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Advisor Induced demand and Moral Hazard in the Third-Party Payor System

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ADVISOR-INDUCED DEMAND AND MORAL HAZARD
IN THE THIRD-PARTY PAYER SYSTEM

A Thesis

Presented to

The Faculty of the Department of Economics

San Jose State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

by

David Chandler Thomas

May 2012

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The Designated Thesis Committee Approves the Thesis Titled

ADVISOR-INDUCED DEMAND AND MORAL HAZARD
IN THE THIRD-PARTY PAYER SYSTEM

by

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ABSTRACT

ADVISOR-INDUCED DEMAND AND MORAL HAZARD IN THE THIRD-PARTY PAYER SYSTEM

by David Chandler Thomas

Health-care consumption in the United States has risen from 5.2% in 1960 to 17.8% of 2009 Gross Domestic Product (GDP) creating a burden that will soon be too heavy for the economy to bear. This paper proposes that the primary accelerants of health-care expenditures result from the third-party payer system that emerged in the 1950s. These corporate benefits and government subsidies, when overlaid on the traditional health-care model, have led to sustained increases in the production, recommendation, and consumption of health care while magnifying the moral hazard problem inherent in health insurance.

ACKNOWLEDGEMENTS

Dr. David Henderson, who served as health-care economic advisor in the Ronald Reagan administration, not only served on the thesis committee for this paper, he also proffered his extensive subject knowledge to assist in the research and understanding of key concepts. Joseph Jarvis, M.D., friend and physician, reviewed the work for accuracy in the use of medical terms and processes. During the development of this paper, a score of economics graduate students provided valuable suggestions. Among them, Michael Noffsinger devoted a special level of assistance.

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1. THE PROBLEM

Health-care consumption in the United States has increased from 5.2% in 1960 to 17.8% of 2009 Gross Domestic Product (GDP). This does not fully reflect the more than 833% per capita increase in terms of real dollars¹, because average household income has been increasing at the same time (US DHHS 2010). The rising cost of health care is becoming a burden too heavy for employers, federal and state governments, and individuals to bear.

From different sides of the debate, the blame for rising expenditures has been, at various times and by various groups, placed on the shoulders of insurance companies, health-care providers, trial lawyers, drug companies, and the very government attempting to solve the problem.

Economists, while generally not pointing the finger of blame, propose a wide variety of causal factors for the rising expenditures, including tax-induced corporate subsidies and innovation (Henderson 2002), informational asymmetries and supplier-induced demand (Mitchell and Sass 1995), retrospective insurance mechanisms (Weisbrod 1991), increasing inefficiencies from bureaucratic administration (Friedman 1992), heavy regulations and structural distortions (Goldhill 2009), medical licensing restrictions and pricing practices (Feldstein 1981) (Arrow 1963), and the selection of inefficient procedures (J. P. Newhouse 1996). While these proposals reflect much of

¹ Health-care expenditures, as referenced in this report, are shown as 2005 dollars in per capita amounts. The 1960 per capita health-care expenditures of \$789.81 dollars rose to \$7,368.60 dollars in 2009—an increase of 833%. Per capita GDP grew over the same period in 2005 dollars from \$15,203.55 in 1960 to \$41,310.90 in 2009—an increase of 172%.

what is wrong with the current health-care system, they do not fully explain either the fifty years of increases in health-care expenditures or the dramatic increases in the incidence of high-risk health conditions over the same period.

Working from the assumption that participants in the health-care system are rational in pursuing their self-interests, this paper proposes that the primary accelerants of health-care expenditures result from the third-party payer system that emerged in the 1950s. These corporate and government subsidized health-care benefits, when overlaid on the traditional health-care triad of patient, primary physician, and service provider, encourage advisor-induced demand, leading to sustained increases in the production, recommendation, and consumption of health-care products and services while magnifying the existing moral hazard problem inherent in health insurance.

2. BACKGROUND

Health care, before the twentieth century, operated on the relatively simple economic model shown in Figure 1. Patients relied on their primary-care physician to act as a trusted advisor that diagnosed, recommended, and in most cases performed any necessary medical procedures. The *asymmetric information problem*, arising from the complexity of medical science, existed on a reduced scale since much of the medical technology of today did not exist until the second half of the twentieth century. Because payment flowed directly from the patient to the health-care provider, demand for services operated on a downward sloping curve, albeit an inelastic one (Ringel, et al. 2000). The limited services and high out-of-pocket costs increased inelasticity by encouraging families to pursue home remedies until the services for a physician became critical.

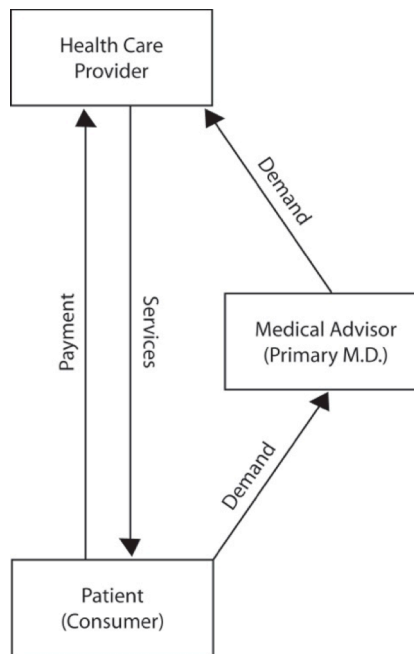


Figure 1 Traditional Health-Care Economic Model

The health-care system began to change with the introduction of significant medical technologies in the late nineteenth and early twentieth centuries. The need to manage the rise of unpredictable health-care costs was partly responsible for the formation and growth of large numbers of mutual aid societies. These mostly fraternal orders allowed members to pool risk, and relied on social pressure to minimize the side effects of the asymmetric information problem. The mutual aid societies began to decline with the introduction of social security in 1935 (Beito 2000).

As the development of new high-cost medical treatments increased, so did the demand for health insurance. Like traditional insurance products, the initial incarnations covered only those procedures that were expensive and unpredictable. This model of insurance, portrayed in Figure 2, was efficient because insurance companies had to select the combination of coverage, patient out-of-pocket, and premiums that would maximize profitability. Of course, they did their best to address the problems of *adverse selection*² and *moral hazard*³ by instituting waiting periods, ex-ante medical exams, and high deductibles or co-payments.

² *Adverse selection* in health care describes the positive correlation between the demand for health insurance and the risk of loss. Taking advantage of asymmetric information about their medical condition, patients are able to under-pay for coverage. In other words, patients with a higher likelihood of making a claim are more inclined to purchase health insurance and withhold information on the level of risk to avoid paying higher premiums. Insurance companies attempt to address adverse selection by restricting coverage on pre-existing conditions, by requiring a health examination and medical background check prior to approval, or by accepting only large groups that have 100% group coverage.

³ *Moral hazard* is in play when patients are convinced that the side effects of a risky lifestyle are less likely to affect their pocketbooks, thus increasing the likelihood they will engage in behaviors such as over-eating, exercising less, or eating unhealthy foods. Insurance companies traditionally rely on three mechanisms to address moral hazard: patient deductibles—the higher the deductible, the more the patient shares in the upfront risk; co-insurance, where the patient shares in a percentage of the cost and risk; and restricting coverage for claims that can result from certain high-risk behavior.

