The Impact of Health Care Spending and Reform
On United States Firms

Research Plan

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The Wharton School of the University of Pennsylvania

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Overview

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Introduction

Microeconomic issues

Common belief: high health care costs --> higher product prices --> poor price competition or lower margins --> high cost firms vulnerable to global competitors.

We know within a firm that:

- Wages + benefits = market clearing price for labor; however, increases in health care spending are usually not offset against other forms of compensation.
- Health care costs = share of benefits costs = share of labor costs --> health care costs influence where firms choose to operate on the production function.
- Health care costs influence investment decisions.
- Investment decisions are flexible in the long run, but fixed in the short run.
- If firms have unrealistic expectations about health care costs (i.e., that they are controllable) then investments in fixed plant and equipment will obligate firms to pay higher than anticipated health care costs in the future.

Macroeconomic issues

Common belief: high health care spending (high consumption) --> lower savings --> low capital formation rate --> low productivity --> higher prices --> all U.S. firms vulnerable to global competitors.

If there are macroeconomic effects of health care spending, they cannot be observed through per capita benefits costs. These effects could be expressed through:

- The effect of health care spending on the cost of capital, particularly the effect of personal health care expenses on savings rates.
- The diversion of productive technology away from globally competitive firms to health care delivery companies.
- The diversion of disposable income away from basic products and into health care spending.
- The effect of personal well being on consumption.

A focus on competitiveness

Therefore, health care affects competitiveness in ways beyond per capita costs, which means that:

- Unlike the cost of health care benefits, about which there is labor-management strife, a focus on competitive effects of health care creates a common value structure for labor and management.
- Macroeconomic effects of health care mean that costs are an arbitrary and misleading index of the level of concern industry should have about health care.
- Health care reform proposals take on new meanings when evaluated for their effect on competitiveness.

Project overview

There are four current activities within the Study Project on Health Care Reform and American Competitiveness:

- A review of strategies regarding location, product choice, and technology investment as they are influenced by health benefits.
- An empirical and theoretical analysis of the effects of health care spending and reform on the firm.
- A qualitative assessment of the G7 nations' health care systems, domestic economies, households, populations, and producers.
- An empirical study of the feasibility of, demand for, and role of a health care system which crosses national borders.

Phase I research plan: issues within industries

Study question

Do health care costs uniquely affect industrial competitiveness?

Theory

If health care costs uniquely affect industrial competitiveness, then industries which face global competition in the domestic market should selectively reduce health care spending. If all industries, regardless of global penetration, reduce health care spending equally, then is this attributable to macroeconomic factors or perceptions?

Method: Multiple least squares regression

Unit: Manufacturing industries by SIC code
U.S. domestic market only

Subgroups: Early versus late penetration
Level of penetration
Net exporters versus net importers

Model specification

(1.1) $HC=\beta_0+\beta_1 COMP+\beta_2 AGE+\beta_3 SEX+\beta_4 A^*S+\beta_5 REGEXP+\beta_6 DAYS+\beta_7 DIS+\beta_8 HERF+\beta_9 UNION$

(1.2) $HC=\beta_0+\beta_1 COMP+\beta_2 AGE+\beta_3 SEX+\beta_4 UNION+\beta_5 REGEXP+\beta_6 DAYS+\beta_7 DIS+\beta_8 HERF+\psi A^*S+\delta_1 \Delta COMP+\delta_2 \Delta HC$

(1.3) $WAGE=\beta_0+\beta_1 COMP+\beta_2 AGE+\beta_3 SEX+\beta_4 UNION+\beta_5 REGEXP+\beta_6 HERF+\psi A^*S+\delta_1 \Delta COMP+\delta_2 \Delta WAGE$

(1.4) $TC=\beta_0+\beta_1 COMP+\beta_2 AGE+\beta_3 SEX+\beta_4 UNION+\beta_5 REGEXP+\beta_6 HERF+\psi A^*S+\delta_1 \Delta COMP+\delta_2 \Delta TC$

(1.5) $COMP=\beta_0+\beta_1 HC+\beta_2 REGn+\beta_3 HERF+\beta_4 IND+\beta_5 TW\$$

