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Issue Brief

Health and Productivity Among U.S. Workers

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ABSTRACT: This analysis of Commonwealth Fund survey data estimates the economic impact of health problems on worker productivity. In 2003, an estimated 18 million adults ages 19 to 64 were not working and had a disability or chronic disease, or were not working because of health reasons. Sixty-nine million workers reported missing days due to illness, for a total of 407 million days of lost time at work. Fifty-five million workers reported a time when they were unable to concentrate at work because of their own illness or that of a family member, accounting for another 478 million days. Together, labor time lost due to health reasons represents lost economic output totaling $260 billion per year. Workers without paid time off to see a physician are more likely to report missing work or being unable to concentrate at their job.

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Introduction

A healthy workforce is one of our most important economic assets as a nation. While ensuring that all Americans have health insurance coverage and receive effective medical services would certainly help protect this vital asset, the cost of doing so has thus far deterred the nation's policymakers. But what about the other side of the ledger—the economic cost of having millions of workers who are too sick to work or function effectively? Drawing from the Commonwealth Fund Biennial Health Insurance Survey, this analysis examines three major sources of lost economic productivity related to health: adults who do not work because of poor health or disability; workers who miss time from their jobs as a result of health problems; and workers who, while working, are less productive than they could be as a result of their own health problems or worries about sick family members.

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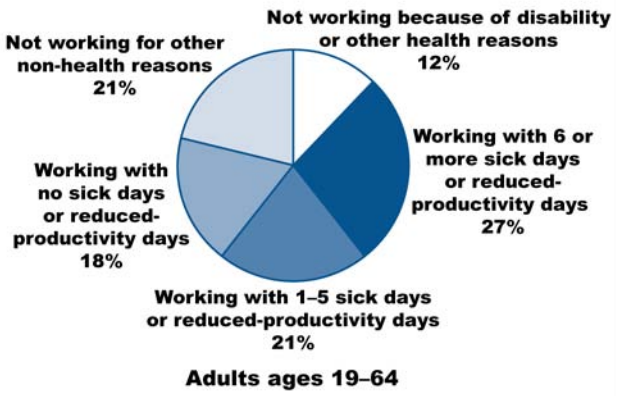
Reduced Labor Force Participation

When people are unable to work or drop out of the workforce because of serious health problems or disability, they do not generate economic output, pay taxes on earnings, or help raise the nation's economic standard of living. According to the Commonwealth Fund survey, an estimated 18 million Americans ages 19 to 64 are not working and have a disability or chronic disease, or do not work because of health reasons (Figure 1).

Figure 1. The Majority of Working-Age Americans Experience Health Problems, Take Sick Days, or Have Reduced Productivity



Note 1: Total excludes among employed adults the self-employed and workers with an undesignated wage rate.

Note 2: Numbers may not sum to 100% because of rounding; sick days are days missed work because self or family member sick; reduced-productivity days are days unable to concentrate fully at work because not feeling well or worried about sick family member.

Source: The Commonwealth Fund Biennial Health Insurance Survey (2003).

Investing in the health of workers and the prevention of disability and serious illness could have an economic payoff. The U.S. labor force would expand, with the potential for a significant increase in the nation's standard of living and economic output. Even valuing lost work-time at the minimum wage, the nation gives up $185 billion each year in economic output because of its workers' health problems. (Table 1).

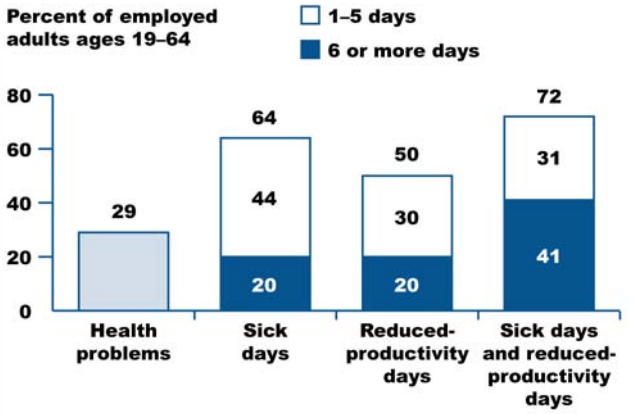
Sick Days

The health problems of workers and their families constitute a substantial source of lost productivity in days absent from work. Among active workers, 29 percent of those employed full- or part-time reported having health problems, which was defined in the survey as fair or poor health status, a chronic condition such as cancer, diabetes, arthritis, or heart attack/heart disease, or a disability (Figure 2).[1] Additionally, a substantial number of workers who are in good health but care for family members who are ill or disabled must often take time off from their jobs to help coordinate this care.

