Fraser Alert

FRASER INSTITUTE

July 2011

Average Personal Affordability of Prescription Drug Spending in Canada and the United States

2011 edition

By Brett J. Skinner and Mark Rovere

Main Conclusions

- **By observing per capita drug spending as a percentage of per capita income this study compares the average personal affordability of drug costs for Canadians and Americans. The method provides a way to estimate the actual economic burden of prescription drug costs on consumers in Canada and the US relative to the differences in living standards between both countries.**
- **Consumers in Canada and the United States spend nearly the same proportion of their per capita gross domestic product on prescription drugs (1.6 percent in Canada and 1.8 percent in the United States) and of their per capita personal after-tax income (2.5 percent in Canada; 2.3 percent in US).**
- **The number of prescriptions dispensed per capita in both countries is roughly similar (14.9 in Canada; 12.9 in the US).**
- **Why is the personal affordability of prescription drug spending roughly the same in Canada and the US? While brand-name drugs in Canada are significantly cheaper on average than in the United States, generic drugs in Canada are about 90 percent more expensive on average. Americans also tend to substitute lower-cost versions of drugs for relatively more expensive brands more often than Canadians; and per capita after-tax incomes are higher in the United States than in Canada.**
- **The Canadian government's greater intervention in prescription drug markets offers no affordability advantages for consumers compared to competitive markets in the US.**

Much of Canadian prescription drug policy is based on the assumption that without government intervention, the market will fail to achieve certain socially desirable outcomes, one of which is affordable access to prescription drugs. This assumption is the basis for justifying policies like price regulation, direct public provision of drug insurance, or government imposed restrictions on consumer choice through policies like mandated therapeutic substitution.

The findings of this study suggest that, on average, greater government intervention in Canada's drug markets has not provided more affordable access to prescription drugs relative to a less interventionist policy in the United States. Further, this study notes that if other indirect factors are taken into account, there are probably net socio-economic costs associated with government intervention.

Findings

The 2011 edition of this analysis uses the most recent data available, and replicates the method previously used by Skinner and Rovere (2007, 2008, and 2010a). Table 1 displays total and per capita (per person) figures for spending on prescription (Rx) drugs, gross domestic product (GDP), personal disposable income (PDI) and the number of prescriptions dispensed in both Canada and the United States for the year 2010, the most recent year for which data are available. GDP is a measure of national income, while PDI is a measure of personal after-tax income. By observing per capita drug spending as a percentage of per capita income, we compare the average personal affordability of drug costs for Canadians and Americans. The method provides a way to estimate the actual economic burden of prescription drug costs on consumers in Canada and the US relative to different living standards in each country.

About the authors

***Brett J. Skinner, PhD.**, is President of the Fraser Institute and the Institute's Director of Health Policy Research.*

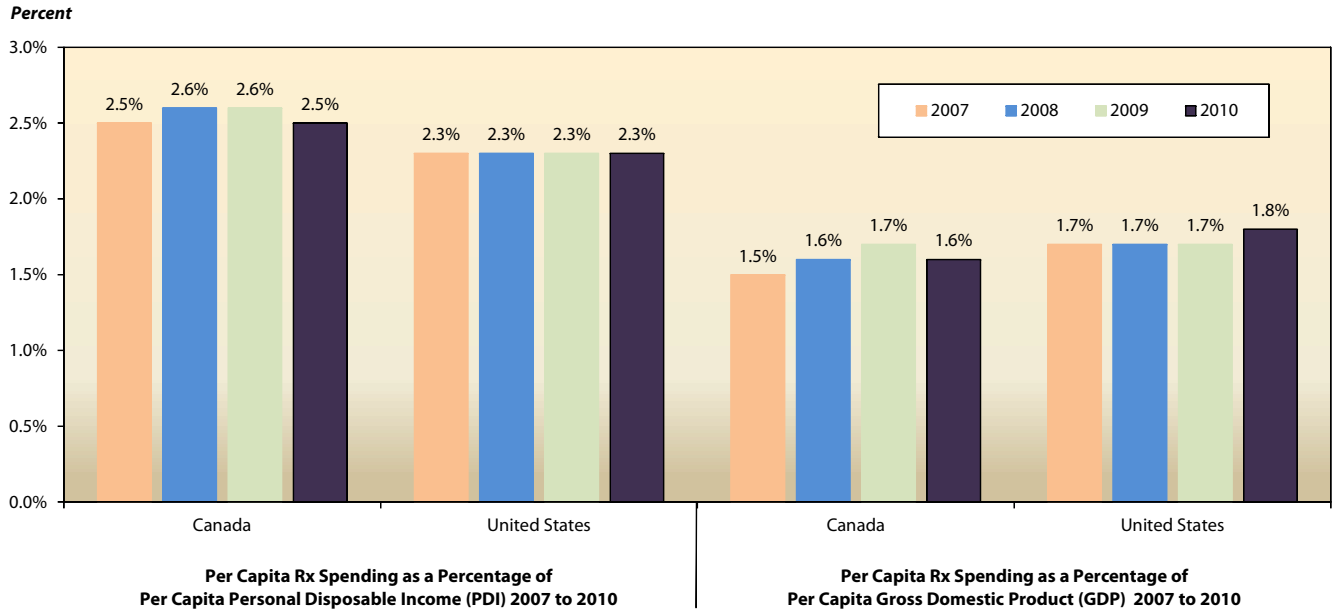
***Mark Rovere** is Associate Director of Health Policy Research at the Fraser Institute.*

