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Average Personal Affordability of Prescription Drug Spending in Canada and the United States, 2010 edition

Main Conclusions

- 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 differences in the standards of living between both countries.
- Consumers in Canada and the United States spend the same proportion of their per capita gross national incomes on prescription drugs (1.7 percent in each country).
- As a percentage of per capita personal after-tax income, the cost burden of prescription drug spending is slightly higher in Canada (2.6 percent in Canada; 2.3 percent in the US).
- The number of prescriptions dispensed per capita in both countries is roughly the same (14.2 in Canada; 12.7 in the US).
- The findings are largely explained by three facts: in absolute terms, brand-name drugs in Canada are about 53 percent less expensive on average than in the United States, but generic drugs in Canada are about 112 percent more expensive on average than the same generic drugs in the United States; Americans also substitute lower cost versions of drugs for relatively more expensive brands more often than Canadians; and per capita incomes are higher in the United States than in Canada.
- The Canadian government's involvement in prescription drug markets offers no cost advantages for consumers compared to relatively more free-market policies in the United States.



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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 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 and comparative-effectiveness reviews.

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 less interventionist

policy in the United States. 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 2010 edition of this analysis uses the most recent data available, and replicates the method previously used by Skinner and Rovere (2007) and Skinner and Rovere (2008a). 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 2009,

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 differences in the standards of living between both countries.

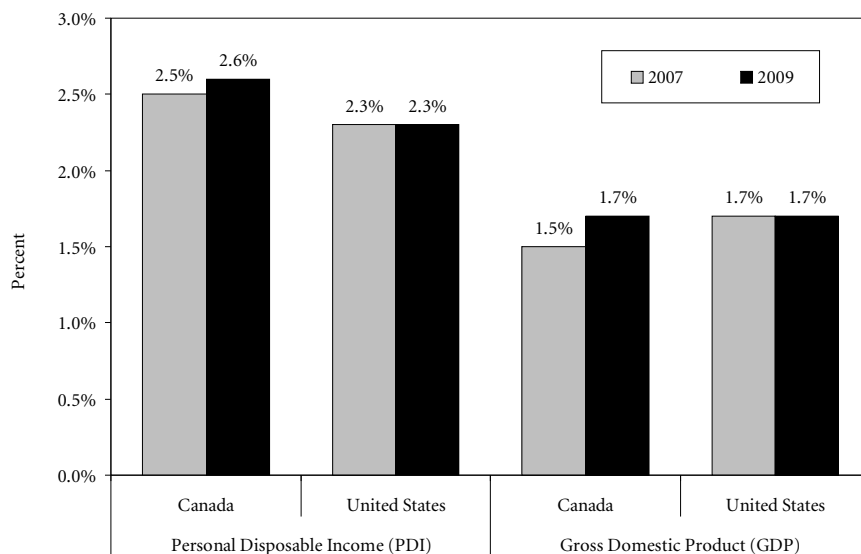
As table 1 shows, in 2009, per capita prescription drug expenditures made up the same percentage of per capita GDP in the United States as in Canada. Per capita spending on

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 2009 (domestic currency)

	Canada	United States
Total prescription drug spending (\$ millions)	25,378	246,297
Total GDP (\$ millions)	1,527,670	14,256,300
Total PDI (\$ millions)	968,284	10,923,600
Total population	33,930,800	308,400,408
Per capita prescription drug spending	747.94	798.63
Per capita GDP	45,023.11	46,226.59
Proportion of per capita prescription drug spending to per capita GDP	1.7%	1.7%
Per capita PDI	28,537.02	35,420.19
Proportion of per capita prescription drug spending to per capita PDI	2.6%	2.3%
Total number of prescriptions dispensed (thousands)	483,000	3,922,000
Per capita number of prescriptions dispensed	14.2	12.7

Sources: Canadian Institute for Health Information [CIHI], 2010; Centers for Medicaid and Medicare Services [CMS], 2010; Statistics Canada, 2010a, 2010b, 2010c; US Census Bureau, 2009; IMS Health, 2010a; IMS Health Canada, 2010; US Bureau of Economic Analysis [BEA], 2010a, 2010b; calculations by authors.

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



Sources: Canadian Institute for Health Information [CIHI], 2010; Centers for Medicaid and Medicare Services [CMS], 2010; Statistics Canada, 2010a, 2010b, 2010c; US Census Bureau, 2009; IMS Health, 2010a; IMS Health Canada, 2010; US Bureau of Economic Analysis [BEA], 2010a, 2010b; Skinner and Rovere, 2008a; calculations by authors.

prescription drugs was 1.7 percent of per capita GDP in both the United States and Canada.

Table 1 also shows that in 2009, per capita prescription drug expenditures were a slightly higher percentage of per capita personal disposable income in Canada compared to the United States: on a per capita basis Canadians spent 2.6 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 very slightly higher in Canada. In 2009, 14.2

prescriptions were dispensed per person in Canada versus 12.7 prescriptions per person in the United States.

These findings are very similar to the results that were found in a previous study using 2007 data. As figure 1 shows, Canadians (on average) spent 2.6 percent of their per capita PDI on prescription drugs in 2009 compared to 2.5 percent in 2007. Americans spent less of their per capita after-tax income on prescription drugs than Canadians in both years. On average, Americans spent 2.3 percent of their after-tax income on prescription drugs in both 2007 and 2009. 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 1.5 percent of their per capita GDP on prescription drugs in 2007 compared to 1.7 percent in 2009 (figure 1). Americans spent the exact same percentage of their per capita GDP on prescription drugs in 2009 as they did in 2007. In both 2007 and 2009, Americans spent approximately 1.7 percent of their per capita GDP on prescription drugs.