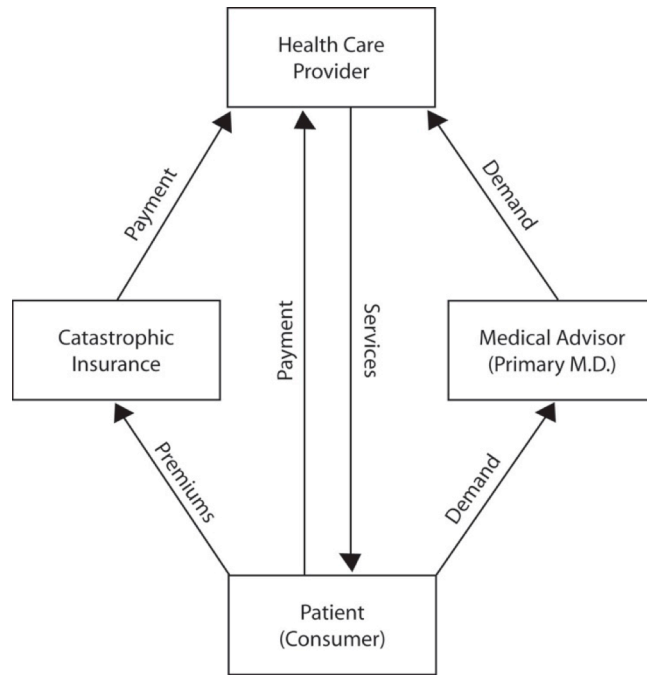


Figure 2 Catastrophic Health-Care Economic Model

The changes in the health-care system that led to the sustained increases in the levels of health-care consumption and medical prices began during World War II. The ramp-up of military production created a greater scarcity of labor and materials needed to produce non-war goods and services, putting pressure on employers to increase wages and prices. To keep reported inflation under control, the federal government ordered a wage and price freeze, making it even more difficult for employers to hire or retain workers and meet the market demand for goods. Operating under the wage freeze, American businesses uncovered a legal loophole that allowed them to offer in-kind wage increases by providing subsidized health-care benefits to their employees. The government ordered a second wage freeze to address inflation during the Korean War.

Again, employers enticed workers with medical coverage, and many companies, not previously providing the benefit, felt competitive pressure to offer it following the war.

Because of the tax savings, companies kept the benefits in place when the freeze ended (Scofea 1994). The Internal Revenue Service became aware of the loophole and attempted to tax the insurance benefit as post-tax wages until Congress, responding to the protestations of business and employees, codified the pre-tax status of the benefit.

Except for a brief respite, provided by the 1964 Johnson-Kennedy and 1981 Reagan tax cuts, the marginal tax rate rose in the second half of the twentieth century, further increasing the value of health-care insurance as a pre-tax benefit (Henderson 2002).

To implement health-care benefits, employers contracted with the existing medical insurance companies to manage the reimbursement of medical expenses on their behalf. Thus was born the *third-party payer* system, which has grown to become a massive industry. Today, the top ten insurance providers generate \$280 billion dollars in annual revenues and more than \$12.5 billion dollars in net annual profits (Fortune Magazine 2011).

In 1966, the federal government introduced Medicaid, a state-administered subsidy for qualifying low-income families, and Medicare, a federal subsidy for senior citizens, both modeled after the private sector health-care insurance system and subsidized by a tax on working Americans. Drug coverage became part of Medicare benefits in 2004 during the George W. Bush administration.

In an effort to address the lack of appropriate pricing signals in the third-party payer system, the U.S. Congress authorized the use of *Health Savings Accounts (HSAs)* in

2003 as pre-tax savings generally linked to a high-deductible insurance plan. Owned and typically funded by the employee, an *HSA* allows the owner to build up a tax-free savings account to pay directly for health-care expenses not covered by insurance. Any unused portion of an *HSA* rolls over to future years and employment, ultimately converting into a retirement account (Glied and Remler 2005).

The Democratic majorities in both houses of Congress passed the Patient Protection and Affordable Health Care Act of 2010, mandating universal and partially-subsidized health insurance as an effort to halt runaway health-care costs. Republicans, the business community, and many health-care professionals objected to the use of mandates and expanded government intrusion in health care. The Obama administration's push for this legislation was, in fact, one of the factors that energized the Tea Party movement. By early 2011, more than half the states had filed actions in federal court to have all or part of the act declared unconstitutional. At the writing of this paper, the economic and social impacts as well as the future legal status of the act are unknown.

Today, U.S. health-care insurance relies on the third-party payer system to reimburse health-care providers for both insurable and uninsurable claims including most catastrophic, emergent, and routine procedures, as reflected in Figure 3. In this thesis, *catastrophic* or *insurable* events refer to medical conditions that are high-cost and unforeseen; *emergent* describes conditions that require paramedic, ambulance, or emergency-room services; while *routine* encompasses low-cost chronic, ambulatory, and urgent care.

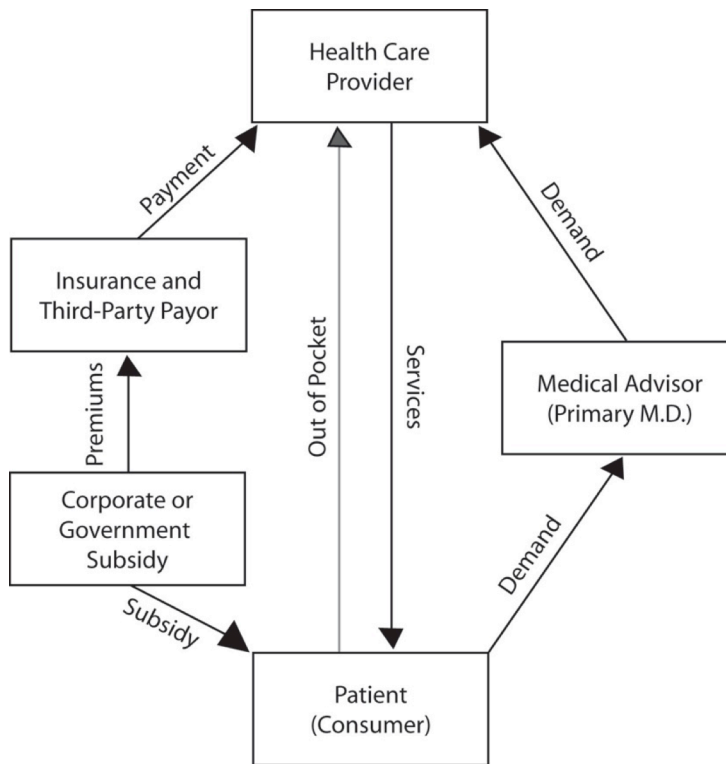


Figure 3 Current Health-Care Economic Model

Consider the analogy of homeowners insurance. Most homeowners are willing to purchase insurance to deal with the catastrophic financial impact of acts of God and man that can cost thousands, if not hundreds of thousands of dollars, and threaten life and savings—including fire, flood, theft, wind, and, in some cases, earthquakes. Homeowners rely on local fire and police departments, usually financed by property taxes, to address the emergent impact of both acts. Homeowners do not expect their insurance to reimburse for routine wear-and-tear such as plumbing repairs, carpet cleaning, or replacing burned out light bulbs. What we currently call “health insurance”

covers the medical equivalent of tornado damage, a 911 call to report an intruder, and the fee to have a plumber unclog a toilet.

