Direct-to-consumer advertising and expenditure on prescription drugs: A comparison of experiences in the US and Canada

Abstract

This paper provides a review of direct-to-consumer advertising (DTCA) trends in the US and tracks trends in national expenditure on prescription drugs in the US and Canada over the period of 1975 to 2005. This provides quasi-experimental evidence regarding the impact of DTCA on overall prescription drug expenditure. From 1975 to 1994, US expenditure per capita on prescription drugs was never more than $36 higher than Canadian expenditure per capita (measured in year 2005 Canadian dollars). Over the same period, spending on DTCA in the US was never more than $2 per capita. By 2005, DTCA in the US had grown to just under $18 in 2005 and the US-Canada difference in per capita expenditure on prescription drugs grew to approximately $356. If Canada had followed a DTCA path similar to the US between 1995 and 2005, national expenditure on prescription drugs would be approximately $10-billion higher per year (an amount sufficient to support over 40,000 doctors in Canada). Such expenditure inflation should be taken into consideration when debating the merits and costs of DTCA.

Introduction

The American Medical Association's original (1847) code of ethics states that it is unethical to advertise potent medicinal products directly to the public. Prescription drug manufacturers were historically known as "ethical" pharmaceutical companies because they respected this code of ethics by advertising only to health professionals (1). However, the industry's marketing practices have changed significantly over the past quarter century, nowhere more so than in the US where direct-to-consumer advertising (DTCA) has become a formidable component of promotional activities by manufacturers of prescription only drugs. With DTCA having risen to prominence in the US, Canadian policy makers are under increasing pressure to allow such marketing activities here. This paper provides a review of DTCA trends in the US and tracks trends in national expenditure on prescription drugs in the US and Canada over the period of 1975 to 2005.

Comparing the US experience to that of Canada provides a form of quasi-experimental evidence that should be taken into consideration when debating the merits and costs of DTCA.

Background

There are essentially three types of DTCA: “disease awareness,” “reminder,” and “product-claim” advertisements. Disease awareness ads (or “help-seeking ads”) provide information about a medical condition, encouraging people talk to their doctor about the condition and available treatments. Such ads are generally permitted in Canada and the US: you have likely seen campaigns of this sort related to diabetes, anxiety disorders, high cholesterol, smoking cessation and other conditions. Reminder ads (or “price ads”) state the name of a product, and may provide information about strength, dosage form, and price; however, these ads may not mention the indication or make claims about effectiveness. With exception of certain types of treatments, reminder ads are permitted in Canada and the US. Perhaps the most recognizable Canadian reminder ads are the “good morning” advertisements that Pfizer launched in 2002 featuring the Viagra brand name and the words “talk to your doctor.” Finally, product-claim ads combine information about the indication with mention of the drug name and claims about effectiveness. Product-claim DTCA for prescription-only drugs is permitted in the US but not in Canada.

The first US product-claim DTCA campaigns were print advertisements that began in 1983 (2, 3). Such ads were technically permitted under US law provided that, in a manner similar to ads in professional journals, a review of product labelling information was provided. In order to consult on the new form of drug advertising, the US Food and Drug Administration (FDA) asked the pharmaceutical industry to abide by a voluntary moratorium on DTCA in September 1983. Limited DTCA occurred during the moratorium, which was lifted in September 1985 (3). It is estimated that firms spent US$35 million on DTCA in the US by 1987 (2).

Because of the requirement for the provision of product labelling information within product-claim ads, early product-claim DTCA was disseminated almost exclusively through print media. It was simply too costly—and potentially too confusing

to audiences—to provide product labelling information with television and radio advertisements. However, total DTCA spending in the US accelerated in the mid 1990s as manufacturers began to use television "reminder ads" to reinforce product-claim ads placed in other media (3). DTCA spending was US$380 million in 1995 and more than doubled to US$790 million in 1996.

In August 1997, the FDA new, draft guidelines for television and radio broadcast DTCA (4). These guidelines lifted the requirement that broadcast ads contain a summary of product labelling provided that major risks were mentioned in the broadcast ads and that the ads informed audiences that detailed information could be obtained via a toll free phone line or website. Spending on DTCA continued to grow at a rapid pace following the publication of these guidelines, with increasing emphasis on broadcast advertising. In 2005, firms spent an estimated US$4.24 billion on DTCA—eleven times the amount spent in 1995.

