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Comparative Analysis of Healthcare Expenditure in the United States and Canada

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COMPARATIVE ANALYSIS OF
HEALTHCARE EXPENDITURE IN THE UNITED STATES AND CANADA

by

Chris N. Anazia

A thesis submitted in partial fulfillment

of the requirements for the degree

of

MASTER OF SCIENCE

in

Applied Economics

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DEDICATION

This thesis is dedicated to

God Almighty

who gave me the wisdom, understanding and knowledge, for enabling

this study to a successful completion.

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Chris N. Anazia

ABSTRACT

Total healthcare expenditures and expenditures as a percentage of GDP have been substantially higher in the U.S. than in Canada between 1975 – 2008. Hospitalcare, physician and clinical services, and drug prescription expenditures have been the principal components contributing to growth in healthcare expenditures in the U.S. compared to Canada. This study reviews the literature on increasing healthcare costs and establishes some comparative and descriptive analysis for high healthcare costs in the two countries during this time period. The study also analyses and compares the growth of healthcare costs.

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Introduction

A healthy population is believed to be a driver and a catalyst for achieving economic growth. The health of any nation is of paramount importance and has a positive correlation with economic growth Sachs et al. (2001). Health means the state of being fit and mentally balanced to react to changes in the environment. Generally speaking, it is a state of wellness and completeness of a person. Alleyne et al. (2002) revealed that health consistently ranked the number one thing men and women desired in life.

Variations in healthcare expenditures among countries are substantial regardless of how they are measured. Across the globe, many countries have continuously increased healthcare budgets. Leslie Norwalk, former acting administrator for Center for Medicare & Medicaid Services (CMS) in a press release by CNNMoney in 2011 stated that “healthcare spending will double by 2020, and the government will pay 50% of that -- this is troubling”. Auerbach an economist at RAND Corporation in a press release in 2011 argues that “unless we reverse the trend, Americans increasingly will notice that health costs compromise their other spending options.

Research has also shown that a healthy population is a necessary requirement for economic growth. This trend was shown in the work of Fogel (1991, 1997, 2000), whose ground - breaking studies have explained the relationship between body size and food supply, and have shown the latter to be critical to long – term labor productivity.

Szick et al. (1999) of the Institute for Clinical and Evaluative Sciences Ontario Canada have found that four decades ago, Canada and U.S. operated similar healthcare systems, but the situation has changed drastically since 1984 when Canada passed the Canadian

full single payer system (Canadian Health Act of 1984) revising the Medical Care Act of 1966 which prohibits user fees and extra fees from doctors. They stated that several studies have compared healthcare cost and outcomes. However, none of these studies provided conclusive evidence why there is a difference between U.S. and Canada healthcare system.

The relationship between health and economic growth has also been established by studies on a more modest scale considering groups of children who can be separated according to the calorie intakes during their first 3 years of life. It is clear from these studies that those with higher calorie intakes generally attain higher incomes 30 years later in life, and are therefore presumably more economically productive (Hernandez, Fuentes, and Pascual, 2001).

These results could be the rationale behind spending on health. Healthy countries with educated men and women have the potential to grow economically, especially in a favorable policy environment. Clements et al. (2012) of the International Monetary Fund (IMF) and Ginsburg (2006) indicates that healthcare costs have increased in developing and developed countries for more than two decades, and this is causing serious debates and reevaluation of the benefits and performance of healthcare spending.

According to the Henry J. Kaiser Family Foundation (2009) healthcare costs around the world are steadily growing faster than general economic growth and a majority of countries have seen healthcare spending as a percentage of their gross domestic product (GDP) increase over time. The Organization for Economic Co-operation and Development (OECD) health data (2006) shows that healthcare spending is increasing at a higher rate than incomes in developing and developed countries. This has

raised serious questions about how countries will pay for their future healthcare needs. Growth in healthcare expenditures has been particularly high in the U.S. The OECD health data (2006) show that the U.S. spends much more per capita on healthcare and also has the largest spending growth rates in the world. The percentage of wealth the U.S. spends on healthcare services is fast becoming worrisome to economists, its citizens and health practitioners in the U.S., far surpassing other developed countries like Canada. This paper further stated that a major challenge is that U.S. does not have better healthcare records in terms of life expectancy, number of physicians per capita and number of nurses per 1,000 population when compared to other developed countries like Canada despite huge expenditure in healthcare services.

Over the years, the healthcare systems of U.S. and Canada have been studied and compared by several analysts with further work ongoing. The most difficult question left unanswered is whether the expected healthcare outcomes of patients in these two countries would be the same if identical techniques and methods are applied in both countries in treatment of patients. Szick, et al. (1999) stressed that little research has been directed at this question. This study seeks to improve our understanding of the differences in healthcare expenditure growth in the U.S. and Canada. The study covers the period between 1975 through 2008.

Literature Review

The literature review is organized in two sections. First, I reviewed the literature focusing on the connection between economic growth and health in general. Secondly, I report on findings in the literature specific to the growth of healthcare expenditures the U.S. and Canada.

Health and Economic Growth

The connection between health and economic growth has long been established in the literature, for instance Bloom et al. (2005) stated that health is an important form of human capital and it can enhance workers' productivity by increasing their physical capacities, such as strength and endurance. The importance of health and investment in healthcare are major components of the development goals pursued by developing and developed countries around the globe. The increasing attention healthcare delivery is receiving worldwide has further emphasized the importance of health and healthcare expenditure on economic growth.

Higher expenditure on health alone cannot meet a given nation's development goals. However, in conjunction with other social investments, it can drive economic growth. A healthy person is full of life and energy and a healthy society tends to be energetic and actively involved in productive ventures. The work of Baldacci (2004) elucidates the importance of health expenditures. His panel data analysis based on about one hundred and twenty developing countries from 1975-2000 indicated that spending on health affects growth within that same period, while *lagged* health expenditures appear to have no noticeable effect on growth.

Spending in healthcare services can lead to improvements in health. There are several studies showing that improvements in health can positively influence economic growth through its effects on fertility, labor productivity, and the quality of human capital. For example, Sachs (2001) and Bloom et al. (2005) find positive correlations between health and economic growth.

However, there are some disagreements and divergent views concerning the effects of increased healthcare spending. For instance, Baldacci et al. (2003) and Gupta

et al. (2002b) find that social spending is an important determinant of education and health outcomes. This work, based on cross-sectional data for developing countries, reveals that expenditures on education have a greater effect on social indicators than health expenditures.

