INSTITUTE FOR HEALTH
IHSP & SOCIO-ECONOMIC POLICY

Single Payer/Medicare for All

An Economic Stimulus Plan for the Nation

Ver. 1.1

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I.   Introduction

This paper is the first in a series of IHSP US Health Care Policy Briefs currently in process.

It is a complete econometric analysis of the US Health Care industry **as currently structured and financed (sans Medicare Advantage)** and its overall economic relationship to the US economy.[i] In addition it also presents a synopsis of other separate IHSP studies currently in process.

The analysis includes employment concerns, revenues, costs, taxes and specific kinds of transactions. The subsequent IHSP Policy Briefs in the series will examine in turn the economics of Medicare, Medicaid, the uninsured and the privately insured. The final Policy Brief in the series will discuss the economics of bringing all Medicare, Medicaid, uninsured and privately insured individuals into a Medicare based Single Payer national health care program.

We view a truly comprehensive health plan as having the following attributes:

1. Universal eligibility, regardless of age, employment status, income, or existing health conditions.

2. A uniform single standard of care for all enrollees, eliminating the existing disparities in Medicare (such as the low percentage with prescription medical coverage), Medicaid (with disparities in coverage for specific treatments by state, and in access to coverage by residence location). A scenario used in this study simulates the existing Medicare Parts A, B, and D for standard of care.

3. A Single Payer system for both funding and administration, displacing the current *ad hoc* mixture of federal and state agencies, private insurance sponsorship by employers, and both cost and administrative processes by individual insurance plans. This enables the entire nation to have access to the same health services, costs, eligibility requirements, and administrative cost burden.

A.   Many Health Care Proposals, Only Two Plans

There are numerous health care proposals on the national and state scenes. However, a proposal is not a plan. There are only two **plans**, one of which is a single payer plan as referenced above.

The other plan consists of a plethora of proposals with multiple risk pools and payers,– normally inclusive of and **reliant** on the private insurance industry, and hence market mechanisms - and some combination of employer and/or individual insurance mandates conjoined with health savings accounts, experimental proposals for a 'public option' while maintaining the private insurance industry and a smattering of elite 'boutique proposals' that cater to the well off. The Massachusetts program and many others stress individual mandates and/or employer mandates and 'incrementalized' reform and serve as good examples of the market based plan.[ii]

II. Initial Findings: The Baseline Report

A. Indirect Transactions

The indirect activity is the series of transactions which occur when the health care provider purchases services or supplies from other firms in order to provide the health care.

- For the US, the $2.1 trillion in health care expenditures generates an additional $1.37 trillion in indirect transactions.

- The largest single indirect economic beneficiary of the health care industry is the Manufacturing Sector with $307.6 billion

- The US economic activity in 2006 had total gross revenues of about $24,774 billion ($24.7 trillion); Gross National Product of around $13.2 trillion; employee compensation around $7.5 trillion; and about 175 million employees.

- Of this total, heath care in the US had total <u>expenditures, output or revenues</u> of about $2.1 trillion, about 8.5% of the total revenues generated. Health care <u>value added</u> totaled 9.2% of GNP.

B. Induced Transactions

Induced transactions are the household consumption transactions generated as a result of the employees in the health care sector and the indirect sector spending their income.

- The total induced transactions are estimated at $2.3 trillion, which exceeds the total of health care expenditures *per se.*

- The largest single induced economic beneficiary of the health care industry is the Manufacturing Sector with an economic benefit of $442.8 billion, which brings its total economic benefit to $750.4 billion.

C. Total Revenue Generation

- We calculated the economic multiplier to be 2.78, nearly three times the revenues generated within the industry proper.

- This means that the total Direct and Indirect Health Care Generated Revenue is nearly six trillion at $5.856 trillion.

D. Tax Revenues Generated by the Health Care Industry

1. Federal Taxes

- The Total health care Federal tax revenue in 2006 was $538.260 billion.

- In 2006 the $538.3 billion in total Federal tax revenues from the health care industry exceeded the $408.5 billion total expenditures for all Medicare programs combined, and constituted about 25% of the entire Federal budget total of $2,178 billion.

2. State & Local Taxes

- The combined total of the 2006 Federal, State & Local taxes generated by the health care industry was considerably more than three quarters of trillion dollars at $825.95 billion.

E. Health Care Generated Employment

- Within the health care industry there are more than 18 million employees
- Health care generates another 26 million jobs in other industries for a total of 45 million jobs
- Nationwide, health care value added generated 12.1 % of Employee Compensation, and 10.5% of total employment.

1. Health Care Occupations

- There are 511 occupations in the health services industries. About 43% of the employment is in management, administration, finance, physical plant operations, and many other non-health occupations

- Registered Nurses number about 2,097,590, which is approximately 25% of all health care professional employees. The next two largest occupations combined (Nursing aides, Orderlies, Attendants and Home Health Aides) have a similar percentage, thus making up about half of the health professional employees.

- By contrast, medical doctors (Physicians and Surgeons plus Family and General Practitioners) total about 3% of the total.

III. Initial Findings: Forthcoming Reports

Our analysis demonstrates moving to a single payer system predicated upon full Medicare benefits for all would have the following *immediate* impacts:

- *$317 billion in increased business* and public revenues throughout the US economy.

- *2,613,495 new permanent jobs*,

    o *at an average $38,262 per annum*

- *$100 billion in additional employee compensation*.

- *$44 billion in increased tax revenue* (exclusive of the funding changes to replace employer insurance contributions).

Other benefits not directly measurable in economic terms include:

Medicare Enrollees:

- Medicare Part B coverage for 2.6 million Medicare enrollees
- Medicare Part D coverage for 15 million Medicare enrollees

Uninsured:

- Full standard health coverage for 47 million uninsured
- Elimination of uncompensated health service demands on hospitals and physicians by uninsured

Medicaid:

- For 27.7 million Medicaid participants, the elimination of the Medicaid program with its inconsistent coverage between locations, replaced with a uniform national level of service and cost structure.
- Elimination of the existing expenditures of $134.9 billion in State & Local expenditures and $175.7 billion in Federal expenditures.

Privately Insured

- For privately insured, replacement of the current chaos of eligibility, exclusions, family coverage, premium costs, high out-of-pocket expenses, and vulnerability to losing employer sponsored coverage with a standard level of coverage, unrelated to employment status or annual corporate insurance decisions.
- For employers, a release from the administrative and financial burden of providing for their employees what should be a uniform, national shared approach to health coverage.

Taxpayers and the Nation

- For taxpayers, a reduction of $56 billion in unnecessary and unproductive insurance costs.
- For the US, the signal that our country is responsible for the basic health needs of all of our population as virtually all of the world's industrialized nations already are.

IV. Prepublication Synopsis of Reports in Process

The scenarios to follow show the economic effects of converting the existing US health care system to a comprehensive coverage, single standard of service, single payer health system. The coverages, cost sharing, and administrative cost structures are based on existing Medicare coverage, but the estimates of health care utilization and other assumptions will be discussed within each scenario.

A. Enhanced Medicare

Creating a uniform coverage for all Medicare enrollees which includes Parts A, B, and D for all enrollees would add about 2.6 million enrollees in Part B and 15 million to Part D. Data for existing enrollees in each of the Medicare coverages are used to estimate benefit utilization and costs, out-of-pocket costs including all cost sharing and premium costs, and administrative costs for the added coverages.

The total cost of bringing the 2.6 million Part A enrollees who do not have Part B, and the 15 million who

Health Care Measure	Direct Impacts Within the Medical Care Insustry		Full Economic Impacts including Indirect and Induced Activities				
	Total Direct Health Care Expenditures $ Billions	Public Benefit Expenditures $ Billions	Total Business and Public Revenues $ Billions	Jobs Created	Employee Compensation $ Billions	Tax Revenues $ Billions	Skilled Health Care Positions
Enhanced Coverage for Existing Medicare Enrollees 2.6 Million Part B, 15 Million Part D	$ 59	$ 36.4	$ 154.7	1,033,921	$ 43.2	$ 21.2	223,769
	(8)	(8)	(2)	(2)	(2)	(2)	(3)

do not have Part D, would be about $59 billion, which includes not only the $36.4 billion in Medicare

benefits but also the out-of-pocket expenditures of the new enrollees. The public expenditure is nearly 62% of the total.

This is a high per-enrollee expenditure because the seniors enrolled in Medicare utilize health services at a rate several times that of the total population, and most of the increased coverage is in the Part D prescription medicine coverage. The utilization of health services is estimated from those of existing Part B and Part D users; this is a worst-case scenario, because some of those not currently enrolled for these services have declined them because they are

Figure 1 US Health Care Coverage 2006

IHSP, 2008. Data source: U.S. Department of Commerce.

not high users of the related services and do not choose to make the minimum premium payments.

The figure shows that the $59 billion in added health expenditures would generate an additional $154.7 billion in total economic activity, about 1 million new jobs with $43.2 billion in employee compensation, and tax revenues (Federal, State, and Local) of about $21.2 billion.

The multiplier for the $59 billion in total health care expenditures is about 2.6, but the total economic activity generated per dollar of public sector expenditures ($36.4 billion) is about 4.5.

B.   Covering all Uninsured

Health Care Payments for Uninsured in 2008	
Payer	*Funding $ Billions*
Hospitals	$ 35.0
Medicaid Supplemental Provider Payments	$ 13.1
Physicians	$ 7.8
Total	**$ 55.9**

IHSP. Source: Hadley *et al* , "Covering the Uninsured", Health Affairs, W399, Exhibit 2. Note: Additional Categories which do not result in reportable economic transactions are not included. Data is later eflated to year 2006 using CMS index.

Covering all Uninsured in the US with this same coverage would add the 47 million uninsured individuals per the 2006 data on which much of our calculations are based to the comprehensive health plan. Our approach to estimating the health services utilization for this group was to assemble a demographic profile for the existing Uninsured, using the Medical Expenditure Panel Survey (MEPS) data, and compute the health services utilization for an identical cohort of privately insured population.

An important aspect of this step is that it removes an existing mixture of health expenditures on behalf of uninsured, such as un-reimbursed services by health providers, especially hospitals, philanthropic organizations, State & Local governments, and others, shown in the adjacent table. Hadley (see table footnote) estimates the economic health care expenditures for uninsured as $55.9 billion in 2008 (deflated to a 2006 value of $49.3 billion for year

Health Care Measure	Direct Impacts Within the Medical Care Insustry		Full Economic Impacts including Indirect and Induced Activities				
	Total Direct Health Care Expenditures $ Billions	Public Benefit Expenditures $ Billions	Total Business and Public Revenues $ Billions	Jobs Created	Employee Compensation $ Billions	Tax Revenues $ Billions	Skilled Health Care Positions
Addition of Full Medicare Coverage for 47 Million <u>Uninsured</u> (6)	**$ 44**	**$80.3**	**$ 120**	**945,600**	**$ 36.5**	**$16.5**	**287,183**
	net change (4)	net change (4)	(2)	(2)	(2)	(2)	(3)

2006 for our computation.) Those expenditures are eliminated as the former recipients are enrolled in Medicare, and the reduction in these expenditures offset part of the cost of the new coverage.

The resulting economic impacts are shown in the table above. The net total increase in health care expenditures (net of eliminated costs for uninsured) would be $44 billion in 2006 values, which creates a total economic impact of $120 billion, creates 945,600 new jobs with compensation of $36.5 billion, and $16.5 billion increase in tax revenues. There are also net changes in out of pocket expenditures by formerly uninsured, as the cost sharing for the expected levels of Medicare benefits exceeds the existing meager out of pocket costs of the uninsured. The uninsured will therefore pay a small amount more for heath care than they are paying now, but will receive greatly expended levels of health services.

This shift will also reduce the losses to health care providers by reducing non-payment for services rendered, and will increase the efficiency of the health services by re-allocating the demands of Uninsured from emergency rooms to more appropriate types of health services.

Insuring the uninsured is one case where the increase in public expenditures exceeds the total direct increase. This is because the currently uncompensated services absorbed by the health services providers will be shifted to Medicare. Despite this outcome, the public cost of covering the 47 million uninsured will be only about $80.3 billion, or about $1,870 per capita per year, due in part to the offsets from current costs of uninsured.

