

THE EFFECTS OF POOR FINANCIAL INFORMATION SYSTEMS ON PUBLIC EXPENDITURE AND ON THE LONG-TERM SUSTAINABILITY OF LOCAL PUBLIC SERVICES. EMPIRICAL EVIDENCE FROM THE CATALAN MUNICIPALITIES

**G. LOPEZ-CASASNOVAS
E. GARCIA-ALEGRE
I. MORENO-TORRES**

Department of Economics & Business. Pompeu Fabra University^(*)

ABSTRACT

In this paper we describe the ways in which financial illusion (FI) in public accounting can be created by misreporting actual expenditure and revenues. We test the effects of FI, due to the absence of sound financial capital policies, on current public expenditure increases and on the future sustainability of local public services. We relate these features to the lack of incentives amongst public managers for accurate financial reporting when short term electoral interests prevail. For both agents (politicians and managers) FI increases the budgetary managerial slack, these being arguments in their utility functions, although running against public accountability.

Our hypothesis is tested for Spain using a sample of 42 municipalities with population above 20,000 for the financial years 1993-2001. We build this unique database on the Catalan Audit Office Reports in a way that budgets can be linked to other local social and economic variables in order to test our assumptions.

The results confirm, although with high disparity practices, that there is a statistical relationship between FI and high current expenditure, net assets variation and managerial slackness. Mechanisms for FI creation have to do, among other factors, with overvaluing revenues and underestimating costs, inadequate provision for bad debts and lack of appropriate capital funding either for replacement or for financing new equipment.

Literature Classification: H72, H74, H81, M14.

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^(*) Mail address: guillem.lopez@upf.edu . This author acknowledges financial support in this research field from SEC2003-05045/ECO.

INTRODUCTION

In most OECD countries over recent decades, conventional accounting information systems have been superseded by systems that exploit new information technologies. The potential for better budget reporting has improved greatly (see P. Heller, 2003). The aim of improving public accountability through better information is indeed at the core of new public management (Lopez et al. 2003). However, implementation depends on the incentives of managers and politicians, and things are much less clear in this arena.

Under related models of bureaucratic behaviour and fiscal illusion (Niskanen, 1971)¹, it is plausible to assume that lack of transparency is here to stay. As it helps to hide inefficiency, poor financial reporting may favour managerial slack against the public interest.

Although the above assumptions may be extended to public administration in general, our interest here is to test some particular propositions related to the creation of financial illusion (FI) at the local public sector level. Mayston et al. (1992) have shown that this is an appropriate field of analysis given the great diversity in existing practices.

Thus, we deal with the effects of FI on local public budgets and the absence of incentives amongst public managers for a better financial information system to improve the management of public assets, in a sample of 42 Catalan municipalities² over the period 1993-2001. Data are taken from the *Sindicatura de Comptes de Catalunya* (the Catalan Audit Office) for actual settled expenditure and revenues.

In the first section of the paper we build the notion of FI by referring the common grounds of the theory of fiscal illusion. In section 2 we construct an FI index, specifically related to the levels of under-reporting of the actual costs of public services. This refers to the delay in payments to creditors (in relation to cash-based accountancy criteria), lack of accounting for depreciation costs, upgrading of existing equipment, and absence of provision of financial reserves for doubtful public credits. All these factors help to create an illusive 'cash surplus' that feeds public expenditure and managerial slack. In other words, these accounting practices, which serve to hide spending needs, help to create the financial illusion that additional more visible expenditure is still possible. This goes against the sustainability of public services in the long term. However, the short, and not the long, term is the main concern of politicians. In this respect, they may easily collude with managers for purposes of expenditure increases. In section 3 we correlate these accounting practices to the level and growth of municipal expenditure on per capita and on a percentage basis, and by adjusting the revenue raising ability in order to approach the sustainability of local services. The 'sustainability' criterion is calculated as the difference between estimated capital needs and observed accumulated capital revenues plus the margins to raise additional taxes. Finally we conjecture on how this situation favours local politicians and public managers and we conclude that in order to rebalance the present situation we need to

¹ A recent survey can be found in A. Rodríguez and J. Suárez, *Hacienda Pública Española* 164 (1/2003), 'Organizaciones burocráticas e ineficiencia X: Una revisión de modelos', pp 83-109.

² In order to homogenise our sample, given the great disparity in size and budgets of Spanish local authorities, we have taken data only for those with populations of over 20,000.

reinforce rules and provide incentives from an evidence-based public accountability policy point of view.

