

Direction des Études et Synthèses Économiques

G 2013 / 11

**Introducing activity-based payment in the hospital
industry: Evidence from French data**

PHILIPPE CHONÉ - FRANCK EVAIN

LIONEL WILNER - ENGIN YILMAZ

Document de travail



Institut National de la Statistique et des Études Économiques

INSTITUT NATIONAL DE LA STATISTIQUE ET DES ÉTUDES ÉCONOMIQUES

*Série des documents de travail
de la Direction des Études et Synthèses Économiques*

G 2013 / 11

Introducing activity-based payment in the hospital industry: Evidence from French data

PHILIPPE CHONÉ* - FRANCK EVAÏN -
LIONEL WILNER*** - ENGIN YILMAZ******

SEPTEMBRE 2013

Les auteurs remercient VINCENT DORTET BERNADET, ÉRIC DUBOIS, PIERRE DUBOIS, PHILIPPE FÉVRIER, CLAIRE LELARGE, LAURENT LINNEMER, CORINNE PROST, ROLAND RATHELOT, DENIS RAYNAUD, ALAIN TRANNOY et MICHAEL VISSER pour leurs suggestions, ainsi que KURT BREKKE, ROBERT GARY-BOBO, NICOLAS JACQUEMET, FLORENCE NAEGELEN et GÉRARD DE POUVOURVILLE pour leurs discussions. Ils sont également redevables aux participants des séminaires CREST-LEI, CREST-LMI, DREES-3S et INSEE-DEE, ainsi qu'aux audiences de la journée « Chaire Santé » de l'Université Paris-Dauphine, de la conférence de microéconomie appliquée du CESIfo (Munich) et des conférences EEA (Göteborg) et EARIE (Evora).

* CREST-ENSAE

** DREES

*** Département des Études Économiques - Division « Marchés et Entreprises »
Timbre G230 - 15, bd Gabriel Péri - BP 100 - 92244 MALAKOFF CEDEX

**** DREES

Département des Études Économiques - Timbre G201 - 15, bd Gabriel Péri - BP 100 - 92244 MALAKOFF CEDEX - France - Tél. : 33 (1) 41 17 60 68 - Fax : 33 (1) 41 17 60 45 - CEDEX - E-mail : d3e-dg@insee.fr - Site Web Insee : <http://www.insee.fr>

*Ces documents de travail ne reflètent pas la position de l'Insee et n'engagent que leurs auteurs.
Working papers do not reflect the position of INSEE but only their authors' views.*

Introducing activity-based payment in the hospital industry: Evidence from French data

Abstract

Many countries have reformed hospital reimbursement policies to provide stronger incentives for quality and cost reduction. The purpose of this work is to show how the effect of such reforms depends on the intensity of local competition. We build a nonprice competition model to examine the effect of a shift from global budget to patient-based payment for public hospitals in France. We predict that the number of patient admissions should increase in public hospitals by more than in private clinics and that the increase in admissions should be stronger in public hospitals that are more exposed to competitive pressure from private clinics. Considering the reform implemented in France between 2005 and 2008, we find empirical evidence supporting these predictions: the activity increased up to 10% in public hospitals more exposed to competitive pressure from private clinics while it hardly raised by 4% in public hospitals less exposed to such a competitive pressure, in comparison with private clinics.

Keywords: Health care markets, prospective payment system, local competition, not-for-profit hospitals.

L'introduction de la tarification à l'activité dans les hôpitaux en France

Résumé

De nombreux pays ont réformé leur politique de financement des établissements de santé afin de fournir davantage d'incitations à la qualité ainsi qu'à la réduction des coûts. L'objectif de ce travail est de montrer comment l'effet de telles réformes dépend de l'intensité de la concurrence locale. Nous développons un modèle de concurrence non tarifaire pour étudier l'effet d'un changement de tarification, à savoir le passage d'une enveloppe globale à un paiement fondé sur l'activité, comme dans le cas des hôpitaux publics français lors de la réforme « tarification à l'activité » (T2A). Ce modèle prédit que le nombre d'admissions de patients devrait davantage augmenter dans les hôpitaux publics que dans les cliniques privées, et ce, d'autant plus que les hôpitaux publics sont soumis à une pression concurrentielle forte de la part des cliniques privées. À partir de la T2A implémentée en France entre 2005 et 2008, nous documentons des faits empiriques cohérents avec ces prédictions : relativement à l'activité dans les cliniques privées, l'activité a en effet augmenté d'environ 10 % dans les hôpitaux publics davantage soumis à une telle pression concurrentielle, contre seulement 4 % dans les hôpitaux publics moins soumis à cette concurrence.

Mots-clés : Marché de la santé, tarification prospective à l'activité, concurrence locale, hôpitaux publics.

Classification JEL : I11, I18, L33.

1 Introduction

Many countries have reformed their hospital reimbursement policies to provide stronger incentives for quality and managerial effort. The purpose of this article is to understand how the effect of such reforms may depend on the intensity of local competition. Our focus, therefore, is on the interaction between payment reforms and hospital competition. These results may have significant implications in terms of public policies and be taken into account by the regulator when designing the best mechanism to provide the correct incentives to health care providers.

The reform we consider is the shift from global, historical budget to patient-based payment for public and not-for-profit French hospitals between 2005 and 2008. This reform boils down to a simple change in the financial incentives of the concerned hospitals: an extra admission generated no additional revenue pre-reform while it did post-reform. Taking responses by other hospitals into account, we examine how the changes in equilibrium outcomes depend on local competition. We derive theoretical predictions from a nonprice competition model and test them using panel data on the number of discharges and average lengths of stay at the hospital-diagnosis related group level.

So far, payment reforms and hospital competition have mostly been studied separately. A considerable body of empirical literature, surveyed by [Gaynor and Town \(2012\)](#), aims at assessing welfare consequences of competition in a given policy regime.¹ The impact of competition on quality tends to be positive when hospital prices are regulated while it may be negative when hospitals can compete on both price and quality.

In contrast, the empirical literature on the impact of provider payment reforms is surprisingly thin, as pointed out by [Moreno-Serra and Wagstaff \(2010\)](#). Moreover, the existing empirical studies on payment reforms rarely refer to competition. [Ellis and McGuire \(1996\)](#) mention the tightening of the distribution of lengths of stay following the introduction of prospective payments in the U.S. as an indicator of quality competition. [Gowrisankaran, Lucarelli, Schmidt-Dengler, and Town \(2011\)](#) estimate the effect of a policy reform regarding rural hospitals in the U.S., but do not address the role of competition. An exception is [Her-](#)

¹Many empirical papers try to assess the impact of competition on quality: [Kessler and McClellan \(2000\)](#), [Propper, Burgess, and Gossage \(2007\)](#), [Cooper, Gibbons, Jones, and McGuire \(2011\)](#) and [Propper \(2012\)](#) among others. Most of these studies consider mortality rates of the acute myocardial infarction as a quality measure.

wartz and Strumann (2012). These authors find an increase in negative spatial correlation between hospital performances following the introduction of prospective reimbursement in Germany, which they interpret as a rise in local competition caused by the reform. Their dataset, however, does not contain information at the diagnosis-related group (DRG) level, and their competitive interpretation is based on rather indirect evidence.

As to theoretical studies on provider incentives, early work tended to ignore strategic interactions.² Several articles, Pope (1989), Ellis (1998) and Brekke, Siciliani, and Straume (2011), have investigated nonprice competition, restricting their attention to symmetric equilibria. The first article assumes that hospitals choose quality expenditure and managerial slackness. The last two consider semi-altruistic providers and focus on quality choices, differing in particular as to whether or not hospitals can differentiate the intensity of service according to patient severity.

In the present article, we build a stylized model of nonprice competition, where hospitals compete in utility to attract patients.³ The notion of utility should be interpreted cautiously as patients imperfectly observe care quality and may base their hospital choice on certain observable characteristics (e.g. hospital amenities) which an omniscient regulator would not necessarily value as they do. Patient utility, therefore, must be thought of as subjective, and shall be better described as “hospital attractiveness”. Accordingly, this study contains no welfare analysis, but only an equilibrium analysis of a positive nature.

Unlike the theoretical articles mentioned above, we allow for asymmetric equilibria as well as for different hospital objectives and payment rules depending on ownership status. We examine how the payment reform affects the financial incentives of public hospitals. We then investigate the implications for the best response functions and the equilibrium configuration in the pre- and post-reform periods. We derive a couple of reduced-form predictions as regards the relative evolution of volumes in public and private hospitals: the number of patient admissions should increase in public hospitals by more than in private clinics; the increase in admissions should be stronger in public hospitals more exposed to competitive pressure from private clinics.

²For instance, Hodgkin and McGuire (1994) acknowledge that interhospital competition is missing from their model. Ma (1994) does not model competition either.

³Instead of competing in price or in quantity like in the usual Bertrand or Cournot frameworks, the strategic variable chosen by hospitals is the level of utility offered to patients. Best responses and Nash equilibria are defined in the same way.

Next, we check that these predictions are consistent with empirical evidence based on annual data of hospital outcomes. Our dataset includes the number of patient admissions and average lengths of stay for all DRGs and all hospitals, be it subject to the payment reform or not. Controlling for hospital \times DRG and year \times DRG fixed effects as well as for many time-dependent hospital characteristics, we find that public and not-for-profit hospitals have increased activity by more than private clinics during the period. Our main result, however, is that these diverging trends are magnified in competitive areas. We use an indicator for local competition based on distance-weighted number of beds at neighboring hospitals.

Finally, we emphasize that the policy change only applies to public and not-for-profit hospitals, which account for about 40% of surgery activity in France. During this period, the financial rules applying to for-profit hospitals (private clinics) have remained unchanged. However, if private clinics respond to the public hospitals' moves, they are indirectly affected by the reform, and hence do not constitute a valid "control group" in the sense of public policy evaluation.

The paper is organized as follows. Section 2 presents the main aspects of the reform at hand, introducing an activity-based payment rule and stressing the differences with the Medicare prospective payment system (PPS). Section 3 presents a nonprice competition model that accounts for asymmetric equilibria. Section 4 is devoted to the data description. Section 5 shows how market shares and average lengths of stay evolved in public hospitals and private clinics and estimates how these relative evolutions of the two groups depend on the local competitive environment. Section 6 provides an estimation of the impact of the reform in pecuniary terms. Section 7 discusses potential additional concerns and provides corresponding robustness checks. Section 8 concludes.

2 Policy reform

The segmentation of activity into several groups of disease, the DRG classes, dates back to the creation in 1986 of an exhaustive management information system that records all discharges in French hospitals (*Programme de Médicalisation des Systèmes d'Information*).⁴ The nature and timing of the payment reforms differed according to hospital ownership status.

⁴Such a classification has been used in the US since 1982.

2.1 For-profit hospitals

Before 2005, an activity-based payment applied to for-profit (FP) health care providers, *i.e.*, private clinics, and was based on DRG prices. The reimbursement rates, however, included a *per diem* fee: as a result, they depended on the length of stay. Moreover, these rates were negotiated annually and bilaterally between the local regulator and each clinic, and were consequently history- and geography-dependent. Starting 2005, all private clinics are reimbursed the same rate for a given DRG; moreover, after the reform, those DRG-related rates do not depend on length of stay.⁵ For clinics, the DRG-based reimbursement scheme has never covered physician fees (see the discussion in Section 7).

2.2 Not-for-profit hospitals

The reform had more dramatic consequences for public and not-for-profit (NFP) hospitals.⁶ Before March 2004, these hospitals were indeed funded through an annual lump-sum transfer from the government (*dotation globale*) which was very stable and did not vary neither with the nature nor the evolution of their activity.

The payment reform proceeded in two stages.

An activity-based payment was gradually introduced from 2004 to 2008 in not-for-profit hospitals. In 2004, the activity-based payment applied to 10% of their resources, the remaining part being still funded by a global envelope. The activity-based part of the budget increased to 25% in 2005, to 35% in 2006, to 50% in 2007 and to 100% in 2008. At the end of this phase-in period, a hospital-specific “transition” coefficient is applied on DRG prices to neutralize any shocks on the public hospital’s revenues (Cour des Comptes, 2011, p. 218). So far, the reform is supposed not to have affected the financial pressure placed on public hospitals.

The second stage, starting at the beginning of 2009, consisted in letting the hospital-specific prices converge to a unique price schedule for all public hospitals.⁷ The convergence process was completed by the end of 2011. At this point, all public hospitals face the same prices and compete on a level playing field. An additional feature, however, has to be taken into account. All over the period, public hospitals

⁵Reimbursement rates, however, are adjusted downwards (resp. upwards) for exceptionally short (long) stays.

⁶Since public and NFP hospitals have the same payment rule, in what follows we sometimes refer to them as to not-for-profit hospitals by abuse of language.

⁷The prices remained different from those in force for private clinics.

keep on receiving many lump-sum transfers, designed to fund various services of general interest, research, innovation and many other projects or actions.⁸

The model presented in Section 3 addresses only the first part of the reform, namely the gradual shift from global budget to activity-based payment. The second part follows a different logic, related to yardstick competition (Shleifer, 1985), with hospital-specific prices changing over time. Hereafter, we concentrate on the period from 2005 to 2008 where the payment rules applying to private clinics remained constant.

3 Theoretical framework

We build a nonprice competition model between hospitals that are asymmetric in many dimensions, in particular their objective, size and the way they are funded. We allow for very general objective functions: as there is no consensus in the literature in that respect (particularly for not-for-profit hospitals), we allow hospitals to care about patient subjective utility, number of admissions and profit. We model the change in financial incentives created by the shift from global budget towards activity-based payment in the case of not-for-profit hospitals only. We explain how the best response functions and the competitive equilibrium are affected.

We consider here the case of a single type of hospital viewed as a representative hospital. A private clinic and a public hospital compete in utility to attract patients. The number of patients admitted in hospital h , $N_h(u_h, u'_h)$, depends positively on that hospital's attractiveness, u_h , and negatively on its competitors' attractiveness, u'_h . We assume that the former effect weakly dominates the latter:

$$\frac{\partial N_h}{\partial u_h} + \frac{\partial N_h}{\partial u'_h} \geq 0, \quad (1)$$

with equality when demand is inelastic, *i.e.*, when demand functions depend only on the differences of offered utilities.