C.   Medicaid

Replacing existing Medicaid programs at both the Federal and State levels, and transferring the 27.7 million existing participants to the new comprehensive national coverage would be an integral component of the comprehensive health coverage scenario. The fragmented and inconsistent nature of Medicaid makes it expensive for the same level of service, and creates unpredictable and chaotic conditions for health services providers; it also does not provide the full range of preventive and routine care which could be provided more efficiently through the comprehensive coverage. Elimination of the existing Medicaid coverage includes the discontinuance of the State and Federal Medicaid Payments of $68.985 billion, and the existing out-of-pocket expenses by Medicaid participants of $3.372 billion, for a total reduction of $72.7 billion.

To estimate the health services utilization of this group under the new coverage, the health services utilization for the existing Medicaid population was estimated from the MEPS data, and compared to an identical demographic cohort with private health insurance, as done with the Uninsured population discussed above. The health services utilization for that privately insured cohort was used to estimate the utilization of the formerly Medicaid participants in their new Medicare coverage.

MediCARE Coverage for 27 Million MedicAID at MEPS-Derived Utilization Rates $ Billions	
New Medicare and Related Expenditures	
New Medicare benefits for 27.7 Million former MedicAID participants	$62,316,289,739
New Out-of-pocket Cost Sharing Expenditures for new Medicare enrollees	$26,564,168,627
Sub Total New Expenditures	**$88,880,458,367**
Reduction of Existing Expenses	
Discontinuance of existing MedicAID benefits	-$68,985,972,852
Discontinuance of existing out-of-pocket expenses for existing MedicAID recipients	-$3,723,222,231
Sub Total Expenditure Reductions	**-72,709,195,083**
Summary of Direct Economic Changes	
Net Change in Public Benefit Payments	-$6,669,683,113
Net change in private out-of-pocket household expenditures	$22,840,946,397
Total Net Direct Economic Impact	**$16,171,263,284**

IHSP Sources: CMS Trustee's Report 2006. Coverage for Medicare parts A, B, and D for all new enrollees is assumed.

This likely *overestimates* the utilization, as the existing level of health services under Medicaid is limited especially in some states and locations. Medicare *public benefits* are *slightly lower* than the previous Medicaid benefits, with a net decrease of about $6.6 billion.

The table below shows the economic impacts of the Medicaid to Medicare transfer. The total net change in all health care expenditures will be $16 billion, while the public benefit will actually fall by about $7 billion. The total economic activity increases by $43 billion, creating 336,888 new jobs with an employee

Health Care Measure	Direct Impacts Within the Medical Care Insustry		Full Economic Impacts including Indirect and Induced Activities				
	Total Direct Health Care Expenditures $ Billions	Public Benefit Expenditures $ Billions	Total Business and Public Revenues $ Billions	Jobs Created	Employee Compensation $ Billions	Tax Revenues $ Billions	Skilled Health Care Positions
Change to Full Medicare Coverage for 27.7 Million Existing Medicaid Participants (7)	$ 16	-$7	$ 43	336,888	$ 14.3	$6.3	82,141
	net change (4)	net change (5)	(2)	(2)	(2)	(2)	(3)

compensation of $14.3 billion per year. Tax revenues increase by $6.3 billion.

D. Medicare Coverage for the Privately Insured

Incorporation of employer-sponsored private health insurance into the comprehensive coverage would bring 196.1 million enrollees into the comprehensive

Composititon of Private Insurance Premium Payers		
	$ Billions	Percent
Total Premiums	**721.3**	**100%**
Private Insurance Premiums Paid by Employers	510	71%
Private Insurance Premiums Paid by Households	211.3	29%
(a) To employer sponsored private insurance	175.5	24%
(b) To individual private insurance	35.8	5%

IHSP   Source: CMS bhg08, Nhe65-17, 2006 data.

program, and would standardize their coverage, replacing the current chaos of eligibility, exclusions, family coverage, premium costs, out-of-pocket expenses, and vulnerability to losing employer sponsored coverage. It would also remove a great economic burden on primarily larger employers, which pay about 71% of private insurance premiums, or $510 billion annually.

In addition to providing a more reliable and equal access to health coverage, another argument for replacing private insurance with comprehensive coverage is the high administrative costs of private insurance. There are two major types of administrative costs associated with private health insurance:

■ External administrative and management costs associated with plan administration, including financing, marketing, benefits and coverage planning decisions, fees and commissions, and the billing and payments transactions. These are not located in or part of Health Services, and divert payments away from health services into administrative activities.

■ Internal administration and management within the Health Services related to complying with health coverage limits, eligibility rules, pharmacology coverages, and the billing, invoicing, and payment processes of the various insurers and payers. Of course not all of the internal administrative activity is related to these issues; health services, like any other industry, has to incorporate management, inventory, personnel, and many other business and production-related administration.

The external costs alone for private health care is estimated by CMS as 12.2%, compared to 5.0% for Medicare. Applied to the current level of private insurance, the difference in external administrative costs is approximately $56 billion per year. There would also be a significant reduction in the internal costs of health services providers which have to coordinate their operational and administrative activities with a large variety of different plans, rather than one standardized operational process for the comprehensive insurance.

The economic analysis for the scenario of replacing private health coverage with the comprehensive health coverage is based on an assumption that the actual level of health services utilization will not change in the process. That assumption is made in part because the great variety of private insurance plans, each with different levels of premiums, coverage, and cost sharing, makes projecting the health services utilization under the comprehensive coverage an onerous and unreliable process.
Since the economic analysis assumes no change in health services utilization, the $56 billion reduction in administrative is the only basic economic event which occurs in the transition. As a result, there is a reduction (not increase) in total national expenditure on health coverage for this scenario.

Health Care Measure	Direct Impacts Within the Medical Care Insustry		Full Economic Impacts including Indirect and Induced Activities				
	Total Direct Health Care Expenditures $ Billions	Public Benefit Expenditures $ Billions	Total Business and Public Revenues $ Billions	Jobs Created	Employee Compensation $ Billions	Tax Revenues $ Billions	Skilled Health Care Positions
Change to Full Medicare Coverage for Privately Insured	-$56	$ 667.21	-$1	297,086	$ 6.1	$ 0.1	141,396
	(9)	(10)	(11)	(11)	(11)	(11)	(11)

There is, however, a shift in the incidence of the source of payments. The total expenditure on health services now provided by employers, $510 billion, plus adjustments to cover the lower out-of-pocket costs of private insured will add up to about $667.21 billion in additional public health expenditures. Note that this is primarily a shift from employers to public health funding, and is **not** a net increase in national health costs, but it is a large magnitude shift for Medicare or its new comprehensive health coverage entity. It will involve an increase in total administrative capacity, and possibly a new or revised tax structure to replace the employer contributions which currently exist.

E.   Summary of the Comprehensive Health Coverage Scenarios

The summary of the Comprehensive Health Coverage Scenarios is seen in the table below.

The net change for all components discussed above is a $63 billion increase in total health care expenditures for the US. A $777 billion increase in the public benefit expenditures results primarily from the shift from employer premiums for private insurance to public coverage, with no real change in health services expenditures. Obviously, this will require a new funding approach for health care.

Health Care Measure	*Direct Impacts Within the Medical Care Insustry*		*Full Economic Impacts including Indirect and Induced Activities*				
	Total Direct Health Care Expenditures $ Billions	Public Benefit Expenditures $ Billions	Total Business and Public Revenues $ Billions	Jobs Created	Employee Compensation $ Billions	Tax Revenues $ Billions	Skilled Health Care Positions
Net Changes From Single Payer Health Coverage	$ 63	$ 777	$ 317	2,613,495	$ 100	$ 44	734,490

V.   Part I: Health Care and the Economy – The Baseline

A.   Goal of the Baseline Study

This first completed report in our series – the Baseline Study - is designed to show the current role of health care expenditures in the US economy as a whole and serves as the analytical foundation for the forthcoming reports synopsized above and currently in process in this series.

Our research differs from the glut of many of the current studies on health care economic research in that it is 1) an econometric as opposed to an arithmetical analysis of health care expenditures, and 2) it asks not simply what the incurred *costs* of health care expenditures are, but additionally what are the *economic benefits* of health care expenditures to the national economy?

Hence, we are not limited to a demonstration of how much -- or how little -- health care expenditures are in relation to a few select economic variables, say, the Gross Domestic Product, U.S. Net Revenues or the U.S. tax revenues. Such comparisons can be made through simple arithmetic calculations by combing through the U.S. Budget or any number of other financial compendiums detailing U.S. finances. Our econometric approach enables us to detail how health care expenditures affect each individual sector throughout the entire economy.

Ultimately, the present and unpublished studies in this series will analyze the potential economic effects of a U.S. single payer health care system in terms of its impacts on health care providers and related economic effects, including revenues, employment, tax generation, and others. This will add a new perspective to the large number of existing studies which focus on currently unmet demand for health services, or on taxation and revenue analysis of possible funding methodologies for health services.

The health services providers and health products producers are ultimately the core of the comprehensive health coverage delivery system. It is the hospitals, medical clinics, doctors and nurses, and other components of the health services providers, and the pharmaceutical and health products manufacturers

and distributors, who must expand their capacities to meet the increased demands of any universal health coverage process, and their ability to do this is partly an economic question. The question of how the required expansion of health care capacity will be accomplished, and how that will affect the rest of the economy, needs to become an integral part of health policy decision-making, and our work on this issue provides a rigorous analytical system for doing this.

B.   Methodology

1.   Baseline Report

Our methodology utilizes existing, widely-used and accessible data bases and econometric models which are capable of showing how changes in one economic variable (such as health demand, pricing of services, or taxation of consumers and employers) will affect not only the health care sectors directly, but also their suppliers (pharmaceutical manufacture, medical equipment manufacture, hospital construction, and many more) , their employees and their households, and the generation of federal, state, and local taxes.

The study is an economic analysis, in which the entire effect of health care expenditures is viewed in the context of its effect on the national economy and the health services industry. This contrasts to studies which focus narrowly on public costs or on specific funding mechanisms. Health care is a very large part of the US economy, and provides millions of jobs, not only to health care employees but also to suppliers of products and services for health care and to providers of consumer goods and services which receive income from sales to health care providers and suppliers. This approach enables a comprehensive view of the economic impacts, not just a narrow focus on public costs, insurance expenditures, and health services, but an integrated measure of total business and public revenues, employment, employee compensation, tax revenue generation, and other measures. It also provides a view to how health care expenditures affect other industry sectors such as Manufacturing, Finance and Investment, Insurance, and Professional and Technical Services industries.

The study methodology is designed to provide the highest practical level of simplicity, transparency, and reproducibility.[iii] To achieve this, most of the data used is widely available from the Center for Medicare and Medicaid Services (CMS); assumptions about health care costs and utilization are from the CMS data, with added detail from the US Department of Health & Human Service's Medical Expenditure Panel Survey (MEPS); and the economic analysis is based on the widely-used IMPLAN input-output model which quantifies the inter-actions between health services and other sectors of the economy

There are several sources of data and analytical methodologies available for such a study. These include:

- The Bureau of Economic Analysis (BEA) National Income and Product Accounts and its Regional Input Output Modeling System (RIMS-II), which focuses on the expenditures of the economic sectors of the economy.

- The National Health Expenditures Accounts (NHEA) of the Center for Medicare and Medicaid Services, National Health Statistics Group, which focus on the expenditures for health care, who pays, and how the US compares to other nations in terms of cost and quality of health care.

- The Bureau of Labor Statistics (BLS) which focuses on the employment and labor income aspects of the economy and conducts large scale surveys of employers and households to determine labor market conditions.

- The IMPLAN Input-Output Model and data set. This is an input-output economic model based on economic flows between the many stipulated economic sectors – more than 500 - like the BEA

RIMS-II model, and has the value that it is based on strong theoretical research, is calibrated for the US as a whole, individual States, and is transparent and widely used.

Paramount in our selection of data sources and analytical methodologies is the simplicity and transparency of methods and data sources. A dialog on the economic impacts of health care is very complex, and will benefit most from focusing on the outcomes and policy issues of different health care plans and proposals, rather than being distracted by concerns over the accuracy of data or the methods and assumptions used in the analysis. (2007:1-24;2008:1-100;Sheils and Haught 2003;The Lewin Group 2008, N/A:1-53)[iv] For this reason, this study will use the most widely used health care data and econometric model available.

