SUBORDINATED PUBLIC PARTICIPATION LOANS FOR FINANCING MOTORWAY CONCESSIONS IN SPAIN

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Abstract

Budgetary constraints are prompting many governments to encourage private financing of transportation infrastructure through concession contracts. The length and complexity of such contracts often force governments to provide fiscal support in order to increase the attractiveness of concessions. This paper deals with a new public support mechanism for concession contracts, called Subordinated Public Participation Loans (SPPLs), which has been implemented in Spain during the last few years. SPPLs are subordinated loans that may be given by the government to the concessionaire if the latter requests them in the tender. SPPLs are defined in such a way that the increase in interest accrued will reflect the traffic level: the larger the traffic the larger will be the SPPL yield. SPPLs have a twofold goal. First, they increase the financial attractiveness, and hence the feasibility, of concessions contracts. And second, they set up a fairer risk-sharing approach between the public and the private sector. This paper analyzes the implications of SPPLs in motorway concessions by contrasting the theoretical analysis with the empirical results obtained form the tender of five motorway concessions in Spain. Overall we found that the implementation of this mechanism may be considered a success. In spite of that, we propose some measures that may contribute to improving the SPPL performance in the future.

INTRODUCTION

Many countries around the world are making a major effort to avoid public deficits, and to that end they are imposing considerable budgetary constraints on the public funding for transport infrastructure facilities. However, reducing the investment in public infrastructure does not seem wise given the evidence of studies which stress the significant effect of public capital stock, together with R&D, in promoting both sustainable economic growth, and social equity in developed economies (Aschauer 1999; Aghion et al. 1999).

This is the reason why many governments are implementing new ways to encourage private participation in financing and operating transport infrastructure. One of the most common ways of implementing private participation is through the concession system, which consists basically of transferring construction, maintenance, and operation of the infrastructure to a private consortium, in exchange for which that consortium receives the right to charge a user fee, for a period of time, fixed or variable, as contractually agreed upon in advance. As Vassallo (2004) describes, infrastructure concessions incorporate some features that distinguish them from other construction and maintenance contracts, and also from the basic asset privatization procedure.

In some cases, concession contracts are backed by the government through fiscal support measures such as subsidies, in-kind grants, traffic or exchange guarantees, and so on. The implementation of those measures has two main goals. The first one is to make financially feasible a project that because of its positive externalities is good for society as a whole. And the second one is to mitigate risks that otherwise would be deemed unmanageable by private stakeholders.

This paper assesses the implementation of Public Subordinated Participation Loans (from now on referred to as SPPLs) in Spain. Those loans intend both to increase the financial feasibility of toll motorway concessions in Spain and to set up a fairer means of traffic risk-sharing between the concessionaire and the government. The intent of this paper is to evaluate the performance of SPPLs on the basis of the empirical results obtained from the tender of five toll motorway concessions in Spain.

After this introduction, the first section of the paper summarizes the history of toll motorway concessions in Spain. The second section presents the reasons why public support is often required for backing infrastructure concessions. The third section of the paper describes how SPPLs work. To that end, we analyze the effects that the SPPL layout has on the strategic behavior of the bidders, and then we compare this theoretical approach with the empirical results obtained from the analysis of the offers presented by the bidders in five concession tenders. The paper ends with a set of lesson based on the Spanish experience that may help improve the performance of SPPLs in the future.

MOTORWAY CONCESSIONS IN SPAIN

Spain has extensive experience in financing toll motorways through concession contracts. Unlike some other European countries, such as France (Fayard and Bousquet 1998) and Italy (Gómez-Ibáñez and Meyer 1993), motorway concessions in Spain were all competitively awarded and mostly funded by the private sector. Since the late 1960s more than 30 motorway concessions have been granted in Spain. In 2004 the length of the toll motorways already awarded totaled 3,257 km, of which 2,788 km. were in operation and 470 km. in construction.

As Figure 1 shows, toll motorways in Spain were not always awarded according to the same criteria. We can identify three different periods: from 1967 to 1975, from 1976 to 1995, and from 1996 to the present. Between 1967 and 1975, 2,042 km. were granted (almost 2/3 of the present length of toll motorways in Spain). There are two reasons why toll motorway concessions were used by the government as a means of expanding and improving the Spanish motorway network during this period. First, the economic growth that Spain experienced during those years prompted a great rise in traffic so better motorways were suddenly necessary. And second, the public budget in Spain was not able to afford such a huge investment; private financing was the only alternative to reach that goal.

(Fig. 1 app. here)

In this period, motorway concessions in Spain enjoyed several advantages compared to other industries. The main ones were fiscal deductions, loan guarantees, and exchange

insurance provided by the State for those loans denominated in foreign currency. Despite the high risk that those measures might entail for the public budget in the future, they were regarded by the government as the only way to attract private capital for funding the motorway program.