Prior to the reform, the revenue of the public hospital is a negotiated lump-sum transfer that does not depend on volumes:

$$R_h^b = T_h^b. \quad (2)$$

⁸Such transfers were encompassed in our model by T^b and T^a in (2) and (3).

The reform changed its revenue as follows:

$$R_h^a(u_h; u'_h) = T_h^a + pN_h, \quad (3)$$

where p is the price per admission and T_h^a is a lump-sum transfer.⁹ Hospital costs, $C_h(u_h, N_h)$, increase in u_h if enhancing attractiveness entails a pecuniary cost. The hospital profit is the difference $\pi_h = R_h - C_h$.

The manager's utility is denoted by $V_h(\pi_h, N_h, u_h)$. The derivative $\partial V_h / \partial \pi_h \geq 0$ is the marginal utility of income for hospital h . It reflects the financial pressure on the hospital, *i.e.*, how binding its implicit budget constraint is. The second argument reflects the manager's valuation of admitting many patients, which may come from managerial career concerns or variable non-pecuniary costs: treating more patients may generate personal spillovers for the manager, intrinsic satisfaction, or require higher effort per patient. The third argument may reflect altruism, practice style, professional ethics or a fixed non-pecuniary cost of effort.

A public hospital forms its best response by maximizing its objective function $V_h(\pi_h, N_h, u_h)$ with respect to its attractiveness u_h . Prior to the reform, the first-order condition for the public hospital is given by

$$-\frac{\partial V_h}{\partial \pi_h} C'_h + \frac{\partial V_h}{\partial N_h} \frac{\partial N_h}{\partial u_h} + \frac{\partial V_h}{\partial u_h} = 0, \quad (4)$$

where the notation C'_h refers to the *total* derivative of $C_h(u_h, N_h(u_h; u'_h))$ with respect to the offered utility u_h , the utility offered by the competitor u'_h being fixed.

After the reform, the first-order condition for the public hospital becomes

$$\underbrace{\frac{\partial V_h}{\partial \pi_h} (R'_h - C'_h)}_{\Psi_h(u_h; u'_h)} + \frac{\partial V_h}{\partial N_h} \frac{\partial N_h}{\partial u_h} + \frac{\partial V_h}{\partial u_h} = 0. \quad (5)$$

Let $\tau_h(u_h; u'_h)$ represent the new financial incentives created by the reform:

$$\tau_h(u_h; u'_h) = \frac{\partial V_h}{\partial \pi_h} R'_h = \frac{\partial V_h}{\partial \pi_h} p \frac{\partial N_h}{\partial u_h}.$$

⁹After the reform, public hospitals continued to receive lump-sum transfers for various motives (see section 4), which account for about 15% of the budget.

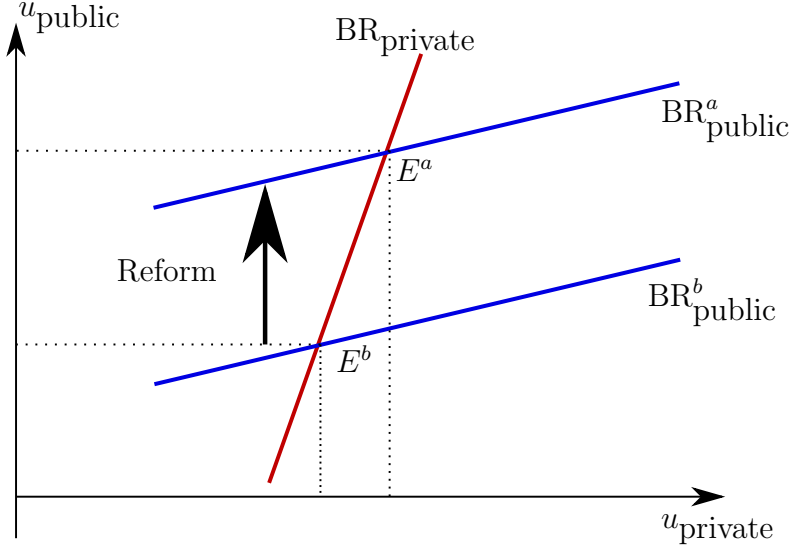


Figure 1: Pre- and post-reform equilibria

This term is equal to the marginal revenue multiplied by the marginal utility of income. The marginal utility of income $\partial V_h / \partial \pi_h$ may vary over time. In our empirical setting, as regards public hospitals, however, the reform has been designed to be budget-neutral, so it should remain fairly constant over time. The marginal revenue depends on the elasticity of the residual demand addressed to the hospital and hence on the local market structure around the hospital. Comparing (4) and (5), we find that the public hospital's best response functions before BR_h^b and after the reform BR_h^a satisfy:

$$\Psi_h(BR_h^a(u'_h); u'_h) = 0; \Psi_h(BR_h^b(u'_h); u'_h) - \tau_h(BR_h^b(u'_h); u'_h) = 0$$

so that:

$$\Psi_h(BR_h^b(u'_h); u'_h) - \Psi_h(BR_h^a(u'_h); u'_h) = \tau_h(BR_h^b(u'_h); u'_h). \quad (6)$$

We assume the existence and the uniqueness of pre- and post-reform equilibria. Around the post-reform equilibrium value for u'_h , the function Ψ_h decreases in its first argument, due to the second-order condition of the hospital problem. It follows that the payment reform causes the best response to shift upwards: $BR_h^a(u_h^b) > BR_h^b(u_h^b)$, which entails that the equilibrium has shifted from $E^b = (u_h^b; u_h^b)$ before the reform to $E^a = (u_h^a; u_h^a)$ after the reform such that $u_h^a > u_h^b$ and $u_h^a > u_h^b$, as shown by Figure 1.

In contrast, the best response of the private clinic c remains unchanged over the period of study. We now argue that under reasonable assumptions on the objective function and demand, the private clinic responds to the above shift by increasing the offered utility by less than the public hospital does. Before and after the reform, the revenue of private clinics is given by a formula similar to (3): $\Pi_c = p_c N_c - C_c(u_c, N_c)$. We first notice that this profit is a function of N_c and u_c . As a result, the expression of the objective function can be written as a function of N_c and u_c : $V_c(\Pi_c, N_c, u_c) = v(N_c, u_c)$. Note that the number of admissions N_c itself depends on u_c and u'_c only. The clinic chooses its attractiveness u_c to maximize the previous objective function. To simplify notations, we replace u_c , u'_c , $V_c(\pi_c, N_c, u_c)$ with respectively u , u' and $v(N, u)$.

Assumption 1 (Concavity). *v is concave in N and u .*

The private clinic's best response is therefore given by the first-order condition with respect to u :

$$v_N(N, u)N_u(u; u') + v_u(N, u) = 0. \quad (7)$$

We examine the properties of this best response function. The concavity implies that:

$$v_{uu} = \underbrace{v_{NN}N_u^2 + v_N N_{uu} + v_{Nu}N_u}_A + \underbrace{v_{Nu}N_u + v_{uu}}_B \leq 0.$$

Differentiating (7) with respect to u' yields

$$v_{uu'} = \underbrace{v_{NN}N_u N_{u'} + v_N N_{uu'} + v_{Nu}N_{u'}}_C. \quad (8)$$

By the implicit function theorem, the derivative of the clinic's best response with respect to the attractiveness of its competitor u' is thus given by

$$\text{BR}' = \frac{\partial u}{\partial u'} = -\frac{C}{A + B}.$$

Assumption 2 (Single-crossing). *The manager's utility of an extra admission decreases with hospital attractiveness: $v_{Nu} \leq 0$.*

Assumption 2 holds for instance when the clinic's objective is to maximize its profits, *i.e.* when $v(N, u) = pN - C(u, N)$, and when the marginal costs C_N

increases with u .¹⁰ Under Assumption 2, BR' is smaller than one as soon as $N_{uu} + N_{uu'}$ is not too large, so that $A + C < 0$. If we further assume that demand is inelastic or linear, then we get $BR' < 1$. Indeed, when the demand is inelastic, $N_u + N_{u'} = 0$, which yields $C = -A$ and $BR' = A/(A + B) = 1 - B/(A + B) < 1$. When the demand is linear,

$$A + C = [v_{NN}N_u + v_{Nu}][N_u + N_{u'}] + v_N[N_{uu} + N_{uu'}] = [v_{NN}N_u + v_{Nu}][N_u + N_{u'}] < 0$$

which, together with $B < 0$, yields $BR' < 1$.

Utilities offered to patients are strategic complements when the best response is upward sloping ($BR' > 0$), which is the case if and only if $C > 0$. As $N_{u'}$, v_{Nu} and v_{NN} are all negative, $C > 0$ holds as soon as the term $v_N N_{uu'}$ is negligible in (8), in particular when demand is linear. Strategic complementarity, therefore, is a plausible configuration, as illustrated by Gravelle, Santos, and Siciliani (2013) in the context of quality competition.¹¹

The above analysis suggests that under reasonable assumptions the payment reform may have the impact shown on Figure 1, where the slope of the private clinic's best response is positive and smaller than one, which suggests the following prediction:

Prediction 1. *During the 2005-2008 period, patient utility increases in public hospitals by more than in private clinics.*

In the current paper, we do not use patient level data and hence cannot test directly such a prediction.¹² We must restrict attention to predictions on aggregated data. Prediction 1 implies that private clinics lose market shares relative to public hospitals following the payment reform, leading to the following conjecture:

¹⁰It also holds when enhancing attractiveness entails (fixed or per patient) non-pecuniary costs or gains that are separable from financial incentives, *i.e.*, $v(N, u) = v_1(N) + v_2(Nu) + v_3(u)$, where the functions v_1 , v_2 and v_3 are concave. The non-pecuniary costs or gains may come respectively from effort disutility and altruism. They are represented by the terms v_2 and v_3 depending on whether they are per patient or fixed.

¹¹Gravelle, Santos, and Siciliani (2013), who observe sixteen indicators of quality (readmission, mortality rates, redo rates) in a sample of English hospitals, find either complementarity (for seven indicators) or no significant link. However, their approach relies on cross-sectional evidence and their results do not come from any policy change.

¹²This is the purpose of an on-going work in which we use market shares in local markets to express the relative utility gain in public hospitals in terms of travel cost economies for patients. Our ultimate goal is to estimate the slope of the private clinics' best responses and to link changes in public hospitals to the financial incentives created by the reform.

Prediction 2. *On average, volumes increase in public hospitals by more than in private clinics.*

We also derive predictions regarding the relative evolution of volumes in different public hospitals. Public hospitals that are isolated have low incentives to increase patient subjective utility. Next, consider public hospitals that are exposed solely to competition from other public hospitals. If all such hospitals increase patient utility, they may gain little in terms of market share as the effects of utility rises to some extent offset each other. Activity is likely to rise more rapidly for public hospitals that can take market share away from neighboring private clinics, hence our last prediction:

Hypothesis 1. *Public hospitals exposed to competitive pressure from private clinics increase activity by more than public hospitals unexposed to such pressure.*

4 Data

4.1 A comprehensive database

The empirical analysis relies on two comprehensive administrative sources: the *Programme de Médicalisation des Systèmes d'Information* and the *Statistique Annuelle des Établissements de santé*. The latter is a mandatory - and thus exhaustive - survey of all NFP and FP hospitals in France, containing information about equipment, staff and capacity. The former source provides information on activity (volumes, lengths of stay) for every hospital and clinic at the DRG level.

Moreover, the DRG classification (v10c) remains constant over the period 2005 – 2008; as a result, our estimation procedure is not polluted by the changes in the classification which occurred in 2005 and 2009. The payment reform might give public hospitals an incentive to inflate activity through coding optimization. We show in Section 7 that our results are robust when allowing for such a behavior.

We also collected demographic variables at the French *département* level,¹³ in particular population stratified by age and gender, as well as the average income. These data are matched to hospitals according to their *département*.

Finally, to compute measures of local competition, we resort to the Odomatrix software developed by INRA that gives distance or travel time between zipcodes.¹⁴

¹³Equivalent to a county.

¹⁴A zipcode is much smaller than a *département* and is often made up of several cities.

4.2 Selection of the sample

Although the activity-based payment applies to the three types of hospital care (surgery, medical or non-surgery, and obstetrics), we concentrate on surgery only for the following reasons. First, as far as surgery is concerned, the market structure is constant over the period of study. We observe no entry, exit or merger as we do, for instance, in obstetrics. The present study focuses on surgery, that accounts for 35.5% of hospital activity. The study of medical care is left for further research.

Table 1: Difference in differences

		2005	2008	diff
		I	II	II-I
Number of stays	FP	33.52 (0.36)	33.43 (0.40)	-0.08 (0.17)
	NFP	24.27 (0.21)	26.35 (0.24)	2.08 (0.10)
	NFP - FP	-9.24 (0.42)	-7.08 (0.47)	2.16 (0.20)
Average length of stay	FP	2.75 (0.004)	2.51 (0.004)	-0.24 (0.001)
	NFP	5.47 (0.006)	5.04 (0.006)	-0.43 (0.003)
	NFP - FP	2.72 (0.006)	2.53 (0.006)	-0.19 (0.003)

Note. Number of stays: per hospital, DRG, year.
Average length of stay: in days.
FP: for-profit hospitals, NFP: not-for-profit hospitals.

Our working sample is a balanced panel of 730, 440 observations, corresponding to 182, 610 hospital-DRG pairs observed from 2005 to 2008 and including 145, 158 zeroes (about 19.9% of observations). To abstract away for coding issues, we pool together pairs of DRGs that correspond to a given diagnosis and differ in case severities or presence of co-morbidity and complications.¹⁵ We are left with 1, 198 health care providers in Metropolitan France at the exclusion of Corsica: 619 of them are public or not-for-profit hospitals while 579 are for-profit private clinics. We observe 280 surgical DRGs, including 62 in ambulatory care. Every year, we consider about 5.4 million surgery stays in one of 19 clinical departments (ophthalmology, cardiology, etc.).

¹⁵In Section 7, we discuss the “DRG creep” issue and assess the robustness of our results to alternative levels of aggregation.