2. Methodological Elements for IHSP Reports in Process

The economic analysis in our series of reports is based on a scenario which shows the economic impacts for implementing a truly comprehensive health plan using existing Medicare as the **minimum** standard of service, cost, and administration. This scenario introduces the changes in a series of incremental changes as follows:

- Creating a ***uniform coverage for all Medicare enrollees*** which includes Parts A, B, and D for all enrollees. This would add about 2.6 million enrollees in Part B and 15 million to Part D. Data for existing enrollees in each of the Medicare coverages are used to estimate benefit utilization and costs, out-of-pocket costs including all cost sharing and premium costs, and administrative costs for the added coverages.
- ***Covering all Uninsured in the US*** with this same coverage. This would add about 47 million to the comprehensive health plan, but the cost per enrollee would not be nearly as high as existing Medicare because the demographics of the new enrollees will be significantly different. Our approach to estimating the health services utilization for this group was to assemble a demographic profile for the existing Uninsured, and compute the health services utilization for an identical cohort of privately insured population using the MEPS data. An important aspect of this step is that it removes an existing mixture of health expenditures on behalf of uninsured, such as un-reimbursed services by health providers, especially hospitals, philanthropic organizations, State & Local governments, and others; those expenditures are eliminated in this step, and the reduction in these expenditures offset part of the cost of the new coverage.
- ***Replacing existing Medicaid programs*** at both the Federal and State levels, and transferring the 27.7 million existing participants to the new comprehensive national coverage. The fragmented and inconsistent nature of Medicaid makes it expensive for the same level of service, and creates unpredictable and chaotic conditions for health services providers. It also does not provide the full range of preventive and routine care which could be provided more efficiently through the comprehensive coverage. To estimate the health services utilization of this group under the new coverage, the new health services utilization for the former Medicaid population was compared to an identical demographic cohort with private health insurance, as was done with the Uninsured increment discussed above. Similarly, the existing expenditures by both Federal and State governments for Medicaid participants.
- ***Incorporation of the formerly employer-sponsored private health insurance into the comprehensive coverage.*** This would bring 196.1 million enrollees into the comprehensive program, and would standardize their coverage, replacing the current chaos of eligibility, coverage, premium cost, out-of-pocket expenses, and vulnerability to losing employer sponsored coverage.

- Finally, the ***administration of the comprehensive health plan*** in this scenario is based on the existing Medicare management and cost structure. This assures a uniformity and public oversight for the comprehensive program, with the full potential of economies of scale, market dominance, research and development potential, public scrutiny, and efficiency in funding which Medicare now provides.

C. Data Selection

Much of the data utilized in this study is the National Health Expenditures Accounts (NHEA).[v] The major categories in the health care data are listed adjacent, and will be displayed and discussed in a subsequent report in our series of reports.

Before selecting the NHEA data, detailed comparisons were made between the NHEA, BLS, BEA, and IMPLAN data, matching the health care sector data and reconciling differences between the data sources. There are many differences, but they are largely due to different definitions of the sectors, data collection sources, or purposes for which the data is intended to be used. In most cases, the differences are in

Figure 2 Major Data Categories

Health Services Providers
- Hospitals (including federal, state, and local government operated)
- Offices of Physicians and other health care professionals
- Other ambulatory health services
- Nursing and residential care facilities
- Home health services

Health Products Providers
- Retail and other pharmaceutical sales
- Durable medical, dental, and optometric equipment
     Surgical and medical instruments
     Other durable medical equipment
- Other medical products and supplies

Insurance and administration of health insurance
- Administrative costs (net of benefit payments) of private medical and prescription insurance
- Administrative costs (net of benefits payments) of federal and state health insurance programs (including Medicare, Medicaid, SCHIP, military dependents)

Government Public Health Activities

Investment in long-term Medical structures and equipment

Research and Development for health care (excluding private, proprietary research by for-profit providers)

the allocation of data among various disaggregations (such as hospital vs. nursing home, retail pharmacy sales vs. value of pharmacy production, etc.). In the final analysis, we found no important structural differences among the data sources which could not be reconciled within a reasonable data range, and selected the NHEA data because of its widespread familiarity and acceptance by medical care analysts. The NHEA data reported health care expenditures of $2.1 trillion and about 16% of US GNP in 2006 are iconic data points against which any data set will be compared.

D. Model Selection

Our selection of the IMPLAN model was similarly based on its widespread use, transparent model generation methodology, and adaptability to using various data sources other than the data provided

with the model.

It is necessary to use an econometric input-output model to perform this analysis because only this type of model can show the complete picture of the interactions in an economy created by the activities of any primary sector. The USDA and the Forest Service in the mid-1970s developed IMPLAN with University of Minnesota economists for impact analysis of Federally-funded policies and projects. The Natural Resources Inventory and Analysis (NRIAI) and Social Sciences (SSI) Institutes support usage of IMPLAN throughout the National Resources Conservation Service.   The model is currently specified as the methodology required for analysis on many Federal and State public works and natural resources projects, and is widely used for testing the economic implications of a wide range of policy decisions.

We selected IMPLAN over the RIMS-II analysis because of its wider availability and familiarity, the fact that it is readily recalibrated with data other than its native data, and its inclusion of "social impacts" associated with household consumption, government sector activities, and other non-NAICS (North American Industry Classification System)[vi] components.

VI.   An Overview of the Health Care Industry

The health care industry is comprised of a number of sectors which provide health services, provide medical products including pharmaceuticals, insure health care consumers against extraordinary hospitalization or other expenses, manage health care expenses, provide investment in research and

Figure 3 Health Care Delivery
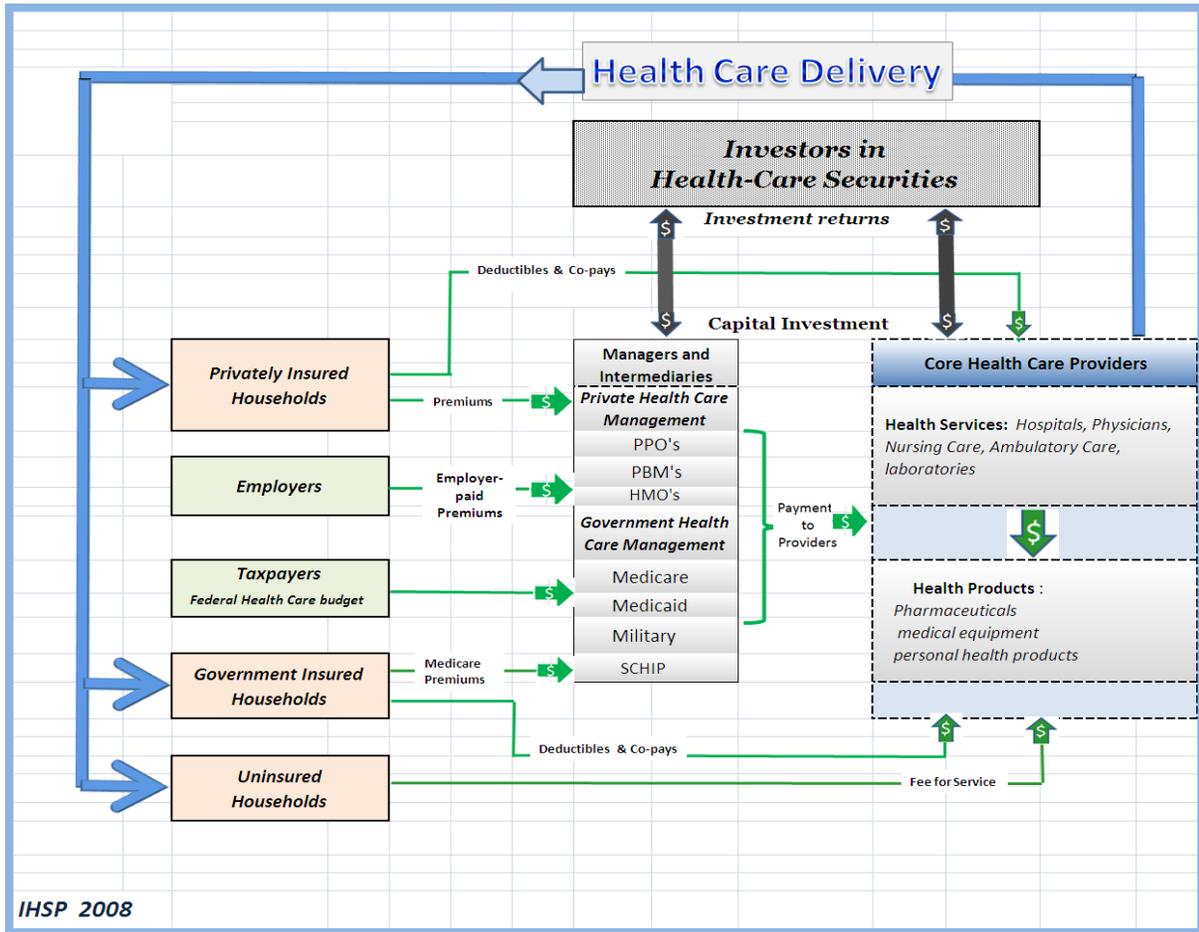
facilities, and other activities. Some of these activities are provided by the private sector, while others are provided by Federal, State, and local government entities. Further, health care payments are derived from consumers, employers, and taxes, and come into possession of, the actual health care providers through a number of channels.

The following discussions sketch out the overall structure of the health care delivery process, and also discuss some of the special issues with the pharmaceutical products sector.

The figure entitled *Health Care Delivery* provides a symbolic overview of the health care system and its delivery of health care, as well as the major paths of expenditures and payments.

The box at the right of the diagram shows the core health care delivery process. The health care providers include hospitals, physicians and other health professionals, nursing care, home health care, ambulatory health services, laboratories and testing facilities, and others.   They are closely linked to the health products producers, which include manufacturers, distributors, and retailers of pharmaceuticals, other health care products, medical equipment, medical supplies, and other categories. These two

functions are shown in a single box because many of the products are not detailed in retail data but are billed to the consumers through their hospital, nursing home, or other health care providers.

The center box in the diagram contains the managers and intermediaries in health care, including private medical insurance, health management organizations, pharmaceutical benefits managers, and their government equivalents including Medicare, Medicaid, SCHIP, military and dependents health plans, and others. These participants in health care are conduits for payments to reach the health care providers, and manage the health care delivery process with the objectives of reducing health expense risk and reducing the costs of health services.

The boxes at the left of the diagram are the consumers and funders of health care, and illustrate the fact that very few consumers pay the full price of their treatments or medicines in a retail transaction.

As many as 86% of individuals are covered by some private or public health plan (DeNavas-Walt, Proctor, and Smith 2007).

The largest source of funding comes from private coverage through employers, who provide health coverage for employees and pay some or all of the premium costs. Privately insured households pay deductibles or co-pays (called cost sharing) and in some cases part of the health insurance premium.

Taxpayers are the second largest source of funding, through Federal, State, and local health care programs including Medicare, Medicaid, and others. Consumers pay part of these costs through premiums, deductibles, co-pays, and costs not covered by the programs.

Uninsured individuals include households whose incomes are too low or cannot qualify for any private or public program, who do not know how to access the government programs or do not qualify, or in some cases higher income households who choose to "self insure" on a payment for services basis.

Returning to the figure, *Health Care Delivery*, a large box across the top shows that many health services providers, health products producers, insurers, and other health care firms are owned by firms traded on the major securities markets, and use the financial markets to generate capital for the health firms. In return, the health firms are required to generate dividends payments or debt service payments to the investment sector of the economy. Health-related investments have become a major new component in financial markets, (Costello 2005;DeMoro 2008:1-45;Roberson 2007) with a reputation for stability and growth in value, low risks, and large long-range potential for growth in value. Data on this component of expenditures is sparse at present, but a report on the topic will be provided at a later date.

VII. Baseline Data: Health Care in the United States in 2006

This report will begin with a baseline analysis of the health care industry sectors in year 2006, the latest fully benchmarked data point available. The report will illustrate the composition of the health care industry, its share of the entire US economy, and the full impact of health care activities on other economic sectors of the economy.