The two petroleum crises that the industrialized countries experienced in the 1970s had a huge impact on the guarantees provided by the Spanish government to motorway concessions. On the one hand, the rise of gas prices caused traffic growth to be lower than expected. On the other hand, exchange rates became substantially unstable. These factors triggered the guarantees initially incorporated in the contracts, which ultimately became highly expensive for the government. The government continues to meet the financial commitments made in the early 70s. In fact, from 1969 to 2001, the amount paid by the government to foreign lenders for the exchange insurance totaled 4,514.5 million euros, which makes up almost 50% of the total investment in toll motorways.

The results of the implementation of concession contracts in Spain during this period were rather controversial. On the one hand, motorway concessions achieved the goal of providing the country with a modern motorway network at a time when the public budget of Spain was not able to afford such a huge cost. On the other hand, the guarantees committed by the government to facilitate concessions' funding became very costly for the country over time (Izquierdo 1997).

The second stage goes from 1975 to 1995. In this period, very few motorway concessions were awarded. There were several reasons. First, the two petroleum crises in the 70s destabilized the Spanish economy. Second, after Franco's death, the political atmosphere in Spain was uncertain. Third and most important, the socialist government, which took office in 1982 and remained until 1996, was politically opposed to promoting private concessions as a means to finance motorways.

Instead of toll motorways, the socialist government developed the so-called "Expressways Program" in order to meet the urgent needs for building the high capacity network that Spain's stable economic growth demanded. The government opted for modernizing the Spanish road network by widening and upgrading the most important roads, turning them into double-track fast lanes with quality standards well below those

for toll motorways. This new program was completely funded by the public sector, which constituted a significant burden for the Spanish budget. The low quality of the upgraded roads ("autovías" in Spanish) became evident in the high rates of accidents, more than 50% higher than the rates of accidents that occurred on toll motorways.

The third stage lasted from 1996 to 2004. In 1996, the conservative Popular Party took office in Spain after 14 years of Socialist government. Its main challenge was to incorporate Spain into the European project for adhering to a single currency, which involved a great effort towards achieving several macroeconomic convergence criteria (public deficit, public debt, inflation, and so on). The need to contain Spain's public deficit was the most difficult challenge for the new government. This was the main reason why the new government decided to implement once again the concession system so as to encourage the participation of the private sector for financing new transportation infrastructure. That way, the government was able to maintain the infrastructure investment pace, while at the same time managing to contain the public deficit. From 1996 to 2004, 1,003 kilometers of motorways concessions were granted, and 755 kilometers were actually built, and are now being managed, in Spain.

This new trend towards private funding was reinforced by a new Law, approved in 2003, which widened and updated the old Toll Motorway Law passed in 1972. The objectives of this Law were, among others, to update the old motorway concession model and extend it to every type of public works, to reinforce the contribution of private financing for constructing and maintaining public facilities, and to improve the legal framework by defining a new risk-sharing approach (Vassallo y Gallego 2005).

The negative consequences of the public guarantees implemented in Spain in the period 1967 to 1975 prompted the Spanish government to progressively limit their application. As a consequence, the new Law passed in 2003 considerably restricted public guarantees, even though it incorporates several mechanisms whereby the public sector could eventually contribute to the financial feasibility of concession contracts.

Nowadays, SPPLs are the most important public instrument for supporting private concession contracts in Spain. The law approved in 2003 regulates the use of those loans. The application of this instrument has a threefold objective: first, to make

projects unlikely to be profitable otherwise, to be nonetheless attractive for the private sector; second, to provide public resources without increasing the national public deficit; and third, to establish a fair traffic risk-sharing approach in concession contracts.

FISCAL SUPPORT FOR INFRASTRUCTURE CONCESSIONS

Fiscal support measures

Irwin (2003) identifies five government objectives for implementing fiscal support in infrastructure concessions: internalizing externalities in infrastructure markets, overcoming failures in markets for financing infrastructure, mitigating political and regulatory risks, circumventing political constraints on prices and/or profits, and redistributing resources to the poor via infrastructure available to all. There are six possible instruments of fiscal support: cash subsidies, in-kind grants, tax breaks, capital contributions, guarantees against risk under the government's control, and guarantees against risks not under the government's control. Similar instruments have been implemented in several countries around the world.

During the last years, the United States of America has encouraged the implementation of several kinds of capital contributions designed by the Federal Government to promote private participation in infrastructure financing. To that end, the Federal Government has put into effect some policy programs whose main goal has been to bridge the investment gap between available resources and transportation infrastructure needs. Among these programs, we can highlight the promotion of State Infrastructure Banks (SIBs) and the TIFIA Program (Federal Highway Administration 2000).