Table 1: Per capita spending on prescription (Rx) drugs as a percentage of per capita personal disposable income (PDI) and per capita gross domestic product (GDP), in Canada and the United States in 2010 (domestic currency)

	Canada	United States
Total prescription drug spending ($ millions)	26,113	260,072
Total GDP ($ millions)	1,621,529	14,660,400
Total PDI ($ millions)	1,025,900	11,379,900
Total population	33,930,800	309,050,816
Per capita prescription drug spending ($)	769.60	841.52
Per capita GDP ($)	47,789.29	47,436.86
Proportion of prescription drug spending to GDP	1.6%	1.8%
Per capita PDI ($)	30,235.07	36,822.10
Proportion of prescription drug spending to PDI	2.5%	2.3%
Total number of prescriptions dispensed (thousands)	504,810	3,995,200
Per capita number of prescriptions dispensed	14.9	12.9

Sources: Canadian Institute for Health Information (CIHI) 2011; Centers for Medicaid and Medicare Services (CMS), 2011; Statistics Canada, 2010a, 2010b, 2010c; US Census Bureau, 2011; US Bureau of Economic Analysis [BEA], 2011a, 2010b; calculations by authors.

Figure 1: Annual Change in the Personal Prescription Drug Cost Burden in Canada and the United States, 2007, 2008, 2009, and 2010



Sources: Canadian Institute for Health Information (CIHI) 2011; Centers for Medicaid and Medicare Services (CMS), 2011; Statistics Canada, 2010a, 2010b, 2010c; US Census Bureau, 2011; IMS Brogan Canada, 2011a; IMS Health Inc., 2011a; US Bureau of Economic Analysis [BEA], 2011a, 2010b; Skinner and Rovere, 2010a; calculations by authors.

As table 1 shows, in 2010, per capita prescription drug expenditures made up nearly the same percentage of per capita GDP in the United States as in Canada. Per capita spending on prescription drugs was 1.8 percent of per capita GDP in the United States and 1.6 percent Canada.

Table 1 also shows that in 2010, per capita prescription drug expenditures were a slightly higher percentage of per capita personal disposable income in Canada than in the United States: on a per capita basis, Canadians spent 2.5 percent of their personal income after taxes on prescription drugs compared to only 2.3 percent for Americans. There are no major differences in the use of prescription drugs in the two countries. Using the only available data, table 1 indicates that the number of prescriptions dispensed per capita is only slightly higher in Canada. In 2010, 14.9 prescriptions were dispensed per person in Canada versus 12.9 prescriptions per person in the United States.[1]

These findings are very similar to the results that were found in previous studies using 2007, 2008 and 2009 data. As figure 1 shows, Canadians (on average) spent 2.5 percent of their per capita PDI on prescription drugs in 2010 compared to 2.5 percent in 2007, and 2.6 percent in both 2008 and 2009. Americans spent less of their per capita after-tax income on prescription drugs than Canadians in all years observed. On average, Americans spent 2.3 percent of their after-tax income on prescription drugs in all four years. Similar results were found when comparing the proportion of per capita GDP spent on prescription drugs in Canada and the United States in those same years. On average, Canadians spent approximately 1.6 percent of their per capita GDP on prescription drugs in 2010 compared to 1.5 percent in 2007, 1.6 percent in 2008, and 1.7 percent in 2009 (figure 1). Americans spent a slightly higher percentage of their per capita GDP on prescription drugs in 2010 than they did in the previous three years. Americans spent approximately 1.8 percent of their per capita GDP on prescription drugs in 2010 compared to 1.7 percent in 2007, 2008, and 2009.