I. ON FINANCIAL ILLUSION

The topic of financial illusion and its relevance in public management has traditionally been discussed in the context of the theory of fiscal illusion and public expenditure growth. For this purpose, three broad strategies can be pursued to manipulate the preferences of the citizen (median voter). First, political actors and bureaucrats may try to show that the tax price of public sector services appears to be lower than it actually is (Miller and Moe, 1983). Second, they may find it desirable to foster the idea that the median voter is in receipt of larger real income increases as a result of tax/expenditure decisions (Miller, 1977). Third, politicians and bureaucrats can attempt to alter the preferences of the voters to raise the absolute value of the marginal rate of substitution between public supplied goods and the rest (Cullis and Jones, 1998).

In more general terms, Puviani (1903) developed different notions of illusion, the most common being that of getting individuals to ‘feel good about themselves’³. Fiscal illusion is therefore frowned on complex revenue structures and on the more visible benefits of expenditure. An additional important factor may be that debt finance can result in individuals failing to realise that when debt is issued their income is affected to the tune of the present discounted value of future tax liabilities⁴.

However, testing for FI has proved to be a rather more difficult task. Oates (1988) suggests that although several ‘illusions’ are plausible in public management, the empirical support for them is not overwhelming. Moreover, given revenue endogeneity, competing plausible hypotheses may exist alongside some rather ‘ad hoc’ theories.

Our paper seeks to contribute to this arena by offering evidence of the reasons for FI and its effects in the provision of local public services. We relate FI to the absence of sound financial and economic information on the part of local politicians and public managers. In this respect, FI undoubtedly disguises lack of transparency. We cannot, however, disentangle whether FI is the cause or the effect of misreporting information for public accountability, since no causality test can be adopted. In either event, both scenarios allow for increasing public expenditure at the cost of poor management of public assets, which affects the financial sustainability of services in the future.

II. HYPOTHESIS BUILDING

This paper is grounded on the following evidence: despite (i) the development of powerful new technological information systems, (ii) greater concern about the economic and social

³ There is probably no need to expand this argument. Puviani wrote his *Teoria della Illusione Finanziaria* in 1903!

⁴ A good summary of this can be found in the corresponding chapter of Cullis and Jones (1998).

consequences of public intervention in modern societies, and (iii) the acceptance in democracy of greater social accountability of public expenditure, incentives to implement accurate financial reporting methods for public sector activity seem to be absent in the public management field.

Our hypotheses to explain why this happens are built on:

The absence of incentives for more accurate financial reporting

1. Public managers in Spain have several reasons to avoid improving budgetary or managerial information, given the way in which they are paid (which is not performance-related) and appointed (many of them being politically dependent). In this context, any better information reporting may create counterproductive *ratchet* effects: evidence of good performance may be used against managers' interests, rather than to their benefit, and may also cause political embarrassment. Since public managers in Spain are nowadays more political than customer oriented, risk aversion behaviour would go against innovation in information systems and transparency.

2. At the institutional level, the reasons for politicians not requesting better financial information are related to:

- (i) the greater risk of losing marginal (discretionary) expenditure, given the existing asymmetries and budget rigidities⁵;
- (ii) the pitfalls derived from changes in accountancy practices, and hence from a potential misinterpretation of the data under more conservative accountancy practices.

All this is reflected in the lack of identification of the actual unit costs of service provision, price variance in input purchases (as a result of different tendering methods and procurement policies), output performance variability (due to changes in the organisation of the production function) and final outcome assessments (derived from several forms of public control).

3. Lack of accurate information on the financial and economic situation has greater costs in the long term than in the short term, and the latter is the more relevant for political purposes. Poor financial reporting may jeopardise the ability to maintain service provision in the medium and long term by endangering its sustainability over time, precisely when these services will need to be adjusted to new circumstances. However, this is not usually the main political concern.

We will measure this lack of responsibility in budgetary accountancy on public expenditure variations, once we account for other relevant variables in the estimation.

⁵ Proving that you are 'a good guy' and then taking a slice of the available marginal resources proves to be more difficult than losing a portion of actual resources already spent due to the fact you are identified as a 'bad guy'.

The financial illusion hypothesis

In this paper FI is based on the following premises:

- (i) From a public choice point of view, local politicians seek to satisfy the greatest possible amount of citizens' demands, since this is likely to win voters' support, and to avoid an increase in taxation (or at least to be perceived as doing so). Citizens are, in general, more concerned with the present than with the future effects of policies. Transparency would require increased awareness of the long-term consequences of new budget initiatives with regard to the key sources of expenditure pressure and of the limits to increasing the tax burden⁶.
- (ii) The benefits of FI for managers are that short-term sustainability of public services is not in question and marginal expenditure increases are possible. In fact, generally speaking, reducing costs in an underhanded way does not negatively affect the results (the profit and loss account), and lends support to the fiction of a (constant) net balance of the existing local assets. In addition, FI helps to moderate local price increases in public services.

