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DURABLE SPECIFIC ASSETS, SHORT TERM CONTRACTS: AN ECONOMETRIC ANALYSIS OF THE BRITISH RAILWAY EXPERIMENT[í]

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Abstract:

The new railway structure is now made of almost 100 companies among which 25 franchised train operating companies (TOCs) and 3 rolling stock leasing companies (ROSCOs). One main characteristic of their leasing agreements is their short duration (seven years in average) in comparison with the physical lifetimes of the rolling stock (thirty years approximately), and with their level of specificity. We adopt a Transaction Cost Economics perspective to assess the efficiency of these contractual choices. We show econometrically that the duration of rail contracts is not adapted to the characteristics of the assets and that this discrepancy between the contractual length imposed by the reform and the initial attributes of the transactions they are supposed to monitor is a source of transaction costs.

I Introduction

The restructuring and privatisation of British Rail (BR) is the last in a series of utilities reforms launched by the Conservatives between 1979 and 1997. It is also probably the most radical and 'experimental' one. Indeed, beyond the privatisation process, the former vertically integrated national monopoly, British Rail (BR), has been split into more than one hundred companies which coordinate through formal short-term contracts. The new organisational structure of the British railways can therefore be interpreted as a 'hybrid form' in the sense defined by Williamson (1991). The hierarchical coordination that characterized the integrated monopoly ante-reform has indeed been replaced by a complex nexus of contracts among different partners.

Thus, the passenger rail business has been divided into 25 local monopoly franchises awarded for a fixed term of between five and fifteen years to private bidders, the Train Operating Companies (TOCs). To enable a competitive franchise bidding process, it was also decided to separate train ownership from operations by transferring the rolling stock to three specially created leasing companies, the ROSCOs, which were then privatised. These companies share the whole fleet between them and lease their trains to the TOCs for the entire duration of their respective franchises, that is to say for periods much shorter than the life of rolling stock assets. In other words, the rolling stock leasing agreements, which tie together the lessors (the ROSCOs) and the lessees (the TOCs), have the same duration than the franchise contracts (between five to fifteen years), this duration being itself significantly shorter than the physical lifetime of the rolling stock (approximately thirty five years).

Given this duration gap and since the form of leasing chosen by the reformers was operating leasing[1], the ROSCOs take residual-value risks, that is, the risk of not being able to relet the assets at the end of the initial lease and/or at the leasing fee which covers the investment cost and generate profit.

Although such kind of leasing system is frequently and successfully used in other industries (e.g. car rental, airline market), the experience of leasing passenger rolling stock is innovative and raises important issues, at least in the British context.

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[1] Unlike financing leasing, in operating leasing, the lessors are not fully paid out by the original lessees over the initial lease term and therefore do not transfer ownership to the lessees.

Indeed, as we intend to show in this paper, the choice of short term leasing contracts to support transactions that involve limitedly redeployable assets like the British trains induces transaction costs that could have been avoided if contracts have been designed differently. Put it in a Transaction Cost Economics (TCE) syntax, there is a misalignment between the short duration of the rolling stock leasing agreements imposed by the British rail reform and the high level of specificity of the assets these contracts are supposed to monitor. This misalignment affects the level of transaction costs actors have to bear and thus deteriorates their profits.

The contributions of this paper are threefold. First, it provides an analysis of the new British rail structure from a TCE perspective, that is to say in the lens of contracts. Second, our work is one of the only econometric analyses regarding the determinants of the financial performances of British rail operators and the only one incorporating transaction costs. Therefore, the data we have collected for the purpose of this study, which come from different sources including regulatory reports, specialised industry publications and information directly provided by actors of the new British rail system, are original. Third, whereas a large body of empirical work in transaction cost economics merely analyses the determinants of contractual choices and infers that arrangements are efficient, we propose a methodology which enable us to investigate directly whether adherence to transaction cost principles is associated with enhanced performance, measured by profit.