Despite these differences, most studies find a positive relationship between health and economic growth. Levine and Renelt (1992) and Sala-I-Martin (1997a, 1997b) find that out of more than 32,000 regressions involving permutations of over 60 variables, initial life expectancy is a positive and significant predictor of economic growth in more than 96 percent of the specifications. This indicates that good health at early age and beyond is one of the most robust predictors of subsequent economic growth and could justify the increased levels of spending in healthcare by developing countries like India and Nigeria and developed countries like U.S. and Canada.

This is corroborated by Sachs (2001), who finds that “extending the coverage of crucial health services to the world’s poor could save millions of lives each year, reduce poverty, spur economic development, and promote global security. According to this view, achieving better healthcare may be able to accomplish what development practitioners, NGOs, economists, foreign aid providers, and diplomacy have failed to achieve. Several researchers who have found a significant correlation from health to growth (e.g., Bloom and Canning, 2003) have used these types of findings to argue for large increases in governmental spending on health care.

Health and education have also been found to be influential factors in human capital formation. Advanced levels of education attainment create an enabling environment for awareness among the public and the ability of families to solve their health problems. For example, Barro (1996b) argues that improved health can reduce

the depreciation of education capital, and thus increase the favorable effect of education on growth. A more recent study by Gyimah- Brempong and Wilson (2004) finds a positive and robust link between investment in health and growth in both sub-Saharan African and OECD countries.

Growth in Healthcare Spending

Empirical studies suggest the existence of a correlation between the growth of an economy and growth in governmental social and economic spending. For example, Devarajan, et al., (1996) show that moderated and prudent expenditure can lead to development but could be unproductive if it becomes excessive especially in developing countries. The Milken Institute report (2007), suggests that as a country's health improves (as calculated by several factors, such as improvement in Medicare and health research) we should expect to see an improvement in labor productivity and output per worker, as well as an increase in economic growth.

Improvement in health may lead to income growth, but this does not necessarily imply that developing and developed nations should allocate a greater percentage of their budget on healthcare. As Bloom and Canning (2003: 313,) state, "The key issue is not that spending on health would be good, it is whether spending on health is better than other uses of the limited funds available in developing countries."

As a nation grows in size and population, it is expected that other traditional functions of the state would rise in importance, and there would be a natural force exerting pressure on public expenditure thereby increasing the cost of governance and administration of a state and country in social and economic activities. For instance, expenditures on education and infrastructural development could reduce as a result of increased expenditure in healthcare services. For example, Cincotta and Engelman

(1997) emphasized that decline in fertility (population reduction more or less fueled economic growth during the early 1990s in countries like Taiwan, South Korea, Thailand, Hong Kong, Malaysia and Indonesia.

Developed and developing nations have over the years shifted attention to investments in health-related activities because of its social benefits in both in the short run and long run. OECD health data (2006) has shown that this universal tendency of increased spending on healthcare has become a trend among nations of the world. The questions that need urgent answers are (1) for how long will this trend continue? (2) Are the social benefits derived from these actions commensurate with the expenditures? and (3) what are the best ways of measuring the costs and benefits of such a trend?

Roehrig et al. (2012) find that control in healthcare expenditure started about 2.5 years before the recession engulfed the economy in 2008, therefore the economy cannot be held accountable for the slowdown in the curve. He further stated that economists and policy makers often compare the growth of health care spending to that of the overall economy, as measured by the gross domestic product (GDP), but this comparison can give a false sense of “excess” healthcare spending growth during economic recessions and recoveries. Woolhandler (2003) finds that the difference between U.S. and Canadian expenditure on healthcare administration has grown steadily over the years, and that large sums could be saved in the U.S. if healthcare administration costs are cut by adopting the Canada’s single payer healthcare system. Redelmeier (1993) finds that after all adjustments are made for population size and the exchange rate between the U.S. and Canada, the reasons for the high healthcare expenditure in the U.S. is attributable to higher administrative costs, hospital costs, physician services, and prescription drugs.

Szick et al. (1999) find that U.S. and Canada operated the same healthcare systems about four decades ago before Canada restructured its system in the 1984. According to the Kaiser family foundation (2009) the portion of GDP earmarked for healthcare spending in the U.S. grew from 9% of GDP in 1980 to 16% of GDP in 2008. This percentage increase in health spending as a portion of GDP is high when compared with other developing and developed countries. Also, OECD health data (2004) shows that the U.S. spent US\$6,714 per-capita on health care expenses, while Canada spent US\$3,678. In the same year, the U.S. spent 15.3% of GDP on healthcare while Canada spent 10.0%.

OECD health data (2004) and McKinsey Global Institute (2008) report shows that U.S. healthcare expenditure as a proportion of GDP has been unstable over the years compared to Canada's. Schabloski (2008) finds that the main difference between the U.S. and Canadian healthcare systems is that while the U.S. effectively runs a private managed healthcare system, Canada adopts a comprehensive, publicly funded healthcare system. The U.S. is the only country in the developed world, and one of only two OECD countries, that does not already have a fundamentally public- tax-supported healthcare system.

The report on healthcare by Canada Institute for Health Information (CIHI) 2010 and the Commonwealth Fund (2011) reveal that Canada's healthcare system provides universal coverage for hospital services, physicians and prescription drugs for its citizens and permanent residents. The Canadian healthcare regulation ensures that all insured persons be fully insured, without co-payments and other associated medical fees. The trademark of Canada's universal healthcare system includes the nonexistence of copayments and the government directly provides and funds a wide range of

preventive services through Public Health Agency of Canada. The Canadian system is often advocated as an alternative that the U.S. might emulate. The U.S. health system requires that some of its citizens' pay for their healthcare needs, and the Kaiser Commission on Medicaid and the Uninsured (2006) finds that about 15%, or 40 million American residents, were reported to be uninsured at any point in time in 2004.

Another difference between the two systems is in their administration. The report on the state of the healthcare in Canada (2002) by Canada health act revealed that in Canada, the government is wholly committed to provide funds and public health services to its district governments for healthcare expenditures, provided they accept the Canadian healthcare regulations, which clearly and explicitly disallow billing patients' treatments that are covered by Medicare. The authors also find that Canadian hospitals are managed by private boards/and or regional health authorities that are separated from the government.

In the U.S., the federal government funds Medicare, Medicaid, and state health insurance for children. Those types of people covered include qualified old citizens, the poor, persons with disabilities, and children. The Kaiser Commission on Medicaid and the Uninsured (2006) find that a majority of residents in the U.S. have access to healthcare through their employers, while the unemployed or individuals whose employers do not have coverage pay from their pockets. However, federal and state agencies are actively involved in healthcare spending irrespective of private involvement. The U.S. Department of Health and Human Services, Centers for Disease Control and Prevention (2010), found that federal and state agencies pay about 47% of the \$2.2 trillion spent nationally on medical care in 2004.