In the case of motorway concessions in Spain, the government has had two major reasons for implementing public support measures in infrastructure concessions. First, it wishes to mitigate risks difficult for the private sector to predict or handle—such as *force majeur* risk, regulatory risk and, in some cases, traffic risk; and second, to increase the private financial feasibility of projects which are sociallydesirable, particularly in regions where traffic demand is not enough to generate revenues to reach the break-even point (Vassallo y Gallego 2005). This approach has also been employed in other countries such as Chile (Gómez Lobo e Hinojosa 2000).

Fiscal support for mitigating traffic risk

Although the evolution of traffic during the life of a concession can be estimated, traffic growth depends on factors—such as the economic growth of the country and the competition with other transportation modes or new infrastructure facilities—not controllable at all by any of the stakeholders.

There are several detailed studies of traffic risk inaccuracies. In 2004, Standard & Poor's (S&P) compared first-year forecasted traffic levels with actual traffic volumes for 82 projects. The results of the study showed that during the first year, traffic volumes averaged about 76% of their predicted values, and the error–measured through the standard deviation–was 0.26 (Bain and Wilkins 2002) and (Bain and Plantagie 2004). A recent large-scale study by Flyvbjerg et al. (2005) also compares the real and the forecasted traffic after the first year of operation. This study focuses primarily on free roads (from small regional roads to important motorways), carried out primarily by public authorities, rather than private promoters, and situated mostly in Northern Europe. The Flyvbjerg's study reports substantial forecasting errors; the standard deviation estimated is 0.44. Those studies prove how inaccurate traffic estimates can be.

Evidence gathered from around the world show how the whole allocation of traffic risk to the concessionaire may cause unexpected and undesirable effects for the government (Izquierdo and Vassallo 2005). If traffic becomes ultimately higher than expected the concessionaire will make extrarevenues as a consequence of an unexpected economic boom rather than as a consequence of its effort to be more efficient. If traffic becomes lower than expected, concessionaires will generally try to force a renegotiation with the government, which in the end may be costly for society. Those effects have prompted some governments to put into effect guarantees to mitigate traffic risk in motorway concessions. There are many different mechanisms for mitigating traffic risk through fiscal support guarantees. A classification scheme for them can be found in (Vassallo 2006; Vassallo y Sánchez Soliño 2007).

Consequences for the government of fiscal support measures

Gauging the fiscal effect of a specific support measure is a very complicated issue, particularly when it is a public guarantee. While the estimate of the cost of cash-subsidies is almost immediate, the estimate as to the future effect of guarantees given by

the government for a long period of time is much more difficult since it depends on the concession performance, which in turn depends on many variables (GDP, interest rate and so on). Guarantees create liabilities that are contingent rather than inevitable and thus difficult to evaluate.

Guarantees may trigger large payments by the government in the future if the circumstances intended to trigger such payments ultimately occur. This is the reason why one of the main concerns regarding fiscal support for infrastructure concessions is the accurate evaluation of the level of risk that the government is assuming. The simplest way to approach the government exposure to these guarantees is to calculate the present value of the expected contributions to be paid by the government during the life of the contract. The present value of these flows is the value of the contingent liability that the government is assuming because of the guarantee. Lewis and Mody (Lewis and Mody 1997) show some examples of methodologies to estimate those contingent liabilities in Colombia and the Philippines. A similar methodology has also been implemented in the United States of America in order to allow for the risk assumed by the government in awarding TIFIA loans and guarantees (United States Department of Transportation 1998). Since the enactment of the Federal Credit Reform Act (FCRA) in 1990, Federal Agencies have been required to set aside capital reserves to cover the expected long-term cost to the Government in advance of issuing a direct loan, line of credit or loan guarantee. Information on budgeting for Federal credit programs and accounting for Federal credit is found in OMB Circulars A-11 and A-34.

SUBORDINATED PUBLIC PARTICIPATION LOANS IN SPAIN

Regulation of SPPLs in Spain

SPPLs were first regulated by Law 7/1996 as a subordinated financial instrument. One of the main characteristics of SPPLs is that lenders should receive variable interest depending on the results obtained by the borrowing company. The criteria to be employed for determining the results can be based on profits, revenues, sales or whatever other variable is demanded by the government to be included, or agreed to by the parties to the contract. The new Concessions Law 13/2003, recently approved in Spain, reinforced the role of participation loans as a means of financing infrastructure concessions. When the government decides to offer SPPLs as a means of fiscal support

for concession contracts, the government can freely design the characteristics of SPPLs as long as they comply with the following rules:

- Subordinated Participation Loans have always to be subordinated to senior debt. Consequently, participation loan holders (the government in the case of SPPLs) will be paid back only after the concessionaire has met its obligations with the senior lenders. However, the participation loan holders will be paid back before the shareholders receive any dividend.

- The expected rate of return of SPPLs has to be related to the performance of the concession. In other words, the better the results of the concession—in terms of traffic, sales, benefits or whatever other variable is specified in the contract—the greater the rate of return of SPPLs.