A. Discussion of the Data
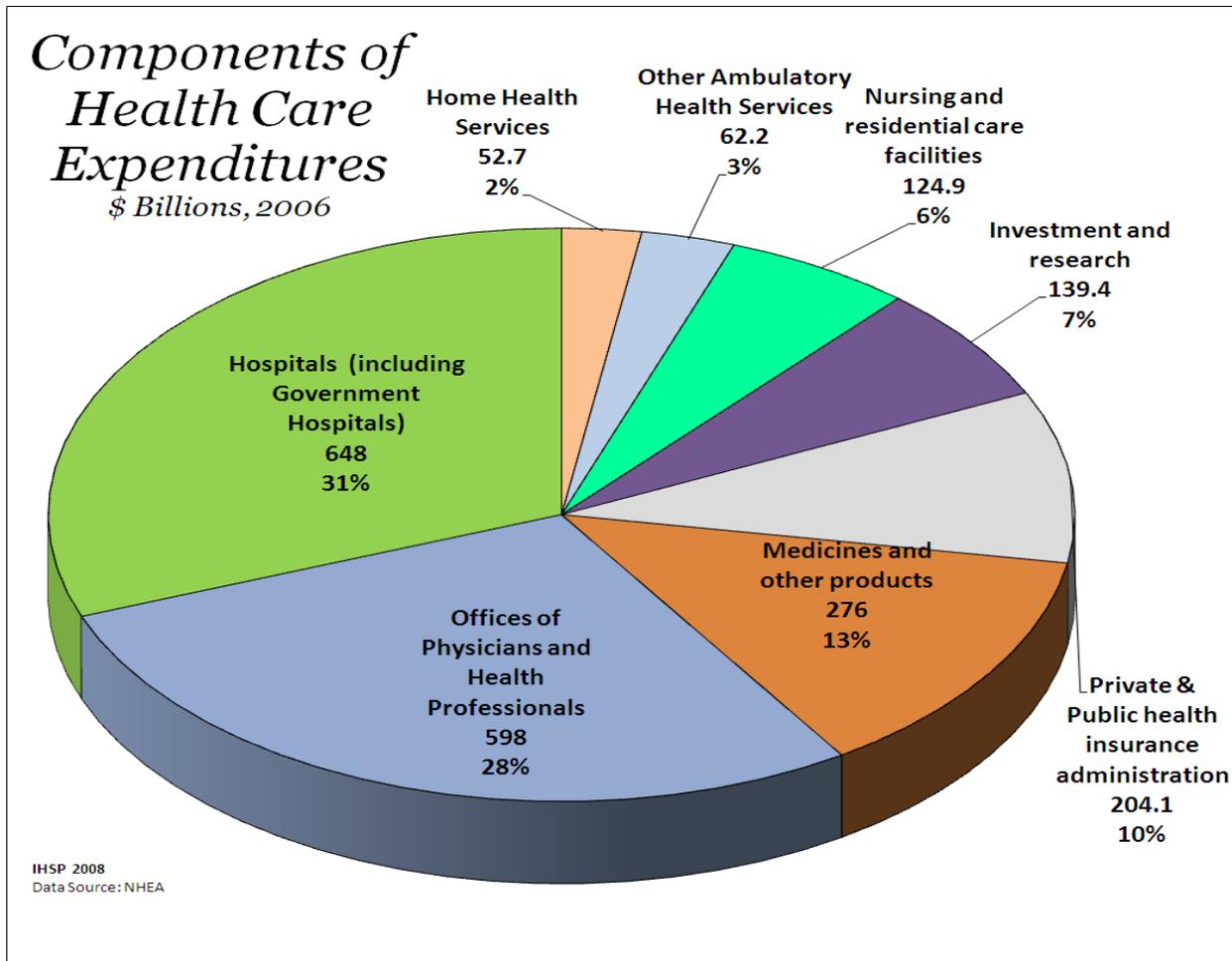
Table 1 US Health Care Expenditures by Sector

Description		Total Revenues	Percent of Health Care Revenues	Employment	Percentage of Health Care Employees
US Health Care Direct Expenditures By Sector, 2006 Based on NHEA Data				Employment Computed using IMPLAN model Production Functions	
Health Services Providers	$	1,486,000,000,000	71%	14,902,750	81%
Hospitals (including Government Hospita	$	648,200,000,000	31%	5,640,578	31%
Offices of Physicians	$	598,000,000,000	28%	5,270,716	29%
Other Ambulatory Health Services	$	62,200,000,000	3%	426,145	2%
Nursing and residential care facilities	$	124,900,000,000	6%	2,531,598	14%
Home Health Services	$	52,700,000,000	3%	1,033,713	6%
Health Products Providers	$	276,000,000,000	13%	1,509,304	8%
Medicines and Pharmaceutical Purchases	$	216,700,000,000	10%	1,312,597	7%
Surgical and medical instrument manufac	$	23,700,000,000	1%	77,371	0.4%
Surgical appliance and supplies manufactu	$	35,600,000,000	2%	119,336	0.6%
Health Insurance and Management	$	204,100,000,000	10%	779,865	4%
Private and Public Heath Care Managers and Intermediaries (including Medicare, Medical, SCHLIP, Military, and Public Health Services)	$	204,100,000,000	10%	779,865	4%
Investment in Research, Structures	$	139,400,000,000	7%	1,241,193	7%
Research	$	41,800,000,000	2%	312,013	2%
Structures & Equipment	$	97,600,000,000	5%	929,180	5%
The Entire Health Care Economy	$	2,105,500,000,000	100%	18,433,112	100%

A summary of the data used in this study appears in the table, *US Health Care Expenditures by Sector*. and the Figure, *Components of Health Care Expenditures*, which show the designations by economic sector. The data includes the total expenditures for each sector, as well as the percentage of all health care expenditures, divided into the three major categories Health Services, Health Products, and Health Insurance and Management. Investments in Research and Development of Structures are also included.

The total for all health care sectors is $2.105 trillion, the widely-known and publicized NHEA total. The computations of employment are made using the IMPLAN model, and track closely with BLS employment data for the same sectors, and totals 18.433 million employed in health care sectors.

The health services providers account for $1.486 trillion, or about 71% of all health care expenditures, and 14.9 million employees. The Hospitals and Offices of Physcians and Health Professionals together comprise about $1.2 trillion, or about 60% of all health care expenditures.

Figure 3 Components of Health Care Expenditures

Components of Health Care Expenditures
$ Billions, 2006

Home Health Services 52.7 2%
Other Ambulatory Health Services 62.2 3%
Nursing and residential care facilities 124.9 6%
Investment and research 139.4 7%
Hospitals (including Government Hospitals) 648 31%
Offices of Physicians and Health Professionals 598 28%
Medicines and other products 276 13%
Private & Public health insurance administration 204.1 10%

IHSP 2008
Data Source: NHEA

Health products providers (including prescription medicines) account for $276 billion in expenditures, or 13 % of health care expenditures. Combined with the health services providers, these two health care "core provider" groupings add to a total of about $1.76 trillion, or 84% of all health care expenditures, and employ over 18 million.

B.   Data Issues
The data displays just presented are from the NHEA data, but are fairly consistent with data from other sources such as BLS and BEA. There are two sectors which merit some discussion, however: the data on Hospitals, and the the Medicines and Phamaceutical Purchases data.

1.   Hospital Data
The hospital data used by NHEA shows $648 billion in revenues, which is about $35 billion or abut 7% more than the data from other sources. The reason is that NHEA uses survey data from the American Hospital Association (AHA), which classifies as hospitals some types of health clinics, minor surgery centers in doctors' offices, chronic care facilities, and other facilities which other data sources report as doctors offices, nursing homes, and other categories. As a result of this reclassification, , the NHEA data show lower totals in these other categories than other sources. While the results on total health care expenditures are small, the sub-categories are noticeably different.

2.   Pharmaceutical Data

Pharmaceutical expenditures are another data issue, as a result of practices in the managed phamaceutical benefits industry. A diagram[vii] of the relationsips between consumers, retailers, and benefits managers shows some of the details of this complicated relationship.

For consumers with any type of prescription medicine insurance, the transaction at the pharmacy is not a

Figure 4 Pharmaceutical Data Relationships

Source: CMS, Office of Research, Development, and Information.
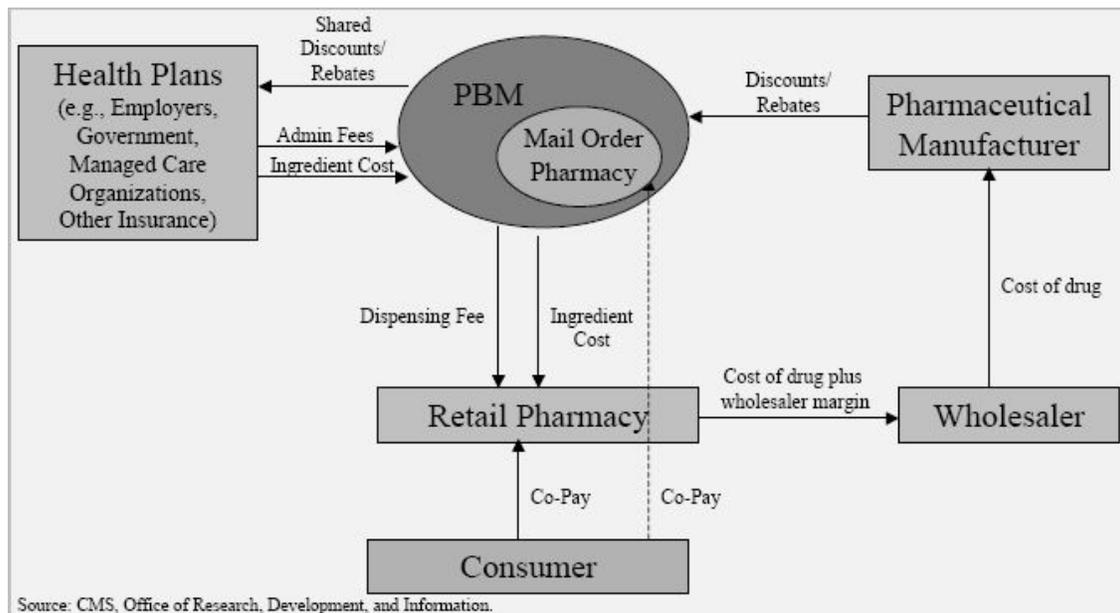
pure market transaction. The payment by the consumer is a cost sharing payment (deductible or co-payment) which is determined by insurance coverage rather than market forces. The payment by the consumer is only part of the transaction, the remainder of which is a rebate or incentive payment from the insurer to the pharmacy, plus a dispensing fee and a payment for the cost of the medication. Likewise, the cost charged by the pharmaceutical manufacturer may be offset by a rebate in return for promoting the manufacturer's product.

Yet another complication is that in some cases the pharmaceutical benefits manager (PBM) offers consumers a direct mail service which completely bypasses the retail sector and perhaps even the wholesale sector, with a direct relationship between the PBM and the pharmaceutical manufacturer. Finally, there is the internet and mail order trade by firms which are not retail pharmacies , and transactions in which prescriptions are dispensed directly to patients by hospitals and clinics, where the price of the drug included in the hospital billing, and therefore not documented in the retail data. The absence of pricing information mkes it difficult to deduce any retail value equivalency.

In this report, we will use the $216.7 billion NHEA pharmacy estimate, which is based partly on the US Commerce Department's Bureau of Economic Analysis Consumer Expenditures data and proprietary market transactions data, and will enter the data in the model via consumer health care retail and phamaceutical manufacturing industries.[viii]

VIII. Baseline Analysis: the Economic Importance of Health Care

The first part of our baseline analysis is designed to detail the role of health services in the US and California economies in 2006. The following pages contain tabular and graphical displays with several major themes:

> The overall baseline for the economy based on the NHEA data, including the Total Revenues, Gross National Product, Employee Compensation, and Employment.

> The role of health care in the total US economy as percentages of the economic measures, with graphical display of the Total Revenues and Employment measures.

> The secondary and tertiary economic impacts of health care, including the inter-industry (suppliers of goods and services to health services providers) and induced (household consumer sectors which provide goods and services to the households of workers in the direct and indirect sectors). This will illustrate how much of the economy is dependent indirectly on health servcies economic activity, even though those secondary sectors may not realize that part of their business is dependent on health services.