It is important to note that the rapid increase in DTCA did not supplant other forms of product promotion. Rather, DTCA has lead to increased spending on complementary promotional channels. From 1996 to 2004, spending on professional details and drug samples increased 144% and 224% respectively. These complementary marketing investments are necessary for manufacturers' to maximize their return on investment in DTCA. Professional detailing and sampling ensure that prescribers are prepared for DTCA-induced patient visits (so that the prescriber-manufacturer relationship is not strained by such visits), and that prescribers have samples of the advertised product (so that competing firms do not gain a significant share of DTCA-induced demand) (3, 5, 6).

DTCA and Prescription Drug Expenditures

The intended effect of DTCA is to increase sales of advertised brands. Evidence from the pharmaceutical sector confirms this return on investment (ROI). Based on analysis of 49 brands that used DTCA between 1998 and 2003, IMS Management Consulting concludes that "… the ROI from branded pharmaceutical DTC is nearly unprecedented in terms of the positive sales response generated" (5). Dr. Meredith Rosenthal and colleagues report that manufacturers aim to achieve sales on the order of

four to five times their expenditure on DTCA in order to cover all associated selling costs (7). Including retail mark-ups of 25 percent over manufacturer revenues (8, 9), this would imply that the US$4.24 billion dollars spent on DTCA in 2005 induced roughly US$20 to US$25 billion in increased expenditure on advertised products.

DTCA does not only affect advertised brands. A DTCA campaign launched by one company can have one of several effects on overall expenditure: it could increase own sales and those of competing firms, thereby increasing total expenditure; it could steal market share from competitors leaving market expenditures unchanged or reduced; or it could steal market share while expanding market expenditures. An estimate of the overall impact of DTCA on prescription drug expenditure can be obtained by considering American and Canadian expenditure levels before and after the increase in American DTCA. If DTCA has had a significant impact on total prescription drug expenditures in the US, then it is expected that the difference between expenditure in the US and Canada would change as a result.

Figure 1 illustrates inflation-adjusted per capita expenditure on prescription drugs in the US and Canada over the period of 1975 to 2005. After adjusting for general inflation and population growth, the past decade was one of particularly rapid growth in prescription drug expenditures in both countries. Inflation-adjusted prescription drug expenditure per capita doubled in Canada from 1995 to 2005. Prescription drug expenditure in the US grew even more rapidly over that decade.

The difference in expenditure per capita on prescription drugs in the US and Canada began to increase almost exactly at the point in time when DTCA began to flourish in the US—these two data series are plotted in Figure 1. From 1975 to 1994, the difference in inflation-adjusted expenditure on prescription drugs between the US and Canada was never more than $36 per capita (measured in year 2005 Canadian dollars). Over the same period, spending on DTCA in the US was never more than $2 per capita (year 2005 Canadian dollars). Inflation-adjusted per capita spending on DTCA in the US grew from just over $2 in 1995 to just under $18 in 2005 (year 2005 Canadian dollars). Over the same period, the US-Canada difference in inflation-adjusted per capita

expenditure on prescription drugs grew from approximately $31 to approximately $356 (year 2005 Canadian dollars).

A time-series regression model (with adjustment for autoregressive error terms) yields a significant association between the difference in inflation-adjusted expenditure per capita on prescription drugs and inflation-adjusted per capita spending on DTCA in the U.S. ($p<0.0001$; $R^2=0.97$). No similar association is found between US investment in DTCA and US-Canada differences in expenditure on in-patient care, physicians' services, and all non-pharmaceutical spending. Importantly, US-Canada differences in expenditures on these other health care services preceded US DTCA expenditure on prescription drugs by many years.

[Reviewers please note: Figures are provided for an online appendix. Also provided for an online appendix are indexes of various economic variables for Canada and the US with values at 1995 set to equal 1.00 to allow for comparison across different variables.]

Unlike our systems for insuring medical and hospital care, the prescription pharmaceutical sectors in Canada and the US have long been comparable (10). This is reflected in the similar levels of expenditure between 1975 and 1995. That, following 20 years of relative stasis, the difference in prescription drug expenditure per capita between Canada and the US would rise in apparent lock-step with the new phenomenon of DTCA spending in the US would be a rather remarkable coincidence. Other than the change in US DTCA spending, there have been no other major changes in the pharmaceutical sectors in Canada or the US that could explain the direction and magnitude of the recent divergence in prescription drug expenditure levels between the two countries. Shares of public financing, though higher in Canada, were not significantly changed in either country (10); the patterns of population aging were comparable (11, 12); and no major pharmaceutical sector reforms took effect in either country.