Analysis of the survey data finds that an estimated 69 million workers took sick days in 2003, amounting to 407 million lost days of work (Table 1).[2] Valuing this missed time at workers' actual wage rates, an estimated $48 billion of economic output was not generated due to time off while sick.

Nearly two-thirds (64%) of survey respondents said they had missed at least one day of work in the past year because of their own health problems or a family member's health problems (Figure 2, Table 2). About 20 percent of workers miss six or more days. Among those who said they had health problems, almost one-third (32%) reported missing six or more work days. Missing six or more days was particularly common among adults with

Figure 2. Three of 10 U.S. Workers Reported Health Problems in 2003



Note: Excludes self-employed adults and workers with an undesignated wage rate; health problems defined as reporting fair/poor health, chronic condition (cancer, diabetes, arthritis, or heart attack/heart disease), or disability; sick days are days missed work because self or family member sick; reduced-productivity days are days unable to concentrate fully at work because not feeling well or worried about sick family member.

Source: The Commonwealth Fund Biennial Health Insurance Survey (2003).

children: 23 percent of married adults with children reported six or more work days lost to sickness, as did 26 percent of single adults with children.

Poor health status is the most significant predictor of missing work among such other important factors as wage rate, sick leave benefits, family structure, and age (Table 3). Compared with healthier workers, workers with health problems have two-and-a-half times the risk of having six or more sick days during the year, holding other factors constant.

Low-wage workers—those earning less than $10 per hour—are at lowest risk for sick days, holding other factors constant. Older workers, meanwhile, were significantly less likely to report sick days during the year than workers ages 19 to 29. Adults with children, either married or single, were more likely to report taking any sick days than single or married adults without children. Single adults with children reported any sick days, including six or more sick days, nearly twice as often as married adults without children (Table 3).

Reduced Productivity on the Job

Many workers show up for work even when they do not feel well or are worried about a family member who is ill. In addition to creating a heightened risk of injury or spreading of infectious diseases, such "presenteeism" exacts an economic price as well, in reduced productivity or output.

In the survey, one-half of respondents reported experiencing at least one day in which they were unable to concentrate at work because they were not feeling well or were worried about a sick family member, with 20 percent reporting six days or more (Figure 2, Table 2). Fifty-six percent of workers with health problems reported one or more days of reduced productivity, compared with 48 percent of healthier workers. The difference between sicker and healthier workers reporting six or more days at work of reduced productivity was even greater (31% vs. 16%).

These disparities by health status were significant, even after accounting for wages, benefits, and other important factors (Table 3). Sicker workers had a much greater risk of experiencing one or more reduced-productivity days on the job than healthier workers.

The survey also found that workers earning $10 to $15 an hour were more likely to report any reduced productivity than workers earning more than $15 an hour or less than $10 an hour, even after adjusting for health status, sick leave benefits, and other factors. Younger workers (ages 19 to 29), meanwhile, were more likely than older ones (ages 50 to 64) to report inability to concentrate fully because of health problems, holding constant for health status and other factors. And married adults with children were nearly one and one-half times more likely to report reduced productivity than families without children.

Illness-related "presenteeism" has a significant impact on the economy.[3] Based on the survey, 55 million workers experience a time when they are unable to concentrate on the job because of illness or a family member's illness (Table 1). The total number of days per year of reduced productivity due to illness is 478 million. Based on these workers' average earnings and assuming that those unable to concentrate fully were working at "half capacity," the economic output not generated during these days would be valued at $27 billion.[4]

Sick Leave Benefits

Sick leave benefits provide workers valuable time to recover at home or to tend to the health needs of family members. Employees who lack sick leave, however, are less likely to take time off when ill (Table 2). Most likely, those who lack such benefits feel they cannot afford to skip work and miss being paid even if they are sick. Forty-two percent of survey respondents without sick leave reported that they did not miss any days of work because of illness. By contrast, 28 percent of those with 11 or

more days of sick leave reported taking no days off work related to illness. The strong association between lacking sick leave benefits and having fewer sick days holds even after adjusting for other factors, such as wages (Table 3).

Another important job benefit is being able to take paid time off during work hours to see a physician or dentist. The analysis shows that having this benefit is correlated with fewer sick days, even after controlling for other factors. Indeed, workers who are unable to take paid time off to see a doctor during work hours have a greater risk of taking six or more sick days than workers who are permitted paid time off (Table 3).