Summary statistics provided in Table 1 show an increase in volumes of 2.16 stays per hospital, per DRG and per year – about 8.9% – and a reduction of 0.19 day – about 3.5% – for average lengths of stay at public hospitals relative to private clinics between 2005 and 2008. At the aggregate level, Figure 2a shows that the number of admissions in NFP hospitals increased by more over the period than in the private sector. This supplementary increase amounted to 180,000 stays.

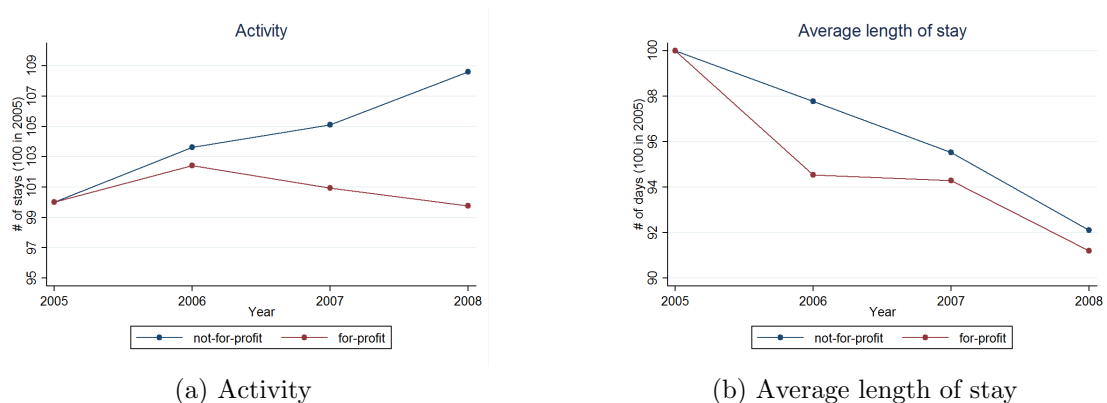


Figure 2: Evolution of aggregated outcomes, 2005-2008

5 Empirical results

Turning to our empirical specification, we seek to compare first the evolution of NFP and FP hospitals over the period 2005 – 2008 as conjectured by Prediction 2. To this aim, we run the following regression:

$$y_{hgt} = \sum_{\tau=2006}^{2008} \beta_{\tau} \text{NFP}_h \mathbb{1}[t = \tau] + X'_{ht} \gamma + \delta_{gt} + \xi_{hg} + \epsilon_{hgt}, \quad (9)$$

where h indexes hospitals, g DRGs and t years. This OLS regression has two factors, namely hospital-DRG fixed-effects ξ_{hg} and DRG-year fixed-effects δ_{gt} . The former capture the average activity at the hospital-DRG level and thus account for any specialization of hospitals in some clinical departments. The latter control for possible changes in the national activity at the DRG level over the period (epidemic diseases, ageing of the population, technological change, specific trends for some illnesses, etc.). X_{ht} are hospital-year controls that include staff covariates (number of surgeons, physicians, nurses and administrative staff); equipment covariates (computed tomography, magnetic resonance imaging, positron tomography, doppler

sonography); capacity covariates (number of beds); socio-demographic covariates (average income, population stratified by age and gender). NFP_h is a dummy that is equal to 1 for not-for-profit hospitals. As a result, β_τ measures the evolution of NFP relative to FP hospitals in terms of outcomes y_{hgt} between 2005 and 2006, 2007, 2008, once we have imposed the normalization $\beta_{2005} = 0$.

Alternatively, as regards the number of admissions n_{hgt} , it makes sense to estimate a count model, namely a Poisson regression, to get directly the average percentage effect measured now by $\tilde{\beta}_\tau$:

$$n_{hgt} \sim \mathcal{P}(\tilde{\delta}_{gt} \tilde{\xi}_h e^{\sum_{\tau=2006}^{2008} \tilde{\beta}_\tau \text{NFP}_h \mathbf{1}[t=\tau] + X'_{ht} \tilde{\gamma}}). \quad (10)$$

This nonlinear specification can be seen as a robustness check with respect to the functional form of the model. However, this assumption has a cost since we cannot control for as many fixed-effects as in the linear model: for computational reasons, we cannot include fixed-effects $\tilde{\xi}_{hg}$ in this nonlinear model.¹⁶ The Poisson model can be estimated by maximum likelihood, which provides a consistent estimator even in the presence of fixed effects (see Lancaster, 2000, for the treatment of incidental parameters in the FE Poisson model).

Table 2 reports results that are coherent with the descriptive evidence of Table 1: the number of stays increased by more in NFP than in FP hospitals (Column I) and the average length of stay decreased more in NFP than in FP hospitals (Column III). Moreover, these effects have been gradual over time between 2005 and 2008: +1% in 2006, +4.6% in 2007 and +10.3% in 2008. Finally, the magnitude of these effects is even amplified when controlling for fixed-effects and other covariates since the point estimate $\hat{\beta}_{2008}$ is 2.490 for activity. We reach similar conclusions with the Poisson model (Column II) since the average estimated effect is about +9.3% and exhibits a similar temporal gradient as in the linear model. It is yet only -0.132 for the average length of stay, which amounts to about -2.4% .

¹⁶Indeed, there are 182,610 ξ_{hg} and 1,468 δ_{gt} in Equation 9.

Table 2: Estimation (without competition indicator)

	Activity	Activity	ALoS
	OLS	Poisson	OLS
	I	II	III
Public×2006	0.241* (0.147)	0.016*** (0.001)	0.056 (0.039)
Public×2007	1.119*** (0.149)	0.045*** (0.001)	−0.025 (0.040)
Public×2008	2.490*** (0.151)	0.093*** (0.001)	−0.132*** (0.041)
Hospital-DRG effects	Yes	No	Yes
Hospital effects	No	Yes	No
Year-DRG effects	Yes	Yes	Yes
Time-varying hospital controls	Yes	Yes	Yes
Number of observations N	730,440	730,440	585,282
R^2	0.96	.	0.78
$\log L/N$.	-16.2	.

Note. Activity: number of admissions. ALoS: average length of stay.

Sample of 1198 non-local hospitals with surgery care always present from 2005 to 2008. Metropolitan France at the exclusion of Corsica.

Hospital-year controls include equipment covariates (computed tomography, MRI, positron tomography, doppler sonography), staff covariates (physicians, surgeons, nurses, administrative staff), capacity and socio-demographic covariates (income, population).

Next, we turn to the effect of local competition (Hypothesis 1). We want to test whether the above evolutions are magnified when local competition is fiercer. To that purpose, we propose to measure the intensity of competition thanks to an index of local competition. A crucial issue is that this indicator must be taken as exogenous as possible, that is to say, as much orthogonal to changes in activity. Several indicators might have been considered: the Herfindhal-Hirschman Indexes for instance could have provided a measure of local competition. Other indicators based on activity, either at the DRG code level or at any aggregate level (like surgical “products”, see *infra*, or at the hospital level) may be criticized for being endogenous. We choose an indicator based on capacity, namely the number of FP surgery beds. For each public hospital in the sample, we consider the number of surgery beds in private clinics in 2005 weighted by time/distance to that hospital

$d(., h)$:

$$\text{comp}_h = \sum_{i \neq h} e^{-rd(i,h)} \text{beds}_{i,2005}. \quad (11)$$

These quantities are computed in 2005 to avoid endogeneity issues as much as possible, *i.e.*, to avoid any correlation between these quantities and unobserved determinants of activity from 2006 to 2008, since our estimations rely on the comparison of years 2006 to 2008 with the base year 2005. The parameter r is a further degree of freedom. However, to the best of our knowledge, the choice of an adequate criterion for r is not the object of any consensus in the literature. We choose to pick up some value that makes sense: $r = 0.05$ meaning that a public hospital at 20 minutes time gets a weight equal to $e^{-1} \approx 0.36$, and then to provide robustness checks with respect to the choice of this particular value. Figure 3 reports the fraction of public hospitals having an index of local competition superior to the median in every *département*: as expected, competition is fiercer in most urban areas.

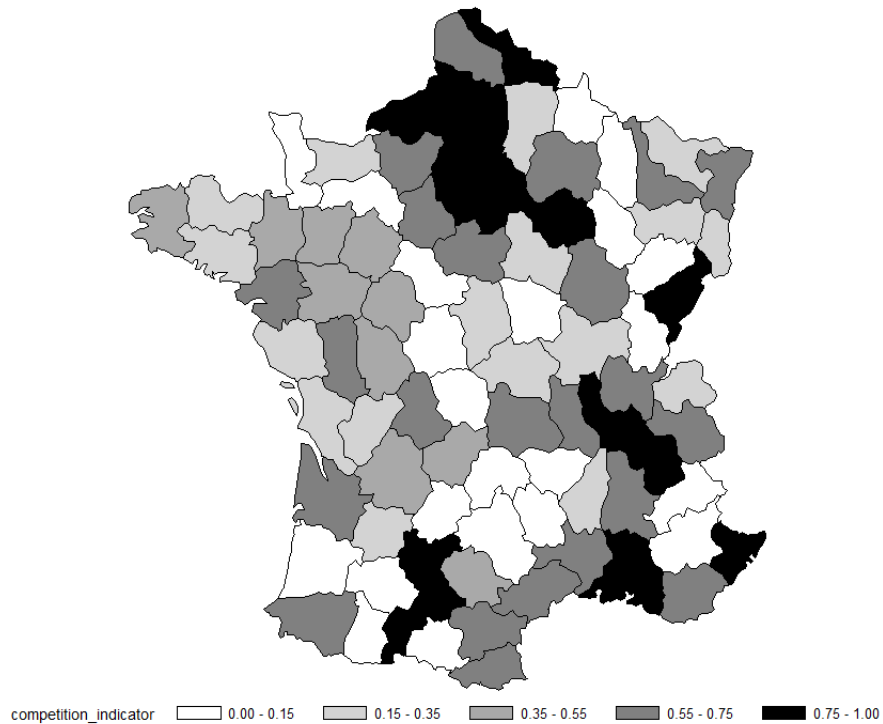


Figure 3: *Départementale* fraction of NFP hospitals most exposed to FP competition

Another approach would have consisted in considering the number of beds within a given radius from the current hospital; this approach does not only involve a degree of freedom (the radius) but it also presents a discontinuity –contrary to this smooth index.

After computing the previous indicator comp_h , we divide our sample of public and not-for-profit hospitals into four groups according to the quartiles of the distribution of this index.¹⁷ Public hospitals in group 1 (resp. group 4) are the least (most) exposed to competition from private clinics. Finally, we run the following OLS regression:

$$y_{hgt} = \sum_{\tau=2006}^{2008} \sum_{k=1}^4 \beta_{\tau}^k \text{group } k_h \mathbb{1}[t = \tau] + X'_{ht} \gamma + \delta_{gt} + \xi_{hg} + \epsilon_{hgt}, \quad (12)$$

or estimate the Poisson model in the case of activity only:

$$n_{hgt} \sim \mathcal{P}(\tilde{\delta}_{gt} \tilde{\xi}_h e^{\sum_{\tau=2006}^{2008} \sum_{k=1}^4 \tilde{\beta}_{\tau}^k \text{group } k_h \mathbb{1}[t=\tau] + X'_{ht} \tilde{\gamma}}). \quad (13)$$

The coefficients β_t^k measure for each group $k \in \llbracket 1 ; 4 \rrbracket$ the evolution of the outcome for this group relative to FP hospitals. As a *caveat*, there is here an underlying assumption of homogeneity in FP hospitals' response to the reform. According to Prediction 1, the effect should increase with the degree of exposure to competition from private clinics, *i.e.*, we expect β_t^k to increase with k .

Table 3 reports the results for the number of admissions and shows that NFP hospitals in group 4 have increased volumes over the period by much more than NFP hospitals in group 1. More precisely, the effect is larger for NFP hospitals in a competitive environment than for isolated NFP hospitals. Furthermore, it is monotonic in the degree of competition: $\forall t$ one has $\beta_t^1 < \beta_t^2 < \beta_t^3 < \beta_t^4$. The gradient is pronounced, from +3.8% for group 1 to +10.3% for group 4. Our estimates imply that the average public hospital in group 1 (about 1710 surgical stays every year) raises its activity by 65 stays per year, while the average public hospital in group 4 raises the number of its admissions by 556 (10.3% of its 5397 annual stays). As noted previously, there is also a temporal gradient: for any k , one has $\beta_{2006}^k < \beta_{2007}^k < \beta_{2008}^k$, which is consistent with the progressive adoption of the patient-based payment system and with previous results from Table 2. Moreover,

¹⁷In an on-going work, we consider more simply the continuous variable comp_h and do not split our sample of public hospitals into four groups.

Table 3: Number of admissions ($r = 0.05$)

	OLS	Poisson
	I	II
Public×Group 1×2006	-0.311 (0.246)	0.003 (0.003)
Public×Group 1×2007	0.069 (0.250)	0.003 (0.003)
Public×Group 1×2008	0.975*** (0.253)	0.038*** (0.003)
Public×Group 2×2006	-0.052 (0.237)	0.016*** (0.003)
Public×Group 2×2007	0.928*** (0.239)	0.056*** (0.003)
Public×Group 2×2008	1.854*** (0.241)	0.097*** (0.003)
Public×Group 3×2006	0.417* (0.219)	0.015*** (0.002)
Public×Group 3×2007	1.407*** (0.222)	0.051*** (0.002)
Public×Group 3×2008	2.996*** (0.226)	0.104*** (0.002)
Public×Group 4×2006	0.761*** (0.237)	0.022*** (0.002)
Public×Group 4×2007	1.861*** (0.244)	0.051*** (0.002)
Public×Group 4×2008	3.824*** (0.248)	0.103*** (0.002)
Hospital-DRG effects	Yes	No
Hospital effects	No	Yes
Year-DRG effects	Yes	Yes
Time-varying hospital controls	Yes	Yes
Number of observations N	730,440	730,440
R^2	0.96	.
$\log L/N$.	-16.2

Sample of 1198 non-local hospitals with surgery care always present from 2005 to 2008.

Metropolitan France at the exclusion of Corsica.

Hospital-year controls include equipment covariates (computed tomography, MRI, positron tomography, doppler sonography), staff covariates (physicians, surgeons, nurses, administrative staff), capacity and socio-demographic covariates (income, population).

Group 1: least exposed to FP-competition.