Primarily an employer-provided benefit or government subsidy, the third-party payer system currently negotiates group rates and reimburses health-care providers for most medical procedures. The third-party payer system is now the health-care industry standard and provides subtle but powerful incentives that affect the behavior of each participant in the health-care system. Understanding these incentives is essential to discovering the underlying causes of the rising health-care expenditures.

3. INCENTIVES

The adoption of the third-party payer system has altered the incentives of the participants in the health-care system. The inefficiencies of the incentive structure become fully apparent when the overall impact on prices and the level of health-care consumption is considered. The following portrays the incentives and behavior of each participant, in the context of a pending healthy childbirth.

The Patient. Deemed a non-insurable event before the passage of the Pregnancy Discrimination Act of 1978 (PDA), normal pregnancy and childbirth were not covered by most health insurance policies. The PDA amended the Civil Rights Act of 1964 to require employers to include coverage for normal pregnancy and childbirth in their health plans (Lapidus 1983). With pregnancy and childbirth subsidized by the government or by her employer, the mother-to-be follows the recommendations of her obstetrician for diagnostics, office visits, pharmaceuticals, and other services. Most prospective mothers will seek whatever health services they consider necessary, plus those recommended by their physician. If the expecting patient does not have to pay for more than a small deductible or co-payment for medical services, much of the financial restraint on demand for care is eliminated.

The Medical Advisor. Although the obstetrician is primarily motivated to provide for the needs of the patient, two indirect financial incentives also encourage the physician to over-prescribe medical services. First, the negotiated in-network reimbursement rates of insurance coverage have eroded the income of the medical practice, encouraging

physicians to triage patients to specialists and diagnostic centers in an effort to increase the number of patients seen and diagnosed during office hours. Second, as new diagnostics, drugs, and treatments gain mainstream acceptance, physicians feel compelled to prescribe the new services to minimize malpractice exposure (Kessler and McClellan 1996). These two incentives encourage the promotion of more diagnostics, pharmaceuticals, and other services than is economically efficient. The doctor sees no downside to over-prescribing, but a significant downside for under-prescribing, and the patient has little financial incentive to push back against the recommendations for multiple ultrasounds, an amniocentesis test, or an epidural to manage the pain of labor.

The Health-care Service Provider. Health-care service providers have both financial and liability incentives to accept and treat any insured patient sent by a recommending physician even if they consider the services excessive. Hospitals, testing labs, radiology facilities, and other health-care service providers rely on the recommendation of the primary-care physician or specialist to maintain a steady revenue stream. It is essential to their long-term viability that they continually invest in the latest technologies, both to remain competitive and to limit legal liability.

The Product and Service Supplier. The firms that develop and produce pharmaceuticals, epidural and ultrasound equipment, and other medical innovations are incentivized to engage in research and development to meet the growing demand for improvements to health care. Once the Food and Drug Administration (FDA) and independent research and testing have deemed a new breakthrough safe, and even

marginally effective, the medical profession is pressured by both ethics and potential liability to embrace the new offering.

The Insurance Company. Whether for-profit or not-for-profit, the insurance company must cover its costs and return a reasonable margin to remain in business. The insurance company adjusts the annual premiums to the employer or government to cover cost increases tied to any new services, ensuring that future profitability is unaffected. To manage costs during the premium year, insurers negotiate rates with a network of service providers, agreeing to reimburse a discounted amount or percentage of normal billing rates. For service providers outside the network, the coverage is normally limited to a percentage of fees or a fixed amount per procedure with the patient responsible for any remaining balance. In-network providers bill patients lacking health insurance at the full rate to avoid any further discounts on reimbursements from the insurance companies. This is an important business practice for the insurance company because not only does it reduce their reimbursement costs, but also the contrast between full retail and the network discounts increases consumer demand for medical insurance.

The Employer. There are at least two incentives for employers to provide health insurance coverage in the workplace. First, with more than 87% of all private insurance subsidized by employers, those workplaces that fail to offer insurance benefits could suffer competitively (U.S. Census Bureau 2010). Second, the tax deductibility of health benefits provides a way to increase employee compensation without incurring additional social security and Medicare/Medicaid costs (Henderson 2002).

The Government. The government intervenes in the health-care industry in response to both public choice and ideological incentives. First, the powerful health-care industry engages in rent seeking by routing millions of dollars to K Street lobbyists, who then seek to influence legislation that will benefit the industry. Second, associations representing the powerful voting block of retired persons pressure legislatures to increase health-care benefits for their members (Simantov, Schoen and Bruegman 2001). Third, the growth of the “ideology of dependence” has convinced many voters and government officials that government redistribution of wealth is not only desirable, but also essential (Twight 2002).

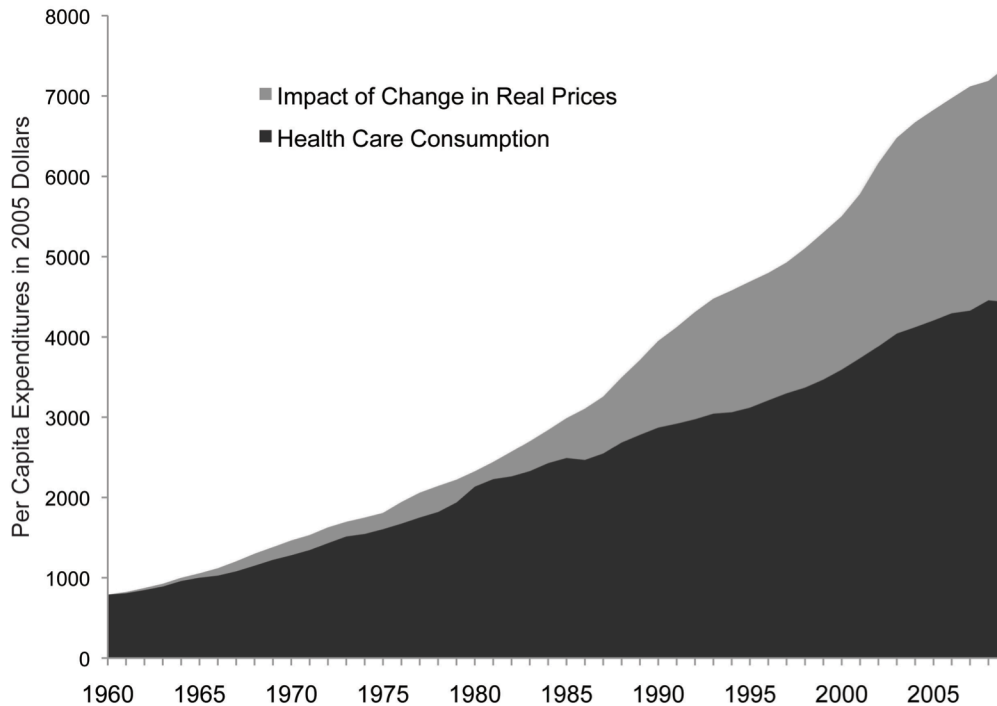
4. RISING PRICES AND CONSUMPTION

From an accounting perspective, there are only two possible explanations for rising health-care expenditures. First, the real price level of medical services and products has been increasing over the past 50 years. Second, patients have been consuming a larger quantity of health-care services. Equation 1 expresses this relationship—where C_H represents total health-care expenditures, P_H is the price-level of health-care products and services, and Q_H the quantity of health-care consumed.

