Culture of Health For Business

Guiding Principles to Establish a Culture of Health for Business
Preface

Robert Wood Johnson Foundation

The Robert Wood Johnson Foundation (RWJF) is the largest philanthropy dedicated solely to health in America. Since 1972, it has supported research and programs targeting some of America’s most pressing health issues – from tobacco use to improving access to quality health care.

RWJF is working to build a Culture of Health in America that goes beyond the healthcare system to focus on the complex social factors that influence health, well-being and equity based on conditions tied to where we live, work and play. RWJF seeks to instill a new norm with collaborators from all sectors that recognizes health as the bedrock of personal fulfillment, the anchor of community well-being and the fuel of national prosperity; thereby creating a society that provides for all individuals an equal opportunity to enjoy the healthiest lives possible.

For more information about RWJF and its commitment to a culture of health visit www.rwjf.org and www.cultureofhealth.org.

Global Reporting Initiative

GRI is an independent international organization that has pioneered sustainability reporting since 1997. GRI helps businesses and governments worldwide understand and communicate their impact on critical sustainability issues such as climate change, human rights, governance and social wellbeing. This enables real action to create social, environmental and economic benefits for everyone.

The GRI Sustainability Reporting Standards are developed with true multi-stakeholder contributions and rooted in the public interest.

RWJF 10 Principles for a Culture of Health

1. Good health flourishes across geographic, demographic, and social sectors.
2. Attaining the best health possible is valued by our entire society.
3. Individuals and families have the means and the opportunity to make choices that lead to the healthiest lives possible.
4. Business, government, individuals, and organizations work together to build healthy communities and lifestyles.
5. No one is excluded.
6. Everyone has access to affordable, quality health care because it is essential to maintain, or reclaim, health.
7. Health care is efficient and equitable.
8. The economy is less burdened by excessive and unwarranted health care spending.
9. Keeping everyone as healthy as possible guides public and private decision-making.
10. Americans understand that we are all in this together.

GRI’s Vision is a thriving global community that lifts humanity and enhances the resources on which all life depends. GRI’s Mission is to empower decisions that create social, environmental and economic benefits for everyone. For more information, see www.globalreporting.org.

1. This project was initiated in 2017 by the Global Initiative for Sustainability Ratings, since dissolved, under a grant from RWJF, and transferred for completion in 2018 to the Global Reporting Initiative via CAF America, RWJF’s partner for overseas grant-making.
RWJF and GRI partner in this project because of their shared interest in private sector contributions to health which, for GRI, is reflected in the health-related disclosures in its Standards. RWJF recognizes that the GRI Standards and their global uptake provide a good starting point to reflect on and build a culture of health framework in which the role of companies is key. With this project, the partners aim to create a deeper understanding on how sustainability reporting on health-related topics can help foster corporate action towards a culture of health.

The GRI Standards can help give companies deeper insights and ideas on how to integrate and transform their health-related disclosures into their business strategies to positively contribute to their bottom line. Furthermore, improving health-related disclosures will help companies meet investors’ needs by aligning data supply with data demand. In the broader context of the global 2030 Agenda for Sustainable Development (the 17 Sustainable Development Goals), businesses can benefit from addressing these goals within their strategy and reporting processes – specifically, SDG 3 on good health and well-being, which can be linked to SDG 8 on decent work and economic growth, as well as SDG 10 on reduced inequalities.

Project Background

This project sets out to understand the scientific and technical basis for attributing positive health and business outcomes to an array of business practices – internal programs, policies, benefits, community partnerships, initiatives and the like – that may or may not be primarily directed toward improvements in population health (i.e., Culture of Health Business Practices, or COHBPs). The project identifies suitable health measures for businesses and investors to use within those COHBPs and contextualizes these measures to promote understanding and use (i.e., the Culture of Health Business Principles). Surveys of corporate health disclosures and of health measures in existing ESG reporting frameworks and research methodologies provide reference points for this work.

These materials are the result of a series of cyclical development stages in which the project team researched business practices that had health impacts and reviewed ESG frameworks, research methodologies and corporate reports for health-related content. These findings were presented to the project’s Advisory Committee – a group of independent experts drawn from the fields of public health, business, the ESG information marketplace and the investment community. The Advisory Committee helped refine the project scope and provided guidance on the research itself as well as how that research was translated into tools for business use.

ESG Information Marketplace

Incorporation of ESG factors into investment decision-making processes requires corporate ESG performance data. The growth of ESG investment has led to the development of a marketplace which, along with companies and investors, includes a diverse set of reporting standards bodies, research firms, non-profits and financial service firms that produce ESG ratings, rankings and indices. There are three primary “flows” in this marketplace:

1. The flow of capital from investors to corporations.
2. A flow of information from corporations to investors and a set of intermediaries that generate sustainability ratings, rankings, research and data products. Investors may also engage directly with companies to obtain ESG data.
3. A flow of influence from standards setters, civil society, government, and media.

Stakeholder Consultation

Two major project outputs underwent review as part of a stakeholder consultation: Culture of Health Business Practices and Culture of Health for Business Guiding Principles. The Stakeholder Consultation ran from August to November 2018. The methods used included an online survey and direct interviews with key stakeholders. The target audience for the consultation included private sector companies; ESG rating and research firms, and socially responsible investors; academics and public health professionals; non-profits; pension funds; unions; and governance research and proxy advisors. Direct engagement via email reached approximately 400 individuals and comments from 100 people (a 25% response rate). The feedback was presented to the Advisory Committee in the form of recommendations many of which were adopted. A Supplement to this report provides a more detailed summary of the Consultation.

Geographic Scope of the Project

In line with RWJF’s geographical focus, the focus of the project is the United States. GRI is however global in scope and is in fact the most widely used reporting framework by companies worldwide (75% of the largest 250 companies in the world use the GRI Standards³). GRI works with the largest companies in the world, including US-based companies, as a force for positive change.

The RWJF recognizes GRI’s global reach, network and knowledge on sustainability reporting. By partnering with GRI, the project and its target groups in the US will also be exposed to the global perspectives of reporting on health and social issues, as captured in the GRI Standards.

Phase II - Promoting Sustainability Reporting to Create a Culture of Health for Business in the United States

GRI believes that companies need to see examples and best practices to better understand the link between sustainability reporting and establishing a Culture of Health for Business. This recommended approach has been taken based on GRI’s success in helping drive awareness/ adoption of the SDGs within the larger reporting community, including demonstrating connection between the SDGs and the GRI Standards, showing examples of best practices and convening opportunities for peer learning.

Building on the foundations of the ‘Advancing a Culture of Health for Business’ project, GRI and RWJF have extended their partnership for the follow-on project ‘Promoting sustainability reporting to create a Culture of Health for Business in the United States’. The project will run from 1 February 2019 to 31 December 2020 and aims to further promote and increase the uptake of sustainability reporting among US-based organizations and through this, create a Culture of Health for Business. This includes the adoption of the 16 Business Practices identified as part of the current project.

To accomplish this, the strategy will be to increase knowledge and understanding of sustainability reporting among US-based organizations and how reporting can be used to help identify where a company is having an impact in health and adjust their operations accordingly. Activities include: establishing a Task Force on a Culture of Health for Business, a half-day investor roundtable to be held in late 2019 and developing training tools to assist companies on their reporting journey. The envisioned work will in turn help organizations to adopt a Culture of Health for Business framework.

3. Source: KPMG Survey of Corporate Reporting 2017
Acknowledgements

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In collaboration with A Culture of Health for Business

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The members of the Advisory Committee (AC) and other stakeholders were asked for their views in the process of writing this publication, however membership of the AC does not equal endorsement of the final product.

GRI would like to thank the many individuals, companies and organizations that contributed to this publication with the recommendations and feedback they provided during the consultation period and throughout the project.
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Executive Summary

The private sector, particularly large corporations, has a tremendous influence on culture. It is also integral in achieving high social and health standards for all stakeholders including employees, families and communities. Increasingly, shareholders, investors, boards and executives are prioritizing business values and citizenship, as well as financial measures, knowing that these affect public perception, brand and long-term sustainability.

This project sets out to understand the scientific and technical basis for attributing positive health and business outcomes to an array of business practices and activities that may or may not be primarily directed toward improvements in population health. The project identifies suitable health measures within those business practices for businesses and investors to use to promote understanding and decision-making and presents a set of guiding principles that will help establish a Culture of Health for Business.

Surveys of corporate health disclosures and of health measures in existing environmental, social and governance reporting frameworks and research methodologies provide reference points.

Population health and well-being in the United States underperforms its peers in quality at a higher cost. Outcomes and risk factors are correlated to socioeconomic status. Targeting improvements in the healthcare system alone is insufficient to address deficiencies that lie elsewhere.

The private sector is responsible for a range of undesirable outcomes in the workplace, the community and environment. Equally, many U.S. companies have implemented health-related programs and policies that have resulted in important shifts in health and wellness attitudes and behaviors. Fortunately, more companies than ever have begun to recognize their role and impact on population health and are using their reach and influence to improve health. Today, U.S. companies are uniquely suited to accelerate the pace of change in promoting a culture of health.

A broad literature review was conducted to better understand the basis for the means by which the private sector influences health and to identify which business practices, widespread or not, had discrete health and business impacts, both positive and negative. The research was focused on the workforce, their families and communities but has broad applicability to supply chains and customers. Ultimately, 16 Culture of Health Business Practices were found to be particularly effective at both influencing the determinants of health and having positive health and business outcomes. The results of this research are graphically shown the following figure:
# Culture of Health for Business Research Results Summary

## Health Determinants

<table>
<thead>
<tr>
<th>Individual Behavior</th>
<th>Social Environment</th>
<th>Biology &amp; Genetics</th>
<th>Health Services</th>
<th>Physical Environment</th>
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<tbody>
<tr>
<td>PYSCHOMOTOR ACTIVITY</td>
<td>PHYSICAL ACTIVITY</td>
<td>GENETICS</td>
<td>ENVIRONMENT</td>
<td>SKIN &amp; SURFACE</td>
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<td>SLEEP PATTERNS</td>
<td>NEUROPSYCHOSOCIAL</td>
<td>BEHAVIORAL</td>
<td>PHYSICAL HEALTH</td>
<td>FRACTURE</td>
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<td>MENTAL HEALTH</td>
<td>GENETIC</td>
<td>HEALTH STATUS</td>
<td>TOXICITY</td>
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<td>ETHICALITY</td>
<td>CULTURAL TRADITION</td>
<td>BIOMARKERS</td>
<td>HEALTH CARE</td>
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<td>AGE &amp; GENDER</td>
<td>PSYCHOLOGICAL</td>
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<td>INJURY</td>
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<td>HISTORICAL</td>
<td>WELLNESS</td>
<td>GENETIC</td>
<td>QUALITY OF CARE</td>
<td>ENVIRONMENT</td>
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<td>CONNECTIONS</td>
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<td>GENETIC</td>
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<tr>
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<td>1</td>
<td>GENETIC</td>
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<td>WORK CONDITIONS</td>
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<td>GENETIC</td>
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<td>PHYSICAL HEALTH</td>
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<td>GENETIC</td>
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<td>ENVIRONMENT</td>
<td>1</td>
<td>GENETIC</td>
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## Strategic Health Business Practices (COHBPs)

<table>
<thead>
<tr>
<th>Business Outcomes</th>
<th>Health Outcomes</th>
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<tbody>
<tr>
<td>Productivity</td>
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<td>Talent Management</td>
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<td>Financial Performance</td>
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<td>Economic Societal Costs</td>
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<td>Health &amp; Safety</td>
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<td>Health Promotion &amp; Wellness</td>
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<td>Paid Family &amp; Medical Leave</td>
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<td>Health Insurance</td>
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<td>Equality, Diversity &amp; Impartiality</td>
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<td>Financial Literacy</td>
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## Workforce & Operations

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## Community

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<thead>
<tr>
<th>Community Environmental Impacts</th>
<th>Social Capital &amp; Cohesion</th>
<th>Community Involvement</th>
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Measures, metrics and indicators play an important role in supporting corporate efforts to build a culture of health. Research into the current state of health measures in the environmental, social and governance reporting frameworks and research methodologies shows that while many traditional indicators of health (e.g., health and safety, environment impacts) are strong, the full gamut of measures needed to support the widespread adoption of a culture of health is missing. This deficit is mirrored in the body of health measures actually reported on by U.S. corporations in financial and non-financial reports.

To encourage the widespread adoption and continued leadership in these 16 COHBPs and to generally promote a culture of health, four principles were developed that contextualize health as a core strategic priority and articulate society’s changing expectations of business and investors to provide further leadership and contributions in this area:

**PRINCIPLE 1 |** The private sector is essential to shaping and promoting societal values, narratives and language around health and well-being, and to improving population health in ways that prioritize health equity, collective action, and harm reduction.

**PRINCIPLE 2 |** Business success depends on healthy workforces, suppliers, communities, and other stakeholders within the ecology of the supply chain; a healthy society is a shared value.

**PRINCIPLE 3 |** Successful business leadership recognizes health as a strategic priority to be integrated consistently across governance, strategy, investments, operations, products, services, and value chains.

**PRINCIPLE 4 |** Responsible businesses measure and disclose their health impacts and contributions to a Culture of Health. Businesses and investors use this to enhance operational and investment decision-making, ultimately reinforcing and rewarding behaviors that promote health.

In addition to the private sector and investors, many other marketplace entities will be required to institute a resilient culture of health for business including grass roots support from the workforce, their families and communities, investors, ESG researchers, standards bodies, the assurance community, ESG-minded non-profits and consultancies, issue-specific interest groups and industry associations amongst others.
Part I: A Culture of Health for Business
I.A. Introduction

The private sector, particularly large corporations, has a tremendous influence on culture. It is also integral in achieving high social and health standards for all stakeholders including employees, families and communities. Increasingly, shareholders, investors, boards and executives are prioritizing business values and citizenship, as well as financial measures, knowing that these affect public perception, brand and long-term sustainability.