Group 2: second least exposed to FP-competition.

Group 3: second most exposed to FP-competition.

Group 4: most exposed to FP-competition.

half of the increase occurs between 2007 and 2008, which corresponds to the gradual implementation of the reform. Overall, these estimates are consistent with Hypothesis 1 on NFP hospitals: the more exposed to competition from private clinics, the higher the increase in volumes relative to private clinics. Even isolated hospitals from group 1 increase volumes relative to FP hospitals: since the FP sector has decreased over the period, this relative increase is indeed mechanical.

Results for average length of stay are reported in Table 4. Overall, the estimates show that the average length of stay (ALoS hereafter) has been more reduced in NFP than in FP hospitals. The magnitude of this reduction varies with the degree of competition: hospitals in a competitive environment have reduced their average ALoS by almost -0.24 day, namely -4.4% , while isolated hospitals have hardly decreased at all. This reduction is found to be monotonic in the exposure to competition from private clinics. Again, we observe that the effect has been progressive over time since there is a temporal gradient as well.

One can wonder whether these findings are driven by the fact that group 4 contains mostly hospitals in the Paris region. We thus perform the analysis by removing this region from the sample (in particular when defining our competition measures). Estimates are given in Appendix A, Table 5, and lead to the same result: the gradient with competition is even more pronounced. In addition, we provide robustness checks with respect to the value of the parameter r used in competition indexes (Tables 6 and 7). Overall, the gradient with competition remains significant.

6 Budget impact of the reform

The reform has been designed to be budget-neutral should patient and hospital behavior remain unchanged. Yet, as explained previously, behavior did change, and the reform caused not-for-profit hospitals to become relatively more attractive. Since more patients have been admitted in public hospitals and reimbursement rates are higher on average in those hospital than in private clinics, the reform resulted in increased financial cost to the National Health Insurance (NHI).

Specifically, the weighted average tariff for surgery DRGs is €2760 in public hospitals and only €1200 in private clinics. Part of the differential is explained by the fact that the private tariff does not include physician fees. From aggregated data gathered by the NHI, we estimate that physician fees covered by the NHI

Table 4: Average length of stay ($r = 0.05$)

Public×Group 1×2006	0.085 (0.068)
Public×Group 1×2007	0.018 (0.070)
Public×Group 1×2008	-0.052 (0.071)
Public×Group 2×2006	0.148** (0.064)
Public×Group 2×2007	0.006 (0.065)
Public×Group 2×2008	-0.038 (0.066)
Public×Group 3×2006	0.019 (0.057)
Public×Group 3×2007	-0.045 (0.058)
Public×Group 3×2008	-0.158*** (0.059)
Public×Group 4×2006	-0.001 (0.062)
Public×Group 4×2007	-0.059 (0.064)
Public×Group 4×2008	-0.241*** (0.065)
Hospital-DRG effects	Yes
DRG-year effects	Yes
Time-varying hospital controls	Yes
Number of observations	585,282
R^2	0.78

Same legend as Table 3.

amount to €580 on average, hence a cost difference for the NHI between the private and public sectors of about €980 per DRG.

Since the impact of the reform has been assumed to be homogeneous across DRGs, we estimate that the cost increase incurred by the NHI following the reform amounted to €54 million in 2006, €200 million in 2007, €313 million in 2008. For this last year, the increase is equivalent to about 2% of the annual budget devoted to surgery in France.¹⁸

7 Discussion and robustness checks

First, it must be recognized that the reform gives public hospital a novel incentive to optimize their coding strategy and even to game the payment rules (“DRG creep”). The most common behavior documented by practitioners consists of assigning cases to high-severity DRGs, e.g. DRGs associated with co-morbidities and complications. In practice, a pair of DRG codes may share the same diagnosis but one DRG code corresponds to low-severity diseases while the other DRG code is related to high-severity cases. Indeed, the number of more severe cases has increased over the period and one might fear that this would drive our results. [Dafny \(2005\)](#) documented this “upcoding” phenomenon in the US case. This is the reason why the previous analysis was done at the diagnosis level, by pooling pairs of DRG codes with different severities. Nevertheless, in [Appendix B, Table 8, Column I](#), we present regression results obtained at the DRG code level. Not only do our results remain, but they also tend to be of the same magnitude, which comforts our findings. We also use a higher degree of aggregation in [Table 8, Column II](#) (groups of DRG codes related to “products” such as cataract surgery or orthopedic surgery). Considering this higher level of aggregation, we ignore any effect linked to the possibly increasing share of discharges with high severity in public hospitals. As regards the number of admissions, the results vary very little with the degree of DRG aggregation. The results about average length of stays are far less robust.

Second, the payment reform might give public hospitals an incentive to artificially increase the number of stays by discharging and readmitting patients. Our findings on average length of stays might even suggest that the activity-based

¹⁸On the other hand, doctors in private clinics may charge extra fees that are not covered by the public insurance (see [Section 7](#) below). In this respect, the shift of market share to public hospitals has resulted in a cost economy for patients and supplementary insurers.

reform induces public hospital to discharge patients prematurely, hence deteriorating quality of care. The health economics literature, however, mostly considers length of stay as an indicator for efficiency and does not suggest that low LOS should be associated with poor quality. For instance, if poor quality of care causes complications, it would tend to extend LOS. Under this assumption, longer than expected LOSs could be viewed as indicative of poor quality care. Most studies indeed find no or negative correlation between LOS and quality, e.g. [Thomas, Guire, and Horvat \(1997\)](#).

Based on patient data, we have computed the fraction of discharges followed by a readmission within 30 days. Readmissions increase more rapidly *ceteris paribus* in public hospitals, from 7.5% to 8.0% over the period, than in private clinics, from 6.3% to 6.9% over the period. As shown in [Appendix C](#), we indeed find that the magnitude of the coefficient, however, is very weak and the effect is non-monotonic in time (very weak and insignificant in 2007). More importantly, we find that the readmission rate increases more rapidly in public hospital *less* exposed to competition from private hospitals (see [Table 11](#)). This result does not support the hypothesis that the effect of competition found in this paper would be driven by an increase in readmissions (and possibly a quality deterioration). Although we do not offer any formal explanation for the stronger reduction in average length of stay at public hospitals, we tend to relate this fact to an increase in efficiency.¹⁹

Third, as already mentioned, the activity-based payment in force in the private sector does not cover physician fees which are charged to consumers. Fees are partially covered by the basic mandatory insurance. Most patients have a supplementary insurance that covers all or part of the copayment. Unfortunately we had access only to very aggregate data regarding physician fees. Specifically, we observe the total amount of fees charged by surgeons and anesthesiologists at the *département* level and the share of that amount in excess of the regulated price, *i.e.*, in excess of the price covered by the basic insurance (see [Appendix E](#)). The results show no correlation in the data between public hospital volumes and physician fees in the private sector. Volumes in public hospitals do *not* increase more rapidly in *départements* with the highest rise in surgeon fees. Controlling for physician fees in the volume equations leads to an extremely weak coefficient and

¹⁹The reduction in ALoS could also come from capacity constraints. Indeed, if public hospitals were capacity constrained, the increase in admissions would mechanically imply a decrease in ALoS. Occupation rates, however, do not suggest strong capacity constraints for surgery. See [Appendix D](#), [Figure 4](#).

affects none of the coefficients of interest.²⁰

Finally, we must mention a limitation of this work. Both the theoretical model and the empirical analysis presented here ignore the multi-product dimension of hospital care. The payment reform might cause public hospitals to specialize in certain cases, products or DRGs. We believe, however, that specialization is a second-order issue given the short period of time under study (2005-2008). In our opinion, the first-order effect comes from the financial incentives created by the new payment rule: an extra patient admission generates extra resources after the reform while it did not before. This signal is simple enough and is easily understood by all hospital managers. We therefore have estimated an average effect over all DRGs that reflects the overall impact of this force.

8 Conclusion

Between 2005 and 2008, the reimbursement method for public hospitals in France has shifted from a global budget approach to a patient-based prospective system. The main contribution of this study is to provide evidence that the impact of the reform on real outcomes (activity and, to a lesser extent, average length of stay) has been positively affected by the intensity of local competition. We have found larger increases in activity for public and not-for-profit hospitals exposed to more competitive pressure. This fact is consistent with the central hypothesis of Section 3 that the increase in not-for-profit market share after the reform should be more pronounced as competition is fiercer. Second, the average length of stay decreased by more in public and not-for-profit hospitals relative to private clinics and again, this effect is stronger when competitive pressure is more intense. It would be interesting to check whether these results, which concern surgery only, also hold for medical care.

Two final remarks are in order. First, the above findings are of a positive nature; no normative conclusion, e.g. in terms of consumer surplus, can be inferred from our results. There is virtually no available data on care quality or treatment appropriateness during the period of the study, making it difficult, if not impossible, to assess the welfare consequences of the reform.²¹

²⁰These results are available upon request.

²¹We have only mentioned mixed evidence about readmissions, namely a slightly larger increase in public hospitals that seems unrelated to the competitive environment, see Section 7.

Second, we have used data at the hospital-DRG level. At this aggregation level, we can only test reduced-form predictions regarding the relative evolutions of volumes in public hospitals and private clinics following the reform. In an ongoing work, we exploit patient-level data, in particular patient location, distance to hospital, and hospital market shares at the patient zip-code level. We estimate a structural model of hospital demand, accounting for competition between all hospitals (including between public hospitals). Ultimately, we plan to assess how distance affects patient utility, to estimate the best response functions of private clinics and to relate the behavior of the public hospitals to the financial incentives created by the reform.

References

- BREKKE, K. R., L. SICILIANI, AND O. R. STRAUME (2011): “Hospital Competition and Quality with Regulated Prices,” *Scandinavian Journal of Economics*, 113(2), 444–469.
- COOPER, Z., S. GIBBONS, S. JONES, AND A. MCGUIRE (2011): “Does Hospital Competition Save Lives? Evidence From The English NHS Patient Choice Reforms,” *The Economic Journal*, 121(554), 228–260.
- COUR DES COMPTES (2011): “La mise en oeuvre de la T2A : bilan à mi-parcours,” in *La Sécurité Sociale*.
- DAFNY, L. S. (2005): “How Do Hospitals Respond to Price Changes?,” *American Economic Review*, 95(5), 1525–1547.
- ELLIS, R. P. (1998): “Creaming, skimping and dumping: provider competition on the intensive and extensive margins,” *Journal of Health Economics*, 17, 537–555.
- ELLIS, R. P., AND T. G. MCGUIRE (1996): “Hospital response to prospective payment: Moral hazard, selection, and practice-style effects,” *Journal of Health Economics*, 15, 257–277.
- GAYNOR, M., AND R. J. TOWN (2012): “Competition in Health Care Markets,” in *Handbook of Health Economics*, vol. 2, pp. 499–637. Elsevier B.V.
- GOWRISANKARAN, G., C. LUCARELLI, P. SCHMIDT-DENGLER, AND R. TOWN (2011): “The Impact of the Medicare Rural Hospital Flexibility Program on Patient Choice,” *International Journal of Industrial Organization*, 29(3), 342–344.
- GRAVELLE, H., R. SANTOS, AND L. SICILIANI (2013): “Does a hospital’s quality depend on the quality of other hospitals? A spatial econometrics approach to investigating hospital quality competition,” Discussion paper.
- HERWARTZ, H., AND C. STRUMANN (2012): “On the effect of prospective payment on local hospital competition in Germany,” *Health Care Management Science*, 15(1), 48–62.
- HODGKIN, D., AND T. G. MCGUIRE (1994): “Payment levels and hospital response to prospective payment,” *Journal of Health Economics*, 13, 1–29.

- KESSLER, D. P., AND M. B. MCCLELLAN (2000): “Is hospital competition socially wasteful?,” *The Quarterly Journal of Economics*, 115(2), 577–615.
- LANCASTER, T. (2000): “The incidental parameter problem since 1948,” *Journal of Econometrics*, 95(2), 391–413.
- MA, C.-T. A. (1994): “Health care payment systems: Cost and quality incentives,” *Journal of Economics & Management Strategy*, 3(1), 93–112.
- MORENO-SERRA, R., AND A. WAGSTAFF (2010): “System-wide impacts of hospital payment reforms: Evidence from Central and Eastern Europe and Central Asia,” *Journal of Health Economics*, 29, 585–602.
- POPE, G. C. (1989): “Hospital nonprice competition and Medicare reimbursement policy,” *Journal of Health Economics*, 8, 147–172.
- PROPPER, C. (2012): “Competition, incentives and the English NHS,” *Health Economics*, 21(1), 33–40.
- PROPPER, C., S. BURGESS, AND D. GOSSAGE (2007): “Competition and quality: Evidence from the NHS internal market 1991–9,” *The Economic Journal*, 118(525), 138–170.
- SHLEIFER, A. (1985): “A theory of yardstick competition,” *The RAND Journal of Economics*, 16(3), 319–327.
- THOMAS, J., K. GUIRE, AND G. HORVAT (1997): “Is patient length of stay related to quality of care?,” *Hospital & health services administration*, 42(4), 489.

Appendix

A Robustness checks

Table 5: Without Île-de-France ($r = 0.05$)

	Activity		ALOS
	OLS	Poisson	OLS
Public×Group 1×2006	-0.224 (0.273)	0.009*** (0.003)	0.105 (0.074)
Public×Group 1×2007	0.204 (0.277)	0.009*** (0.003)	-0.039 (0.076)
Public×Group 1×2008	1.276*** (0.279)	0.051*** (0.003)	-0.075 (0.077)
Public×Group 2×2006	0.086 (0.261)	0.024*** (0.003)	0.041 (0.069)
Public×Group 2×2007	0.997*** (0.263)	0.058*** (0.003)	-0.070 (0.070)
Public×Group 2×2008	1.940*** (0.265)	0.094*** (0.003)	-0.169*** (0.071)
Public×Group 3×2006	0.010 (0.251)	0.012*** (0.002)	0.035** (0.065)
Public×Group 3×2007	0.970*** (0.252)	0.045*** (0.002)	-0.079 (0.065)
Public×Group 3×2008	2.422*** (0.254)	0.098*** (0.002)	-0.088 (0.066)
Public×Group 4×2006	1.211*** (0.240)	0.026*** (0.002)	0.018 (0.060)
Public×Group 4×2007	2.187*** (0.244)	0.054*** (0.002)	-0.107* (0.062)
Public×Group 4×2008	4.467*** (0.250)	0.114*** (0.002)	-0.277*** (0.064)
Hospital-DRG effects	Yes	Yes	Yes
Year-DRG effects	Yes	Yes	Yes
Hospital-year controls	Yes	Yes	Yes
Number of observations N	596,288	596,288	477,446
R^2	0.96	.	0.78
$\log L/N$.	-15.5	.