Analysis

Our findings are partly explained by differences in drug prices between

Canada and the United States. Research suggests that Canadian prices for brand-name prescription drugs are lower than US prices for identical drugs. These savings are offset by the fact that the prices of Canadian generics are nearly double American prices for identical drugs. Previous research has established that although brand-name drugs in Canada are about half the price on average than those in the US,[2] generic drugs in Canada are about 90 percent more expensive on average than the same generic drugs in the United States (Skinner and Rovere, 2010b). There are several potential explanations for why Canadian prices for brand-name drugs are lower on average than American prices for the same drugs. One explanation is that the Canadian federal government imposes price regulation on patented (brand name) drugs. Another explanation is that despite federal price controls, some research suggests that lower absolute prices for brand-name drugs in Canada would naturally result from local market conditions—even in the absence of price regulations. In particular, lower average incomes in Canada would be associated with lower average prices for products with high research and development costs but low marginal production costs, such as drugs (Skinner, 2005; Skinner and Rovere, 2010b; Danzon and Furukawa, 2006). On the other hand, high prices for generic drugs in Canada appear to be caused by government policies that interfere with competitive market forces that would put downward pressure on those prices (Skinner, 2005; Skinner and Rovere, 2010b). On balance, consumers in both countries spend roughly the same proportion of their incomes on drugs. This is partly because although in absolute terms prices for brand-name drugs are less expensive on average in Canada, this is offset by the fact that generic prices are much higher in Canada.

In terms of its effect on total spending, another factor that offsets higher brand-name prices in the United States is the fact that Americans substitute lower cost generic versions of drugs for relatively more expensive brands more often than Canadians. This is because generic drug prices in the United States are a fraction of the cost of their brand-name originator drug compared to prices in Canada. Relative to the price of the brand-name originator drug, in 2008 retail prices for generic drugs in Canada were 73 percent of the price of their brand-name equivalents, compared with just 17 percent of the price of their brand-name equivalents in the United States (Skinner and Rovere, 2010b).

The most recent data show that in 2010, 78 percent of all retail prescriptions dispensed in the United States were for generic drugs, compared to 22 percent for brand-name drugs. By contrast, in the same year, 57.1 percent of all retail prescriptions dispensed in Canada were for generic drugs, compared to 42.9 percent for brand name drugs (IMS Brogan Canada, 2011b; IMS Health Inc., 2011b). Differences in generic substitution rates also partly explain our findings.

Finally, as indicated by the nominal comparisons in table 1, American personal after-tax incomes are higher on average than Canadian incomes.[3] While per capita GDP

Purpose, funding, and independence

The Fraser Institute provides a useful public service. We report objective information about the economic and social effects of current public policies, and we offer evidence-based research and education about policy options that can improve the quality of life.

The Institute is a non-profit organization. Our activities are funded by charitable donations, unrestricted grants, ticket sales and sponsorships from events, the licensing of products for public distribution, and the sale of publications.

All research is subject to rigorous review by external experts, and is conducted and published separately from the Institute's Board of Trustees and its donors.

The opinions expressed by staff or author(s) are those of the individuals themselves, and should not be interpreted to reflect those of the Institute, its Board of Trustees or its donors and supporters.

As a healthy part of public discussion among fellow citizens who desire to improve the lives of people through better public policy, the Institute welcomes evidence-focused scrutiny of the research we publish, including verification of data sources, replication of analytical methods, and intelligent debate about the practical effects of policy recommendations.

was slightly higher (0.7 percent) in Canada in 2010, per capita PDI was considerably higher (18 percent) in the United States. This also partly explains our findings on the relative economic burden of per capita prescription drug spending between Canada and the US.

Conclusion

To a much greater degree than in Canada, American prescription drug policies have allowed market forces to determine the premium paid for the most innovative brand-name products while allowing competition to discount the prices of generic copies. By contrast, the Canadian policy approach has been to impose price controls on innovative medicines, while public drug insurance reimbursement policies in Canada have distorted retail price competition for sales of generic drugs that would naturally moderate generic prices. The net result is that government involvement in prescription drug markets in Canada produces no personal affordability advantages for consumers on average compared to relatively more free market based policy approaches in the United States.