$$C_H = P_H Q_H$$

Equation 1 Price and Quantity on Expenditures

Using data extracted from several U.S. Government sources and applying this equation, the values for total expenditures were derived for the years 1960 to 2009. Total expenditures are broken down by the impact of change in the price level vs. change in per capita quantity consumed. Results are displayed as a graph in Figure 4 (U.S. Department of Labor 2011) (U.S. Department of Health and Human Resources 2009) (US DHHS 2010) (U.S. Census Bureau 2010). All numbers are per capita and in 2005 dollars. While the health-care price level over the period has increased by 66%, the total increase in expenditures of 833% is mostly attributable to the 462% increase in the quantity of health care consumed. If the rising price level is overstated because of increased quality through the injection of technology improvements, the level of consumption could be even higher than stated (J. P. Newhouse 1992).



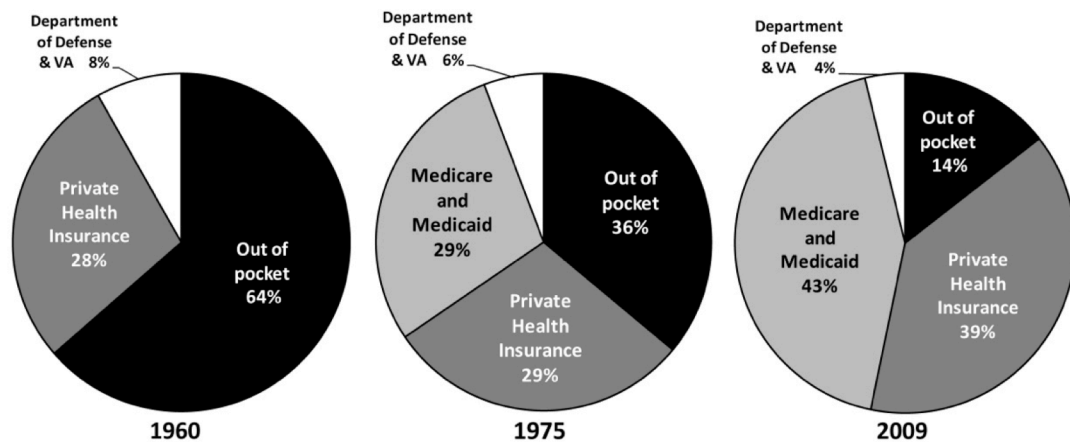
Sources: *National Health Expenditures by Type of Service and Source of Funds 1960-2009*. Spreadsheet, Washington: U.S. Department of Health and Human Services, 2010. U.S. Department of Labor. *Consumer Price Index*. Bureau of Labor Statistics. 2011, 24-October. <http://www.bls.gov/cpi/#data> (accessed 2011, 24-October).

Figure 4 Changes in Consumption and Price Level

Several historical factors might have influenced the increase in health-care prices shown in Figure 4. One possible factor is an increase in demand resulting from decreasing patient out-of-pocket costs and rising per capita income (Feldstein 1981) (Henderson 2002). A second factor might be an artificial restriction on the supply of licensed physicians by the American Medical Association and medical schools (Arrow 1963). Finally, prices might be increasing because of the development of new technologies that improve the quality or reduce the risk of existing procedures (J. P. Newhouse 1992).

4.1. The Impact of Insurance Subsidies

With increasing employer and government health-care subsidies, the average patient's out-of-pocket costs and financial risk have declined, encouraging higher levels of consumption and therefore driving up prices. The charts in Figure 5 show the decline of out-of-pocket expenditures from 64% in 1960 to only 14% in 2009, with employers and government subsidizing the difference.



Source: U.S. Department of Health and Human Services
"National Health Expenditures by Type of Service and Source of Funds 1960 - 2009"

Figure 5 Decline in Out-of-Pocket Expense

To explain the economic impact of the subsidy on consumption and pricing, we consider the supply-and-demand graph for health care shown in Figure 6, where point A represents the equilibrium for the price of health care (P1) and the quantity (Q1) of health care consumed before the introduction of the insurance subsidy.

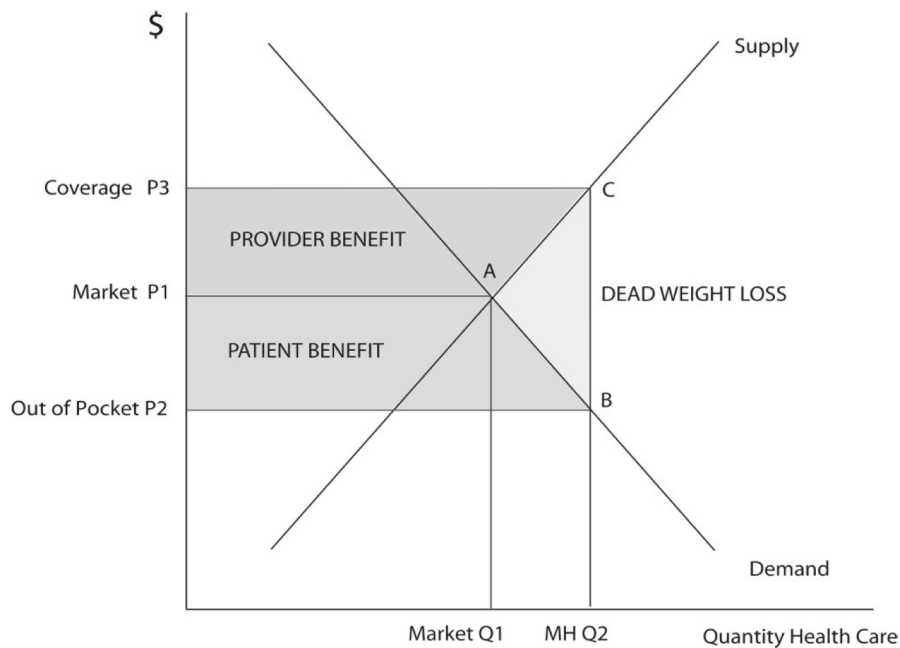


Figure 6 Supply and Demand for Health Care

As the employer or government assumes more of the cost for health care, the price to the patient drops to the out-of-pocket price (P2), increasing quantity demanded from point A to point B. Health-care providers raise prices (P3) to match the new quantity demanded on the supply curve shown by point C. This higher price, less the patient out-of-pocket, is the amount paid by the third-party payer and financed by the employer or government. The rectangle represented by Points P3, C, B, P2 on the graph is the subsidy, and the area P1, A, B, P2 is the in-kind compensation to the patient in the form of health-care benefits. The area represented by Points P3, C, A, P1 is the health-care service provider gain from the subsidy, and area A, B, C represents the dead-weight loss created by the subsidy.