Same legend as Table 3.

Table 6: Robustness checks for activity - Role of the parameter r

	$r = 0.025$	$r = 0.075$	$r = 0.1$
Public×Group 1×2006	-0.160 (0.240)	-0.343 (0.249)	-0.302 (0.247)
Public×Group 1×2007	0.298 (0.245)	0.174 (0.252)	0.246 (0.250)
Public×Group 1×2008	1.311*** (0.247)	1.063*** (0.255)	1.095*** (0.252)
Public×Group 2×2006	0.138 (0.228)	0.015 (0.247)	-0.005 (0.257)
Public×Group 2×2007	1.197*** (0.231)	0.709*** (0.249)	0.807*** (0.258)
Public×Group 2×2008	2.353*** (0.233)	1.679*** (0.251)	1.924*** (0.259)
Public×Group 3×2006	0.637*** (0.229)	0.195 (0.215)	0.037 (0.216)
Public×Group 3×2007	1.586*** (0.232)	1.135*** (0.217)	0.928*** (0.218)
Public×Group 3×2008	3.561*** (0.235)	2.593*** (0.219)	2.306*** (0.220)
Public×Group 4×2006	0.306 (0.238)	0.910*** (0.231)	1.017*** (0.224)
Public×Group 4×2007	1.314*** (0.244)	2.181*** (0.238)	2.220*** (0.230)
Public×Group 4×2008	2.623*** (0.247)	4.183*** (0.241)	4.188*** (0.234)
Hospital-DRG effects	Yes	Yes	Yes
Year-DRG effects	Yes	Yes	Yes
Hospital-year controls	Yes	Yes	Yes
Number of observations	730,440	730,440	730,440
R^2	0.96	0.96	0.96

Same legend as Table 3.

Table 7: Robustness checks for average length of stay - Role of the parameter r

	$r = 0.025$	$r = 0.075$	$r = 0.1$
Public×Group 1×2006	0.146** (0.065)	0.096 (0.069)	0.084 (0.068)
Public×Group 1×2007	0.026 (0.067)	-0.029 (0.071)	-0.061 (0.070)
Public×Group 1×2008	-0.028 (0.068)	-0.092 (0.072)	-0.092 (0.071)
Public×Group 2×2006	0.075 (0.061)	0.047 (0.067)	0.025 (0.069)
Public×Group 2×2007	0.040 (0.062)	0.013 (0.068)	-0.030 (0.070)
Public×Group 2×2008	-0.074 (0.063)	-0.072 (0.069)	-0.099 (0.071)
Public×Group 3×2006	0.024 (0.059)	0.070 (0.056)	0.081 (0.057)
Public×Group 3×2007	-0.182*** (0.061)	-0.030 (0.057)	-0.003 (0.057)
Public×Group 3×2008	-0.216*** (0.062)	-0.110* (0.057)	-0.102* (0.058)
Public×Group 4×2006	-0.009 (0.062)	0.020 (0.060)	0.031 (0.058)
Public×Group 4×2007	0.032 (0.064)	-0.041 (0.062)	-0.021 (0.060)
Public×Group 4×2008	-0.198*** (0.065)	-0.225*** (0.063)	-0.208*** (0.061)
Hospital-DRG effects	Yes	Yes	Yes
Year-DRG effects	Yes	Yes	Yes
Hospital-year controls	Yes	Yes	Yes
Number of observations	585,282	585,282	585,282
R^2	0.78	0.78	0.78

Same legend as Table 3.

B Aggregation level

We address here the concern that NFP hospitals might have optimized their coding strategy and that this would drive our results.

Table 8: Various aggregation levels: DRG, Product (without competition indicator).

Aggregation level	Activity (Poisson)	
	DRG	Product
	I	II
Public×2006	0.017*** (0.001)	0.025*** (0.001)
Public×2007	0.045*** (0.001)	0.036*** (0.001)
Public×2008	0.094*** (0.001)	0.078*** (0.002)
Hospital effects	Yes	Yes
Year-DRG effects	Yes	Yes
Time-varying hospital controls	Yes	Yes
Number of observations	951,324	201,856
$\log L/N$	-12.9	-31.5

Same legend as Table 2.

Until now, we have considered the “root” level of aggregation that groups up to two DRGs of different severities. First, we consider an aggregation level specific to the true DRG (Column I of Tables 8 and 9). Second, we consider a higher aggregation level, namely product classification, further reducing the number of observations (see Tables 8, Column II, and 9, Column II). Results are reassuringly stable; the effects are similar in magnitude.

Table 9: Various aggregation levels: DRG, Product (with competition indicator).

Aggregation level	Activity (Poisson)	
	DRG	Product
	I	II
Public×Group 1×2006	0.003 (0.003)	0.013*** (0.003)
Public×Group 1×2007	0.003 (0.003)	0.001 (0.003)
Public×Group 1×2008	0.038*** (0.003)	0.028*** (0.003)
Public×Group 2×2006	0.017*** (0.003)	0.024*** (0.003)
Public×Group 2×2007	0.056*** (0.003)	0.047*** (0.003)
Public×Group 2×2008	0.098*** (0.003)	0.084*** (0.003)
Public×Group 3×2006	0.015*** (0.002)	0.024** (0.002)
Public×Group 3×2007	0.051*** (0.002)	0.043*** (0.002)
Public×Group 3×2008	0.104*** (0.002)	0.088*** (0.002)
Public×Group 4×2006	0.022*** (0.002)	0.030*** (0.002)
Public×Group 4×2007	0.051*** (0.002)	0.038*** (0.002)
Public×Group 4×2008	0.103*** (0.002)	0.083*** (0.002)
Hospital effects	Yes	Yes
Year-DRG effects	Yes	Yes
Time-varying hospital controls	Yes	Yes
Number of observations	951,324	201,856
log L/N	-12.9	-31.5

Same legend as Table 3.

C Readmission rates

A readmission is defined as an admission within 30 days of a discharge. Readmissions rates have been treated the same way as average length of stay. We observe on Tables 10 and 11 a higher increase of the readmission rate in the public sector. However, the increase is stronger for public hospitals that are less exposed to competition from private clinics.

Table 10: 30-day readmission rates (without competition indicator).

Public×2006	0.003** (0.001)
Public×2007	0.001 (0.001)
Public×2008	0.003** (0.001)
Hospital-DRG effects	Yes
Year-DRG effects	Yes
Time-varying hospital controls	Yes
Number of observations	730,440
R^2	0.96

Same legend as Table 2.

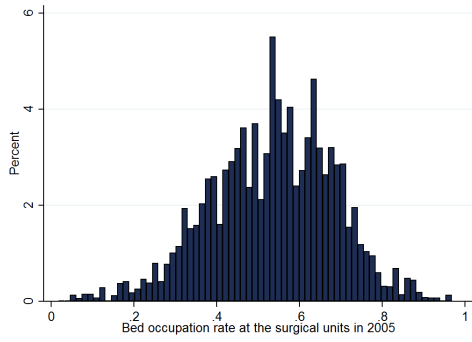
Table 11: 30-day readmission rates (with competition indicator).

Public×Group 1×2006	0.005* (0.002)
Public×Group 1×2007	0.006** (0.003)
Public×Group 1×2008	0.008*** (0.003)
Public×Group 2×2006	0.003 (0.002)
Public×Group 2×2007	0.002 (0.002)
Public×Group 2×2008	0.003 (0.002)
Public×Group 3×2006	0.003 (0.002)
Public×Group 3×2007	0.000 (0.002)
Public×Group 3×2008	0.003 (0.002)
Public×Group 4×2006	0.001 (0.002)
Public×Group 4×2007	0.000 (0.002)
Public×Group 4×2008	0.000 (0.002)
Hospital-DRG effects	Yes
Year-DRG effects	Yes
Time-varying hospital controls	Yes
Number of observations	730,440
R^2	0.96

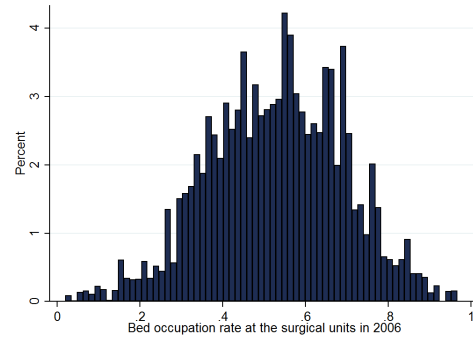
Same legend as Table 3.

D Occupation rates

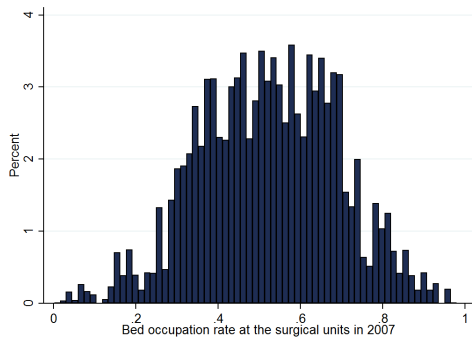
Occupation rates are defined as $(\text{number of stays} \times \text{ALoS}) / (\text{number of surgery beds} \times 365)$.



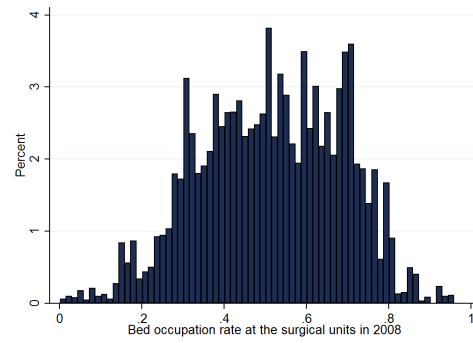
(a) 2005



(b) 2006



(c) 2007



(d) 2008

Figure 4: Occupation rates (weighted by admissions)

E Physician fees

The National Health Insurance (CNAMTS) provided *département* level data on overcharge fees for surgeons and anesthesiologists (source: SNIR-PS). Data is based on the invoices received by the CNAMTS.

First we check that controlling for physician fees in private clinics leads to a very weak coefficient and does not alter our results.

Second, we constructed four groups of *départements* based on the quartiles of the distribution of the increase of the overcharge ratio

$$\frac{\text{total fees in excess of the regulated price}}{\text{total fees}}.$$

On average, this ratio rose from 27.4% in 2005 to 29.9% in 2008. We did the same exercise with the increase of the mean overcharge

$$\frac{\text{total fees in excess of the regulated price}}{\text{number of admissions}}.$$

On average, the mean overcharge rose from €135 in 2005 to €175 in 2008.

We do not find any correlation between the increase in surgeons fees at private clinics and the increase in volumes in the public hospitals. It should be noted that the incentives of physicians and of private clinics are not perfectly aligned. Surgeons pay a rental fee to the clinics to use the facilities, e.g. operating room, but clinics are also remunerated through the DRG prices. It is therefore not in their interest that surgeons and anesthesiologists charge very high fees. The design of contracts between physicians and clinics is outside the scope of this paper.