The first topic is shown on the **following page**. The table shows the structure of the US economy and the health care sectors with the following economic measures:

Total Revenues: The total revenues paid to firms and public agencies, also called Total Output. This is the highest of the measurements, and includes some double-counting because the output of one firm may become an input of another firm, which then realizes revenue from re-selling the input.

Value Added: The value added is the total revenues minus the cost of inputs from outside the firm (but is different from accounting definitions of net revenues or profits) and is the optimum definition of output from an economic theory point of view. It is unfortunately not readily computed on a current basis by most firms, and is not a widely used measure of current business activity. As a result, the less theorticaly appropriate revenue measure is the one we read about daily or hear about from firm mangagers. Note that Value Added is part of Total Revenues, and is therefore a smaller total.

Employee Compensation. From a social point of view, this measure is widely used to identify the economic benefits to workers and households, rather than to capital and owners of firms. The measure is not synonomous with wage and salary, since compensation includes employer benefits including health benefits, vacations, retirement contributions, and other compensation modalities.

Employment. Employment is a measure which is not in dollar terms, but measures the annual equiviilent number of employees, based on the history of hours worked for a particular occupation. This is not an actual count of employees, since many positions are filled by multiple part-time, temporary, or seasonal employees.

A.   The US Economy.

The table shows that the US economic activity in 2006 had total revenues of about $24,774 billion ($24.7 trillion); GNP of around $13.2 trillion; employee compensation around $7.5 trillion; and around 175 million employees.

Figure 5 Health Care Expenditures as a Percent of the U.S. Economy

Health Care Expenditures as a Percent of the US Economy				
	Total Output ($ billions)	GNP/Value Added ($ billions)	Employee Compensation ($ billions)	Employment (millions)
Total US Economy	$24,774	$13,195	$7,449	174.7
US Health Care	$2,105	$1,208	$898.6	18.43
Health Care as % of US Total	8.5%	9.2%	12.1%	10.5%
IHSP 2008. Data sources: NHEA; BEA; IMPLAN model estimates, year 2006.				

Of this total, heath care in the US had total <u>expenditures, output or revenues</u> of about $2.1 trillion, about 8.5% of the total revenues generated. Health care <u>value added</u> totaled 9.2% of GNP, 12.1 % of <u>Employee Compensation</u>, and 10.5% of <u>employment.</u>

A statistic widely used to compare health care expenditures in different countries is the ratio of health care expenditures to GNP (although this mixes different measures of economic activity), which is 15.9% in the US.

1.   The Economic Composition and the Relative Position of Health Services in the US Economy

Figure 6 Total Output for Major US Industry Sectors, 2006

The graph provides a context for viewing the health care sector in the broader economic picture. The graph shows that Manufacturing (with $6,354 billion in revenues) is the dominant economic sector by far, with Agriculture, Mining, and Forestry ranked second.
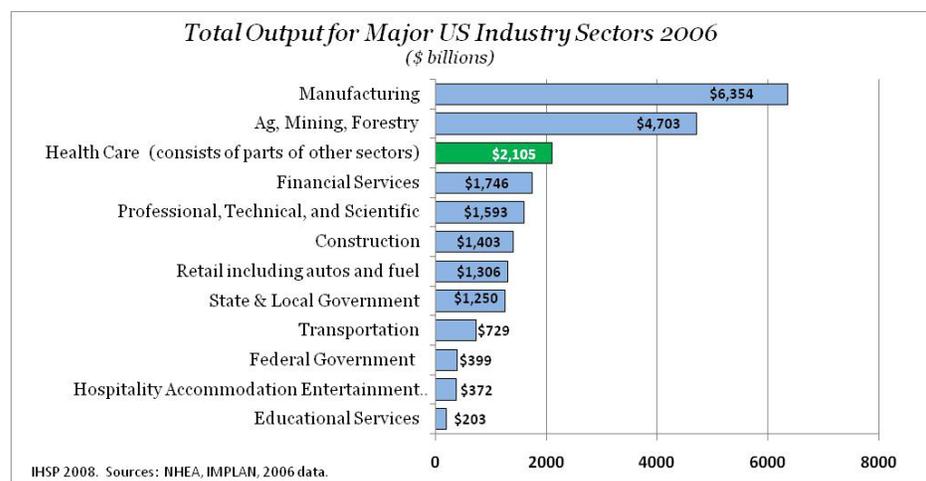
Health care (as defined earlier in this report, since it is not a standard economic sector) is the third largest sector, with $2,105 billion.

IX.   The Multiplier Effect: Indirect and Induced Impacts

Another view of the role of heath care is its impact on the rest of the economy, and the concept of the economic multiplier.   There are two additional sequences of economic events which occur when health care is purchased: the indirect, or inter-industry effect; and the induced, or consumer effect.

The indirect activity is the series of transactions which occur when the health care provider purchases services or supplies from other firms in order to provide the health care. Examples include purchases of medicines, hospital equipment and supplies, utilities, communications, rent for building space, laboratory and rehabilitation services, advertising and marketing services, legal services, and many other goods and services needed to perform the health services. Even payments to local government for utilities, public safety, and transportation are part of the chain of indirect transactions.

There are two additional sequences of economic events which occur when health care is purchased: the indirect, or inter-industry effect; and the induced, or consumer effect.

These purchases are for the most part acquired from non-health care firms, some of which are unaware that their sales to health care providers are part of the total expenditures on health care. Of course, these indirect suppliers also make purchases of goods and services, so the indirect chain of transactions is widely dispersed throughout the economy.

A. Indirect Transactions

The IMPLAN model computes the indirect expenditures as part of its analysis. For the US, the $2.1 trillion in health care expenditures generates an additional $1.37 trillion in indirect transactions. The distribution of these indirect transactions among the major sectors of the economy is shown in the adjacent table.

The Manufacturing sector receives the greatest impact, with $307.6 billion in revenues, over 22% of the indirect total. This sector includes manufacture of pharmaceuticals, medical equipment, mechanical and electrical components for hospitals and offices, chemicals and gasses used in hospitals, cleaning supplies, and many more categories.

The second largest indirect sector is the Finance & Insurance industry, which includes the activities of medical, pharmaceutical, dental, and other insurers. This sector receives $221 billion, or about 16% of all indirect transactions.

Real estate & rental is the third largest indirect sector, receiving $171.7 billion, or about 12.5% of indirect. This indicates the large costs to health care providers for the hospitals, clinics, facilities, offices, and other space requirements of their industries.

The fourth of the large indirect sectors is the Professional-scientific & technical services, which includes professionals not directly employed in the health care sectors. This can include laboratory specialists, legal and accounting experts, and research support.

Figure 7 Indirect Transactions Generated

Indirect Transactions Generated

Industry	($ Billions)	Percent
Total Indirect Expenditures	1,373.2	100.0%
		0.0%
Manufacturing (includes pharmaceuticals, medical equipment, and supplies)	307.6	22.4%
Finance & insurance	221.3	16.1%
Real estate & rental	171.7	12.5%
Professional- scientific & technical services	169.9	12.4%
Administrative services	104.2	7.6%
Information services (includes advertising)	82.7	6.0%
Transportation & Warehousing	55.9	4.1%
Wholesale Trade	55.1	4.0%
Management of companies	49.4	3.6%
Accommodation & food services	33.8	2.5%
Utilities	19.7	1.4%
Retail trade	17.7	1.3%
Mining	17.2	1.2%
Other services	16.4	1.2%
Government	15.5	1.1%
Construction	13.6	1.0%
Ag, Forestry, Fishing & Hunting	9.3	0.7%
Arts- entertainment & recreation	6.1	0.4%
Health & social services	3.2	0.2%

IHSP 2008. Source: IMPLAN analysis of NHEA data. 2006 data.

While the indirect transactions by health care sectors with other sectors in the economy are shown in the table, these first four sectors account for over 60% of all the indirect payments.

B.   Induced Transactions.

Induced transactions are the household consumption transactions generated as a result of the employees in the health care sector and the indirect sector spending their income. The table shows the sectors which receive transactions created by the household consumption.

The total induced transactions are estimated at $2.3 trillion, which ...exceeds the total of direct health care expenditures.

The total induced transactions are estimated at $2.3 trillion, which it is noted exceeds the total of health care expenditures. This occurs in industry sectors where (1) compensation is high, and (2) there is a large indirect effect, both of which are true for health services.

This is a large impact and is widely distributed across many consumption sectors. Some of the reasons the induced impacts are so high for the Health Services sector is that it is relatively labor-intensive and relatively highly compensated.

The largest single component is manufacturing ($442.8 billion), which includes food processing, auto manufacturing, fuel refining, and the full range of consumer items – including pharmaceutical and medical items.

Figure 8 Induced Transactions Generated

Industry	($ Billions)	Percent
Induced Transactions Generated by Health Care		
Total Induced Expenditures	$ 2,377.9	100.0%
Manufacturing	$ 442.8	18.6%
Finance & insurance	$ 240.9	10.1%
Health & social services	$ 229.4	9.6%
Government	$ 213.3	9.0%
Retail trade	$ 195.3	8.2%
Real estate & rental	$ 148.3	6.2%
Information services (includes advertising)	$ 133.6	5.6%
Professional- scientific & technical services	$ 125.2	5.3%
Wholesale Trade	$ 112.4	4.7%
Accommodation & food services	$ 101.1	4.3%
Other services	$ 79.9	3.4%
Transportation & Warehousing	$ 74.3	3.1%
Administrative services	$ 61.2	2.6%
Utilities	$ 44.7	1.9%
Management of companies	$ 36.2	1.5%
Ag, Forestry, Fishing & Hunting	$ 34.8	1.5%
Educational services	$ 33.6	1.4%
Arts- entertainment & recreation	$ 30.5	1.3%
Mining	$ 27.7	1.2%
Construction	$ 12.8	0.5%
IHSP 2008. Source: IMPLAN analysis of 2006 NHEA data.		

Finance and insurance activities receive the second-largest component of the induced transactions, which of course includes household expenditures for health and pharmaceutical insurance.

Health and social services, which includes household payments directly to health care providers, is the third largest component. Government revenues are second, and include all Federal, State, and Local government taxes (income, property, sales, and utilities costs) for a total of $213.3 billion.

C.   Total Impacts and the Economic Multiplier

The complete picture of the effect of health care expenditures throughout the economy would be obtained by adding the three components: the direct health care expenditures of $2.105 trillion (our beginning point, the NHEA data); the indirect expenditures of $1.373 trillion; and the induced expenditures of $2.378 trillion, for a total of $5.856 trillion, or 2.78 times the original health care expenditures.

This measures the total transactions which occur anywhere in the US economy as the result of direct health care spending of the $2.105 trillion. Much of the $5.856 trillion does not occur in health care sectors; in fact, a high percentage of the revenue- generating transactions occur in industry sectors such as manufacturing, finance and insurance, and government.

Other measures of economic effects are also illustrated in the table.

For example, while the direct health expenditures generate a $1.209 trillion contribution to the GNP, the total of all direct, indirect, and induced value added totals $3.529 trillion, and the total employment in the US created by health care is about 45 million, or 2.44 times the direct employment in health care sectors.

Figure 9 Total Economic Effect of US Health Care Expenditures

Total Economic Effect of US Health Care Expenditures				
Direct	Indirect	Induced	**Total**	**Multiplier**
Revenues (expenditures, output) $ Billions				
$ 2,105	$ 1,373	$ 2,378	$ 5,856	2.78
GNP (Value Added, Gross Productivity) $ Billions				
$1,209	$ 748	$ 1,303	$ 3,259	2.70
Employment Compensation $ Billions				
$ 898.6	$ 393.4	$ 639.3	$ 1,931	2.15
Employment (millions of annual equivalent positions)				
18.43	9.10	17.50	45.04	2.44

IHSP 2008. Source: IMPLAN analysis using 2006 NHEA data.

*...while the direct health expenditures generate a $1.209 trillion contribution to the GNP, the total of all direct, indirect, and induced value added totals $3.529 trillion, and the total employment in the US created by health care is about 45 million, or 2.44 **times** the direct employment in health care sectors.*

X.   Tax Revenues Generated by the Health Care Industry

The final step in the analysis of the baseline model for the US Health Care Industry as defined by the NHEA data is the influence of health care on tax revenues. The tables below identify both the Federal and the State & Local tax revenues resulting from health care activities. The tax estimates are based on the broadest definition of the economic impacts of health care discussed earlier, including not only the taxes directly on health care businesses, but includes also taxes which result from their purchases of goods and services from indirect supplier firms, and the household income and consumption taxes generated through the income and expenditures of employees of health care firms and their supplier firms.