The paper is organised as follows. In section 2 we develop our analytical framework, based on transaction cost economics hypotheses and describe our methodology. In section 3, we investigate the determinants of the duration of the rolling stock leasing contracts. At last, in section 4 we analyse the impact of the reformers'contractual choices on the performance of the train operators. The results of our econometric tests corroborate the propositions developed by transaction cost economics concerning the influence of contractual choices on profits and suggest that the rolling stock leasing agreements have been inappropriately designed.

II. Theoretical background and methodology

II.1. Transaction Cost Economics and contract duration

The duration of interfirms contracts has been the subject of many empirical works in Transaction Cost Economics (Masten and Saussier, 2002). From this theoretical perspective, it is considered to be a key dimension of the contractual design, which must be chosen cautiously. In order to economize transaction costs, the length of a contractual agreement must indeed be determined according to the characteristics of the transactions the agreement supports. More precisely, transaction costs are assumed to be minimized if contract duration is positively correlated with the level of asset specificity (Masten, 1986; Joskow, 1987; Crocker and Masten, 1988). This assumption is based on the following argument.

The specialization of a durable asset to a particular user or more accurately the high costs of making it available to others generates a quasi rent which corresponds to the difference between the value of the asset in its intended use and its value in its next best use (Klein, Crawford and Alchian, 1978; Crocker and Masten, 1991). Given that agents are inclined to opportunistic behaviours according to TCE (Williamson, 1975), the distribution of the quasi rent resulting from relationship-specific investments is a source of conflicts between trading partners. Each of them will indeed try and expropriate the rents accruing to specific assets through hold up activities and *ex post* strategic bargaining. Therefore, if at one hand relationship-specific investments enhance the value of exchange by engendering quasi-rents, on the other hand they may also cause resources to be wasted in order to influence the distribution of gains from trade.

That is why, when exchange involves significant investments in relationship-specific capital, an exchange relationship that relies on repeated bargaining is unattractive. To secure the value of such investments, that is, to safeguard the quasi rent they engender, long term contracting is advocated. According to TCE reasoning, the duration of contractual agreements is thus supposed to increase with the value of relationship-specific investments at stake. Indeed, if this ‘alignment’ principle is respected, that is to say if the duration of contracts is adapted to the features of the transactions - more accurately to the degree to which specific assets are involved, then

transaction costs are minimized. Consequently, a firm has better performances if the contractual agreements she has signed with its trading partners match the characteristics of her transactions.

II.2. Contractual choices and performance

The 'empirical success story' of TCE lies on cross-sectional studies which show that firms chose the contractual arrangements of their transactions according to transaction cost principles. In other words, these empirical researches investigate the degree to which organisational forms and contractual design are aligned to transaction features and thus the degree to which they minimize transaction costs. The results of these studies show strong support for TCE predictions as regard organizational and contractual choices (see Shelanski and Klein (1995) and Boerner and Macher (2000) for a review of this literature).

However, there is less evidence on the performance implications of TCE. There are indeed virtually no empirical studies that directly investigate whether adherence to transaction cost principles is associated with enhanced performance.

The 'traditional' empirical approach in TCE consists in evaluating the probability that contracting will be chosen over alternative governance form and then investigating whether the evidence is consistent with transaction cost predictions regarding, for instance, the benefits of long term contracting in the presence of relationship-specific (Masten and Saussier, 2002). Therefore, apart from few empirical studies (e.g. Masten, Meehan and Snyder, 1991; Silverman, Nickerson and Freeman, 1997; Mayer, 2000; Ménard and Saussier, 2002), the econometric tests of the transaction costs propositions are indirect. They show that contractual choices correspond to what the theory advocates and then infere from this result that these choices are efficient, that is to say that transaction costs are minimized. But they rarely demonstrate this conclusion, that is to say investigate 'how much we lose by going from the best to the next best [contractual arrangement]' (Joskow 1991 : 81-82). As mentioned by Williamson (1985: 22), 'empirical research on transaction cost matters never attempts to measure costs directly. Instead, the question is whether organizational relations (contracting practices; governance structures) line up with the attributes of transactions as predicted by transaction cost reasoning or not'.