Schabloski (2008) and International Profiles of Healthcare Systems (2010) find that Canadian system has been 60–74% publicly funded, but these services are administered by private providers. Canada's healthcare system does not cover certain services. Comparing the merits of private versus public healthcare funding, one is tempted to conclude that privately funded healthcare is not attractive. OECD data (2011) shows that the U.S. has the most expensive healthcare system in the world. A study by Harvard Medical School researchers Steffie Woolhandler and David Himmelstein in July 2006 and OECD health data 2011, reveal that irrespective of the outstanding technology that the U.S. possesses; the overall health of the U.S. population is actually worse than in most developed countries, and the mortality rates are relatively high in the U.S. However, these 'aggregate' measures are not necessarily accurate, as many other reasons outside healthcare affect mortality.

The U.S. has continued with the same healthcare system decades after Canada restructured its system. This difference in healthcare in the U.S. and Canadian systems reveals that private funding may lead to poorer public health. Squires (2012) stated that in all industrialized countries, U.S. is the only country without universal insurance-based or tax financed systems. Rodin and Ferranti (2012) also revealed that among 25 wealthiest Nations, only the U.S. does not have some form of universal coverage. They further stated that several middle-income countries, including Brazil, Mexico, and Thailand have universal healthcare system while Lower-income nations, such as the Philippines, Vietnam, India, China, South Africa, Rwanda, and Ghana are working towards adopting universal healthcare system. Kelly (2009) projects that the U.S. would be able to save over \$160 billion every year in administration expenses if it adopts the Canadian system of healthcare.

Docteur et al. (2009) finds that death rates are high in the U.S. compared to OECD countries. Devereaux et al. (2004) finds that the high death rates have been linked to unprofessional and unethical practices of for-profit hospitals that need to maximize profit for stakeholders and compensate hospital managers. They find that hospital administrators tend to employ less-skilled practitioners to lessen costs. This study therefore suggests that many patients will die if profit motives are the reasons for establishing hospitals.

The switch by Canada to a universal system is believed by some to be the main reason why Canadians are generally healthier regardless of income when compared to U.S. residents. Also, Squires (2012) finds that one potential explanation for the high level of U.S. health care spending is the aging population. As the baby boom generation enters retirement age there is correspondingly greater healthcare needs. In addition, an analysis by Anderson (2011) shows that U.S. prices for drugs, brand-name drugs, and procedures are highest in the 30 most-commonly prescribed drug categories compared to Canada.

Comparative Analysis

As shown in Figures 1 and 2, using the data collected from CIHI and NHEA the gap between the spending on healthcare in total and as a portion of GDP in the U.S. and Canada has grown steadily since 1975. The Canada Institute for Health Information CIHI (2012) report shows that the pace of growth is slowing however. The three major components of total healthcare expenditure in the U.S. and Canada are hospitalcare, physician and clinical services, and prescription drugs. However, public health, other professional services, other health institutions and other health spending make up the other categories of healthcare expenditure that are less significant compared to the three

major components. The CIHI (2012) report indicates that drug spending growth rates have trended downward over the last 10 years in Canada. This decline is likely due to fewer drugs coming on the market in the last decade, many blockbuster drugs patent, and CIHI (2010) data shows that in 2008 the total healthcare expenditure in the U.S. is \$2,339 billion and in Canada it is \$172 billion while Figure 2 shows that the proportion of the U.S. healthcare expenditure as percentage of GDP in the same year was 17.8% while in Canada it was 10.7%.

Figures 3 and 4 show changes in different healthcare expenditure components per unit of GDP in the U.S. and Canada from 1975 - 2008. According to the Henry J. Kaiser Family Foundation (2010), the U.S spent \$234.1 billion in 2008 on prescription drugs, which is about six times the amount (\$40.3) billion spent in

From Figure 3 and 4, we see that the three different healthcare expenditure components in Canada and the U.S. have followed almost the same pattern since 1975, with only slight variations. This is validated by CIHI (2012) report which shows that reimbursement paid to health care providers has been one of the major cost drivers of hospital and physician spending in Canada. The report further stated that increases in compensation due to higher demand as well as to growth in the number of hospital workers and physicians may have added to higher spending during the last decade. In Canada, the drug prescription expenditure per GDP was 0.60% in 1975 and 1980. However, by 2007 it has risen to 1.7%.

Figures 5, 6 and 7 compare the hospitalcare, physician services, and drug prescription services expenditure per GDP in the U.S. and Canada. From Figure 5, we see that the hospitalcare spending per GDP in 1975 and 1980 was higher in the U.S. than in Canada. It was 3.2% and 3.6% in 1975 and 1980 respectively in the U.S., while in Canada

it is 2.9% in 1975 and 1980. However, the gap was high in 2008; it is 5.5% in the U.S. while it is 3.1% in Canada. From Figure 6, we see that the physician services expenditure per GDP was also higher in the U.S. compared to Canada. It was 0.6% in Canada in 1975 and 1.5% in the U.S. and in 2008 it was 3.8% in the U.S. while in Canada it is 1.4%. From Figure 7, the drug prescription expenditure per GDP has been higher in Canada compared to the U.S. since 1975. It was 0.6% in 1975, 1.0% in 1990 and 1.4% in 2000 in Canada while in the U.S. it was 0.5% 1975, 0.7% in 1990 and 1.2% in 2000. However, between 2008 and 2012 the drug prescription expenditure in the U.S. was higher compared to Canada after several years. It was 1.8% in 2008 in the U.S. and 1.7% in Canada. According to the Henry J. Kaiser Family Foundation (2010), the rate of increase in spending on drug prescription since year 2000 with the exception of year 2006 in the U.S. was as a result of increased use of prescription drugs which was due to a number of factors including the implementation of Medicare Part D, increased use of specialty drugs, lower refunds from drug manufacturers and changes in the mix of drugs (both brand versus generic). Medicare Part D is also called the Medicare prescription drug benefit, a federal program to subsidize the costs of prescription drugs for Medicare beneficiaries in the United States. According to CIHI (2012) report and Jonathan (2005), the steady decrease in drug prescription expenditure in Canada are as a result of government strict regulations on drug utilizations and price controls that limit the increase in prescription drug prices while in the U.S. the steady increase in drug prescription expenditure could be attributed to the non-existent of enforced government regulations on drug and controls to limit the increase in prescription drug prices.

Model Specification

The model used is a simple ordinary least squares semi-log approach to estimate growth rates for spending on hospital care, physician and clinical services, and prescription drugs in both the U.S. and Canada (Gujarati and Porter, 2010). This approach was chosen because it gives better approximation in calculating growth rate, it gives closer connection between the process of linear growth and exponential growth. The advantages of semi-log specification include; easy interpretation of coefficients and it mitigates the impact of nonlinear relationships.