The items of the balance sheet accounts that offer greatest potential for under-valuation are those that are related to delaying payments to creditors and an insufficient provision for asset replacement and doubtful debts. This is due to the fact that the former are expenses that affect third parties, with little political pressure since they are regular creditors of the administration who are not willing to risk their reputation, and to the apparent lack of clear-cut criteria for interpreting the treatment of capital assets in public accounting systems. Moreover, to date external auditing has been made compulsory in none of the cases studied: auditing is random, and expected sanctions for having followed unsound practices are low.

Specifically, we will estimate the FI derived from the lack of correct depreciation of assets and from the absence of reserves for doubtful debts, by calculating the difference between the official recorded expenses and those which would result under 'sound' accounting principles, generally accepted both by the private sector and by other agents in the public sector.

The consequences of FI for efficient public management

⁶ An excellent review of this issue can be found in Heller (2003). This includes, among other measures, (i) the assessment of accrued liabilities in the balance sheet, (ii) the tax or primary balance gap (on stochastic scenarios), (iii) net debt measures, (iv) fiscal generational imbalance measures, and (v) the risk-weighted assessments of the government's assets and liabilities.

The relationship between management accounting and strategic behaviour of organisations has been thoroughly analysed in the literature (E. Caplan, 1971; R. Cooper and R. Kaplan, 1988; R. Chenhall and D. Morris, 1986).

As a result of the observations mentioned above, the expected negative consequences of FI are:

- (i) Implicit financial costs are greater than those shown in local public accounts. In the past, it has been observed (E. Garcia, 1999) that registered costs are lower than they would be if providers were paid as due with no delays and appropriate provisions were made for bad debts. European Union legislation⁷ establishes a maximum period for paying public administration creditors. We will take this benchmark (three months in a first period, two months thereafter) as a measure of the difference between the theoretical financial costs related to paying creditors on time and the larger one due to existing delays.
- (ii) The future sustainability of local service provision may be at risk as a consequence of the level of current expenditure. Capital assets must guarantee the continuity of the service over time. This is eroded by an unsound depreciation policy that does not correctly account for capital utilisation. By following this practice, we either a) apparently reduce costs in the short term (increasing FI and allowing additional spending programmes) at the expense of risking financial bankruptcy in the future, or b) issue debt to guarantee capital and thus sustain public services (hence reducing financial margins for discretionary spending of future generations). Moreover, sustainability requires a minimum financial surplus for adapting public organisations to changing economic environments, and not merely sufficient capital to 'stand still'⁸.

In order to estimate this factor we alternatively calculate: a) the potential revenue surplus that a municipality has for financing in the event of additional expenditure other than that required to strike an economic balance. This may result from increasing taxes (if the ratio of the local authority, say, is below the sample average) and from the elasticity of local fiscal revenues from current taxed activity; and b) the revenue raising margins from issuing new debt, given current levels and existing limitations.

Both factors seek to measure the capability to finance the revenue gap for new investment, in addition to the accumulated municipal savings and central (and European) capital transfers. They provide an approximation of the difference between estimated capital needs and observed accumulated capital revenues plus the existing capacity to raise additional taxes and debt.

The sample

⁷ In Spain, through the 923/1985 Bill for Public Administration Contracting.

⁸ Surplus may result from public regulation or from adopting what could be defined as 'sound economic and financial management practices' in this field.

We test our hypotheses on the effects of FI on financial management using data from Catalan municipalities over the period 1993-2001, with a comparable database provided by the Audit Office.

In order to homogenise our sample, given the disparity in population size and budget levels, we have taken data only for those municipalities with populations of over 20,000. These are considered to be local authorities with sufficient capability to run the required new information systems. Given the available data, we finally selected 42 Catalan municipalities (see appendix one).

The financial reporting system

Poor financial and economic reporting has traditionally raised significant problems in public management. For example, Hendriksen (1981) and Riahi (1992) refer to the cases of the textile and railways industries in the 19th century, when large profits were unduly paid to shareholders. Profits were defined as the difference between revenue flows and cash payments, without considering capital depreciation. This brought short-term profits for speculators and final bankruptcy for the remaining asset holders.

Similarly, the long-term financial viability of public services depends on holding real assets. This requires the existence of a balanced equilibrium in order a) to keep physical capital in operation (Lüder, 1993), b) to implement systemic preventive procedures for quality assurance of the services (Pallot, 1994) and c) to carry out those repairs needed to maintain the productive capacity of investment goods up to the time of their replacement, in order to finance equally good or better equipment. If this is not the case, issuing debt or selling assets to finance the required equipment are the ultimate effects of these unsound accounting practices. As Anthony (1980) points out, non-profit organisations cannot identify the absence of profit targets with negligent accountancy in risking the sustainability of the activities of the organisation as a whole.

