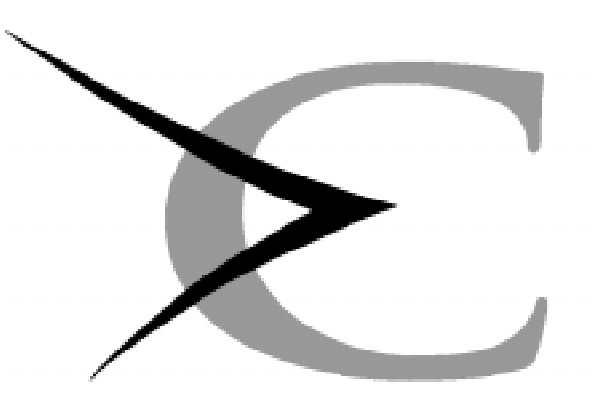

CIRANO

Centre interuniversitaire de recherche
en analyse des organisations

Série Scientifique
Scientific Series

97s-30

Taxation or Regulation: Looking for a Good Anti-Smoking Policy

Paul Leclair, Paul Lanoie

Montréal
Juin 1997

CIRANO

Le CIRANO est une corporation privée à but non lucratif constituée en vertu de la Loi des compagnies du Québec. Le financement de son infrastructure et de ses activités de recherche provient des cotisations de ses organisations-membres, d'une subvention d'infrastructure du ministère de l'Industrie, du Commerce, de la Science et de la Technologie, de même que des subventions et mandats obtenus par ses équipes de recherche. La *Série Scientifique* est la réalisation d'une des missions que s'est données le CIRANO, soit de développer l'analyse scientifique des organisations et des comportements stratégiques.

CIRANO is a private non-profit organization incorporated under the Québec Companies Act. Its infrastructure and research activities are funded through fees paid by member organizations, an infrastructure grant from the Ministère de l'Industrie, du Commerce, de la Science et de la Technologie, and grants and research mandates obtained by its research teams. The Scientific Series *fulfils one of the missions of CIRANO: to develop the scientific analysis of organizations and strategic behaviour.*

Les organisations-partenaires / The Partner Organizations

- École des Hautes Études Commerciales
- École Polytechnique
- McGill University
- Université de Montréal
- Université du Québec à Montréal
- Université Laval
- MEQ
- MICST
- Avenor
- Banque Nationale du Canada
- Bell Québec
- Caisse de dépôt et placement du Québec
- Fédération des caisses populaires Desjardins de Montréal et de l'Ouest-du-Québec
- Hydro-Québec
- Raymond, Chabot, Martin, Paré
- Scetauroute
- Société d'électrolyse et de chimie Alcan Ltée
- Téléglobe Canada
- Ville de Montréal

ISSN 1198-8177

Taxation or Regulation: Looking for a Good Anti-Smoking Policy[*]

Paul Leclair[†], *Paul Lanoie*[‡]

Résumé / Abstract

Cet article examine la performance de deux types de politiques, taxes et réglementation, visant à réduire la consommation de cigarettes et à donner des incitations à arrêter de fumer (ou à ne pas commencer). L'analyse est basée sur des données canadiennes au niveau des provinces pour les années 1982-1995. Nos résultats montrent que la demande de cigarettes est sensible aux changements de taxe (élasticité de 0,28), mais pas à la réglementation, alors que des résultats inverses sont observés lorsqu'on examine l'impact des politiques sur la décision de fumer ou pas.

This paper investigates the relative ability of two anti-smoking policies, taxes and regulation, in inducing cigarette demand reductions and in providing incentives to stop smoking (or not to start). The analysis is based on Canadian data at the provincial level for the period 1982-1995. Our results show that cigarette demand responds to taxes (elasticity of 0.28), but not to regulation, while the converse is true for the proportion of smokers in the population. This suggests that both policies are acting in a complementary fashion to influence the incidence of smoking.

Mots Clés : Taxes, réglementation, cigarettes, politiques publiques

Keywords : Taxation, regulation, cigarettes, smoking, policy

---

[*] Corresponding Author: Paul Lanoie, CIRANO, 2020 University Street, 25th floor, Montréal, Qc, Canada H3A 2A5 Tel: (514) 985-4020 Fax: (514) 985-4039 e-mail: lanoiep@cirano.umontreal.ca
Financial support from the Fonds FCAR is gratefully acknowledged. We also thank Ruth Dupré for very helpful comments.

