The Relevance of the Principal-Agent Model for the
Analysis of Public Policies: Do the Objectives
Conflict?

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COMMON
GROUND

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Abstract: This paper aims to provide empirical support for the use of the principal-agent framework in the analysis of public sector and public policies. After reviewing the different conditions to be met for a relevant analysis of the relationship between population and government using the principal-agent theory, our paper focuses on the assumption of conflicting goals between the principal and the agent. A principal-agent analysis assumes in effect that inefficiencies may arise because principal and agent pursue different goals. Using data collected during an amalgamation project of two Swiss municipalities, we show the existence of a gap between the goals of the population and those of the government. Consequently, inefficiencies as predicted by the principal-agent model may arise during the implementation of a public policy, i.e. an amalgamation project. In a context of direct democracy where policies are regularly subjected to referendum, the conflict of objectives may even lead to a total failure of the policy at the polls.

Keywords: Principal-Agent Model, Conflicting Goals, Local Government, Public Policy, Amalgamation, Direct Democracy

Introduction

THE PRINCIPAL-AGENT MODEL is the core analytical model of the economic theory of incentives. An analysis in terms of a principal and an agent supposes the delegation of a task. This theory asserts that an asymmetry of information may arise between the parties to a contract of delegation thereby creating inefficiencies[1]. Let us take the example of when one party to the contract (the principal) mandates another party (the agent) to accomplish a precise task. An asymmetry of information arises if the agent has *own goals* that cannot be observed or known by the principal. In this case, the risk exists that the way in which the agent achieves the task does not correspond to the way preferred by the principal and will correspond instead to the agent's objectives (Mas-Colell, et al. 1995: 447-489)[2]. Hence, as Laffont and Martimort state :"delegation of a task to an agent who has different objectives than the principal who delegates this task is problematic when information about the agent is imperfect" (2002: 2). Delegation of a task and *conflicting objectives* are two fundamental conditions to be met for a principal-agent analysis to be relevant. As far as public policies and more particu-

larly amalgamation policies are concerned, one may question whether a conflict of objectives is empirically observed. Consequently, the aim of this paper is to try to add a new empirical piece to this puzzle.

In the first part of this paper, the possible applications of the principal-agent model will be briefly reviewed. The conditions to be met for an application of the model in the field of public policies will then be discussed. We will finally focus on the conflicting goals assumption in order to set the hypothesis we seek to test. The second part will present the methods used based on data issued from an amalgamation project of two Swiss municipalities in the canton of Neuchâtel. The data and methods will allow us to test our hypothesis. In the third part, we present the results obtained by mean of three tables. We finally draw some theoretical and empirical conclusions but also discuss on the limitations and possible future extensions of our analysis.

Amalgamation of Municipalities as a Principal-Agent Problem: Do the Objectives Conflict?

The principal-agent framework has been successfully applied in traditional fields of industrial economics.

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[1] One should be aware that principal-agent model may describe different concepts depending on the discipline or the context which is considered, e.g. while in economics a principal-agent relationship defines a problematic situation of task delegation where inefficiencies may arise and which requires a contracting or monitoring solution to be found, in juridical science this concept refers to a precise and well-established fiduciary relationship in the Common Law tradition with a clear body of legal theory. According to this legal theory, the objectives of the principal and agent are not supposed to conflict. Hence a principal-agent relationship shouldn't lead to an inefficient situation.

[2] Note that this concept of agent is not restricted to a single person or individual but may refer to groups of actors as well. Delegation of a task may effectively concern a group of persons and an individual or two groups of persons (e.g. shareholders to CEO, citizens to government…).