In the Spanish context, as of July 1990, the Rules for Local Administration Accountancy (ICAL) defined a new information system for budgetary and financial statements in order to build a set of economic indicators for better management of public assets. These changes were supposed to be in place in 1992 but the rate of complete reporting is very low even today particularly among small size local authorities (see Table 1).

In principle, accountancy practices in Spain still allow for the coexistence of the principles of accrual accounting (based on the day the right to receive revenues is acquired and debts are incurred) and the cash criterion (based on the day they are actually paid). Once one of the systems is chosen, consistency is required, but despite the norm, this principle is not yet entirely guaranteed.

In Catalonia, as in other parts of the Spanish state, local administrations were required to implement the new Public Accounting Regime, set forth by several regulations⁹, at the time of presenting the Annual Accounts and the Internal Audit. Its level of implementation by local authorities is shown in Table 1, according to size and year with regard to the actual budget settlement, financial surplus, balance sheet and profit and loss account.

Table 1 Description of the contents of financial reporting by size of local authorities

	L. authorities > 20,000 citizens					Between 5,000 and 20,000 citizens					L. authorities < 5,000 citizens				
	1992	1993	1995	1998	2001	1992	1993	1995	1998	2001	1992	1993	1995	1998	2001
Number of local authorities	42	42	43	45	49	103	103	114	114	115	797	798	787	787	782
% of local authorities having fulfilled the requisites:															
Budget in equilibrium	98	98	100	100	100	91	95	93	98	99	54	68	76	82	77
Carryover budget = net recognised revenues – net recognised debts + cash	95	100	100	100	100	89	90	91	96	97	52	67	76	82	78
Providing a profit and loss account	83	88	100	100	96	82	91	88	94	98	52	67	76	81	76
Exhibiting a balance sheet	88	90	98	100	100	81	91	88	94	97	52	67	76	82	77

Source: Based on data supplied by the *Sindicatura de Comptes de Catalunya*.

Note that the level of financial reporting increases with size and that it increases over the years too (100% of municipalities with a population of 20,000 or over in 1998 and 2001).

For the group of larger municipalities (Barcelona City Council was excluded in order not to distort our comparisons), Table 2 shows the degree of FI in the overall current budget revenues. Financial illusion is proxied by the difference between what is allocated to spending on capital replacement and what should be allocated according to sounder common practices such as those derived from private accountancy¹⁰. FI in Table 2 is the difference between what is actually allocated to spending on capital replacement and what should be allocated according to sounder common practices. This decreases over time but the coefficient of variation as a measure of dispersion (the percentage ratio between the standard deviation and the average value) shows still high values among observations. FI ‘potential’ gives the maximum amount of FI if observed practices were applied to all public capital (this is, nothing were founded for equipment renewal).

Table 2 The financial illusion factor as a share of budgetary current revenues

	1993	1994	1995	1996	1997	1998	1999	2000	2001
FI (financial illusion)	16.3	17.3	14.6	14.6	11.9	11.8	11.0	11.0	10.0

⁹ In particular, ICAL Rule 416 and 230, amongst others.

¹⁰ Plan General de Contabilidad. See for a comparative European survey O Amat and J Blakes ‘Contabilidad Europea’ AECA Monografias 1996

Coefficient of variation	66	51	53	53	55	61	54	51	52
FI potential	90%	91%	82%	77%	74%	73%	73%	74%	73%

Source: Own calculations based on data supplied by the *Sindicatura de Comptes de Catalunya*.
Municipalities with more than 20,000 inhabitants (not including Barcelona).

As is shown in Table 2, the FI coefficient is always equal or greater than 10%, diminishing over time, but with a large internal coefficient of variation. Moreover, it can be seen that the ratio between actual and potential fiscal illusion decreases over time: from 90% to around 70% for the last years of the series. Table 3 offers some additional information on the number of municipalities and the level of FI (less than 5%, between 5 and 15%, and more than 15%).

Table 3 Number of local authorities (> 20,000 inhabitants) and level of FI (% estimated level on current revenues)

% FI on budgeted current revenues	1993	1995	1998	2001
Number of municipalities with < 5% level of FI	2	5	7	7
Number of municipalities with between 5 and 15% level of FI	20	17	21	27
Number of municipalities with > 15% level of FI	20	20	14	8

Source: Own calculations based on data supplied by the *Sindicatura de Comptes de Catalunya*.