Moreover, workers without paid time off to see a doctor are more likely to have reduced productivity on the job. In the survey, 26 percent of those who did not have paid time off reported six or more days when they were unable to concentrate at work, compared with 17 percent of those who had paid time off (Table 2); again, these effects remain significant after holding other factors constant. This finding suggests that helping workers with acute health problems see a physician, dentist, or other health care provider would improve their concentration on the job.

Policy Implications

The health of workers and their families has important implications for the overall productivity of the U.S. labor force and the performance of the economy. In 2003, 12 percent of working-age adults did not work because of health reasons or a disability. Seventy-two percent either missed days of work as a result of their own illness or that of family members, or were unable to concentrate at work as a result of health concerns. Forty-one percent were either absent from work or experienced reduced productivity for more than a week. The lost economic output resulting from the combination of not working, sick days, and subpar productivity on the job came to $260 billion in 2003—roughly 2.4 percent of the gross domestic product.

U.S. businesses and policy leaders are confronted with the challenge of improving the health of workers and improving productivity by reducing the amount of time lost to illness. Clearly, their strategies should involve better preventive care and better management of chronic conditions; evidence shows that well-run corporate disease management and health promotion programs can improve workers' health and productivity.[5]

Ensuring that all workers have health insurance coverage would also improve health and productivity by increasing the use of preventive care and helping to ensure early treatment of acute illnesses as well as ongoing management of chronic conditions. Sick leave and paid time off to see a physician are also important benefits for ensuring that workers have the time to get needed care, recover from illnesses, or tend to sick family members.

Providing workers with the means to maintain their health and the health of their families—affordable and comprehensive health insurance coverage, and paid time off when sick or in need of care—is a high-value investment that has the potential to yield long-term economic payoffs for working families, employers, and the economy as a whole. Most importantly, doing so would provide a minimum level of health and economic security for every working American.

Notes

[1] Chronic conditions include cancer, diabetes, arthritis, or heart attack/heart disease.

[2] The Bureau of Labor Statistics establishment survey estimates that there were about 131 million workers on non-farm payrolls, of all ages, in August 2004. The Bureau's household survey estimates that there were about 139 million workers age 16 and older in August 2004. The Commonwealth Fund Biennial Health Insurance Survey estimates that there were 122 million workers 19 to 64 years of age. Excluding the self-employed, there are about 107 million workers in that age range. The smaller number of workers

in the Commonwealth Fund survey likely is the result of restricting the working population to adults 19 to 64. See http://www.bls.gov/news.release/empsit.tn.htm.

[3] R. Z. Goetzel et al., "Health, Absence, Disability, and Presenteeism Cost Estimates of Certain Physical and Mental Health Conditions Affecting U.S. Employers," *Journal of Occupational and Environmental Medicine* 46 (April 2004): 398–412.

[4] This is a rough estimate and may overstate the cost; refined estimates would require studies to determine the reduced productivity associated with various medical conditions.

[5] Goetzel et al., "Health, Absence," 2004; J. E. Riedel, W. Lynch, C. Baase et al., "The Effect of Disease Prevention and Health Promotion on Workplace Productivity: A Literature Review," *American Journal of Health Promotion* 15 (January/February 2001): 167–91; R. Z. Goetzel, T.R. Juday, and R.J. Ozminkowski," What's the ROI?—A Systematic Review of Return on Investment (ROI) Studies of Corporate Health and Productivity Management Initiatives," AWHP's Worksite Health (1999): 12–21.

Table 1. Estimated Lost Economic Output Because of Worker Health Problems, Sick Days, and Reduced Productivity

Base: Adults ages 19–64[a]

	Number of adults (in millions)	Lost days of work (in millions)	Lost economic output (in $billions)
Nonworking adults: report disability, handicap, or chronic disease or nonworking because of health reasons	18	4,487	185
Workers with any sick days	69	407	48
Workers with reduced productivity days	55	478	27
Total sick days or reduced-productivity days	103[b]	5,372	$260

[a] The total number of adults ages 19 to 64 was 148 million, excluding among working adults those who are self-employed and those who do not report a wage rate. The number of adults not working for non-health-related reasons (31.5 million) is not shown.

[b] Total number of adults shown is sum of those not working because of disability or other health reasons and an unduplicated count of those working who reported missing work because of sickness and/or reduced productivity.

Note: Those not working because of disability or other health reasons were estimated to lose 250 days of work per year at minimum wage. Workers who reported being unable to concentrate at work because they were not feeling well or were worried about sick family members were assumed to work at 50 percent lower productivity.

Source: The Commonwealth Fund Biennial Health Insurance Survey (2003).

