

To study the succession of closures occurred since 1988, we would have liked to have included Governmental information. However, it was only possible to collect data from one Parliamentary Group and from the Local Power. From *Comboios de Portugal* (CP), the entity responsible for the operation of the Portuguese railway network, a lot of information was provided, such as some *Annual Reports* or some *Informative Bulletins*. Nevertheless, the most important data came from the studies produced by CP, between 1968 and 1978, which have already recommended the closure of the four narrowed-gauge railway stretches studied in this work. From *Rede Ferroviária de Portugal* (REFER), the entity nowadays designated by *Infra-Estruturas de Portugal* (IP) and responsible for the investments in the Portuguese railway network, no other information was given.

Therefore, other sources and types of information had to be considered. In order to surpass the scarcity of data, we had to use newspaper articles, especially from *Público*. However, articles from *Diário Digital* and from *Jornal de Notícias* had also enriched our analysis. We had also found in the local sources, such as in *A Verdade*, in *Mensageiro de Bragança*, in *Porto Canal* and in *Repórter do Marão*, a very useful way to measure as much as possible the local reality. Our analysis would not be complete without considering some big journalist reports, not only from *Público* but also from *Transportes em Revista*. The *Portugal Ferroviário* articles have also allowed us to summarize the most important facts.

To complement our analysis, we had also studied the academic works which had analyzed these five railway stretches. This information was especially useful to characterize the Douro Line and especially the Tua Line, which seems to have aroused the overall attention in the last few years, not only because of the succession of accidents but also because of the dam.

In addition, our analysis has also enriched by some presentations, not only from academic but also from civic sources. The testimony of Daniel Conde, for example, was collected in the conference “*O Desenvolvimento Sustentável do Vale do Tua*”. Some reports

were also considered, especially from REFER, to consolidate our data about the Douro Line and about the Tua Line. Finally, the succession of the Tua Line accidents was also detailed with the vast amount of official written reports.

Therefore, the lack of information was especially relevant in the Tâmega Line, in the Corgo Line and in the Sabor Line. In these cases, the scarcity of data was fulfilled not only with newspaper articles but also with some testimonies. In this field, the help of Artur Freitas, enthusiast, of Célia Quintas, former *Movimento Cívico da Linha do Tua* (MCLT) member, and of Dario Silva, professional photographer, was especially important to characterize the lines individually. Gilberto Gomes, historian and investigator, and Manuel Tão, professor and transportation specialist, have also allowed us understanding the overall perspective of the Portuguese railway network. However, André Pires, Master in Business Administration, had given the most decisive assistance. Even though it was tried to interview presentially all the intervenients, in the cases of Artur Freitas, of Célia Quintas and of Manuel Tão no other option was available than the telephonic testimonies.

Finally, in order to understand the railway reality, we had also looked not only to the timetables but also to the number of daily journeys. It was also possible to evaluate the investment performed in these five railway lines, thanks to the data given by IP. The information was especially accurate for the Tua Line, where the values were available since 2000. For the other itineraries, it was only possible to collect data since 2006.

Despite having especially used qualitative information, we had also considered quantitative data, related with the evolution of the number of transported passengers, thanks to the information provided by CP and by *Metro de Mirandela*. Even though it was impossible to collect data about the Douro Line, the information compiled for the other four stretches had allowed us to build a very interesting picture of the regional Portuguese railway network. The linear regression tool turned possible a surprising analysis. This data was especially important to help us understanding why the great majority of the railway stretches considered in this work has already been closed. In fact, this is the final aim of our study.

## V. Case Studies

### 1. Douro Line

#### 1.1. The Project

Along many centuries, as long as it was the unique access way to the Douro region, the Douro River had been regarded as an “important communication link”<sup>156</sup>. However, the paradigm would start to change with the opening of the North Line until Vila Nova de Gaia, on 7<sup>th</sup> July 1864 (Silva, 2008: 11). In fact, by that time, the building of the Douro Line would start to be demanded to the Government by the *Associação Comercial do Porto* (Silva, 2008: 11).

Therefore, the Douro Line would start to be constructed some years later, in 1872<sup>157</sup>. Nevertheless, it should be stressed the Douro Line shared a 8,430 kilometres linkage with the Minho Line, until Ermesinde, where the railway stretch which we are going to analyze went further East. The Douro Line would arrive to Penafiel, placed 29,560 kilometres further away from Ermesinde, without “big terrain incidents”, on 30<sup>th</sup> July 1875 (Paulino, 2011: 23). On 20<sup>th</sup> December 1875, the Douro Line would get 8,010 extra kilometres, until Caíde. Since there, the “big obstacles” started to appear, with the necessity of crossing the Sousa and Tâmega water lines (Paulino, 2011: 23). Thus, it would be needed to wait almost three years to see the arrival of the Douro Line to Juncal, on 15<sup>th</sup> September 1878. Since Mosteirô, placed 7,452 kilometres further East to Juncal, the Douro Line would never stop to follow the Douro River. Whereas the appearance of the train to Régua would occur on 15<sup>th</sup> July 1879, the arrival of the railway to Ferrão would take place on 4<sup>th</sup> April 1880.

By the time the Douro Line has arrived to Pinhão, on 1<sup>st</sup> June 1880, the outline to be taken was not consensual. While some engineers argued the Douro Line should inflect further North, once the Tua station was reached, until the frontier, through Bragança, other sustained the Douro Line should follow the Douro River, until the frontier, placed in Barca d’Alva<sup>158</sup>. It would be followed this last option. Therefore, after reaching the Tua station, on 1<sup>st</sup> September 1883, the conclusion of the Douro Line would occur in 1887, after the arrival to Pocinho, on 10<sup>th</sup> January, to Côa, on 5<sup>th</sup> May, and to the frontier, on 9<sup>th</sup> December.

It should not be forgotten “the Douro would not be what it is nowadays” without the railway itinerary<sup>159</sup>. In fact, the Douro Line was introduced as the “big lever to the progress of this poor region”, which was also seen as a “big wealth producer”<sup>160</sup>. Furthermore, the

opening of the Douro Line also brought a big reduction of the time-distances (Paulino, 2011: 23). In fact, the appearance of the train reduced to only some hours the time which was needed to cross the Douro region, which was not inferior to some days in a not too distant past<sup>161</sup>.

## **1.2. The 20<sup>th</sup> Century**

In the beginning of the 20<sup>th</sup> Century, the Douro Line was already considered the main linkage of the region. In fact, it turned possible a direct and a fast connection between Porto and Salamanca. However, by that time, the international linkage was obtaining a “very insignificant traffic”<sup>162</sup>. Actually, the statistical results were even said to be “truly heartbreaking by their insignificance”<sup>163</sup>.

Furthermore, the Douro Line was considered the “trunk”, from where derived a “series of parallel itineraries, its tributaries”<sup>164</sup>. Between 1911 and 1988, four narrowed-gauge railway stretches were working in the region: the Tâmega Line, which began in Livração, the Corgo Line, which departed from Régua, the Tua Line, which was initiated in Tua, and the Sabor Line, which was started in Pocinho. Nevertheless, the Douro Line infrastructure was already not homogeneous. In fact, as long as it was becoming closer to the frontier, the running conditions were getting worst. For example, in 1968, the Douro Line did not allow “ideal velocities” between Tua and Barca d’Alva<sup>165</sup>.

## **1.3. The 20<sup>th</sup> Century: The Closure**

The Douro Line belonged to all the three categories of the Portuguese railway network in the 1980’s decade. Actually, it was classified in the main network until Régua<sup>166</sup>. Then, while between Régua and Tua the Douro Line was placed in the complementary network, between Tua and Barca d’Alva it was classified in the secondary network, which was said to have “no national interest”<sup>167</sup>.

In this decade, whereas the railway degradation got evident, the passengers got even fewer<sup>168</sup>. Hence, Spain would close down its international linkage, between La Fregeneda and La Fuente de San Esteban, on 1<sup>st</sup> January 1985 (Aroso, 2003: 142). As long as it was not possible to travel anymore between Porto and Salamanca, the service along the last kilometres of the Douro Line, almost always abandoned since their construction, got harshly threatened (Aroso, 2003: 127). In fact, the Pocinho – Barca d’Alva linkage would also be suppressed less

than four years later, on 18<sup>th</sup> October 1988. By that time, it was argued the closure of the Spanish international linkage had brought high losses for the Douro Line (Aroso, 2003: 127).

As we have already seen, the Douro Line was not classified in the main network further East to Régua. Therefore, a project to abbreviate this railway itinerary to Régua existed already in 1995<sup>169</sup>. However, the President of the Municipality of Alijó argued there would be an “incalculable loss for the populations” if this plan was taken<sup>170</sup>. Nevertheless, the Douro Line would remain opened until Pocinho until nowadays.

#### **1.4. The 21<sup>st</sup> Century: The Current Situation**

The fourth Stability and Growth Plan, launched in March 2011, threatened some railway itineraries, such as the Douro Line. In fact, since then, it has been expected again the closure of the Régua – Pocinho linkage<sup>171</sup>. This intention, still not applied, would harshly damage the tourism development in a World Heritage region<sup>172</sup>. Actually, rather than asking a new partial suppression of the Douro Line, some municipalities have been demanding the reactivation of the railway stretch suppressed since 1988, in order to develop the tourism activity and in order to turn the region closer to Spain<sup>173</sup>.

#### **1.5. Timetables**

In 1983, there were three daily journeys between Porto – Campanhã and Barca d’Alva. A trip along these 199,504 kilometres took 5 hours and 30 minutes. Five years after, when the Pocinho – Barca d’Alva linkage was suppressed, a journey along the entire Douro Line took 5 hours and 39 minutes<sup>174</sup>.

In 1983, there were also three daily trips between Porto – Campanhã and Pocinho. It was necessary to spend 4 hours and 23 minutes in order to travel along these 171,522 kilometres by that time. Almost two and a half decades later, there were also three daily journeys between Porto – Campanhã and Pocinho. In 2007, the trip took 3 hours and 15 minutes.

In spite of the efforts, the time journey between Porto – Campanhã and Régua has only decreased few more than 15 minutes in almost two and a half decades. These insufficient improvements, which confirm a constant postponement of the investment, led to the finish of the Intercidades service in the Douro Line on 12<sup>th</sup> March 2006<sup>175</sup>. Furthermore, some journeys are penalized between 10 and 30 minutes with a transshipment in Régua<sup>176</sup>.

## 1.6. Investments

The most relevant investments in the Douro Line were resumed to its first kilometres. For 1994 and for 1995 there were expected the first works which would guarantee the duplication and the electrification until Penafiel<sup>177</sup>. Nevertheless, the modernization of the Valongo – Côte linkage was only concluded in September 1999. Three years after, in November 2002, after a 82 million of Euros investment, the duplication and the electrification arrived to Caíde<sup>178</sup>. By that time, the modernization of the Caíde – Marco de Canaveses – Régua stretch was seen as a natural investment<sup>179</sup>. Hence, 70,7 million of Euros were booked to recover a linkage where the works were delayed for 30 years<sup>180</sup>. However, as long as all the funds already approved for the Douro Line were cut in the 2004 Investment Budget, this intention would be postponed again<sup>181</sup>.

Nevertheless, a 159 million of Euros investment continued to be expected in May 2010 in order to electrify the Caíde – Marco de Canaveses – Régua stretch, until 2012<sup>182</sup>. Nevertheless, with the appearance of a “new contention scenario”, these works would be “postponed” again<sup>183</sup>. Therefore, only a requalification between Caíde and Marco de Canaveses was forecasted in June 2010<sup>184</sup>. Five years later, the electrification of the Caíde – Marco de Canaveses – Régua linkage remains stopped<sup>185</sup>. Nowadays, it is believed these works will only reach the Marco de Canaveses station<sup>186</sup>.

The running conditions become worst as long as we get closer to the frontier. Therefore, the older tracks and the worst railway ties can be found between Pinhão and Pocinho<sup>187</sup>. In order to avoid negative surprises, a team was moved to Régua, with the aim of executing an “integral renovation” of the railway stretch, between Régua and Pocinho (Aroso, 2003: 127). Nevertheless, that team would unexpectedly abandon the place (Aroso, 2003: 127). In fact, since the 1990’s decade, many maintenance teams have been extinct<sup>188</sup>, which has worsened the abandon of many linkages.

All in all, even though the Pinhão – Pocinho stretch was in worse conditions than the Marco de Canaveses – Régua linkage, no works were forecasted in 2009 for the last kilometres of the Douro Line<sup>189</sup>.

Between 2006 and 2013, IP has invested few less than 66 million of Euros in the Douro Line as a whole.

## 1.7. Passengers

As we have already stressed, it was not possible to collect the number of transported passengers in the Douro Line. Nevertheless, we were able to find approximately 1.070.000 passengers have travelled along this railway stretch, in 2005<sup>190</sup>. By that time, the number of passengers and tourists transported in the Douro Line was said to be “growing significantly”<sup>191</sup>.

This railway itinerary crosses two very distinct territories. Actually, between Porto – Campanhã and Marco de Canaveses, the Douro Line shows a “high suburban pending” (Aroso, 2003: 114). Therefore, the main percentage of the transported passengers is concentrated in these first kilometres. Between Marco de Canaveses and Pocinho, the Douro Line presents a “high regional pending” (Aroso, 2003: 114). Therefore, further East to Régua, the number of transported passengers is almost residual<sup>192</sup>. In fact, only 35.000 passengers have travelled between Pinhão and Pocinho, in 2005<sup>193</sup>.

### **1.8. Final Synthesis**

As we were able to detail, it was argued the closure of the Spanish international linkage, on 1<sup>st</sup> January 1985, had brought high losses for the Douro Line (Aroso, 2003: 127). Therefore, as long as it was not possible to travel anymore between Porto and Salamanca, the suppression of the Pocinho – Barca d’Alva linkage would soon occur. It must not be forgotten the Douro Line did not allow “ideal velocities” along these final kilometres in 1968<sup>194</sup>.

Furthermore, despite having been invested several million of Euros in the first kilometres of the Douro Line, the time journey between Porto – Campanhã and Régua has only decreased few more than 15 minutes in almost two and a half decades. Besides these insufficient improvements, no solution which could avoid the mandatory transshipments for travelling in the Tâmega Line, in the Corgo Line, in the Tua Line and in the Sabor Line was found. Combined with disconcerted timetables, the transshipments constitute another important disincentive to the use of the railway<sup>195</sup>.

It must not be forgotten all the itineraries work in network. Therefore, by one hand, as long as the Douro Line has not presented the ideal running conditions, the four narrowed-gauge railway stretches could not work properly<sup>196</sup>. Nevertheless, by another hand, with the closure of the distributor linkages, the collector line stopped to be fed<sup>197</sup>. All in all, this “corollary” demonstrates the railways had clearly lost their importance in the Douro region<sup>198</sup>.



## 2. Tâmega Line

### 2.1. The Project

The Tâmega Line was the closest Douro region narrowed-gauge stretch to the littoral. This railway itinerary was born as an important Douro Line ramification, which would link the Alto Tâmega to the longitudinal railway line, by crossing the Baixo Tâmega<sup>199</sup>. Therefore, as it was seen as the “main artery” of the region<sup>200</sup>, the Tâmega Line should constitute the “natural traffic way between Chaves and Porto”<sup>201</sup>, by following the Tâmega River until the Douro Line<sup>202</sup>.