[†] École des Hautes Études Commerciales

[‡] École des Hautes Études Commerciales and CIRANO

1. Introduction

Over the last thirty years, numerous studies have established the potential hazard of cigarettes consumption for smokers (since 1964) and for those surrounding them (since 1986). This has led to severe criticisms against smoking in our society. In most industrialized countries, governments feel justified, especially because of the external cost induced by secondary smoke, to adopt anti-smoking policies. To serve this purpose, they rely mainly on taxation and regulation. In the Canadian context, the following features are noteworthy: 1) from 1968 to 1991, the increase in provincial and federal cigarette taxes has been 2400 % and 700 % respectively, while consumer prices have increased by 330 %; 2) starting in the seventies, municipalities, provinces and the federal government have regulated smoking in public places and this regulation has become more severe since the end of the 80's with a number of provinces regulating smoking in the workplace; 3) certain provinces and the federal government (since 1993) have regulated the sale of cigarettes to teen-agers and 4) since 1988, the federal government has regulated cigarettes advertisement and labeling.

Are these policy instruments efficient in achieving their goal? Which one is better, if any? Economists have made certain attempts to answer these important questions. In particular, a number of studies (to be discussed in details below) have looked at the impact of changing taxation on cigarette consumption (a notable difficulty in these studies is that smuggling activities can bias the estimates of cigarettes consumption, especially in Canada[1]). Certain researchers have examined the relative role of both instruments in inducing consumption reduction, but this was done in the American context and limited to certain aspects of regulation.

This paper complements the literature in several ways: 1) it is the first study to examine the relative role of taxation and regulation in Canada; this is a useful exercise given that Canada and the U.S. have implemented different sets of policies against smoking (higher taxes and more stringent regulation on advertisement and labeling in Canada); 2) our measure of regulation accounts for all the principal aspects of this kind of policy; 3) for the first time, we use the proportion of smokers in the population as a measure of the incidence of smoking (which should not be biased by smuggling); given that one of the objectives of anti-smoking policies is, not only to induce reductions in cigarette demand, but also to provide incentives to quit smoking (or not to start to), looking at the impact of anti-smoking policies on the decision to smoke or not is of interest in its own sake; and 4) when computing our estimates of cigarette consumption, we account for smuggling in a more direct way than previous studies.

The rest of the paper is organized as follows. Section 2 provides a brief summary of the studies on the impact of different anti-smoking policies. The

[1] This phenomenon was important in the nineties in Canada because of the large difference in cigarette prices between the U.S. and Canada.

next section presents our empirical model and data. Section 4 discusses our empirical results showing that taxes have an effect on the quantity of cigarettes smoked, but not on the proportion of smokers, while regulation has opposite effects (a negative influence on the percentage of smokers but no impact on cigarettes consumption). Section 5 provides some concluding remarks.

2. A brief survey of the literature

A large number of studies have investigated the relation between taxes and cigarettes consumption (the main features of these studies are reported in Table 1). Some of them have also taken into account certain aspects of regulation. Essentially, they are based on three different types of **models depending on their treatment of addictive behavior**. First, in the static model, a standard demand function for cigarettes of the following type is estimated:

$$C = F(P, Y, X) \quad (1)$$

where C is the per capita consumption of cigarettes, P is the real price (including taxes), Y represents the per capita income and X is a vector of control variables. Among these control variables, one generally finds certain socio-demographic factors such as age, sex, education and race. Certain aspects of regulation (including advertisement) have been introduced among the control variables in a number of papers. Second, in the model of myopic addiction, researchers capture addiction by including a lagged consumption variable in the demand function: the greater is C_{-1}, the greater should be the contemporaneous consumption. The estimated equation is thus:

$$C = F(P, Y, X, C_{-1}) \quad (2)$$

Third, Becker and Murphy (1988) have suggested the rational addictive behavior. In their model, individuals are rational or farsighted in the sense that they anticipate the expected future consequences of their current actions. Consequently, future consumption may affect current consumption:

$$C = F(P, Y, X, C_{-1}, C_{+1}) \quad (3)$$

Another important aspect of modeling has been introduced by Baltagi and Levin (1986), the impact of **smuggling** on cigarette consumption. If one does not account for this phenomenon, it is possible to overestimate the impact of price on quantities. In most American studies which dealt with this issue,

authors have introduced a variable that captures the prices prevailing in neighboring states, as a mean to control for biases introduced by smuggling.