The justification for government intervention in pharmaceutical markets is further undermined by the fact that the Canadian policy environment has the additional disadvantage of discouraging biopharmaceutical product innovation. Research indicates that price regulation and other interventionist policies that negatively affect returns in drug markets reduce economic incentives for businesses to invest in innovative medicines (Giacotta et al., 2005; Vernon, 2005).

Data sources

National health expenditure data was sourced from the Canadian Institute for Health Information (CIHI) and the US Centers for Medicaid and Medicare Services (CMS). Both organizations use similar methodologies for collecting and reporting data on drug expenditures. Both CIHI and CMS also provide a detailed break down of drug expenditures by prescription and non-prescription types. General economic data on GDP, PDI, and population were taken from comparable government sources. For Canada, economic and population data were obtained from Statistics Canada. For the US, economic data were obtained from the US Bureau of Economic Analysis, and population data were obtained from the US Census Bureau.

Canadian data were updated in April 2011. US economic data were updated in April 2011, and population data in December 2010. There was no government source of data for the number of prescriptions dispensed in either country. The only available source for this data was IMS Health Inc. The data were comparable between countries because a similar methodology is used to collect it in both markets.

Notes

1 It should be noted, however, that US prescriptions typically come in larger pack sizes which often include more pills and/or capsules, which offsets the slight difference in the number of prescriptions per capita.

2 Our most recent analysis shows that in 2007, American brand-name prices were 53 percent lower than Canadian prices for identical drugs.

3 The comparisons in table 1 are in nominal terms because we are comparing drug expenditures as a percentage of income between the two countries. If we were comparing incomes alone, the income data would have to be adjusted for the purchasing power of the currencies. Once adjusted for purchasing power parity the gap between Canadian and American incomes is even greater than presented here with American incomes being significantly higher in real terms.

References

Canadian Institute for Health Information [CIHI] (2011). *Drug Expenditure in Canada 1985 to 2010*. Canadian Institute for Health Information. <http://secure.cihi.ca/cihiweb/products/drug_expenditure_2010_en.pdf>, as of May 10, 2011.

Centers for Medicaid and Medicare Services (2011). *National Health Expenditure Historical and Projections 1965-2019*. US Department of Health and Human Services. <http://www.cms.gov/NationalHealthExpendData/03_NationalHealthAccountsProjected.asp>, as of May 10, 2011.

Danzon, Patricia M., and Michael F. Furukawa (2006). Prices and availability of biopharmaceuticals: An international comparison. *Health Affairs* 25, 5: 1,353-62.

Giaccotta, Carmelo, Rexford E. Santerre, and John A. Vernon (2005). Drug prices and research and development investment behavior in the pharmaceutical industry. *Journal of Law and Economics* XLVIII (April 2005): 195-214.

IMS Brogan Canada (2011a). Top 10 dispensed therapeutic classes in Canada, 2010. Press Room, Canadian Pharmaceutical Trends: Dispensing Trends. IMS Health Canada. <http://www.imshealth.com/deployedfiles/imshealth/Global/Americas/North%20America/Canada/StaticFile/Top10DispensedTherapeutic_En_11.pdf>, as of May 11, 2011.

About this publication

Fraser Alerts are published from time to time by the Fraser Institute to provide, in a format easily accessible online, short, timely studies of current issues in economics and public policy.

Our mission

Founded in 1974, the Fraser Institute is an independent Canadian public policy research and educational organization with offices in Vancouver, Calgary, Toronto, and Montreal and ties to a global network of 80 think-tanks. Its mission is to measure, study, and communicate the impact of competitive markets and government intervention on the welfare of individuals. To protect the Institute's independence, it does not accept grants from governments or contracts for research.

Distribution

These publications are available from *www.fraserinstitute.org* in Portable Document Format (PDF) and can be read with Adobe Acrobat® or with Adobe Reader®, which is available free of charge from Adobe Systems Inc. To download Adobe Reader, go to this link: www.adobe.com/products/acrobat/readstep.html with your browser. We encourage you to install the most recent version.

Disclaimer

The authors of this publication have worked independently and opinions expressed by them are, therefore, their own, and do not necessarily reflect the opinions of the supporters, other staff, or trustees of the Fraser Institute. This publication in no way implies that the Fraser Institute, its trustees, or staff are in favor of, or oppose the passage of, any bill; or that they support or oppose any particular political party or candidate.