- The expected rate of return to be obtained by the SPPL holders must be in accordance with the level of risk assumed by them. This means that the expected yield of SPPLs should be market-based.

Subordinated public participation loans (SPPLs), which are studied in this paper, can be classified as capital contributions to a project provided by the government because the main goal of SPPLs is to turn a project whose profitability is uncertain into a financially feasible one. Yet, unlike other capital contributions, SPPLs also have a direct effect on the traffic risk sharing approach of the concession, since the higher the real traffic in relation to that previously forecasted, the higher will be the interest rate to be paid by the concessionaire to the government. This way, additional, unpredicted profits will be shared between the concessionaire and the government. If ultimately the real traffic is much higher than expected, the government will receive higher interest rates, while the concessionaire will have lower profits. Consequently, the government's incentive coincides with the concessionaire's incentive since the better the project performs, the larger the SPPL interest will be. This is the reason why SPPLs are regarded as a creative means of promoting PPP projects for motorway concessions.

SPPLs have some differences compared with the loans given by the State Infrastructure Banks (SIBs) in the United States. First, in Spain, the projects entitled to receive SPPLs are designated by the Government, whereas the SIBs operate on a competitive basis with many projects vying for the same pool of funding in a given cycle. Second, the interest rate yield by SPPLs depends on the level of traffic whereas it is fixed for the loans awarded by the SIBs. Overall both programs are similar in that they are primarily gap funding agreements to complete the project financing. However, the SPPL program leverages risk whereas the SIB program typically leverages product.

SPPLs have as well important advantages in terms of national accounting. Unlike subsidies, SPPLs have the advantage of being treated, for accounting purposes, as a financial investment according to the European National Accounting Standards defined by EUROSTAT. As long as those financial investments are made on market-based conditions, SPPLs will have no influence on the national public deficit.

Characteristics of SPPLs in motorway concessions in Spain

Although SPPLs have mostly been implemented in toll motorway concessions contracts awarded by the central government of Spain, they have also been implemented by regional and local governments for motorway and airport concessions. In this section, we go into further detail about the characteristics of the SPPLs implemented by the central government of Spain to finance motorway concessions. The characteristics of SPPLs are defined by the government in the bidding terms. They consist basically of two things: first, the interest rate to be paid each year depending on the results of the concession; second, the amortization rate of the SPPL principal.

The bidding terms establish a maximum SPPL amount to be requested by the bidders. Usually the concessionaire is not allowed to ask for an SPPL greater than 50% of the predicted investment, though the government can in exceptional circumstances permit a higher percentage.

The bidding terms define as well the SPPL draw-down schedule. The term of the loan is generally the concession term. The principal of the loan is to be paid back during the last years of the concession contract (in some cases only during the last year, operating like a zero-coupon bond). In that case, the Spanish business accounting rules force the

concessionaire to set up a provision in the liabilities side of the balance-sheet. This provision has to be added to every year in increments so that, at the end of the concession contract, the amount of this provision is equal to the principal to be paid back to the government. The annual increment of this provision is treated as an expense in the annual income statement of the concession company.

The interest of SPPLs is to be paid by the concessionaire on a yearly basis. The annual amount depends on the level of traffic. The bidding terms define two reference traffic bands (Band A and Band B) in terms of annual average daily traffic (AADT). These bands are used as a base from which to calculate the interest every year. The interest is calculated as follows:

- If the traffic in year i is lower than the bottom limit of Band A, the interest rate is equal to the SPPL amount times 1.75%.

- If the traffic in year i is within Band A, the interest rate will be equal to the largest of either the SPPL principal times 1.75%; or the 35% of the extra revenues obtained over the bottom limit of Band A. It is important to note that in the latter case the interest rate does not depend on the SPPL amount.

- If the traffic is within Band B, the interest rate will be equal to the larger of either the debt principal times 1.75 or 35% of the extra revenues over the bottom limit of Band A plus 15% of the extra revenues over the bottom limit of band B. This means that over band B, the concessionaire will pay back 50% (35%+15%) of the extra revenues obtained.

Traffic Band A is defined between 1+X and 1+Y times the traffic demand estimated by the government, and Band B is defined above 1+Y times the traffic demand estimated by the government. X and Y vary depending on the project, but X and Y are usually around 0.1 and 0.25 respectively. This way, the higher the real traffic above those bands the higher will be the SPPL interest to pay.

Figure 2 depicts graphically how the mechanism to calculate the yearly interest rate works. The upper graph shows how Bands A and B are defined in relation to the

estimated traffic (short-stretch broken line). The lower graphs included in Figure 2 show a cross-section analysis (in year i) of how the SPPL interest is calculated in terms of the traffic in year i for two cases: a small SPPL amount (case 1) and a larger SPPL amount (case 2). The thick continuous line of those graphs shows the interest as a function of the traffic in year i. If the traffic falls below the bottom limit of Band A, the interest to be paid will be constant and related to the principal of the SPPL. This way, the larger the SPPL requested, the larger will be the interest that is to be paid.