RWJF believes that establishing a culture of health is a necessary precondition to achieving sustainable development. As highlighted by the 2030 Agenda for Sustainable Development and its related Sustainable Development Goals, many of which are related to health, the private sector is recognized as a source of creativity and innovation in solving these challenges.

In order to harness the power of the private sector to instill a culture of health for business three preconditions are required:

• First, the conversation around the intersection of health and business has to evolve and accurately reflect the myriad direct and indirect means by which the private sector, intentionally or otherwise, influences health, well-being and health equity.

• Second, a new set of measures is required to fully characterize the breadth of business-related health outcomes and represent the many positive correlations with important measures of business performance.

• Third, there has to be a shift in investment toward those business practices and policies that promote health to reflect both the hidden costs to business of poor population health as well as the many opportunities to create business value by treating health as a strategic priority.

This report, based as it is on the current state of research into business influences on health, health measures and “health-smart” business practices, is a starting point for those companies seeking to solidify or further their leadership contributions to a culture of health while improving business and investment decision-making.
I.B. Health

Definitions

Based on the analysis of interview and survey data, recently compiled stakeholder feedback emphasized the need for a better understanding of the working terms and definitions referenced by the COH for Business framework. In consideration of these insights, the terms highlighted below identify the working parameters of the framework, provide useful background context for the needs that a COH for Business addresses, and outline the key starting points for the stakeholder conversations around these concerns.

- **Health**: Following the definition given by the World Health Organization (WHO), health is, “A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.”

- **Well-being**: The presence of positive emotions and moods (e.g., contentment, happiness); the absence of negative emotions (e.g., depression, anxiety); satisfaction with life; fulfillment and positive functioning; and physical well-being (e.g., feeling very healthy and full of energy).

- **Health Equity**: Health equity means that everyone has a fair and just opportunity to be as healthy as possible. This requires removing obstacles to health such as poverty, discrimination, and their consequences, including powerlessness and lack of access to good jobs with fair pay, quality education and housing, safe environments, and health care.

**Determinants of Health**

Many important drivers of health lie outside of the healthcare delivery system. Along with health services, the social environment, the physical environment, individual behavior, and biology and genetics play an important role in determining individual and population health outcomes. Within each of these categories, there are several determinants that impact health outcomes. Within the health services category, for example, there are determinants related to access to care and quality of care. Those dealing with lack of access include barriers such as cost, lack of insurance coverage and factors that may limit patient engagement, such as limited language access. Within the social environment category, a broad range of social determinants of health exists. These include income, social support, socioeconomic status, working conditions, and the existence of discrimination based on race, gender, sexual orientation, or citizenship status. The physical environment includes such factors as air and water quality. Individual behavior includes a wide range of behaviors such as physical activity, diet, sleep, and substance use, all of which may be influenced by factors within the social environment. Biology and genetics include factors such as age, sex, inherited conditions, and genetic susceptibility to disease.

One estimate suggests that determinants of health within the categories of individual behavior and genetics account for approximately 25% of population health outcomes. Those within the categories of health services, the social environment, and the physical environment accounting for the remaining 75%. Another suggests that, health services contribute approximately 20% of the modifiable contributors to healthy outcomes for a population. According to this estimate, the social environment, the physical environment, and individual behaviors contribute 40%, 10%, and 30% respectively. Accordingly, it has been
suggested that addressing these “upstream” determinants of health may improve population health outcomes, reduce health inequities, and lower the cost of healthcare.11 A 2016 review of studies assessing the impact of investments in social services or investments in integrated models of healthcare and social services on health outcomes and health care spending found that of the 39 articles reviewed, 32 found some significant positive effect on health outcomes (20/32), healthcare costs (5/32), or both (7/32). Successful interventions addressed many of the determinants included in the broad categories discussed above, including the areas of housing, income support, nutrition support, care coordination, and community outreach.12

The following list of health determinants is derived from the CDC13 and Goinvo14 which synthesized, in turn, its list from the CDC, WHO, Healthy People, the Kaiser Family Foundation, New England Journal of Medicine, Health Affairs, National Academy’s Institute of Medicine and the New South Wales Department of Health.

<table>
<thead>
<tr>
<th>Health Determinant Category</th>
<th>Macro Health Determinant</th>
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<tr>
<td>Individual behavior</td>
<td>Physical activity</td>
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<td>Diet patterns</td>
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<td>Sleep patterns</td>
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<td></td>
<td>Drug and substance use (eg., alcohol, tobacco, drugs, etc.)</td>
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<td>Negative mood and affects (eg., stress, anxiety, depression)</td>
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<td>Psychological assets (eg., satisfaction, optimism, conscientiousness, self-efficacy, etc.)</td>
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<td>Other risk related behaviors (eg., sexual, gun use, driving behavior, gambling)</td>
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<tr>
<td>Social environment</td>
<td>Social status (eg., occupation, income level, education, language/literacy level, etc.)</td>
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<td></td>
<td>Culture and tradition (eg., religion, family norms, community norms, etc.)</td>
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<td></td>
<td>Gender identity</td>
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<td>Military service</td>
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<td>Race and ethnicity</td>
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<td>Discrimination</td>
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<td>Work conditions</td>
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<td>Early childhood education and development</td>
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<td>Social connectedness (eg., friends, intimates, community, civic participation, etc.)</td>
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<td>History of incarceration</td>
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<td>Citizenship status</td>
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<td>Biology and genetics</td>
<td>Genetic (eg., gender, chromosomal, etc.)</td>
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<td>Body structure (eg., height, weight, age)</td>
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<td>Body function (eg., blood pressure, fitness, nutritional status, etc.)</td>
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<td>Health services</td>
<td>Health literacy</td>
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<td>Access to healthcare (eg., insurance quality, provider availability, distance)</td>
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<td>Quality of healthcare</td>
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<td>Patient engagement</td>
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<td>Physical environment</td>
<td>Location (eg., food, transport, jobs, education, recreation, crime, training, etc.)</td>
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<td>Pollution (eg., air quality, lead levels, water quality, carcinogens, etc.)</td>
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<td></td>
<td>Allergens</td>
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<td>Exposure to firearms</td>
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</table>

Population Health in the United States

The United States spends significantly more per capita on health care than any other country. Total health expenditures reached over $10,000 in 2016\(^\text{15}\), about twice the average among other wealthy countries.\(^\text{16}\) However, this above-average spending has not necessarily resulted in above-average health outcomes. Life expectancy, for example, is shorter in the United States than in countries with much lower health expenditures such as the United Kingdom (79 years compared to 81 years). The U.S. “health disadvantage” can be found in a wide range of health indicators throughout life. Table 1-2 below provides a small sample of health outcomes for which the U.S. underperforms by age group.

Table 1-2: The US Health Disadvantage by Age Group\(^\text{17}\)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Low Birthweight</th>
<th>Prematurity</th>
<th>Maternal Health</th>
<th>Years or Life Lost</th>
<th>Asthma</th>
<th>Injuries</th>
<th>Child Well-Being</th>
<th>Overweight/Obesity</th>
<th>Diabetes</th>
<th>Sexually Transmitted Infections</th>
<th>Heart Disease</th>
<th>Stroke</th>
<th>Hypertension</th>
<th>Cardiovascular Risk Factors</th>
<th>Lung Disease</th>
<th>Cancer</th>
<th>Myocardial Infarction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infancy and Early Childhood (Ages 0-4)</td>
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<tr>
<td>Childhood and Adolescence (Ages 5-19)</td>
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<tr>
<td>Young Adulthood (Ages 20-34)</td>
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<tr>
<td>Middle Adulthood (Ages 35-49)</td>
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<tr>
<td>Maturity (Age 50 and Older)</td>
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</tr>
</tbody>
</table>

In the United States, these health outcomes and associated risk factors are not equally distributed. For example, obesity, tobacco use, and violence are all disproportionately associated with low socioeconomic status.\textsuperscript{18} Socioeconomic status has also been identified as a fundamental cause of health inequalities. These inequalities are wider than those found in peer countries.\textsuperscript{19} Along with inequalities of income and education, racial inequalities continue to influence health outcomes in the United States. Life expectancy at birth for African Americans was almost four years shorter than for white Americans in 2015.\textsuperscript{20} Diabetes, cardiovascular disease, hypertension, and obesity disproportionately affect African Americans.\textsuperscript{21}

Alongside traditional health metrics, the United States also underperforms its peers on a broader range of well-being metrics. According to a report published as part of the OECD’s Better Life Initiative, the United States ranks in the bottom third in areas such as housing conditions, education, personal security, and the social and family environment.\textsuperscript{22}

Several potential explanations for US underperformance have been proposed. These include deficiencies in public health and medical care systems, individual health behaviors, health-related policy, social values, and social determinants such as income, wealth, education, and race and ethnicity.\textsuperscript{23} These factors likely work in concert, with the exact contribution of each factor varying significantly based on time and place.\textsuperscript{24} This suggests that efforts targeting only one factor, such as the traditional health care system, may be necessary, but not sufficient to improve health and well-being for all.

\begin{footnotesize}
\end{footnotesize}
How the Private Sector Affects Health

If the status of population health in the United States is sub-optimal and the private sector is undeniably a major factor in the lives of Americans, it follows that business almost certainly affects health to one degree or another possibly across a range of factors, positively or negatively, intentionally or unintentionally. In order to understand this influence, a broad narrative review was conducted (see Part II.A.) using as a starting point a range of health and well-being frameworks as they applied to corporate policies, practices, initiatives and workplace characteristics, as well as feedback from the Project’s Advisory Committee. The review focused on employees (and the workforce in general), employees’ families and their communities. The health impacts are summarized here.

Undesirable Outcomes

Despite a range of efforts, both mandatory and voluntary, to improve health and well-being of employees, families, and communities, there are instances in which business operations, practices, and policies have contributed to negative health and well-being outcomes.

Working Conditions

Certain working conditions still result in workplace injuries and illnesses. There were approximately 2.9 million nonfatal workplace injuries and illnesses occurring at a rate of 3.0 injuries per 100 full-time equivalent workers and 4,836 fatal workplace injuries in the United States in 2015. Non-Hispanic black workers and foreign-born Hispanic workers face elevated levels of workplace injury risk and experience a higher prevalence of work-related disabilities for members of these groups. Along with being at a higher risk for workplace injuries, discrimination and harassment based on race, sex, gender identity, and ability are associated with a wide range of negative health and well-being outcomes including stress, anxiety, high blood pressure, sleeplessness, and an increased likelihood of alcohol or tobacco use.

Workplace Policies

Workplace policies also play an important role in employee and family health. For example, absence of paid family leave has been found to be associated with a range of negative maternal mental and physical health outcomes, including increased risk of depressive symptoms and poor mental well-being for mothers. By not offering high-quality health insurance plans to all employees, employers may also contribute to negative health outcomes for employees and their families. Despite gains in coverage under the Affordable Care Act, 12.2% of US adults were uninsured at the end of 2017, an increase of 1.3 percentage points from 2016. While findings on the health impacts of insurance are mixed, several studies suggest that lack of coverage is linked to increased mortality. Children who are either uninsured or underinsured are more likely to have problems with access to and quality of care.

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Work Organization

Characteristics of the way that work is organized, such as long daily or weekly work hours, have been linked to a wide range of negative physical and mental health outcomes. There is some evidence showing habits such as increased alcohol consumption and smoking may also be associated with long daily work hours. Injury and accident risk also increases significantly in the last three hours of 12-hour shifts. Other potential harms result from factors that “tend to coincide” with such work hours including sleep disruption and the inability to detach from work. Shift work has also been associated with sleep disruption, as well as increased cardiovascular risk factors. The negative impacts of work organization can also spill over to families, with strong evidence of a relationship between shift work and family conflict.

Employees who lack job security are more likely to experience tension within the home, and children born to parents with low job security may be at a higher risk for low birthweight. As with many health outcomes in the United States, workers of lower socioeconomic status, racial/ethnic minorities, immigrants, and women are more likely to be exposed to a lack of job security, and thus more likely to be exposed to the risks associated with job insecurity.

Community and Environmental Impacts

Negative health outcomes associated with corporate activity extend beyond employees and families into the broader communities in which corporations operate. For example, marketing and advertising of unhealthy products such as tobacco, alcohol, and some foods and beverages have been linked to increased consumption of these products. This effect is particularly pronounced among youth and children. A 2016 review of 18 studies in which exposure to unhealthy food and nonalcoholic beverage advertising was experimentally manipulated found a significant association between exposure to advertising and increased food intake for children. Multiple studies have found an association between exposure to alcohol marketing and subsequent alcohol use, including hazardous or binge drinking. Studies of tobacco marketing and use have consistently found that exposure to tobacco advertising is associated with the likelihood that adolescents will start using tobacco.

Some business activity has also contributed to environmental degradation and climate change, both of which are linked to negative public health outcomes. Industrial emissions contribute to high concentrations of particulate matter and ozone concentration. Some estimates suggest that these emissions contribute to over 40,000 premature deaths each year. The effects of such emissions are not equally distributed, however. Multiple studies have found that non-white populations are more likely to be exposed to a range of pollutants from nitrogen dioxide to benzene and acetaldehyde. Climate change is increasingly recognized as a public health problem both through the direct effects of rising temperatures and increasing frequency of extreme weather events, as well as through changes in the distribution of infectious disease, effects on food security, and climate-related displacement.
Positive Contributions

Over the past several years, many U.S. companies have implemented health-related programs and policies that have resulted in important shifts in health and wellness attitudes and behaviors among employees; however, there is still room for improvement to create lasting and meaningful change. For example, while wellness programs are widespread among large companies, such programs are often unavailable to family members and community members. The current paradigm for a culture of health in some industries emphasizes health and safety rather than a more complete vision of well-being. There is an opportunity for businesses to start making the connection between health in the workplace and wider social issues, such as inequality and discrimination, and to begin closing those gaps in an effort to contribute to a more comprehensive culture of health.

Fortunately, more companies than ever before have begun to recognize their role and impact on population health. Some use their reach and influence to improve the health and well-being of employees, families and the communities where they operate and to promote health and well-being through their products and services. For other companies, population health, well-being and health equity have become strategic issues key to long-term sustainability and a shared value proposition. Today, U.S. companies are uniquely suited to accelerate the pace of change in promoting a culture of health.