Economists have argued that the gradual decline in patient out-of-pocket costs can explain the sustained increases in both consumption and prices (Henderson 2002). Since

direct patient demand for health care is normally inelastic, it does not fully explain the increasing health-care expenditures. This is because direct patient demand has three built-in constraints. First, a visit to the doctor incurs the cost of a disruption to daily life; second, the patient is often responsible for an insurance deductible or co-pay; and third, the demand for health care is naturally inelastic (Koc 2004). Additional growth in health-care consumption results from the asymmetric information problem that allows medical advisors and suppliers to induce additional patient demand. The empirical data supports this contention, showing very little increase over time in the number of patient-driven procedures, such as office calls, compared to the dramatic increase in procedures induced by medical advisors and suppliers. Table 4-1 provides an example comparing the growth in the number of patient-initiated adolescent psychiatric office visits with the number of physician-induced psychotropic prescriptions (Thomas, et al. 2006). From 1994-1995 to 2000-2001, the number of office visits, adjusted for population growth, increased by 18.6%, while the number of physician-induced prescriptions per office visit grew by 161.6%.

Table 4-1 Increased Prescriptions vs. Office Visits

	1994-1995	1996-1997	1998-1999	2000-2001	%
Visits	15,837,717	18,506,174	18,623,674	18,778,811	18.6
Visits with Prescription Per 1000	54.2	68.3	89.5	141.8	161.6

Source: "Trends in the Use of Psychotropic Medications Among Adolescents, 1994 to 2001." Psychiatric Services, 2006

4.2. The Impact of Medical Licensing

The medical profession's restrictions on licensing have been blamed for limiting the supply of physicians, resulting in higher health-care prices (Henderson 2002) (Arrow 1963). While the data show that between 2000 and 2009 the number of practicing physicians decreased in absolute terms from 313,180 to 301,330 and by 11.8% per capita, physician income also decreased in real dollars over the same period (U.S. Census Bureau 2010). At the same time, the decreasing percentage of patient out-of-pocket costs increased the demand for health care. The reduction in physician incomes appears inconsistent with a shrinking supply of physicians and a growing demand for health care.

Another explanation for the decline in the number of physicians is that the drop in real physician income has reduced the demand for medical degrees (Sloan 1971). In the current system, physicians are price-takers—dependent on insurance providers, as price-makers, to set the level of reimbursement, which results in downward pressure on the profitability of practicing medicine. The reduction in the rate of reimbursement results in lower profitability and explains the decrease in the number of physicians and the increase in the ratio of assistants and nurse practitioners to physician. Lower reimbursement rates encourage physicians to reduce the time they spend personally diagnosing and treating each patient to increase the volume of patients treated and therefore the number of billable procedures per hour. In other words, if a doctor spends a fraction of the time with each patient, he is able to address an increase in demand while minimizing the impact of the reduction in fees on his gross income. The same explanation might also account for the growth of the practice of outsourcing to specialists and diagnostic service

providers. Table 4-2 shows the ratio of health-care workers to physicians in 2000 and 2009, indicating 28.5% more health-care workers per physician over the period. This effect does not in itself explain the sustained increases in health-care prices since the use of lower-cost personnel to perform tasks on behalf of the physician should decrease rather than increase prices.

Table 4-2 Health-Care Workers Per 100,000 Population

	2000	2009	% Change
Physicians	111	98	-11.8%
Registered Nurses	781	840	7.6%
Aides and Assistants	879	1068	21.6%
Technicians	369	433	17.3%
Therapists	138	174	26%
Total Non Physicians (NP)	2685	3046	13.5%
Ratio NP to Physician	24 to 1	31 to 1	28.5%

Source: U. S. Census Bureau (2010)

4.3. The Impact of Quality Improvements from Technology

It is difficult to determine real price trends in health care because the quality of health-care services has increased dramatically with the introduction of new technologies that are often bundled with traditional services. If we evaluate the component cost of individual procedures, we can better determine if the increases in the overall price level are from rising prices or increasing use of technology. The graph in Figure 7 shows the

average real dollar reimbursement to surgeons performing four types of surgeries from 1960 to the current decade (Hoballah, et al. 2008). The data provide support for the argument that the injection of new technology and not inflation of the price of existing health-care products and services is the primary factor affecting the price level of health care.

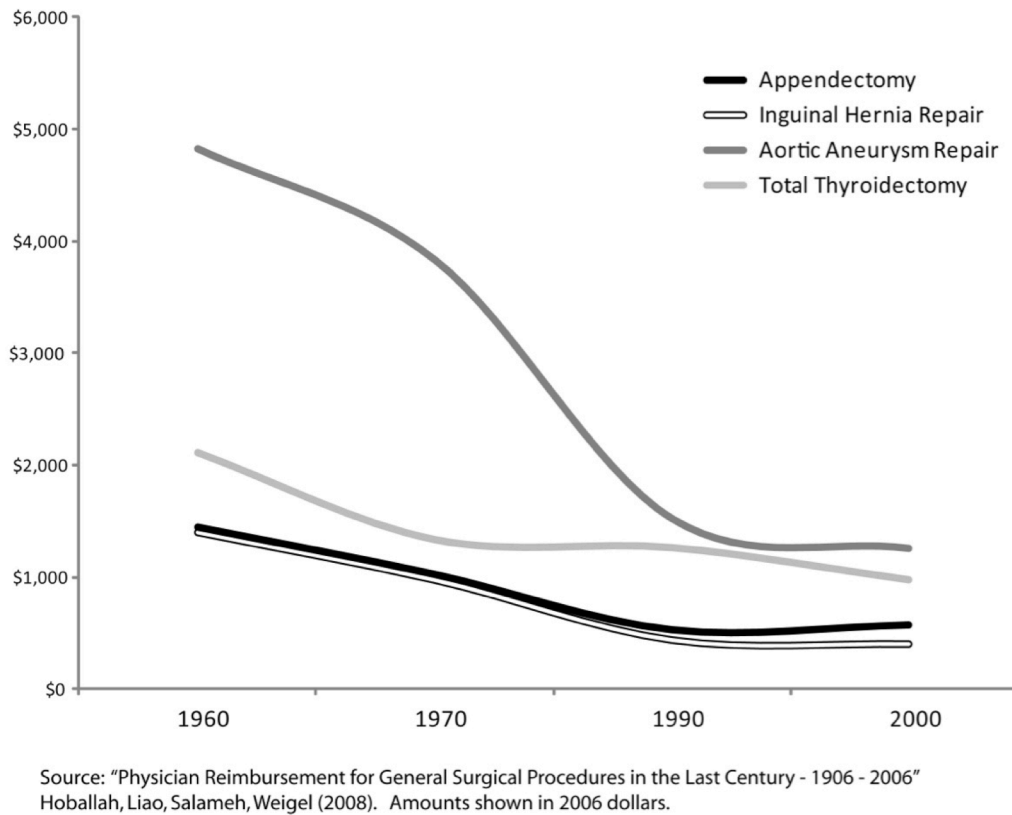


Figure 7 Physician Reimbursements

The reimbursement rates in 2006 dollars, shown in Figure 7, represent only the amounts paid to the surgeons for conducting the surgery, and do not include the ancillary costs of other services that, combined, would cause the overall cost of the procedures to be higher. These supporting services are effectively health-care consumption increases,

for either quality improvements or defensive practices to protect the physician and hospital from legal liability.