Expected since long time ago<sup>203</sup>, the Tâmega Line started to be studied in 1888<sup>204</sup>. By that time, there were established two possible departure points: in Caíde or in Livração<sup>205</sup>. Some years later, it would be picked the last option. Meanwhile, it was also pointed the Tâmega Line could be built not only as a narrowed-gauge railway itinerary but also as an Iberian-gauge railway stretch. However, later, the first choice was seen as the “only acceptable one in a so rough land for a secondary line”<sup>206</sup>.

Thus, “departing from Livração”, in the Douro Line, the Tâmega Line should start by serving Amarante<sup>207</sup>. Then, it should continue until Cavez, where the Guimarães Line should be intersected<sup>208</sup>. Departing originally from Porto – Trindade, this stretch crossed Guimarães and ended in Fafe. Therefore, the Guimarães Line should also be extended from Fafe until Cavez, in order to ensure its linkage with the Tâmega Line. Finally, it should also continue through the Oura Riverside<sup>209</sup>, until “the proximities of Vidago”<sup>210</sup>, where the Corgo Line should also be intersected. As long as the Tâmega Line should have “precedence” with these two other itineraries<sup>211</sup>, it was understood its building did not “dispense” the Corgo Line<sup>212</sup>.

However, the expansion until the frontier was also expected. Actually, “few” and “very easy” kilometres had to be constructed further North to Chaves, where the Corgo Line would end<sup>213</sup>. This recommended linkage, which would allow the connection with Verin and Orense, was seen as “utile”<sup>214</sup>. Despite being not important, it was pointed it did not “bring costs”<sup>215</sup>.

Wanted by the ones from Basto and from Amarante<sup>216</sup>, the aim of the Tâmega Line was to serve “the rich and populated Basto region”<sup>217</sup>. This stretch was understood as a “very important improvement”, which should be done “as early as possible”<sup>218</sup>. In fact, the Tâmega Line was “with no doubt” one of the “most important” itineraries which remained to be

built<sup>219</sup>. Therefore, it was already classified in 1900<sup>220</sup>, among Livração, Amarante, Cavez, Chaves and the frontier<sup>221</sup>. By that time, it was also classified the linkage which would allow the connection among Guimarães, Fafe and Cavez<sup>222</sup>.

## 2.2. The 20<sup>th</sup> Century

The first Tâmega Line stretch, which won the 12,770 kilometres between Livração and Amarante, started to be built on March 1905. Four years later, on 21<sup>st</sup> March 1909, it would be available to the population. In these first kilometres, where a more crowded region, placed in a less rural landscape, was crossed, the Tâmega River was constantly present, even though it was not always visible<sup>223</sup>. Despite being only 8,426 kilometres further away from Amarante, it was necessary to wait almost 18 years to see the train arrival to Chapa. In fact, due to the economic crisis, which was coincident to the First World War<sup>224</sup>, the Tâmega Line would only start serving Chapa on 22<sup>nd</sup> November 1926.

This railway stretch would reach Celorico de Basto on 20<sup>th</sup> March 1932. Even though the arrival to this village would “already” allow a “better service”, the Tâmega Line was considered to be “yet further away from the Basto centre region, represented by Arco de Baúlhe”<sup>225</sup>. In fact, in that place, the convergence of a significant number of roads would allow to serve Cabeceiras de Basto, Mondim de Basto, Ribeira de Pena and Barroso<sup>226</sup>.

The *Decreto 18.190*, published in 1930, supported the best intersection point with the Corgo Line was in Pedras Salgadas. Therefore, the Avelames Valley was now the Tâmega Line “natural way”<sup>227</sup>. Nevertheless, all the other outlines were maintained. Thus, arrived to Arco de Baúlhe, the Tâmega Line should link the Guimarães Line<sup>228</sup>, by one side, in Cavez, near to Cabeceiras de Basto<sup>229</sup>, and the Corgo Line<sup>230</sup>, by another side, now in Pedras Salgadas and not in Vidago. The Tâmega Line extension further North, until the Corgo Line, was approved by the *Decreto 18.190*<sup>231</sup>.

As long as the Tâmega Line was “incomplete”<sup>232</sup>, the arrival to Arco de Baúlhe was absolutely crucial, in order to increase the number of passengers. In fact, in 1931, the Tâmega Line moved 62.985 passengers between Livração and Chapa, which was understood as an “exiguous” number<sup>233</sup>.

The 16,903 kilometres which ensured the linkage between Celorico de Basto and Arco de Baúlhe were opened to the public on 15<sup>th</sup> January 1949. Therefore, the Tâmega Line would

have a 51,474 kilometres extension, through a “homogeneous” but “sinuous” outline, for almost 41 years (Aroso, 2003: 82).

### **2.3. The 20<sup>th</sup> Century: The Closure**

As we have already seen, CP was thinking to close some of the four Douro region narrowed-gauge railway stretches in the end of the 1960's decade. In the case of the Tâmega Line, a study written in June 1978 characterized the regional economic structure as “predominantly agricultural”<sup>234</sup>. Therefore, as long as the “population mobility” was not stimulated, there was no “high potential traffic volume”<sup>235</sup>. By another hand, the running conditions were described as “rather unfavourable”, due to the “high number of small ray curves and of high inclination slopes”<sup>236</sup>. Furthermore, the condition of the tracks was already “bad in more than 25% of its extension”<sup>237</sup>. The timetables were also said to be “not adapted to the population necessities”, which forced the search of “other transport means”<sup>238</sup>. The rolling stock offered an “evident tiredness”, as long as it presented not only a “very discomforting” condition but also a “frequent damage”<sup>239</sup>.

Having this characterization in mind, CP considered new investments would be necessary in the short-term, not only in the rolling stock but also in the infrastructure<sup>240</sup>. However, the potential revenues rising would be “more than absorbed by the increase in the charges” supported by CP<sup>241</sup>. In addition, the “expenditures rising rhythm” was considered “rather more accelerated” than the revenues one<sup>242</sup>. Actually, it was pointed the running conditions provided “no possible equilibrium”<sup>243</sup>. As long as the revenues were “rather below the level considered sufficient to cover at least the variable costs”, it was “impossible” to define a breakeven point<sup>244</sup>.

Therefore, as long as the “line deficit” would very probably get “intensified” in the future, continuing to explore the Tâmega Line would become “not advised”<sup>245</sup>. Nevertheless, CP admitted the savings which would result from the railway closure would “not be very significant”<sup>246</sup>. All in all, the “unique possible way” to reduce the “line deficit” was the implementation of a “radical change in the running scheme”, so that the “respective costs” could be “minimized”<sup>247</sup>.

Six years after, in September 1984, a document signed among the Ministry of the Social Equipment and the municipalities of Amarante, Celorico de Basto, Mondim de Basto and Cabeceiras de Basto forecasted the building of a road, between Amarante and Arco de

Baúlhe<sup>248</sup>. By that time, it was also expected to “deliver” to the municipalities the “facilities” and the equipment with “museum interest”<sup>249</sup>.

With the approval of the *Plano de Modernização e Reconversão dos Caminhos-de-Ferro*, the Amarante – Arco de Baúlhe stretch would be abandoned on 1<sup>st</sup> January 1990. At that time, it was initiated an alternative bus service, precisely between Amarante and Arco de Baúlhe<sup>250</sup>. However, apart from the Arco de Baúlhe station, all the others have already been abandoned, in 1995<sup>251</sup>. At that time, the alternative bus service had already been suppressed<sup>252</sup>.

#### **2.4. The 21<sup>st</sup> Century: The Closure**

Few months after the fourth and last Tua Line accident, a more careful monitoring started to be done in the Portuguese railway network<sup>253</sup>. As a consequence, it was announced the Tâmega Line closure, on 24<sup>th</sup> March 2009<sup>254</sup>, only three days after its 100<sup>th</sup> birthday commemorations. While CP justified this suspension with an “urgent infra-structure intervention necessity”<sup>255</sup>, the Secretary of State for Transports pointed for “safety motives”<sup>256</sup>. Actually, a report received by the Secretary of State for Transports announced as “worrying” the Tâmega Line condition<sup>257</sup>. Even though there were no accidents, the life cycle of the Tâmega Line was already ended<sup>258</sup>. Actually, no more corrective actions, which were being “constant and expensive”, were accepted<sup>259</sup>. The main Tâmega Line problems were the deformed tracks and warps<sup>260</sup>. Therefore, in order to give no reaction time to the populations, to the mayors and to the opposition, the Government and the REFER preferred a “surprise-effect” for the Tâmega Line closure<sup>261</sup>. It should be added the *Livração* railway employees were also not previously advised<sup>262</sup>.

A 14 million of Euros investment was announced one day after the Tâmega Line closure<sup>263</sup>. Even though this amount was sufficient to allow an “authentic rebuilding”, it was not explained if the Tâmega Line would be transformed in an Iberian-gauge railway stretch, which would turn possible a direct connection with the Douro Line<sup>264</sup>. In addition to this important improvement, the President of the Municipality of Amarante had already highlighted the relevance of another intervention: the transformation of the Douro Line into a “suburban and electrified” linkage until Marco de Canaveses<sup>265</sup>. Combined with an increase in the number of trains, this investment could attract more passengers to a “safer”, to a “cheaper” and to a potentially “faster” transport mean<sup>266</sup>.

As long as there were no calendar to start the works, no project and no public contest, the service suspension was expected to take “undetermined time”<sup>267</sup>. However, in March 2009, it was stated the works would start in four months<sup>268</sup>.

Three months after, in June 2009, it was already authorized a 36,9 million of Euros investment for the Tâmega Line and for the Corgo Line, also suppressed on 24<sup>th</sup> March 2009<sup>269</sup>. The rehabilitation works, which would turn the line safer and which would reduce the maintenance cost, were divided in four steps: geotechnical raising, railway raising and platform reprofiling, railway material acquisition and railway material sitting<sup>270</sup>. The two first steps were already concluded by the end of 2009<sup>271</sup>. Furthermore, there were also already done other important improvements, such as the drainage system renovation, the slopes reinforcement or the net placing, in order to avoid stones to fall<sup>272</sup>. By the end of 2009, it was stressed the Tâmega Line could not reopen before the beginning of 2011<sup>273</sup>, as long as the narrowed-gauge railway ties were being difficult to find<sup>274</sup>. Nevertheless, the new railway ties would be placed in the Livração station, some months after<sup>275</sup>.

A “new contention scenario” appeared in 2010, with the austerity imposed by the Stability and Growth Plans<sup>276</sup>. Therefore, at that time, the Tâmega Line reopening started to be compromised<sup>277</sup>. Even though the Government has “promised” its rehabilitation, REFER was said to have been not authorized to spend the 33,3 million of Euros expected for the Tâmega Line and for the Corgo Line modernization<sup>278</sup>. These “rumors” would be confirmed on 17<sup>th</sup> June 2010, when REFER informed the investment would be cancelled<sup>279</sup>. However, the former Secretary of State for Transports continued guaranteeing REFER was not “giving up” the works, but only “rescheduling” them, in order to “fulfil” the Stability and Growth Plan “limitations”<sup>280</sup>.

Since then, no more investments were done. Actually, the emergence of a new Government led to the approval of the new *Plano Estratégico dos Transportes*. For 2011, this plan expected to “suspend the reactivation process” of the Tâmega Line. For the following year<sup>281</sup>, it was forecasted its “deactivation”<sup>282</sup>. Meanwhile, in January 2012, the alternative bus service established between Livração and Amarante in March 2009 was also suppressed. CP expected to afford an 11.096 Euros monthly amount with this measure<sup>283</sup>.

## 2.5. The 21<sup>st</sup> Century: The Trains

There were introduced two LRV2000 units in the Tâmega Line in July 2002, in order to modernize the rolling stock. The bodywork of these trains, bought to Yugoslavia in 1976<sup>284</sup>, was completely new<sup>285</sup>. Nevertheless, as long as these railcars were adapted to the Portuguese narrowed-gauge railway, there were done relevant modifications in the motor part<sup>286</sup>. It should be stressed CAMO started to construct six units, in 1993<sup>287</sup>. Later, three more units were built, in order to serve the Tâmega Line and to reinforce the Corgo Line<sup>288</sup>.

These LRV2000 railcars were running in the Tâmega Line, in the Corgo Line and in the Tua Line since 2002. After the fourth and last Tua Line accident, some doubts about this rolling stock have appeared. Therefore, the Tâmega Line and the Corgo Line service suspension started to be considered<sup>289</sup>.

## **2.6. The 21<sup>st</sup> Century: The Current Situation**

In December 2014, the Municipality of Amarante was working in the Tâmega Line transformation in an Iberian-gauge railway stretch<sup>290</sup>.

In April 2013, after four years of inactivity, one of the LRV2000 units travelled to the Vouga Line<sup>291</sup>. The aim of this operation was to test the “railcar behaviour in the curves”, in answer to railway problems and in answer to the signaling<sup>292</sup>. However, the new derailment which would occur, now in the Vouga Line<sup>293</sup>, would confirm the inadequacies of this rolling stock. Two years later, in April 2015, five LRV2000 units were sold to Peru<sup>294</sup>.

## **2.7. Timetables**

In 1983, there were five daily journeys between Livração and Arco de Baúlhe. At that time, a trip along the 51,474 kilometres of the Tâmega Line took 2 hours and 5 minutes. Meanwhile, in 1983, there were six daily trips between Livração and Amarante. The train took approximately 31 minutes to travel between these 12,770 kilometres.

In 2007, the number of daily journeys between Livração and Amarante had increased to eight. By that time, the train took 26 minutes to link these stations.

## **2.8. Investments**

As we have seen, a 14 million of Euros investment was promised in the Tâmega Line rebuilding<sup>295</sup>. However, between 2006 and 2013, IP has only invested few more than 4,1 million of Euros in this railway itinerary. More than 90% of this amount was applied in the

works which took place between 2009 and 2010. Thus, more than 3,8 million of Euros were up to now wasted.

## **2.9. Passengers**

As we have seen, 62.985 passengers had traveled between Livração and Chapa, in 1931. At that time, this number was already considered “exiguous”<sup>296</sup>.

The Tâmega Line would lose almost 40 kilometres on 1<sup>st</sup> January 1990. Meanwhile, it was introduced an alternative bus service between Amarante and Arco de Baúlhe. However, in spite of the disappearance of the train in this stretch, the railway itinerary demand has not decrease.

In fact, in 1990, the Tâmega Line had transported 90.031 passengers. Whereas 96.192 passengers were moved along the railway stretch, in the following year, 102.937 passengers were transported between Livração and Arco de Baúlhe, in 1992.

In the two following years, the Tâmega Line demand decreased slightly. However, in 1995, by the time the alternative bus service had already been suppressed, the railway itinerary started to lose an important amount of passengers. Actually, between 1994 and 1996, in only two years, the Tâmega Line demand dropped more than 50%, from 87.507 to 40.788 passengers. Even though there had been a shy recovery, not only in 1997 but also in 1998, the Tâmega Line would continue to lose passengers until 2001, when only 15.814 passengers were transported between Livração and Amarante. Therefore, between 1992 and 2001, the railway stretch demand dropped by 82%.

However, in 2002, the Tâmega Line would be demanded by 43.646 passengers. This impressive recovery would remain valid until 2008, when 49.250 passengers had travelled between Livração and Amarante. Thus, between 2001 and 2008, the railway itinerary demand had increased by 211%.