II.3. Methodology

To overcome this limit of transactional analysis in our study of the British rolling stock leasing agreements, i.e. to investigate the determinants of contractual length and the resulting performances of British rail operators, we propose an original methodology that can be split up into three stages:

- First, we analyse the determinants of contract duration and investigate whether the contractual choices made by the reformers are consistent with transaction cost predictions. We thus intend to estimate the impact of the level of rolling stock assets specificity on contract duration.
- The second stage consists in assessing the degree of misalignment of each contract. To do so, we measure the difference between the duration predicted by our model and the duration chosen by the reformers (i.e. the observed duration). The more 'aligned' companies will be those whose contract lasts for a period very close to the theoretical duration predicted from transaction cost principles.
- At last, we aim at evaluating the influence of the variable approximating the degree of misalignment on firms' performances, measured by profits.

III. Contract duration and asset specificity in the new British railway system

The first step of our study consists in investigating the determinants of the leasing contracts duration. As already mentioned, the contractual design of the new structure has been imposed by reformers. Our aim is thus to analyse the determinants of the regulators' choices. The first questions we would like to answer are then the following: On which basis was the contractual length determined? Is there a cost-minimizing logic behind the reformers' contractual choices? In other words, considering our theoretical proposition, does the duration of the leasing agreements depend on the level of specificity of the rolling stock assets?

III.1. The measurement of rolling stock assets specificity

The transactions between the TOCs and the ROSCOs differ in their level of asset specificity. Indeed, the rolling stock inherited by the new rail operators are disparate. Not only is the equipment designed for specific purposes, e.g., long distance passengers transportation as opposed to commuter services, but it is also adapted to tracks and to their specific power supply system (diesel trains for non electrified parts of the network, electric trains with third rail or pantograph, depending on the voltage of the electrified portions, respectively 750V DC and 25kV AC). Hence multiple units and locomotives are not interchangeable, i.e. not all types of train can operate on all tracks and for all journeys.

Table 1 illustrates the heterogeneity of the rolling stock at privatisation (second column) and presents an approximation of the degree of interoperability of each type of train (third column).

Table 1

Distribution of the fleet in 1996 and interoperability of each type of train

(Sources: British Railway Guidebook, 1997;

Railtrack Network Management Statement, 1998; NAO, 1998)

Type of train	**Distribution [2] (%)**	**Degree of interoperability[3]**
Electric locomotives	2%	9%
Electric Multiple Units (EMUs) DC	31%	14%
Diesel locomotives	3%	15%
EMUs AC	20%	24%
EMUs dual (AC + DC)	5%	38%
Diesel Multiple Units (DMUs)	16%	62%

Thus, British trains do not have the same degree of interoperability.

2 Carriages do not appear in this table. That is why the total of column 2 is not equal to 100%.

3 In this column, we have estimated the proportion of the network on which each type of train can operate. Thus, for instance, electric locomotives can only run on 9% of the network, whereas diesel multiple units can be used on 62% of the tracks. According to these estimations, EMUs dual and DMUs appear to be the more interoperable types of trains, while locomotives and EMUs DC are the less interchangeable rolling stocks.

Furthermore, the size and structure of the rolling stock fleet leased by each train operating company are not identical. Consequently the level of specificity of the assets each TOC leases and operates is heterogeneous. The indicator of the level of redeployability of each TOC's fleet (***REDEP***) that we have built[4] takes values which indeed reveal that rolling stock leasing transactions largely differ in their level of specificity.