Discussion

At the national level, differences in the recent experiences of Canada and the US foreshadow the possible impact of increased DTCA in Canada. Over the period of 1995 to 2005, inflation-adjusted expenditure per capita on DTCA in the US has grown

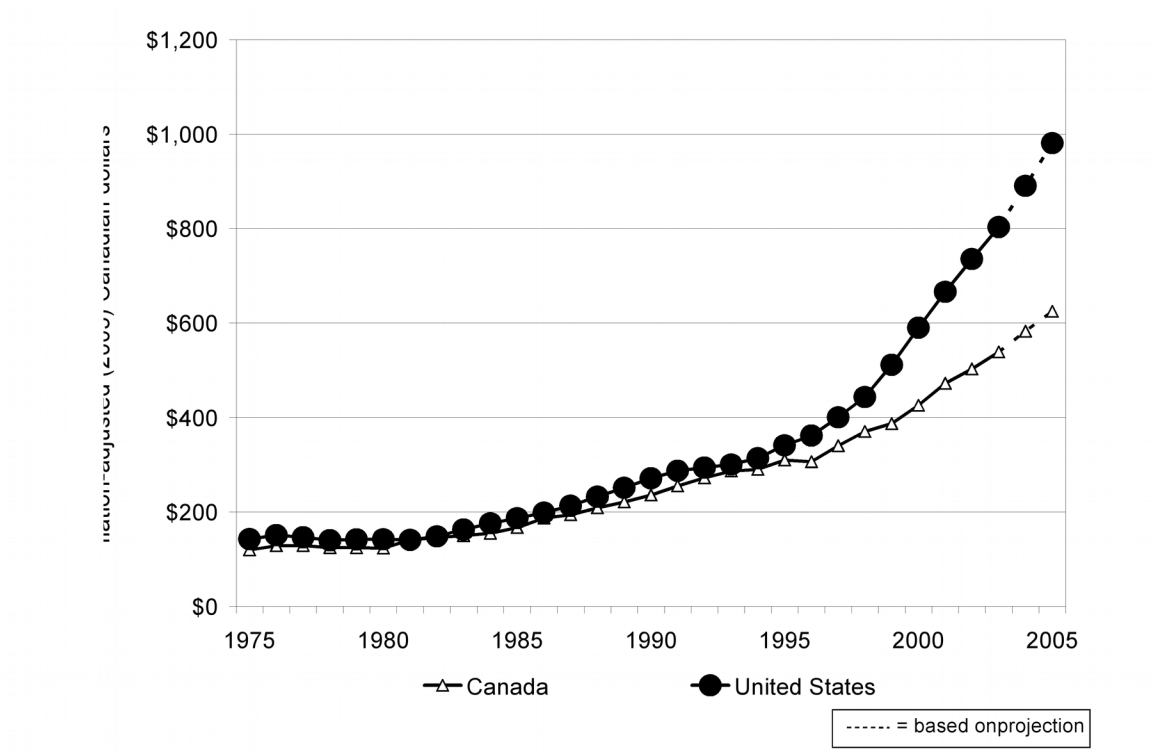
approximately 10-fold from approximately $2 to $18. Over the same period, the US-Canada difference in inflation-adjusted expenditure per capita on prescription drugs grew 10-fold, from approximately $31 to $356. If Canada had followed a DTCA path similar to the US over the past decade, national expenditure on prescription drugs would be approximately $10-billion higher per year (an amount sufficient to support over 40,000 doctors in Canada). Increased expenditure on medicines would also be associated with further demands on Canadian physicians.

Increased spending on medicines may result in improved care and improved health of the population. However, increased spending driven by DTCA may not be as closely correlated with improved care as would be desirable. Mintzes and colleagues performed a controlled comparison study of patients in Sacramento who are regularly exposed to DTCA and patients in Vancouver who are less frequently exposed to DTCA, particularly product-claim ads (13). Sacramento residents were more than twice as likely to make requests for drugs promoted with DTCA than Vancouver residents; patients who make requests are over 16 times more likely to be prescribed a drug than patients who do not request advertised drugs. Moreover, doctors who prescribed requested drugs report that, in 50 percent of the cases, the requested brand of drug would not necessarily be prescribed to a clinically similar patient that had not made a request. That is, physician themselves report a suboptimal level of treatment confidence for DTCA related prescription requests.