Healthy Workplaces

Employees of companies that emphasize the importance of health are more likely to engage in healthy activities and are less likely to be obese. Workplace health promotion, both through wellness programs and changes in the physical environment can help employees manage health risks and make healthier choices. An evaluation of Johnson & Johnson's health and wellness program found that employees experienced meaningful reductions in the risk of obesity, high blood pressure, tobacco use, poor nutrition, and physical activity. Implementing occupational health and safety management systems can reduce the risk of workplace injuries and fatalities.

Studies evaluating the importance of social capital in the workplace have found that an increase in social capital is associated with decreased risk of mortality. In highly demanding occupations, employees in high social capital workplaces are less likely to use tobacco. This suggests that the development of social capital within the workplace is an important avenue for companies looking to make a positive contribution to employee health and well-being. Similarly, policies and programs meant to address discrimination and inequality may serve to reduce the risk of poor health outcomes associated with race and ethnicity, sex and gender identity and ability.

Technological and economic developments have resulted in a shift from the traditional workweek to a range of non-standard work schedules including shift work, compressed work weeks, weekend work and on-call work alongside the blurring of the line between work and non-work time. While these changes have been associated with negative outcomes, corporate policies and programs can reduce them. When shift workers have a greater level of control over their schedules, for example, many of the negative impacts of shift work are attenuated. An increased sense of job control and self-efficacy may also lessen the negative effects of job insecurity.

Healthy Families and Communities

These and other corporate policies can have an important impact on the health not just of employees, but of their families as well. Providing adequate health insurance promotes improved health outcomes, particularly for adults with chronic conditions, infants, and children. When companies offer paid family leave to their employees, employees, families, communities and companies all tend to benefit. Women with access to paid family leave are less likely to experience serious depression, psychological distress and according to one study, intimate partner violence, than those without. Studies have also shown improvements in general self-reported health as well. Longer paid leave periods are associated with reductions in post-neonatal mortality and mortality between the first and fifth birthdays. One study from Norway examining a change from unpaid leave to paid leave found a 2.7% decrease in high school dropout rate and a 5% increase in wages at age 30.

Looking “beyond the four walls” of the workplace, companies can also invest in community health. Companies such as Bath Iron Works have taken programs that have been successful with employees out into the community. Community participants in Bath Iron Works’ diabetes prevention program have seen weight loss of approximately 7% as well as a drop in physiological markers associated with diabetes. The Campbell Soup Company’s Healthy Communities program, based on a collective impact approach, has brought together a range of cross-sector partners with the common goal of reducing childhood obesity and food insecurity by 50 percent in 10 years (Fortunato, 2015). According to a discussion paper published in 2015, Campbell Soup Company reported “significant behavioral changes among our youngest community members, whose physical activity has increased and intake of fresh produce and attitudes about eating new foods have measurably improved” with “small sample sets of children” showing stabilized and decreasing BMI, and improved access to healthier foods in Camden, New Jersey. Furthermore, by adhering to responsible marketing practices, companies can reduce youth tobacco or alcohol use and the consumption of less healthy food. By providing financial literacy resources, companies can help their employees better prepare for retirement.

Companies can contribute to solving global environmental challenges, including climate change. Climate change mitigation presents opportunities for health co-benefits such as improved air quality through decarbonization of transportation and power generation, as well as through the mitigation of the negative impacts of climate change itself on air quality.

Business and the Determinants of Health

As positive and negative health impacts accumulated across the study, a picture emerged of how the private sector influences or even controls health determinants – often as part of their normal activities. The Table below graphically represents the relative strength of these influences using a subjective assessment of the strength of correlations, strength of evidence and effect sizes of the health outcomes for each determinant (see Appendix C-2). Data bars in the higher range represent a combination of strong correlations, strong evidence, and/or larger effect sizes; data bars in the low range represent a combination of statistically insignificant to weak correlations, weak evidence, and/or small effect sizes. Inevitably of course, there are some health determinants for which business has little influence beyond, perhaps, providing education, support or through philanthropic activity.

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Table 1-3 illustrates the critical position the private sector has in contributing to a Culture of Health and why a growing number of companies have begun to recognize their ability to use their reach to reap the benefits of healthier and happier employees, families and communities across the United States.
Corporate Health Measurement & Disclosure

Measures, metrics and indicators play an important role in supporting corporate efforts to build a culture of health. Measurement can promote an understanding of the concept, inform strategic thinking and planning, provide feedback on ongoing efforts, and provide a basis for assessing progress, gaps, and opportunities. In the corporate and investment communities, the evolution of improvements in ESG (Environmental, Social and Governance criteria) performance and investment has gone hand-in-hand with the growth of measurement, disclosure and a wide array of products and services from ratings organizations and data providers, albeit with an emphasis on the E in ESG rather than the S.

Health Measures in ESG Reporting Frameworks

An analysis of existing health measures in ESG reporting frameworks revealed that while some are present, the current distribution is not sufficient to characterize progress toward building a culture of health (see II.B. Health Measures in Major Environmental, Social and Governance Frameworks). Occupational health and safety measures and environmental impact measures dominate reporting standards covering multiple subtopics and multiple indicators. For the most part, the measures required are those that companies in many countries are already obligated to track and report, such as injury and fatality rates. Some reporting frameworks refer to the existence of policies and programs to manage occupational health and safety risks.

This focus blurs several areas critical to a culture of health, particularly in business practices that have significant impacts not only on employees, but also on their families. Paid parental leave is increasingly covered, but issues that relate to scheduling, work-life balance, and job security are only briefly touched upon. Measures related to culture – the shared values, beliefs, and actions across the organization – are absent.

Health Measures in Corporate Disclosures

Companies increasingly recognize the importance of health and well-being measures to their stakeholders and shareholders. However, the pace of this change is slow. Since 2012, there has been a slight increase in the number of companies including disclosures related to health and well-being issues in their sustainability reporting, from occupational health and safety to equality and diversity. However, the increase and the overall level of reporting are uneven across industries. For example, in 2017, Consumer Goods & Services and Financial Services companies were much more likely to report on issues related to equality and diversity than Utilities or Oil & Gas companies. Health Care & Pharmaceutical and Consumer Goods & Services companies are most likely to refer specifically to their corporate culture of health, while Financial Services companies are most likely to report on issues of financial literacy. Despite this variability, there are some general patterns that hold across industries. For example, the number of companies reporting on issues such as work-life balance, job security, health insurance benefits, and paid parental leave was much lower than the number reporting on occupational health and safety and environmental impacts regardless of industry.

Incorporating health and well-being information into financial reports is less common, with the exception of environmental issues and, to a lesser extent, issues related to occupational health and safety and diversity. As with non-financial reports, only a small number of companies include issues such as work-life balance, job security, health insurance benefits, and paid parental leave. An even smaller number of companies, primarily in the Health Care & Pharmaceutical and Consumer Goods & Services industries make an explicit reference to a culture of health in their financial reports.

Exhibit II.C. Corporate Reporting of COH Business Practices surveys the current state of health disclosures in corporate reporting in the U.S.

Health Measures in ESG Research Methodologies

Similarly, health practices and measures are, for the most part, under-represented in existing ESG research methodologies (see II.B. Health Measures in Major Environmental, Social and Governance Frameworks). Metrics related to some areas, such as occupational health & safety and environmental impacts, appear frequently, often with multiple discrete measures. For one framework, occupational health & safety metrics make up approximately one-third of the health-related social measures.

For most health practices unrelated to health, safety and the environment, a significantly smaller number of measures, if any at all, are addressed. Some ratings frameworks have begun to include issues such as work time, paid parental leave, gender and racial equality, and job security. However, in many (though not all) cases these issues are addressed with “yes/no” measures indicating only whether a policy, such as an equal opportunity policy, is in place. Few measures relate to areas that have significant impacts on employees’ families. Some ratings frameworks have begun to collect crowdsourced data on company culture as it relates to issues such as work-life balance and communication; however, this remains the exception.

The use of measurement, reporting and disclosure of many social issues in business and investment decision-making is lagging, despite the fact that numerous issues within the control or influence of businesses are known to have both health and business impacts. Consequently, the picture of a given company’s contribution to a culture of health is incomplete to the detriment of business and investment decision-making. While public health experts have developed a range of culture of health measures, metrics and scorecards, more can be done to stimulate wider inclusion in the larger ESG information marketplace. The market is ready for a definitive suite of business- and investor-relevant practices that are known to provide both health and business benefits and which can inspire companies to embody RWJF’s Culture of Health concept strategically and in their daily decision-making.
I.D. How the Private Sector Can Further Contribute to a Culture of Health and Improve Business Performance

Enlightened companies and investors know that sustained value creation requires permanent access to healthy employees, communities, customers and suppliers. They understand that beyond risk management or a moral imperative, strategic consideration of health and well-being provides opportunities for differentiation, new lines of business and competitive advantage. While the challenges are great, the private sector is key to improving population health effectively and equitably, and ideally equipped to help instill as a new norm the central position health should have in our society.

Culture of Health Business Practices (COHBPs) & Metrics

The narrative review that identified the positive and negative health outcomes associated with business practices and activities (Part II.A.) also identified the outcomes to key business indicators such as productivity, brand and financial performance. Ultimately these activities could be grouped into 16 business practices – Culture of Health Business Practices, or COHBPs, each within the control of business, measurable and supportive of performance tracking and disclosure, and of interest to the investment community (see Table 1-4). The COHBPs are compatible with existing frameworks such as the Robert Wood Johnson Foundation/RAND Action Framework or the Four Pillars/Population Health Footprint Model by Quelch and Boudreau.

Contextualizing the business levers of health through discrete, recognizable business practices and articulating exact, demonstrably positive health and business impacts, reinforces the nature of the dynamic intersection of health and business and enables business leaders to contribute effectively and confidently to a Culture of Health, while being assured that these COHBPs can also improve business performance.

Many companies will already have deep expertise in some or all of these COHBPs considered as they are as fundamental to workforce health, compliance, risk management or a “license to operate.” Other COHBPs embody a convergence of contemporary expectations of progressive corporate citizenship. Still others are being increasingly recognized as powerful candidates for those companies seeking to demonstrate leadership through a transformative, strategic approach to population health. Taken as a whole, these COHBPs provide a strategy framework for goal-setting, investment and long-term value-creation; taken individually they will enable a targeted and customized approach to health and business management.

It is intended, in particular, that the full suite of COHBPs and their measures will be adopted, as appropriate, by the business community and become increasingly in demand from investors as necessary determinants for sustained value creation. ESG reporting frameworks can provide the COHBPs and measures as guidance to their standards or guidelines. Intermediaries in the market can accelerate this process by incorporating these indicators of good business practice and improvements to population health into research methodologies.

The choice of business and health indicators and the methodology by which positive impacts were derived is given in Part II.A. Known health and business outcomes represented here are derived, conservatively, from the literature review associated with this project. Only statistically significant results have been presented; the literature itself contains evidence of many more positive relationships between COHBP and health and business impacts based on weaker correlations or strong supposition.

Research literature was confined to business outcomes from political activity in general and not as it pertains to health specifically.

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Table 1-4 - Culture of Health Business Practices & Metrics, Summary (Part II.A.)

<table>
<thead>
<tr>
<th>Culture of Health Business Practices</th>
<th>Description</th>
<th>Example Metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Culture</td>
<td>Promoting an organizational culture of health (over and above wellness and health promotion programs, addressed below)</td>
<td>Inclusion of health in company’s value statements; Senior leaders express value and importance of health; Company systematically and consistently integrates health into their activities</td>
</tr>
<tr>
<td>Responsible Corporate Political Activity</td>
<td>Corporations and industry associations engage in a range of actions to shape public policy and public opinion. This includes lobbying, cultivating relationships with decision-makers and engaging with stakeholders. Using these channels, companies can create positive societal impact by advocating for public policy and regulatory goals that improve health and well-being.</td>
<td>Disclosure of contributions to political candidates, parties, and committees; Disclosure of contributions to Super PACs; Disclosure of trade associations and 501(c)(4) social welfare organizations; Lobbying expenses</td>
</tr>
<tr>
<td>Responsible Marketing Practices</td>
<td>Commitments to responsible marketing</td>
<td>% promoting products meeting the Children’s Food and Beverage Initiative (CFBAI) Uniform Nutrition Criteria; # of child advertising impressions</td>
</tr>
</tbody>
</table>

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**Note**

62. The choice of business and health indicators and the methodology by which positive impacts were derived is given in Part II.A. Known health and business outcomes represented here are derived, conservatively, from the literature review associated with this project. Only statistically significant results have been presented; the literature itself contains evidence of many more positive relationships between COHBP and health and business impacts based on weaker correlations or strong supposition.