Let Y_t represent health care spending in year t , Y_0 represents the value of healthcare spending in time 0 and r is the rate of growth of Y over time. Starting with the simple growth formula

$$Y_t = Y_0 (1 + r)^t \dots\dots\dots (1)$$

Transforming the model by taking the natural log of (1), we have

$$\ln Y_t = \ln Y_0 + t \ln(1 + r) \dots\dots\dots (2)$$

Now, letting $\ln Y_0 = B_1$ and $\ln(1 + r) = B_2$, we use the simple regression model

$$\ln Y_t = B_1 + B_2 t + \varepsilon_t \dots\dots\dots (3)$$

Also let β_2 vary whether or not there was a recession the previous year.

$$\beta_2 = \beta_{20} + \beta_{21} \text{Recession}$$

$$\ln Y_t = \beta_1 + \beta_{20} t + \beta_{21} t \text{Recession}$$

Growth Rate Estimates

To estimate the growth rate in healthcare spending, we transform (1). The estimates of the growth rate (r) can be derived from $\ln(1+r) = B_2$. Transforming the expression by exponentiation we have

$$r = \exp^{B_2} - 1 \dots\dots\dots (4)$$

The essence of estimating it using the data collected is to compare the results with the analysis in literature review and see if they are in agreement.

Roehrig et al. (2012) suggests that healthcare spending may vary across the business cycle. We therefore allow B_2 to vary according to whether or not there was a recession in year t . To allow for the possibility of lagged effects, we also estimate specifications where B_2 is allowed to vary according to whether or not there was a recession the previous year. The reason for varying B_2 is to ascertain if recession has effect on healthcare spending or not.

Results

Our regression results are reported in Tables 1 and 2. The growth rates implied by these estimates are reported in Tables 3 and 4. We find that the average growth rate for total spending on healthcare services in the United States is 8.70%. For Canada, our estimate is 7.70% etc. The main reason for estimating the growth rate using the data collected from CIHI and NHEA is to compare the results of studies in the literature review. The growth rate estimate in table 3 and 4 were gotten using equation 4.

The findings from this study and analysis in the literature review definitely revealed that U.S. spends more than Canada on healthcare services. The growth rate is

higher in the overall total healthcare in the U.S. compared to Canada. Also, the growth rate is higher in the U.S. compared to Canada in hospitalcare services, physician and clinical services and prescription drug. The graphs showed that the growth rate in healthcare expenditure in both countries is positive each year between 1975 and 2008. The regression analyses only show that the growth rate is not statistically different during or after recession year in either country. The results revealed that recession or economic crisis might have contributed less to the fall in healthcare cost. Nevertheless, the healthcare costs are extremely high in both countries.

Summary

Healthcare Costs have been both high and growing steadily in the U.S. and Canada during the years 1975 to 2008. The findings from our studies of healthcare costs in the U.S. and Canada provide a convincing answer to the question of how the United States compares to Canada in terms of the spending in healthcare. This is simply because the growth rate estimate of spending in total healthcare, hospital care, physician and clinical services and drug prescription in the U.S. is higher compared to Canada.

There is a big gap between the U.S. and Canadian spending on healthcare. Huge sum of money could be saved by the U.S. if cost of administration, abuse, fraud and prescription drugs is reduced by implementing similar or modified system as found in Canada.

Conclusions

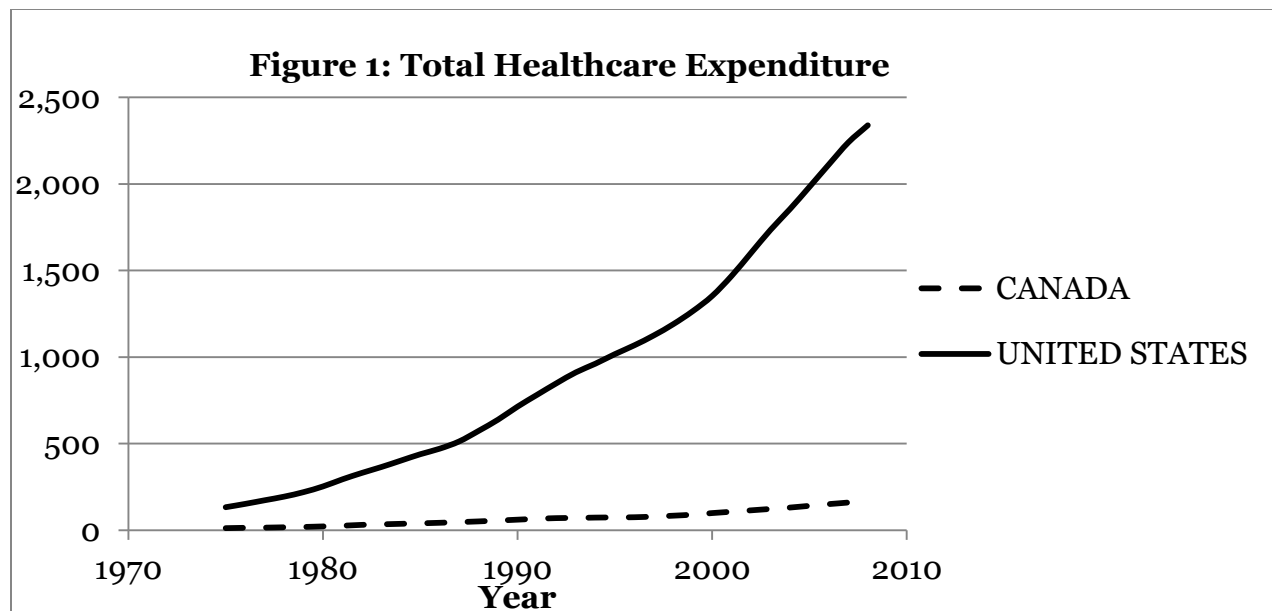
Changes in government policy, fraud and abuse, medical technology, aging population, increased usage of prescription drugs, spending in hospitalcare services, physician and clinical services, administrative cost and population growth are some of the reasons why healthcare cost have risen so high in U.S. and Canada. Growing healthcare costs have created worries that continued growth could negatively affect the economy of U.S. and Canada, as well could create problems for overall spending in the economy such as expenditure in education and infrastructural developments. The literature review as shown by the work of Baldacci (2004) and Bloom and Canning (2003) emphasized the connection between the growth of healthcare cost and rate of economic development.