In general, the studies on the impact of anti-smoking policies use panel **data**. If the unit of observation is the individual, the studies have generally few years of observation. If the unit of observation is more aggregate, the studies have usually longer time series.

Turning to the **results** obtained, there seems to be a consensus on a price elasticity of -0.4, which confirms that demand for cigarettes is inelastic. Concerning the impact of regulation, it seems that the Fairness Doctrine (a law through which tobacco companies had to finance anti-smoking advertisement) had a significant negative effect on cigarette consumption (Fujii, 1980, Lewit et al., 1981, and Baltagi and Levin, 1986) . The impact of smoking regulation in public places and in workplaces is less clear: while Wasserman et al. (1991) find a strong negative impact, Sung et al. (1994) detect no effect at all, and two studies (Chaloupka, 1991 and Keeler et al., 1993) find a negative impact in certain specifications of the estimated model. Furthermore, the income elasticity of cigarette demand seems to decrease through time. It was positive and significant in the early studies, but it is mostly insignificant in recent studies.

In terms of the best theoretical model underlying the empirical analyses, there is no clear agreement. The static model which was used in early studies seems less popular. Moreover, while Becker et al. (1994) and Chaloupka (1994) provide empirical support for the rational addictive model, Keeler et al (1993) as well as Sung et al. (1994) present results in line with the myopic addictive model. Finally, most studies that have accounted for smuggling have found significant results indicating that the demand in one American state is inversely related to the price prevailing in bordering states.

3. Empirical model and data

We use two concepts of smoking incidence : cigarette consumption and the percentage of smokers in the population. More precisely, four measures are considered: 1) per capita cigarette consumption (CONSUMPTION[2]); 2) cigarette consumption corrected for smuggling (CONSUMPTION1); 3) the percentage of the people over 12 who smoke (PERCENT12) and 4) the percentage of people over 18 who smoke (PERCENT18). The data cover the ten Canadian provinces for the period 1980-1995 for the two first equations and the period 1986-1995 for the two last. Descriptive statistics related to all the variables used in the analysis are provided in Table 2. Most data are available from Statistic Canada, except for the smuggling estimates (see below) and the data on the percentages of smokers which are provided by a private poll firm (Print M Bureau).

[2] This is the total consumption divided by the number of people being 12 years old or more.

Preliminary tests (available upon request) led us to choose the **myopic** model of consumption. In particular, the estimation of the rational addictive model was difficult because the correlation between the lagged dependent variable and this variable at t+1 was high (around 0.90 in our first two models). We will thus base our estimate on the model represented in the equation (2)[3].

Turning to the **dependent variables**, the CONSUMPTION of cigarettes is approximated by the shipments of Canadian producers within each province. To correct for **smuggling** (CONSUMPTION1), we add to this consumption an estimate of cigarettes sold illegally within each province each year. As shown by certain studies of the Canadian Department of Finance (Department of Finance, 1993 and Lindquist et al., 1993), cigarette smuggling has started in Canada between 1983 and 1986, has increased between the years 1986 and 1990, and has been somewhat out of control between 1991 and 1994, when certain governments decided to reduce taxes. For the years 1986-1992, we use the estimates of cigarettes sold illegally provided by Lindquist et al. (1993)[4], estimates that we updated for the years 1993-1994. This is a more direct way to account for smuggling than what was done in previous studies. The other dependent variables (the percentage of smokers in the population) are found in a survey that has been made by a private firm every year since 1986.

Among the **independent** variables, we first find the real retail **PRICE** of cigarettes. The estimated coefficient of this variable will inform us on the impact of changing prices, through taxes, on the quantity consumed and on the probability to be a smoker.

The next independent variable of interest is our index reflecting the severity of **REGULATION**. This index or scale accounts for all the main aspects of smoking regulation (regulating smoking in public places, advertisement, labeling, access to cigarettes for teen-agers). It is based on Wasserman et al. (1991) and Keeler et al. (1993), and is intended to capture the differential of strictness across time and across provinces: a federal regulation that affects all provinces in a given year shifts the strictness score of all provinces at the same

---

[3] The linear form has been adopted here, but preliminary tests showed that the nature of the results was unchanged with the semilog or translog functional forms. Complete results are available upon request.