Increasing the quality of use of medicines is certainly desirable in Canada, and doing so may result in increased expenditure on medicines. To achieve safe, effective, and efficient use of medicines in the Canadian health care systems, policy makers might well be advised to maintain and enhance restrictions on the DTCA. Product-claim DTCA campaigns are designed to build brand recognition and associations of quality among patients who do not have the enough information or training to evaluate the comparative risks and benefits of prescription-only options. Products that are sufficiently safe and indicated for conditions not requiring the professional diagnosis and consultation are (or should be) licensed as non-prescription drugs and may consequently be advertised to the public under Canadian laws. If, owing to a lack of incentive for un-branded disease awareness advertising, manufacturers fail to promote awareness of conditions that are

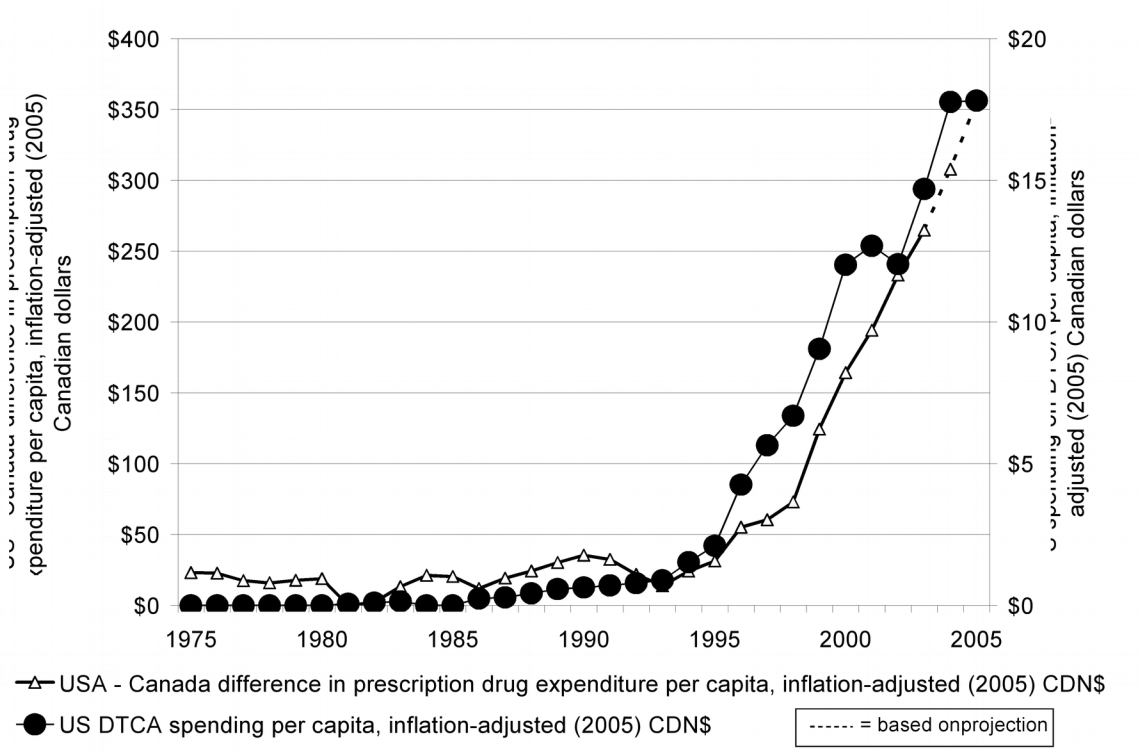
critical to the health of the population, the appropriate policy remedy would seem to be publicly-sponsored information campaigns. This is particularly evident when a US-style policy of brand-oriented DTCA is compared to an equally costly investment in alternative forms of health improvement for Canada, such as the care that could be provided by as many as 40,000 physicians.