G 9001	J. FAYOLLE et M. FLEURBAEY Accumulation, profitabilité et endettement des entreprises		Macro-economic import functions with imperfect competition - An application to the E.C. Trade	G 9311	J. BOURDIEU - B. COLIN-SEDILLOT Les décisions de financement des entreprises françaises : une évaluation empirique des théories de la structure optimale du capital		analyse économique des politiques française et allemande
G 9002	H. ROUSSE Détection et effets de la multicolinéarité dans les modèles linéaires ordinaires - Un prolongement de la réflexion de BELSLEY, KUH et WELSCH	G 9203	I. STAPIC Les échanges internationaux de services de la France dans le cadre des négociations multilatérales du GATT Juin 1992 (1ère version) Novembre 1992 (version finale)	G 9312	L. BLOCH - B. CŒURÉ Q de Tobin marginal et transmission des chocs financiers	G 9412	J. BOURDIEU - B. CŒURÉ - B. COLIN-SEDILLOT Investissement, incertitude et irréversibilité Quelques développements récents de la théorie de l'investissement
G 9003	P. RALLE et J. TOUJAS-BERNATE Indexation des salaires : la rupture de 1983	G 9204	P. SEVESTRE L'économétrie sur données individuelles-temporelles. Une note introductive	G 9313	Équipes Amadeus (INSEE), Banque de France, Méric (DP) Présentation des propriétés des principaux modèles macroéconomiques du Service Public	G 9413	B. DORMONT - M. PAUCHET L'évaluation de l'élasticité emploi-salaire dépendelle des structures de qualification ?
G 9004	D. GUELLEC et P. RALLE Compétitivité, croissance et innovation de produit	G 9205	H. ERKEL-ROUSSE Le commerce extérieur et l'environnement international dans le modèle AMADEUS (réestimation 1992)	G 9314	B. CREPON - E. DUGUET Research & Development, competition and innovation	G 9414	I. KABLA Le Choix de breveter une invention
G 9005	P. RALLE et J. TOUJAS-BERNATE Les conséquences de la désindexation. Analyse dans une maquette prix-salaires	G 9206	N. GREENAN et D. GUELLEC Coordination within the firm and endogenous growth	G 9315	B. DORMONT Quelle est l'influence du coût du travail sur l'emploi ?	G 9501	J. BOURDIEU - B. CŒURÉ - B. SEDILLOT Irreversible Investment and Uncertainty: When is there a Value of Waiting?
G 9101	Équipe AMADEUS Le modèle AMADEUS - Première partie - Présentation générale	G 9207	A. MAGNIER et J. TOUJAS-BERNATE Technology and trade: empirical evidences for the major five industrialized countries	G 9316	D. BLANCHET - C. BROUSSE Deux études sur l'âge de la retraite	G 9502	L. BLOCH - B. CŒURÉ Imperfections du marché du crédit, investissement des entreprises et cycle économique
G 9102	J.L. BRILLET Le modèle AMADEUS - Deuxième partie - Propriétés variantielles	G 9208	B. CREPON, E. DUGUET, D. ENCAOUA et P. MOHNEN Cooperative, non cooperative R & D and optimal patent life	G 9317	D. BLANCHET Répartition du travail dans une population hétérogène : deux notes	G 9503	D. GOUX - E. MAURIN Les transformations de la demande de travail par qualification en France Une étude sur la période 1970-1993
G 9103	D. GUELLEC et P. RALLE Endogenous growth and product innovation	G 9209	B. CREPON et E. DUGUET Research and development, competition and innovation: an application of pseudo maximum likelihood methods to Poisson models with heterogeneity	G 9318	D. EYSSARTIER - N. PONTY AMADEUS - an annual macro-economic model for the medium and long term	G 9504	N. GREENAN Technologie, changement organisationnel, qualifications et emploi : une étude empirique sur l'industrie manufacturière
G 9104	H. ROUSSE Le modèle AMADEUS - Troisième partie - Le commerce extérieur et l'environnement international	G 9301	J. TOUJAS-BERNATE Commerce international et concurrence imparfaite : développements récents et implications pour la politique commerciale	G 9319	G. CETTE - Ph. CUNÉO - D. EYSSARTIER - J. GAUTIÉ Les effets sur l'emploi d'un abaissement du coût du travail des jeunes	G 9505	D. GOUX - E. MAURIN Persistence des hiérarchies sectorielles de salaires: un réexamen sur données françaises
G 9105	H. ROUSSE Effets de demande et d'offre dans les résultats du commerce extérieur manufacturé de la France au cours des deux dernières décennies	G 9302	Ch. CASES Durées de chômage et comportements d'offre de travail : une revue de la littérature	G 9401	D. BLANCHET Les structures par âge importent-elles ?	G 9505 Bis	D. GOUX - E. MAURIN Persistence of inter-industry wages differentials: a reexamination on matched worker-firm panel data
G 9106	B. CREPON Innovation, taille et concentration : causalités et dynamiques	G 9303	H. ERKEL-ROUSSE Union économique et monétaire : le débat économique	G 9402	J. GAUTIÉ Le chômage des jeunes en France : problème de formation ou phénomène de file d'attente ? Quelques éléments du débat	G 9506	S. JACOBZONE Les liens entre RMI et chômage, une mise en perspective <i>NON PARU - article sorti dans Économie et Prévision n° 122 (1996) - pages 95 à 113</i>
G 9107	B. AMABLE et D. GUELLEC Un panorama des théories de la croissance endogène	G 9304	N. GREENAN - D. GUELLEC / G. BROUSSAUDIER - L. MIOTTI Innovation organisationnelle, dynamisme technologique et performances des entreprises	G 9403	P. QUIRION Les déchets en France : éléments statistiques et économiques	G 9507	G. CETTE - S. MAHFOUZ Le partage primaire du revenu Constat descriptif sur longue période
G 9108	M. GLAUDE et M. MOUTARDIER Une évaluation du coût direct de l'enfant de 1979 à 1989	G 9305	P. JAILLARD Le traité de Maastricht : présentation juridique et historique	G 9404	D. LADIRAY - M. GRUN-REHOMME Lissage par moyennes mobiles - Le problème des extrémités de série	G 9601	Banque de France - CEPREMAP - Direction de la Prévision - Érasme - INSEE - OFCE Structures et propriétés de cinq modèles macroéconomiques français
G 9109	P. RALLE et alii France - Allemagne : performances économiques comparées	G 9306	J.L. BRILLET Micro-DMS : présentation et propriétés	G 9405	V. MAILLARD Théorie et pratique de la correction des effets de jours ouvrables	G 9602	Rapport d'activité de la DESE de l'année 1995
G 9110	J.L. BRILLET Micro-DMS NON PARU	G 9307	J.L. BRILLET Micro-DMS - variantes : les tableaux	G 9406	F. ROSENWALD La décision d'investir	G 9603	J. BOURDIEU - A. DRAZNIKS L'octroi de crédit aux PME : une analyse à partir d'informations bancaires
G 9111	A. MAGNIER Effets accélérateur et multiplicateur en France depuis 1970 : quelques résultats empiriques	G 9308	S. JACOBZONE Les grands réseaux publics français dans une perspective européenne	G 9407	S. JACOBZONE Les apports de l'économie industrielle pour définir la stratégie économique de l'hôpital public	G 9604	A. TOPIOL-BENSAÏD Les implantations japonaises en France
G 9112	B. CREPON et G. DUREAU Investissement en recherche-développement : analyse de causalités dans un modèle d'accélérateur généralisé	G 9309	L. BLOCH - B. CŒURE Profitabilité de l'investissement productif et transmission des chocs financiers	G 9408	L. BLOCH, J. BOURDIEU, B. COLIN-SEDILLOT, G. LONGUEVILLE Du défaut de paiement au dépôt de bilan : les banquiers face aux PME en difficulté	G 9605	P. GENIER - S. JACOBZONE Comportements de prévention, consommation d'alcool et tabagie : peut-on parler d'une gestion globale du capital santé ? <i>Une modélisation microéconométrique empirique</i>
G 9113	J.L. BRILLET, H. ERKEL-ROUSSE, J. TOUJAS-BERNATE "France-Allemagne Couplées" - Deux économies vues par une maquette macro-économétrique	G 9310	J. BOURDIEU - B. COLIN-SEDILLOT Les théories sur la structure optimale du capital : quelques points de repère	G 9409	D. EYSSARTIER, P. MAIRE Impacts macro-économiques de mesures d'aide au logement - quelques éléments d'évaluation	G 9606	C. DOZ - F. LENGART Factor analysis and unobserved component models: an application to the study of French business surveys
G 9201	W.J. ADAMS, B. CREPON, D. ENCAOUA Choix technologiques et stratégies de dissuasion d'entrée			G 9410	F. ROSENWALD Suivi conjoncturel de l'investissement	G 9607	N. GREENAN - D. GUELLEC La théorie coopérative de la firme
G 9202	J. OLIVEIRA-MARTINS, J. TOUJAS-BERNATE			G 9411	C. DEFEUILLEY - Ph. QUIRION Les déchets d'emballages ménagers : une		

G 9608	N. GREENAN - D. GUELLEC Technological innovation and employment reallocation
G 9609	Ph. COUR - F. RUPPRECHT L'intégration asymétrique au sein du continent américain : un essai de modélisation
G 9610	S. DUCHENE - G. FORGEOT - A. JACQUOT Analyse des évolutions récentes de la productivité apparente du travail
G 9611	X. BONNET - S. MAHFOUZ The influence of different specifications of wages-prices spirals on the measure of the NAIRU: the case of France
G 9612	PH. COUR - E. DUBOIS, S. MAHFOUZ, J. PISANI-FERRY The cost of fiscal retrenchment revisited: how strong is the evidence?
G 9613	A. JACQUOT Les flexions des taux d'activité sont-elles seulement conjoncturelles ?
G 9614	ZHANG Yingxiang - SONG Xueqing Lexique macroéconomique Français-Chinois
G 9701	J.L. SCHNEIDER La taxe professionnelle : éléments de cadrage économique
G 9702	J.L. SCHNEIDER Transition et stabilité politique d'un système redistributif
G 9703	D. GOUX - E. MAURIN Train or Pay: Does it Reduce Inequalities to Encourage Firms to Train their Workers?
G 9704	P. GENIER Deux contributions sur dépendance et équité
G 9705	E. DUGUET - N. IUNG R & D Investment, Patent Life and Patent Value An Econometric Analysis at the Firm Level
G 9706	M. HOUEBINE - A. TOPIOL-BENSAÏD Les entreprises internationales en France : une analyse à partir de données individuelles
G 9707	M. HOUEBINE Polarisation des activités et spécialisation des départements en France
G 9708	E. DUGUET - N. GREENAN Le biais technologique : une analyse sur données individuelles
G 9709	J.L. BRILLET Analyzing a small French ECM Model
G 9710	J.L. BRILLET Formalizing the transition process: scenarios for capital accumulation
G 9711	G. FORGEOT - J. GAUTÉ Insertion professionnelle des jeunes et processus de déclassement
G 9712	E. DUBOIS High Real Interest Rates: the Consequence of a Saving Investment Disequilibrium or of an insufficient Credibility of Monetary Authorities?
G 9713	Bilan des activités de la Direction des Études et Synthèses Économiques - 1996

G 9714	F. LEQUILLER Does the French Consumer Price Index Overstate Inflation?
G 9715	X. BONNET Peut-on mettre en évidence les rigidités à la baisse des salaires nominaux ? Une étude sur quelques grands pays de l'OCDE
G 9716	N. IUNG - F. RUPPRECHT Productivité de la recherche et rendements d'échelle dans le secteur pharmaceutique français
G 9717	E. DUGUET - I. KABLA Appropriation strategy and the motivations to use the patent system in France - An econometric analysis at the firm level
G 9718	L.P. PELÉ - P. RALLE Âge de la retraite : les aspects incitatifs du régime général
G 9719	ZHANG Yingxiang - SONG Xueqing Lexique macroéconomique français-chinois, chinois-français
G 9720	M. HOUEBINE - J.L. SCHNEIDER Mesurer l'influence de la fiscalité sur la localisation des entreprises
G 9721	A. MOUROUGANÉ Crédibilité, indépendance et politique monétaire Une revue de la littérature
G 9722	P. AUGERAUD - L. BRIOT Les données comptables d'entreprises Le système intermédiaire d'entreprises Passage des données individuelles aux données sectorielles
G 9723	P. AUGERAUD - J.E. CHAPRON Using Business Accounts for Compiling National Accounts: the French Experience
G 9724	P. AUGERAUD Les comptes d'entreprise par activités - Le passage aux comptes - De la comptabilité d'entreprise à la comptabilité nationale - A <i>paraître</i>
G 9801	H. MICHAUDON - C. PRIGENT Présentation du modèle AMADEUS
G 9802	J. ACCARDO Une étude de comptabilité générationnelle pour la France en 1996
G 9803	X. BONNET - S. DUCHÊNE Apports et limites de la modélisation « Real Business Cycles »
G 9804	C. BARLET - C. DUGUET - D. ENCAOUA - J. PRADEL The Commercial Success of Innovations An econometric analysis at the firm level in French manufacturing
G 9805	P. CAHUC - Ch. GIANELLA - D. GOUX - A. ZILBERBERG Equalizing Wage Differences and Bargaining Power - Evidence from a Panel of French Firms
G 9806	J. ACCARDO - M. JLASSI La productivité globale des facteurs entre 1975 et 1996

G 9807	Bilan des activités de la Direction des Études et Synthèses Économiques - 1997	Bis	Une estimation de l'élasticité de l'emploi peu qualifié à son coût
G 9808	A. MOUROUGANÉ Can a Conservative Governor Conduct an Accommodative Monetary Policy?	G 9913	Division « Redistribution et Politiques Sociales » Le modèle de microsimulation dynamique DESTINIE
G 9809	X. BONNET - E. DUBOIS - L. FAUVET Asymétrie des inflations relatives et menus costs : tests sur l'inflation française	G 9914	E. DUGUET Macro-commandes SAS pour l'économétrie des panels et des variables qualitatives
G 9810	E. DUGUET - N. IUNG Sales and Advertising with Spillovers at the firm level: Estimation of a Dynamic Structural Model on Panel Data	G 9915	R. DUHAUTOIS Évolution des flux d'emplois en France entre 1990 et 1996 : une étude empirique à partir du fichier des bénéficiaires réels normaux (BRN)
G 9811	J.P. BERTHIER Congestion urbaine : un modèle de trafic de pointe à courbe débit-vitesse et demande élastique	G 9916	J.Y. FOURNIER Extraction du cycle des affaires : la méthode de Baxter et King
G 9812	C. PRIGENT La part des salaires dans la valeur ajoutée : une approche macroéconomique	G 9917	B. CRÉPON - R. DESPLATZ - J. MAIRESSE Estimating price cost margins, scale economies and workers' bargaining power at the firm level
G 9813	A.Th. AERTS L'évolution de la part des salaires dans la valeur ajoutée en France reflète-t-elle les évolutions individuelles sur la période 1979-1994 ?	G 9918	Ch. GIANELLA - Ph. LAGARDE Productivity of hours in the aggregate production function: an evaluation on a panel of French firms from the manufacturing sector
G 9814	B. SALANIÉ Guide pratique des séries non-stationnaires	G 9919	S. AUDRIC - P. GIVORD - C. PROST Évolution de l'emploi et des coûts par qualification entre 1982 et 1996
G 9901	S. DUCHÊNE - A. JACQUOT Une croissance plus riche en emplois depuis le début de la décennie ? Une analyse en comparaison internationale	G 2000/01	R. MAHIEU Les déterminants des dépenses de santé : une approche macroéconomique
G 9902	Ch. COLIN Modélisation des carrières dans Destinie	G 2000/02	C. ALLARD-PRIGENT - H. GUILMEAU - A. QUINET The real exchange rate as the relative price of nontradables in terms of tradables: theoretical investigation and empirical study on French data
G 9903	Ch. COLIN Évolution de la dispersion des salaires : un essai de prospective par microsimulation	G 2000/03	J.-Y. FOURNIER L'approximation du filtre passe-bande proposée par Christiano et Fitzgerald
G 9904	B. CREPON - N. IUNG Innovation, emploi et performances	G 2000/04	Bilan des activités de la DESE - 1999
G 9905	B. CREPON - Ch. GIANELLA Wages inequalities in France 1969-1992 An application of quantile regression techniques	G 2000/05	B. CREPON - F. ROSENWALD Investissement et contraintes de financement : le poids du cycle Une estimation sur données françaises
G 9906	C. BONNET - R. MAHIEU Microsimulation techniques applied to inter-generational transfers - Pensions in a dynamic framework: the case of France	G 2000/06	A. FLIPO Les comportements matrimoniaux de fait
G 9907	F. ROSENWALD L'impact des contraintes financières dans la décision d'investissement	G 2000/07	R. MAHIEU - B. SÉDILLOT Microsimulations of the retirement decision: a supply side approach
G 9908	Bilan des activités de la DESE - 1998	G 2000/08	C. AUDENIS - C. PROST Déficit conjoncturel : une prise en compte des conjonctures passées
G 9909	J.P. ZOYEM Contrat d'insertion et sortie du RMI Évaluation des effets d'une politique sociale	G 2000/09	R. MAHIEU - B. SÉDILLOT Équivalent patrimonial de la rente et souscription de retraite complémentaire
G 9910	Ch. COLIN - FI. LEGROS - R. MAHIEU Bilans contributifs comparés des régimes de retraite du secteur privé et de la fonction publique	G 2000/10	R. DUHAUTOIS Ralentissement de l'investissement : petites ou grandes entreprises ? industrie ou tertiaire ?
G 9911	G. LAROQUE - B. SALANIÉ Une décomposition du non-emploi en France	G 2000/11	G. LAROQUE - B. SALANIÉ Temps partiel féminin et incitations financières à l'emploi
G 9912	B. SALANIÉ Une maquette analytique de long terme du marché du travail	G2000/12	Ch. GIANELLA Local unemployment and wages
G 9912	Ch. GIANELLA		