[4] First, these authors estimate the quantity of non-taxable cigarettes bought by: 1) Canadian residents coming back from a trip; 2) crew members of Canadian airline companies; 3) diplomates and 4) members of the army. Second, they estimate the quantity of exported cigarettes actually consumed out of Canada. This amount is then substracted from the total of cigarette exports and non-taxable sales published by Statistique Canada. It is assumed that the difference has been reintroduced illegally in the country. Lindquist et al. estimate, for instance, that half of the Quebec market in 1993 was under the control of smugglers in 1993, while Fortin et al. (1996), using a more precise survey of 5000 individuals, estimate this proportion to 58%. The estimate we use here may thus be considered as a lower bound of the actual size of smuggling activities.

time and with the same magnitude; a new regulation in a particular province in a given year only affects the score of that province. As an important feature of this index, note that a province (or a city within a province) is considered to be stricter the more types of public places it regulates (following previous studies, provinces which regulate smoking in the workplace are considered the toughest). Furthermore, when only a number of cities within a province adopt certain rules, the index accounts for the proportion of the province's population which lives in these cities (for more details, see Leclair, 1997).

Our **INCOME** measure is the real per capita disposable income in each province. Among the **control variables**, a time TREND has been included to capture specific influences that could vary through time but not across provinces (e.g., greater consciousness about the health hazard, change in the age structure of the population). Finally, provincial fixed effects are introduced to capture influences that could vary across provinces but not through time (e.g., specific anti-smoking campaigns)[5].

4. Empirical Results

Four regressions are reported in Table 2. The first one uses, as the dependent variable, the consumption of cigarettes not adjusted for smuggling, while the second one accounts for this adjustment. The third and fourth regressions are related to the percentage of smokers: i) in the population of people being 12 years old and more (column (3)) and in the adult population (column (4)). Equations are estimated using a generalized least-squares (GLS) procedure based on the cross-sectionally heteroskedastic and time-wise autoregressive model presented in Kmenta (1986, pp. 616-625).

In the CONSUMPTION equations, the coefficient of the PRICE variable is negative and significant as expected. Interestingly, the long-term elasticity is reduced by more than 50 % (-0.60 in column (1) and -0.28 in column (2)) and is more in line with the rest of the literature when we consider a more realistic measure of cigarette consumption that accounts for smuggling (column (2)). Similarly, the coefficient of the lagged dependent variable capturing the addictive nature of smoking is closer to the trend observed in previous studies when smuggling is taken into account. Furthermore, the coefficients of the REGULATION variables are not of the expected sign, but are not significant (at the 5% level) in these two equations.

The results for the policy variables are somewhat reversed in the PERCENTAGE of SMOKERS equations. Indeed, in these two equations, the coefficients of the PRICE variable are of the expected sign, but are not

[5] Note also that two socio-demographic variables were included (one capturing the differences in the level of education across provinces and one capturing the differences in the age structure), but none of them was ever significant in our preliminary regressions and thus, the results pertaining to these variables are not reported here. Complete results are available upon request.

significant, while the coefficients of the REGULATION variable are negative and significant.

Interestingly, these results suggest that cigarettes **taxes** have an impact on the quantity of cigarettes smoked but not on the decision to smoke or not, while **regulation** has the converse effect[6]. This is a new result in the literature. Many reasons may explain this phenomenon. First, it is possible that regulation of smoking (especially in public places) is really carrying the idea that smoking is socially unacceptable (that it becomes a sin!), which is not necessarily the case with taxation. Second, in many jurisdictions where smoking is prohibited in the workplace, employers often provide workers with programs and training to stop smoking (for instance, smoking is now prohibited in all federal buildings and all employees working there were offered to be involved in an anti-smoking program). Third, legislations that limit the access of teen-agers to cigarettes may have had an impact on their decision to start smoking or not.

Concerning the other variables included in the regressions, it is noteworthy that the per capita INCOME has no impact on smoking, which is line with the most recent literature. Finally, the TREND variable is everywhere negative and significant, which may reflect the impact of the increasing awareness about the hazard of smoking.

5. Conclusion

This paper has investigated the relative ability of two anti-smoking policies, taxes and regulation, in inducing cigarette demand reductions and in providing incentives to stop smoking (or not to start to). The analysis is based on Canadian data at the provincial level for the period 1982-1995. Our results showed that cigarette demand responds to taxes (elasticity of -0.28), but not to regulation, while the converse is true for the proportion of smokers in the population. This suggests that both policies are acting in a complementary fashion to influence the incidence of smoking. As a useful extension of this research, it would be interesting to investigate which regulation measure (regulating smoking in the workplace, advertisement, or access to cigarettes for teen-agers) is more powerful.