As we have already stressed, the Tâmega Line railway service would be suspended, due to “safety motives”, on 25<sup>th</sup> March 2009<sup>297</sup>. Therefore, by that time, it was initiated an alternative bus service. Despite having drop, the demand continued reaching important values in the Tâmega Line. In fact, while 44.850 passengers were moved between Livração and Amarante, in 2009, 37.490 passengers were transported, in the following year. In 2011, the last working year of the alternative bus service, 35.940 passengers had still travelled in the

Tâmega Line. Therefore, as long as the railway line had been transporting many more passengers between 2009 and 2011 than between 1999 and 2001, the alternative bus service suspension is incomprehensive.

To verify our analysis, the linear tendency tool can be used. In this case, when a polynomial regression of order four is applied, a  $R^2$  almost equal to 88% can be obtained. This tool sustains the demand started to decrease in 1991, when the concavity has changed, after a very brief recovery period, between 1990 and 1991. Then, the linear tendency tool confirms the tendency in the Tâmega Line demand decrease has finished in 2001. After an eight years recovery period, the railway stretch demand would start to fall in 2009, by the time the alternative bus service was introduced, between Livração and Amarante, according to this tool.

## **2.10. Final Synthesis**

As we were able to discuss, the Tâmega Line was never complete. In fact, the closest Douro region narrowed-gauge railway stretch to the littoral had ever connected neither the Guimarães Line nor the Corgo Line. Furthermore, it was never found a solution which could avoid the obligatory transshipment in Livração between the Douro Line and the Tâmega Line. Actually, neither the closest Douro region narrowed-gauge railway itinerary to the littoral was converted in an Iberian-gauge railway stretch nor the Douro Line was transformed into a “suburban and electrified” linkage until Marco de Canaveses<sup>298</sup>.

It must be reminded the timetables were said to be “not adapted to the population necessities”, in 1978<sup>299</sup>. By that time, the running conditions were already described as “rather unfavourable”, due to the “high number of small ray curves and of high inclination slopes”<sup>300</sup>. The condition of the Tâmega Line tracks was also “bad in more than 25% of its extension”, in 1978<sup>301</sup>. More recently, thanks to the succession of accidents in the Tua Line, some doubts about the rolling stock which served the Tâmega Line, the Corgo Line and the Tua Line have appeared. Hence, “safety motives” were in the basis of the Tâmega Line suppression<sup>302</sup>, concretized in 2009, in simultaneous with the Corgo Line.

## **3. Corgo Line**

### **3.1. The Project**



The second narrowed-gauge railway stretch built in the Douro region was the Corgo Line. The construction of this itinerary surged as a “natural idea” just “few time after” the Douro Line arrival to Régua<sup>303</sup>. Nevertheless, the Corgo Line necessity was “known since a long time ago”, as long as its building was justified by “political order and administrative” reasons<sup>304</sup>.

Therefore, “departing from Régua”<sup>305</sup>, the Corgo Line should have the “rough” Corgo Valley as its “natural way”, until Vila Real<sup>306</sup>. In order to link Régua to the “important district capital”<sup>307</sup>, it was necessary to “surpass the difficulties”<sup>308</sup> caused by a 370 metres unevenness<sup>309</sup>, by crossing “rough lands” with “upright slopes and deep ravines”<sup>310</sup>. Then, the Corgo Line should continue through Vila Pouca de Aguiar, seen as a “convergence point of numerous roads”, until reaching Pedras Salgadas<sup>311</sup>. This station would be “optimally placed” between the real road and the municipal road, which allowed the service to the bath place<sup>312</sup>. As long as the construction of this second stretch was said to be “easy”, a “quickly” execution would be possible<sup>313</sup>. A new “forced point of the line” could be found in Vidago, in order to serve the “famous” bath place, which would be in the origin of a “large” passengers and goods traffic<sup>314</sup>. In 1905, it was thought Vidago should constitute the Tâmega Line intersection point, after being extended since Cavez<sup>315</sup>. Nevertheless, other places would be pointed along the time, such as Curalha<sup>316</sup> or Pedras Salgadas<sup>317</sup>. Actually, the necessity of “avoiding earthmoving works” was constantly felt<sup>318</sup>. Finally, after crossing Chaves and its “fertile tilled plains”<sup>319</sup>, the Corgo Line should also “request the Verin traffic”<sup>320</sup>, through an “easy exit” to the frontier<sup>321</sup>.

By another hand, the Corgo Line should have a second “natural extension”, until Vila Franca das Naves<sup>322</sup>. As long as this South linkage would serve a “wide region”<sup>323</sup>, by crossing Lamego, Tarouca, Moimenta, Sernancelha and Trancoso<sup>324</sup>, a “valuable traffic” would be expected<sup>325</sup>.

Having all these aspects in mind, the Régua – Chaves – Frontier and the Régua – Vila Franca das Naves stretches were classified in the beginning of the 20<sup>th</sup> Century<sup>326</sup>. However, it was understood it was necessary to “give the maximum development” to the Régua – Vila Real linkage, in a first step<sup>327</sup>.

### **3.2. The 20<sup>th</sup> Century**

In 1905, the works in the 25,069 kilometres which would link Régua to Vila Real were prosecuting “actively”<sup>328</sup>. The configuration of the Régua station safeguarded already the Corgo Line expansion further South, until Vila Franca das Naves<sup>329</sup>. Meanwhile, the studies which would allow the railway to reach Chaves were also being “prosecuted by successive linkages”<sup>330</sup>.

Therefore, the Corgo Line would arrive to Vila Real on 12<sup>th</sup> May 1906. The next stretch, from Vila Real to Pedras Salgadas, would be available on 15<sup>th</sup> July 1907, few more than one year later. On 20<sup>th</sup> March 1910, 15,267 extra kilometres were also inaugurated until Vidago. Finally, while the Corgo Line would arrive to Tâmega on 20<sup>th</sup> June 1919, it would be completed until Chaves on 28<sup>th</sup> August 1921. In this last stretch, the Corgo Line was expected to be “confounded” with the Tâmega Line<sup>331</sup>. The intersection point, which could be placed now in Vidago<sup>332</sup> or in Pedras Salgadas<sup>333</sup>, was not yet determined. However, the Corgo Line would never be expanded further North. Therefore, it would have a 96,167 kilometres extension, through a “sinuous” outline, with a “high” pending, especially between Régua and Vila Real, for more than 68 years (Aroso, 2003: 82).

Nevertheless, one decade after, in 1930, the *Decreto 18.190* continued to forecast the Corgo Line expansion further North, until the frontier. This linkage would only be definitely abandoned some years after<sup>334</sup>. Further South, the decree continued to expect the expansion not only until Vila Franca das Naves but also until Pinhel<sup>335</sup>. As long as the expansion further South was seen as the “natural” Corgo Line continuation, the narrowed-gauge solution should be adopted<sup>336</sup>. Furthermore, the “important works” which would be concretized not only in the “great bridge over the Douro” but also in the “long ramp” which would arrive to Lamego obeyed to “narrowed-gauge characteristics”<sup>337</sup>.

Actually, contrarily to what happened in the Tua Line and in the Sabor Line, the works for the Corgo Line expansion further South took place. In fact, the Régua – Lamego stretch started to be constructed, in the beginning of the 1930’s decade<sup>338</sup>. This railway expansion required not one but two big bridges: one over the Douro River and another one over its Varosa tributary<sup>339</sup>. In order to link Régua to Lamego, it was necessary to surpass 20 “very rough” kilometres<sup>340</sup>, with a 370 metres unevenness<sup>341</sup>. The new railway ties and the new railway tracks were still placed in the Régua station<sup>342</sup>. However, the ascension to the power of António de Oliveira Salazar would postpone definitely this project<sup>343</sup>.

### 3.3. The 20<sup>th</sup> Century: The Closure

As we have already seen, the closure of some of the four Douro region narrowed-gauge railway itineraries was already thought in the end of the 1960's decade. Such as the Tâmega Line, the Tua Line and the Sabor Line, the Corgo Line was also understood to be placed in a region where the agricultural activities played a determinant role. A study concluded in March 1968 characterized the function of the Corgo Line as “essentially regional”<sup>344</sup>. As long as its activity was described as “high”<sup>345</sup>, many of the trains “should serve the maximum number of stations and of stopping places”<sup>346</sup>.

Nevertheless, many were the concerns related with the Corgo Line profitability. In fact, the creation of semi-direct trains, in order to serve quickly the five main stations, was suggested<sup>347</sup>. According to the study, this measure could change “visibly” the profitability of the passengers traffic<sup>348</sup>. Furthermore, the “compression” of employees was also mentioned<sup>349</sup>. However, in order to fulfil this second measure, it would be necessary to “close stations”, which could “eventually thwart” the Corgo Line regional function<sup>350</sup>. Finally, an “adequate timetable study” was also advised<sup>351</sup>. In fact, in the beginning of the 1980's decade, while it was necessary to wait 3 hours and 26 minutes to go from Porto to Vila Real, it would be needed to spend 7 hours and 1 minute to go from Lisboa to Vila Real<sup>352</sup>.

Despite having suggested this set of measures, CP sustained the Corgo Line deficit was “certain and inevitable”<sup>353</sup>. Actually, it was stressed, by one hand, the modifications in the “commercial running” or in the “industrial running” would not be “viable”, as long as the necessary investments were “considerable”<sup>354</sup>. By another hand, the current conditions “would never allow to satisfy” the regional transport necessities<sup>355</sup>. In fact, the Corgo Line “rough outline”, through “valleys and slopes”, in “tight curves and counter-curves”, turned impossible the introduction of a modern rolling stock<sup>356</sup>. Actually, the rough terrain transformed the Corgo Line in the most demanding railway stretch for the rolling stock, because the continuous straight stretches were few<sup>357</sup>. Therefore, the enterprise would be “permanently overcharged” by the railway line exploration<sup>358</sup>.

Having these considerations in mind, CP argued to have “no interest” in prosecuting with the Corgo Line running “in the current conditions”<sup>359</sup>. Hence, the “most advantageous solution” was to “close the line”<sup>360</sup>. Meanwhile, it should be established an alternative bus service, which would not “practically affect the public”<sup>361</sup>.

With the appearance of the *Plano de Modernização e Reconversão dos Caminhos-de-Ferro*, the Corgo Line would be closed between Vila Real and Chaves on 1<sup>st</sup> January 1990.

However, the main passenger share was precisely placed between these stations<sup>362</sup>. It should be stressed the Municipality of Chaves had not participated in the negotiations which led to the partial suppression of the railway line<sup>363</sup>. Meanwhile, an alternative bus service, between Vila Real and Chaves, was initiated<sup>364</sup>. Nevertheless, this alternative bus service had already been suspended in 1995<sup>365</sup>. As in the other cases, the main winners were the trucking companies. The Corgo Line closure between Vila Real and Chaves led to the appearance of *Auto Viação do Tâmega*<sup>366</sup>.

### 3.4. The 21<sup>st</sup> Century: The Closure

As we have already seen, a more careful monitoring started to be done in the Portuguese railway network few months after the fourth and last Tua Line accident<sup>367</sup>. As a consequence, it was decided to close the Corgo Line, on 24<sup>th</sup> March 2009, in simultaneous with the Tâmega Line<sup>368</sup>. While CP justified this suspension with an “urgent infra-structure intervention necessity”<sup>369</sup>, the Secretary of State for Transports pointed for “safety motives”<sup>370</sup>. Nevertheless, the Corgo Line had received lately some reparation works<sup>371</sup>. In fact, by one hand, some tracks were substituted, between Régua and Alvações do Corgo<sup>372</sup>. By another hand, there were not only improved the level crossings but also closed agricultural ways<sup>373</sup>. New railway ties were set and other maintenance works were done along the previous month<sup>374</sup>. Therefore, the “surprise-effect”<sup>375</sup> has also attained the Régua railway employees, which were not previously advised<sup>376</sup>.

One day after the Corgo Line closure, a 26 million of Euros investment was announced<sup>377</sup>. As long as there were no calendar to start the works, no project and no public contest, the service suspension was expected to take “undetermined time”<sup>378</sup>. Nevertheless, in March 2009, it was stated the works would start in four months<sup>379</sup>. Actually, in June 2009, it was already authorized a 36,9 million of Euros investment for the Corgo Line and for the Tâmega Line<sup>380</sup>.

By the end of 2009, the geotechnical raising and the railway raising and platform reprofiling were already concluded<sup>381</sup>. Furthermore, there were also already done other important improvements, such as the drainage system renovation, the slopes reinforcement or the net placing, in order to avoid stones to fall<sup>382</sup>. By the end of 2009, it was stated the Corgo Line could not reopen before the beginning of 2011<sup>383</sup>, as long as the narrowed-gauge railway ties were being difficult to find<sup>384</sup>.

A “new contention scenario” appeared in 2010, with the Stability and Growth Plans<sup>385</sup>. The “rumors” which pointed for the works suspension were confirmed on 17<sup>th</sup> June 2010, when REFER informed the investment would be cancelled<sup>386</sup>. The Municipality of Vila Real would require to the Government to “fulfil” its promises, by August 2010, when the Corgo Line works were definitely suppressed<sup>387</sup>. Six months after, in April 2011, the President of the House of the Municipality of Vila Real would approve a motion in which the Corgo Line modernization was demanded<sup>388</sup>.

In the following month, in May 2011, the Prime-Minister candidate said the people could not “stay without the service and without the line improved”<sup>389</sup>. As long as the ones who were served by the train did not “have another way of communication”, the Prime-Minister candidate would support again the Corgo Line revitalization, by reminding it was the State who “paid for dismantle the few which existed”<sup>390</sup>. For him, this set of small investments took more sense than the high-speed rails<sup>391</sup>.

Nevertheless, after winning the elections, the new Prime-Minister has simply announced the Corgo Line definite closure, with the approval of the new *Plano Estratégico dos Transportes*. Meanwhile, the Corgo Line “ferrous residues” were sold by 424.000 Euros<sup>392</sup>. Until the end of November 2011, the 1300 tracks tones would definitely left the Vila Real station<sup>393</sup>. Two months after, in January 2012, the alternative bus service established between Régua and Vila Real in March 2009 was also suppressed. CP expected to afford a 7346 Euros monthly amount with this measure<sup>394</sup>.

### **3.5. The 21<sup>st</sup> Century: The Trains**

There were introduced two LRV2000 units in the Corgo Line in April 1996, in order to modernize the rolling stock<sup>395</sup>. Later, one more unit has been built, in order to reinforce this narrowed-gauge railway stretch<sup>396</sup>.

These LRV2000 railcars were running in the Corgo Line, in the Tâmega Line and in the Tua Line since 2002. After the fourth and last Tua Line accident, some doubts about this rolling stock have appeared. Therefore, the Corgo Line and the Tâmega Line service suspension started to be considered<sup>397</sup>.

### **3.6. The 21<sup>st</sup> Century: The Current Situation**

The Vila Real district capital is the unique Portuguese University City without train<sup>398</sup>. Therefore, the aim of the Municipality of Vila Real is to reactivate the Corgo Line, between Régua and Vila Real<sup>399</sup>. However, a new financial support, created by the Government or by the EU, is absolutely necessary in order to concretize these desires<sup>400</sup>. Until there, the Municipality of Vila Real is planning to transform the Régua – Vila Real stretch in a bicycle path, in order to conserve the railway channel<sup>401</sup>.