Another way of under-reporting financial costs to create financial illusion is shown in Table 4. Figures reflect the average delay in payments for outstanding credits among local authorities. The terms are well above the benchmarked three months for the period 1993-95 and two months thereafter¹¹, although the delay decreases over time with internal variation increasing along the period.

Table 4 Average delay for outstanding credits (days)

	1993	1995	1998	2001
Days (*)	239	220	176	142
Coefficient of variation	58.2	57.8	67.2	76.9

Source: Own calculations based on data supplied by the *Sindicatura de Comptes de Catalunya*.

(*) Municipalities larger than 20,000.

The estimated financial costs of these delays, weighted by the different term constraint of wages and other types of payments, are estimated in Table 5. The financial cost of this form of short-term debt is therefore estimated as 45 days for the period 1993-95 and 30 days thereafter. Most of this cost is not only a 'social opportunity cost' but an extra financial cost

¹¹ The 923/1985 Bill for The State Contracting, section 47, and the 13/1995 Bill for The Public Administration Contracting, section 100.

paid by the administration, once we plausibly assume that there exists an implicit surcharge from providers on the prices charged for those public supplies with delayed payment.

Table 5 Estimated financial cost due to credit outstanding (in euros per capita)

	1993	1995	1998	2001
Local authorities (*)	16.3	16.8	6.2	5.4
Coefficient of variation	89.1	91.3	107.4	126.7
Interest rate considered ¹²	9.00%	9.00%	4.00%	4.08%

Source: Own calculations based on data supplied by the *Sindicatura de Comptes de Catalunya*.

(*) Among those Municipalities larger than 20,000.

It is not possible however a direct test of this sort of approach to FI since it is not clear whether the incremental costs for delay are already included in the total bill, as a part therefore of (future) current expenditure. In addition this a more limited source of FI since the margin for delay is narrower than for capital reposition¹³.

Therefore, we test in the following section the effects of FI (its share on total revenues) on the level and rate of growth of public per capita expenditure and on the values of the net assets. We adjust the estimation for a set of independent variables, such as the revenue and debt issuing possibilities, net operating results and carryover financial surplus. We hypothesize that other things equal, higher FI will imply higher current public spending on per capita terms.

III. TESTING AND RESULTS

We will test in this section the effects of FI (i) on local per capita spending (ii) on variations of net assets and (iii) on apparently improving the budgetary managerial performance.

- *The impact of FI on public expenditure*

Table 6 explores the impact of **financial illusion** on higher expenditure¹⁴. We adjust the estimation for the level of cash surplus as a percentage of current revenues with one year lag (the carryover effect) and the importance of credits doubtful to be effective in raising revenues. This variable is a proxy for pure fiscal illusion as a way of overestimating revenue capabilities. As commented earlier on, the maintenance of these provisions helps to increase the revenues of municipalities and increase per capita expenditure. The results show that an increase in one per cent points in the share of FI on total revenues by not fully accounting for capital costs increases on average per year one thousand four hundred pesetas (around 9€). By carrying over cash surpluses from one year (as a percentage too of current revenues) to the other the impact is almost one third of the former. The signs are as

¹² Here we consider the basic interest rate of The Bank of Spain up to 1996. Since thereafter, MIBOR 1 year.

¹³ The correlation between delay (days) and per capita spending is 0.1155 being not statistically significant. Moreover this variable is significantly correlated (0.505) with FI per capita terms.

¹⁴ On absolute terms FI per capita on average represents between 60 and 70 euros a year.

expected in all cases and the statistical significance is high. Uncertain credits overestimating revenues have a positive impact too in increasing local expenditure although with a lower significance level (95%). Estimation with fixed effects is clearly appropriate according to the Hausman test.

Table 6. Fixed Effects regression statistics

Expenditure per inhabitant	Coefficient	t-statistics
Constant	83.08071***	25.18
FI (per inhabitant)	1.435224***	5.47
Estimated % carryover budget divided by budgeted current revenues (year n-1)	0.5092584***	6.86
Uncertain credits per inhabitant	0.4207065**	1.96
Observations		336
Determination coefficient		0.0389
F-statistic		24.65
Hausman Specification Test		48.97

*** Shows significance with a 99% confidence level; ** Shows significance with a 95% confidence level; Source: Own calculations based on data supplied by the *Sindicatura de Comptes de Catalunya*.