Private relationships like stakeholder-manager or manager-worker relationships are typical cases that have been analysed using the principal-agent model (Laffont and Martimort. 2002: 29). Furthermore this powerful analytical tool has increasingly been used for the analysis of the public sector and public policies. In fact, the nature of public sector and public policies allows for a great deal of applications of this theoretical framework since delegation relationships are numerous in the public sector. For example, a common application of the principal-agent model in the public sector is the analysis of the relationship between the government and the administration or within the different levels of the administration. As an illustration, Imbeau (2003: 6) describes the budgeting process of a public university as multiple principal-agent relationships, or "chain of delegation", going from the electorate of a jurisdiction to the university's department through the parliament, government, administration…

Some authors have also applied this model to the *local public sector* considering the local population as the principal that delegates the fulfilment of public policies to the local government, i.e. the agent. Megdal (1983) analyses the impact of referenda on local expenditure behaviour in a framework where elected or appointed representatives act on behalf of the citizens of their jurisdictions. More recently, Bravo Santos and Silvestre establish a model where: "the incumbent political party, which is responsible for local government, acts as an agent while local voters are the principals. The incumbent politician faces a threat of entry by the opposition party in the next elections, just like the manager in a firm faces the threat of a take over" (2004: 2). Conversely some authors have put into question this application of the principal-agent framework for describing the interaction between population and its leaders. Lane (2003) suggests that required conditions for such an application may often not be met. Lane argues for example that : "only in countries with established democratic politics is it possible to interpret the leaders as the agents and the population as the principal. In systems with traditional authority or in modern authoritarian regimes the talk about principal and agents amounts to nonsense" (2003: 3). Actually Lane's point of view gives support to the relevance of the principal-agent framework for analysing local public policy in Switzerland, which has strongly established direct democracy system.

Lane argues further that vague content of such a "political" contracting, inability to enforce the contract and difficulty of precisely defining the contractants plea against the application of the principal-agent model to the public sector if considering the population as the principal and the leaders as the agent (Lane. 2003: 4). However, contrarily to what

Lane's statements should imply, empirical studies suggest that a principal-agent analysis of the local public sector where the population is the principal brings strong results. In an empirical analysis on 51 portuguese municipalities, Santos Bravo and Silvestre conclude that the introduction of the agency theory's assumption offers an interesting insight into local public choice models that deserves further research (2004: 12).

In order to contribute to this empirical field of investigation, we will focus on the above-mentioned condition that the *objectives* of the principal and the agent are supposed to *conflict*. Through the delegation of tasks, the local population expects from the government that it fulfils the tasks according to the population's goals and not according to its own. Hence, even if there effectively is an asymmetry of information between the population and the government, identical goals of both principal and agent would lead to the efficient fulfilment of the task. In this case, the prediction of the principal-agent model that the delegation of a task leads to a non-optimal allocation of resources would fail. Transposing this to the case of amalgamations, identical goals between the local government and the population would lead the local government to work out an amalgamation project that exactly meets the population's objectives. In such a case, no significant problem would arise from an asymmetry of information between the principal and the agent and the principal-agent model would not be considered as relevant. In this respect, the interesting question is whether the goals of the local government do indeed reflect those of the population or not. Consequently, we set the hypothesis to be tested in this paper as the following: "*The goals addressed by the local government in an amalgamation project do not reflect those of the local population*". Whether this hypothesis is confirmed or not may have some implication for the relevance of the principal-agent analysis. Should the hypothesis be rejected, the risk of failure of the amalgamation project at the polls – *in a context of direct democracy* – would remain low. Consequently, the local government could simply work out a project according to its own goals and submit it to the population which should accept it. In such a case, a principal-agent analysis would seem irrelevant because no inefficiency would arise from a delegation of the task "amalgamation" to the government by the population.

Should the hypothesis be confirmed, this would confirm the existence of a discrepancy between the populations' and the local governments' goals pertaining amalgamation projects. Insofar as the goals of the government cannot be observed by the local population – which may reasonably be assumed – an analysis of the relationship between the population

and the government using a principal-agent model would appear to be relevant in the field of amalgamation policies.

To test the previously stated hypothesis and to infer conclusions for the relevance of the principal-agent model, we now turn to the presentation of some data collected during an amalgamation project of two Swiss municipalities.

Data from the Amalgamation of Two Swiss Municipalities

For historical and geographical reasons, the Swiss local state level is characterized by the small size of its municipalities compared to those in Europe. Among other European countries, only France, Slovakia, Iceland and the Czech Republic have as many small municipalities (Steiner. 2002: 176). In a context of constant change, this situation makes it difficult for local governments to perform their tasks. A larger size, for example, creates economies of scale in the provision of public services, minimizes spillover effects and professionalizes local authorities and office employees.