Figure 1: Per Capita Expenditure on Prescription Drugs, US and Canada, 1975 to 2005



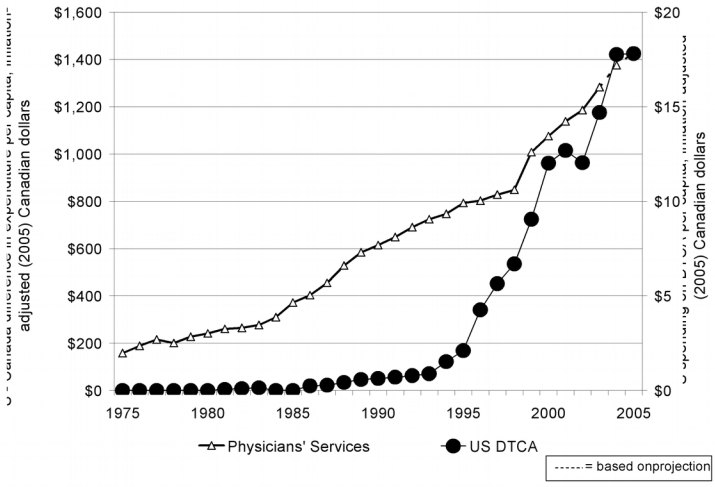
Sources:
Prescription drug expenditures: OECD Health Data 2005, Paris, October 05; data for 2004 and 2005 are projections of trend from 2000 to 2003.
Currency conversion and deflating: currencies converted using GDP purchasing power parity values from the OECD; inflation-adjustment conducted using Statistics Canada Consumer Price Index, All Items.

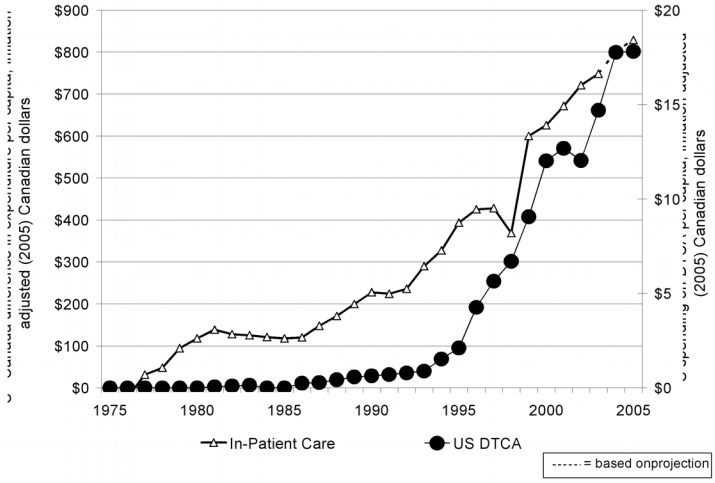
Figure 1: US DTCA Spending and the US-Canada Difference in Per Capita Expenditure on Prescription Drugs, 1975 to 2005

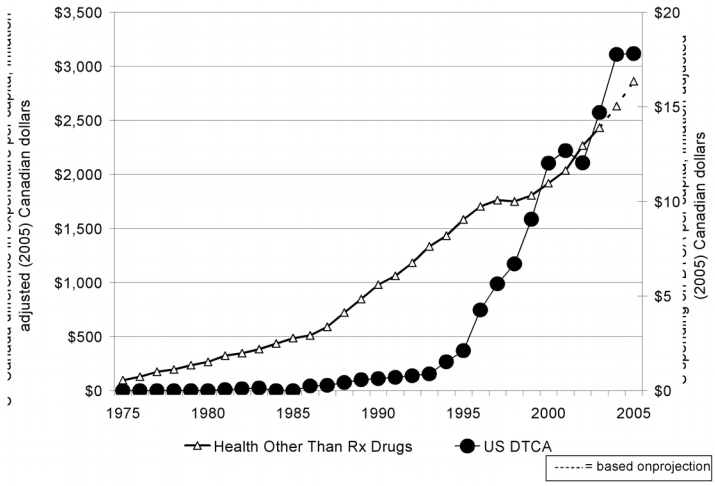


Sources:
DTCA: 1996 to 2005 data from IMS Health, Total U.S. Promotional Spend by Type (various years), collected over period from 2000 through 2006; 1993 to 1999 data from IMS Health as quoted in Findlay, Steven (2001) Direct-to-consumer promotion of prescription drugs: Economic Implications for Patients, Payers and Providers. Pharmacoeconomics 19(2):109-119; 1987 to 1989 data from A. Masson (1991) "Direct-to-Consumer Advertising: A Continuing Controversy," in Enhancing Consumer Choice: Proceedings of the Second International Conference on Research in the Consumer Interest p. 159-168; 1990 to 1992 data are based on an interpolation of growth between 1989 and 1993; 1981 to 1986 data are based on an interpolation of growth between 1980 and 1987, with expenditure for 1994 set to zero (moratorium year).
Prescription drug expenditures: OECD Health Data 2005, Paris, October 05; data for 2004 and 2005 are projections of trend from 2000 to 2003.
Currency conversion and deflating: currencies converted using GDP purchasing power parity values from the OECD; inflation-adjustment conducted using Statistics Canada Consumer Price Index, All Items.