(Fig. 2 app. here)

If traffic falls within Band A, we can distinguish two zones. Between traffic T_i^A and s_1 for case 1 and between traffic T_i^A and s_2 for case 2, the interest will be exactly the same as if the traffic in year i was below Band A. Consequently, the interest amount will depend on the SPPL principal but not on the real traffic. However, between s_1 and T_i^B for case 1, and between s_2 and T_i^B for case 2, the interest amount will depend on the real traffic but not on the SPPL principal requested. As the lower graph of Figure 2 shows, the larger the SPPL principal the larger will be the stretch where interest does not depend on the real traffic. If traffic falls within Band B, the increment of the interest with the real traffic in year i will be larger than within Band A.

The motorways tendered under the SPPL approach have been awarded to the bidder who reaches the highest total score (between 0 and 800 points) calculated in terms of three different criteria:

- Technical quality of the offer (400 points).
- Feasibility of the proposal and technical and financial solvency of the promoters (250 points).
- Economic efficiency of the offer (150 points).

The technical criteria seem to have been very important since they have a weight of 50% (400 points of out 800). However, in the end these criteria were not as important as they initially seemed. As most of the bidders adopted the same referential projects provided by the government with only slight variations, the score obtained by them was

in the end quite similar. The second set of criteria refers to the feasibility of the financial plan of the project and the credibility of the estimates presented by the bidders.

The last criterion (economic efficiency) intends to encourage economic competition among bidders. This criterion is evaluated in terms of the amount of SPPL that each bidder requests of the government. In that respect, the higher the SPPL requested, the lower will be the score reached, and consequently the lower will be the probability of that bidder being granted the concession contract. Bidders consequently have a huge incentive to reduce the SPPL requested.

The calculation of the interest of SPPLs along with the procurement mechanism adopted causes the bidders to approach different strategies depending on both the traffic they expect in the motorway and the financial support they need. Four different strategies may result as a combination of traffic expected and financial support needed. Those strategies are summarized in Table 1.

(Tab. 1 app. here)

If a bidder expects the traffic to be below the lower limit of Band A during the concession term, it will be convenient for it to request a large amount of SPPL because below Band A the interest rate of the SPPL requested will be very cheap compared to private senior loans. However, as previously said, the greater the SPPL requested, the lower the tender score, and consequently the lower the probability of being awarded the contract. For this reason, if the traffic expected is low, and the financial support needed is large, the bidder will naturally request a large SPPL, in order that he may take part in the tender. However, if the traffic expected is low, and the financial support needed is small, the bidder will request only the SPPL needed in order to be as competitive as possible in the tender.

If the traffic expected by a bidder is high, the strategy turns out to be much more complicated since the cost of the SPPL will increase regardless of the SPPL principal requested. If that bidder needs small financial support, such a bidder will tend to request a zero SPPL because even a small amount of SPPL will be extremely expensive in the long run. If that bidder needs larger financial support, the strategy becomes even more

confusing. If the expected cost of the SPPL is larger than the cost of the senior private debt, the bidder will not take part in the tender. If it is smaller, it will request a large amount of SPPL.

As the traffic expected has necessarily to be inversely correlated with the financial support needed, most of the bidders will tend to situate their offers in the area of the two shaded boxes. Consequently, the SPPL requested in a tender will tend to be either zero or quite large.

This theoretical finding can be contrasted with the empirical results available to us from the tenders that took place in Spain in 2004. Table 2 shows the behavior of the bidders in the Ocaña-La Roda motorway tender. The shaded row shows the ultimate winner of the concession. It is necessary to note that in Spain, each bidder can present as many offers as it wants. That fact explains why bidder 2 presented four different alternatives and bidders 1, 4 and 5 presented three different alternatives.

(Tab. 2 app. here)

The maximum SPPL that the government allowed to be requested was 81 million euros. It is easy to note that the bidders' behavior was extreme. Some of them requested zero SPPL whereas some others requested a SPPL amount close to the maximum. This pattern is consistent with the rest of the toll motorway concession tenders that were awarded under this scheme.

Practical implementation of SPPLs in motorway concessions in Spain

SPPLs have been implemented in toll motorway concessions in Spain during the last few years. Table 3 shows the main characteristics of the motorways procured in Spain under the SPPL approach. In the last three years, six motorway concessions were awarded. The total length of the motorways built was 454.8 kilometers of which 345.2 were tolled. The investment under the program totaled 2,421.4 million euros.

Five concessions were tendered in 2004. Four of them were successfully awarded, and one of them (the Parbayón-Zurita Motorway) was not ultimately awarded because none of the bidders was able to reach the minimum standards established by the government

since the perception that private promoters had of this project was quite different from the government's initial estimates. In 2006, a new project (the Málaga-Alto de las Pedrizas motorway) was tendered under the SPPL approach. At the time of writing this paper, this project had not yet been awarded.