Table 2

Statistics on ***REDEP***

AVERAGE VALUE	*0,32*
STANDARD DEVIATION	*0,19*
MINIMUM	*0,10*
MAXIMUM	*0,62*

III.2. Contractual length

Yet, the length of the contractual arrangements which govern rolling stock leasing transactions is very homogeneous (7 years in average) and very short in comparison with the physical lifetime of trains (30 years approximately). Whatever the level of assets specificity, contracts have nearly the same duration. Their lengths match franchise periods (National Audit Office, 1998; Prideaux, 2000). For this reason and because we could not have access to all the rolling stock leasing contracts, we investigate in our tests the determinants of franchise contracts duration.

4 $REDEP^x = \frac{\sum_i R_i \times N_i^x}{\sum_i N_i^x}$, where i corresponds to the type of train (electric locomotive, EMUs DC, etc…), R_i is the the degree of interoperability of train i (see table 1), N_i^x is the number of type i trains leased by operator x, and $\sum_i N_i^x$ is the size of the fleet operated by TOC x.

Table 3

Distribution of contractual length

Contract duration (in months)	Number of observations
60	1
84<-<87	13
90	4
120	2
180	5

The variability in the level of specificity of the rail transactions we focus on has not translated into a variability of the contractual practices. We therefore assume that there is a discrepancy between the duration of the contracts imposed by the reform and the initial characteristics of the transactions they are supposed to monitor. Put it differently, contractual length has been determined by British rail reformers regardless of the specificity of the rolling stock assets (*Proposition 1*).

III.3. Model specification and estimation

We now investigate this proposition by means of the following model:

$$DURATION_i = a + b\,X_i + e_i.$$

The determinants of franchise contracts duration (X) we choose are the following:

- The contractual commitments to investment. Some franchise agreements require train operating companies to invest in new rolling stock. In fact, an investment for a TOC consists of ordering new trains to a ROSCO who then leases them to the TOC for the entire duration of its franchise. We hypothesise that the length of franchise contracts might depend on whether the contract incorporates obligations to invest in new rolling stock (*DUMINV*=1) or not (*DUMINV*=0). More precisely, we assume that the higher the level of investments in rolling stock renewal and refurbishment imposed to the franchisee by the regulator, related to the number of passenger-kilometres carried (*INVREL*), the longer the franchise contract and therefore the leases.

- The level of asset specificity. We suggest that the more redeployable the fleet operated by a TOC[5] (*REDEP>0,5*), the shorter its franchise contract, and consequently its leasing agreements. To take into account the size of the fleet operated by each franchisee, we also create a variable *QRENT*[6] which is our approximation of the level of quasi rent generated by the development of specific assets. Our hypothesis is thus that contract duration is positively related to *QRENT*. The less standard the specification of a fleet is, the less 'liquid' it will be in terms of the lessor's ability to release it on different route to a potentially different operator in the future, and the higher the potential for opportunism[7] (Berdugo, 1998). Therefore, the more route or operator-specific features a fleet has, the more concerned the reformers might have been about the length of contractual agreements signed by the TOC operating this fleet.

OLS regressions give the following estimates:

Table 4
The determinants of contract duration[8]

Dependent variables	DURATION (1)	DURATION (2)	DURATION (3)	DURATION (4)
DUMINV	34,49 (2,62)***	36,56 (2,52)***		
INVREL			378,87 (8,10)***	396,33 (9)***
REDEP	-72,07 (-2,05)**		-36,48 (-1,74)*	
QRENT		0,02 $(0,72)^{ns}$		0,02 (1,94)*
CONST	110,35 (6,95)***	81 (6,98)***	96,82 (11,10)***	77,07 (13,77)***
Adj R^2	0,32	0,21	0,77	0,78
Obs.	25	25	25	25

5 i.e. the less specific its assets.

6 *QRENTE=(1-REDEP)*FLOTTE*, where *FLOTTE* is the number of trains operated, i.e. the size of the fleet.

7 Given their bilateral dependency, both the TOCs and the ROSCOs are inclined to opportunism. But, we assume that the TOCs will have more opportunities of rent expropriation at contract renewal because there are no spare trains on the rolling market for now, whereas the ROSCOs can already engage in opportunistic behaviours through excessive lease rentals (Ljungqvist and Holt, 1998; Office of the Rail Regulator, 1998).