### **3.7. Timetables**

In 1983, there were four daily journeys between Régua and Chaves. At that time, a trip along the 96,167 kilometres of the Corgo Line took 3 hours and 20 minutes. Meanwhile, in 1983, there were five daily trips between Régua and Vila Real. The train took approximately 54 minutes to travel between these 25,069 kilometres. Therefore, as we have already highlighted, while it was necessary to wait 3 hours and 26 minutes to go from Porto to Vila Real, it would be needed to spend 7 hours and 1 minute to go from Lisboa to Vila Real, by that time<sup>402</sup>.

In 2007, the number of daily journeys between Régua and Vila Real remained equal to five. By that time, the train took the same 54 minutes to link these stations.

### **3.8. Investments**

As we have seen, a 26 million of Euros investment was promised in the Corgo Line rebuilding<sup>403</sup>. However, between 2006 and 2013, IP has only invested few less than 6,8 million of Euros in this railway itinerary. More than 85% of this amount was applied in the works which took place between 2009 and 2010. Thus, more than 5,8 million of Euros were up to now wasted.

### **3.9. Passengers**

The Corgo Line would lose more than 70 kilometres on 1<sup>st</sup> January 1990. By that time, in order to substitute the train, an alternative bus service was established between Vila Real and Chaves. Nevertheless, contrarily to what happened in the Tâmega Line, the introduction of the alternative bus service would not lock the Corgo Line demand reduction.

Actually, this railway stretch had transported 119.842 passengers, in 1990. Then, the demand would start to decrease continuously, especially since 1993. In fact, whereas 103.609 passengers were moved, in that year, only 88.300 were transported between Régua and

Chaves, in 1994. In the following year, by the time the alternative bus service had already been suppressed, this railway itinerary would only move 50.412 passengers. This continuous demand fall would persist until 1999, by the time only 30.102 passengers had travelled in the Corgo Line. Therefore, between 1990 and 1999, the railway stretch demand dropped by 75%.

Nevertheless, the Corgo Line would start a recovery period before the beginning of the new century. After a shy demand increase, between 1999 and 2001, the railway itinerary would transport 46.290 passengers, in 2002. Despite having rise again in the following year, the demand would drop to 33.047 passengers, in 2004. Since then, the Corgo Line would start a sustainable recovery period, which would persist until 2008, when 71.940 passengers had travelled between Régua and Vila Real. Thus, between 2004 and 2008, the railway stretch demand had increased by 118%. It should be added this recovery achieves the 139% between 1999 and 2008.

As we have already sustained, the Corgo Line railway service would be suspended, due to “safety motives”, on 25<sup>th</sup> March 2009<sup>404</sup>. Therefore, by that time, it was established an alternative bus service. As it happened in the beginning of the 1990’s decade, this measure would be accomplished by a decrease in the number of transported passengers. In fact, while 59.380 passengers were transported between Régua and Vila Real, in 2009, 49.270 passengers were moved, in the following year. In 2011, the last working year of the alternative bus service, 46.880 passengers had still travelled in the Corgo Line. As it happened in the Tâmega Line, this railway itinerary had also been transporting many more passengers between 2009 and 2011 than between 1999 and 2001 or even in 2004. Hence, the alternative bus service suspension can be said to be incomprehensive.

To verify our analysis, the linear tendency tool can be used. When a polynomial regression of order four is applied, a  $R^2$  greater to 92% can be obtained for the Corgo Line case. This tool sustains the demand started to decrease even before 1990, when the concavity has changed. Then, the linear tendency tool confirms the tendency in the Corgo Line demand decrease has finished in 2000. After a nine years recovery period, the railway stretch demand would start to fall again in 2009, by the time the alternative bus service was introduced, between Régua and Vila Real, according to this tool.

### **3.10. Final Synthesis**

As we were able to highlight, no solution which could avoid the mandatory transshipment in Régua between the Douro Line and the Corgo Line was found. Besides this inconvenience, the passengers were obliged to spend 3 hours and 20 minutes on board of the Corgo Line. Neither the advised “adequate timetable study”<sup>405</sup> was promoted nor the recommended creation of semi-direct trains<sup>406</sup> was established.

In 1968, it was already acknowledged the Corgo Line conditions “would never allow to satisfy” the regional transport necessities<sup>407</sup>. Actually, the “rough outline”, through “valleys and slopes”, in “tight curves and counter-curves”, turned impossible the introduction of a modern rolling stock<sup>408</sup>. Later, it was precisely the appearance of a *newer* rolling stock which led to the Corgo Line suppression. In fact, the “asymmetric” LRV2000 series<sup>409</sup> was probably in the origin of two of the four Tua Line accidents. In our opinion, in order to avoid new incidents, it was decided to close not only the Tâmega Line but also the Corgo Line, due to the inadequacies of their rolling stock.

## **4. Tua Line**

### **4.1. The Project**

The Tua Line was the first narrowed-gauge railway stretch constructed in the Douro region. The public contest to the building of the Tua – Mirandela linkage was launched on 29<sup>th</sup> September 1883<sup>410</sup>. At that time, there were no doubts about the “urgent and undelayable necessity of endowing the Trás-os-Montes region with this indispensable instrument”<sup>411</sup>.

As long as it should be solved a “justice debt with a so high disadvantaged district”<sup>412</sup>, not only “delayed in material improvements of all the others”<sup>413</sup> but also “forgotten by our governments in development measures of its valuable resources”<sup>414</sup>, it was recognized the Tua Line would not “satisfy the fair complaints of those people and of their agricultural and commercial interests” if it reached “so merely” Mirandela<sup>415</sup>. In fact, arriving only there, the Tua Line would only be touching “the South limit of the region” whose exploration was intended<sup>416</sup>.

Furthermore, it was added “all the ones” who knew Trás-os-Montes could claim the goods which constituted “the main traffic” were placed further North to Mirandela, where the population was also “more concentrated and active”<sup>417</sup>. Between Mirandela and Bragança there were “extensive territories to dilate”, where “big minerals deposits” and “corn fields”



could be found<sup>418</sup>. In addition, while the “cattle creation industry and trade” was considered “very important”, the “pastures” were regarded as “considerable”<sup>419</sup>. Nevertheless, there were invoked financial reasons to postpone the train arrival to Bragança, the remoter Portuguese district capital, already placed at least 73,5 kilometres further North to Mirandela<sup>420</sup>.

#### **4.2. The 19<sup>th</sup> Century**

The building of the first Tua Line stretch was initiated on 16<sup>th</sup> October 1884 (Paulino, 2011: 33), from Mirandela to Tua. Nevertheless, as long as the railway itinerary would cross a “terrain of difficult and dearly construction”, it was necessary to build “many and expensive” works of art, such as tunnels and viaducts<sup>421</sup>. For example, to surpass the 132 metres unevenness between Tua and Mirandela, it was needed to deal not only with the Tua River “upright margins” but also with the depth of the “big buttresses and ravines”<sup>422</sup>.

The task became even worst as long as the Tua station was getting closer. Actually, the building of the first 21 kilometres “required vigorous courage to the engineers and to the employees”, who “swarmed there by some time, to tear rocks and rams, many times hanged by cords and perched on boards, quickly hoisted when fuses were lit”<sup>423</sup>. Thus, one of the values of this railway stretch lies in “the difficulties” surpassed by the men and in the “boldness which allowed the train to pass among the insurmountable rocks”<sup>424</sup>. It should be stressed the Tua Line crosses a very high incised valley along these initial 21 kilometres, where the scarps can reach 676 metres of altitude<sup>425</sup>. Therefore, it was necessary to build a “very reduced wide platform”, where the “accent slopes” and the “reduced ray curves” were “frequent”<sup>426</sup>. In conclusion, the neighbourhoods of Brunheda “represent the transition between a steep relief and a less rugged and softer” one<sup>427</sup>. In spite of these difficulties, the train would arrive “triumphally” to Mirandela on 29<sup>th</sup> September 1887, only three years after the beginning of the construction works<sup>428</sup>.

In the beginning of the 20<sup>th</sup> Century, it was understood “no other” railway itinerary was presenting “a so high development” in Portugal<sup>429</sup>. Therefore, it was forecasted “an auspicious future” to the Tua Line, as long as it would allow to “satisfy the fair aspirations of one of the most important regions of the monarchy”<sup>430</sup>.

#### **4.3. The 20<sup>th</sup> Century**

Meanwhile, it was crucial to speed up the building works until Bragança. However, the Tua Line would only start to be extended further North to Mirandela in July 1903. The

Councilor Abílio Beça, who would terribly be crushed by the train in which he travelled, in 1910, would be the main promoter of this new linkage<sup>431</sup>.

Nevertheless, it was necessary to surpass an important unevenness further North to Mirandela. For example, the Rossas station, the highest one placed in the country, was fixed 634 metres above Mirandela<sup>432</sup>. Despite these appreciable difficulties, the train would arrive to Romeu on 2<sup>nd</sup> August 1905 and to Macedo de Cavaleiros on 15<sup>th</sup> October 1905. After reaching Sendas, on 18<sup>th</sup> December 1905, and Rossas, on 14<sup>th</sup> August 1906, the Tua Line would arrive to Bragança, on 1<sup>st</sup> December 1906. Thus, this railway stretch would present a 133,768 kilometres extension for almost 85 years.

However, the Tua Line was not yet concluded. Actually, by one hand, it should be expanded further North to Bragança, in order to serve not only the Quadramil iron mines<sup>433</sup> but also Puebla de Sanábria<sup>434</sup>, already in Spain. By another hand, it should arrive to Viseu, in order to intersect the Dão Line<sup>435</sup>. Nevertheless, the construction of this stretch, with 120 kilometres, was regarded as “difficult”<sup>436</sup>. In fact, despite being “utile and recommended”, this linkage would face not only an “exiguous” traffic but also an “irremediable deficit”<sup>437</sup>. Therefore, the exploration expenses would be probably uncovered between Tua and Viseu<sup>438</sup>.

More than two decades after, in 1930, the international linkage would be eliminated by the *Decreto 18.190*<sup>439</sup>. However, the Tua Line expansion until Viseu was approved and continued to be forecasted<sup>440</sup>. Nevertheless, the stretch further South to Tua would never be built.

#### **4.4. The 20<sup>th</sup> Century: The Closure**

As we have already seen, the suppression of some of the four Douro region narrowed-gauge railway stretches was already thought in the end of the 1960's decade. A study produced in January 1970 about the Tua Line sustained  $\frac{3}{4}$  of the regional active population worked in the agriculture<sup>441</sup>. Thus, this economic structure led to the “inexistence of a pendular passengers traffic”, as it happened in the other three narrowed-gauge railway itineraries<sup>442</sup>. Furthermore, the region was suffering a “systematic depopulation” process<sup>443</sup>. Therefore, the primary activities predominance, the low regional development, the reduced regional per capita income and the few scholar population density led to a “weak passengers traffic intensity”<sup>444</sup>. In addition, it was understood if the “regional economic development” maintained the same rhythm, the observed factors would not suffer a “sufficient deep change

to modify the current railway running characteristics<sup>445</sup>. It could also be concluded the “current railway technical running characteristics” limited not only the “regional concurrence” capacity but also the possibilities of “capturing new traffics”<sup>446</sup>.

Nevertheless, it was recognized a “weak density”<sup>447</sup> not only of “regional roads”<sup>448</sup> but also of “regional automobiles”<sup>449</sup>. Even though these factors were “favourable” to the existence of an “important long-distance passengers traffic”<sup>450</sup>, the train was affected by the “concurrence” of the trucking companies, not only in the velocity but also in the price<sup>451</sup>. For example, some years later, in the beginning of the 1980's decade, it was necessary to wait 7 hours and 12 minutes from Porto and 10 hours and 53 minutes from Lisboa in order to reach Bragança by train<sup>452</sup>. At that time, to travel along the entire Tua Line, the trains needed to change of velocity more than 45 times<sup>453</sup>. Furthermore, in some stretches, the velocity could not surpass the 20 kilometres per hour, due to the lack of conservation<sup>454</sup>. Actually, the Mirandela – Bragança linkage still presented the original railway tracks (Pires, 2014: 62), dated from the beginning of the 20<sup>th</sup> Century. Hence, an important “investment spending”<sup>455</sup>, not only in the rolling stock but also in the track renovation, was necessary<sup>456</sup>. However, these works would bring “additional amortization and interest charges rather accentuated”<sup>457</sup>.

All in all, the study advised the Tua Line suppression, as long as the “running financial results” were “rather unfavourable”<sup>458</sup>. Nevertheless, it was recognized the Tua Line closure could “compromise the systematic regional valorization”<sup>459</sup>. Therefore, it was recommended to promote not only a “bigger rationalization of the current line exploration system”, with “no important investments”, but also a “more active commercial action”, in order to catch a “bigger traffic”<sup>460</sup>.

In 1985, a protocol signed between the Minister of the Social Equipment and the mayors of the region forecasted the Tua Line suppression<sup>461</sup>. Furthermore, the municipalities agreed with the reduction of the number of trains, with the closure of the stations and with the introduction of the Simplified Exploration Regime<sup>462</sup>. On the other way, the Government promised to construct a bridge, over the Tua River and over the Milhões Riverside<sup>463</sup>. In addition, the Government guaranteed the paving of the road between Pontão de Lamos and Ponte do Sabor<sup>464</sup>. While the building of some roads, not only between Brunheda and Abreiro but also between Pocinho and Ponte do Sabor<sup>465</sup>, would be executed, the IP2 and the IP4 would also be constructed<sup>466</sup>.

After having closed hundreds of railway kilometres on 1<sup>st</sup> January 1990, to fulfil the *Plano de Modernização e Reversão dos Caminhos-de-Ferro*, CP sustained the “rationalization” of the Portuguese railway network was “almost concluded”<sup>467</sup>. By that time, it was only needed to “give Tua Line a destiny”<sup>468</sup>. Meanwhile, in 1990, the timetables were not only disconcerted<sup>469</sup> but also cut<sup>470</sup>. In fact, some trains were suspended on Fridays and on Holiday’s Eves, precisely when the demand was higher<sup>471</sup>. The introduction of new velocity limits<sup>472</sup> has also intensified the *attack* to the regional railways.

On 15<sup>th</sup> December 1991, the Mirandela – Macedo de Cavaleiros stretch was closed<sup>473</sup>. As long as the Macedo de Cavaleiros – Bragança linkage was isolated from the Portuguese railway network, a new transshipment was necessary<sup>474</sup>. Nevertheless, two days after, on 17<sup>th</sup> December 1991, a derailment with no victims<sup>475</sup> in Sortes, close to Bragança, would lead to the closure of the Macedo de Cavaleiros – Bragança stretch. Meanwhile, in order to substitute the train, an alternative bus service had already been created. Surprisingly enough, there were spent 1,5 million of Euros in 1991 in the Mirandela – Bragança linkage<sup>476</sup>.

In answer, the population “sounded the alarm in the bells of the churches” and made the buses prisoners<sup>477</sup>. Furthermore, meanwhile fires were turned on, some tracks were extracted<sup>478</sup>. The population feared the alternative bus service could only be working along some time, in order to “shut up the protests”<sup>479</sup>. Despite having motivated a high dissatisfaction, the tiredness, the intervention of the authorities and the promises of CP, which did not confirm the closure as definite, have pacified the fight<sup>480</sup>.