4.4. Growth in Health-care Consumption

In addition to the increases in the price level of health care, the graph in Figure 4 shows the impact of the rising level of the quantity of consumption on overall health-care expenditures. Economic variables that could influence the quantity of consumption include: increases in health-care subsidies, an aging population, growth in income (GDP), and the adoption of new technology. The following case studies provide evidence of the rise in overall health-care consumption.

One group looked at the increased usage of epidurals on patients covered by Medicare for the periods 2002 and 2006. In Table 4-3, the number of epidural procedures increased at a rate of 59.9%, while the physician fees for the service increased just 7% in real dollars. The results of the study appear to uphold the hypothesis that expenditures are rising because of increased consumption (Manchikanti, et al. 2010).

Table 4-3 Incidents and Fees of Epidurals

	2002	2006	% Increase
Epidurals Performed	1,181,080	1,888,140	59.9
Physician Charges	\$100.50	\$107.50	7.0

Source: "Analysis of the Growth of Epidural Injections and Costs in the Medicare Population", Pain Physician Journal 2010

Another study looked at the increased use of psychotropic prescriptions on adolescent patients for the period 1994 to 2001. Results shown in Table 4-4 are in real dollars, and are weighted for changes in population. The percentage of visits leading to a prescription increased by 161.6%, indicating a higher trend in the consumption of psychotropic drugs (Thomas, et al. 2006).

Table 4-4 Increased Use of Psychotropic Drugs

	1994-1995	1996-1997	1998-1999	2000-2001	% Increase
Psychotropic* Prescriptions	982,606	1,296,831	1,741,471	2,866,103	191.7
Visits with Prescription Per 1000	54.2	68.3	89.5	141.8	161.6

Source: "Trends in the Use of Psychotropic Medications Among Adolescents, 1994 to 2001." Psychiatric Services, 2006.

*Psychotropic drugs cross the blood-brain barrier and act on the central nervous system.

5. ADVISOR-INDUCED DEMAND

Before the twentieth century, the primary-care physician often filled both the role of medical advisor and service provider (Beito 2000). This model is common in virtually all professional service industries, including legal services, tax and auditing services, auto maintenance, and, of course, health care. An asymmetric information problem exists in these professions because of the complex nature of diagnosing and addressing legal issues, accounting errors, engine problems, and medical conditions. The client or patient is rationally ignorant because few people have the time or inclination to learn all that is necessary to perform these tasks effectively when the alternative of certified professionals is readily available. An adage from the legal profession says it all: “A man who acts as his own lawyer has a fool for a client.” The use of trusted advisors in complex professions has existed for centuries, suggesting that it is the most economically efficient approach to the asymmetric information problem (Arrow 1963). The minimal changes in per capita legal, accounting, and auto repair expenditures suggest that, *ceteris paribus*, health-care expenditures would have followed suit.

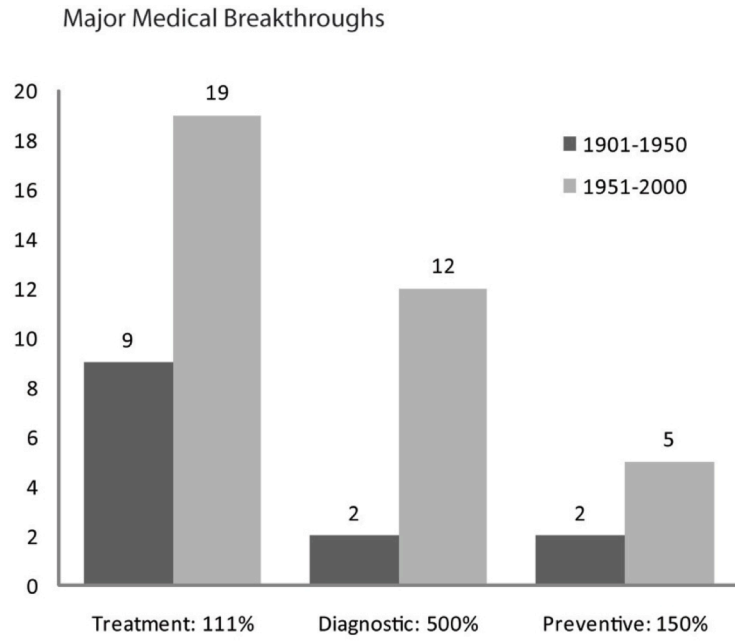
Taking advantage of the informational asymmetries inherent in health care, physicians, like all professional service providers, have a financial incentive to foist economically inefficient procedures on unwitting patients. To counteract this problem of *supplier-induced demand*, insurance companies often require pre-approval, managed care groups require the authorization of an assigned agent physician, and patients rely on the integrity of their primary-care physician for recommendation to specialists. Although

supplier-induced demand occurs in health care, it was more problematic before the increase in specialists, when a physician serving as both medical advisor and service provider benefited directly from over-prescribing. An auto mechanic who both recommends and performs an engine rebuild has a different incentive than one who diagnoses the problem and recommends that a consumer seek out an independent repair facility.

Advisor-induced demand is the more likely culprit behind the increasing consumption in the current health-care system. Primary-care physicians, attempting to consider the patient's best interest, recommend what they believe is the maximum level of affordable care. However, because of corporate benefits and government subsidies, what is "affordable" has expanded beyond what the patient would accept if directly responsible for the cost. In addition, while attempting to provide appropriate professional advice to each patient, per the Hippocratic oath, a doctor must consider the risk of a malpractice lawsuit. In other words, physicians are incentivized to practice defensive medicine by over-prescribing tests, drugs, and treatments.

To explain the sustained increases in consumption we have seen over the past fifty years, we must consider how a patient interacts with her physician as a trusted advisor. Health-care consumption normally begins when a patient schedules an office visit with her primary-care physician. The patient assumes her doctor will act as a trusted advisor, has the skills and knowledge to diagnose and treat her condition, and can marshal the necessary resources (Dranove 2000). Most physicians attempt to do these things while minimizing malpractice liability. Once the patient is in the exam room, the

doctor's incentives encourage recommending all appropriate diagnostics, medical treatments, and pharmaceuticals available, restrained financially only by the patient's out-of-pocket and insurance coverage. The existence of the insurance subsidy encourages advisor-induced demand, shifting the patient demand curve to the right, thus encouraging health-care suppliers to invest in the research and development of even more medical technologies. Health-care innovation grew dramatically after the introduction of the third-party payer system in response to the growing advisor-induced demand and the growth of per capita GDP. The graph in Figure 8 shows the number of major breakthroughs for the first and second halves of the twentieth century, broken down by treatment, diagnostic, and preventive innovations.