A.   Federal Taxes

Federal tax revenues result from a number of income, corporate, excise, and other types of taxes, and are levied on both companies and households.

Figure 10 Federal Taxes from Health Care and Associated Household Income

The adjacent table shows a total Federal tax revenue of $538.260 billion in 2006.

The largest single category of Federal taxes resulting from health care industries was the personal income tax amount of $194.5 billion, or about 36% of the total. However, social security taxes from both employers and employees add up to $232.9 billion, or about 43% of the total. Corporate profits taxes of $80.145 billion were about 21% of the health care total.

It is noteworthy that in 2006 the $538.3 billion in total Federal tax revenues from the health care industry broadly defined significantly exceeded the $408.5 billion total expenditures for all Medicare programs combined, and constituted about 25% of the entire Federal budget total of $2,178 billion.

Federal Taxes Resulting from the Health Care Industry and Associated Household income

Federal Taxes Total	$	538,260,598,149
Personal Tax: Income Tax	$	194,526,839,143
Social Insurance Tax- Employee Contribution	$	122,133,717,160
Social Insurance Tax- Employer Contribution	$	110,795,468,905
Corporate Profits Tax	$	80,145,079,197
Indirect Business Tax: Excise Taxes	$	14,210,200,419
Indirect Business Tax: Fed NonTaxes	$	6,441,984,101
Indirect Business Tax: Custom Duty	$	5,271,720,430
Personal Tax: NonTaxes (Fees)	$	2,808,208,212
Proprietary Income Taxes	$	1,927,380,582

IHSP, 2008. Source: IMPLAN, 2006 model estimates based on health care industry as defined by NHEA data.

Taxes include employee compensation, proptietary income, taxes on enterprises and corporations, indirect business taxes, and personal (household) taxes.

... in 2006 the $538.3 billion in total Federal tax revenues from the health care industry... exceeded the $408.5 billion total expenditures for all Medicare programs combined, and constituted about 25% of the entire Federal budget total of $2,178 billion.

B.   State & Local Taxes

The sum of all state and local taxes related to health care for the entire US is shown in the adjacent table. The categories of taxes are different from the Federal table since State & Local taxes contain sales and property taxes, motor vehicle license taxes, and other categories not levied by the Federal government.

The total tax revenues from the Health Care industry for all states in 2006 was $287.69 billion, about ½ the Federal tax revenues from health care activities. The largest category is the Sales Tax, followed closely by business property taxes and the personal income tax.

The combined total of the 2006 Federal, State & Local taxes generated by the health care industry was $825.95 billion.

Figure 11 State and Local Taxes from Health Care and Associated Household Income

State and Local Taxes Resulting from the Health Care Industry and Associated Household income

State and Local Taxes Total	$	287,692,797,546
Indirect Business Tax: Sales Tax	$	82,121,456,591
Indirect Business Tax: Property Tax	$	72,712,701,274
Personal Tax: Income Tax	$	50,809,301,922
Taxes on Dividends	$	20,492,227,885
Corporate Profits Tax	$	13,412,149,402
Indirect Business Tax: Other Taxes	$	13,194,324,950
Personal Tax: NonTaxes (Fines- Fees)	$	11,772,535,672
Indirect Business Tax: State/Local Fees	$	8,025,793,517
Social Insurance Tax- Employer Contribution	$	5,336,471,933
Personal Tax: Motor Vehicle License	$	2,710,869,346
Indirect Business Tax: Severance Tax	$	2,077,217,653
Indirect Business Tax: Motor Vehicle Licenses	$	1,630,066,302
Social Insurance Tax- Employee Contribution	$	1,333,668,201
Personal Tax: Property Taxes	$	1,158,603,434
Personal Tax: Other Tax (Fish/Hunt)	$	905,409,464

IHSP, 2008. Source: IMPLAN, 2006 model estimates based on health care industry as defined by NHEA data.

Taxes include employee compensation, proptietary income, taxes on enterprises and corporations, indirect business taxes, and personal (household) taxes.

The combined total of the 2006 Federal, State & Local taxes generated by the health care industry was $825.95 billion.

XI. Health Care Occupations

In the earlier discussion, it was shown that there are about 18.3 million employees in the NHEA-defined Health Care industry. In this section, the component of this total employment which is health care occupations will be computed.

In this discussion, it will be necessary to clearly differentiate between the health care industry and health care occupations. While Hospitals

are a very large health care industry component, not all employees in hospitals are in health care occupations. Hospitals employ many in administration, food service, housekeeping, equipment maintenance, financial services, and many more occupations which are not health care occupations.

Further, not all employees in health care occupations work in health care industries; large numbers of nurses and doctors work in schools, industries, the military, transportation, and other non-health care industries.

This section will focus only on the health care professional occupations within the health care industries. This limits the analysis to those employed in the health services sectors of Hospitals, Offices of Physicians, Other Ambulatory Health Services, Nursing and Residential Care facilities, and Home Health Services.

These are the resources which provide the health care to those covered under both private and public health providers, no matter what funding or insuring mechanism is used. In our subsequent analysis of universal health care proposals, the increased demand for health care professionals will be reported in our computations.

Figure 12 Health Care Professions Employment

Employment in Health Professional Occupations within Health Care Industry Sectors

All Health Professionals	**9,130,480**
Registered Nurses(291111)	2,097,590
Nursing Aides, Orderlies, and Attendants(311012)	1,257,790
Home Health Aides(311011)	773,730
Licensed Practical and Licensed Vocational	606,020
Personal and Home Care Aides(399021)	538,170
Medical Assistants(319092)	408,050
Dental Assistants(319091)	273,560
Physicians and Surgeons, All Other(291069)	196,130
Medical and Health Services Managers(119111)	194,010
Radiologic Technologists and Technicians(292034)	190,330
Dental Hygienists(292021)	165,040
Healthcare Support Workers, All Other(319099)	151,550
Physical Therapists(291123)	146,280
Medical and Clinical Laboratory Technologists(292011)	144,240
Medical Records and Health Information	141,840
Emergency Medical Technicians and Paramedics(292041)	136,940
Medical and Clinical Laboratory Technicians(292012)	123,180
Family and General Practitioners(291062)	102,140
IHSP 2008.	

Bureau of Labor Statistics Standard Occupational Classification data for 2007.
The number after the occupational title is the occupational classification code.
The table shows only health professionals working in health care sectors.
The table is truncated to show only occupations with over 100,000 employees, and contains 84% of health professional employees.

Fortunately, the Bureau of Labor Statistics provides a comprehensive categorization of employees by occupational category, using a Standard Occupational Classification (SOC) system, and that data is further organized by industry sector using the North American Industrial Classification (NAICS). The table shows the occupational components of the health services industry that are considered to be health care occupations.

There are 511 occupations in the health services industries, but about 43% of the employment is in management, administration, finance, physical plant operations, and many other non-health occupations not shown in the table. Even the health professional occupations contain 75 classifications, so the table is truncated to show only the occupations which employ over 100,000 nationwide; this includes 18 health professional occupations with 9,130,480 employees and 84% of the health care professionals.

The table is dominated by the Registered Nurses occupation, which has 2,097,590 employees, or about 1/4 of all health care professional employees. The next two largest occupations combined (Nursing aides, Orderlies, Attendants and Home Health Aides) have a similar percentage, thus making up about half of the health professional employees.

By contrast, medical doctors (Physicians and Surgeons plus Family and General Practitioners) total about 3% of the total. The highly visible occupations of Dentists, Pharmacists, Emergency Medical Technicians, and others do not appear in the over- 100,000 tally which appears in the table.

XII. Conclusion

This study demonstrates that a comprehensive Medicare based Single Payer system can make significant contributions to access of quality care for all US residents and in the process generate a much needed and very substantial economic stimulus in the form of jobs, enhanced business and public revenues and increased wages for the population at large.

All this comes at a relatively modest increase in **net** costs of $63 billion. Some may object on principle that any increase in health care costs is to be avoided, but our analysis empirically demonstrates that principle to be without merit. This objection is usually takes the form of invoking the notion that US corporations are at a competitive disadvantage with foreign based business entities and that any increase in business costs only serves to exacerbate that disadvantage.

This point deserves comment. The below table is adapted from Organization for Economic Cooperation and Development data and represents the total social expenditures – what we would call a social wage, including day care, cash benefits, pensions, sick leave, maternal and paternity leave, home help services, labor market educational programs, etc., – that member nations collect as a percent of Gross Domestic Product.

As is evident from the data, the United States has historically subjected tax payers – including corporate payers – to considerably less than many other nations in support of various social programs by a margin of 4.5% less than the OECD average in 2003. These data strongly suggest that the decades old assertion voiced as an article of faith by many in corporate circles that foreign based corporations are at a competitive advantage relative to their US counterparts is markedly overstated.

Table 2 Nation States' Social Expenditures as % of GDP: 1980 through 2003

Year	1980	1985	1990	1995	2000	2001	2002	2003
Australia	10.95	13.02	14.06	17.13	17.87	17.41	17.47	17.90
Austria	22.56	23.86	23.69	26.58	25.33	25.38	25.80	26.05
Belgium	23.50	26.12	24.97	26.35	25.30	25.72	26.13	26.48
Canada	14.13	17.27	18.43	19.20	16.73	17.27	17.31	17.27
Czech Republic	..	..	16.04	18.24	20.33	20.41	21.01	21.13
Denmark	25.18	24.18	25.47	28.87	25.75	26.38	26.90	27.58

Year	1980	1985	1990	1995	2000	2001	2002	2003
Finland	18.37	22.79	24.52	27.36	21.32	21.44	21.87	22.45
France	20.82	25.77	25.26	28.35	27.55	27.46	27.95	28.72
Germany	22.99	23.63	22.48	26.60	26.25	26.32	26.99	27.25
Greece	11.48	17.89	18.61	19.30	21.30	22.29	21.33	21.30
Hungary	..	..	..	..	20.59	20.72	21.90	22.68
Iceland	..	..	13.98	15.51	15.29	15.59	17.30	18.70
Ireland	16.76	21.81	15.51	16.32	13.64	14.43	15.49	15.93
Italy	17.98	20.81	19.93	19.79	23.16	23.30	23.83	24.19
Japan	10.32	11.15	11.25	13.89	16.11	16.85	17.48	17.73
Korea	..	..	3.00	3.46	5.07	5.44	5.37	5.69
Luxembourg	23.62	23.14	21.94	23.77	20.43	19.77	21.58	22.25
Mexico	..	1.90	3.57	4.74	5.82	5.93	6.27	6.84
Netherlands	24.15	24.22	24.35	22.79	19.33	19.47	19.92	20.67
New Zealand	17.10	17.97	21.78	18.95	19.11	18.40	18.43	18.01
Norway	16.87	17.94	22.61	23.51	22.24	23.18	24.59	25.07
Poland	..	..	15.14	23.13	21.16	22.41	23.04	22.93
Portugal	10.77	10.96	13.67	18.14	20.18	20.92	22.16	23.51
Slovak Republic	..	..	..	18.94	18.08	17.82	17.91	17.32
Spain	15.55	17.78	19.98	21.48	20.36	20.17	20.24	20.31
Sweden	28.59	29.71	30.53	32.54	28.76	29.27	30.45	31.28
Switzerland	13.94	14.84	13.51	17.54	18.04	18.73	19.42	20.52
Turkey	4.36	4.21	7.63	7.52	..	..	..	..
United Kingdom	16.58	19.56	17.16	20.36	19.14	20.12	20.14	20.64
United States	13.28	12.91	13.39	15.35	14.59	15.15	16.01	16.20
OECD - Average	15.92	17.58	17.95	19.88	19.41	19.73	20.27	20.71

Our study has **not**, however, offered an analysis of the means by which funding would flow to the new system, the sources of that funding or how the increased Public Benefit share of expenditures shall be generated. Our research design is limited to determining the costs of such a system and tracking the resultant capital flows throughout the economy's various sectors.