8 t-ratios in parentheses.

Our results suggest that the degree of specificity of rolling stock assets and the level of quasi rent they generate are not the most significant determinants of contract duration. The length of franchise contract, which determines the length of rolling stock leasing agreements, has not been chosen by the reformers in accordance with Transaction Costs Economics principles. Contract duration depends little on asset specificity. Therefore, according to TCE reasoning, there is a misalignment between the contractual length and the attributes of the assets.

IV. Contractual choices, transaction costs and performances

In a situation of misalignment between the duration of the contracts and the characteristics of the transactions at stake, TCE assumes that transaction costs are not minimized and therefore that profits are not maximised (Williamson, 1985). The Williamson's misalignment hypothesis indeed suggests that proper alignment of governance structures enhances performances, and more precisely profits (Riordan and Williamson, 1985). Therefore, TOCs whose contractual arrangements are aligned to the attributes of the assets they operate will outperform franchisees whose contracts do not match the features of rolling stock.

Proposition 2 is thus the following: the more aligned the contractual arrangements of a TOC[9], the better its financial performances (its profits).

Since the TOCs' operating profits partly determine the amount of subsidy they receive from the regulator, the factors constraining their financial performance also prevent the achievement of one of the main goal of the reform: the reduction of public subsidies in the rail sector.

IV.1. Estimation of the transactional misalignment

To evaluate the degree of misalignment of each contract, we have built, for

[9] We focus on the financial performances of the train operating companies and ignore those of the rolling stock leasing companies because our data do not allow us to analyse the ROSCOs'profits.

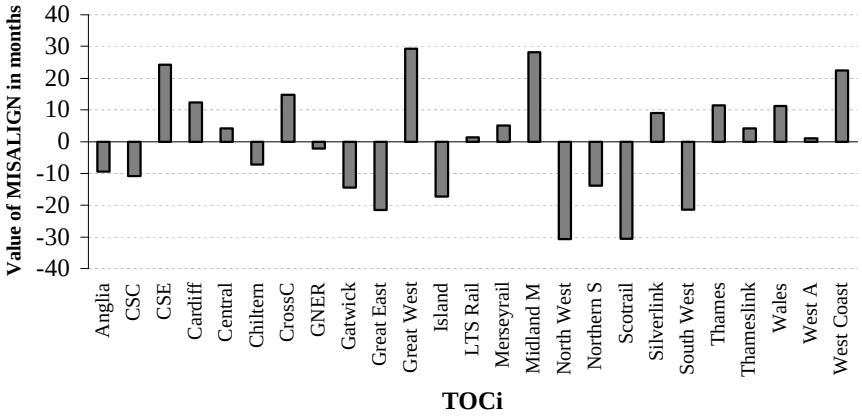
each TOC i and each period[10] t={1996/97;1997/98;1998/99;1999/2000;2000/01}, the following variable :

$$MISALIGN_{it} = DURATION_i^{observed} - DURATION_{it}^{predicted},$$

where $DURATION_i^{observed}$ is the observed duration of contracts, and $DURATION_{it}^{predicted}$ the theoretical duration of contracts, i.e. the duration predicted by the model[11]. The *MISALIGN* variable thus measures the difference between the 'real' contractual length and the duration predicted by the theory.

The level of misalignment of each contract in 1996/97 is illustrated in figure 1.

Figure 1
Degree of contractual misalignment by TOC in 1996/97



Since *MISALIGN* can take positive as well as negative values[12], we have found relevant to split up this variable into:

$$MISAMOINS = \begin{cases} |MISALIGN| \ \ if \ \ MISALIGN < 0 \\ 0 \ \ otherwise \end{cases}$$

and

$$MISAPLUS = \begin{cases} MISALIGN \ \ if \ \ MISALIGN > 0 \\ 0 \ \ otherwise \end{cases}$$

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10 If the observed duration of contracts does not vary from one period to another, transactional characteristics do. Therefore, theoretical duration changes and so does the misalignment level of contracts.