Source: Health, United States 2009, U.S. Department of Health and Human Resources

Figure 8 Medical Technology Breakthroughs

The number of major treatment technology breakthroughs in the second half of the century increased by 111%; new preventive technologies by 150%; and diagnostic innovations by 500% (U.S. Department of Health and Human Resources 2009). The number of innovations reflects the level of new products and services, but not the level of consumption of the new technologies. Statistics from three of the most widely acclaimed diagnostic breakthroughs indicate dramatic increases in consumption. The average number of emergency room patients receiving MRI/CT/PET scans rose from 13 per 100 persons in 1996 to 58 in 2007, a 346% increase over the ten-year period (U.S. Department of Health and Human Resources 2009). The percentage of adult women receiving bi-annual mammograms rose from 24% in 1987 to over 68% in 2007 (National Cancer Institute 2010). The number of colonoscopy procedures performed in ambulatory visits increased from 677 per 10,000 visits in 1996 to 1,778 in 2006, rising 163% over the decade (U.S. Department of Health and Human Resources 2009).

In summary, health-care subsidies have not only increased patient demand for health care, they have altered the patient/physician relationship by allowing for increased levels of advisor-induced demand. In turn, advisor-induced demand serves as an incentive for the development of a never-ending stream of new and potentially inefficient medical innovations, further increasing both the number of new medical procedures and the cost of existing medical services.

6. MORAL HAZARD AND HEALTH RISKS

Economists and insurance actuaries understand that insurance products are inherently susceptible to moral hazard. If patients are convinced that risky lifestyle choices are less likely to affect their pocketbooks, they are more likely to engage in high-risk behaviors such as over-eating, exercising less, or eating unhealthy foods. Insurance companies traditionally rely on three mechanisms to address moral hazard: (1) patient deductibles—the higher the deductible, the more the patient shares in the upfront risk; (2) co-insurance, where the patient shares in a percentage of the cost and risk; and, (3) restricting coverage for claims that can result from high-risk behavior.

Before the introduction of the third-party payer system, high out-of-pocket costs for routine health care served as a kind of “super” deductible for catastrophic health insurance because the same behaviors that increase the occurrence of common health problems often increase the risk of catastrophic conditions. Obesity, for example, increases the likelihood of health conditions that require routine care such as “diabetes, hypertension, osteoarthritis, chronic back pain, carpal tunnel syndrome, urinary incontinence, gastroesophageal reflux disorder, gallstones, and asthma.” Over time, obesity dramatically increases the likelihood of the catastrophic conditions of heart failure and stroke (Frankenburg and Zanarini 2006). If patients have to cover the cost of treating the lesser ailments, they are more likely to alter their lifestyle, thus reducing the likelihood of the catastrophic problems as well.

A case study of obesity illustrates the impact of health-care subsidies on the level of moral hazard. Obese patients spend more on health care than those that are physically fit, and the number of obese is increasing, as shown in Table 6-1. These results show that over the twenty years from 1987 to 2007, the percentage of the U.S. population categorized as obese grew from 13% to 28%—an increase of 115%. At the same time, per capita health-care expenditures for the obese grew 111% in 2005 dollars, almost twice that of the non-obese population (Duchovny and Baker 2010). These results provide support for the contention that the subsidized third-party payer system increases the level of moral hazard when combined with traditional catastrophic health insurance.

Table 6-1 Obesity and Health-Care Spending¹

Weight Category	Share of Adult Population (%)		% Chg	Spending per Adult (2009 dollars)		% Chg
	1987	2007		1987	2007	
Underweight*	4	2	-50%	\$3,230	\$4,970	54%
Normal	52	35	-33%	\$2,440	\$4,030	65%
Overweight	31	35	13%	\$2,650	\$4,260	61%
Obese	12	24	100%	\$2,640	\$5,330	102%
Morbidly Obese*	1	4	300%	\$2,530	\$7,010	177%
All Categories	100	100		\$2,560	\$4,550	

* Sample sizes for underweight and morbidly obese are too small to be statistically significant.
Source: Congressional Budget Office, “How Does Obesity in Adults Affect Spending on Health Care?” 2010.

The data indicate that in 1987 the spending per adult for normal weight compared to morbidly obese was \$2,440 to \$2,530, a spread of only 8%. In 2007, the spending per adult for normal weight to morbidly obese was \$4,030 to \$7,010, a difference of 74%. The growth in health-care expenditures on the obese and morbidly obese suggests that

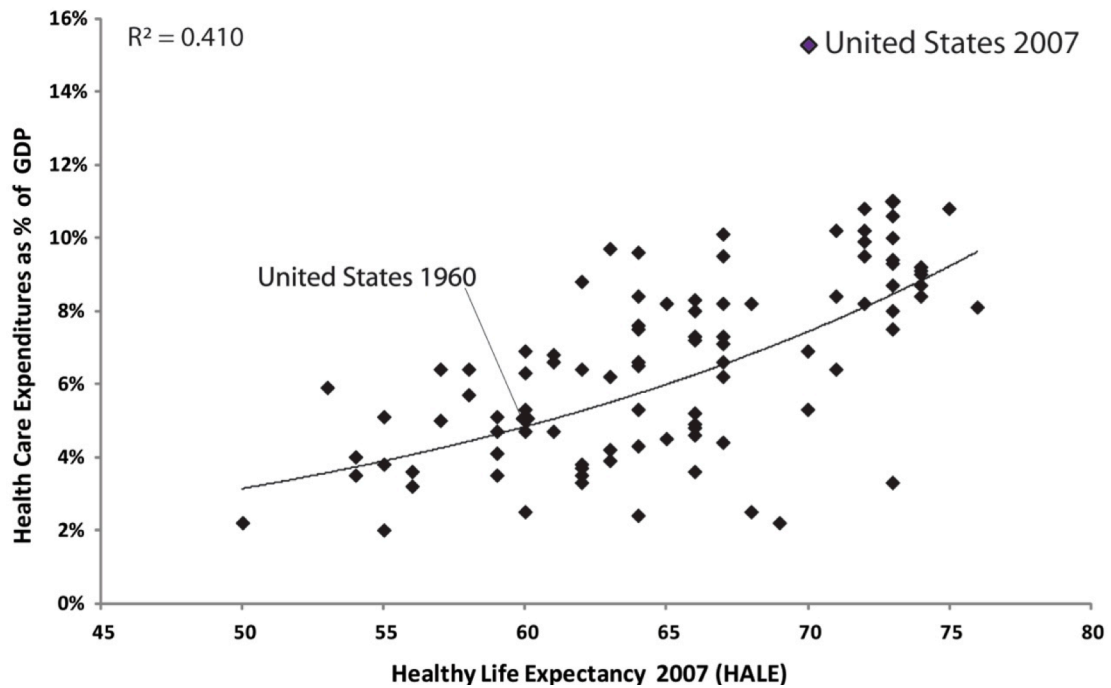
significantly more procedures and technology are being deployed for their care, while the growth in the number suffering from obesity might be explained by the low patient cost of maintaining the high-risk life style.