I found that recession and absence of recession does not have a statistical significant effect on healthcare spending. This study attempts to compare U.S. and Canada health expenditures. Progresses in medicine make people to spend more on healthcare in order to prolong life. Modifications in government policy and other endogenous variables increase health expenditures. This study has provided the descriptive analysis of how modifications in government programs such as Medicare and Medicaid could account for increased spending on health in the U.S. compared to Canada.

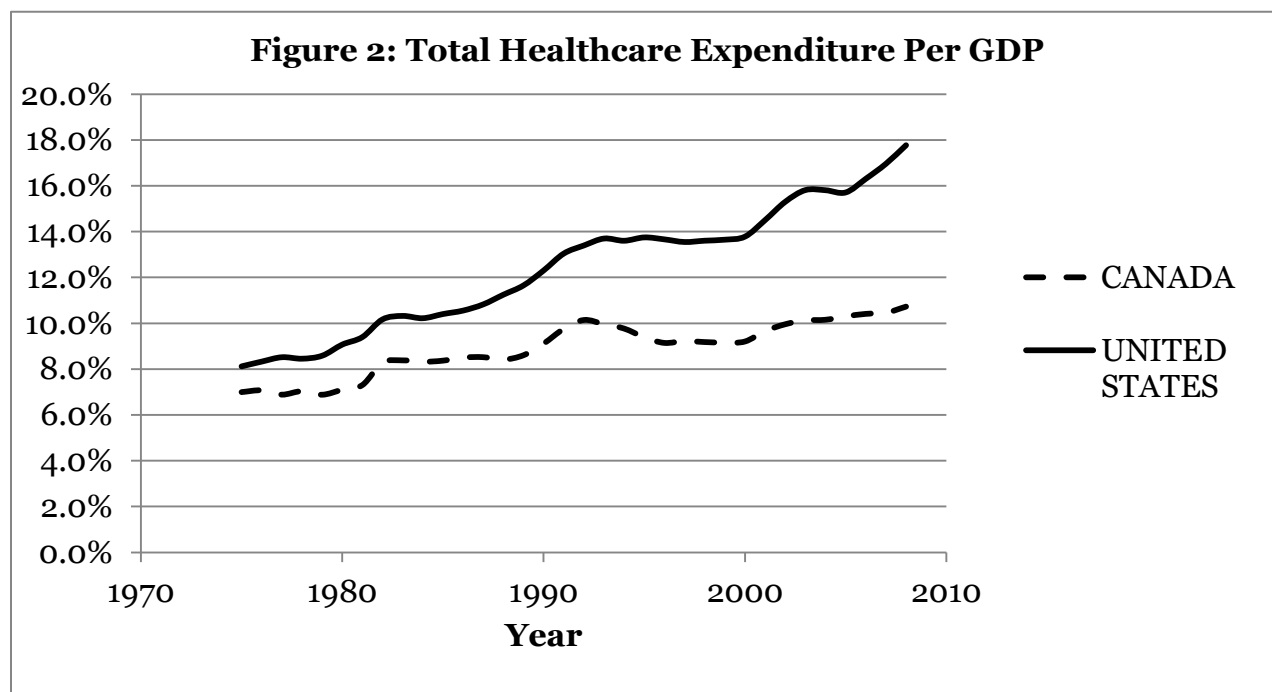
References

- Robert J. Barro (1996). Health, Human Capital and Economic Growth
- David E. Bloom et al. (2003). The Effect of Health on Economic Growth: A Production Function Approach - Harvard School of Public Health, Boston, MA, USA.
- Technological Change and the Growth of Healthcare Spending (2008). A Congressional Budget Office Paper.
- The Effect of Health Care Cost Growth on the U.S. Economy. United States Department of Health and Human Services.
- Sharon Szick, Douglas E. Angus, Graham Nichol, Margaret B. Harrison, Jacqueline Page and David Moher (1999),” Healthcare Delivery in Canada and United States: Are there Relevant Differences in Healthcare Outcomes”?
- Brett J. Skinner and Mark Rovere (2011). Canada’s Medicare Bubble Is Government Health Spending Sustainable without User-based Funding?
- National Health Expenditure Trends, 1975 to 2011. Canada Institute for Health Information (CIHI).
- Paul B. Ginsburg (2008). High and Rising Healthcare Costs: Demystifying U.S. healthcare Spending.
- National Health Expenditure Accounts: Methodology Paper (2010).
- U.S. Centers for Medicare and Medicaid Services, Office of the Actuary. National Health Statistics Group.
- U.S. Census Bureau, Statistical abstract of United States (2011).
- David A. Squires (2011). The U.S. Health System in Perspective: A Comparison of Twelve Industrialized Nations.
- Elizabeth Docteur and Robert A. Berenson (2009). How Does the quality of U.S. Healthcare Compare Internationally?-Timely Analysis of Immediate Health Policy Issues.
- Charles Roehrig et al. (2012). When the Cost Curve Bent — Pre-Recession Moderation in Health Care Spending - The New England Journal of Medicine.
- Donald A. Redelmeier and Victor R. Fuchs (1993). Hospital Expenditures in United States and Canada - New England Journal of Medicine.