[6] Note that these results are stable when the same sample years are used in each of the four models, with the exception of the regulation variable that becomes negative and barely significant in the CONSUMPTION1 equation.

TABLE 1

Empirical Studies on Anti-Smoking Policies

Authors	Price-elasticity	Impact of Regulation	Data	Model
Thompson and McLeod (1976)	-.65/-.84		Canadian, yearly, 1950-1973	Static
Fujii (1980)	-.45/-.71	Negative impact of the Fairness Doctrine	American, yearly, 1929-1973	Partial-adjustment model
Lewit et al. (1981)	-1.44	Negative impact of the Fairness Doctrine	Panel of micro-data 6768 teen-agers over 4 years	Static
Baltagi and Levin (1986)	-.22	Negative impact of the Fairness Doctrine	46 American states, yearly, 1969-1980	Partial-adjustment model
Wasserman et al. (1991)	-.23	Negative impact of regulating smoking in public places	Panel of micro data	Static
Chaloupka (1991)	-.24	Mixed evidence on the impact of regulating smoking in public places	50 American states 1975-1985	Static
Chaloupka and Saffer (1992)	-.30/-.45		Panel of micro-data 28 000 persons over 5 years	Rational addiction
Ministry of Finance, Canada (1993)	-.70		Canadian, quarterly, 1968-1991	Partial-adjustment model
Keeler et al. (1993)	-.34/-.47	Mixed evidence on the impact of regulating smoking in public places	Californian, monthly, 1980-1990	Three models
Sung et al. (1994)	-.53/-.63	No impact of regulation	11 American states, yearly, 1967-1990	Rational addiction
Becker et al. (1994)	-.40/-.75		50 American states, yearly, 1955-1985	Rational addiction

TABLE 2: Incidence of Smoking
Coefficients (t-statistics)

Dependent variables / Independent variables	Mean[a] (standard deviation)	(1) CONSUMPTION N = 150	(2) CONSUMPTION1 N = 150	(3) PERCENT12 N = 90	(4) PERCENT18 N = 90
Logged dependent variable		0.450 (8.10)	0.608 (9.80)	0.152 (1.56)	0.189 (2.09)
PRICE	118.1 (42.55)	-6.216 (-9.87)	-2.139 (-3.85)	-0.009 (-1.75)	-0.008 (-1.49)
INCOME	12 010 (1 427)	0.044 (1.76)	0.027 (1.07)	0.001 (0.17)	-0.0003 (-0.54)
REGULATION	33.26 (29.86)	1.202 (1.60)	1.247 (1.78)	-0.038 (-3.38)	-0.037 (-3.03)
TREND		-33.005 (-3.24)	-37.396 (9.55)	-0.289 (-2.24)	-0.377 (-2.91)
R^2	--	0.94	0.939	0.58	0.62

[a] The mean and (standard deviation) of the dependent variables are : CONSUMPTION : 2174 (791.5) ; CONSUMPTION1 : 2284 (715.1) ; PERCENT12 : 28.31 (4.1) and PERCENT18 : 30.54 (4.4).

BIBLIOGRAPHY

Baltagi, B.H., and D. Levin, "Estimating Dynamic Demand for Cigarettes Using Panel Data: The Effects of Bootlegging, Taxation and Advertising Reconsidered," *Review of Economics and Statistics*, February 1986, 148-155.

Becker, G., and K. Murphy, "A Theory of Rational addiction" *Journal of Political Economy*, 1988, 675-701.

Becker, G., M. Grossman, and K. Murphy, "An Empirical Analysis of Cigarette Addiction," *American Economic Review*, 1994, 396-418.

Chaloupka, F., "Rational Addictive Behavior and Cigarette Smoking," *Journal of Political Economy*, 1991, 722-742.

Chaloupka, F., and H. Saffer, "Clean Indoor Air Laws and the Demand for Cigarettes," *Contemporary Policy Issues*, April 1992, 72-83.

Department of Finance Canada, "Tobacco Taxes and Consumption", June 1993.

Fortin, B., G. Garneau, G. Lacroix, T. Lemieux, and C. Montmarquette. *L'économie souterraine au Québec: mythes et réalités*. 1996. Sainte-Foy: Les Presses de L'Université Laval.

Fujii, E. T., "The Demand for Cigarettes: Further Empirical Evidence and Its Implication for Public Policy," *Applied Economics*, 1980, 479-489.