However, the Mirandela – Bragança linkage would be definitely closed in the daybreak of 13<sup>th</sup> to 14<sup>th</sup> October 1992<sup>481</sup>. By that time, the railway employees of Macedo de Cavaleiros and of Bragança were participating in a CP meeting in Lisbon<sup>482</sup>. Meanwhile, it was prepared “the night of the theft”, whose aim was to remove the trains from the stations of Macedo de Cavaleiros and of Bragança<sup>483</sup>. With neither electricity nor communication, the population would only know their trains were being stolen thanks to the alert of a pirate radio<sup>484</sup>. Nevertheless, the protests were not sufficient to reopen the Tua Line<sup>485</sup>.

Surprisingly enough, in December 1992, the suppression of the Tua – Mirandela stretch was expected for the following month<sup>486</sup>. CP continued to argue the Tua – Mirandela linkage, wrongly considered “the unique secondary stretch still running”, could not have another destiny than the closure<sup>487</sup>. However, the initial 54,092 kilometres of the Tua Line, were only small villages were crossed, would be kept running<sup>488</sup>. Nevertheless, as long as the

stations were placed in the periphery of the urban core, neither the rough landscape was sufficient to reach demand levels similar to the ones which were attained further North to Mirandela<sup>489</sup>. The alternative bus service would disappear along the second half of the 1990's decade.

#### **4.5. The 20<sup>th</sup> Century: The Surface Light Rail**

The creation of a Surface Light Rail started to be expected in Mirandela along the 1990's decade. The Minister of the Public Works, Transports and Communications has also suggested to the municipalities of Macedo de Cavaleiros and of Bragança to join this idea. It was stressed the “technical and the financial viability studies” could be reimbursed until 65% (Pires, 2014: 63). Nevertheless, these two municipalities, which were said to “have never believed” in this solution, showed “clear disinterest” (Pires, 2014: 63).

The Surface Light Rail would only start to run along a four kilometres stretch, between Mirandela and Carvalhais, on 28<sup>th</sup> July 1995. As a whole, the investment totalized 1,65 million of Euros<sup>490</sup>. However, as long as some railway terrains were made available by CP to the real-estate promotion, all the costs were “practically” covered<sup>491</sup>.

The rolling stock was composed by four railcars, whose bodywork was completely new<sup>492</sup>. The trains, bought to Yugoslavia in 1976<sup>493</sup>, were constructed in CAMO in 1993<sup>494</sup>. Nevertheless, as long as these railcars were adapted to the Portuguese narrowed-gauge railways, there were done relevant modifications in the motor part<sup>495</sup>. Each one LRV2000 unit cost 250.000 Euros.

#### **4.6. The 21<sup>st</sup> Century: Before the Accidents**

On 25<sup>th</sup> April 2000, a stone sliding led to the destruction of “some dozens of railway metres”, at the kilometre 9,950<sup>496</sup>. After this incident, REFER wrote three reports, in which 145 potential instabilities were identified<sup>497</sup>. While between Santa Luzia and Codeçais, along 11,649 kilometres, 44 potential instabilities were found, between Tua and Santa Luzia, along 13,375 kilometres, the rougher linkage, 79 potential instabilities were detected<sup>498</sup>. It was suggested not only the installation of a stone sliding detection system but also the implementation of reception and dissipation energy boxes<sup>499</sup>.

Until the LRV2000 introduction in the entire Tua Line, only concretized on 21<sup>st</sup> October 2001 (Paulino, 2011: 51), the railway was seen as an authentic real museum, as long

as there were crossed places where the time seemed to have stopped<sup>500</sup>. The LRV2000 appearance was accomplished by the reduction of the number of daily journeys, from five to three. Furthermore, as long as these railcars possessed neither bathroom facilities nor space for luggage or for bicycles, the passengers were displeased.

By that time, the connection between the Tua Line and the Douro Line was already said to be “not articulated” (Simão, 2009: 64). In addition, while the trains were “decaying”, the railway stretch was presenting “bad conditions” (Simão, 2009: 64). Actually, according to the President of the Municipality of Mirandela, the railway “could have been” a “more important” communication mean<sup>501</sup>. For him, the timetables, the number of journeys and the velocity did not serve “neither the populations nor the tourists”<sup>502</sup>.

## **4.7. The 21<sup>st</sup> Century: The Accidents**

### **4.7.1. 12<sup>th</sup> February 2007**

An accident, caused by a stone sliding, would occur on 12<sup>th</sup> February 2007, at 6.25 p.m.<sup>503</sup>. After having derailed, at the kilometre 6,925<sup>504</sup>, the train would fall roughly 30 metres until the Tua River<sup>505</sup>. Three of the five occupants have died<sup>506</sup>.

By the time the accident has occurred, even though the “atmospheric conditions were favourable”, because there was neither fog nor rain, the visibility was already “reduced”<sup>507</sup>. It was also found “the first stones sliding” has occurred “before the arrival of the train”<sup>508</sup>. Therefore, as long as the platform and the railway tracks were already damaged, the train ended by derailing<sup>509</sup>. However, it was also stressed more stones have fallen “along or after the derailment”<sup>510</sup>. Hence, it cannot be concluded if there had been any “simultaneity” between the “arrival of the train to the collapse place” and “the fall of one or more stones”<sup>511</sup>. It cannot be forgotten the slope presents “a big extension until the 627 altitude metres” in the local of the accident<sup>512</sup>.

All in all, it can be concluded this accident had “natural”<sup>513</sup> and “external”<sup>514</sup> causes. In February 2007, it was expected a regular inspection for April 2007 and a detailed inspection for October 2008<sup>515</sup>. Nevertheless, only 12 of the 79 potential instabilities detected in April 2000 between Tua and Santa Luzia have already been executed<sup>516</sup>. Almost nothing was done in the geotechnical level<sup>517</sup>.

The 12<sup>th</sup> February 2007 accident has so highly damaged the railcar that no other option was available than to shoot it down<sup>518</sup>. Therefore, the available rolling stock decreased from four to three units.

In order to reopen the Tua Line, the *Laboratório Nacional de Engenharia Civil* (LNEC) suggested the implementation of “active protection measures”, so that it could be possible to intervene in the slopes<sup>519</sup>. However, as long as these measures had a “very difficult” introduction, there were also pointed “passive protection measures”<sup>520</sup>. In this group, it was suggested again not only the installation of a stone sliding detection system but also the implementation of reception and dissipation energy boxes<sup>521</sup>. The electrified stone sliding detection system, already in use in the Beira Baixa Line, was considered “technologically simple, easy to install and efficient”<sup>522</sup>. Nevertheless, the LNEC has also imposed a 30 kilometres per hour velocity limit, between Tua and Abreiro<sup>523</sup>. It was considered the velocity reduction was a “very effective measure” in order to mitigate the risk of a stone sliding<sup>524</sup>. Actually, the distance braking, which reached 98 metres with a 45 kilometres per hour velocity, could drop to 52 metres with a 30 kilometres per hour velocity<sup>525</sup>. With the introduction of the new velocity limit, the time journey increased more than 15 minutes, to 1 hour and 50 minutes<sup>526</sup>. Even though the tourists were able to enjoy the landscape slowly, the utilization of the train until Porto, through the Douro Line, became even less interesting<sup>527</sup>. Furthermore, while there were done three daily journeys between Tua and Mirandela until the accident, there started to be done only two since 28<sup>th</sup> January 2008<sup>528</sup>. A unique station in Mirandela was also established, in order to ensure not only the CP but also the Surface Light Rail service<sup>529</sup>.

#### **4.7.2. 10<sup>th</sup> April 2008**

A second accident would take place on 10<sup>th</sup> April 2008, at 10.20 a.m.<sup>530</sup>. In this occasion, “two or three” stones were responsible for the derailment of a draisine, at the kilometre 2,170<sup>531</sup>. Two of the three employees were injured<sup>532</sup>.

It was stressed the stone sliding has occurred “immediately before the arrival of the draisine”<sup>533</sup>. Thus, the draisine would cross the damaged railway stretch before derailing<sup>534</sup>. It was necessary to move the railway line 40 centimetres further right in the rehabilitation works<sup>535</sup>. The Tua – Santa Luzia linkage would remain closed until 24<sup>th</sup> May 2008<sup>536</sup>.

#### **4.7.3. 6<sup>th</sup> June 2008**

The third accident would occur on 6<sup>th</sup> June 2008, at 11.40 a.m.<sup>537</sup>. In this case, the train derailed at the kilometre 2,150, in a stretch “recently intervened”<sup>538</sup>. One of the five occupants was injured<sup>539</sup>.

According to a passenger, after a small curve, the train had “jumped of the tracks with no motive”<sup>540</sup>. Even though “everything” pointed for a problem in the train<sup>541</sup>, it was decided to move the railway line 15 centimetres for the left<sup>542</sup>. In front of this succession of accidents, the Secretary of State for Transports argued it was “unsustainable” to maintain the Tua Line opened<sup>543</sup>. Nevertheless, the closed stretch, between Tua and Abreiro, would reopen on 9<sup>th</sup> June 2008<sup>544</sup>.

#### **4.7.4. 22<sup>nd</sup> August 2008**

The fourth and last accident would take place on 22<sup>nd</sup> August 2008, at 10.41 a.m.<sup>545</sup>. In this occasion, after having derailed at the kilometre 20,400, the train fell roughly 10 metres<sup>546</sup>. One of the 44 occupants died<sup>547</sup>. Few weeks before, in July 2008, there were done “application works” in a “ditch” in order to install optical fiber cables<sup>548</sup>. This intervention could have caused “anomalies” whose “consequences” were not “correctly evaluated with the usual supervision methods”<sup>549</sup>.

The final report of the accident gave voice to the most varied sources. For the CP Rolling Stock Engineering, the railway “coarse defects” in the place of the accident were “sufficient” to “justify the derailment”<sup>550</sup>. However, the most interesting perspective was presented by Swiss Federal Railway (SFR). Actually, factors such as the “scale”, the “warping” and the “conditions of the railway ties and of the railway tracks” were probably in the origin of the derailment<sup>551</sup>. In fact, the “warping” where the derailment has started presented a “very high value” for a narrowed-gauge railway stretch<sup>552</sup>. Furthermore, some of the railway ties needed to be “replaced urgently”<sup>553</sup>. Despite having been “reapplied” in the 1990’s decade, the railway tracks were simply “turned over”<sup>554</sup>. This “dangerous” procedure could “lead to a derailment”, according to SFR<sup>555</sup>. The opening of the “ditch” could also have had “influence in the condition of the railway”<sup>556</sup>. Finally, the “grease” presented only some “evidences”<sup>557</sup>.

The rolling stock was also focused on the report. In fact, the conversion of the 9700 series for the current 9500 series turned the vehicle “four tones lighter”<sup>558</sup>. In addition, the “weight distribution” was “asymmetric” when the LRV2000 was running as a simple unit<sup>559</sup>.



Finally, the railway tracks were “too rigid” in comparison with the “lightness” of the rolling stock<sup>560</sup>. The velocity reduction has also aggravated all these inadequacies<sup>561</sup>. Thus, it can be concluded the “primary derailment source” was not only the “high distortion” value of the railway but also the “insufficient layout suspension”<sup>562</sup>.

Therefore, this fourth and last accident was caused by an improbable situation<sup>563</sup>. Actually, by one hand, a “sitting” caused a “railway warping”<sup>564</sup>. However, by another hand, there were also verified “alignment defects”, associated with “inadequate characteristics” of the rolling stock<sup>565</sup>. The accident took place when the railcar was reducing the velocity<sup>566</sup>. One of the wheels was even in the air along some decimal seconds in an experience test<sup>567</sup>. It was also verified the train had derailed for the same side in the third and in the fourth accident<sup>568</sup>. Hence, this last accident had “internal causes”<sup>569</sup>.

In November 2008, a “set” of actions which would guarantee not only the “global recovery” but also the “safety improvement” of the Tua Line was presented by the Secretary of State for Transports<sup>570</sup>. By that time, the reopening of the Tua – Cachão linkage was forecasted for March 2009, when an intervention plan done by the *Instituto da Mobilidade e dos Transportes Terrestres* (IMTT) should be launched<sup>571</sup>. Interestingly enough, meanwhile, it was also expected a final decision about the Tua Dam.

#### **4.8. The 21<sup>st</sup> Century: The Tua Dam**

The President of the Municipality of Mirandela admitted being “in favour of the Tua Dam” as long as the Tua Line would not be underwater<sup>572</sup>. Nevertheless, the President revealed to be “very suspicious”, without “understanding” what were the intentions of the Government<sup>573</sup>. Actually, while the Ministry of the Public Works, of the Transports and of the Communications was guaranteeing the recovery of the Tua Line, the Ministry of the Economy was sustaining “the priority was the building of the Tua Dam”<sup>574</sup>. However, as we are going to see, the Tua Line and the Tua Dam presented conflicting values.

After the announcement of the Tua Dam, a document written by the *Instituto da Água* included the concern of “safeguarding part of the railway” stretch<sup>575</sup>. Nevertheless, it was omitted every solution would eliminate the connection between the Tua Line and the Douro Line, which constituted its main traffic generator<sup>576</sup>. In order to solve this problem, EDP presented a mobility plan which would include four transport means: tram, cable car, boat and train. According to Alberto Aroso, Master in Communication Links, this proposal is

“pathetic” (Pires, 2014: 65). Actually, the three necessary transshipments, in only 55 kilometres, would delay so much the travel that it would become “economically unviable” (Pires, 2014: 65). This mobility plan is expected to be funded by the National Strategy Reference Board<sup>577</sup>.

The construction of the Tua Dam was approved in May 2009. Even though the 170 altitude metres cannot be exceeded, the first 21 kilometres of the Tua Line would become underwater.

#### **4.9. The 21<sup>st</sup> Century: The Crisis**

In 2010, REFER asked the Government to disqualify the Tua Line, by arguing it wanted to have no more responsibilities in this railway stretch<sup>578</sup>. According to REFER, it was necessary to know if the “public transport necessities” could not be satisfied “in more affordable and more efficient conditions” in the places served by the Tua Line “through the implementation or the reinforcement of other transport means”<sup>579</sup>. REFER moved six years backwards in order to conclude “the social and economic minimum values” were not fulfilled in order to “maintain the public railway service”<sup>580</sup>. In fact, on average, in the first quarter of 2004 each running has only moved nine passengers<sup>581</sup>. However, REFER recognized no demand studies were done in order to evaluate the potential market of the Tua Line<sup>582</sup>.

#### **4.10. The 21<sup>st</sup> Century: The Current Situation**

As long as the Tua Dam was approved, the Tua Line has remained closed between Tua and Cachão, since 22<sup>nd</sup> August 2008. The mobility in this 42 kilometres stretch is ensured through a taxi alternative service. Therefore, since then, only the 16 kilometres linkage between Cachão and Carvalhais has been working. The Surface Light Rail is said to have been created as a “cheaper” solution<sup>583</sup>. Therefore, as long as it was established “in order to be nothing”, the Surface Light Rail has no “weight” and can “succumb at any time”. Nevertheless, the Tua Line has been presenting an “extraordinary resilience” for already seven years, despite having no linkage to the Portuguese railway network (Pires, 2014: 79).

Meanwhile, the reopening of the Brunheda – Cachão stretch continues to be expected. Actually, as long as the Tua Dam would *only* underwater the initial 21 kilometres of the Tua Line, the use of the train since Brunheda is forecasted in the mobility plan presented by EDP. Nevertheless, as long as the funding amount continues to be missing<sup>584</sup>, no one seems to know when this linkage would be reopened<sup>585</sup>. As long as a tourism component is expected to be

created in this stretch, the hypothesis to establish a seasonal working period cannot be excluded<sup>586</sup>.