We consider in Table 7 the impact of the former variables on current rather than on total current expenditure; this is, not accounting for investment and capital transfers. The assumption here is that financial illusion has a greater role in current rather on capital spending. What we observe in our results is that this does not seem to be the case, by looking at the FI parameter values. The estimated parameter for FI is around half of table 6. This may be due to the fact that overtime FI effects extend to both capital and current spending, once capital needs are considered and capital transfers are used. At any rate it seems that uncertain credits by overestimating revenues (fiscal illusion) play a greater role than financial illusion. The signs are as expected in all cases and the statistical significance is high. Estimation with fixed effects is clearly appropriate according to the Hausman test too.

Table 7. Fixed Effects regression statistics

Current expenditure per inhabitant (net of investment and capital transfers)	Coefficient	t-statistics
Constant	79.71903***	21.63
FI (per inhabitant)	0.6376039**	2.17
Estimated % carryover	0.2365235***	2.85

budget divided by budgeted current revenues (year n-1)		
Uncertain credits per inhabitant	1.418156***	5.90
Observations		336
Determination coefficient		0.0659
F-statistic		17.27
Hausman Specification Test		14.76

*** Shows significance with a 99% confidence level; ** Shows significance with a 95% confidence level; * Shows significance with a 95% confidence level.

Source: Own calculations based on data supplied by the *Sindicatura de Comptes de Catalunya*.

-The sustainability problem in absence of adequate capital financing provisions: The net asset value problem

A second main area of hypothesis testing deals with the way that financial illusion expenditure affects the capability to produce public services due to the lack of asset renewal. This may be due to unsound accounting practices related to depreciation and reserves, as mentioned above.

Table 8 describes the variation in the observed equity finance composition as a % of current local revenues, as reflected in the 'profit and losses' account.

Table 8. Explanatory variables for the variation in equity as a percentage of current revenues from the profit and loss account (*)

	1994	1995	1996	1997	1998	1999	2000	2001
Estimated variation in assets (A) as a % of CR	13.9	13.6	4.6	23.6	18.0	15.9	11.2	18.7
As a result of (in %)								
EOR	2.1	1.8	-0.8	5.2	5.1	-3.9	-2.8	-3.3
ECG	3.1	2.2	4.1	2.0	5.3	2.9	2.4	4.3
<i>EOR + ECG</i>	5.2	4.0	3.3	7.2	10.4	-1.0	-0.4	1.0
<i>EER</i>	8.7	9.6	1.3	16.4	7.6	16.9	11.6	17.7

Source: Own calculations based on data supplied by the *Sindicatura de Comptes de Catalunya*.

FI: financial illusion; CR: current revenues (from the 'profit and losses' account); EOR: estimated operating result; ECG: estimated capital grants; EER: estimated extraordinary results.

(*) Average from 42 local authorities.

Changes in net assets (A) are the result of profits from current operating activities (EOR), plus capital grants (ECG), plus the result from non current (extraordinary) operating activities (EER). For instance, for year 2001, A represents 18,7% of annual revenues,

coming from ordinary losses (-3,3% of current revenues), capital grants (4,3 % of current revenues) and extraordinary profits (17,7% of current revenues).

In general, it can be observed that for the period 1994-2001, changes in net assets have been possible thanks to EER and ECG (extraordinary results and capital grants). Both sources are however uncertain, having to do with non current activity profits and voluntary transfers from third party payers (State, European Union...). The current results from operating activities (ordinary revenues and expenditures) have represented a low –and even a negative- contribution in order to finance new capital.

FI has allowed indeed for an overestimation on net assets¹⁵. Most of the EER come from land and construction activities some of the main revenue sources of the Spanish Municipalities (and particularly in Catalonia, given the importance of the tourist sector activities). However this is very a limited source for financing A. Once net asset variations will depend exclusively on EOR and ECG, FI will evidence the non sustainability of some public services, due to lack of capital, for all those Municipalities having spend above what would have allowed sounder accountancy criteria.

Our calculations show indeed that the weight of the estimated FI as a % of current revenues (table 2) diminishes over the period studied, and at the same time the estimated net losses under more accurate accountancy of total operating results and capital grants have increased in the last three years.

As discussed above, the maintenance of a particular model for service provision depends, other things equal, on the equity value (net worth) of the organisation. This in turn depends on the economic results of its activity and on the availability of external capital grants. This capability also has to do not only with the efficiency of the provision (see Pina and Torres, 2002) but with existing safeguards for capital equipment and some other dynamic social constraints (such as non-discriminatory access to services, equality of opportunities, due procedures, etc.).