G2000/13	B. CREPON - Th. HECKEL - Informatisation en France : une évaluation à partir de données individuelles - Computerization in France: an evaluation based on individual company data
G2001/01	F. LEQUILLER - La nouvelle économie et la mesure de la croissance du PIB - The new economy and the measurement of GDP growth
G2001/02	S. AUDRIC La reprise de la croissance de l'emploi profite-t-elle aussi aux non-diplômés ?
G2001/03	I. BRAUN-LEMAIRE Évolution et répartition du surplus de productivité
G2001/04	A. BEAUDU - Th. HECKEL Le canal du crédit fonctionne-t-il en Europe ? Une étude de l'hétérogénéité des comportements d'investissement à partir de données de bilan agrégées
G2001/05	C. AUDENIS - P. BISCOURP - N. FOURCADE - O. LOISEL Testing the augmented Solow growth model: An empirical reassessment using panel data
G2001/06	R. MAHIEU - B. SÉDILLOT Départ à la retraite, irréversibilité et incertitude
G2001/07	Bilan des activités de la DESE - 2000
G2001/08	J. Ph. GAUDEMET Les dispositifs d'acquisition à titre facultatif d'annuités viagères de retraite
G2001/09	B. CRÉPON - Ch. GIANELLA Fiscalité, coût d'usage du capital et demande de facteurs : une analyse sur données individuelles
G2001/10	B. CRÉPON - R. DESPLATZ Évaluation des effets des dispositifs d'allègements de charges sociales sur les bas salaires
G2001/11	J.-Y. FOURNIER Comparaison des salaires des secteurs public et privé
G2001/12	J.-P. BERTHIER - C. JAULENT R. CONVENEVOLE - S. PISANI Une méthodologie de comparaison entre consommations intermédiaires de source fiscale et de comptabilité nationale
G2001/13	P. BISCOURP - Ch. GIANELLA Substitution and complementarity between capital, skilled and less skilled workers: an analysis at the firm level in the French manufacturing industry
G2001/14	I. ROBERT-BOBÉE Modelling demographic behaviours in the French microsimulation model Destinie: An analysis of future change in completed fertility
G2001/15	J.-P. ZOYEM Diagnostic sur la pauvreté et calendrier de revenus : le cas du "Panel européen des ménages"
G2001/16	J.-Y. FOURNIER - P. GIVORD La réduction des taux d'activité aux âges extrêmes, une spécificité française ?

G2001/17	C. AUDENIS - P. BISCOURP - N. RIEDINGER Existe-t-il une asymétrie dans la transmission du prix du brut aux prix des carburants ?
G2002/01	F. MAGNIEN - J.-L. TAVERNIER - D. THESMAR Les statistiques internationales de PIB par habitant en standard de pouvoir d'achat : une analyse des résultats
G2002/02	Bilan des activités de la DESE - 2001
G2002/03	B. SÉDILLOT - E. WALRAET La cessation d'activité au sein des couples : y a-t-il interdépendance des choix ?
G2002/04	G. BRILHAULT - Rétropolation des séries de FBCF et calcul du capital fixe en SEC-95 dans les comptes nationaux français - Retropolation of the investment series (GFCF) and estimation of fixed capital stocks on the ESA-95 basis for the French balance sheets
G2002/05	P. BISCOURP - B. CRÉPON - T. HECKEL - N. RIEDINGER How do firms respond to cheaper computers? Microeconomic evidence for France based on a production function approach
G2002/06	C. AUDENIS - J. DERUYON - N. FOURCADE L'impact des nouvelles technologies de l'information et de la communication sur l'économie française - un bouclage macro-économique
G2002/07	J. BARDAJI - B. SÉDILLOT - E. WALRAET Évaluation de trois réformes du Régime Général d'assurance vieillesse à l'aide du modèle de microsimulation DESTINIE
G2002/08	J.-P. BERTHIER Réflexions sur les différentes notions de volume dans les comptes nationaux : comptes aux prix d'une année fixe ou aux prix de l'année précédente, séries chaînées
G2002/09	F. HILD Les soldes d'opinion résumant-ils au mieux les réponses des entreprises aux enquêtes de conjoncture ?
G2002/10	I. ROBERT-BOBÉE Les comportements démographiques dans le modèle de microsimulation Destinie - Une comparaison des estimations issues des enquêtes Jeunes et Carrières 1997 et Histoire Familiale 1999
G2002/11	J.-P. ZOYEM La dynamique des bas revenus : une analyse des entrées-sorties de pauvreté
G2002/12	F. HILD Prévisions d'inflation pour la France
G2002/13	M. LECLAIR Réduction du temps de travail et tensions sur les facteurs de production
G2002/14	E. WALRAET - A. VINCENT - Analyse de la redistribution intragénérationnelle dans le système de retraite des salariés du privé - Une approche par microsimulation - Intragenerational distributional analysis in the french private sector pension scheme - A microsimulation approach

G2002/15	P. CHONE - D. LE BLANC - I. ROBERT-BOBÉE Offre de travail féminine et garde des jeunes enfants
G2002/16	F. MAUREL - S. GREGOIR Les indices de compétitivité des pays : interprétation et limites
G2003/01	N. RIEDINGER - E. HAUVY Le coût de dépollution atmosphérique pour les entreprises françaises : Une estimation à partir de données individuelles
G2003/02	P. BISCOURP et F. KRAMARZ Création d'emplois, destruction d'emplois et internationalisation des entreprises industrielles françaises : une analyse sur la période 1986-1992
G2003/03	Bilan des activités de la DESE - 2002
G2003/04	P.-O. BEFFY - J. DERUYON - N. FOURCADE - S. GREGOIR - N. LAÏB - B. MONFORT Évolutions démographiques et croissance : une projection macro-économique à l'horizon 2020
G2003/05	P. AUBERT La situation des salariés de plus de cinquante ans dans le secteur privé
G2003/06	P. AUBERT - B. CRÉPON Age, salaire et productivité La productivité des salariés décline-t-elle en fin de carrière ?
G2003/07	H. BARON - P.O. BEFFY - N. FOURCADE - R. MAHIEU Le ralentissement de la productivité du travail au cours des années 1990
G2003/08	P.-O. BEFFY - B. MONFORT Patrimoine des ménages, dynamique d'allocation et comportement de consommation
G2003/09	P. BISCOURP - N. FOURCADE Peut-on mettre en évidence l'existence de rigidités à la baisse des salaires à partir de données individuelles ? Le cas de la France à la fin des années 90
G2003/10	M. LECLAIR - P. PETIT Présence syndicale dans les firmes : quel impact sur les inégalités salariales entre les hommes et les femmes ?
G2003/11	P.-O. BEFFY - X. BONNET - M. DARRACQ-PARIES - B. MONFORT MZE: a small macro-model for the euro area
G2004/01	P. AUBERT - M. LECLAIR La compétitivité exprimée dans les enquêtes trimestrielles sur la situation et les perspectives dans l'industrie
G2004/02	M. DUÉE - C. REBILLARD La dépendance des personnes âgées : une projection à long terme
G2004/03	S. RASPILLER - N. RIEDINGER Régulation environnementale et choix de localisation des groupes français
G2004/04	A. NABOULET - S. RASPILLER Les déterminants de la décision d'investir : une approche par les perceptions subjectives des firmes

G2004/05	N. RAGACHE La déclaration des enfants par les couples non mariés est-elle fiscalement optimale ?
G2004/06	M. DUÉE L'impact du chômage des parents sur le devenir scolaire des enfants
G2004/07	P. AUBERT - E. CAROLI - M. ROGER New Technologies, Workplace Organisation and the Age Structure of the Workforce: Firm-Level Evidence
G2004/08	E. DUGUET - C. LELARGE Les brevets accroissent-ils les incitations privées à innover ? Un examen microéconométrique
G2004/09	S. RASPILLER - P. SILLARD Affiliating versus Subcontracting: the Case of Multinationals
G2004/10	J. BOISSINOT - C. L'ANGEVIN - B. MONFORT Public Debt Sustainability: Some Results on the French Case
G2004/11	S. ANANIAN - P. AUBERT Travailleurs âgés, nouvelles technologies et changements organisationnels : un réexamen à partir de l'enquête « REPONSE »
G2004/12	X. BONNET - H. PONCET Structures de revenus et propensions différentes à consommer - Vers une équation de consommation des ménages plus robuste en prévision pour la France
G2004/13	C. PICART Évaluer la rentabilité des sociétés non financières
G2004/14	J. BARDAJI - B. SÉDILLOT - E. WALRAET Les retraites du secteur public : projections à l'horizon 2040 à l'aide du modèle de microsimulation DESTINIE
G2005/01	S. BUFFETEAU - P. GODEFROY Conditions de départ en retraite selon l'âge de fin d'études : analyse prospective pour les générations 1945 à 1974
G2005/02	C. AFSA - S. BUFFETEAU L'évolution de l'activité féminine en France : une approche par pseudo-panel
G2005/03	P. AUBERT - P. SILLARD Délocalisations et réductions d'effectifs dans l'industrie française
G2005/04	M. LECLAIR - S. ROUX Mesure et utilisation des emplois instables dans les entreprises
G2005/05	C. L'ANGEVIN - S. SERRAVALLE Performances à l'exportation de la France et de l'Allemagne - Une analyse par secteur et destination géographique
G2005/06	Bilan des activités de la Direction des Études et Synthèses Économiques - 2004
G2005/07	S. RASPILLER La concurrence fiscale : principaux enseignements de l'analyse économique
G2005/08	C. L'ANGEVIN - N. LAÏB Éducation et croissance en France et dans un panel de 21 pays de l'OCDE
G2005/09	N. FERRARI Prévoir l'investissement des entreprises

	Un indicateur des révisions dans l'enquête de conjoncture sur les investissements dans l'industrie.	G2006/10	C. AFSA L'estimation d'un coût implicite de la pénibilité du travail chez les travailleurs âgés
G2005/10	P.-O. BEFFY - C. L'ANGEVIN Chômage et boucle prix-salaires : apport d'un modèle « qualifiés/peu qualifiés »	G2006/11	C. LELARGE Les entreprises (industrielles) françaises sont-elles à la frontière technologique ?
G2005/11	B. HEITZ A two-states Markov-switching model of inflation in France and the USA: credible target VS inflation spiral	G2006/12	O. BIAU - N. FERRARI Théorie de l'opinion Faut-il pondérer les réponses individuelles ?
G2005/12	O. BIAU - H. ERKEL-ROUSSE - N. FERRARI Réponses individuelles aux enquêtes de conjoncture et prévision macroéconomiques : Exemple de la prévision de la production manufacturière	G2006/13	A. KOUBI - S. ROUX Une réinterprétation de la relation entre productivité et inégalités salariales dans les entreprises
G2005/13	P. AUBERT - D. BLANCHET - D. BLAU The labour market after age 50: some elements of a Franco-American comparison	G2006/14	R. RATHELOT - P. SILLARD The impact of local taxes on plants location decision
G2005/14	D. BLANCHET - T. DEBRAND - P. DOURGNON - P. POLLET L'enquête SHARE : présentation et premiers résultats de l'édition française	G2006/15	L. GONZALEZ - C. PICART Diversification, recentrage et poids des activités de support dans les groupes (1993-2000)
G2005/15	M. DUÉE La modélisation des comportements démographiques dans le modèle de microsimulation DESTINIE	G2007/01	D. SRAER Allègements de cotisations patronales et dynamique salariale
G2005/16	H. RAOUI - S. ROUX Étude de simulation sur la participation versée aux salariés par les entreprises	G2007/02	V. ALBOUY - L. LEQUIEN Les rendements non monétaires de l'éducation : le cas de la santé
G2006/01	C. BONNET - S. BUFFETEAU - P. GODEFROY Disparités de retraite de droit direct entre hommes et femmes : quelles évolutions ?	G2007/03	D. BLANCHET - T. DEBRAND Aspiration à la retraite, santé et satisfaction au travail : une comparaison européenne
G2006/02	C. PICART Les gazelles en France	G2007/04	M. BARLET - L. CRUSSON Quel impact des variations du prix du pétrole sur la croissance française ?
G2006/03	P. AUBERT - B. CRÉPON - P. ZAMORA Le rendement apparent de la formation continue dans les entreprises : effets sur la productivité et les salaires	G2007/05	C. PICART Flux d'emploi et de main-d'œuvre en France : un réexamen
G2006/04	J.-F. OUVRARD - R. RATHELOT Demographic change and unemployment: what do macroeconomic models predict?	G2007/06	V. ALBOUY - C. TAVAN Massification et démocratisation de l'enseignement supérieur en France
G2006/05	D. BLANCHET - J.-F. OUVRARD Indicateurs d'engagements implicites des systèmes de retraite : chiffrages, propriétés analytiques et réactions à des chocs démographiques types	G2007/07	T. LE BARBANCHON The Changing response to oil price shocks in France: a DSGE type approach
G2006/06	G. BIAU - O. BIAU - L. ROUVIERE Nonparametric Forecasting of the Manufacturing Output Growth with Firm-level Survey Data	G2007/08	T. CHANEY - D. SRAER - D. THESMAR Collateral Value and Corporate Investment Evidence from the French Real Estate Market
G2006/07	C. AFSA - P. GIVORD Le rôle des conditions de travail dans les absences pour maladie	G2007/09	J. BOISSINOT Consumption over the Life Cycle: Facts for France
G2006/08	P. SILLARD - C. L'ANGEVIN - S. SERRAVALLE Performances comparées à l'exportation de la France et de ses principaux partenaires Une analyse structurelle sur 12 ans	G2007/10	C. AFSA Interpréter les variables de satisfaction : l'exemple de la durée du travail
G2006/09	X. BOUTIN - S. QUANTIN Une méthodologie d'évaluation comptable du coût du capital des entreprises françaises : 1984-2002	G2007/11	R. RATHELOT - P. SILLARD Zones Franches Urbaines : quels effets sur l'emploi salarié et les créations d'établissements ?
		G2007/12	V. ALBOUY - B. CRÉPON Aléa moral en santé : une évaluation dans le cadre du modèle causal de Rubin
		G2008/01	C. PICART Les PME françaises : rentables mais peu dynamiques