The railcar involved in the fourth and last accident had been waiting to be recovered<sup>587</sup>. Nevertheless, in April 2015, it was announced it would also be sent to Peru, with the other five LRV2000 units<sup>588</sup>. Thus, the Tua Line rolling stock is currently only composed by two railcars<sup>589</sup>.

#### **4.11. Timetables**

In 1980, there were four daily journeys between Tua and Bragança. At that time, a trip along the 133,768 kilometres of the Tua Line took 4 hours and 17 minutes. Meanwhile, there were six daily trips between Tua and Mirandela. The train took approximately 1 hour and 33 minutes to travel between these 54,092 kilometres. Therefore, as we have already highlighted, it was necessary to wait 7 hours and 12 minutes from Porto and 10 hours and 53 minutes from Lisboa in order to reach Bragança by train<sup>590</sup>.

The number of daily journeys between Tua and Mirandela would drop from five to three in 2001. Six years after, in 2007, when three daily trips were still done between these stations, the train took 1 hour and 34 minutes in order to link Tua to Mirandela.

With the introduction of a new velocity limit, after the 12<sup>th</sup> February 2007 accident, the time journey would increase to 1 hour and 50 minutes<sup>591</sup>. Meanwhile, the number of daily trips between Tua and Mirandela would also drop from three to two<sup>592</sup>.

#### **4.12. Investments**

Between 2000 and 2005, REFER has invested few less than 2 million of Euros in the Tua Line<sup>593</sup>. After the 25<sup>th</sup> April 2000 incident, it was necessary to execute restraint works and to introduce gutter drainages<sup>594</sup>. In addition, a heavy mechanic attack was done between Tua and Brunheda<sup>595</sup>. Finally, there were replaced not only railway tracks but also railway ties<sup>596</sup>. All these interventions, which took place not only in 2000 but also in 2001, have consumed almost 50% of the investment performed between 2000 and 2005 in the Tua Line<sup>597</sup>. Therefore, few more than 1 million of Euros were applied in this railway stretch in the four subsequent years. A more expensive intervention was only done in 2005<sup>598</sup>, when the points which presented a higher derailment probability were consolidated<sup>599</sup>. The level crossing automation was also encouraged between 2000 and 2005<sup>600</sup>.

1,5 million of Euros were invested in the Tua Line in 2007<sup>601</sup>. In addition, in the end of that year, it was also launched a public contest in order to modernize the Frechas – Mirandela linkage<sup>602</sup>, which was in “very bad conditions”<sup>603</sup>. 1 million of Euros were invested in the renewal of these 9 kilometres<sup>604</sup>.

REFER used to argue it had not been informed by the Government about the construction of the Tua Dam<sup>605</sup>. However, while REFER would declare it was not “opportune” to talk in the subject, in February 2009<sup>606</sup>, it would assume there was a problem named “dam”, in the following month<sup>607</sup>. Therefore, the 30 million of Euros amount, available after the 22<sup>nd</sup> August 2008 accident<sup>608</sup>, would never be applied.

Only few more than 3,5 million of Euros were invested in the Tua Line between 2006 and 2013. Even with the four accidents, this amount is smaller than the one which was applied not only in the Tâmega Line but also in the Corgo Line.

#### **4.13. Passengers**

7317 passengers travelled in the Tua Line in 1887<sup>609</sup>. In the two following years, the number of passengers continued to increase: while in 1888 there were moved 26.795 passengers, in 1889 there were transported 30.911 passengers between Tua and Mirandela<sup>610</sup>.

As we have already seen, the service was especially instable in the Tua Line not only in the beginning of the 1990’s decade but also in the end of the 2000’s decade. Therefore, the huge decrease in the number of transported passengers along these two decades should not constitute a surprise.

In fact, in 1990, the Tua Line has transported 184.388 passengers. Since then, after being suppressed the Mirandela – Macedo de Cavaleiros linkage, in a first step, and the Macedo de Cavaleiros – Bragança stretch, in a second step, which represented almost 60% of the Tua Line extension, the railway itinerary would lose continuously passengers until 1997. Despite having been verified a demand increase in the following year, from 40.879 to 51.888 passengers, the Tua Line would continue to lose passengers until 2002, when a minimum value of 15.070 passengers was achieved. Therefore, between 1990 and 2002, the railway stretch demand has decreased by 92%.

The number of transported passengers would start to increase in 2002, even with the introduction of the LRV2000 railcars in the entire railway stretch, which led to the

suppression of two daily journeys between Tua and Mirandela. As long as 41.905 passengers were moved in the railway itinerary in 2006, the demand had increased by 178% in only four years.

Our analysis can be verified with the linear tendency tool. Actually, when a polynomial regression of order two is applied, a  $R^2$  greater to 97% can be obtained. Furthermore, this tool confirms the tendency in the Tua Line demand decrease has finished in 2002, when the concavity has changed.

The high number of constraints occurred in the Tua Line since 2007, in which the succession of accidents is included, forced us to stop our linear tendency analysis in 2006. Nevertheless, we were able to collect the number of transported passengers in the Tua Line in this later period. In 2007, the railway stretch demand has dropped by almost 50%, when compared to 2006, to only 21.466 passengers. It should be expected a new huge fall in the demand with the seriousness of the 12<sup>th</sup> February 2007 accident. However, surprisingly, the passengers and the tourists continued to travel along the Tua Line. Hence, in 2008, when three more accidents took place, there were transported 36.440 passengers. As long as no train would run again between Tua and Cachão, since 22<sup>nd</sup> August 2008, the demand of the railway itinerary would decrease again. Despite having moved only 15.790 passengers, in 2009, the decrease was not enough to beat the 2002 minimum value. Between 2009 and 2011, the Tua Line demand would increase again, to 20.460 passengers in 2010 and to 23.960 passengers in 2011.

The Mirandela – Carvalhais urban linkage was not considered in this analysis. Nevertheless, we were able to collect the number of transported passengers in this stretch, in 2013 and in 2014, thanks to the support of *Metro de Mirandela*. Thus, while 66.285 passengers were moved in 2013, 110.717 passengers were transported in this urban linkage in the following year. This 67% increase confirms the Tua Line continues to be an indispensable transport mean for the local population.

#### **4.14. Final Synthesis**

As we were able to detail, it was never found a solution which could avoid the obligatory transshipment in Tua between the Douro Line and the Tua Line. In addition, the timetables were progressively not only disconcerted<sup>611</sup> but also cut<sup>612</sup> in the wildest of the North narrowed-gauge railway itineraries<sup>613</sup>. Actually, by one hand, the number of daily

journeys between Tua and Mirandela has dropped from six to two, in roughly two and a half decades. By another hand, thanks to the persistent reduction of the running velocities, it was necessary to spend 1 hour and 50 minutes in order to cover the 54,092 kilometres which separated Tua from Mirandela<sup>614</sup>. Besides all these inadequacies, the connection between the Douro Line and the Tua Line was said to be “not articulated” (Simão, 2009: 64). Thus, the utilization of the train until Porto, through the Douro Line, became progressively even less interesting<sup>615</sup>.

By another hand, the Tua Line achieved an extremely low maintenance level. In fact, in the 1980's decade, the Mirandela – Bragança linkage still presented the original railway tracks (Pires, 2014: 62). In addition, the installation of a stone sliding detection system and the implementation of reception and dissipation energy boxes, which could probably have avoided two of the four Tua Line accidents, were never promoted. The persistent disinvestment has also affected the rolling stock. Actually, the “lightness” of the LRV2000 series<sup>616</sup> was probably in the origin of two of the four Tua Line accidents. In our opinion, the inadequacies of this rolling stock, detected in the Tua Line, were in the basis of the Tâmega Line and of the Corgo Line suppression.

## **5. Sabor Line**

### **5.1. The Project**

The Sabor Line, “more or less expected since 1877”, was the remoter Douro region narrowed-gauge railway stretch<sup>617</sup>. Even though the studies have started in 1888<sup>618</sup>, the 1890's crisis would force to abandon “almost by complete” the Sabor Line “necessary” construction works<sup>619</sup>. Therefore, the building of this railway itinerary would only be authorized in the beginning of the 20<sup>th</sup> Century<sup>620</sup>. Departing from Pocinho, the Sabor Line should reach Miranda do Douro and the frontier<sup>621</sup>. Nevertheless, it was also expected an expansion further South, from Pocinho until Vila Franca das Naves, despite having “less than secondary importance”<sup>622</sup>.

The Sabor Line was understood as an “indispensable instrument of the economic progress of a wide region between the Douro and the Sabor”, which was “completely deprived of communication means”<sup>623</sup>. In fact, among the railway stretches which remained to be built in Portugal, “few would exist whose necessity for the economic progress of its tributary region” was considered “so high”<sup>624</sup>. Thus, as long as the region should “take party”

of its “wealth”<sup>625</sup>, it was understood the Sabor Line should be constructed “without delay”<sup>626</sup>. In addition, the new railway itinerary presented not only a “benefit economic function” but also “superior distributive justice considerations”<sup>627</sup>.

The first aim of the new railway stretch, mainly “required” from the ones from Miranda do Douro<sup>628</sup>, would be to move the regional goods. In fact, the Sabor Line would ensure not only the transport of “agricultural products”<sup>629</sup>, such as cereals<sup>630</sup>, but also, and especially, the transport of “cattleman products”<sup>631</sup>. However, other regional values, such as the Reboredo Mountain iron<sup>632</sup> and ore<sup>633</sup> mines or the Santo Adrião alabaster and marble quarries<sup>634</sup>, near to Vimioso, should also be moved by the new railway itinerary.

The Sabor Line should be constructed as a narrowed-gauge railway stretch. Nevertheless, as long as the Douro Line was an Iberian-gauge railway itinerary, it was obligatory to do a transshipment in Pocinho. Thus, in order to facilitate the transport of the goods, it was forecasted an Iberian-gauge stretch between Pocinho and the Reboredo Mountain mines<sup>635</sup>. However, as long as the Iberian-gauge linkage cost “50 contos by kilometre”, whereas the narrowed-gauge linkage only cost “a third”, the contention costs forced to eliminate the Iberian-gauge stretch<sup>636</sup>. Without this “excessive preoccupation”<sup>637</sup>, which was the “main obstacle” to the “realization of a so high improvement”, the Sabor Line building could finally be initiated, without harming the exploration of the Reboredo Mountain deposits<sup>638</sup>.

Nevertheless, the new railway itinerary would also transport passengers. In fact, close to 70.000 habitants had an “unfortunate isolation”, among Torre de Moncorvo, Freixo de Espada à Cinta, Mogadouro, Miranda do Douro and Vimioso<sup>639</sup>. Hence, the second purpose of the Sabor Line would be to “reach the Miranda plateau”<sup>640</sup>.

The international linkage, which would constitute the third function of the new railway stretch, was not consensual, even by the time. By one hand, some people “prophesied” an “important international traffic”<sup>641</sup>, through the expansion to Zamora, which would create a “valuable instrument for the economic transformation”<sup>642</sup>. By another hand, other people sustained the linkage to Zamora had a “very secondary importance”, which did not “worth sacrifices”<sup>643</sup>. As long as it was sufficient to consider the regional necessities, it was believed a “short branch” in Sendim would be enough to guarantee the international linkage, if Spain constructed a narrowed-gauge railway itinerary from Zamora to Bermillo and Formoselle<sup>644</sup>.

## 5.2. The 20<sup>th</sup> Century

With all these indecisions, the Sabor Line was the last of the four narrowed-gauge railway stretches to be opened. In fact, the first 33,473 kilometres, between Pocinho and Carviçais, would only start to work on 17<sup>th</sup> September 1911, after a seven years construction period<sup>645</sup>. Between Pocinho and Torre de Moncorvo, the train surpassed a 280 metres unevenness, in less more than 12 kilometres<sup>646</sup>, through “uninhabited places”<sup>647</sup>. In addition, the 540 metres gap, along 25 kilometres of continuous rise, before reaching Felgar, allowed the Sabor Line to have the longest railway ramp of the country<sup>648</sup>.

Even though it was possible to serve the Reboredo Mountain mines with this stretch<sup>649</sup>, the Vimioso “magnificent marbles” continued “almost unexplored due to the lack of transport means”<sup>650</sup>. Nevertheless, the newest linkages, which were opened with an enormous delay, explained by the “financial difficulties” and by the “political instability”, did not solve the problem<sup>651</sup>. In fact, the train has only started to guarantee the communication between Carviçais and Lagoaça on 6<sup>th</sup> July 1927 and between Lagoaça and Mogadouro on 1<sup>st</sup> July 1930.

Despite remaining projected the arrival to Vimioso, it was decided to deviate the Sabor Line until Miranda do Douro. Therefore, in 1934, when the building of the Mogadouro – Urrós linkage was already being done, it was opened the contest for the next stretch, between Urrós and Miranda / Duas Igrejas<sup>652</sup>. However, the Sabor Line building delay was so high that it was asked when its conclusion would be seen<sup>653</sup>. It was believed only the last linkage, until Vimioso, would guarantee a “much higher activity” to the railway itinerary<sup>654</sup>.

Meanwhile, the *Decreto 18.190*, published in 1930, would abandon definitely the linkage to the frontier. Nevertheless, the arrival to Vimioso was approved and continued to be expected<sup>655</sup>. In addition, the decree sustained the expansion further South would guarantee the “big line natural extension”<sup>656</sup>. Therefore, the Sabor Line would start by departing from the “Vimioso marble region” and from the “Miranda plateau”<sup>657</sup>. Then, it would reach the “Moncorvo iron deposits” and the “Vilariça fertile riverside”, through Foz Côa, Pinhel and Guarda<sup>658</sup>. Later, the Sabor Line could also “valorize” the “oriental half” of the districts of Guarda and of Castelo Branco<sup>659</sup>. Inserted in the Beira Baixa “extent zone”, the railway stretch could also be extended, through the Sertã Transversal, until the littoral<sup>660</sup>.



The last 32,736 kilometres would open on 22<sup>nd</sup> May 1938. The constant “shortage of money” would never allow the conclusion of the railway itinerary<sup>661</sup>. Thus, with the arrival to Miranda / Duas Igrejas, the Sabor Line would present a 105,291 kilometres extension, for more than 50 years.

Nevertheless, the expansion further Northeast, along the final kilometres, was said to be “apparently subordinated” to the “easiest” way<sup>662</sup>. Furthermore, the long distance between the railway stations and the localities was determinant to condemn the Sabor Line<sup>663</sup>. In fact, only the places of Carviçais, of Lagoaça, of Sendim and of Duas Igrejas were directly crossed by the train<sup>664</sup>. Among the four head office municipalities served by the railway stretch, only Torre de Moncorvo had a station in the urban core<sup>665</sup>. Therefore, Freixo de Espada à Cinta, Mogadouro and Miranda do Douro were rather distant from the Sabor Line<sup>666</sup>. Actually, while the Mogadouro station was seven kilometres further away from the village centre, the Miranda do Douro station was 11 kilometres further away from the urban core<sup>667</sup>. The distance was even higher in Freixo de Espada à Cinta, whose station was 16 kilometres further away from the village centre<sup>668</sup>. However, the Sabor Line had a surprisingly high movement<sup>669</sup>. According to Valdemar Duarte, a railway employee, there “appeared” people apparently from nowhere by the “hour of the train”, when some tickets were sold<sup>670</sup>.