11 The model we have chosen to keep is DURATION(4).

12 In the first case (*MISALIGN>0*), contracts are assumed to be too long, whereas in the second case (*MISALIGN<0*) contracts are assumed to be too short according to TCE principles.

Thus, we can refine our proposition 2 by assuming that:

- *Proposition 2a):* A negative misalignment worsens TOCs performances because 'too short' contracts incorporate high risk premium to protect the residual value of the assets owned by the ROSCOs.

- *Proposition 2b):* A positive misalignment negatively affects TOCs performances if the contract proves to be misadapted to changing circumstances.

IV.2. A test of the performance impacts of misalignment

In this last subsection, we intend to test these propositions [2a) & 2b)], i.e. to verify whether the theoretical mismatch between contract length and assets specificity has a negative impact on profits (defined as *PROFIT = PASSENGER REVENUES – OPERATING COSTS*, that is, not including public subsidies).

In order to 'isolate' the impact of our misalignment variable on financial performances, we incorporate several control variables in our tests. The variables we identify as potential explanatory elements of the TOCs' financial performances are summarized in table 5 below which provides a checklist of these control variables.

Table 5

Checklist of our control variables

Variables	**Definition**	**Predicted effect on profits**
DENSITE	Passenger traffic density (passenger-kilometres/size of the operated network in km)	**+**
INTER	Dummy variable coded 1 if the TOC is an Intercity operator and 0 otherwise	**+**
COM	Dummy variable coded 1 if the TOC is a Commuter and 0 otherwise	**+**
REG	Dummy variable coded 1 if the TOC is a Regional operator and 0 otherwise	**-**
TRAVAIL ***TRAVAIL²***	Labour productivity (train-kilometres/number of employees)	**+** **-**
PRIX	Average fare in £/km	**+**
INFRA	Amount of infrastructure investments carried out by Railtrack (£/km)	**+**
AGE	Average age of the rolling stock fleet (years)	**-**
MAT	Percentage of the rolling stock fleet contractually planned to be replaced	**-**

Due to economies of scale and density, we expect traffic density (*DENSITE*) to have a positive impact on profits.

We also intend to observe a sector-based effect. Intercity and Network SouthEast[13] TOCs (*INTER* and *COM*) are assumed to generate more profits than Regional TOCs (*REG*) because the former deserve densely used corridors between popular destinations whereas the latter often serve rural or semi-rural areas and thus are in strong competition with road transportation.

Labour productivity (*TRAVAIL*), measured in trains-kilometres by employee, is assumed to affect profits positively but to a certain extend, beyond which the correlation becomes negative. To capture this, we incorporate the variable *TRAVAIL* with exponents 1 and 2.

To control the impact of fare levels on profits, we use the variable *PRIX* (average fare in £/average journey in km). This variable is supposed to have a positive influence on profits.

Lastly, we aim at assessing the influence of the quality of rail equipments (infrastructure and rolling stock) on the operators' financial performances.

We hypothesize that the more Railtrack invests to renovate and modernize the network operated by a TOC, the more this operator is able to increase its traffic density and to propose high-quality services[14]; and therefore the higher its profit. We therefore expect the level of Railtrack' infrastructure investments (*INFRA*) to have a positive impact on TOCs' profits.

Furthermore, we suggest that profits are negatively correlated with the state of decay of the rolling stock. A first way to capture this is to incorporate the age of trains in our tests (*AGE*). But, a subtler proxy would be the proportion of its fleet a TOC is contractually[15] obliged to replace before its franchise contract expires (*MAT*). The more trains a TOC has to replace, the more its fleet can be expected to be in bad condition and the more limited its possibilities of making profits.

The model we estimate is thus the following :

$$PROFIT_{it} = a + bMISAMOINS_{it} + gMISAPLUS_{it} + dX_{it} + e_{it}.$$

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13 i.e. Commuters.