The second block of Table 3 shows a summary of the tender process for the five motorway concessions that were procured under the SPPL approach. Several conclusions arise from that Table. First, there were many bidders that attended the tender and some of them presented more than one offer so it seems that the competition for the concessions was fierce. Second, the average SPPL requested in the different offers was around 2/3 of the maximum total SPPL committed by the government. Third, in spite of that, three out of the four consortia that ultimately won the tenders offered not to receive any SPPL. And fourth, the standard deviation of the SPPL requested in different offers was quite large. This last conclusion is a direct consequence of the strategic incentive that was previously analyzed.

In order to compare the dispersion of the SPPL with the dispersion of other variables declared by the bidders in the tender, the last block of Table 3 estimates the Pearson index for several variables in each of the concessions. The Pearson index is calculated as the standard deviation of the distribution divided by the average of the distribution. The higher the Pearson coefficient the higher will be the dispersion of the distribution.

The last block of Table 3 shows the Pearson coefficient for several variables declared by the bidders in their offers. It is noticeable that the project investment and the project IRR have low Pearson coefficients. That means that the dispersion of the different offers for those variables was quite low. However, the SPPL requested by the offers has a Pearson coefficient much higher than the rest of the variables. This fact reinforces the statement that was previously presented. The way in which the SPPL interest is established encourages the bidders to request either a zero SPPL or to request a high SPPL.

(Tab. 3 app. here)

LESSONS

The objectives of the application of SPPLs in Spain were basically three:

- To promote a PPP mechanism in order to make financially feasible concession projects that are not profitable enough to be funded only by the private sector.
- To promote a public support measure for motorway concessions that does not enlarge the national public deficit.
- To introduce a fairer traffic risk-sharing mechanism.

The first objective seems to have been achieved since many promoters attended the motorway tenders, which turned out to be very competitive. In this respect, the introduction of SPPLs permitted many promoters, regardless of their personal view of each project, to take part in the tenders. The second objective was also achieved, because the government had to provide only 101.0 million euros for raising 1,790.4 million euros of capital investment in motorways. That amounts to only 5.6% of the total investment. Moreover, the SPPLs did not increase the public deficit of the country. The third objective was achieved only in part, since the risk mitigation approach that SPPLs offer serves to spread traffic risk only when traffic is higher than expected, but if traffic is lower than expected, the concessionaire has to bear the whole traffic risk.

This mechanism, however, has received two main criticisms; the high risk that the government is actually taking on by giving SPPLs; and the inappropriate definition of the SPPL interest and principal payback, which creates perverse incentives.

The first criticism says that in the end SPPLs are disguised subsidies from the government because, even though they are defined so as to comply with the EUROSTAT accounting rules, nobody has ever demonstrated that they are awarded under market-based conditions. Moreover, as the principal is wholly paid back during the last year of the concession contract, the government is taking on a risk made even greater in case the concession goes into bankruptcy.

The second criticism is directed at the seemingly strange incentives created by the SPPL layout. As it was dealt with in a theoretical way, and demonstrated by the empirical data

we currently possess, the SPPL interest definition encourages the bidders to request either a zero SPPL or a large SPPL amount. This issue has been also corroborated by the authors in a set of interviews held with several private promoters. Basically all the companies argue that the way in which the interest rate is calculated discourage them from asking for any SPPL amount if traffic is expected to be high. This incentive may cause concessionaires to assume risks larger than they should.

To sum up, we can conclude that SPPLs are a very interesting and useful instrument for promoting PPP approaches in infrastructure concessions. SPPLs have demonstrated their usefulness in reinforcing competition, improving the feasibility of concession projects, and creating a fairer traffic risk distribution. However, there are some ways to improve further the effectiveness of SPPLs.

First, there should be some independent entity that evaluates the real risk that the government is assuming by providing SPPLs. For each project, this independent entity could calculate the expected loss for a certain statistically significant level so as to evaluate the risk assumed by the government. The sum of the expected losses of all the projects should be considered as the contingent liability that the government is assuming by giving SPPLs. That contingent liability should, for accounting purposes, be considered as a provision that affects the national public deficit. This way, the government will have the correct incentive for providing SPPLs when necessary. An example of this type of independent assessment of the government's contingent liabilities is the OMB credit scoring methodology for TIFIA loans in the United States.

The second recommendation is to improve both the principal payback profile and the interest calculation approach for SPPLs. On the one hand, it seems less risky for the government that the concessionaire pays back the principal each year instead of paying it back only during the last year of the concession. On the other hand, establishing an annual interest calculation that, even though related to the size of traffic, remains dependent as well upon the SPPL principal, may help to reduce the negative effect previously described.