### **5.3. The 20<sup>th</sup> Century: The Closure**

As we have already seen, the closure of some of the four Douro region narrowed-gauge railway itineraries was already thought in the end of the 1960's decade. A study concluded in October 1971 sustained the Sabor Line, the most peripheral railway stretch, only served three villages, along 105 kilometres, with “some local dimension”: Torre de Moncorvo, Mogadouro and Miranda do Douro<sup>671</sup>. Nevertheless, only Torre de Moncorvo had a station placed in its urban core, as we have already stressed<sup>672</sup>. Therefore, an “outline correction” was recommended<sup>673</sup>. Furthermore, as it happened in the other three narrowed-gauge railway itineraries, the high population share which worked in the agricultural sector affected negatively the “demand structure” of the transported passengers<sup>674</sup>. Hence, it was pointed the journeys had frequently an “occasional character”<sup>675</sup>. In addition, an “appreciable part” of them was still done in “animal traction vehicles”, in a region where the roads were “scarce” and where the “depopulation process” did not “contribute for the existence of a significant demand of transported passengers”<sup>676</sup>. Thus, it could be concluded the “undoubtful stagnation” and the “difficult diversification” of the local economic activities constituted a

barrier to the attraction of “new traffics”<sup>677</sup>. According to the study, the “bad quality service” provided by the train, the predominance of primary activities, the low regional per capita income and the tendency for the depopulation explained a “low intensity” of passengers traffic<sup>678</sup>.

However, other factors explained the Sabor Line decline. Actually, the conditions in which the tracks and the rolling stock could be found allowed the “local trucking companies” to have a “better concurrence position” than the train<sup>679</sup>. In addition, the Sabor Line “rather high” production costs could only be “substantially reduced with high investments”, whose “reimbursement would practically be impossible”<sup>680</sup>. Despite being acknowledged an investment “necessity”<sup>681</sup>, namely in the rolling stock and in the tracks<sup>682</sup>, it was understood this spending would bring “additional amortization and interest charges rather accentuated”<sup>683</sup>. Furthermore, it was pointed the “current and foreseeable regional development level” would not justify the “duplication of the existing services”<sup>684</sup>.

Therefore, as long as the “running financial results” were “rather unfavourable”, the Sabor Line closure was advised<sup>685</sup>. In this particular case, it was understood the railway suppression would not “compromise the systematic regional valorization”<sup>686</sup>. In fact, it was pointed the Sabor region was “sufficiently provided of roads”, which presented also “better outlines” than the railway<sup>687</sup>. If the Sabor Line remained working, a “systematic transport degradation”, which would lead not only to a “progressive traffic reduction” but also to the “exploration deficit aggravation”, should be expected<sup>688</sup>. In addition, it was pointed “it would be difficult to introduce some rationalization measures in the current running system”<sup>689</sup>. Therefore, the appearance of an alternative bus service would allow to provide a “more adequate” and a “less expensive” service than the one ensured by the train<sup>690</sup>.

This study, very probably the most severe of the four works produced by CP, showed the Sabor Line was especially threatened. Actually, the first closure fear would appear in September 1979<sup>691</sup>. Nevertheless, by that time, the popular reaction would be so “violent”<sup>692</sup> that there would be used “beanpoles” and “agricultural implements”<sup>693</sup>. Despite having been able to save “their train”, the inhabitants would not be able to avoid the Sabor Line state “of agony”<sup>694</sup>. In fact, in 1980, there was only one daily running between Pocinho and Miranda / Duas Igrejas. Furthermore, by that time, it was already established an alternative bus service along the entire Sabor Line, which took less 24 minutes than the train. In fact, the closure of the passenger service would be concretized in 1984<sup>695</sup>. Meanwhile, in March 1984, the

municipalities of Torre de Moncorvo, of Mirandela, of Bragança and of Vimioso agreed to close the Sabor Line<sup>696</sup>. As counterparty, the document signed among them expected to pave some roads and to build a bridge over the Angueira River<sup>697</sup>.

As long as the Mirandês Plateau was considered “the Alentejo of Trás-os-Montes”, the Sabor Line would remain transporting goods, even after 1984<sup>698</sup>. In fact, more than being directed to the passengers, this railway stretch was especially used as an industrial itinerary, in order to drain regional products, such as the iron<sup>699</sup>. However, with the approval of the *Plano de Modernização e Reconversão dos Caminhos-de-Ferro*, the Sabor Line would close definitely on 1<sup>st</sup> August 1988<sup>700</sup>. Some years after, the silos and the mines would also be deactivated<sup>701</sup>. Without the train, many villages became poorer and even more isolated<sup>702</sup>. The main winner was *Santos Viagens e Turismo*<sup>703</sup>, the trucking company which started by providing the linkage between Freixo de Espada à Cinta and its railway station, placed 16 kilometres further away from the village centre<sup>704</sup>.

#### **5.4. Timetables**

As we have already highlighted, in 1980, there was only one daily journey between Pocinho and Miranda / Duas Igrejas. By that time, a trip along these 105,291 kilometres took 3 hours and 24 minutes. Meanwhile, there were two daily journeys between Pocinho and Mogadouro. The train took approximately 2 hours and 30 minutes to link these two stations.

#### **5.5. Investments**

As long as the Sabor Line was definitely closed in 1988, no investments were done since then.

#### **5.6. Passengers**

As we have already seen, the Sabor Line was closed to the passengers in 1984. Nevertheless, an alternative bus service was already been established. As long as many were the railway stations placed further away from the urban core, hardly ever would be the Sabor Line especially directed to the passengers<sup>705</sup>. Therefore, the demand modesty levels should not surprise us. Actually, between 1990 and 1992, few more than 10.000 passengers had travelled between Pocinho and Miranda / Duas Igrejas. The demand decrease, initiated between 1991 and 1992, would get even worse in the two following years. In fact, while 9851

passengers would be transported, in 1993, only 7549 passengers would be moved, in the following year. Few later, the alternative bus service was suppressed.

To verify our analysis, the linear tendency tool can be used. In the Sabor Line case, the application of a polynomial regression of order two is enough to obtain a  $R^2$  greater to 99%. This tool sustains, with no surprise, the demand started to decrease in 1991, when the concavity has changed.

### **5.7. Final Synthesis**

As we were able to stress, the Sabor Line was never complete. Actually, rather than arriving to Vimioso, the remotest Douro region narrowed-gauge railway itinerary remained stopped in Miranda / Duas Igrejas, 11 kilometres further away from the urban core of Miranda do Douro<sup>706</sup>. In addition, no solution which could avoid the mandatory transshipment in Pocinho between the Douro Line and the Sabor Line was found.

Other severe inadequacies were presented by the remotest Douro region narrowed-gauge railway stretch. In fact, by one hand, the Sabor Line expansion further Northeast, along the final kilometres, was said to be “apparently subordinated” to the “easiest” way<sup>707</sup>. By another hand, among the four head office municipalities served by the Sabor Line, only Torre de Moncorvo had a station in the urban core<sup>708</sup>. Finally, the conditions in which the tracks and the rolling stock could be found allowed the “local trucking companies” to have a “better concurrence position” than the train<sup>709</sup>. Actually, even the alternative bus service, already established in 1980, was 24 minutes faster than the train. As long as the recommended “outline correction”<sup>710</sup> was never promoted, the Sabor Line harsh weaknesses could not be surpassed.

## VI. Conclusion

Along this work, we were able to identify the two main views of the State. Actually, by one hand, some voices sustain the State should play an interventionist role in the organization of our society. By another hand, other voices argue the State should have the minimum possible participation in our society. This last ideology, which got stronger in the 1950's and in the 1960's decades, with the appearance of the public choice theory, was also extended to the public transport. In fact, rather than being seen as an important "public service" (Pires, 2014: 30), the railways would soon start to be considered "a business" (Judt, 2010b: 196).

We also had the opportunity of focusing our attention on five railway stretches placed in the North Interior of Portugal. After having departed from the Douro Line, considered the "trunk", we were able to consider a "series of parallel itineraries, its tributaries": the Tâmega Line, the Corgo Line, the Tua Line and the Sabor Line<sup>711</sup>. Even though the "low" traffic of these last four railway stretches was already acknowledged by the time of their project, this characteristic was not considered an impediment for their construction, which took place mainly in "rough lands"<sup>712</sup>.

Nevertheless, hardly any works were done in these railway itineraries along almost an entire century<sup>713</sup>. Therefore, it can be undoubtedly concluded these railway lines were remitted to an unquestionable high disinvestment level. Thus, the target which advises to renew every year between 7% and 10% of the railways was never fulfilled<sup>714</sup>. This reality led many voices to sustain "no global plan for the railways" exists in the country<sup>715</sup>. In fact, the "lack of planning and of political will" seems to be evident in Portugal<sup>716</sup>, where the railway works are considered "a spent and not an investment"<sup>717</sup>.

It is typically argued the low demand levels explain the closure of the railway stretches. However, as we were able to stress, the number of transported passengers has started to decrease especially after the introduction of modifications in the railway exploration. In fact, by one hand, the main passenger share was precisely placed between the linkages suppressed in the beginning of the 1990's decade, at least in the Corgo Line<sup>718</sup> and in the Tua Line<sup>719</sup>. By another hand, the appearance of the alternative bus service has also contributed for the reduction of the demand levels. The conjugation of these two factors led to a decline in the number of transported passengers never inferior than 75% along the 1990's decade.

Nevertheless, it must not be forgotten the Tâmega Line, the Corgo Line and the Tua Line were registering a sustainable recovery period of their demand levels since the beginning of the 2000's decade. Actually, in a scarce number of years, the number of transported passengers has more than doubled in all these three narrowed-gauge railway itineraries, even with no demand studies in order to evaluate their potential market<sup>720</sup>.

Hence, in our opinion, other factors rather than the low demand levels can explain the closure of the railway stretches analyzed in our study:

**1. Clear bet in the roadways, to the detriment of the railways.**

As we were able to stress, not only many road kilometres were built but also many bus lines were concession in the 1930's decade<sup>721</sup>. Since then, the roadway transport would progressively conquest the preferences of the citizens, thanks to its "door to door" mean characteristics<sup>722</sup>. Some decades later, the railways would know a new and dangerous competitor, with a better position<sup>723</sup> not only in the velocity but also in the price: the trucking business<sup>724</sup>. Meanwhile the roads lobby was growing<sup>725</sup>, the roads would start to be seen as a "benefit without losses", while the trains would start to be considered a "loss without benefits"<sup>726</sup>.

**2. Incompletion of the Portuguese railway network.**

Despite having been launched an ambitious railway project in 1930, which would allow the conclusion of the Portuguese railway network, the ascension to the power of António de Oliveira Salazar would lead to the cut of almost all of the railway investments<sup>727</sup>. The scarce works which would take place in the two following decades were not able to close the Portuguese railway network, which would continue to be composed by branches and by stretches which "arrived to nowhere"<sup>728</sup>. Hence, the conclusion of the Portuguese railway network would prematurely occur in 1949.

**3. Isolation of the distributor stretches from the collector itinerary.**

As we were able to describe, the Tâmega Line, the Corgo Line, the Tua Line and the Sabor Line came down "sensibly parallel" until the Douro Line<sup>729</sup>. As long as no connection was built between these four narrowed-gauge railway stretches, no other option was available than to go down until the Douro Line and to go up by another tributary<sup>730</sup>. Hence, while the passengers were obliged to take an "enormous route", the operator was prevented not only from exchanging material but also from introducing common workshops<sup>731</sup>. Thanks to this complete

isolation, these four narrowed-gauge railway itineraries were in their “worst running conditions”<sup>732</sup>.

#### **4. Persistence of the transshipments.**

A solution which could avoid the discomfiting and inconvenient transshipments between the Douro Line and the four narrowed-gauge railway stretches was never promoted. Therefore, by one hand, any journey proceeding from the collector itinerary and bound for any station of the distributor lines needed transshipment. By another hand, any “transversal communication” in the region required two transshipments<sup>733</sup>. This multiplication of the transshipments not only delayed the journey but also discouraged<sup>734</sup> and disincentivized<sup>735</sup> the people from using the train.

#### **5. Disarrangement of the timetables.**

It was already acknowledged the timetables were “not adapted to the population necessities” in 1978<sup>736</sup>. Despite having being advised an “adequate timetable study”<sup>737</sup>, it was progressively promoted not only the disconcertion<sup>738</sup> but also the cut<sup>739</sup> of the timetables. Furthermore, while in some cases the regional trains continued to leave some minutes earlier than the Alfa Pendular or than the Intercidades arrival, in other cases the passengers did not have correspondence in utile time with the regional train<sup>740</sup>. In roughly two and a half decades, for example, the number of daily journeys between Tua and Mirandela dropped from six to two.

#### **6. Reduction of the running velocities.**

The abandonment of the remotest linkages, in some cases essentially since their construction, did not allow “ideal velocities” already in the end of the 1960’s decade<sup>741</sup>. Hence, so that the accidents could be avoided, the running velocities have been progressively reduced<sup>742</sup>. In the Tua Line, where the velocity could not surpass the 20 kilometres per hour in some stretches, the trains needed to change of velocity more than 45 times in the 1980’s decade<sup>743</sup>. By that period, in order to reach Bragança by train, it was necessary to wait 7 hours and 12 minutes from Porto and 10 hours and 53 minutes from Lisboa<sup>744</sup>.

#### **7. Exclusion of the innovation investments.**

With the emergence of the trucking business, the railways were expected to be improved and modernized. Nevertheless, important measures such as the creation of semi-direct trains, in order to serve quickly the main stations<sup>745</sup>, would never be

concretized. In the Sabor Line, where the building works were “apparently subordinated” to the “easiest” way<sup>746</sup>, only three villages with “some local dimension” were served along 105 kilometres<sup>747</sup>. Furthermore, only one of these three places had a station placed in their urban core<sup>748</sup>. The recommended “outline correction” of some itineraries, such as this one, would never occur<sup>749</sup>.

#### **8. Postponement of the substitution investments.**

The running conditions of the four narrowed-gauge railway stretches highlighted in this work were described as “rather unfavourable”, due to the “high number of small ray curves and of high inclination slopes”<sup>750</sup>. In addition, the “rough outline”, through “valleys and slopes”, in “tight curves and counter-curves”, turned impossible the introduction of a modern rolling stock<sup>751</sup>. In spite of being acknowledged the necessity of promoting an integral railway renovation, these itineraries would never be modernized. The extinction of many maintenance teams has also worsened this tendency<sup>752</sup>.

#### **9. Achievement of an extremely low maintenance level.**

The Portuguese railway network was consigned to a “prolonged insufficiency of investments”<sup>753</sup>. Actually, by the end of the 1980’s decade, 2090 railway kilometres “had never suffered any type of beneficiation”<sup>754</sup>. Furthermore, most of the tracks were said to be “very light” and “very old”<sup>755</sup>. The persistent disinvestment in the Portuguese railway network led the train to provide a bad quality service<sup>756</sup>. The installation of a stone sliding detection system and the implementation of reception and dissipation energy boxes, which could probably have avoided two of the four Tua Line accidents, were never promoted.