Variables

HC:	Health care costs
ΔHC:	Health care costs with a one-year lag
WAGE:	Direct cash wages
ΔWAGE:	Direct cash wages with a one-year lag
TC:	Total compensation
ΔTC:	Total compensation with a one-year lag
COMP:	Import penetration
ΔCOMP:	Import penetration with a one-year lag
AGE:	Average worker age in years
A*S:	Age, sex interaction variable
UNION:	Degree of unionization
DAYS:	Average number of days lost to occupational injury
DIS:	Incidence of occupation-related disease
REGEXP:	Weighted average health care expenditures by regional concentration of the industry
HERF:	Measure of overall industry competitiveness
TW$:	Trade weighted dollar
IND:	Industry growth

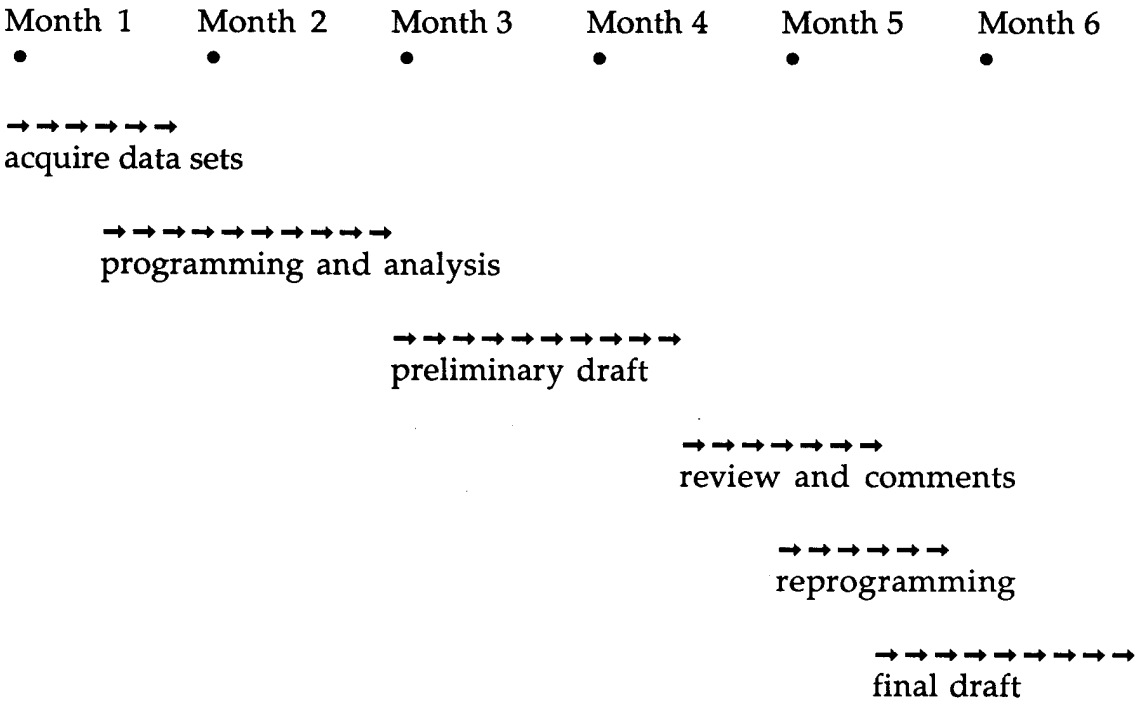
(Unless otherwise noted, all variables refer to industry i at time t.)

Data sources

1) Chamber of Commerce Benefits Survey
2) HIAA Benefits Survey
3) A. Foster Higgins Co. Benefits Survey
4) BLS Current Population Survey
5) BLS Occupational Injury and Illness Survey
6) Bureau of Commerce Database
7) Census of Manufacturers

Timetable

Timetable is relative to beginning of funding.