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FIGURE 1. Length of motorway concessions in Spain

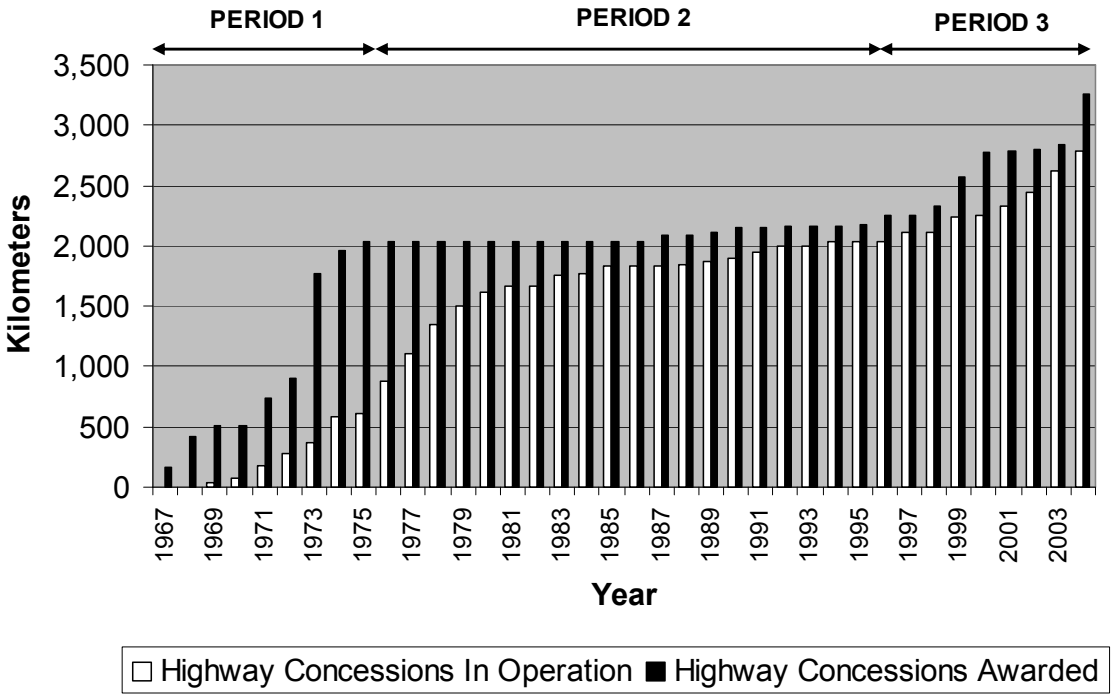

FIGURE 2. SPPL interest calculation

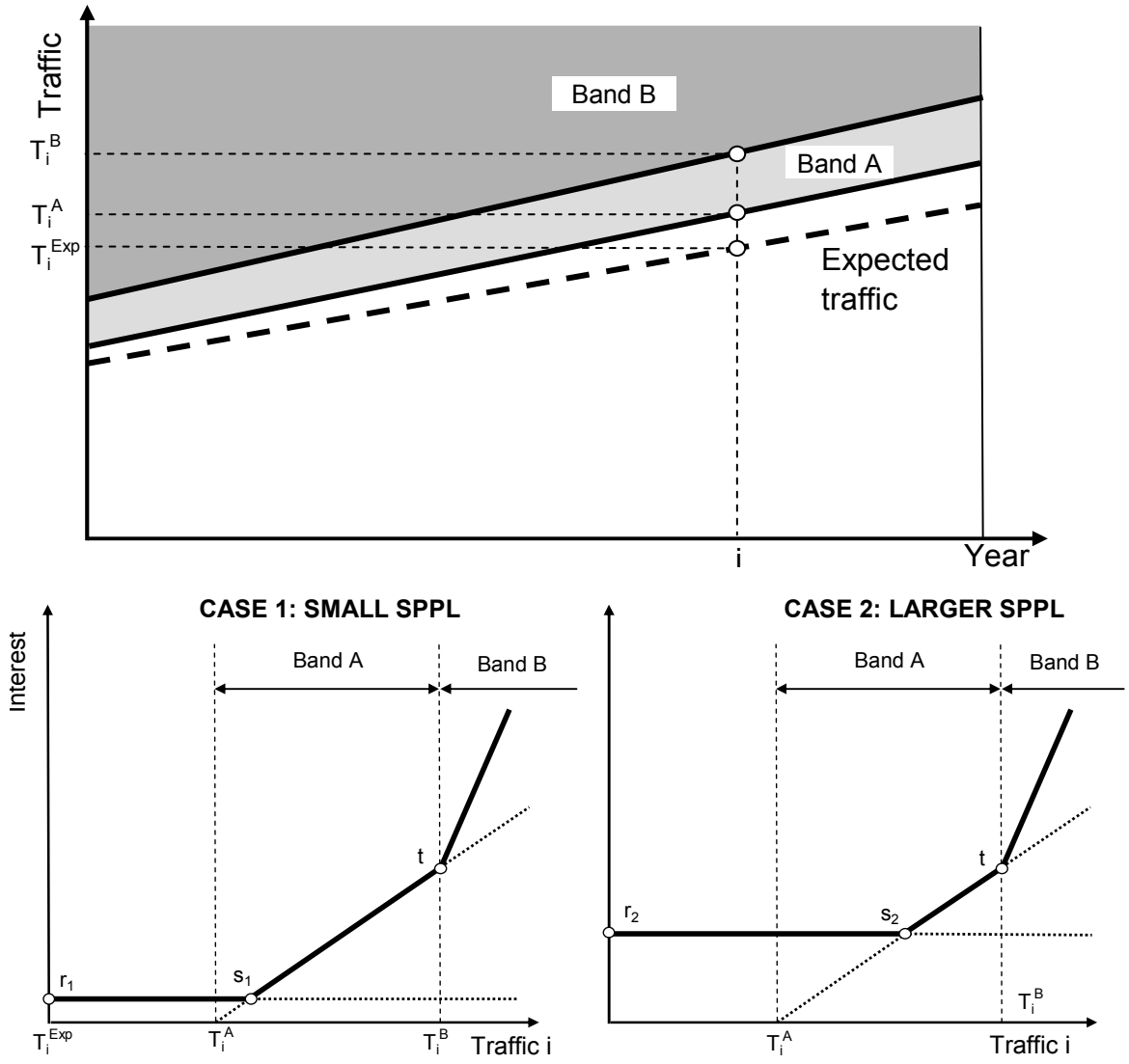

TABLE 1. Strategic behavior of bidders with SPPLs

		TRAFFIC EXPECTED	
		LOW	HIGH
FINANCIAL SUPPORT NEEDED	LARGE	Great SPPL	Out of the tender Great SPPL
	SMALL	Needed SPPL	Zero SPPL

TABLE 2. SPPL requested in the Ocaña-La Roda Motorway

BIDDER	SPPL REQUESTED	NPV OF THE REVENUES	NPV OF THE OPERATION COSTS	NPV REVENUES MINUS COSTS
1	80,190	769,771	154,284	615,487
	76,140	769,771	154,079	615,692
2	0	896,907	193,551	703,357
	0	1,165,364	220,278	945,086
	0	1,165,364	220,684	944,681
	0	1,165,364	220,738	944,626
3	0	1,078,456	165,399	913,058
4	68,500	960,849	231,646	729,203
	0	946,649	253,749	692,901
5	0	1,104,573	154,842	949,732
	0	1,077,633	154,842	922,791
6	0	767,712	176,979	590,733
7	0	1,146,170	292,249	853,921
8	54,000	832,701	164,500	668,201

TABLE 3. Summary of motorway tenders in Spain with SPPLs

	HIGHWAY	Cartagena - Vera	Circunvalación de Alicante	Madrid - Toledo	Ocaña - La Roda	Parbayón - Zurita	Málaga - Alto de las Pedrizas	TOTAL