63. Research literature was confined to business outcomes from political activity in general and not as it pertains to health specifically.
## Culture of Health Business Practices

<table>
<thead>
<tr>
<th>Description</th>
<th>Example Metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health Promotion &amp; Wellness</strong>&lt;br&gt;Providing health promotion and wellness programs</td>
<td>Employees entitled to health and well-being programs and services; Health outcomes of employees reached by health and well-being programs</td>
</tr>
<tr>
<td><strong>Paid Family &amp; Medical Leave</strong>&lt;br&gt;Allowing employees to earn pay while away attending to illness, a family member or newborn</td>
<td>Total # of employees that were entitled by parental leave, by gender; Return to work and retention rates of employees that took parental leave, by gender</td>
</tr>
<tr>
<td><strong>Health Insurance</strong>&lt;br&gt;Providing employer-based health insurance</td>
<td>% of employees entitled to health insurance benefits; Employer contribution to health insurance premiums</td>
</tr>
<tr>
<td><strong>Equality, Diversity &amp; Impartiality</strong>&lt;br&gt;Managing inequality, discrimination and diversity, including disability</td>
<td>% of employees per employee category by gender, age group, and other indicators of diversity; % of incidents of discrimination, % of employees with disabilities</td>
</tr>
</tbody>
</table>
## Culture of Health Business Practices

<table>
<thead>
<tr>
<th>Description</th>
<th>Example Metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Financial Literacy</strong>&lt;br&gt;Providing financial literacy resources</td>
<td>Employees entitled to financial literacy training; Number of employees reached by financial literacy training</td>
</tr>
<tr>
<td><strong>Work Time</strong>&lt;br&gt;Managing working hours, schedules and schedule control</td>
<td>Notice given to employees for schedule changes; # of employees with flexible scheduling arrangements</td>
</tr>
<tr>
<td><strong>Job Security</strong>&lt;br&gt;Managing job insecurity as perceived (by the employee) or attributed (by researchers)</td>
<td># of employees laid off in the past year; Notice given to employees/representatives prior to significant operational changes</td>
</tr>
<tr>
<td><strong>Pay Practices</strong>&lt;br&gt;Managing wage policies, minimum wages, wage satisfaction</td>
<td>Ratio of the entry level wage to minimum wage; percentage of employees earning minimum wage; average hourly wage by region; estimated percentage of employees at the company making a living wage; median annual compensation</td>
</tr>
</tbody>
</table>

### WORKFORCE & OPERATIONS

#### Financial Literacy

Financial literacy is the ability to use knowledge and skills to manage one's financial resources for lifetime financial security. Workplace financial education was introduced in the 1980s when employers instituted educational programs focused on financial decisions and retirement planning.

- Employees entitled to financial literacy training; Number of employees reached by financial literacy training

#### Work Time

Technological and economic developments have changed the organization of work. Work schedules have shifted from traditional workweeks to a range of non-standard schedules including shift work, compressed work weeks, weekend work and on-call work. Business leadership can boost workforce productivity by respecting non-work time, thereby encouraging employees to maintain resiliency, build social health, and manage work-related stress.

- Notice given to employees for schedule changes; # of employees with flexible scheduling arrangements

#### Job Security

Job insecurity refers to the discrepancy between the level of job security a person experiences and that which they prefer. This captures a wide range of experiences from workers in the primary labor market where jobs are often seasonal, part-time or temporary. Business leadership can boost workforce productivity by respecting non-work time, thereby encouraging employees to maintain resiliency, build social health, and manage work-related stress.

- # of employees laid off in the past year; Notice given to employees/representatives prior to significant operational changes

#### Pay Practices

Income is an important social determinant of health. For working-age people with jobs, wages (including salaries) make up the largest share of income. Wages are a fundamental dimension of job quality and among the most important aspects of employment for many workers.

- Ratio of the entry level wage to minimum wage; percentage of employees earning minimum wage; average hourly wage by region; estimated percentage of employees at the company making a living wage; median annual compensation.
### Culture of Health Business Practices

<table>
<thead>
<tr>
<th>Description</th>
<th>Example Metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Occupational Health &amp; Safety</strong>&lt;br&gt;Mandatory and voluntary occupational health and safety</td>
<td>Injury rate; Days away from work</td>
</tr>
<tr>
<td>Despite laws and regulations regarding occupational health and safety risks, preventable injuries still occur. Many of these are closely, although not exclusively, linked with elements of the physical work environment including physical, chemical, biological, ergonomic and mechanical hazards. Proactive thinking by business can help eliminate preventable injuries.</td>
<td></td>
</tr>
<tr>
<td><strong>Physical Environment</strong>&lt;br&gt;Managing air quality, lighting, green buildings, health-promotion attempts through the built environment (excluding OHS, see below)</td>
<td>Availability of support for physical activity (e.g., on-site fitness center, walking trails); Indoor air quality results</td>
</tr>
<tr>
<td>The physical work environment includes the structure, air handlers, furniture, products, chemicals, materials and processes that are present in the workplace. This environment impacts the workforce and the community. Characteristics of the physical work environment include air quality, lighting, “green building” practices as well as attempts to promote health through the built environment and health-promoting infrastructure.</td>
<td></td>
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### Community

<table>
<thead>
<tr>
<th>Description</th>
<th>Example Metrics</th>
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<tbody>
<tr>
<td><strong>Community Environmental Impacts</strong>&lt;br&gt;Managing the environmental impacts of company operations on communities</td>
<td>Scope 1, 2, and 3 GHG emissions; Environmental management systems</td>
</tr>
<tr>
<td>The potential community health impacts of corporate operations, including those of suppliers throughout the value chain, are well known. These include those resulting from pollution, quality of life impacts such as unpleasant odors, as well as impacts on social capital and community cohesion. Climate change is increasingly recognized as a major public health issue affecting the social and environmental determinants that underpin good health.</td>
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### Culture of Health Business Practices

<table>
<thead>
<tr>
<th>Description</th>
<th>Example Metrics</th>
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</thead>
</table>
| **Social Capital & Cohesion**  
Encouraging links, shared values and understanding | Levels of employee engagement; Level of trust between employees, coworkers, and management |
| **Community Involvement**  
Investments in programs to benefit communities, including disaster response and recovery | Partnerships with community organizations; Employee hours contributed to community organizations; Partnerships with local, state, or national relief organizations |

<table>
<thead>
<tr>
<th>POSITIVE IMPACT PROFILE 62</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health &amp; Safety</strong></td>
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<tr>
<td><strong>Health &amp; Safety</strong></td>
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<tr>
<td><strong>Economic Costs to Society</strong></td>
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<tr>
<td><strong>Mortality</strong></td>
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</table>

Social Capital refers to the links, shared values and understandings that enable individuals and groups to trust each other and work together. Social capital is often considered a key element of social cohesion. Businesses can play an important role in increasing social capital and cohesion within the workplace and the communities in which they operate. This cohesion can smooth operations, improve trust and legitimacy, and increase business profitability.

Social capital is often considered a key element of social cohesion. Businesses can play an important role in increasing social capital and cohesion within the workplace and the communities in which they operate. This cohesion can smooth operations, improve trust and legitimacy, and increase business profitability.

Business involvement in community health efforts takes many forms, from traditional corporate philanthropy to novel cross-sector collaborations. Along with business, this category also includes economic development, media and law enforcement.

Partnerships with community organizations; Employee hours contributed to community organizations; Partnerships with local, state, or national relief organizations.
Culture of Health Business Practices and the Determinants of Health

Finally, the research into health outcomes associated with business activities enables a more detailed picture of the levers the private sector has to influence health determinants (see Table 1-5). By sustaining, improving or adopting these COHBPs, businesses have the opportunity to exercise significant levels of influence and control over critically important determinants of individual and population health.

Table 1-5 COHPBs & the Determinants of Health

<table>
<thead>
<tr>
<th>Health Determinant Category</th>
<th>Individual Behavior</th>
<th>Social Environment</th>
<th>Biology &amp; Genetics</th>
<th>Health Services</th>
<th>Physical Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health Culture</strong></td>
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<tr>
<td>Responsible Corporate Political Activity</td>
<td>* * * * * *</td>
<td>* * *</td>
<td>* * * * *</td>
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<td>* * *</td>
</tr>
<tr>
<td>Responsible Marketing Practices</td>
<td>* * *</td>
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<td>* * *</td>
</tr>
</tbody>
</table>

**Strategic**

**Health Promotion & Wellness**

**Paid Family & Medical Leave**

**Health Insurance**

**Equality, Diversity & Impartiality**

**Financial Literacy**

**Policies & Benefits**

**Workforce & Operations**

**Community**

**Community Environmental Impacts**

**Social Capital & Cohesion**

**Community Involvement**

A Culture of Health for Business
Part I: Health Metrics for Business, Smart Business Practices, Principles
I.E. How Should the Marketplace Think About A Culture of Health?

Health as a Strategic Priority

It is clear that the private sector bears a responsibility for the state of health in the United States and has, within its control, myriad opportunities to positively impact health, often while improving business performance. To some large degree instituting a Culture of Health depends on the private sector as much as it does on public policy, the scientific community, civil society, and other stakeholders. And, as is evidenced by the range of best practices documented in the literature and ESG reports, business represents a key source of the types of innovations, investments, and partnerships necessary to continually improve population health.

In many ways one of the Culture of Health Business Practices – Health Culture – should stand apart from the other 15. A true health culture in any organization requires both the commitment of leadership as well as grass roots support to view all business decisions through or with the perspective of workforce, community, customer and supply chain health. It requires the insight to realize that long-term business success relies on sustaining an ecosystem predicated on health, well-being and resilience.

Culture of Health for Business Guiding Principles

To better contextualize health as a core strategic priority, four guiding principles were developed during the course of this project that lay the foundation for the private sector’s key role in building a culture of health and articulate society’s changing expectations of businesses and investors to provide further leadership and contributions in this arena.

PRINCIPLE 1 | The private sector is essential to shaping and promoting societal values, narratives and language around health and well-being, and to improving population health in ways that prioritize health equity, collective action, and harm reduction.

PRINCIPLE 2 | Business success depends on healthy workforces, suppliers, communities, and other stakeholders within the ecology of the supply chain; a healthy society is a shared value.

PRINCIPLE 3 | Successful business leadership recognizes health as a strategic priority to be integrated consistently across governance, strategy, investments, operations, products, services, and value chains.

PRINCIPLE 4 | Responsible businesses measure and disclose their health impacts and contributions to a Culture of Health. Businesses and investors use this to enhance operational and investment decision-making, ultimately reinforcing and rewarding behaviors that promote health.

Marketplace

Putting aside changes to public policy, there is much that the ecosystem around the private sector can do to encourage the widespread promulgation and adoption of the COH for Business Guiding Principles. The following section details the segments whose feedback and support will be critical in the implementation phase, along with an overview of engagement strategies by segment.

64. These Principles were synthesized from suggestions from the project’s Advisory Committee and comments gleaned from the Stakeholder Consultation. They are aligned to RWJF’s 10 Principles for a Culture of Health and the RWJF/RAND Action Framework.
accompany a meaningful, long-term engagement with stakeholders, a number of enabling mechanisms have been designed, in order to encourage awareness and facilitate adoption of the COH for Business framework. In addition to providing an opportunity to encourage awareness and adoption, the engagement process will also provide an opportunity to refine and revise these draft enabling mechanisms as necessary.

Key Market Segments

- Employees, Families, Communities are the primary beneficiaries of a COH for Business, including improved physical and emotional health for individuals and the communities in which they live and work. As stakeholders in the COH for Business, engagement strategies with employees, families, and communities will aim to generate a demand for the full implementation of the framework’s practices, including a willingness to partner with businesses, rewarding leadership.

- Investors & Socially Responsible Investing (SRIs) organizations are critical enablers of awareness and adoption of the COH for Business framework. As partners in fostering interest in the program and improving its rigor, investment organizations are perfectly positioned to demand implementation of a COH for Business, including collecting and incorporating data based on company health outcomes into their investment decisions, and rewarding businesses that seriously implement a COH for Business.

- ESG Raters, Rankers, Indexers, Researchers will, by incorporating health metrics into their work, be key enablers in the marketplace. They are well placed to develop the body of relevant measures, encourage disclosure and play a role in interpreting the findings for investors.

- Standards Bodies will be critical in helping to make the COH principles and practices the industry standard for any business. Primarily, these bodies will assist in adapting existing economic and social governance (ESG) reporting and management systems standards to incorporate a COH for Business. Additionally, this segment can help recognize and reward COH for Business leadership, a process that is likely to help drive adoption of the framework.

- Assurance Bodies will play a critical role in developing audit and certification protocols to assure COH for Business data, and verify good practices. In a related capacity, these bodies can also use their assurance protocols to recognize and reward business leaders, thereby driving demand for adoption of the framework.

- ESG-Minded Non-Profit and Consultancies will provide critical educational and strategic services for firms during the awareness and adoption phase, and therefore represent an important target segment for engagement.

- Issue-Specific Interest Groups can play a key educational and advocacy role by helping to create partnerships with corporations in order promote a COH for Business.

- Industry Associations will, like interest groups, play an important role in educating corporations on the COH for Business framework, as well as encouraging the frameworks adoption by recognizing and rewarding leaders in the implementation of a COH for Business.