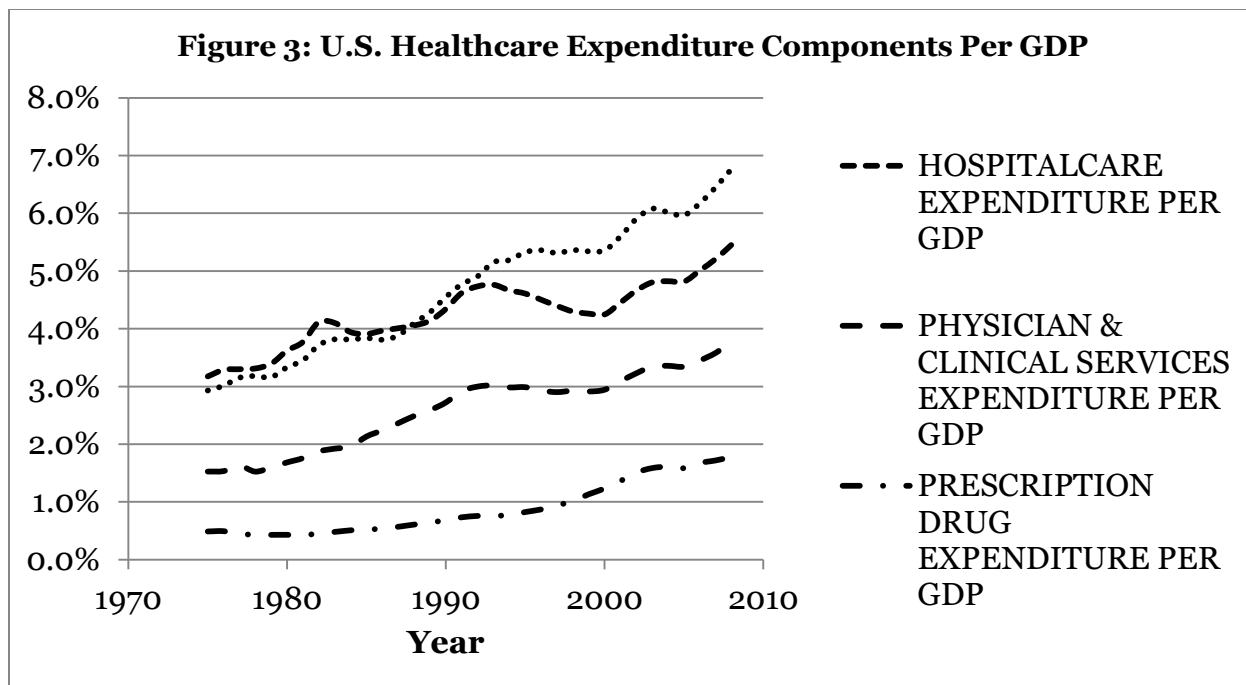
- Steffie Woolhandle, Terry Campbell and David U. Himmelstein (2003). Costs of Health Care Administration in the United States and Canada- The New England Journal of Medicine.
- Healthcare Costs a Primer (2009). Key information on healthcare costs and their impacts - Henry J. Kaiser Family Foundation.
- Robert Kelly (2009). Where can \$700 billion in waste be cut annually from the U.S. healthcare system?
- David A. Squires (2012). Issues in International Health Policy- The Commonwealth Fund.
- Karen Davis et al. (2007). Slowing the Growth of U.S. Healthcare Expenditures - What are the options.
- John Holahan et al. (2011). Containing the Growth of Spending in the U.S. Health System.
- Dana K. Bilyeu et al. (2009). The Unsustainable Cost of Healthcare.
- Congressional Budget Office (2006). Technological Change and the Growth of Healthcare Spending.
- Jeffrey D. Sachs (2001). Macroeconomics and Health - Investing in Health for Economic Development.
- David E. Bloom and David Canning (2005). Health and Economic Growth: Reconciling the Micro and Macro Evidence.
- Ma, Jonathan. "Lowering prescription drug prices in the United States: are reimportation and Internet pharmacies the answer." *S. Cal. Interdisc. LJ* 15 (2005): 345.