7. THE COST OF LIFE EXPECTANCY

A common argument for maintaining the health-care status quo is that the high cost of U.S. health care is justified because life expectancy is increasing with the level of expenditures (Shang and Goldman 2008). While addressing the issue in this paper is important, it is difficult to prove a causal relationship between U.S. health-care expenditures and life expectancy. Many other factors, such as the reduction in the number of smokers (Stewart, Cutler and Rosen 2009), the introduction of mandatory automobile safety devices (Cummins, et al. 2011), and 911 emergency services (Athey and Stern 2002) have played a role in the life expectancy increases we have experienced since the 1960s (Lichtenberg 2011). Extending life expectancy is not the only incentive for spending more on health care. Along with the rise in per capita income, the desire to improve the quality of life has increased in importance. The evidence for this can be seen in the growth of cosmetic surgery and the increasing number of new massage therapists (U.S. Department of Labor 2011). Given these qualifiers, the return on life expectancy is an important factor to consider.

The World Health Organization (WHO) tracks life expectancy information for most nations, and reports a significant positive correlation between life expectancy and expenditures on health care. The data shown in the Appendix is based on the Healthy Adult Life Expectancy (HALE) method of computing life expectancy, which estimates the years of healthy life expectancy by subtracting the years of ill health from total life expectancy (World Health Organization 2010).

The data also show that the 2007 level of U.S. health-care expenditures is 2.2 standard deviations above the mean, as shown in Figure 9, suggesting that health-care consumption in the U.S. is highly inefficient when measured against life expectancy (World Health Organization 2009).



Source: World Health Organization: World Health Statistics 2009
 The data in this graph does not include any statistics from African or island nations to remove the distortions for HIV epidemics and the above average per capita levels of infrastructure health-care costs for small island nations.

Figure 9 Life Expectancy and GDP for Developed Nations

To move the U.S. to the global mean would require either a 60% reduction in expenditures or a fifteen-year increase in life expectancy. The ratio of U.S. health care to GDP from 1960, which sits on the global mean, provides a point of comparison. Even if we assume there is a direct correlation between life expectancy in the U.S. and the

increases in health-care expenditures, the graph presents a gloomy picture of the return on per capita health-care costs. While extending life expectancy is desirable, if we continue to see increases in real cost, the ratio of expenditures to life expectancy, and the percentage of GDP consumed by health care, the existing system will collapse.

8. BREAKING THE CYCLE

The sustained increases in medical expenditures follow an unbroken cycle that suggests health care will continue to consume more and more of GDP unless something changes. The following steps make up the cycle of sustained increases.

1. Employer/government provides subsidized health-care coverage for more of the population.
2. Patient experiences symptoms and meets with primary physician.
3. After initial evaluation, physician recommends appropriate procedures, medications, and services, including new products and services approved by the Food and Drug Administration (FDA) and the medical industry.
4. Patient pays for out-of-pocket costs, if applicable, and the health-care service provider bills the insurance carrier for services.
5. Insurance reimburses the health-care service provider for acceptable procedures at agreed-upon rates.
6. Insurance company adjusts the premium to employer. Government increases taxes or deficit spending to cover increases in expenditures.
7. Repeat

To address the increasing health-care expenditure problem in the U.S., it will be necessary to reduce consumption to an efficient level. There are only two ways to accomplish this: first, by forming large and costly bureaucracies to coerce citizens into consuming less health care; or second, by letting Americans continue to choose how much to consume but requiring them to directly bear and pay the cost of treatment for routine medical conditions. Canada and many countries in Europe elected for the first option, implementing socialized medicine, which, while it has lowered consumption, did so by reducing the level of coverage and fixing price levels, resulting in shortages and waitlists (Oliver 2009). For the consumer choice option to succeed, health-care insurance coverage must be limited to insurable events—putting the onus on the patient to pay directly for all other health-care services, thus eliminating the need for the third-party payer system and reducing the moral hazard it magnifies.

Superficially, this proposal might appear equivalent to the high-deductible plans with optional *HSA*s currently offered by most insurance companies. However, a high-deductible plan is not the same as catastrophic insurance, as it provides coverage for non-insurable events once the out-of-pocket is satisfied, and *HSA*s remain an unpopular option because insurance companies overprice them to compensate for the adverse selection problem they exacerbate in traditional policies. In other words, if appropriately priced and optional, *HSA* plans draw the healthiest employees, leaving the highest-risk workers in the low-deductible plans. Average claims in the low-deductible plans then increase because of the higher risk pool, forcing the insurance company to raise the premiums on either the low-deductible plan or the *HSA* plan, ensuring that at least one of

them is an unattractive option. Even though the profit margins for *HSA* plans are much higher, the premiums are not being adjusted down accordingly. The exception to this is where a firm chooses to offer a single *HSA* plan for all employees.⁴

⁴ In 2009, I was given access to the actuarial data on the various insurance plans of a leading health-care insurance company. For obvious reasons the proprietary data is not available to the public. The *HSA* plans had claims against premiums of 60% to 65% while *PPO* plans were averaging 80% to 85% of premiums. If a firm selected an *HSA*-only option, premiums were reduced to reflect the lower level of claims. In mixed plan offerings, the premiums for the *HSA* option were increased to discourage their adoption. This is because an insurance company offering a *PPO*-only plan is able to combine the two risk groups, lower the premiums, and present a more competitive *PPO* offering than a company presenting a mixed offering of *HSA* and *PPO*. Since the *PPO* offerings are generally more advantageous to the higher-risk employees, an *HSA* only plan is considered less flexible and for some employees less desirable.

9. CONCLUSIONS

Health-care subsidies by the government and employers provide the incentive for sustained increases in health-care consumption. When patients are not forced to consider the real cost of health care, they demand more care than is efficient, and ever-helpful physicians recommend increasing levels of diagnostics and treatments, unrestrained by questions of expense. In addition, the third-party payer system increases the level of moral hazard associated with health-care insurance, encouraging risky behavior and further driving up demand.

Eliminating the routine-care subsidy will not correct every problem in health care. The cost of developing and testing new drugs will be problematic as long as the Food and Drug Administration operates at its current level of inefficiency (Philipson and Sun 2008). Catastrophic insurance will continue to suffer from the adverse selection problem, fueling the debate over the need for some form of universal or mandated coverage.

APPENDIX - 2007 HEALTH-CARE COSTS TO LIFE EXPECTANCY

Country	% of GDP On Health Care	HALE Life Expectancy
Argentina	10.1	67
Australia	8.7	74
Canada	10	73
Chile	5.3	70
China	4.6	66
Czech Republic	6.9	70
France	11	73
Germany	10.6	73
Greece	9.5	72
India	3.6	56
Ireland	7.5	73
Israel	8	73
Japan	8.1	76
Kuwait	2.2	69
Mexico	6.6	67
Netherlands	9.4	73
Pakistan	2	55
Peru	4.4	67
Republic of Korea	6.4	71
Russian Federation	5.3	60
Spain	8.4	74
Sweden	9.2	74
Switzerland	10.8	75
Thailand	3.5	62
United Arab Emirates	2.5	68
United Kingdom	8.2	72
United States of America	15.3	70
Venezuela	4.9	66

Source: World Health Organization, "World Health Statistics 2009"

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