Market Enablers

The following market enablers, partly derived from Stakeholder Consultation feedback, provide some initial thinking on the key ways the project can encourage and facilitate widespread use and enthusiasm.
<table>
<thead>
<tr>
<th>Enabler</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational &amp; Communications Material</td>
<td>Materials targeting a wide variety of stakeholders, including corporate leadership, investor relations, grass-roots organizations. They should explain the evidence of the health and positive business impacts resulting from COH-minded policies, in order to emphasize the value case for adoption of the framework. Importantly, these materials will include messaging from the investment community regarding the importance of health policies in their business decisions, and a strong indication that firms will be using indicators in order to make decisions about investment.</td>
</tr>
<tr>
<td>Data/Reporting/Measures</td>
<td>This market enabler will deepen the work already begun to strengthen the research support for COH for Business policies, including literature assessing the business impacts. It will highlight specific, standard metrics within the business realm, as well as offer additional thinking on the implementation of less-tangible practices. These proposals should be mindful of other reporting initiatives designed for business, and aim to maximize compatibility and alignment with those programs. Connections with the Consumer Decision Process model will also emphasize the compatibility of the COH for Business framework with the value case for companies. Finally, as a continuance of the work begun in previous phases of the COH for Business project, additional information on data, reporting, and measures will yield better definitions of the framework’s practices and policies.</td>
</tr>
<tr>
<td>Guidance &amp; Tools</td>
<td>Guidance mechanisms should cover a broad range of areas, in order to facilitate awareness and adoption throughout the market. These tools include:</td>
</tr>
<tr>
<td></td>
<td>• Industry-specific training and educational materials on the aims and standards of the framework;</td>
</tr>
<tr>
<td></td>
<td>• Pilot tools for support on implementation, including integration with companies’ existing efforts and other initiatives, as well as pilot projects to build an evidence case for support of the framework;65</td>
</tr>
<tr>
<td></td>
<td>• Data collection and reporting;</td>
</tr>
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<td></td>
<td>• Financial considerations, in order to better demonstrate the strong value proposition of the framework;</td>
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<tr>
<td></td>
<td>• Information on pursuing continual improvement, corrective action, and evidence-based guidance on best practices;</td>
</tr>
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<td></td>
<td>• Employee engagement;</td>
</tr>
<tr>
<td></td>
<td>• Goal-setting and mapping, including identifying and overcoming barriers and pitfalls;</td>
</tr>
<tr>
<td></td>
<td>• Opportunities for capitalizing on efficiencies;</td>
</tr>
<tr>
<td></td>
<td>• Help with the cross-functional nature of the field;</td>
</tr>
<tr>
<td></td>
<td>• Engaging suppliers, including data collection and measures of their implementation of the framework; and</td>
</tr>
<tr>
<td></td>
<td>• Engaging community members and other partners.</td>
</tr>
<tr>
<td>Assurance</td>
<td>These enablers will create accountability structures for the implementation of the framework practices and principles, in order to ensure that the policy and cultural changes that companies make to foster a COH are concrete, effective, and transformative to business operations. These enablers will likely include third-party certifications of companies.</td>
</tr>
<tr>
<td>Recognition/Rewards</td>
<td>Recognition of excellence in the implementation of a COH for Business framework, particularly when linked with the market value of the adoption, is a critical market enabling mechanism. Recognition could take various forms, like a “best place to work” ranking model, and would incorporate branding from the RWJF. Rewarding companies that become leaders in fostering a workplace and community culture of health can ensure greater enthusiasm for the measures.</td>
</tr>
<tr>
<td>Partnerships</td>
<td>By fostering public-private partnerships between business, civil society, and government for collective action, the holistic goals of the COH for Business framework can be better achieved. Opportunities for these kinds of partnerships include the BSR Healthy Business Coalition, as well as vehicles for fostering community involvement in identifying and solving shared problems. Furthermore, these partnerships are ideally placed to analyze the risks and challenges for the workers at a company, and create intervention plans tailored to the needs of business, workers and operations.</td>
</tr>
</tbody>
</table>

65. These others systems include the UN Sustainable Development Goals, the Global Reporting Initiative standards, the UN Global Compact Health Business Initiative, and the International Standards Organization, among others. Engagement with these systems will also emphasize when the COH for Business policies move beyond regulatory requirements.
Part II: Project Research

A. Literature Review: Culture of Health Business Practices

B. Health Measures in Major Environmental, Social and Governance Frameworks

C. Corporate Reporting of COH Business Practices
II.A. Literature Review: Culture of Health Business Practices

Introduction

Researchers from diverse fields have sought to understand the health impacts of corporate activity, efforts to improve health outcomes within corporations, and the business outcomes associated with those efforts. This review summarizes the current state of knowledge on these issues, drawing from articles published in peer-reviewed journals and gray literature that included non-peer-reviewed white papers and discussion papers, reports, and presentations.

In addition to RWJF’s 10 Principles for a Culture of Health (see Preface) several other frameworks (many of which are described in Environmental Scan, Measuring a Culture of Health66) served as sources of candidate culture of health (CoH) factors and informed our review of potential policies, programs, initiatives and workplace characteristics (see Table 2-1). These frameworks included the RWJF Culture of Health Action Framework, the WHO Healthy Workplaces Framework, and the Population Health Footprint.

### Table 2-1: Culture of Health (CoH) Frameworks

<table>
<thead>
<tr>
<th>Enabler</th>
<th>Source</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Culture of Health Action Framework</strong></td>
<td>RWJF and RAND Corporation <a href="http://www.cultureofhealth.org">www.cultureofhealth.org</a></td>
<td>Presents drivers of 4 key Action Areas (making health a shared value, fostering cross-sector collaboration to improve well-being, creating healthier more equitable communities, and strengthening integration of health services and systems). Representative measures of each driver – many applicable to business – are presented.</td>
</tr>
<tr>
<td><strong>Population Health Footprint/Four Pillars</strong></td>
<td>John Quelch, Harvard Business School/Harvard TH Chan School of Public Health</td>
<td>A company’s population health footprint (PHF) is based on its cumulative positive and negative effects across 4 dimensions or “pillars”: consumer health, employee health, community health, and environmental health.</td>
</tr>
<tr>
<td><strong>Healthy Workplace Framework</strong></td>
<td>World Health Organization <a href="http://www.who.int/occupational_health/healthy_workplace_framework.pdf">http://www.who.int/occupational_health/healthy_workplace_framework.pdf</a></td>
<td>4 “Avenues of Influence” by which employers can influence the health status of workers</td>
</tr>
<tr>
<td><strong>Sustainable Development Goals</strong></td>
<td>United Nations <a href="http://www.sustainabledevelopment.un.org">www.sustainabledevelopment.un.org</a></td>
<td>17 internationally agreed sustainable development goal with 169 targets (and indicators).</td>
</tr>
<tr>
<td><strong>Social Progress Index</strong></td>
<td>Social Progress Imperative <a href="http://www.socialprogressindex.com">www.socialprogressindex.com</a></td>
<td>Presents 3 dimensions of social progress – basic human needs, foundations of well-being and opportunity – with 50 social and environmental indicators.</td>
</tr>
<tr>
<td><strong>Optimal Healthy Workplaces</strong></td>
<td>Samueli Institute</td>
<td>4 environments, 8 constructs. See HERO, 2014.</td>
</tr>
<tr>
<td><strong>Culture of Health Model</strong></td>
<td>Pronk and Allen</td>
<td>Interplay between personal values, organizational values and business performance. See HERO, 2014</td>
</tr>
<tr>
<td><strong>Building a State of Wellbeing</strong></td>
<td>PERMA South Australian Model</td>
<td>Raising the health and well-being of a community through leadership, interventions and measurement. See HERO, 2014</td>
</tr>
<tr>
<td><strong>Shared Values Shared Results</strong></td>
<td>Edington Associates</td>
<td>5 pillars of a thriving workplace. See HERO, 2014</td>
</tr>
<tr>
<td><strong>National Wellbeing</strong></td>
<td>United Kingdom</td>
<td>10 domains of personal well-being and overall health. See HERO, 2014</td>
</tr>
<tr>
<td><strong>Well-Being Index</strong></td>
<td>Blue Zones/Gallup-Healthways</td>
<td>Measures associated with career, social, financial, physical and community well-being. See HERO, 2014</td>
</tr>
<tr>
<td><strong>Core Elements of Culture</strong></td>
<td>Health Enhancement Research Organization</td>
<td>Developing framework of core culture of health elements. See HERO, 2014.</td>
</tr>
<tr>
<td><strong>Corporate Programs</strong></td>
<td>Multiple</td>
<td>Several corporations, including AT&amp;T, GE, IBM, and Verizon, frame their health promotion efforts as part of a culture of health. These efforts tend to focus on employee health and well-being, with a focus on health both inside and outside of the workplace. Common elements of these efforts include health risk assessments, disease management, and health/wellness-related goal-setting. Products and services occasionally are integrated into these efforts as well.</td>
</tr>
</tbody>
</table>
Along with factors sourced from these frameworks, existing corporate programs and topics suggested by members of the project Advisory Committee were also assessed and became subject to a narrative literature review using PubMed, Web of Science, and Google Scholar. Gray literature was obtained from websites of organizations or companies mentioned in peer-reviewed or other gray literature, as well as by Google search. Sources were also drawn from reference lists of relevant materials. Only studies published in English were reviewed. Studies analyzing workers and businesses in the United States were preferred because of significant differences in health systems, labor law, and macroeconomic conditions among OECD countries. However, significant studies that focused on non-US OECD countries were included. Literature assessing corporate health impacts in non-OECD countries was not included in this review. While no study was excluded due to publication year, the literature review emphasized studies published within the last 10 years. Research findings related to both health impacts and business impacts of relevant policies, practices, and programs were reviewed.

Ultimately, the individual factors were grouped into 16 Culture of Health Business Practices (COHBPs) based on themes found in public health research, existing corporate practices, and feedback from the project Advisory Committee (the main body of this report further groups the COHBPs into four categories).

<table>
<thead>
<tr>
<th>Business Category</th>
<th>Culture of Health Business Practice</th>
</tr>
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<tbody>
<tr>
<td><strong>Strategic</strong></td>
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<tr>
<td>Health Culture</td>
<td></td>
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<tr>
<td>Responsible Corporate Political Activity</td>
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<tr>
<td>Responsible Marketing Practices</td>
<td></td>
</tr>
<tr>
<td><strong>Policies &amp; Benefits</strong></td>
<td></td>
</tr>
<tr>
<td>Health Promotion &amp; Wellness</td>
<td></td>
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<tr>
<td>Paid Family &amp; Medical Leave</td>
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<tr>
<td>Health Insurance</td>
<td></td>
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<tr>
<td>Equality, Diversity &amp; Impartiality</td>
<td></td>
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<tr>
<td>Financial Literacy</td>
<td></td>
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<tr>
<td><strong>Workforce &amp; Operations</strong></td>
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<tr>
<td>Work Time</td>
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<tr>
<td>Job Security</td>
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<tr>
<td>Pay Practices</td>
<td></td>
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<tr>
<td>Occupational Health &amp; Safety</td>
<td></td>
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<tr>
<td>Physical Environment</td>
<td></td>
</tr>
<tr>
<td><strong>Community</strong></td>
<td></td>
</tr>
<tr>
<td>Community Environmental Impacts</td>
<td></td>
</tr>
<tr>
<td>Social Capital &amp; Cohesion</td>
<td></td>
</tr>
<tr>
<td>Community Involvement</td>
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</tr>
</tbody>
</table>

Each of these 16 COHBPs is treated in turn in the materials that follow. Appendices to this Part tabulate a number of datasets that are presented sequentially below including summaries of the quantitative business and health outcomes, an assessment of the strength of the evidence and a categorization of the qualitative and quantitative findings into 30 or so health and business indicator keywords that are positively or negatively influenced by the COHBP.

A conclusion follows the treatment of the COHBPs but in summary there is firm evidence that businesses play an important role in employee, family and community health, well-being and equity through several avenues, although evidence for many interventions, programs and policies remains mixed. Evidence characterizing business impacts is less comprehensive but there is some evidence that selected interventions, programs, and policies may have positive impacts including increased productivity and employee retention.
**Health Culture**

Culture, the “sharing and alignment of beliefs, attitudes, values, and actions across a set of individuals, organizations, and decision environments” (Chandra, et al., 2016), is an important part of the psychosocial work environment. The development of workplace culture represents the “interaction between personal values, organizational values and norms, and business performance” (Pronk N., 2010, p. 36). Personal and organizational values and norms surrounding health thus interact to create a health culture, or a culture of health when they create an environment supportive of “valuing good health and making healthy choices about physical, mental, spiritual, and social well-being” (Chandra, et al., 2016, p. 3). While measuring concepts such as culture is challenging, several lines of research have examined the important role of workplace culture in influencing health, and the business impacts of fostering a culture of health in the workplace. Workplace wellness and health promotion programs are not included in this section. For a discussion of these programs, see Workplace Health Promotion & Wellness, below.

**Health Impacts**

Several companies have adopted the term “culture of health” to describe their approach to health in the workplace as well as in the wider community. However, there is little work that attempts to assess the impact of a culture of health itself on health outcomes. Rather, most research in this area focuses on workplace health promotion programs (Aldana, et al., 2012) which may contribute to a culture of health but do not necessarily represent a culture of health based on the definitions above. While some studies emphasize the importance of “cultural elements” within these strategies, these cultural elements tend to be studied as components of the health promotion program, not as a characteristic of the organization itself.

However, some more recent studies have attempted to assess organizational cultures of health and their impacts on health outcomes or health behaviors. One study designed solely to assess the culture of health at General Mills found that employees’ attitudes regarding health improvement and organizational commitment can be measured effectively, and that such questions could be used to determine whether or not a link between such a culture and health outcomes exists (Crimmins & Halberg, 2009). The survey used in this study, the “Total You Health Values Survey,” contained 14 core questions in three categories: Supportive Environment, Healthy Lifestyle Attitudes, and Knowledge and Behavior.

A cross-sectional study of participants in the Supports at Home and Work for Maintaining Energy Balance (SHOW-ME) study assessed the relationship between workplace social environment and cultural factors and diet and physical activity in a sample of employees from four Missouri metropolitan areas (Tabak, Hipp, Marx, & Brownson, 2015). The Missouri study found that workers reporting that they agreed with the statement that their companies value their health were more likely to report higher levels of physical activity and were less likely to be obese. Agreement with this statement varied significantly based on worker demographics, with white, higher-income, female, and older employees more likely to agree. Other organizational factors also differed based on demographics. For example, higher-income workers were more likely to see co-workers eating fruits and vegetables, while lower-income workers were more likely to see co-workers engage in physical activity. Employees who agreed with the statement that the company values employee health were more likely to have a BMI under 30 and engage in physical activity. The authors conclude that the social environment may play an important role in fostering healthy behaviors. This study is limited by its cross-sectional design; it is not possible, for example, to determine the direction of causality. BMI, diet, and physical activity measurements were self-reported, which may introduce bias and inaccuracy.

Features of the organizational and social environment have been shown to be correlated to employee perceptions of worksite health culture (Hoebbel, Golaszewski, Swanson, & Dorn, 2012), suggesting that these features of the workplace may provide insight into the existence of a culture of health in a workplace.

**Business & Economic Impacts**

A connection between workforce health and business performance has been hypothesized based on research linking health status to a range of metrics including healthcare expenditures, absenteeism, and presenteeism. One approach to test this hypothesis has been to examine the stock performance of high-achieving companies. A series of papers published in the Journal of Occupational & Environmental Medicine examined the financial performance of high-performing companies (Fabius, et al., 2016; Grossmeier, et al., 2016; Goetzel, et al., 2016). The four studies followed similar methodologies and conducted similar methodological analyses. First, companies were identified based on criteria applicable to each award or scorecard. For example, in a study assessing performance on the HERO Employee Health Management Best Practices Scorecard in Collaboration with Mercer (HERO Scorecard), researchers established a
cut-off score of 125 based on the distribution of scores. For Corporate Health Achievement Award (CHAA) applicants, multiple portfolios were simulated based on a range of cut-off points. Researchers then simulated the performance of an initial $10,000 investment in a portfolio containing companies above the performance threshold. Performance of the simulated portfolio was then compared to the performance of the S&P500 over the same period.