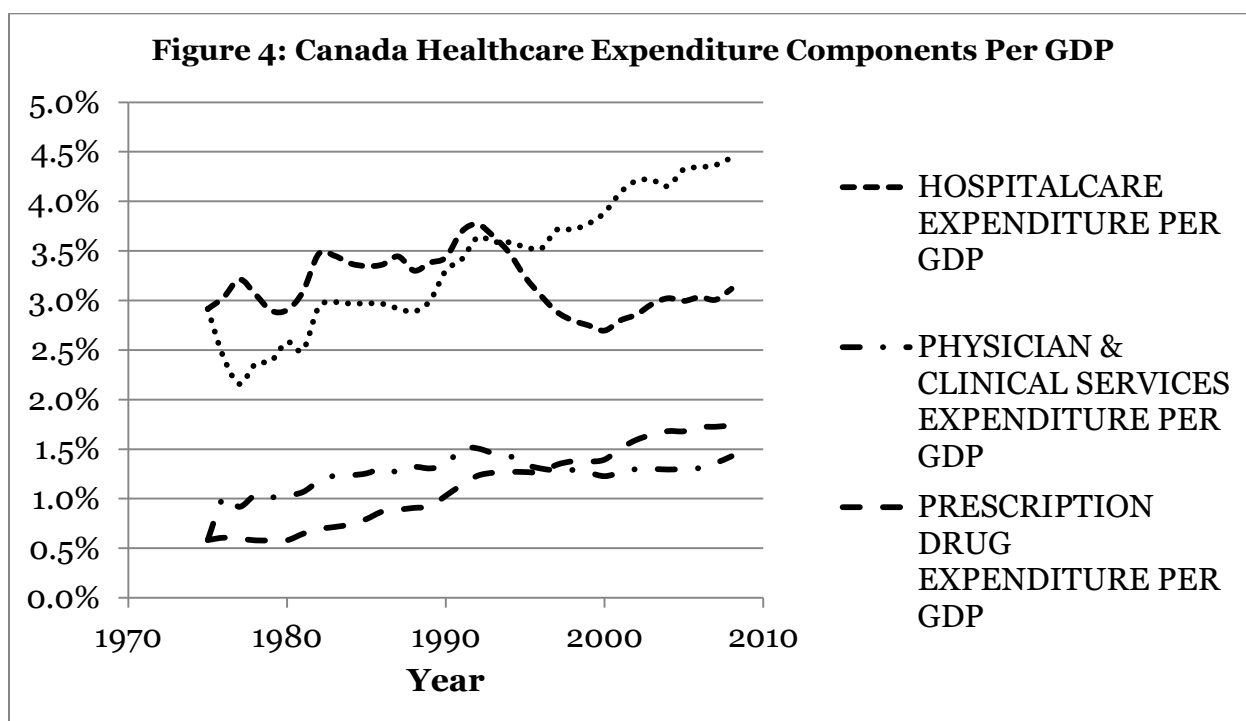
Source: CIHI and NHEA 2010



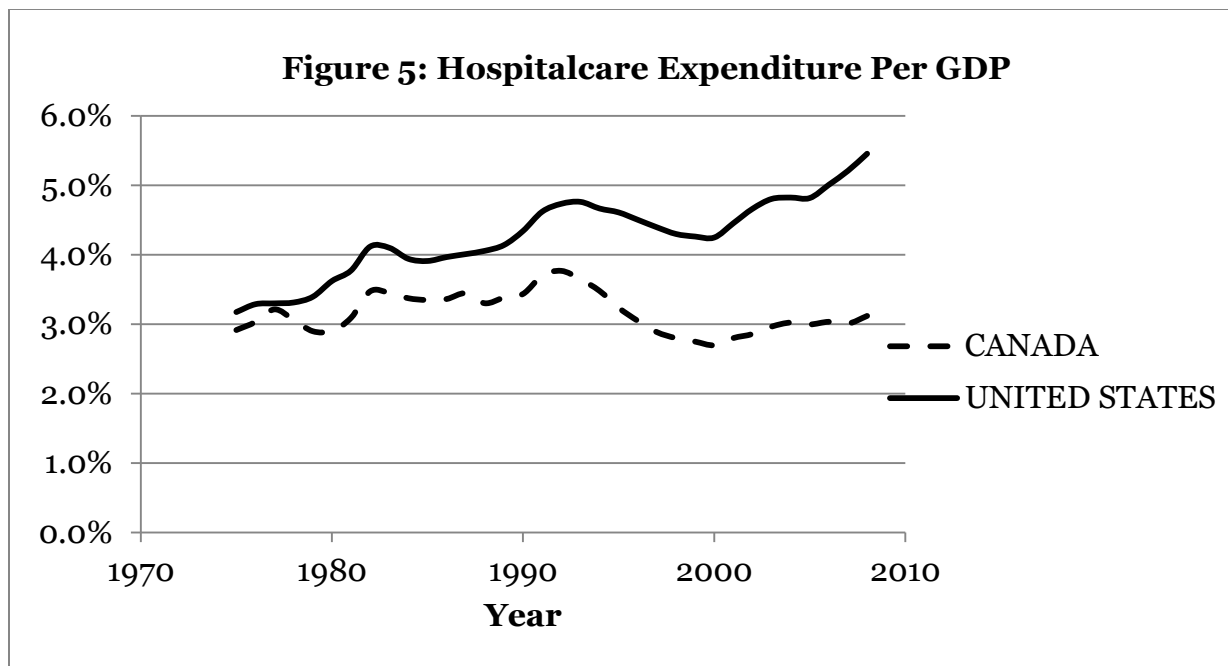
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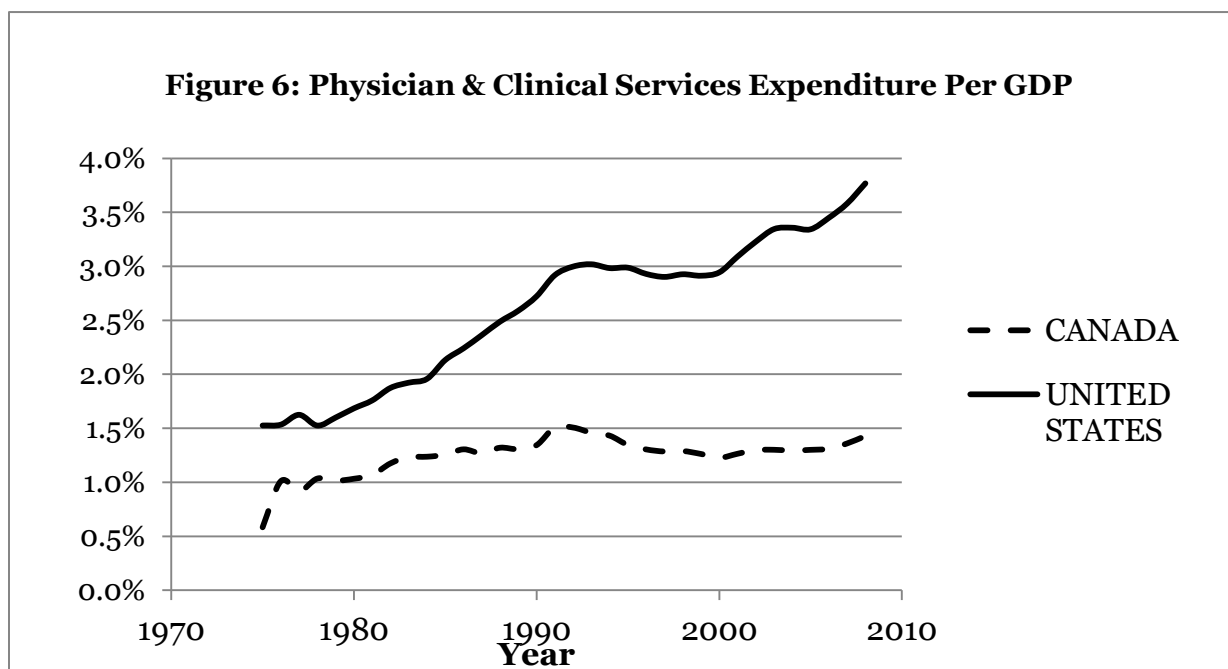
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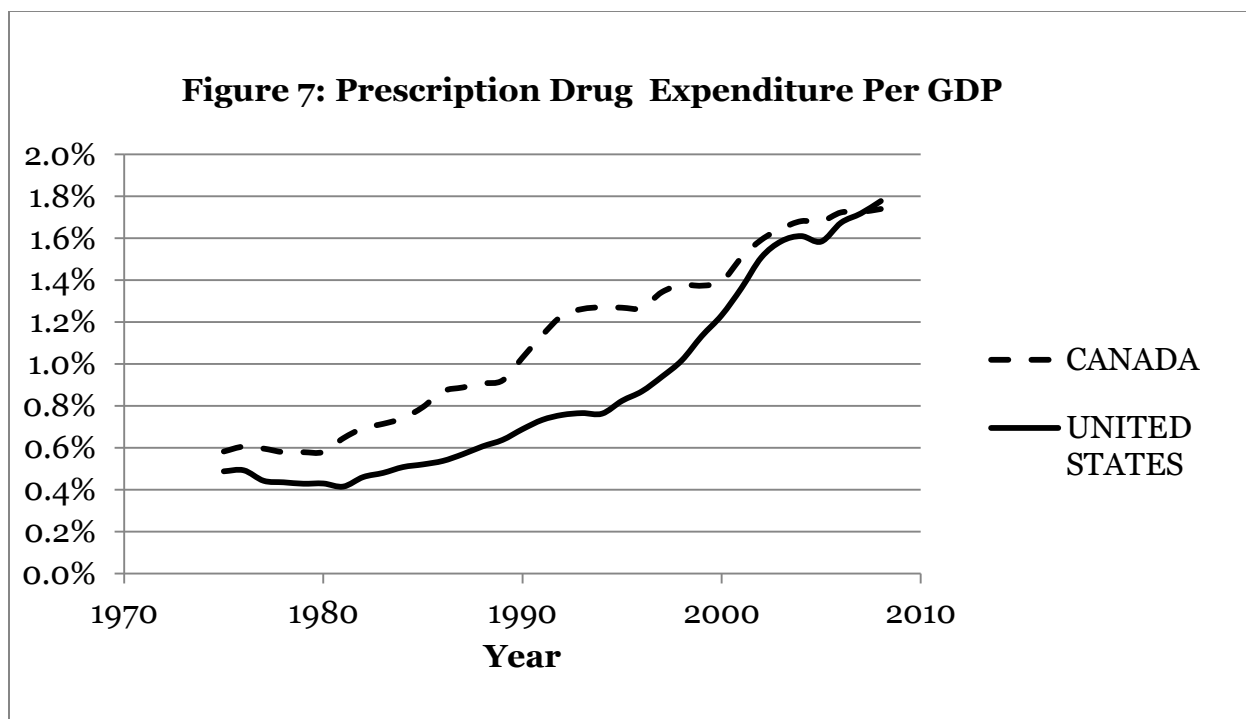
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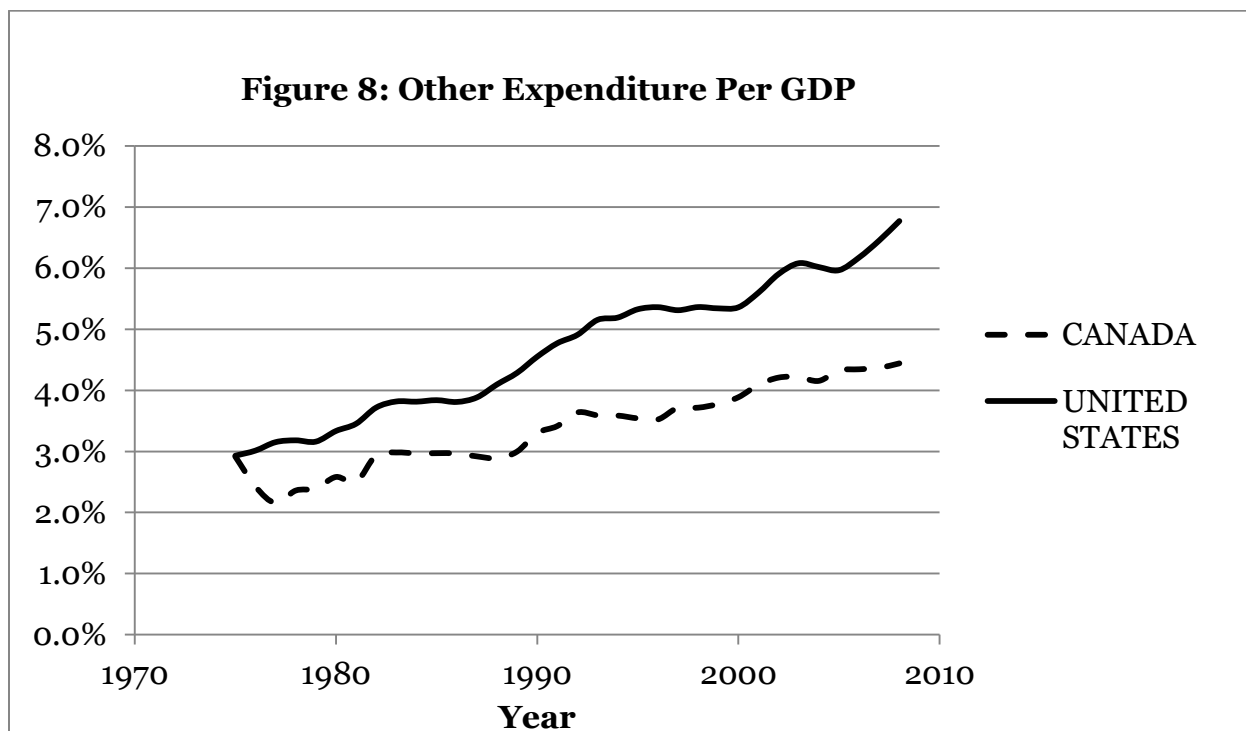
Source: CIHI and NHEA 2010