Keeler, T. E., T. Hu, P. G. Barnett, and W. G. Manning, "Taxation, Regulation, and Addiction: A Demand Function for Cigarettes Based on Time-Series Evidence," *Journal of Health Economics*, April 1993, 1-18.

Kmenta, J., *Elements of Econometrics*, 2nd edition. New York : Macmillan.

Leclair, P., "Les politiques gouvernementales en matière de tabac et la consommation de cigarettes au Canada : une étude interprovinciale de 1980 à 1995," mimeo, Montréal : École des HEC, 1996.

Lewit, E. M., D. Coate, and M. Grossman, "The Effects of Government Regulation on Teenage Smoking," *Journal of Law and Economics*, December 1981, 545-570.

Lindquist, Avey, Macdonald, Baskerville Inc. *1992 Contraband Tobacco Estimate*, 1993.

Print Measurement Bureau, *Readership Studies*, 1986-1995.

Santé et Bien-être social, Canada. *Règlements municipaux sur l'usage du tabac au Canada, 1991*. Ottawa: Groupe Communication Canada.

Statistiques Canada, *L'indice des prix à la consommation*, Catalogue 62-001.

Statistiques Canada, *National Income and Expenditure Accounts*, Catalogue 13-001.

Statistiques Canada, Recensements 1981,1986,1991.

Sung, H-Y., T-W. Hu, and T. E. Keeler, "Cigarette Taxation and Demand: An Empirical Model," *Contemporary Economic Policy*, 1994, 91-100.

Thompson, M., and I. McLeod, "The Effects of Economic Variables on the Demand for Cigarettes in Canada." *Mathematical Scientist*, 1976, 121-132.

Wasserman, J., W. Manning, J. Newhouse, and J. Winkler, "The Effects of Excise Taxes And Regulations On Cigarette Smoking." *Journal of Health Economics*, 1991, 43-64.

Liste des publications au CIRANO ·

Cahiers CIRANO / *CIRANO Papers* (ISSN 1198-8169)

96c-1 Peut-on créer des emplois en réglementant le temps de travail ? / Robert Lacroix

95c-2 Anomalies de marché et sélection des titres au Canada / Richard Guay, Jean-François L'Her et Jean-Marc Suret

95c-1 La réglementation incitative / Marcel Boyer

94c-3 L'importance relative des gouvernements : causes, conséquences et organisations alternative / Claude Montmarquette

94c-2 Commercial Bankruptcy and Financial Reorganization in Canada / Jocelyn Martel

94c-1 Faire ou faire faire : La perspective de l'économie des organisations / Michel Patry

Série Scientifique / *Scientific Series* (ISSN 1198-8177)

97s-30 Taxation or Regulation: Looking for a Good Anti-Smoking Policy / Paul Leclair et Paul Lanoie

97s-29 Optimal Trading Mechanisms with Ex Ante Unidentified Traders / Hu Lu et Jacques Robert

97s-28 Are Underground Workers More Likely To Be Underground Consumers? / Bernard Fortin, Guy Lacroix et Claude Montmarquette

97s-27 Analyse des rapports entre donneurs d'ordres et sous-traitants de l'industrie aérospatiale nord-américaine / Mario Bourgault

97s-26 Industrie aérospatiale nord-américaine et performance des sous-traitants : Écarts entre le Canada et les États-Unis / Mario Bourgault

97s-25 Welfare Benefits, Minimum Wage Rate and the Duration of Welfare Spells: Evidence from a Natural Experiment in Canada / Bernard Fortin et Guy Lacroix

97s-24 Incentive Effects of Public Insurance Programs on the Occurence and the Composition of Workplace Injuries / Denis Bolduc, Bernard Fortin, France Labrecque et Paul Lanoie

97s-23 Contrat dynamique de partage de risque avec contraintes d'engagement et épargne / Karine Gobert et Michel Poitevin

97s-22 Comparing Open-Loop with Markov Equilibria in a Class of Differential Games / Ngo Van Long, Koji Shimomura et Harataka Takahashi

97s-21 Efficiency Inducing Taxation for Polluting Oligopolists / Hassan Benchekroun et Ngo Van Long

97s-20 Tests of Conditional Asset Pricing Models in the Brazilian Stock Market / Marco Bonomo et René Garcia

---

· Vous pouvez consulter la liste complète des publications du CIRANO et les publications elles-mêmes sur notre site World Wide Web à l'adresse suivante :
http://www.cirano.umontreal.ca/publication/page1.html