To varying degrees, each of the studies found that simulated portfolios composed of companies that performed well on measures of workplace wellness, health and/or safety outperformed the S&P 500. The portfolio containing C. Everett Koop Award winners outperformed the S&P 500 by a ratio of about 2.35 to 1.0 (Goetzel, et al., 2016). A portfolio composed of CHAA applicants with a Health score greater than 175 and a Safety score greater than 300 achieved a return of 333 percent while the S&P 500 achieved a return of 105 percent over the same period (Fabius, et al., 2016).

As the authors of these studies note, there are several limitations to these studies including sample size, the potential for reverse causality, and the correlational nature of the study (Grossmeier, et al., 2016; Goetzel, et al., 2016). However, these papers suggest that the HERO Scorecard, the C. Everett Koop Award, and the CHAA may require companies to disclose indicators relevant to ESG investors. The paper analyzing the financial performance of CHAA applicants goes furthest in making this connection, suggesting that the “CHAA assessment process should be realigned to follow the format of the DJSI [Dow Jones Sustainability Index]. The CHAA’s current categories of measurement would be converted to mirror the DJSI’s categories, which include economic, environmental, and social metrics. This would result in an Integrated Health and Safety Index” (Fabius, et al., 2016).

Along with financial returns, other metrics evaluated include healthcare expenditures (Sherman & Lynch, 2014) as well as improved reputation and increased attractiveness as a potential employer (Pronk N., 2010).

### Research Summary Table, Health Culture

<table>
<thead>
<tr>
<th>Impacts</th>
<th>Summary of Quantitative Outcomes</th>
<th>Indicators</th>
<th>Evidence Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health</strong></td>
<td>• Employees agreeing the company values my health were more likely to engage in higher PA levels (aOR*=1.54, 95% CI:1.09-2.16) and less likely to be obese (aOR=0.73, 95% CI: 0.54-0.98).&lt;br&gt;• Seeing co-workers eating fruits and vegetables was associated with increased reporting of eating at least one&lt;br&gt;• Vegetable per day (aOR=1.43, 95% CI: 1.06-1.91).&lt;br&gt;• Seeing co-workers being active was associated with higher PA levels (aOR 1.56, 95% CI: 1.19-2.05).&lt;br&gt;• Health culture scores (Lifegain Health Culture Audit) correlated with health-related communications (β=0.62) and environmental structure (β=0.37).&lt;br&gt;• *adjusted Odds Ratio</td>
<td>Diabetes, Obesity, Health behaviors</td>
<td>Limited or mixed</td>
</tr>
<tr>
<td><strong>Business</strong></td>
<td>• Improved financial performance based on simulated portfolios ranging from 2.35x to 3.33x</td>
<td>Health/safety, Employee satisfaction, Reputation/ stakeholders, Business costs, Share price</td>
<td>Limited or mixed</td>
</tr>
</tbody>
</table>
Responsible Corporate Political Activity

Corporate political activity (CPA) refers to activity undertaken by firms with the goal of shaping public policy and opinion in ways favorable to the firm (Lawton, McGuire, & Rajwani, 2013). While corporate political activity has long been controversial, the 2010 United States Supreme Court Decision, Citizens United v. Federal Election Commission decision reignited debate about corporate funding of political campaigns. However, such contributions are just one form of CPA. CPA also includes lobbying of elected officials and regulatory agencies, cultivating and deploying formal and informal relationships with political actors, and engaging with stakeholders to shape perception and public opinion about issues of interest to the firm. Firms may engage in CPA individually or collectively as part of industry groups or trade associations (Lawton, McGuire, & Rajwani, 2013; Hadani, Bonardi, & Dahan, 2017).

In the field of public health, the tobacco industry’s CPA has been widely studied, thanks in part to litigation in the 1990s that resulted in access to internal industry documents. More recently, as rates of obesity and related diseases have increased in the United States, the food industry has come under scrutiny for its political activity (Brownell & Warner, 2009). The alcohol industry has also faced similar scrutiny, particularly as it relates to attempts to influence marketing regulations (Savell, Fooks, & Gilmore, 2015; Martino, Miller, Coomber, Hancock, & Kypri, 2017).

This review will assess health outcomes and business performance outcomes associated with CPA. Due to the nature of this topic, the health outcomes section will largely cover issues related to the interaction of CPA and health policy and public opinion on public health issues.

It is generally assumed that firms engage in political activity to gain some benefit. Along with beneficial political decisions (e.g., legislative votes or regulatory decisions), these benefits may also include improved performance as measured by accounting or financial metrics. Outcomes associated with each of these motives will be assessed in this review.

Health Impacts

Corporate political activity does not solely involve corporate engagement with policymakers, but also engagement with the broader public to shape perceptions of policy issues and to mobilize stakeholders in an effort to shape government policy (Hadani, Bonardi, & Dahan, 2017). In doing so, corporate political activity has the potential not only to shape health-related policy decisions, but also to shape the public's beliefs, narratives, and priorities around health issues.

Analysis of the tobacco industry’s political efforts demonstrate the ways in which the industry sought to shape policy through engagement with policy makers and other stakeholders including industry groups, Chambers of Commerce, and civil society organizations (Apollonio & Malone, 2010; Fooks & Gilmore, 2013; Moodie, et al., 2013). An analysis of tobacco industry documents related to the “We Card” youth smoking prevention program that were released under the 1998 Master Settlement Agreement found that engagement with policy makers and industry groups allowed the tobacco industry to position the success of the “We Card” program as evidence that additional legal restrictions and taxes were unnecessary to reduce youth smoking (Apollonio & Malone, 2010) despite evidence that such approaches are inadequate. The tobacco industry has also engaged in campaigns emphasizing the importance of individual responsibility in tobacco use, which contrasts with public health research's focus on the importance of social and economic factors (Moodie, et al., 2013). The alcohol industry has used similar tactics, promoting individually targeted educational approaches that have not been shown to be effective in reducing harmful alcohol consumption (Moodie, et al., 2013; Martino, Miller, Coomber, Hancock, & Kypri, 2017).

During the 1990s, the tobacco industry maintained a strong lobbying presence in state legislatures with the goal of defeating clean indoor air legislation, tobacco tax increases, marketing restrictions, and tort and liability reform (Givel & Glantz, 2001; Saloojee & Dagli, 2000). However, maintaining such a presence does not guarantee results, and a review of legislative outcomes in 12 states finds mixed success for a range of tactics. For example, efforts to pass legislation that would pre-empt stronger tobacco control laws in Arizona, clean indoor air laws in New York, and local excise tactics in Oregon in the mid-1990s all failed. However, by 1999 there was evidence of some success, with 17 states pre-empting local clean indoor air ordinances compared to 7 in 1990. In 1999, 22 states had pre-empted local youth tobacco access laws compared to one in 1990 (Givel & Glantz, 2001).
More recently, the food and beverage industry (referred to from here as “the food industry”) has come under similar scrutiny for its corporate political activity, particularly as it relates to processed food and obesity. The food industry’s diversity of products and producers means that it differs in important ways from both the tobacco and alcohol industries. However, several studies have found that the food industry employs political tactics and strategies similar to those of the tobacco and alcohol industries (Moodie, et al., 2013; Brownell & Warner, 2009). An analysis of food industry messaging related to obesity from 2000 to 2012 found that the food industry relied on four primary arguments: 1) that industry self-regulation is part of the solution, 2) that public policy solutions represented government overreach, 3) that the industry’s products were not responsible (or solely responsible) for obesity, 4) that individuals and families are responsible. These arguments represent 97% of all arguments made by the industry in major newspapers during the study period (Nixon, et al., 2015). Such messages may reduce public support for policies designed to improve population health outcomes (Moodie, et al., 2013). Like the alcohol industry, producers of ultra-processed food also promote individually targeted educational approaches that have not shown to be effective in reducing consumption of unhealthy foods (Moodie, et al., 2013).

Corporate political activity in healthcare and related industries has also drawn attention. High drug prices have long been a cause for concern in the United States. A 2016 review of medical and health policy literature found that high drug prices in the United States can be attributed to protection from competition (regulatory exclusivity granted at FDA approval and patent exclusivity) and constraints on the negotiating power of public and private payers (Kesselheim, Avorn, & Sarpatwari, 2016). Medicare, which accounts for 29% of the United States’ prescription drug expenditure, is prohibited from using this purchasing power to negotiate lower prices (Kesselheim, Avorn, & Sarpatwari, 2016; Kantarjian, Steensma, Sanjuan, Elshaug, & Light, 2014). This prohibition was included as part of the Medicare Reform Act of 2003 and was widely supported by the pharmaceutical industry. Attempts to repeal this restriction have largely been opposed by the industry (Das, Petigara, & Anderson, 2007). The pharmaceutical industry also supports policies that prevent the importation of prescription medicines. This may also contribute to higher drug prices in the United States, where consumers pay “100% more for patented drugs than elsewhere” (Kantarjian, Steensma, Sanjuan, Elshaug, & Light, 2014). Clinical consequences of high drug prices include reduced use of effective medications and nonadherence (Kesselheim, Avorn, & Sarpatwari, 2016).

Prior to the passage of the Patient Protection and Affordable Care Act (ACA) of 2010, the health insurance industry launched a campaign against a “public option” that would have served as an alternative to private insurance plans (Quadagno, 2011). The pharmaceutical industry also opposed the public option, committing to reduce drug spending over the following decade through Medicaid rebates and a pathway for FDA approval of generic biologic drugs (Daemmrich, 2011). Both the pharmaceutical and health insurance industries were willing to and did accept stricter regulations such as price controls and guaranteed issue as long as they were accompanied by an individual mandate. While health insurance coverage has expanded, uninsurance and underinsurance remain an issue for some segments of the population in the United States (Kaiser Family Foundation, 2016).

Corporate political activity may also be used to influence public policy that is not directly related to a company’s or industry’s products, but that may be seen as imposing additional costs. As state and local governments across the United States have implemented paid leave policies, for example, businesses and business organizations such as the Chamber of Commerce have organized opposition to such policies (Milkman & Appelbaum, 2013, p. 19). Such efforts have had mixed success. In California, for example, a paid family leave law was passed, but only after a proposed employer tax was eliminated. This reduced the maximum duration of paid leave from 12 weeks to six weeks (Milkman & Appelbaum, 2013). By contrast, efforts to implement a paid leave policy in Massachusetts were defeated partly due to the influence of business organizations such as the Business Roundtable (Gardinier, 2008).

Business & Economic Impacts
Quantitative studies of business outcomes associated with corporate political activity (CPA) usually look at corporate political activity in the aggregate not within specific policy domains such as health. There are two main components to assessing business outcomes associated with CPA: political outcomes and firm performance. Studies assessing political outcomes analyze the effectiveness of CPA in producing the firms preferred policy outcome. These outcomes are usually measured through votes in legislative bodies and decisions by regulatory and other government agencies (Hadani, Bonardi, & Dahan, 2017).

A recent meta-analysis of studies assessing such outcomes found differing results for political activity undertaken by corporations individually (CPA) and political undertaken
through trade associations (trade association political activity, or TPA). Using a random-effects meta-analysis approach, it was found that the effect size for CPA was not significant. The effect size for TPA, however, was positive and significant, though small (mean effect size = .08, p < .0001, 95% CI: .10, .06). Subsample analysis revealed a larger effect size for regulated industries compared with non-regulated industries, and with issues related to railroads, trucking, defense spending, and farm subsidies compared to tobacco, labor law, environmental regulation, or telecom regulation (Hadani, Bonardi, & Dahan, 2017). This echoes previous work which shows mixed evidence for the effectiveness in CPA analyzed broadly (Lawton, McGuire, & Rajwani, 2013) as well as specific aspects of CPA such as campaign contributions (Aggarwal, 2010).

Studies assessing firm performance have analyzed performance on financial, accounting measures, and events (e.g., contract awards) in relation to corporate political activity. These findings are also mixed. An analysis of the air transportation industry found that a 1% increase in lobbying intensity, as measured by the total amount spent hiring lobbyists in the previous year, was associated with an increased in EBIT of $195,000 in a fixed-effects model controlling for US GDP, SIC code, and several firm characteristics (size, age, liquidity, and country of origin) (Brown, Lobbying, Political Connectedness, and Financial Performance in the Air Transportation Industry., 2016). A study assessing the association between political action committee (PAC) and lobbying contributions and performance for 87 Fortune 500 firms found that higher contributions to PAC and lobbying were associated with an increase of 0.996 for return on invested capital (ROIC) and 0.329 for return on assets (ROA) after controlling for political party control, firm size, sector, prior performance, and organizational financial slack (Brown, 2016). A study of 943 S&P 1500 firms from 1998-2008 assessed the relationship between corporate political investment (CPI), which includes spending on lobbying and PAC contributions, and the hiring of directors with prior political service (elected or appointed). This study found negative relationships between CPI and market value and return on sales. This study did find a difference between regulated and non-regulated firms, however. For regulated firms, CPI was positively associated with market value.

A study of firm contributions to political campaigns from 1979 to 2004 found that corporate political contributions were significantly and positively associated with financial performance as measured by abnormal returns. It found, for example, that a one-standard deviation increase in the number of candidates supported is associated with a 2.61% per-year higher abnormal return (Cooper, Gulen, & Ovtchinnikov, 2010). The authors of this study also simulated the performance of a portfolio weighted by the number of candidates supported and found that it had a statistically significant abnormal month return of 21 basis points, or 2.4% per year.

Lobbying expenses in the health sector has increased steadily from 2000 to 2009, with expenditures leveling off after the passage of the ACA in 2010 (Center for Responsive Politics, 2017). Little empirical research has examined the association between the policy outcome of health reform supported by industry players, passage of the ACA with no public option, and business outcomes. One study assessing stock price reactions of firms that are members of the United States pharmaceutical, health insurance, and other health-related industries found that the market revised expectations downward for publicly traded health insurance companies (Blau, Daines, Karl, & Wade, 2016). Results for the pharmaceutical industry were not statistically significant.