Table 2. Work Days Missed/Days Unable to Concentrate, by Characteristics of Respondents

Base: Employed adults ages 19–64, excluding self-employed and those with undesignated wage rate

		Number of missed work days because you or family member sick[a]			Number of days unable to concentrate at work because not feeling well or worried about sick family member[a]		
	Total distribution	None	1–5 days	6+ days	None	1–5 days	6+ days
Total in millions (estimated)	98.7	35.4	43.4	19.3	45.3	29.6	20.2
Percent distribution	100%	36%	44%	20%	46%	30%	20%
Health problems							
Yes	29	31****	37	32	38****	25	31
No	71	38	47	15	49	32	16
Sick leave benefits							
Paid sick leave							
None	35	42****	37	19	43	28	24
1–10 days	35	30	49	20	48	31	19
11 days or more	19	28	47	24	46	32	20
Paid time off to see a doctor during work hours							
Yes	56	34**	47	18	49****	31	17
No	44	38	40	21	42	29	26
Wage rate							
Less than $10 per hour	28	44****	36	19	45****	28	21
$10–$15 per hour	26	28	48	24	37	34	27
More than $15 per hour	46	35	47	17	51	29	16
Age							
19–29	25	38***	42	19	39****	39	20
30–49	54	31	47	21	42	30	23
50–64	21	44	39	16	65	19	14
Family status							
Married, no children	23	43	42	14	58	25	14
Married, with children	37	29	48	23	42	33	22
Single, no children	26	45	39	16	50	28	17
Single, with children	14	25	46	26	28	33	34

[a] Data for undesignated number of missed work days and days unable to concentrate not shown.

**** $p \leq .001$.
*** $p \leq .01$.
** $p \leq .05$.

Note: Significance tests indicate statistical differences in missed work days or days unable to concentrate across health problems, sick leave benefits, age, and wage rate; health problems defined as reporting fair/poor health, chronic condition (cancer, diabetes, arthritis, or heart attack/heart disease), or disability.

Source: The Commonwealth Fund Biennial Health Insurance Survey (2003).

Table 3. Effects of Health Status, Sick Leave Benefits, Age, and Wage Rate on Number of Sick Days and Reduced-Productivity Work Days

Based on logistic regression models

Base: Employed adults ages 19–64, excluding self-employed and those with undesignated wage rate

	Any sick days	Six or more sick days	Any reduced-productivity days	Six or more reduced-productivity days
	Relative risk ratio	Relative risk ratio	Relative risk ratio	Relative risk ratio
Health problems				
Healthier	1.00	1.00	1.00	1.00
Sicker	1.54****	2.57****	1.79****	2.65****
Sick leave benefits				
Paid sick leave				
Yes	1.00	1.00	1.00	1.00
No	0.51****	0.71**	0.92	0.97
Paid time-off to see a doctor during work hours				
Yes	1.00	1.00	1.00	1.00
No	1.22	1.29*	1.23*	1.62****
Wage rate				
Less than $10 per hour	0.71***	0.94	1.01	1.03
$10–$15 per hour	1.08	1.14	1.39***	1.46***
More than $15 per hour	1.00	1.00	1.00	1.00
Age				
19–29	1.00	1.00	1.00	1.00
30–49	0.94	0.90	0.79*	1.06
50–64	0.59****	0.68**	0.38****	0.66**
Family status				
Married, no children	1.00	1.00	1.00	1.00
Married, with children	1.40**	1.29	1.41**	1.40*
Single, no children	0.84	0.98	1.07	1.17
Single, with children	1.93****	1.90****	1.90****	2.25****

**** $p \leq .001$.
*** $p \leq .01$.
** $p \leq .05$.
* $p \leq .10$.

Note: Model controls for health problems, paid sick leave, paid time off to see a doctor during work hours, age, and wage rate; health problems defined as reporting fair/poor health, chronic condition (cancer, diabetes, arthritis, or heart attack/heart disease), or disability.

Source: The Commonwealth Fund Biennial Health Insurance Survey (2003).

Earlier Studies of Health and Productivity

Several recent studies have also estimated the economic loss attributable to illness. Jack Hadley has estimated that improving a person's health status from fair or poor to excellent or very good, or reducing the prevalence of a particular health condition, would increase annual earnings from 10 to 30 percent.[a] Sandeep Vijan et al. examined a cohort of adults born between 1931 and 1941 and found that those who developed diabetes over their lifetime had substantially higher rates of work absence and disability and a higher probability of being retired.[b] By 2000, the accumulated income losses of their disease stemming from early retirement, increased sick days, disability, and early mortality amounted to $120 billion.