GENERAL CHARACTERISTICS	TOTAL LENGTH (Km.)	114	29	81	177.3	29	24.5	454.8
	TOLLED LENGTH (Km.)	97.7	29	60	118	16	24.5	345.2
	FORECASTED INVESTMENT (million €)	531	406	373.4	480	209	422	2421.4
	MAXIMUM SPPL PERMITTED (million €)	200	203	55	81	125	180	844
	PROCUREMENT YEAR	2004	2004	2004	2004	2004	2006	0
	STATE	Awarded	Awarded	Awarded	Awarded	Not awarded	To be awarded	0
RESULTS OF THE TENDER	NUMBER OF BIDDERS	6	8	8	8	7	Not available	37
	NUMBER OF OFFERS	10	13	13	14	8		58
	MAXIMUM SPPL PERMITTED (million €)	200	203	55	81	125		664
	AVERAGE SPPL REQUESTED (million €)	149	153	21	15	105		444
	STANDARD DEVIATION SPPL REQUESTED (million €)	85	37	22	29	47		220
	SPPL REQUESTED BY THE WINNER OFFER (mill. €)	0	101	0	0			101
PEARSON COEFFICIENT	INVESTMENT	14.33%	7.02%	13.55%	7.41%	27.50%	Not available	13.96%
	PRESENT VALUE OF THE REVENUES	60.29%	19.87%	11.70%	15.08%	32.82%		27.95%
	PRESENT VALUE OF THE OPERATION COSTS	20.11%	15.78%	16.10%	21.81%	36.50%		22.06%
	PROJECT IRR PREDICTED	14.76%	16.90%	6.82%	9.59%	39.63%		17.54%
	SPPL REQUESTED	56.87%	24.33%	105.18%	192.39%	44.32%		84.62%