Budget

	Wharton	Requested
Staff		
W.P. Pierskalla	$5000	$ 0
D.J. Brailer	4000	5000
Research Asst 1	0	2500
Research Asst 2	1500	4500
Secretary	1500	1000
Consultants	0	6000
Programmer	0	4000
Data Acquisition		
Benefits Data	0	800
Census Data	0	500
BLS Data	0	600
Equipment and material		
Computer time	1000	1000
Paper/printing	0	200
Telephone	200	100
Travel and promotion		
Data analysis trips (four)	0	2000
Results presentation	0	1000
Promotion	0	500
University Overhead	2640	5940
Totals	**$15840**	**$35640**

University overhead expenses are about 20% of direct costs.

Phase II research plan: issues within the firm

Study question

How will proposed health care reform policies affect domestic competitiveness of U.S. manufacturing firms? This is a synthesis of two separable questions:

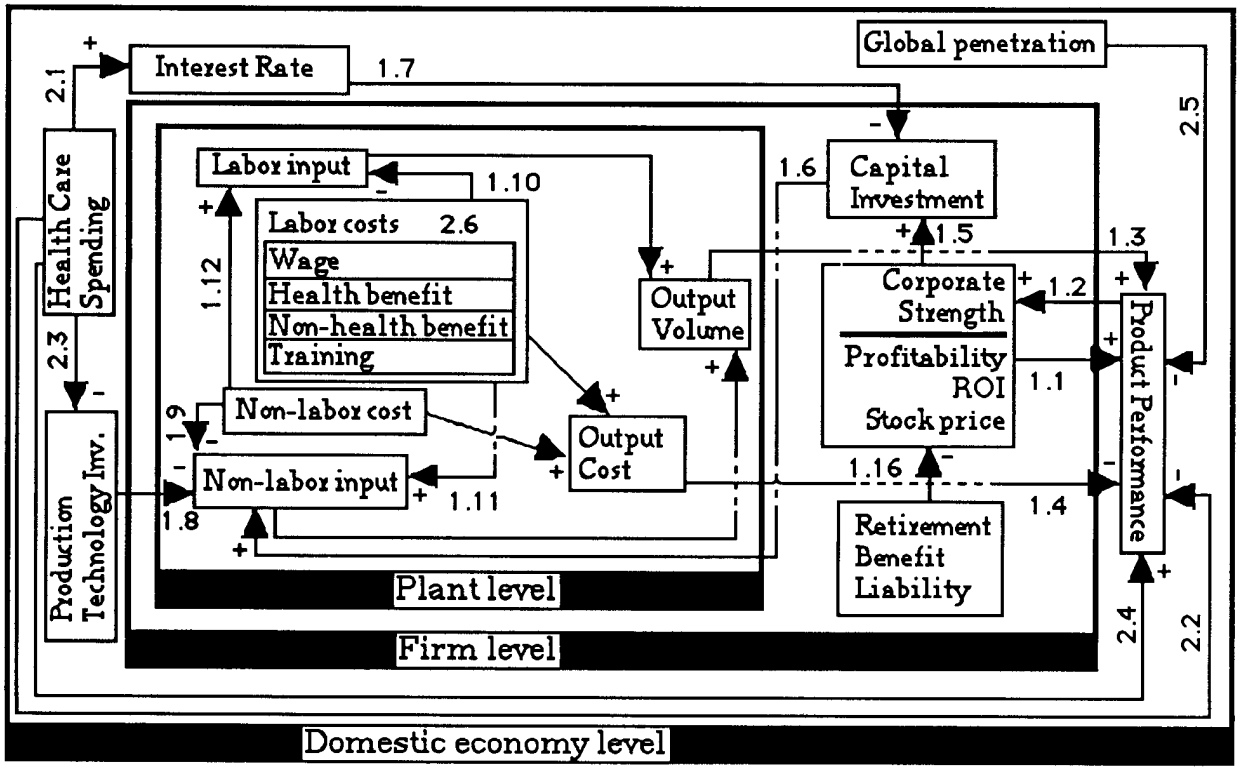
(1) How do health care costs affect firm and product performance?
(2) How do policy interventions affect these factors?