In a previous paper, Garcia (1998) showed that during the period 1992-95 for local authorities below 5,000 inhabitants, if we adopted a replacement criteria for public facilities similar to that for private ones, the level of under-funding would have varied from 40% to 90% with respect to the observed one. The absence of an appropriate depreciation policy is related to the discussion on how capital grants should be computed in local public sector balance sheets. Table 9 offers a range of possible interpretations on how to consider capital grants. They affect the net worth of an organisation over time and thus have intertemporal and intergenerational effects (Henke, 1987; GASB, 1989).

Table 9. Different approaches to computing capital grants (CG)

CG	CG as...	Explanation	Use of capital grant
Capital grants	100 % Δ equity	CGs are considered a sort of intergenerational contribution	The CG only finance the growth of the equipment or its upgrading

¹⁵ For instance EOR in 2001 (under FI) shows up a value of $-3,3\% + 9,7\% = +6,4\%$, and therefore the net asset variation as a % of current revenues appears to be $+28,4\%$ ($18,7\% + 9,7\%$).

< 100 % Δ equity	CG are only partially considered intergenerational contribution	The CG are partially applied to the renewal of existing equipment and partially to new equipment
no Δ equity	The CG are considered entirely as operating revenue of the period	The CG only finance the renewal of existing equipment

As Table 9 shows, the first option consists of valuing capital grants as the ‘ownership’ of all generations of society. According to this way of thinking, replacement costs should be self-financed and these grants should be devoted to improving the quality of the services. The second alternative considers that since grants derive from tax financed at some general level (say at the State or European Union level) they are also partly paid by local taxpayers. Therefore, full self-finance of replacement costs is not justifiable and we need to financially blend the two (new and existing) capital components. Thirdly, it may also be considered that there is a correspondence between what taxpayers finance locally and the share they receive from the overall central grants. This would require that the full amount of the grant be considered as current revenue for the purpose of maintaining the net assets of the present administration.

In practice, financial liabilities and capital grants commonly finance equipment renewal. If the financial resources related to depreciation charges are devoted to the reduction of existing financial liabilities, the intergenerational equilibrium is better preserved. Thus, accumulated funds could be used to lessen the need to finance capital by issuing net debt and the existing margin can then be used to finance the replacement investment whenever required.

In Table 10 we explore the capacity for delivering public services at an appropriate quality level in our sample and over time. Using the first and third criteria for valuing capital grants we detect major differences, with an increasing gap over the years: the ratio between rows 1 and 3 changes from less than 10% to 30% (with a 60% change over the period 1994-2001). The conclusion is sensitive to whether or not we itemise capital grants under existing assets.

Table 10 Share of capital grants in total equity composition (euros per capita)

Local authorities (*)	1994	1995	1996	1997	1998	1999	2000	2001	Variation 2001-1994
Per capita value of equities (1)	418	460	480	533	625	742	828	975	557
ACG per capita (2)	22	45	73	103	145	174	200	238	216
Equity minus ACG per capita (3)	396	415	407	430	480	568	629	737	341

Source: Own calculations based on data supplied by the *Sindicatura de Comptes de Catalunya*. ACG: accumulated capital grants

(*) Local authorities with over 20,000 inhabitants (excluding Barcelona).

Finally, economic sustainability is estimated by an indicator of the margin at the revenue disposal of each local administration to react against changes causing expenditure increases, by adjusting their local tax levels to the average of similar authorities (*ism*, Table 11). It plays a role of safeguard in case of extraordinary expenditure needs.

Table 11. Estimated average level of the ‘sustainability margin’ index (*ism*) as a share of current revenues

	1994	1995	1996	1997	1998	1999	2000	2001
Average	5.3	4.9	3.4	9.9	11.8	1.8	4.5	0.6
Coefficient of variation	7.6	9.8	8.3	12.0	10.9	12.0	13.6	13.8

Source: Own calculations based on data supplied by the *Sindicatura de Comptes de Catalunya*.

Ism comes from adding current revenues other than transfers of each municipality and it is compared to the same revenue items for average municipalities by groups (20.000 - 50.000; 50.000 -100.000; 100.000 - 500.000 inhabitants)

We observe a rather low margin for tax increases for below average levels, but with an important (increasing) coefficient of variation.

Table 12 Fixed Effects regression statistics

Net assets (A) as a % of current revenues	Coefficient	t-statistic
Constant	172.7152***	26.70
FI as a % of current revenues	-2.513424***	-5.61
ism	-0.6417517**	-2.44
Observations		336
Determination coefficient		0.0045
F-statistic		16.96

*** Shows significance with a 99% confidence level; ** Shows significance with a 95% confidence level; * Shows significance with a 90% confidence level.

Source: Own calculations based on data supplied by the *Sindicatura de Comptes de Catalunya*.

The regression in Table 12 shows the expected negative signs between the financial illusion index and the sustainability indicator, with a high statistical significance.