One way to address this problem is to increase the size of municipalities by amalgamating two or more of them. In the last decade, amalgamation has been the solution that many Swiss cantons (i.e., the regional Swiss level) have chosen to handle the problem of their constitutive municipalities being too small. Recently, the canton of Neuchâtel implemented an amalgamation policy. In this case, the constitutionally guaranteed existence of municipalities does not allow the cantonal government to force the municipalities to merge. Consequently, an amalgamation process may arise only in a bottom-up way and from a voluntary decision of the municipalities. In fact the canton of Neuchâtel faces the emergence of several projects among which we can study the one pertaining to the municipalities of Corcelles-Cormondrèche and Peseux. This project is particularly suitable for testing our hypothesis. Since we acted as consultant in every step of the project, we were able to collect not only data about the goals of the members of the local government but also data about the population's expectations towards the amalgamation project. Hence, this empirical material will allow us to analyse whether there is a gap between citizens' goals and the government's motivation pertaining to an amalgamation project.

In the first step of the project, data pertaining to the population was obtained by means of a survey of the populations of both municipalities [3]. The purpose of such a survey was to gauge the opinion of the respective populations in order to ascertain whether it was worth proceeding with the project. The citizens were asked to identify their three main expectations and their three main fears about the prospect of a closer collaboration or even an amalgamation, from the list of items below[4]:

- prospects for development (improvement/deterioration)
- services supplied by the municipality (improvement/deterioration)
- production costs of services and taxes (increase/decrease)
- power of the municipality towards the canton or other municipalities (gain/loss)
- control of the authorities and administration by the citizens (gain/loss)
- sense of attachement to her or his community, i.e. municipality (gain/loss)
- interest in municipal politics (increase/decrease)

For each of those items, four different situations may arise: the citizen has neither expectation nor fear, the citizen has only an expectation, the citizen has only a fear, or finally the citizen has an expectation as well as a fear simultaneously[5]. The proportion of citizens identifying an item as a source of expectation and/or fear provides information about the weight or relevance of this item for the population: the higher the percentage, the more relevant the item. Thus, the proportion of responses to each item provides us with a measure of the population's goals.

The data pertaining to the authorities was collected during the second step of the project. The purpose of this second step was to evaluate whether an amalgamation is really the suitable solution for the municipalities or whether another solution would be preferable. To perform this evaluation we used a method developed by Soguel et Léchot (2006) and based on five different analysis axes. These axes seek to cover every dimension at stake in an amalgamation project. We first use a so-called "Development and Leadership" axis, which evaluates whether an amalgamation is able to improve the development prospects of the municipalities and to increase the leadership power towards other jurisdictions. The second axis pertains to the dimension of "Public Opinion and Local Identity" of an amalgamation, which measures the compatibility of the amalgamating municipalities in their political orientations and their

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[3] For the detailed results of the survey, see Beutler, T., and Soguel, N. (2006). Citizens' expectations and fears regarding municipal amalgamation: the case of two Swiss municipalities: IDHEAP.

[4] The items are coherent with those mentioned by Keating, M. (1995). Size, Efficiency and Democracy: Consolidation, Fragmentation and Public Choice. In D. Judge, G. Stoker, and H. Wolman (Eds.), *Theories of Urban Politics*. pp. 117-134. Thousand Oaks and New Delhi.

[5] For example the same citizen may expect or hope the amalgamation will make the tax rate decrease but may simultaneously fear the amalgamation will in fact make the taxe rate increase.

feelings of self-identity. The third axis, "Finance", measures the financial compatibility of the amalgamating municipalities. The two last axes analyse whether an amalgamation could increase the efficiency of the provision of services by the municipalities. The fourth axis, "Decision about the Services", evaluates the room for improvement in the quality of the decision-making process relating to the services supplied. This evaluation should determine whether an amalgamation would improve the satisfaction of the citizens' needs. The last axis, "Production of the Services", analyses whether amalgamation can create economies of scale and hence offer different services more efficiently.

In order to perform the analysis as correctly as possible, the members of the local government were asked to weight the different axes according to their own priorities. The governments' members first had to order the different axes according to their priorities. They then had to give a subjective evaluation of the importance of the gap between each axis. The estimated weights by each member of the government were finally quantified by mean of the MACBETH (Measuring Attractivness by a Categorical-based Evaluation Technique) algorithm (Bana e Costa and Vansnick. 1999). The results of this weighting process provide us with a quantitative measure of the goals on which the authorities are focusing through the amalgamation project. We can then sum the weights to obtain a single measure for the local government as a whole.