Funding options are numerous but we will list here only a few and perhaps the most obvious. Our listing does not connote recommendation of one option over the other as we have yet to examine them in sufficient detail. But our current study and the studies in this series in process provide us with a powerful analytical tool and a rich empirical base by which to explore them in a more nuanced manner in our ongoing analyses.

Funding options include but are not limited to:

■ Revision of the US tax code to a Value Added Tax (VAT) similar to that widely found in other industrial nations that have implemented a national health care system. In a VAT, there is a

nominal tax applied to each step in the production of goods and services as opposed to, e.g., a sales tax.

- A VAT could be implemented that mirrors the dynamics of a national VAT but is limited to the health care sector.
- As assessment on those economic sectors that economically benefit via induced and indirect health care expenditures could be levied on a pro rata basis, that is, in direct proportion to the level of their benefit. For example, the more than $750 billion that accrues to the Manufacturing sector would be subject to the greatest *absolute* dollar assessment, but because the assessment is proportional it would not constitute an onerous financial burden. Further, such an assessment could be constructed to be a fraction of what those business entities within the sector have contributed to health care expenditures. Moreover, such an assessment would constitute an investment by the sector which could expect significant returns in terms of reduced worker absenteeism due to illness and increased productivity.

XIII. Addenda:

A.   Econometric Modeling

The economic impacts from health care expenditures are not limited to the health care industries, but propogate throughout the US economy through the process of indirect (inter-industry) and induced (consumer expenditures) which are created by the health services expenditures.

It is necessary to use an econometric input-output model to perform this analysis because only this type of model can show the complete picture of the interactions in an economy created by the activities of any primary sector. Virtually all input-output models of the US are based on the production functions generated by the US Bureau of Economic Analysis (BEA) and on data from the US Census Bureau and the Bureau of Labor Stastics (BLS). The most widely used input-output software is a program called IMPLAN (for impact planning) which embeds the BEA methodology and the BLS data in a user-friendly Windows-based program to simplify the analysis and the processing of the large amount of output data generated by the analysis.

IMPLAN was created by the US Department of Agriculture and the Forest Service in the mid-1970s with University of Minnesota economists, and designed for impact analysis of Federally-funded policies and projects. The US Natural Resources Inventory and Analysis (NRIAI) and Social Sciences Institutes (SSI) support usage of IMPLAN, and the model is currently specified as the methodology required for analysis on many Federal and State public works and natural resources projects. It is widely used for testing the economic implications of a wide range of policy decisions.

Federal Departments and Agencies which use the IMPLAN model include:

Agricultural Statistics Service	Forest Service
Animal & Plant Health Inspection Service	Geological Survey
Appalachian Regional Commission	International Trade Commission
Argonne National Laboratory	Minerals Management Services
Army Corp of Engineers	National Marine Fisheries Service
Bureau of Economic Analysis	National Park Service
Bureau of Land Management	National Projects & Initiatives
Bureau of Reclamation	Natural Resources Conservation Service
Corps of Engineers	National Institute of Standards and Technology
Economic Research Services	Pacific Fishery Management Council
Environmental Protection Agency	Sandia National Laboratories
Federal Reserve Bank	USDA Rural Development
Fish & Wildlife Service	

This model has also been used by researchers in hundreds of applications since it became available to the public in the 1980's, and is a standard tool of economic analysis used in graduate economics programs, State and regional economic development studies, and environmental and resource impact analysis. Some recent examples are:

Calagno, Peter, et al. "Practical Assessment of the Economic Impact of Healthcare Investment," Southern Business Review, spring 2003.

Cartwright, Lauren et al, "Regional Economic Impact Assessment of the North Central Missouri Regional Water Commission." National Resource Conservation Service.

Chapman, Jonathan, and Nichols, Kristy; "The Importance of the Health Care Sector on the Economy of Louisiana." Rural Health Works Program, Oklahoma State University.

Economic Analysis Program for Tampa Bay, Regional Planning Council, 2007.

Economic Impact Analysis with IMPLAN, Penn State Management Development Program.

Economic Impact of New Jersey Pharmaceutical & Medical Technology Industry. Deloitte Touche Tohmatsu and Economic Development Research Group for the Health Care Institute of New Jersey, 2004

Economic Impacts of Pension Benefits on California and its Counties, California Public Employees' Retirement System, 2007.

Goldman, George. A book review on "Transforming California: A Political History of Land Use and Development," Stephanie S. Pincertl. Journal of Regional Science August 2000.

Information and Data about Economics and Planning, Office of Management and Budget Information Quality Guidelines.

Input-Output Analysis Basics Using the IMPLAN Model, Georgia Tech Economic Development Institute.

Keeping California's Edge: The Growing Demand for Highly Educated Workers, California Business Roundtable and Campaign for College Opportunity, April 2006.

Otto, Daniel, et al. "The Economic Value of Iowa's Natural Resources." Department of Economics, Iowa State University, December 2007.

Rickman, Dan S. "A Comparison of the multipliers of IMPLAN, REMI, and RIMS II: Benchmarking ready-made models for comparison. Annals of Regional Science, 1995.

Rutherford, Thomas F. "Tools for Building National Economic Models Using State-Level IMPLAN Social Accounts. " Department of Economics, University of Colorado, Revised 2004.

B. Notes for Economic Impact Tables, Forthcoming Reports

Sources and Assumptions
(1) CMS, nhe65-17.
(2) IMPLAN economic impact computations based on direct expenditures data.
(3) Computed using BLS Standard Occupational Classification data.
(4) Net change after deducting uncompensated expenditures on behalf of uninsured.
(5) Net change after deducting previous Medicare and related cost sharing expenditures.
(6) Health care utilization based on analysis of MEPS demographic characteristics in comparison to same demographic privately insured.
(7) Health care utilization based on demographic analysis of MEPS data for full-year Medicaid participants age under 65 in comparison to same demographic privately insured.
(8) Medicare Trustee's Report 2007.
(9) Reflects decline in administration cost rate from 12.2% for private insurance to 5.0% for Medicare
(10) Health Services expenditures shifted from private insurance to Medicare; 71% of this amount would be funded by public funding, the remainder by enrollees at their current Out-of-Pocket costs.
(11) Implan computations showing the effect of shifting $56 billion from private insurance to health care benefits

C. A Clarificatory Note

Our study was focused on **total** economic impacts approach to the entire national economy. This required the use of an econometric or Input/Output model[9] that enabled us to track significant capital flows in **all** economic sectors[10] (which in our econometric model number over 500) with each phase of our analysis in moving the entire US population into a Medicare based (as currently constructed, sans Part C, Medicare Advantage, of course) single payer system.

We made the non-economic assumptions as simple and transparent as possible by:

a. Using the NHEA and CMS definitions and data for health expenditures including out of pocket expenditures
b. Separating the total economic impacts from the Medicare or other public entity expenditures to give the most complete picture of the economic results of the Single Payer process
c. Using a powerful but widely-used econometric model to compute the impacts
d. Making any additional assumptions based on articles and research sources from reputable and established sources

There also were a number of assumptions that we took care **not** to make. There is a range of changes that could be made to the current Medicare system advocated by various supporters of a single payer system. However, they all involve the redesign of Medicare to a greater or lesser degree. The goal of our study was not to redesign or reinvent Medicare – a contentious and fracturing exercise in itself -- but to do a thorough analysis of the economic impacts of bringing the nation's population into Medicare in its current form – hence the title of the study, 'Single Payer/Medicare for All.'

To reference but a few assumptions we did **not** make and the corresponding modeling instrument(s) necessary to integrate them into our analysis, we did not:

- Design an alternative to Medicare Part D for the purchase of prescription drugs by individuals and/or providers
- Calculate the impact on drug prices within Medicare if pharmaceutical patent law were revised[11] and/or

- o if the Bayh-Dole Act of 1980[12] were strictly applied to pharma pricing structures,[13] and/or
- o if drug pricing were based on some corollary to the Veterans Administration purchasing program
- ■ Design a working set of 'medically necessary' definitions and recalibrate our econometric model accordingly
- ■ Design a cost-to-benefit model of the various proprietary 'expert systems' (artificial intelligence) based technologies (protocols, diagnostics and prognostics) now being brought into the health care workplace
- ■ Design a second order model to estimate cost offsets directly attributable to increased economies of scale, e.g., medical supplies, any anticipated consolidation of administrative procedures or further rationalization of care giver work vis-à-vis the increasing implementation of the above referenced 'expert systems' software in the health care provider sector

All this was beyond the scope of the fundamental questions addressed by our research design. Those questions were:

a) What would a single payer system based on the current Medicare structure cost, and
b) What is the overall economic contribution of the health care sector to the US economy?

As we stated in what we believed to be a reasonably clear fashion in our study: (V. A. p. 12)

> *Our research differs from the glut of many of the current studies on health care economic research in that it is 1) an econometric as opposed to an arithmetical analysis of health care expenditures, and 2) it asks not simply what the incurred costs of health care expenditures are, but additionally what are the economic benefits of health care expenditures to the national economy?*

1. Costs and employment generation for adding Part D Pharmaceutical benefits for existing Medicare enrollees who are not enrolled in Part D:

The data for this analysis includes not only Medicare benefits payments but also all out –of –pocket cost sharing, premiums, and any other expenditures for pharmaceutical benefits by this population. The focus on total economic impacts, regardless of origin or payment, is a primary feature of the study.
These non-Medicare expenditures are very substantial in the Part D program, in which enrollees pay a relatively high percentage of the total pharmaceutical costs. Further, the age cohort of existing Medicare enrollees is one with high levels of pharmaceutical expenditures, far higher than the average US population, accounting for the high level of economic impacts from this coverage extension.

This study is organized entirely around the National Health Expenditures Accounts, which include pharmaceutical expenditures as part of health care. In fact, the table in Topic A on page 19 of the report shows that pharmaceutical expenditures are viewed by NHEA as about 10% of all health expenditures, slightly exceeding the total of administrative (health insurance management) costs.

2.   Job Creation through Implementation of Medicare for All/Single Payer

Our study examines the total impact on **all** sectors throughout the **entire** economy. The 2,613,410 jobs created are referenced to the economy as a whole, and are not limited to health care jobs. Further, this is a **net** figure and takes into account any jobs lost through the implementation process in e.g., the private health insurance industry.

Note, too, that these are **new** jobs, not 'saved' jobs, and include substantial employment gains in those sectors that are among the most severely affected in the recession: Construction, Manufacturing, Retail Trade, Wholesale Trade, etc.

Figure 13 Medicare for All/Single Payer Job Creation by Sector

Medicare for All/Single Payer Jobs Machine

Sector	Jobs Created
Agriculture, Forestry, Fishing & Hunting	28,823
Mining	4,794
Utilities	6,005
Construction	51,599
Manufacturing	154,535
Wholesale Trade	61,516
Transportation & Warehousing	78,645
Retail trade	507,784
Information	45,344
Finance & insurance	105,470
Real estate & property rental	92,187
Prof Sci and Tech Services	150,195
Management of companies	36,953
Administrative Services	176,626
Educational Services	36,831
Health & social services	792,248
Arts- entertainment & recreation	38,752
Accomodation & food services	131,413
Other services	97,738
Government	16,037
Total	**2,613,495**

3.   Covering the Uninsured:

The source of these numbers is the net change in health care (NHEA definition) expenditures, or the $44 billion shown in the table. That amount is based on bringing the uninsured demographic cohort up to the same level of health coverage utilization as is consumed by the similar cohort of privately insured, less the health care expenditures currently made by or on behalf of the uninsured. The $44 billion (more accurately, each of the health care categories of which it is comprised, such as hospitals, physicians offices, etc. as listed in the NHEA health care definition) is then applied to the input-output model as a group of net exogenous economic changes, and the outputs of the input-output analysis are what is reported in the rest of the table on page 8. This is a fairly straightforward application of econometric analysis to exogenous changes.

4.   Bringing the privately insured into Medicare

We do not know how the implementation of this scenario will be funded, as it transfers a very large cost from employers to the public sector. As a result, we took a very simple, worst-case approach to estimating the economic impacts from this change.

The single external economic impact we assumed was the simplest and worst-case assumption that the only exogenous economic benefit is the reduction of administrative costs from the 12.2% for the existing privately-insured sector to the 5.0% of the existing Medicare sector. We did not choose to speculate about additional administrative savings through economies of scale or administrative simplicity, **which may indeed be very large**. This would likely include the savings from reduction in internal administrative costs within health services providers, for which estimates are shown in the table on page 10, but were not included in administrative cost savings in this econometric study. The specific numbers referenced from the Kahn study were presented for purely illustrative purposes only.