G2008/02	P. BISCOURP - X. BOUTIN - T. VERGÉ The Effects of Retail Regulations on Prices Evidence from the Loi Galland	G2009/07	S. QUANTIN - S. RASPILLER - S. SERRAVALLE Commerce intragroupe, fiscalité et prix de transferts : une analyse sur données françaises
G2008/03	Y. BARBESOL - A. BRIANT Économies d'agglomération et productivité des entreprises : estimation sur données individuelles françaises	G2009/08	M. CLERC - V. MARCUS Élasticités-prix des consommations énergétiques des ménages
G2008/04	D. BLANCHET - F. LE GALLO Les projections démographiques : principaux mécanismes et retour sur l'expérience française	G2009/09	G. LALANNE - E. POULIQUEN - O. SIMON Prix du pétrole et croissance potentielle à long terme
G2008/05	D. BLANCHET - F. TOUTLEMONDE Évolutions démographiques et déformation du cycle de vie active : quelles relations ?	G2009/10	D. BLANCHET - J. LE CACHEUX - V. MARCUS Adjusted net savings and other approaches to sustainability: some theoretical background
G2008/06	M. BARLET - D. BLANCHET - L. CRUSSON Internationalisation et flux d'emplois : que dit une approche comptable ?	G2009/11	V. BELLAMY - G. CONSALES - M. FESSEAU - S. LE LAIDIER - É. RAYNAUD Une décomposition du compte des ménages de la comptabilité nationale par catégorie de ménage en 2003
G2008/07	C. LELARGE - D. SRAER - D. THESMAR Entrepreneurship and Credit Constraints - Evidence from a French Loan Guarantee Program	G2009/12	J. BARDAJI - F. TALLET Detecting Economic Regimes in France: a Qualitative Markov-Switching Indicator Using Mixed Frequency Data
G2008/08	X. BOUTIN - L. JANIN Are Prices Really Affected by Mergers?	G2009/13	R. AEBERHARDT - D. FOUGÈRE - R. RATHELOT Discrimination à l'embauche : comment exploiter les procédures de <i>testing</i> ?
G2008/09	M. BARLET - A. BRIANT - L. CRUSSON Concentration géographique dans l'industrie manufacturière et dans les services en France : une approche par un indicateur en continu	G2009/14	Y. BARBESOL - P. GIVORD - S. QUANTIN Partage de la valeur ajoutée, approche par données microéconomiques
G2008/10	M. BEFFY - É. COUDIN - R. RATHELOT Who is confronted to insecure labor market histories? Some evidence based on the French labor market transition	G2009/15	I. BUONO - G. LALANNE The Effect of the Uruguay round on the Intensive and Extensive Margins of Trade
G2008/11	M. ROGER - E. WALRAET Social Security and Well-Being of the Elderly: the Case of France	G2010/01	C. MINODIER Avantages comparés des séries des premières valeurs publiées et des séries des valeurs révisées - Un exercice de prévision en temps réel de la croissance trimestrielle du PIB en France
G2008/12	C. AFSA Analyser les composantes du bien-être et de son évolution Une approche empirique sur données individuelles	G2010/02	V. ALBOUY - L. DAVEZIES - T. DEBRAND Health Expenditure Models: a Comparison of Five Specifications using Panel Data
G2008/13	M. BARLET - D. BLANCHET - T. LE BARBANCHON Microsimuler le marché du travail : un prototype	G2010/03	C. KLEIN - O. SIMON Le modèle MÉSANGE réestimé en base 2000 Tome 1 – Version avec volumes à prix constants
G2009/01	P.-A. PIONNIER Le partage de la valeur ajoutée en France, 1949-2007	G2010/04	M.-É. CLERC - É. COUDIN L'IPC, miroir de l'évolution du coût de la vie en France ? Ce qu'apporte l'analyse des courbes d'Engel
G2009/02	Laurent CLAVEL - Christelle MINODIER A Monthly Indicator of the French Business Climate	G2010/05	N. CECI-RENAUD - P.-A. CHEVALIER Les seuils de 10, 20 et 50 salariés : impact sur la taille des entreprises françaises
G2009/03	H. ERKEL-ROUSSE - C. MINODIER Do Business Tendency Surveys in Industry and Services Help in Forecasting GDP Growth? A Real-Time Analysis on French Data	G2010/06	R. AEBERHARDT - J. POUGET National Origin Differences in Wages and Hierarchical Positions - Evidence on French Full-Time Male Workers from a matched Employer-Employee Dataset
G2009/04	P. GIVORD - L. WILNER Les contrats temporaires : trappe ou marche-pied vers l'emploi stable ?	G2010/07	S. BLASCO - P. GIVORD Les trajectoires professionnelles en début de vie active : quel impact des contrats temporaires ?
G2009/05	G. LALANNE - P.-A. PIONNIER - O. SIMON Le partage des fruits de la croissance de 1950 à 2008 : une approche par les comptes de surplus	G2010/08	P. GIVORD Méthodes économétriques pour l'évaluation de politiques publiques
G2009/06	L. DAVEZIES - X. D'HAULTFOEUILLE Faut-il pondérer ?... Ou l'éternelle question de l'économètre confronté à des données d'enquête		

G2010/09	P.-Y. CABANNES - V. LAPÈGUE - E. POULIQUEN - M. BEFFY - M. GAINI Quelle croissance de moyen terme après la crise ?	G2011/07	M. CLERC - M. GAINI - D. BLANCHET Recommendations of the Stiglitz-Sen-Fitoussi Report: A few illustrations	G2012/08	A. EIDELMAN - F. LANGUMIER - A. VICARD Prélèvements obligatoires reposant sur les ménages : des canaux redistributifs différents en 1990 et 2010	G2013/11	P. CHONÉ - F. EVAÏN - L. WILNER - E. YILMAZ Introducing activity-based payment in the hospital industry : Evidence from French data
G2010/10	I. BUONO - G. LALANNE La réaction des entreprises françaises à la baisse des tarifs douaniers étrangers	G2011/08	M. BACHELET - M. BEFFY - D. BLANCHET Projeter l'impact des réformes des retraites sur l'activité des 55 ans et plus : une comparaison de trois modèles	G2012/09	O. BARGAIN - A. VICARD Le RMI et son successeur le RSA découragent-ils certains jeunes de travailler ? Une analyse sur les jeunes autour de 25 ans		
G2010/11	R. RATHELOT - P. SILLARD L'apport des méthodes à noyaux pour mesurer la concentration géographique - Application à la concentration des immigrés en France de 1968 à 1999	G2011/09	C. LOUVOT-RUNAVOT L'évaluation de l'activité dissimulée des entreprises sur la base des contrôles fiscaux et son insertion dans les comptes nationaux	G2012/10	C. MARBOT - D. ROY Projections du coût de l'APA et des caractéristiques de ses bénéficiaires à l'horizon 2040 à l'aide du modèle Destinie		
G2010/12	M. BARATON - M. BEFFY - D. FOUGÈRE Une évaluation de l'effet de la réforme de 2003 sur les départs en retraite - Le cas des enseignants du second degré public	G2011/10	A. SCHREIBER - A. VICARD La tertiarisation de l'économie française et le ralentissement de la productivité entre 1978 et 2008	G2012/11	A. MAUROUX Le crédit d'impôt dédié au développement durable : une évaluation économétrique		
G2010/13	D. BLANCHET - S. BUFFETEAU - E. CRENNER S. LE MINEZ Le modèle de microsimulation Destinie 2 : principales caractéristiques et premiers résultats	G2011/11	M.-É. CLERC - O. MONSO - E. POULIQUEN Les inégalités entre générations depuis le baby-boom	G2012/12	V. COTTET - S. QUANTIN - V. RÉGNIER Coût du travail et allègements de charges : une estimation au niveau établissement de 1996 à 2008		
G2010/14	D. BLANCHET - E. CRENNER Le bloc retraites du modèle Destinie 2 : guide de l'utilisateur	G2011/12	C. MARBOT et D. ROY Évaluation de la transformation de la réduction d'impôt en crédit d'impôt pour l'emploi de salariés à domicile en 2007	G2012/13	X. D'HAULTFOEUILLE, P. FEVRIER et L. WILNER Demand Estimation in the Presence of Revenue Management		
G2010/15	M. BARLET - L. CRUSSON - S. DUPUCH - F. PUECH Des services échangés aux services échangeables : une application sur données françaises	G2011/13	P. GIVORD - R. RATHELOT - P. SILLARD Place-based tax exemptions and displacement effects: An evaluation of the Zones Franches Urbaines program	G2012/14	D. BLANCHET et S. LE MINEZ Joint macro/micro evaluations of accrued-to-date pension liabilities: an application to French reforms		
G2010/16	M. BEFFY - T. KAMIONKA Public-private wage gaps: is civil-servant human capital sector-specific?	G2011/14	X. D'HAULTFOEUILLE - P. GIVORD - X. BOUTIN The Environmental Effect of Green Taxation: the Case of the French "Bonus/Malus"	G2013/01-F1301	T. DEROYON - A. MONTAUT et P-A PIONNIER Utilisation rétrospective de l'enquête Emploi à une fréquence mensuelle : apport d'une modélisation espace-état		
G2010/17	P.-Y. CABANNES - H. ERKEL-ROUSSE - G. LALANNE - O. MONSO - E. POULIQUEN Le modèle Mésange réestimé en base 2000 Tome 2 - Version avec volumes à prix chaînés	G2011/15	M. BARLET - M. CLERC - M. GARNEO - V. LAPÈGUE - V. MARCUS La nouvelle version du modèle MZE, modèle macroéconométrique pour la zone euro	G2013/02-F1302	C. TRÉVIEN Habiter en HLM : quel avantage monétaire et quel impact sur les conditions de logement ?		
G2010/18	R. AEBERHARDT - L. DAVEZIES Conditional Logit with one Binary Covariate: Link between the Static and Dynamic Cases	G2011/16	R. AEBERHARDT - I. BUONO - H. FADINGER Learning, Incomplete Contracts and Export Dynamics: theory and Evidence from French Firms	G2013/03	A. POISSONNIER Temporal disaggregation of stock variables - The Chow-Lin method extended to dynamic models		
G2011/01	T. LE BARBANCHON - B. OURLIAC - O. SIMON Les marchés du travail français et américain face aux chocs conjoncturels des années 1986 à 2007 : une modélisation DSGE	G2011/17	C. KERDRAIN - V. LAPÈGUE Restrictive Fiscal Policies in Europe: What are the Likely Effects?	G2013/04	P. GIVORD - C. MARBOT Does the cost of child care affect female labor market participation? An evaluation of a French reform of childcare subsidies		
G2011/02	C. MARBOT Une évaluation de la réduction d'impôt pour l'emploi de salariés à domicile	G2012/01	P. GIVORD - S. QUANTIN - C. TREVIEN A Long-Term Evaluation of the First Generation of the French Urban Enterprise Zones	G2013/05	G. LAME - M. LEQUIEN - P.-A. PIONNIER Interpretation and limits of sustainability tests in public finance		
G2011/03	L. DAVEZIES Modèles à effets fixes, à effets aléatoires, modèles mixtes ou multi-niveaux : propriétés et mises en œuvre des modélisations de l'hétérogénéité dans le cas de données groupées	G2012/02	N. CECI-RENAUD - V. COTTET Politique salariale et performance des entreprises	G2013/06	C. BELLEGO - V. DORTET-BERNADET La participation aux pôles de compétitivité : quelle incidence sur les dépenses de R&D et l'activité des PME et ETI ?		
G2011/04	M. ROGER - M. WASMER Heterogeneity matters: labour productivity differentiated by age and skills	G2012/03	P. FÉVRIER - L. WILNER Do Consumers Correctly Expect Price Reductions? Testing Dynamic Behavior	G2013/07	P.-Y. CABANNES - A. MONTAUT - P.-A. PIONNIER Évaluer la productivité globale des facteurs en France : l'apport d'une mesure de la qualité du capital et du travail		
G2011/05	J.-C. BRICONGNE - J.-M. FOURNIER V. LAPÈGUE - O. MONSO De la crise financière à la crise économique L'impact des perturbations financières de 2007 et 2008 sur la croissance de sept pays industrialisés	G2012/04	M. GAINI - A. LEDUC - A. VICARD School as a shelter? School leaving-age and the business cycle in France	G2013/08	R. AEBERHARDT - C. MARBOT Evolution of Instability on the French Labour Market During the Last Thirty Years		
G2011/06	P. CHARNOZ - É. COUDIN - M. GAINI Wage inequalities in France 1976-2004: a quantile regression analysis	G2012/05	M. GAINI - A. LEDUC - A. VICARD A scarred generation? French evidence on young people entering into a tough labour market	G2013/09	J-B. BERNARD - G. CLÉAUD Oil price: the nature of the shocks and the impact on the French economy		
		G2012/06	P. AUBERT - M. BACHELET Disparités de montant de pension et redistribution dans le système de retraite français	G2013/10	G. LAME Was there a « Greenspan Conundrum » in the Euro area?		
		G2012/07	R. AEBERHARDT - P. GIVORD - C. MARBOT Spillover Effect of the Minimum Wage in France: An Unconditional Quantile Regression Approach				