Theory

Firms can invest in labor or in labor-saving capital. If health care spending has a negative effect at both microeconomic and macroeconomic levels, then the price of both labor and labor-saving capital will increase, conferring a competitive disadvantage on domestic firms and their products. The relative degree of these effects will determine the optimal policy intervention for health care reform.

Method and hypotheses

Multi-period simulation model



Data requirements

Single business unit (SBU) data is required to achieve the highest predictive power of this simulation model. The following is a list of data requirements organized by the simulation relationship names described above. The variables listed are in the Strategic Planning Institute's Profit Impact of Marketing Strategies (PIMS) format unless otherwise indicated.

(1.4) Output cost --> Product performance (price elasticity)

- Industry sales growth
- Industry concentration ratio
- Gross margin/revenue
- Relative price
- Market share
- Product quality
- Relative image
- Market segment demographics (non-PIMS)
- Price elasticity (non-PIMS)

(1.5) Corporate strength --> Capital investment (firm performance)

- Return on investment
- Working capital
- Gross book value
- Net book value
- Total assets
- Market position index
- Stock price performance (non-PIMS)

(1.6) Capital investment --> Non-labor input (technology productivity)

- Mechanization
- Gross book value
- Working capital
- Capital intensity

(1.9) Non-labor cost --> Non-labor input (technology elasticity)
(1.10) Labor cost --> Labor input (labor elasticity)
(1.11) Labor cost --> Non-labor input (labor substitutability)
(1.12) Non-labor cost --> Labor input (technology substitutability)
(2.6) Health benefits --> Wages, other benefits, training (internal subsidy)

- Process research and development expenses
- Total research and development expenses
- Newness of plant and equipment
- Mechanization
- Employee productivity
- Compensation: wages, health benefits, retirement (non-PIMS)
- Training and education (non-PIMS)

(1.16) Retirement benefit liability --> Corporate performance (FASB)

- Working capital
- Return on investment
- Retirement liability
- Total assets (non-PIMS)

(2.2) Personal health care spending --> Product performance (consumption)
(2.4) Aggregate health status --> Product performance (well-being)

- Weight of price purchase decision
- Product importance end user
- Number of competitors
- Industry concentration ratio
- Relative types of customers
- Relative market share
- Relative price
- Market share

(2.5) Global penetration --> Product performance (global advantage)

- Exports
- Imports
- Relative price
- Product quality
- Market share
- Number of competitors

Outputs

The simulation model can evaluate the following policy reform proposals, including:

<u>Current expenses</u>

- Model validation

<u>Health care reform proposals</u>

- Benefits extensions
  - Mandated coverage
  - Termination coverage
  - Insurance consolidation
  - Non-worker coverage
- Behavioral controls
  - Copays
  - Deductibles
  - Catastrophic losses
- Provider restrictions
  - Volume limits
  - Expenditure targets
  - Practice guidelines
- Optimal policy designs

<u>Strategic decisions</u>

- Location
- Labor mix
- Technology investment

The following elements will be reported for each policy analysis:

- Predicted average wage, health benefits
- Predicted average training investment
- Predicted product-specific market share
- Predicted capital investment
- Predicted productivity
- Predicted return on investment

Budget

The budget for this project is determined by the availability of formatted data and the number of reform packages which are to be analyzed. If data are readily available and a small number of policies are to be analyzed, then the estimated budget will be as follows, for one-year and two-year scenarios:

	Two-year		One-year
	Year 1	Year 2	
Staff			
W.P. Pierskalla	$20000	$20000	$30000
D.J. Brailer	35000	35000	50000
Research Asst 1	22000	22000	22000
Research Asst 2			22000
Secretary	6000	6000	10000
Consultants	15000	15000	20000
Equipment and material			
Computer time	1000	1000	2000
Computer equipment	5000	2000	7000
Paper/printing	1000	1000	2000
Telephone	500	500	1000
Travel and promotion			
Data trips (four)	4000	4000	8000
Results presentation	3000	3000	6000
Promotion	1000	1000	2000
Totals	$113,500	$110,500	$182,000
University Overhead	$22,700	$22,100	$36,400
Grand Totals	**$136,200**	**$132,600**	**$218,400**

University overhead expenses are about 20% of direct costs.