While the implementation process is not specified in our scenario, we assumed that if the actual *health services* expenditures for the privately insured are to remain comparable to other Medicare enrollees, some of the savings in administrative expense will be transferred into direct *health services* categories. There is a small positive employment impact in transferring funds from administration into health services, because the health services are both more labor intensive and have lower per-employee compensation than administration.

XIV. Literature Cited

1.   2007. Summary Description of the Health Benefits Simulation Model (HBSM). In *Attachment D*, 1-24. Falls Church, Virginia: The Lewin Group.

2.   2008. The Health Benefits Simulation Model (HBSM): Methodology and Assumptions., 1-100. Falls Church, Virginia: The Lewin Group.

3.   Arno P, and Davis MH. 2001. Why Don't We Enforce Existing Drug Price Controls? The Unrecognized and Unenforced Reasonable Pricing Requirements Imposed upon Patents Deriving in Whole or in Part from Federally Funded Research. *Tulane Law Review* 75: 631-693.

4.   Arno PS, and Davis M, 2002. Paying Twice for the Same Drugs. *Washington Post*.

5.   Burton A, Campion D, Cohn D, Friedenzohn I, Martinez-Vidal E, Trinity M, and Root K. 2007. "State of the States." Academy Health Web Site Available from http://www.statecoverage.net/pdf/StateofStates2007.pdf.

6.   Costello D. 2005. "Hospital bills -- but with interest. Now patients who can't pay, or who have high deductibles, can get credit cards specifically for medical care. But the rates can reach 23%." Los Angeles Times Web Site 2005. Available from http://www.latimes.com/business/la-he-credit12dec12,1,5053108.story?coll=la-headlines-business.

7.   DeMoro D. 2001. Big Pharma: Mergers, Drug Costs and Health Caregiver Staffing Ratios. A Report Produced as a Public Service at the Request of the Office of Representative Dennis J. Kucinich (D-OH-10)., 1-142. Orinda: Institute for Health & Socio-Economic Policy.

8.   -----. 2008. Medical Credit Scoring: Hospital Bottom Line Vs. Hospital Mission., 1-45. Orinda: Institute for Health & Socio-Economic Policy.

9.   DeNavas-Walt C, Proctor BD, and Smith J. 2007. "Income, Poverty and Health Insurance Coverage in the United States: 2006." U.S.Census Bureau Web Site Available from http://www.census.gov/prod/2007pubs/p60-233.pdf.

10.   Leontief W. 1986. *Input - Output Economics*. New York: Oxford University Press.

11.   Roberson J. 2007. "How healthy is your medical credit score? System being designed to help hospitals figure out whether you'll pay them." Dallas Morning News Website 2008. Available from http://www.dallasnews.com/sharedcontent/dws/bus/stories/121207dnbushealthcredit.299ccc0.html.

12.   Sheils J, and Haught R. 2003. "Cost and Coverage Analysis of Ten Proposals to Expand Health Insurance Coverage. An Appraisal of, Medcare Plus: Increasing Health Coverage by Expanding Medicare by Jacob S. Hacker." Jacob S.Hacker Web Site Available from http://www.esresearch.org/publications/SheilsLewinall/E-Hacker.pdf.

13.   The Lewin Group. 2008. Cost Impact Analysis for the "Health Care for America" Proposal Final Report. Prepared for the Economic Policy Institute., 1-53. The Lewin Group, Inc., an Ingenix Company.

XV. End Notes

[i] The initial findings reflect our analysis of 2006 data sets and will be updated with 2007 data at a later date. We do not, however, anticipate any great magnitude of deviation from our initial findings.

[ii] For an overview of many of the nation's proposals in this vein see State of the States publications at www.stateline.org. (Burton et al. 2007)

See also:

Baucus - REFORMING AMERICA'S HEALTH CARE SYSTEM: A CALL TO ACTION
Wyden - S 334: The Healthy Americans Act
Obama - BARACK OBAMA'S PLAN FOR A HEALTHY AMERICA
Stark - HR 1841: AmeriCare
Kennedy – S 1218: Medicare for All (phased in over 5 years)[ii]

Massachusetts – Commonwealth Connector (insurance exchange), Commonwealth Care (low income insurance)
AHA - Health for Life: Better Health. Better Health Care.
AHIP – A Vision for Reform (http://www.ahipbelieves.com/media/A%20Vision%20For%20Reform.pdf)

The latest from AHIP:

November 19, 2008
Health Plans Propose Guaranteed Coverage for Pre-Existing Conditions and Individual Coverage Mandate
AMA – Expanding health insurance coverage and choice: The AMA proposal for reform (http://www.ama-assn.org/ama1/pub/upload/mm/372/2008brochure.pdf)

The Kennedy proposal will most likely be superseded in the not too distant future:

Washington, DC— Senator Edward M. Kennedy, Chairman of the Senate Committee on Health, Education, Labor and Pensions, today established three working groups of the committee to deal with critical issues of health reform. Under Senator Kennedy's direction, the working groups will concentrate on three areas essential to comprehensive reform: (1) prevention and public health, (2) improvements in the quality of care, and (3) insurance coverage.

Enzi has proposed his "10 Steps to Transform Health Care" via a bill (S. 1783) introduced in the Senate in July 2007.

Bush – REFORMING HEALTH CARE FOR THE 21ST CENTURY

HSAs Are Making Health Care More Affordable And Accessible For Many Americans B*enefits of HSAs include: **Ownership and Portability, Savings, Flexibility, Control**.*

Durbin - S. 2795: SHOP Act, Small Business Health Options Program Act
NFIB Supports SHOP Act. Small Business Health Options Program Act (SHOP). The bill seeks to improve access to affordable healthcare for small business through insurance market reform and tax incentives.

Tax Incentives for Individual Market Insurance.

Four Republican presidential candidates, former New York City mayor Rudolph Giuliani, former Arkansas governor Mike Huckabee, Senator John McCain (R-Ariz.), and former Massachusetts governor Mitt Romney-have proposed to increase insurance coverage through the individual insurance market with new tax incentives and deregulation of state markets.

[iii] Following is a very brief enumeration of design criteria to which we believe any social science study (and economics *is* a social science) should adhere. There are other criteria that are germane; however, they tend to be derivatives of these basic principles. For example, if sampling is employed in the study design, it should be representative (a derivative of the Integrity of Data Sets criterion) and the sampling method should be clearly articulated (a derivative of the Transparency of Design criterion).All adequate study designs should scrupulously exhibit sound and widely accepted principles of analysis and in so far as practicable our study is sensitive to this demand. Among the criteria are:

- *Transparency of design*
    - o Transparency is a necessary condition of any good design.
    - o *Open data architecture, format and structure*
    - o Clearly stated and transparent methodology
    - o Non-proprietary data sets
- *Study Findings Must be Independently Reproducible*
    - o This criterion is contingent upon transparency of design, without which reproducibility would be impossible.
- *Consistency of data format and structure across study period*
    - o Without a consistent data format and structure across the study period, no comparative analysis is possible within the study period or with future studies.
- *Demonstrable* Mechanism of Action, *i.e., relevance between antecedent conditions and study object*
- Both variable selection and variable relevance logically and formally precede statistical manipulation and examination of variables. However, there is apparent widespread confusion in much quantitatively oriented research literature on this basic research criterion. Many analysts have designed models with insufficient attention to the relevance of the variables to be initially included in the design. Those designs proceed as though variable relevance **reduces** to a product of mathematical and/or statistical examination.
- *Integrity of data set**s***
    - o Original data sets must not only have an open architecture but must in so far as possible accurately reflect the phenomena they purport to describe.
- *Design model must take into account both the possible confirmation and disconfirmation of principal findings/hypotheses*
    - o A given design model must not fall victim to a *self-fulfilling prophecy* flaw; that is, the model **itself** must provide some mechanism by which its hypotheses could be subject to disconfirmation. If it does not, common occurrences of this flaw take the following forms:
        - ▪ Only data which can confirm hypotheses are selected for inclusion in the model and all other data are excluded,
        - ▪ and/or the hypotheses to be tested are so trivial that confirmation is guaranteed,
        - ▪ or the confirmation and disconfirmation mechanisms within the model – statistical, observational, or otherwise - are constructed to **improve** the likelihood of hypotheses confirmation and to **decrease** the likelihood of hypotheses disconfirmation.

[iv] The Lewin Group, for example, employs an exceedingly complex – and largely ad hoc – methodology in their health care studies to the point of analytical opacity in terms of independent parties ability to verify the group's study findings.
[v] Source: National Health Expenditures Accounts: Definitions, Sources, and Methods, 2006. Centers for Medicare & Medicaid Services, Office of the Actuary, National Health Statistics Group).

[vi] "NAICS is an industry classification system that classifies economic units that have similar production processes in the same industry. This is a supply–based or production–oriented economic concept." (Bureau of Economic Analysis website)
[vii] Source: Centers for Medicare & Medicaid Services, Health Care Industry Market Update, Phamaceuticals, January 10, 2003, page 40 (no copyright).

[viii]NHEA maintains that their data is retail pharmaceutical sales, while BEA, BLS, and IMPLAN define the pharmaceutical sector as Retail Sales through Retail Establishments. The NHEA pharma data is nearly twice what BLS, BEA, and IMPLAN say it is, because NHEA is also including in this category direct sales to consumers (a good economic choice) which are not through retail establishments including mail order and PBM direct sales(a difficult methodology choice). These sales go directly from manufacturer to consumer without ever showing up in the BLS BEA IMPLAN data except as pharmaceutical manufacturing output.

In order to match our model to the NHEA data, it was necessary to modify the model to allow us to treat **some** of the pharma manufacturing data as direct sales to consumers, and **some** of the Pharmaceutical Establishment Retail Sales data as health care (drug stores sell non-medical items too, which is in the BLS BEA IMPLAN definition as pharmaceutical sales but not in the NHEA data.)

Accordingly, our model divides the NHEA pharma definition into 2 components:

(1) Pharma sales through retail establishments, and
(2) Pharma sales directly from Pharma manufacturers to consumers.

The production function parameters for pharma manufacturers in our model has been revised to approximately the same as pharma retail. The remainder of the pharma manufacturing output in our model (that which is really sold wholesale) is defaulted into the chemical manufacturing sector.

As a result, we treat 38% of the NHEA pharmaceutical total as Pharma Retail IMPLAN sector 406, and 62% as our modified Pharma Manufacturing IMPLAN sector 160. Note that pharma sales to hospitals and doctors' offices are not final sales to consumers, and are embedded in the revenues of hospitals and doctors' offices as indirect expenditures in both the NHEA and IMPLAN views, which

is the correct treatment of these expenditures.

[9] See, XIII, A., Econometric Modeling, p. 34 in our study for more detail.
[10] See Leontief's (Leontief 1986, 2) work on input-output analyses for which he was awarded the Nobel Prize in 1973, especially Chapters 1,2,4 and 17.
[11] See, e.g., (DeMoro 2001:1-142)
[12] The Bayhl-Dole Act specified the authority of Federal agencies to take patents, grant licenses, and transfer custody of patents with the explicit purpose of promoting the utilization and marketing of inventions under Federally funded R&D by nonprofit organizations and small businesses. (http://www.nsf.gov/statistics/seind02/c4/c4s3.htm)

[13] See, (Arno and Davis 2001, 75:631-693;Arno and Davis 2002:A21) for details. From the abstract to the Arno and Davis 2001 publication:

> *This Article discusses drug pricing in the context of federally funded inventions. It examines the "march-in" provision of the Bayh-Dole Act, a federal statute that governs inventions supported in whole or in part by federal funding. It discusses technology-transfer activity as a whole and the often-conflicting roles of the government, academia, and industry. The Article discusses the mechanisms of the Bayh-Dole Act and examines its legislative history. It notes that the Act has had a powerful price-control clause since its enactment in 1980 that mandates that inventions resulting from federally funded research must be sold at reasonable prices. The Article concludes that the solution to high drug prices does not involve new legislation but already exists in the unused, unenforced march-in provision of the Bayh-Dole Act.*