#### **10. Inadequacies of the rolling stock.**

As we were able to discuss, the rolling stock which served the Tâmega Line, the Corgo Line and the Tua Line since the beginning of the 2000’s decade was adapted to the Portuguese narrowed-gauge railways<sup>757</sup>. However, the relevant modifications introduced in their motor part turned “asymmetric” their “weight distribution”<sup>758</sup>. Thus, the “lightness” of the LRV2000 series<sup>759</sup> was probably in the origin of two of the four Tua Line accidents. The doubts about this rolling stock, which would appear after a more careful monitoring, would lead to the Tâmega Line and to the Corgo Line suppression, in our opinion.



Hence, in our opinion, the suppression of the railway itineraries cannot be justified by their low demand levels but by the scarce investment. Actually, by one hand, the secondary railway network has only received 0,2% of the total funds forecasted between 1988 and 1994<sup>760</sup>. By another hand, the investments were frequently only done in emergence situations. In fact, the repair costs of the 25<sup>th</sup> April 2000 incident have consumed almost 50% of the investment performed between 2000 and 2005 in the Tua Line<sup>761</sup>. Furthermore, the Government has only promoted a requalification of the Tâmega Line and of the Corgo Line after having received a report which announced as “worrying” their condition. Nevertheless, as long as these works were never concluded, 9,6 million of Euros were up to now wasted in these two railway stretches. Can we consider the Portuguese railway network was well-managed along the last century?

Before ending, we should stress our work has several limitations. Actually, as long as the contacting process with the entities responsible for the railway subjects in Portugal has been very tardy, obtaining the necessary information for the realization of this study has been extremely difficult. We wished we were able to present not only the number of transported passengers in the Douro Line but also the investment performed per year in the railway itineraries which had deserved our attention.

Future investigation works could extent our analysis to other regions of Portugal where the railway stretches were also suppressed. For example, rather than departing from the Douro Line in order to analyze the former Trás-os-Montes railway itineraries, it would be interesting to start a similar study by the Évora railway star, so that the former Alentejo railway stretches could be approached.

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## **Annexes**

### **Informed Agreements**

I, André Pires, Master in Business Administration, authorize the information collection for the development of the dissertation submitted as partial requirement for the conferral of Master in Economics of the student Pedro Miguel Pinto Lampreia, supervised by Professor Maria de Fátima Ferreiro and entitled “The Public Choice in the Railway Sector: Case Studies in the Douro Region”, through a testimony.

The student, Pedro Miguel Pinto Lampreia, has contextualized the subject of the project and has referred the purposes and the objectives of the testimony. All the collected information is going to be exclusively used for the investigation ends. The confidentiality, the anonymity and the volunteer collaboration are also going to be ensured.

Lisbon, 13<sup>th</sup> July 2015

*André Miguel Rodrigues Aleixo Pires*



I, Artur Tófilo da Fonseca Freitas, enthusiast, authorize the information collection for the development of the dissertation submitted as partial requirement for the conferral of Master in Economics of the student Pedro Miguel Pinto Lampreia, supervised by Professor Maria de Fátima Ferreiro and entitled “The Public Choice in the Railway Sector: Case Studies in the Douro Region”, through a testimony.

The student, Pedro Miguel Pinto Lampreia, has contextualized the subject of the project and has referred the purposes and the objectives of the testimony. All the collected information is going to be exclusively used for the investigation ends. The confidentiality, the anonymity and the volunteer collaboration are also going to be ensured.

Lisbon, 28<sup>th</sup> November 2014

A handwritten signature in blue ink, appearing to read 'Artur Tófilo da Fonseca Freitas', written in a cursive style.

I, Célia Quintas, former MCLT member, authorize the information collection for the development of the dissertation submitted as partial requirement for the conferral of Master in Economics of the student Pedro Miguel Pinto Lampreia, supervised by Professor Maria de Fátima Ferreiro and entitled “The Public Choice in the Railway Sector: Case Studies in the Douro Region”, through a testimony.

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Lisbon, 7<sup>th</sup> November 2014

A handwritten signature in blue ink that reads "Célia Inês Resquite Quintas". The signature is written in a cursive style.

I, Dario Silva, professional photographer, authorize the information collection for the development of the dissertation submitted as partial requirement for the conferral of Master in Economics of the student Pedro Miguel Pinto Lampreia, supervised by Professor Maria de Fátima Ferreiro and entitled “The Public Choice in the Railway Sector: Case Studies in the Douro Region”, through a testimony.

The student, Pedro Miguel Pinto Lampreia, has contextualized the subject of the project and has referred the purposes and the objectives of the testimony. All the collected information is going to be exclusively used for the investigation ends. The confidentiality, the anonymity and the volunteer collaboration are also going to be ensured.


Lisbon, 26<sup>th</sup> November 2014

A handwritten signature in black ink, reading "Dario Silva", written over a horizontal line.

I, Gilberto Gomes, historian and investigator, authorize the information collection for the development of the dissertation submitted as partial requirement for the conferral of Master in Economics of the student Pedro Miguel Pinto Lampreia, supervised by Professor Maria de Fátima Ferreiro and entitled “The Public Choice in the Railway Sector: Case Studies in the Douro Region”, through a testimony.

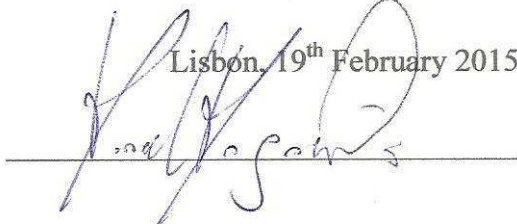
The student, Pedro Miguel Pinto Lampreia, has contextualized the subject of the project and has referred the purposes and the objectives of the testimony. All the collected information is going to be exclusively used for the investigation ends. The confidentiality, the anonymity and the volunteer collaboration are also going to be ensured.

Lisbon, 9<sup>th</sup> June 2015

A handwritten signature in blue ink, appearing to read "Gilberto Gomes", written over a horizontal line. There are additional horizontal lines below the signature.

I, Manuel Tão, professor and transportation specialist, authorize the information collection for the development of the dissertation submitted as partial requirement for the conferral of Master in Economics of the student Pedro Miguel Pinto Lampreia, supervised by Professor Maria de Fátima Ferreiro and entitled “The Public Choice in the Railway Sector: Case Studies in the Douro Region”, through a testimony.

The student, Pedro Miguel Pinto Lampreia, has contextualized the subject of the project and has referred the purposes and the objectives of the testimony. All the collected information is going to be exclusively used for the investigation ends. The confidentiality, the anonymity and the volunteer collaboration are also going to be ensured.

Lisbon, 19<sup>th</sup> February 2015  
  
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## **Interview Scripts**

### **Railways in Portugal**

How can the decline of the railways in Portugal be explained?

Why have the railways lost their importance in the Douro region?

### **Douro Line**

With no railway connection to Spain, how many are the passengers transported between Régua and Pocinho?

Which are the future projects?

### **Tâmega Line**

Why were the works initiated in 2009 suppressed?

Which were the works effectively done?

Which are the future projects?

### **Corgo Line**

Was the main passenger traffic share indeed placed between Vila Real and Chaves?

Why were the works initiated in 2009 suppressed?

Which were the works effectively done?

Which are the future projects?

### **Tua Line**

Was the main passenger traffic share indeed placed between Mirandela and Bragança?

How was “the night of the theft” prepared?

Which were the most severe inadequacies of the rolling stock?

Why does the Brunheda – Cachão stretch remain closed?

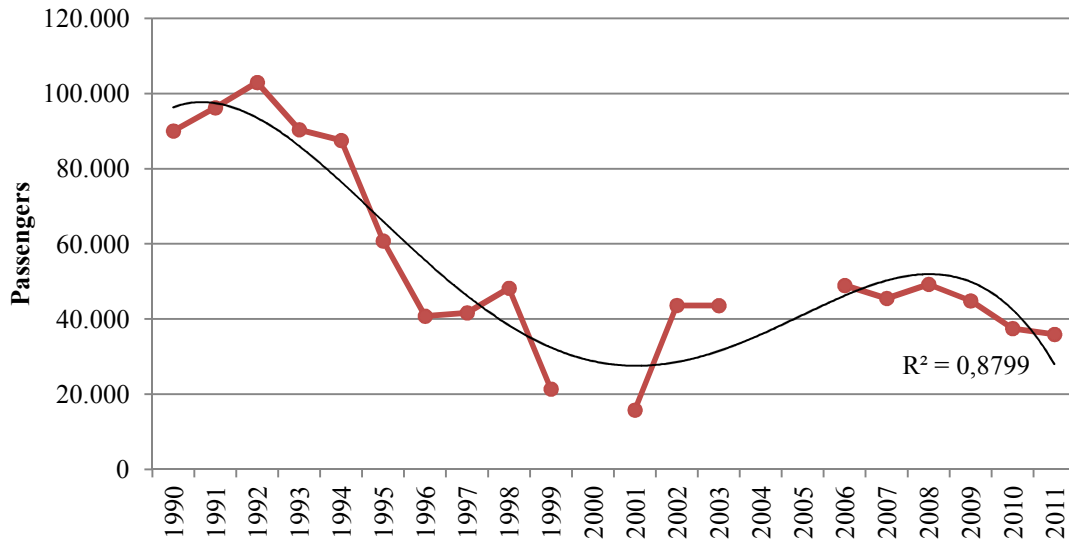
### **Sabor Line**

Why was the Sabor Line suppressed so early?

## Graphics

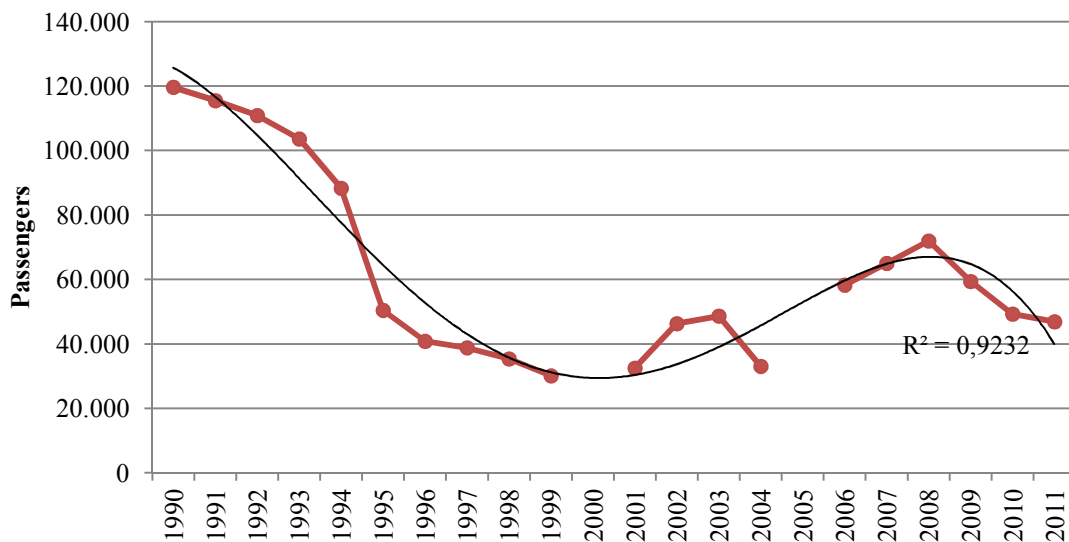
Document 1: Evolution of the number of transported passengers in the Tâmega Line between 1990 and 2011.

Source: CP



Document 2: Evolution of the number of transported passengers in the Corgo Line between 1990 and 2011.

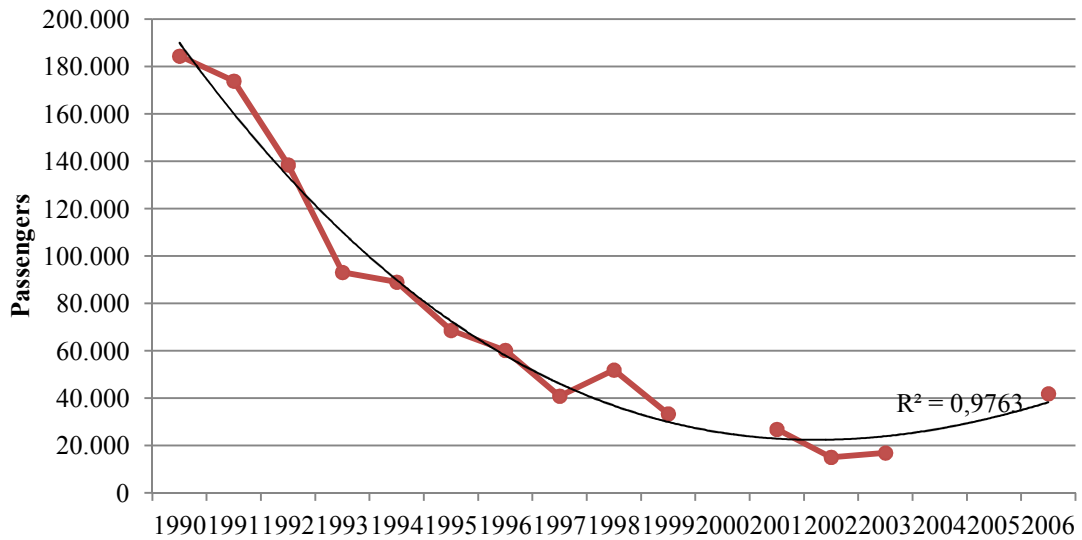
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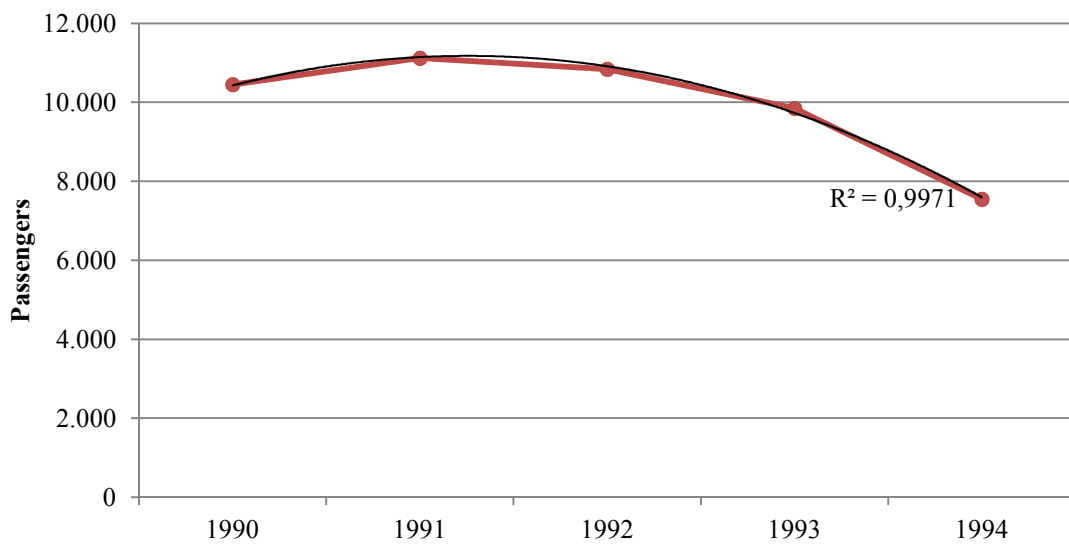
Document 3: Evolution of the number of transported passengers in the Tua Line between 1990 and 2006.

Source: CP



Document 4: Evolution of the number of transported passengers in the Sabor Line between 1990 and 1994.

Source: CP



**Map of the railway network in the North of Portugal**

See the following page.

Source: REFER (in Portuguese)