ISSN 1714-6720

Date of Issue: July 2011

Media inquiries and information

For media inquiries, please contact our Communications department by telephone at 604.714.4582 or e-mail *communications@fraserinstitute.org*

Our web site, *www.fraserinstitute.org,* contains more information on Fraser Institute events, publications, and staff.

Development

For information about becoming a Fraser Institute supporter, please contact the Development Department via e-mail at *development@ fraserinstitute.org*; or via telephone: 1-800-665-3558, ext. 586

Editing, design, and production

Kristin McCahon

IMS Brogan Canada (2011b). Generic dispensing trends by province, Canada, 2010. Canadian Pharmaceutical Trends. <http://www.imshealth.com/deployedfiles/imshealth/Global/Americas/North%20America/Canada/StaticFile/GenericDispensingProvince_En_11.pdf>, as of May 12, 2011.

IMS Health (2011a). Top therapeutic classes by US dispensed prescriptions. Press Room. IMS Health, IMS National Prescription Audit PLUSTM. <http://www.imshealth.com/deployedfiles/imshealth/Global/Content/StaticFile/Top_Line_Data/2010_Top_Therapeutic_Classesby_RX.pdf >, as of May 10, 2011.

IMS Health (2011b). IMS institute reports U.S. spending on medicines grew 2.3 percent in 2010, to $307.4 billion. Press Release. IMS Health Inc. <http://www.imshealth.com/portal/site/imshealth/menuitem.a46c6d4df3db4b3d88f611019418c22a/?vgnextoid=1648679328d6f210VgnVCM100000ed152ca2RCRD&vgnextchannel=41a67900b55a5110VgnVCM10000071812ca2RCRD&vgnextfmt=default>, as of May 12, 2011.

Skinner, Brett J. (2005). *Canada's Drug Price Paradox: The Unexpected Losses Caused by Government Interference in Pharmaceutical Markets.* The Fraser Institute.

Skinner, Brett J., and Mark Rovere (2007). *Cost Burden of Prescription Drug Spending in Canada and the United States, 2007 edition.* Fraser Alert (November). The Fraser Institute.

Skinner, Brett J., and Mark Rovere (2008). *Cost Burden of Prescription Drug Spending in Canada and the United States.* Fraser Alert (August). Fraser Institute.

Skinner, Brett J., and Mark Rovere (2010a). *Average Personal Affordability of Prescription Drug Spending in Canada and the United States, 2010 edition.* Fraser Alert (June). The Fraser Institute.

Skinner, Brett J., and Mark Rovere (2010b). *Canada's Drug Price Paradox 2010.* Fraser Alert (October). The Fraser Institute.

Statistics Canada (2010a). *Gross Domestic Product (GDP), Expenditure-based.* CANSIM table 382-0017. (Updated 2011-02-28). Web page. Statistics Canada. <http://www40.statcan.gc.ca/l01/cst01/econ04-eng.htm> as of May 10, 2011.

Statistics Canada (2010b). *Economic Indicators, by Province and Territory.* Web page. Statistics Canada. <http://www40.statcan.gc.ca/l01/cst01/indi02a-eng.htm>, as of May 10, 2011.

Statistics Canada (2010c). Canada's population estimates. *The Daily* (released March 25). Statistics Canada. <http://www.statcan.gc.ca/daily-quotidien/100325/dq100325a-eng.htm>, as of May 10, 2011.

United States Bureau of Economic Analysis [BEA] (2011a). Table 3: Gross Domestic Product. BEA News Release (April 28). <http://www.bea.gov/newsreleases/national/gdp/2011/pdf/gdp1q11_adv.pdf>, as of May 13, 2011.

United States Bureau of Economic Analysis [BEA] (2011b). National Income and Product Accounts Table 2.1: Personal Income and Its Disposition National Economic Accounts. <http://www.bea.gov/national/nipaweb/TableView.asp?SelectedTable=58&ViewSeries=NO&Java=no&Request3Place=N&3Place=N&FromView=YES&Freq=Year&FirstYear=2008&LastYear=2010&3Place=N&Update=Update&JavaBox=no#Mid>, as of April 28, 2011.

United States Census Bureau (2011). *Evaluation Estimates: Preliminary Vintage 2010 Population Estimates and 2010 Census Counts* (released February 2011). US Census Bureau, Public Information Office. <http://www.census.gov/popest/eval-estimates/eval-est2010.html>, as at May 10, 2011.

Vernon, John A. (2005). Examining the link between price regulation and pharmaceutical R&D investment. *Health Economics* 14 (2005): 1-16.