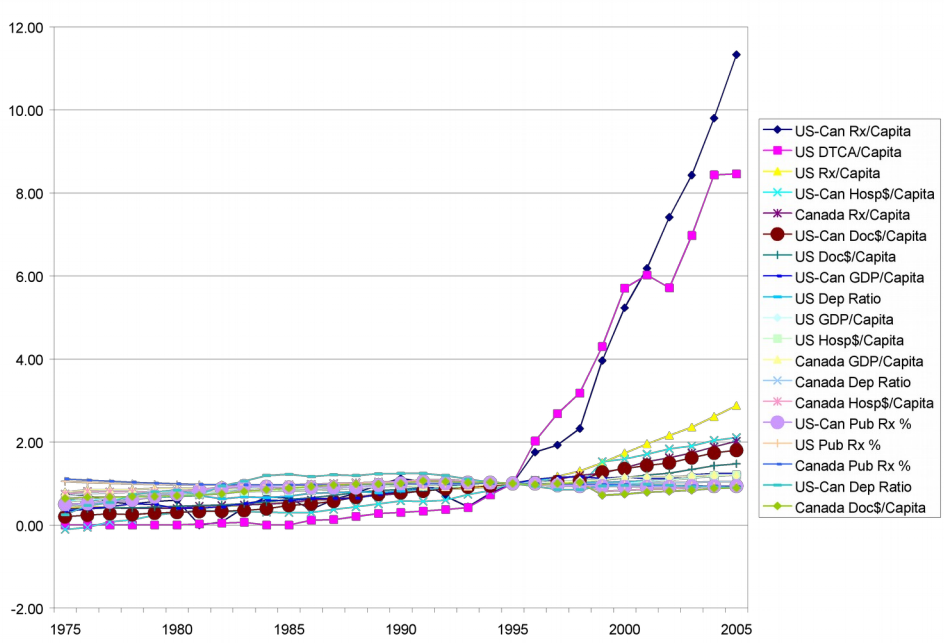
Appendix: Illustration of US-Canada differences in inflation-adjusted per capita expenditure on in-patient care, physicians' services, and all non-pharmaceutical spending.







Indexes of various economic variables, Canada and US, 1995 value = 1.00



Rx/Capita = per capita expenditure on prescription drugs, year 2005 Canadian dollars
Doc$/Capita = per capita expenditure on physician services, year 2005 Canadian dollars
Hosp/Capita = per capita expenditure on inpatient care, year 2005 Canadian dollars
GDP/Capita = per capita gross domestic product, year 2005 Canadian dollars
Dep Ratio = economic dependency ratio (share of total population that is either under 20 or over 65 years of age)
Pub Rx % = percentage of total prescription drug expenditures paid for by public drug plans
Source: OECD Health Data 2005. Inflation adjustment based on Statistics Canada, Consumer Price Index, All Items.

Linear Regression Model Results

Estimates of Autoregressive Parameters

Lag	Coefficient	Standard Error	t Value
1	-0.559711	0.159481	-3.51

Algorithm converged.

Maximum Likelihood Estimates

SSE	6207.5923	DFE	27
MSE	229.91083	Root MSE	15.16281
SBC	267.929421	AIC	262.193472
Regress R-Square	0.6764	Total R-Square	0.9782
Durbin-Watson	1.2474		

Variable	DF	Estimate	Standard Error	t Value	Approx Pr > |t|	Variable Label
Intercept	1	-4.5633	47.1262	-0.10	0.9236	
Time	1	3.2844	3.3346	0.98	0.3334	Time
DTCA	1	12.4715	2.7250	4.58	<.0001	DTCA
AR1	1	-0.9249	0.1217	-7.60	<.0001	

Autoregressive parameters assumed given.

Variable	DF	Estimate	Standard Error	t Value	Approx Pr > |t|	Variable Label
Intercept	1	-4.5633	40.1711	-0.11	0.9104	
Time	1	3.2844	2.3775	1.38	0.1785	Time
DTCA	1	12.4715	2.7160	4.59	<.0001	DTCA