Evidence from the pharmaceutical industry also suggests that firms engaged in lobbying experience significant gains compared to non-lobbying peers. This includes a 67.3% higher chance of FDA approval for new drugs, and a 1.1% higher market reaction in the 3-day window surrounding FDA approval announcements (Kim, Kim, & Unsal, 2016). This aligns with evidence from other studies of CPA suggesting a potential difference in outcomes for regulated vs. non-regulated industries.
<table>
<thead>
<tr>
<th>Impacts</th>
<th>Summary of Quantitative Outcomes</th>
<th>Indicators</th>
<th>Evidence Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>• No quantitative results found</td>
<td>Health behaviors, Social well-being</td>
<td>Limited or mixed</td>
</tr>
<tr>
<td>Business</td>
<td>• Meta-analysis found mixed results for firm outcomes: non-significant for cumulative abnormal stock return ($r$=-0.08, $p &gt; 0.05$, CI: -0.17-0.1), market value ($r=0.032$, $p &gt; 0.05$, CI: -0.09-0.16); small significant effect size for accounting measures ($r = 0.035$, $p &lt; 0.05$, CI: 0.25-0.45).</td>
<td>Business performance, ROI, Share price</td>
<td>Limited or mixed</td>
</tr>
<tr>
<td></td>
<td>• Random effects model of CPA in air transport industry found that as lobbying intensity increases by 1% over time and across firms, EBIT increases by $209,830$; Fixed effects model found that as lobbying intensity increased by 1%, EBIT increases by $195,000$</td>
<td></td>
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<tr>
<td></td>
<td>• A one-unit increase in PAC intensity is associated with an increase in ROIC of 0.996 and in ROA by 0.329</td>
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<tr>
<td></td>
<td>• Sample of M&amp;A deals by politically connected firms and matched non-connected peers found that deals in countries with strong legal systems/low levels of corruption, connected bidders underperform unconnected bidders by roughly 15% in terms of abnormal stock returns over a 3-year period.</td>
<td></td>
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<tr>
<td></td>
<td>• A portfolio of firms weighted by the number of candidates supported by the firm had a statistically significant abnormal monthly return of 21 basis points or about 2.4% per year</td>
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<tr>
<td></td>
<td>• Lobbying pharmaceutical firms have a 67.3% higher chance of FDA approval for new drugs, and a 1.1% higher market reaction in the 3-day window surrounding FDA approval announcements</td>
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Responsible Marketing Practices

Marketing practices and their connection to health outcomes has been a subject of concern for several decades. The marketing practices of the tobacco, alcohol, and food industry have received significant attention due to the ability of their products to impact human health. The United States is also one of only three countries that allow direct-to-consumer pharmaceutical advertising. The health outcomes associated with marketing and regulatory and voluntary restrictions that have been implemented within these industries will be assessed. While marketing includes a range of practices beyond advertising including public relations, pricing, and customer support, most public health research, particularly for the food industry, focuses on advertising. Thus, this review will focus largely on advertising, but will include evidence for health impact for other marketing practices where it exists.

Health Impacts

Much of the research on the health impacts of marketing assesses the impact of marketing that targets children and adolescents, particularly for food (Committee on Food Marketing and the Diets of Children and Youth, 2006; Longacre, et al., 2017; Dalton, et al., 2017; Kraak, Kumanyika, & Story, 2009; Boyland, et al., 2016), tobacco (Lovato, Linn, Stead, & Best, 2003; Levy, et al., 2015; Biener & Siegel, 2000; Paynter & Edwards, 2009), and alcohol (Anderson, Is It Time to Ban Alcohol Advertising, 2009; Jernigan, Noel, Landon, Thornton, & Lobstein, 2016). While industry initiatives are in place to prevent the marketing of unhealthy foods to children, for example, many children remain exposed to marketing for unhealthy products (Abbasi, 2017). These studies generally find a link between exposure to marketing and consumption of the marketed product for children and adolescents.

A 2016 systematic review of 18 studies in which exposure to unhealthy food and nonalcoholic beverage advertising was experimentally manipulated found a significant effect of moderate size for children, with food advertising exposure associated with greater food intake (Boyland, et al., 2016). It did not find a significant effect for adults. Two studies of 3- to 5-year old children recruited from pediatric and Women, Infants, and Children clinics in New Hampshire found that exposure to advertising is linked to consumption of specific products. One study found that children consumed 14% more high-sugar breakfast cereal brands for every 10 high-sugar breakfast cereal ads seen in the preceding week (Longacre, et al., 2017), while the other found that high exposure to advertisements for McDonald's, Subway, or Wendy's restaurants was associated with a 26% increase in the likelihood of consuming McDonald's, Subway, or Wendy's food in the past week (Dalton, et al., 2017).

Alcohol marketing exposure has been found to be associated with alcohol consumption in youth. A systematic review of longitudinal studies published since 2008 found that of the 12 studies reviewed, all found evidence of a positive association between exposure and alcohol consumption (Jernigan, Noel, Landon, Thornton, & Lobstein, 2016). Associations were found between both the initiation of alcohol use and subsequent hazardous or binge drinking. This echoes findings from an earlier systematic review of 13 longitudinal studies that found that 12 of the 13 studies assessed found an association between marketing exposure and subsequent alcohol use, including initiation of alcohol use and heavier use among existing alcohol users (Anderson, de Bruijn, Angus, Gordon, & Hastings, 2009).

An intervention review published by the Cochrane Collaboration in 2003 found that longitudinal studies "consistently suggest that exposure to tobacco advertising and promotion is associated with the likelihood that adolescents will start to smoke" (Lovato, Linn, Stead, & Best, 2003, p. 2). Two of the included studies also found a dose-response gradient, with adolescents exhibiting a higher level of receptivity at baseline more likely to progress toward smoking later. A systematic review of 12 studies of tobacco promotion at the point of sale found that most report statistically significant associations between exposure to point of sale promotion and smoking initiation or susceptibility (Paynter & Edwards, 2009). More recent longitudinal studies and systematic reviews agree with these findings (Henriksen, Schleicher, Feighery, & Fortmann, 2010; Wellman, et al., 2016).

Studies that assess the health impacts of direct-to-consumer pharmaceutical advertising (DTCA) are limited, with arguments in favor of and opposed to the practice capable of being supported with evidence (Ventola, 2011). Some studies have found an association between DTCA and medication non-adherence in patients with serious mental illness (Green, et al., 2017) and some overuse of prescription drugs (Donohue, Cevasco, & Rosenthal, 2007). On the other hand, studies have also shown that such advertising may also help avert underuse of medicines used to treat chronic conditions (Donohue, Cevasco, & Rosenthal, 2007).

Assessment of industry efforts at self-regulation, such as the Children’s Food and Beverage Advertising Initiative (CFBAI), suggest that such voluntary approaches have not been successful in reducing marketing that influences children and adolescents (Anderson, 2009; Apollonio & Malone, 2010;
Abbasi, 2017). A systematic review of studies published since 2008 assessing the impact of self-regulation of food marketing found limited impact in most countries, including the United States (Galbraith-Emami & Lobstein, 2013). A study focusing on CFBAI participants found that from 2007 to 2013, approximately 80% of food advertisements during children’s programming promoted nutritionally deficient products (Kunkel, Castonguay, & Filer, 2015). Other studies in the United States have found that the effectiveness of self-regulation differs based on race and ethnicity. One study examining compliance with self-regulatory pledges for food advertising found that compared content of Spanish- and English-language found that self-regulatory efforts are less effective on Spanish-language television, with the nutritional quality of food products on Spanish-language channels assessed as substantially poorer (Kunkel, Mastro, Ortiz, & McKinley, 2013). A report from the University of Connecticut Rudd Center for Food Policy and Obesity found that Black and Hispanic children receive a “double dose” of food marketing for unhealthy food products, with more food advertising in the media and more marketing in their communities (Harris, et al., 2015).

<table>
<thead>
<tr>
<th>Impacts</th>
<th>Summary of Quantitative Outcomes</th>
<th>Indicators</th>
<th>Evidence Strength</th>
</tr>
</thead>
</table>
| **Health** | • Based on literature findings, one model predicts that reducing advertising exposure to zero among children would decrease the average BMI by 0.38 kg/m² and lower the prevalence of obesity from 17.8% to 15.2% (95% CI: 14.8-15.6) for boys and from 15.9% to 13.5% (95% CI: 13.1-13.8) for girls.  
• Children consumed 14% (RR = 1.14, 95% CI: 1.02-1.27) more high-sugar breakfast cereal brands for every 10 high-sugar breakfast cereal ads seen in the past 7 days.  
• After adjusting for demographics, SES, and other screen time, moderate McDonald’s/Subway/Wendy’s ad exposure was associated with a 31% (95% CI: 12%-53%) increase in the likelihood of consuming McDonald’s/Subway/Wendy’s in the next week. High exposure was associated with a 26% (95% CI: 13%-41%) increase.  
• Meta-analysis of 18 studies indicates small-to-moderate effect size for advertising on food consumption with participants eating more after exposure to food advertising than after control conditions (SMD: 0.37, 95% CI: 0.09-0.65). Subgroup analysis showed no significant effect for adults but a moderate effect size for children (SMD: 0.56, P = 0.003, 95% CI: 0.18-0.94)  
• Systematic review of longitudinal studies of alcohol marketing and youth alcohol consumption find odds ratios ranging from 1.00 to 1.69 for exposure to alcohol marketing and initiation of alcohol use, 1.38 to 2.15 for subsequent hazardous or binge drinking. | Obesity, health behaviors | Strong |
| **Business** | • Five years after joining the CFBAI, participants experienced abnormal returns of 16% compared to -34% for non-participating companies. | Business performance | Limited or mixed |

**Business & Economic Impacts**

Companies within the food industry participate in various self-regulatory initiatives designed to reduce negative health impacts associated with the consumption of their products. Several motivations have been hypothesized for participation in such initiatives. These include avoidance of future regulation or litigation, reputation management, competitive advantage, and altruism (Gondhalekar & Lehnert, 2017; Sharma, Teret, & Brownell, 2010).

Empirical research describing such outcomes is limited however. One study suggests that companies participating in the CFBAI experience negative abnormal decline in share prices of approximately 3% in the month in which they joined. Non-participating competitors experienced the same 3% decline. However, over the long term (5 years), participating companies experience an average abnormal return of 16%, compared to non-participating companies which experience and average abnormal return of -34% (Gondhalekar & Lehnert, 2017). This study has several limitations, however, including potentially significant differences between the CFBAI-participant companies and matched competitors.
Workplace Health Promotion & Wellness

Workplace health promotion refers to a diverse range of employer initiatives designed to improve the health and well-being of workers and, in some cases, family members and dependents (Goetzel, et al., 2014). While the programs offered vary from employer to employer, a RAND Corporation study has identified three components of workplace wellness programs. These include screening activities, preventive interventions, and health promotion activities (Mattke, et al., 2013). Such programs may be offered by the employer directly as a benefit or by a health insurance provider as part of a group health plan. Employers may also offer incentives to participate in wellness programs.

Approximately half of all employers in the United States offer some form of workplace health promotion program (Mattke, et al., 2013; Kaiser Family Foundation, Health Research & Educational Trust, 2016). These estimates include employers offering any of the three components described above. The prevalence of workplace wellness programs varies significantly with company size. The 2016 Kaiser Family Foundation/Health Research & Educational Trust (HRET) Study Employer Health Benefits Survey found that of firms offering health benefits, 46 percent of small firms (3-199 employees) offered smoking cessation, weight loss, or other lifestyle/behavioral coaching while 83 percent of large firms (>200 employees) offer such programs (Kaiser Family Foundation, Health Research & Educational Trust, 2016).

The Kaiser/HRET survey also found some regional variation, with only 32 percent of firms in the South offering wellness programs compared to 58 percent in the Northeast, 48 percent in the Midwest, and 57 percent in the West (Kaiser Family Foundation, Health Research & Educational Trust, 2016). The RAND Workplace Wellness Study did not find statistically significant regional variation (Mattke, et al., 2013). Neither found statistically significant variation by industry (Mattke, et al., 2013; Kaiser Family Foundation, Health Research & Educational Trust, 2016).

Wellness programs vary significantly in the services provided. Table 3, adapted from a Kaiser Family Foundation Issue Brief summarizes the extent and nature of several configurations of workplace wellness programs identified by RAND based on the relative emphasis of screening, lifestyle management, and disease management (Pollitz & Rae, 2016):

<table>
<thead>
<tr>
<th>Program Configuration</th>
<th>Definition</th>
<th>Percent of Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited</td>
<td>Limited services across all three components</td>
<td>34%</td>
</tr>
<tr>
<td>Comprehensive</td>
<td>Extensive services across all three components</td>
<td>13%</td>
</tr>
<tr>
<td>Screening-focused</td>
<td>Broad range of screening services but limited lifestyle- and disease-management services</td>
<td>20%</td>
</tr>
<tr>
<td>Intervention-focused</td>
<td>Broad range of lifestyle-and disease management services but limited screening</td>
<td>21%</td>
</tr>
<tr>
<td>Prevention-focused</td>
<td>Broad range of screening- and lifestyle-management services but limited disease management</td>
<td>12%</td>
</tr>
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</table>
Because there is no single standard or model for workplace wellness programs, evaluating the health and business impacts associated with them requires examining the impacts of individual components as well as the differences between impacts associated with different program configurations.