-FI for the management advantage

Finally, we assume that financial illusion is to the manager’s advantage. To test this requires more data than we have available (managerial turnover, financial slack, etc.). Preliminary results using our data are shown in Table 13. They show that FI makes for an irrelevant carryover budget or economic net profit (loss), either positive or negative, at

convenience. In this case, what it looks like a positive result (a free disposal of the accumulated budget surplus) for higher expenditure increases with FI, particularly for the period 1999-2001.

Table 13. Managerial effects of financial illusion (FI)

Number of Local Authorities by importance of FI (+/-)	Average FI of 1994-96 % of cases benefiting from FI		Average FI of 1996-98 % of cases benefiting from FI		Average FI of 1999-2001 % of cases benefiting from FI	
	Social prestige ⁽¹⁾	Higher expenses ⁽²⁾	Social prestige ⁽¹⁾	Higher expenses ⁽²⁾	Social prestige ⁽¹⁾	Higher expenses ⁽²⁾
Local Authorities with FI values less or equal than (%):						
10	70%	80%	30%	70%	90%	70%
20	55%	75%	40%	60%	85%	55%
30	53%	73%	33%	60%	80%	56%

Source: Own calculations based on data supplied by the *Sindicatura de Comptes de Catalunya*.

FI: financial illusion; OR: operating result; FDABS: free disposal of the accumulated budget surplus.

(1) Positively related to OR; (2) positively related to FDABS

A final observation. On the managerial side, FI hides actual operating results and real budget surplus. This 'free disposal funds' increases managerial prestige and fuels higher expenditure or both things together. Table 14 refer the extent of both types of links among Municipalities. For the 1996-98 period ordinary operational results were much better than in the past 1994-96 and for 1999-2001 (see Table 8), what it may explain a lower utilisation of FI for managerial purposes. However, the percentage of municipalities in the sample that use FI for improving the free disposal of the accumulated budget surplus is high along the period despite a relative decrease.

IV. CONCLUSION

We conclude from our analysis that financial illusion shows a clear positive relationship with total local expenditure. Mechanisms for FI creation have to do with, among other factors, delays in paying suppliers (with consequently higher future financial costs per unit of service), inadequate provision for bad debts and the lack of appropriate capital funding either for replacement or for financing new investment. For the latter feature, it is extremely important to check on how capital grants are computed in public financial statements.

There seem to be no incentives for public managers to change the situation and so improve financial and economic reporting in public administration. On the contrary, it may be the case that incentives work in the other direction: hiding information and avoiding a more accurate reporting system and accountability to citizens make overall for an easier life for politicians and public managers, at least in the short term.

On the whole the results confirm that there is a statistical relationship between the financial illusion index (as constructed in the paper) and expenditure overruns as measured by the delayed payment period for suppliers, as well as by the deficit in local capital depreciation. In this connection, the way in which capital grants are computed in public balances proves to be highly relevant. As a result of existing practices, for most of the municipalities in our sample, funds for guaranteeing continuity and sustainability of public service provision are seriously at risk. For most of the cases analysed we find that no financial margins exist for re-balancing the situation either by issuing net debts or by raising taxes in order to guarantee the sustainability of local service provision, thereby re-establishing a sounder capital finance.

Since it is observed that public managers and politician's benefit from financial illusion, we conclude that new local public regulation may not be enough to change the current state of affairs and that better incentives should be provided with regard to the way in which public services are managed and financed.

Appendix one: Selected 42 Catalan municipalities

1. Badalona
 2. Cornellà de Llobregat
 3. Granollers
 4. Hospitalet del Llobregat
 5. Manresa
 6. Mataró
 7. Prat del Llobregat
 8. Rubí
 9. Sabadell
 10. Sant Boi de Llobregat
 11. Sta Coloma de Gramanet
 12. Cerdanyola del Vallés
 13. Terrassa
 14. Viladecans
 15. Girona
 16. Lleida
 17. Reus
 18. Tarragona
 19. Castelldefels
 20. Esplugues del Llobregat
 21. Gavà
 22. Igualada
 23. El Masnou
 24. Mollet del Vallés
 25. Montcada i Reixac
 26. Premià de Mar
 27. Ripollet
 28. Sant Adrià del Besòs
 29. Sant Cugat del Vallès
 30. Sant Feliu del Llobregat
 31. Sant Joan Despí
 32. Barberà del Vallés
 33. Sant Vicenç dels Horts
 34. Vic
 35. Vilafranca del Penedès
 36. Vilanova i la Geltrú
 37. Blanes
 38. Figueres
 39. Olot
 40. Salt
 41. Tortosa
 42. Valls
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