Finally, the test of our hypothesis consists of comparing the data for the population with those obtained for the local government. If we observe some significant discrepancies, then the hypothesis will be verified. Conversely, if it appears that the population and authority place weight on the same items, the hypothesis will be rejected. The next section presents the results obtained.

The Discrepancy between the Population's and the Government's Goals

The results will be presented in three steps. We first give a presentation of the relative proportions obtained with respect to the expectations and fears of the citizens (table 1). Secondly, we present the data obtained from the local government through the weighting of the axes (table 2). Finally, we reformulate the data for the population according to the previously described axis method in order to make them comparable with those of the government (table 3). This final data comparison will allow us to properly test our hypothesis. We will then discuss the consequences of these results for the use of the principal-agent model for public policies analysis.

Table 1 presents the proportion of the population that mentioned each item as an expectation, a fear, or an expectation and a fear simultaneously. The elements in the table represent an estimation of the relevance of each item for the population of both municipalities. The first interesting result is that both populations have very similar opinions. The most important discrepancy is Identification, with a difference of seven percentage points. For both populations the most relevant item is by far the item pertaining to the costs of services and taxes. Note that the last column mentions the analysis axis to which each item belongs. Three items are related to the Development and Leadership axis. In order to make the data comparable with those of the government we will then sum up those three features and calculate the mean.

Table 1 : Data from the Population's Survey

	Shares in %		Analysis axis corresponding to the items
Items relative to expectations and/or fears	Corcelles-C.	Peseux	
Costs of services and taxes	94	94	Finance (FIN
Services supplied by the municipality	73	72	Production of the Services (PROD-S)
Perspectives of development	65	66	Development and Leadership (D&L)
Power towards canton and oth. municipalities	54	48	Development and Leadership (D&L)
Identification with the municipality	54	47	Public Opinion and Local Identity (PO&LI)
Interest for municipal politics	41	38	Development and Leadership (D&L)
Control on authorities and administration	41	39	Decision about the services (DEC-S)
Total	422	404	
Source : Beutler & Soguel (2006)			

The data regarding the members of the local governments were collected during a special weighting session. Members were asked to weight the different analysis axes according to their own priorities. Table 2 shows the relative relevance of each axis for the government[6]. The results indicate that for the government an amalgamation project must clearly give priority to the development and leadership dimension as well as to the decision-making dimension relating to services.

Table 2: Weighting of the Axis by the Government

Analysis axis	Weight, in %
Development and Leadership (D&L)	25
Decision about the services (DEC-S)	25
Finance (FIN)	18
Production of the Services (PROD-S)	18
Public Opinion and Local Identity (PO&LI)	14
Total	100
Source : Soguel & Léchot (2006)	

The sum of the weights for the government is exactly 100, which is not the case for the population. To make the data comparable, we normalised the sum of the populations' proportions to 100 and calculate the relative weights. We can then compare the weights of the populations and the local government.

Table 3: Comparison between the Populations' and the Government's Data

Analysis axis	Weights, in %		
	Population		
	Peseux	Corcelles-C.	Government
Finance (FIN)	31	30	18
Production of the services (PROD-S)	24	23	18
Development and Leadership (D&L)	17	17	25
Public Opinion and Local Identity (PO&LI)	16	17	14
Decision about the services (DEC-S)	13	13	25
Total	100	100	100
Sources : Soguel et Léchot (2006), Beutler et Soguel (2006)			

Table 3 shows the priority axes for both populations as well as for the government. The axes are ordered according to the populations' priorities. The aspects related to finance and to the production of services appear to be the most important concern for the population. On the contrary, those aspects seem less relevant to the government. Indeed, it puts more weight on leadership and development as well as decision making aspects, which clearly are not priorities for both populations. Consequently, the results of table 3 lead us to conclude that our previously set *hypothesis is verified*, at least partly. That means *we observe a gap* between the populations' and the government's goals pertaining to an amalgamation project[7]. Hence the targeted goals of the amalgamation project worked out by the government could diverge from those of the population. This situation may create inefficiencies in the implementation of the amalgamation project or even lead to a failure at the polls in a system of direct democracy as it is the case in Switzerland. From a theoretical point of view this result tends to confirm the assumption of conflicting objectives, which is central to the principal-agent model. Hence this paper clearly provides more