14 For instance in terms of ponctuality and reliability.

15 i.e. the proportion of rolling stock a TOC has been imposed to replace by the regulator.

The results of our OLS estimates are the following:

Table 6
The determinants of TOCs profits[16]

Dependent variables	PROFIT (1)			PROFIT (2)		
	(1a)	(1b)	(1c)	(2a)	(2b)	(2c)
MISALIGN	-484,20 (-0,91)^{ns}			-		
MISAMOINS	-			-2509,80 (-4,27)***		
MISAPLUS	-			211,28 (0,44)^{ns}		
DENSITE	6342,23 (1,65)*			7716,90 (2,12)**		
INTER	106187,8 (6,67)***	28932,07 (1,82)*	-	72999,07 (4,82)***	12788,5 (0,90)^{ns}	-
COM	77255,76 (4,33)***	-	-28932,07 (-1,82)*	60210,57 (3,77)***	-	-12788,5 (-0,90)^{ns}
REG	-	-77255,76 (-4,33)***	-106187,8 (-6,67)***	-	-60210,57 (-3,77)***	-72999,07 (-4,82)***
TRAVAIL	17030,36 (1,98)**			15511,09 (2,05)**		
TRAVAIL²	-649,06 (-1,90)*			-582,30 (-1,94)**		
PRIX	8880,98 (0,02)^{ns}			167391 (0,53)^{ns}		
INFRA	136317,4 (2,33)**			94688,62 (1,83)*		
AGE	-266,36 (-0,25)^{ns}			730,25 (0,76)^{ns}		
MAT	-80179,02 (-3,10)***			-97826,69 (-4,28)***		
CONST	-251676,7 (-4,19)***	-174420,9 (-2,81)***	-145488,9 (-2,69)***	-246959,1 (-4,69)***	-186748,6 (-3,42)***	-173960,1 (-3,65)***
Adj R²	0,6121			0,7014		
Obs.	114			114		

Our results confirm that profits are significantly and negatively correlated with *MISAMOINS*. Therefore, proposition 2a) is verified: a negative misalignment worsens firm performances. A TOC whose contracts are "too short" in comparison with theoretical predictions makes lower profits than a franchisee whose contracts are aligned to the characteristics of the transactions. Neglecting transactions attributes in making the choice of a contractual arrangement can translate into decrements in performance.

On the other hand, the coefficient of *MISAPLUS* is not significant in our estimates, which suggests that "too long" contracts do not prevent TOCs from making profits.

[16] T-ratios in parentheses.

Furthermore, our estimates are consistent with a majority of our hypotheses regarding the non contractual determinants of profits. Apart from the variables *PRIX* and *AGE*, all our control variables have the expected effect and are significant.

V. Conclusion

Very few empirical works have analyzed the 'Williamson's misalignment hypothesis' that a discriminating alignment of governance with transactions improves performances. Moreover, to our knowledge, there is only one available econometric study investigating the consequences of the contractual choices made by the British rail reformers (Affuso and Newbery, 2002).

This article proposes to fill this gap by providing an econometric test of the misalignment hypothesis applied to the contractual relationships between train operating companies (TOCs) and rolling stock lessors (ROSCOs). The original database we use allows us to address two main issues: Was there a transaction costs economics logic behind the choice of contractual length? What are the consequences on performances of a deviation from TCE predictions?

Even though our paper is still exploratory, with more data to incorporate in future works, our results are stimulating. Whereas most of the commentators of the British rail reform assert that the choice of the duration of contracts made by the regulator was groundless, we have found that the choice of contractual length have partly relied on a TCE reasoning. Nevertheless, there is a distortion between what was chosen and what the theory advocates. Our results support the idea that this theoretical mismatch has consequences on firms' performances. Indeed, the misalignment deteriorates operators' financial performances. Further work is to be done particularly in the collection of reliable data on operating costs and in the introduction of other quality performances indicators. We therefore expect more results.

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