Ron Goetzel and colleagues estimated that the per-employee economic burden of illness for employers averages between $300 and $400 for hypertension, heart disease, depression, and arthritis.[c] Absenteeism accounts for 10 percent to 20 percent of those costs, while "presenteeism," or showing up for work when sick but performing at a substantially reduced level of productivity, accounts for 18 percent to more than 60 percent of total costs. This means that from one-fifth to three-fifths of the total economic health costs for employers stem from on-the-job productivity losses.

The Institute of Medicine examined the link between health insurance coverage, health, and lost economic value in the United States. It estimated that the economic value lost from preventable morbidity and mortality associated with being uninsured amounts to an estimated $65 billion to $130 billion annually.[d]

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[a] J. Hadley, *Sicker and Poorer: The Consequences of Being Uninsured* (Washington, D.C.: Kaiser Commission on Medicaid and the Uninsured, May 2002).

[b] S. Vijan, R. A. Hayward, and K. M. Langa, "The Impact of Diabetes on Workforce Participation: Results from a National Household Survey," *Health Services Research* 39 (December 2004): 1653–70.

[c] R. Z Goetzel et al., "Health, Absence, Disability, and Presenteeism Cost Estimates of Certain Physical and Mental Health Conditions Affecting U.S. Employers," *Journal of Occupational and Environmental Medicine* 46 (April 2004): 398–412.

[d] Institute of Medicine, *Hidden Costs, Value Lost: Uninsurance in America* (Washington, D.C: National Academies Press, 2003).

Methodology

The Commonwealth Fund Biennial Health Insurance Survey was conducted by Princeton Survey Research Associates International from September 3, 2003, through January 4, 2004. The survey consisted of 25-minute telephone interviews in either English or Spanish and was conducted among a random, nationally representative sample of 4,052 adults ages 19 and older living in the continental United States. To make the results representative of all adults ages 19 and older living in the continental United States, the data are weighted by age, sex, race/ethnicity, education, household size, geographic region, and telephone service interruption using the U.S. Census Bureau's 2003 Annual Social and Economic Supplement. The resulting weighted sample is representative of the approximately 207 million adults ages 19 and older, including the 171.9 million adults ages 19 to 64.

The analytic sample consists of 1,808 part-time and full-time workers ages 19 to 64 who reported their hourly wage and are not self-employed. In all figures and tables (except Figure 1 and Table 1) the weighted analytic sample is 98.7 million adults. In Figure 1 and Table 1, the weighted base is 148 million, which also includes adults ages 19 to 64 who do not work for health (17.9 million) and non-health reasons (31.6 million).

The 50 percent survey response rate was calculated consistent with standards of the American Association for Public Opinion Research.

We measured sick loss and reduced productivity days among full- and part-time workers. The number of sick loss days in the past year was calculated using the question, "In the last year, how many days, if any at all, did you miss work because you or a family member were sick?" We measured reduced productivity days in the last year using the question, "How many days were you unable to fully concentrate at work because you were not feeling well or you were worried about a sick family member?" In addition, we assessed the extent of sick leave benefits, including the number of paid sick days respondents receive per year, and whether or not individuals have paid time off during work hours to see a doctor when sick. Information on age, wage rate, family structure, and health status are also included in the analysis. Respondents with health problems (or are "sicker") include individuals who rate their health as fair or poor, report at least one of four chronic conditions (cancer, diabetes, arthritis, or heart attack/heart disease), or report a disability, handicap, or a chronic disease that keeps them from participating fully in daily work, housework, or other daily activities.

The issue brief examines the characteristics of individuals reporting sick loss and reduced productivity days (see Table 2). A series of logistic regression models were estimated to examine the independent effects of health status, wages, sick leave benefits, age, and family structure on sick loss days and reduced productivity days. Results presented in Table 3 show relative risk ratios for each variable holding all other variables shown in the table constant.

About the Authors

Karen Davis, Ph.D., president of The Commonwealth Fund, is a nationally recognized economist with a distinguished career in public policy and research. Before joining the Fund, she served as chairman of the Department of Health Policy and Management at The Johns Hopkins Bloomberg School of Public Health, where she also held an appointment as professor of economics. She served as deputy assistant secretary for health policy in the Department of Health and Human Services from 1977 to 1980 and was the first woman to head a U.S. Public Health Service agency. A native of Oklahoma, she received her doctoral degree in economics from Rice University, which recognized her achievements with a Distinguished Alumna Award in 1991. Ms. Davis has published a number of significant books, monographs, and articles on health and social policy issues, including the landmark books *Health Care Cost Containment; Medicare Policy; National Health Insurance: Benefits, Costs, and Consequences;* and *Health and the War on Poverty*.

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