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 more than double American prices for identical drugs. Previous research has established that although brand-name drugs in Canada are about 53 percent less expensive on average than those in the US, generic drugs in Canada are about 112 percent more expensive on average than the same generic drugs in the United States (Skinner and Rovere, 2008b). 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 and Rovere, 2008b; 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 the prices of generic drugs (Skinner, 2005; Skinner and Rovere, 2008b). On balance, consumers in both countries spend roughly the same proportion of their incomes on drugs 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. The most recent data show that in 2009, 75% of all prescriptions dispensed in the United States were for generic drugs, compared to 25% for brand name drugs. By contrast, in the same year, 54.3% of all prescriptions dispensed in Canada were for generic drugs, compared to 45.7% for brand name drugs (IMS Health Inc. Canada, 2010; IMS Health Inc., 2010b). Differences in generic substitution rates also partly explain our findings.

Finally, as indicated by the nominal comparisons in table 1, American incomes are higher on average than Canadian incomes.¹ Per capita GDP and per capita PDI are both higher 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 bio-pharmaceutical product innovation. Research indicates that price regulation and other interventionist policies that negatively affect

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Canadian data were updated in April 2010. US economic data were updated in April 2010, and population data in December 2009. 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.

Note

1 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] (2010). *Drug Expenditure in Canada 1985 to 2009*. Canadian Institute for Health Information. <http://secure.cihi.ca/cihiweb/products/dex_1985_to_2009_e.pdf>, as of May 5, 2010.
- Centers for Medicaid and Medicare Services (2010). *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 5, 2010.
- Danzon, Patricia M., and Michael F. Furukawa (2006). Prices and availability of biopharmaceuticals: an international comparison. *Health Affairs* 25, 5: 1,353-62.

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 breakdown 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.

- Giacotta, 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 Health Inc. (2010a). Top therapeutic classes by US dispensed prescriptions. Press room. IMS Health, IMS National Prescription Audit PLUSTM (updated April 6, 2010). <http://www.imshealth.com/deployedfiles/imshealth/Global/Content/StaticFile/Top_Line_Data/Top%20Therapy%20Classes%20by%20U.S.RXs.pdf>, as of May 5, 2010.
- IMS Health Inc. (2010b). IMS Health reports U.S. prescription sales grew 5.1 percent in 2009, to \$300.3 Billion. Press release (April 1). IMS Health Inc. <<http://www.imshealth.com>>, as of May 5, 2010.
- IMS Health Inc. Canada (2010). IMS Health reports Canadian retail prescriptions dispensed grew 5.5 percent in 2009, fueled by generics. Press Release (April 1). IMS Health Inc. Canada. <<http://www.imshealth.com>>, as of May 5, 2010.
- Skinner, Brett J. (2005). *Canada's Drug Price Paradox: The Unexpected Losses Caused by Government Interference in Pharmaceutical Markets*. The Fraser Institute. <http://www.fraserinstitute.org/Commerce.Web/product_files/CanadasDrugPriceParadox.pdf>, as of May 10, 2010.
- 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. <http://www.fraserinstitute.org/commerce.web/product_files/CostBurdenPrescriptionDrugSpending.pdf>, as of May 5, 2010.
- Skinner, Brett J., and Mark Rovere (2008a). *Cost Burden of Prescription Drug Spending in Canada and the United States, 2008 edition*. Fraser Alert (August). The Fraser Institute. <http://www.fraserinstitute.org/commerce.web/product_files/PrescriptionDrugSpending2008Rev.pdf>, as of May 5, 2010.
- Skinner, Brett J., and Mark Rovere (2008b). *Canada's Drug Price Paradox 2008*. Digital Publication (June). The Fraser Institute. <http://www.fraserinstitute.org/commerce.web/product_files/CanadasDrugPriceParadox2008.pdf>, as of May 5, 2010.
- Statistics Canada (2010a). Gross Domestic Product (GDP), expenditure-based. *Provincial Economic Accounts*. CANSIM table 382-0004. Statistics Canada. <www.statcan.ca>, as of April 30, 2010.
- Statistics Canada (2010b). Personal Disposable Income. National Income and Expenditure Accounts—1901. Table 380-0062. Statistics Canada. <www.statcan.ca>, as of April 30, 2010.
- Statistics Canada (2010c). *The Daily: Canada's population estimates* (released March 25, 2010). Statistics Canada. <www.statcan.ca>.
- United States Bureau of Economic Analysis [BEA] (2010a). Table 1.1.5: Gross Domestic Product. National Income and Product Accounts. National Economic Accounts. <<http://www.bea.gov/index.htm>>, as of April 30, 2010.
- United States Bureau of Economic Analysis [BEA] (2010b). Table 2.1: Personal Income and Its Disposition. National Income and Product Accounts. National Economic Accounts. <<http://www.bea.gov/index.htm>>, as of April 30, 2010.
- United States Census Bureau (2009). Census bureau projects U.S. population of 308.4 million on New Year's Day. Press release. US Census Bureau, Public Information Office. <www.census.gov/Press-Release/www/releases/archives/population/014511.html>, as of December 29, 2009.
- Vernon, John A. (2005). Examining the link between price regulation and pharmaceutical R&D investment. *Health Economics* 14 (2005): 1-16.