Source: CIHI and NHEA 2010



Source: CIHI and NHEA 2010



Source: CIHI and NHEA 2010

Table 1: United States

VARIABLES	Total Spending			Hospital Spending			Physician and Clinical Spending			Prescription Drug Spending		
Year	0.0841*** (41.00)	0.0842*** (39.59)	0.0840*** (41.371)	0.0740*** (32.38)	0.0740*** (31.19)	0.0739*** (32.70)	0.0889*** (32.25)	0.0891*** (31.17)	0.0888*** (32.25)	0.1096*** (98.40)	0.1098*** (96.01)	0.1096*** (99.53)
...*Recession	--	-0.0007 (-0.26)	--	--	-0.000 (-0.010)	--	--	-0.0011 (-0.30)	--	--	-0.0012 (-0.83)	----
...*Recession Last Year	--	--	0.0040 (1.27)	--	--	0.0046 (1.30)	--	--	0.0044 (1.02)	--	--	0.0023 (1.32)
Constant	5.067*** (123.17)	5.068*** (121.33)	5.058*** (122.02)	4.190*** (91.41)	4.190*** (89.93)	4.179*** (90.58)	3.405*** (61.58)	3.406*** (60.68)	3.395*** (60.39)	1.880*** (84.18)	1.881*** (83.77)	1.875*** (83.49)
Observations	34	34	34	34	34	34	34	34	34	34	34	34
R-squared	0.981	0.981	0.982	0.970	0.970	0.972	0.970	0.970	0.971	0.997	0.997	0.997

Table 2: Canada

VARIABLES	Total Spending			Hospital Spending			Physician and Clinical Spending			Prescription Drug Spending		
Year	0.0743*** (29.41)	0.0742*** (28.31)	0.0743*** (29.79)	0.0591*** (19.24)	0.0588*** (18.50)	0.0590*** (19.32)	0.0729*** (17.86)	0.0726*** (17.16)	0.0728*** (17.89)	0.1002*** (42.68)	0.1004*** (41.23)	0.1002*** (43.27)
...*Recession	--	0.0011 (0.33)	--	--	0.0016 (0.40)	--	--	0.0013 (0.26)	--	--	-0.0009 (-0.29)	--
...*Recession Last Year	--	--	0.0053 (1.37)	--	--	0.0055 (1.16)	--	--	0.0070 (1.10)	--	--	0.0050 (1.39)
Constant	2.7196*** (53.63)	2.7191*** (52.84)	2.7068*** (53.19)	1.9572*** (31.78)	1.9565*** (31.34)	1.9439*** (31.20)	0.7734*** (9.44)	0.7728*** (9.29)	0.7566*** (9.11)	0.1297*** (2.75)	0.1301** (2.72)	0.1176** (2.49)
Observations	34	34	34	34	34	34	34	34	34	34	34	34
R-squared	0.964	0.964	0.966	0.920	0.921	0.924	0.909	0.909	0.912	0.983	0.983	0.984

Table 3: Growth Rate Estimates

	Total Spending	Hospital Spending	Physician and Clinical Services	Prescription Drug Spending
United States	8.784	7.680	9.318	11.605
Canada	7.702	6.056	7.530	10.561