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[6] Note that although we dealt with two municipalities, table 2 presents a single indicator. This is due to the fact that the axes were weighted simultaneously by both local governments. The composite indicator was obtained through a negociation between the members of both governments.
[7] Note that some empirical studies suggest that such a gap can also be observed between the government and the population on the one hand and the administration on the other hand. In a 1998 survey, Steiner asked 2914 secretaries of Swiss municipalities about the advantages of an amalgamation. They mentioned as a first advantage the possibilities of professionalization. The less often mentioned advantage was the reduction of the tax burden (Steiner. 2002: 348). Hence the preoccupations of the administration pertaining to amalgamations seem to be different than those of the population and government.

empirical support for the use of the principal-agent model in the field of local public policies, even if the population is considered as the principal.

Conclusion

In this paper we sought to test whether the principal-agent core assumption of conflicting objectives has empirical relevance and more generally whether the principal-agent model is a suitable framework for analysing the local public sector and local public policies. Our research hypothesis, i.e. *"the goals addressed by the local government in an amalgamation project do not reflect those of the local population"*, was tested by comparing the objectives of both population and local government which we were able to evaluate during an amalgamation project in which we were involved. The presented data show the emergence of a discrepancy between authorities and population regarding the implementation of a public policy, in this case an amalgamation project. As predicted by the agency theory, such a situation may lead to inefficiencies in the implementation of the public policy in the sense that the amalgamation project will not correspond to what the population (the principal) expected from the government (the agent). Furthermore, in a direct democracy framework where the final decision often rests with the population, the existence of such a gap drastically increases the risk of failure at the polls, which would represent an enormous waste of resources.

Before concluding our discussion, it is necessary to mention some of the limitations of our analysis and the way it could be improved in the future. First of all, one should be careful when interpreting these results in as far as they are more evenly distributed for the government (18% to 25%) than for the populations (13% to 31%).

Moreover, generalities cannot be formed based on the previous conclusions without taking several points into account. Firstly, one should note that data for the government and the population were obtained using two different methods. Hence we cannot guarantee that the same result would have been observed if the same method had been applied to both government and population. Unfortunately improving this weakness of our study is far from easy because applying the method used for the local government – which is more precise – to the whole population or to a representative enough sample would be too costly.

Secondly, our test relates only to one case of amalgamation and for one particular public policy, i.e. amalgamation. Consequently, this result doesn't automatically hold for other municipalities or other public policy in Switzerland. However, further projects of amalgamation should provide new data and should allow us to assess our results. Comparisons with amalgamation of municipalities in foreign countries could also be interesting and could allow us to control for institutional differences, for example between direct and representative democracy. Unfortunately we did not find any comparable data issued from foreign amalgamation projects yet.

Thirdly, our data provide a static picture of the objectives of both population and local government. Hence, we cannot exclude that the observed gap in objectives would decrease (or increase) when approaching the final decision on the project and its implementation. A decreasing dynamic evolution of the gap could reasonably be assumed in the Swiss case since amalgamations are generally subjected to referenda which put pressure on local governments to develop policies that better meet citizens' objectives. In this respect, time series data collected from the same observed unit (i.e. municipalities) could have brought us interesting insights. Once again however, the cost of collecting such data did not allow us to collect it over time during the project.

Those limitations notwithstanding, this paper does suggest that the agency theory analysis is relevant in the field of (local) public policy and that the risks induced by the existence of a gap between authorities' and citizens' goals should not be neglected. Even in countries that do not have a direct democracy system, disregarding the will of the population may lead to a reprimand by the citizens in the shape of a non re-election. Furthermore, taking citizens' preoccupations into account may help authorities to avoid the emergence of inefficiencies and to achieve one of their main task, i.e. satisfying citizens' needs. But the relevance of the principal-agent model in a representative democracy framework – which is not empirically considered in this paper – would need further empirical evidence to be either verified or rejected.

Acknowledgments

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