Health Impacts

Several studies have evaluated the health impacts of employer-provided wellness programs. The RAND Workplace Wellness Study found an association between participation in a workplace wellness program and decreased body weight, BMI, tobacco use, and increased exercise (Mattke, et al., 2013). An analysis of an obesity prevention program at the Dow Chemical Company found that intervention participants maintained weight and BMI while non-participants experienced weight gain and increased BMI. The authors also found larger improvements at worksites with higher intensity interventions (Goetzel, et al., 2010). A 2011 evaluation of the health impacts of Johnson & Johnson’s health and wellness program on employee health risks. Compared to employees of other companies, Johnson & Johnson employees experienced meaningful reductions in risk of obesity, high blood pressure, high cholesterol, tobacco use, physical inactivity, and poor nutrition (Henke, Goetzel, McHugh, & Isaac, 2011). The authors note that Johnson & Johnson’s wellness program is comprehensive, and that this study was not designed to determine the relative importance of the “various structural and program delivery variables” (p. 497). This contrasts with the Dow study, which specifically measured the impact of environmental interventions, as well as the impact of intervention intensity. A 12-month quasi-experimental study of a multinational corporation headquartered in the United Kingdom found a mean excess reduction of 0.45 health risk factors for the intervention group compared to the control group, based on a health risk appraisal instrument designed to capture 12 areas of risk. The intervention included a personalized health and well-being report, suggestions for areas of improvement, and access to web-based and paper-based health promotion materials. An analysis of the Citibank Health Management Program found relatively small reductions in risk for 8 of 10 categories analyzed, with larger changes in exercise habits, seatbelt use, and stress levels (Ozminkowski, et al., 2000).

A randomized control trial (RCT) of a worksite health intervention in which employees and spouses at a single employer were randomized to either active intervention or usual care. The intervention consisted of worksite health education, nutritional counseling, smoking cessation counseling, physical activity promotion, selected physician referral, and other health counseling. The study found significant improvements in quality of life, body fat, HDL cholesterol, diastolic blood pressure, health habits, and total health risk (Milani & Lavie, 2009). A study evaluating the impact of the Health Works for Women which randomized small to mid-size workplaces to either an intervention or delayed intervention group found an improvement in fruit and vegetable consumption among the intervention group. Other health behaviors, such as smoking and cancer screening rates did not differ between the two groups (Kramish Campbell, et al., 2002).

Several researchers have conducted meta-analyses of the health impacts of workplace wellness programs. An evaluation of 33 studies reporting 63 outcomes found mixed results. Observational studies reported positive effects more frequently than randomized control trials (about three-fourths vs. one half) (Osilla, et al., 2012). The authors note that a range of study design weaknesses limit the ability to make a causal link between the intervention and outcome. These weaknesses include non-experimental design, small sample size, and short follow-up periods. These concerns about study quality echo earlier studies of clinical and cost-effectiveness of workplace health promotion programs (Pelletier, 2005; Pelletier, 2009). A review of 18 studies describing 21 interventions found a small overall effect on self-perceived health, with higher effectiveness in younger populations, interventions with weekly contact, and studies in which the control group received no health promotion intervention. This review also found that study results depend partly on statistical analysis, with high-quality RCTs reporting lower effect sizes (Rongen, Robroek, van Lenthe, & Burdorf, 2013).

Business & Economic Impacts

Workplace wellness and health promotion programs have been linked to a range of business outcomes including reductions in turnover (Berry, Mirabito, & Baun, 2010), absenteeism/presenteeism (Ozminkowski, et al., 2000; Baicker, Cutler, & Song, 2010; Cancelliere, Cassidy, Ammendolia, & Côté, 2011), and reduced healthcare costs. (Ozminkowski, et al., 2000; Caloyeras, Liu, Exum, Broderick, & Mattke, 2014). The RAND Workplace Wellness Study found widespread perceptions among employers that wellness programs reduced healthcare costs and absenteeism and increased productivity. However, few employers regularly evaluate program impacts (Mattke, et al., 2013). The researchers’ own analysis of health care costs and wellness program participation did not find a statistically significant reduction in health care costs. A systematic review which evaluated 4 studies on absenteeism found that all studies estimated a significant decrease. Of the 8 studies evaluated on health care
costs by the same review, 7 reported significant decreases. However, as with many of the studies analyzing health impacts, it is difficult to attribute reductions in cost and absenteeism to wellness programs because of limitations in study design (Osilla, et al., 2012).

An analysis of Johnson & Johnson’s worksite health promotion program found average annual per employee savings of $565 representing a return on investment in the range of $1.88 to $3.92 for every dollar spent (Henke, Goetz, McHugh, & Isaac, 2011). An evaluation of PepsiCo’s wellness program found that only the disease management component was associated with reduced costs, while lifestyle management was not (Caloyeras, Liu, Exum, Broderick, & Mattke, 2014). The Johnson & Johnson study compared Johnson & Johnson employees with employees of other companies, while the PepsiCo study compared participants and non-participants within one company. As the authors of the PepsiCo study write, the study design of the Johnson & Johnson evaluation “cannot parse out whether individual components of the company’s wellness program or other company characteristics, or both, such as benefits design, hiring, workplace policies” (Caloyeras, Liu, Exum, Broderick, & Mattke, 2014, p. 130).

A widely cited 2010 review of workplace wellness programs found a decrease in medical costs of approximately $3.27 for each dollar spent on wellness programs while costs associated with absenteeism decreased by approximately $2.73 for each dollar spent (Baicker, Cutler, & Song, 2010). A systematic review on the effects of workplace health promotions on presenteeism found “preliminary evidence” for reductions in presenteeism. Particularly, programs that involved exercise and depression and mental health interventions were found to be likely to improve presenteeism (Cancelliere, Cassidy, Ammendolia, & Côté, 2011). A systematic review of direct and indirect economic impacts associated with workplace health promotion and wellness programs found only 10 studies of sufficient quality to be considered as sources of evidence. Of these 10 studies, 8 found positive economic impacts. Positive impacts were found for Health Promotion, Disease Prevention, Disease Management, Behavioral Health, and Disability Management, while negative impacts were found for Combination Programs (Lerner, Rodday, Cohen, & Rogers, 2013). As with studies on health impacts, weaknesses in study design and lack of standardized definitions make it difficult to draw strong conclusions regarding the direct and indirect economic impacts of workplace wellness programs.

<table>
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<th>Summary of Quantitative Outcomes</th>
<th>Indicators</th>
<th>Evidence Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Average 0.3 point drop in A1c values.</td>
<td>Mortality, Diabetes, Obesity, Health behaviors, Mental health and well-being</td>
<td>Strong</td>
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<tr>
<td>• 29 percent reduction in hospital admissions.</td>
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<tr>
<td>• Quality of life: 10% increase.</td>
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<tr>
<td>• Total health risk: 25% decrease.</td>
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<tr>
<td>• Mental health: 33% decrease in depression, 32% decrease in anxiety, 32% decrease in somatization, 47% decrease in hostility, 61% risk reduction for stress.</td>
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<tr>
<td>• Exercise: Increasing walking by 103 minutes/week; 2x as likely to exercise.</td>
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<tr>
<td>• Diet: Increase in daily fruit/vegetable consumption by 0.7 servings.</td>
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<tr>
<td>• Overweight, obesity, BMI: BMI decreases of 0.04 kg/m2, 4.3%; 9% decrease in body fat, weight/BMI maintenance.</td>
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<tr>
<td>• Cholesterol: 13% improvement in HDL cholesterol.</td>
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<tr>
<td>• Blood pressure: 1% reduction of diastolic blood pressure.</td>
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<tr>
<td>• Tobacco use: 10% higher quit rate.</td>
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<tr>
<td>Business</td>
<td>Disease management: Average ROI $3.78 for every dollar invested; reduced health care costs by $136 per member per month.</td>
<td>Health/safety, Absenteeism/presenteeism, Productivity, Employee retention, Business costs, ROI, Economic costs to society</td>
<td>Limited or mixed</td>
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<tr>
<td>• Lifestyle management: Average ROI $0.48 for every dollar invested; reduction in absenteeism of 0.13 days/62 minutes per year.</td>
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<td>• Johnson &amp; Johnson’s worksite health promotion program found average annual per employee savings of $565 representing a return on investment in the range of $1.88 to $3.92 for every dollar spent</td>
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<tr>
<td>• Decrease in medical costs of approximately $3.27 for each dollar spent on wellness programs while costs associated with absenteeism decreased by approximately $2.73 for each dollar spent</td>
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</table>
Paid Family and Medical Leave

Paid family and medical leave (PFML) refers to a policy that allows employees to continue to earn some portion of their pay while away from work in order to address a serious illness, care for a family member with a serious health condition, or care for a newborn child (National Partnership for Women & Families, 2015). The United States is unique among OECD countries in its lack of national PFML policy. While some states mandate such benefits and some companies have chosen to offer them voluntarily, less than half of employees nationwide have access to PFML and distribution is “highly inequitable,” with the lowest wage earners being much less likely to receive PFML benefits (EY, 2017, p. 2).

Health Impacts

There have been few specific studies of the health impacts of employer-provided paid family and medical leave. However, studies evaluating the effects of paid leave in general tend to find that paid leave improves some health outcomes for mothers and families, although the effects tend to be small. A 2012 study analyzed the association between short family leave length and health outcomes among new mothers in the United States using data from the Early Childhood Longitudinal Study – Birth Cohort. The authors conclude that increasing the length of paid leave beyond 8 weeks could reduce maternal depressive symptoms by 9 percent, the probability of being classified as severely depressed by 2 percentage points, and increase the likelihood of self-reporting excellent health by 3.5 percentage points (Chatterji & Markowitz, 2012). A 2014 study examining the association between the length of leave and postpartum depressive symptoms using the Edinburgh Postnatal Depression Scale found a “U-shaped” relationship between leave duration and postpartum depressive symptoms, with a minimum at 180 days (approximately 6 months).

A marginally significant linear association was found between leave duration and maternal physical health, with longer leave times associated with improved physical health. For both postpartum depressive symptoms and physical health, women with higher incomes experienced better outcomes (Dagher, McGovern, & Dowd, 2014). Because unpaid leave policies tend to result in women taking shorter durations of leave (McGovern, et al., 2000) and because the number of days of paid leave offered may be predictive of the number of leave days taken (Dagher, McGovern, & Dowd, 2014; EY, 2017), women whose employers offer at least 6 months of paid leave may experience improved health outcomes. This is significantly higher than the average length of 8 weeks of paid leave that women take for the birth of a child (EY, 2017).

A 2015 systematic review of maternal health outcomes and paid leave found that studies with individual-level comparisons found that maternal mental health and well-being are positively associated with paid leave in the United States, Australia, and Lebanon (Aitken, et al., 2015). Mental health outcomes assessed included psychological distress, depressive symptoms, severe depression, and mental well-being. Two studies reported positive association between general and physical health and paid leave, one in the United States and one in Lebanon. A study of Australian women found that those who received paid leave had significantly lower odds of reporting intimate partner violence than those without (Aitken, et al., 2015). Other studies that examined policy allowances and thus collected ecological data on exposure were also included in the review. These studies found no statistically significant association between paid leave and aggregate health outcomes. Paid leave has also been associated with improved mental and physical health for employees in non-birth-related circumstances, such as caring for a family member with special health needs (Earle & Heymann, 2011).

Paid family and medical leave has also been found to improve health and social outcomes for children. A 1998 study of nine European countries found a strong negative relationship between paid leave durations and post-neonatal mortality or fatalities between the first and fifth birthday (Ruhm, 1998). A study of Norway examining the impact of a policy change in Norway after which mothers were entitled to 4 months of paid leave and 12 months of unpaid leave found a 2.7 percent decrease in the high school dropout rate and a 5 percent in wages at age 30. Effects were larger for mothers with low levels of education (Carneiro, Løken, & Salvanes, 2011).

Business & Economic Impacts

According to a 2017 report by EY, employers that do not currently offer paid family and medical leave report several reasons for not implementing such a policy. Among small (fewer than 100 employees), medium (100–499 employees), and large (500 employees) employers, cost was cited most often as either a “very important” or “extremely important” impediment to offering paid family and medical leave (EY, 2017, p. 19). Cost was also identified as top concern prior to implementation among employers who have implemented a PFML policy.
Recent work has sought to examine the economic benefits and costs of PFML policies. Six years after California implemented a statewide PFML policy, the Center for Economic and Policy Research conducted a survey of employers and their employees to assess the effects of California’s policy. Employers reported that paid family leave had either a “positive effect” or “no noticeable effect” on productivity (89 percent), profitability (91 percent), turnover (96 percent), and employee morale (99 percent)” (Appelbaum & Milkman, 2011). These findings are similar to the results that EY found in its recent survey of employers who offer paid family and medical leave. Over 90 percent of employers report either a positive effect or no effect on morale, turnover, profitability, or productivity, with significant majorities (over 63 percent for all categories) reporting positive effects (EY, 2017).

A Boston Consulting Group report on paid family leave identified several examples of companies reporting significant improvements in employee retention. Google reported a 50 percent reduction in turnover among women after increasing its paid maternity leave duration from 12 weeks to 18 weeks, while Accenture reported a 40 percent reduction in attrition following the birth or adoption of a child. Aetna also reported an increase from 77 percent to 91 percent of women returning to work after expanding its maternity leave policy (Stroman, Woods, Fitzgerald, Unnikrishnan, & Bird, 2017). Several companies report that implementing such policies also enhances brand equity; Hilton’s implementation of a paid parental leave policy for employees at all levels received significant media attention that continued beyond the initial announcement, for example. While peer-reviewed research on these outcomes is limited, there is some evidence that women are more likely to return to employers who provide leave than those who do not (Berger & Waldfogel, 2004). Currently however, most data on outcomes associated with paid leave is self-reported by companies which may bias these findings.

### Research Summary Table, Paid Family & Medical Leave

<table>
<thead>
<tr>
<th>Impacts</th>
<th>Summary of Quantitative Outcomes</th>
<th>Indicators</th>
<th>Evidence Strength</th>
</tr>
</thead>
</table>
| **Health** | • Increasing the length of paid leave beyond 8 weeks could reduce maternal depressive symptoms by 9 percent; the probability of being classified as severely depressed by 2 percentage points; increase likelihood of self-reporting excellent health by 3.5 percentage points  
• a 2.7 percent decrease in the high school dropout rate and a 5 percent in wages at age 30 for children of mothers with leave (Norway)  
• Each week increase in length of leave was associated with a 2% reduction in the odds of reporting poor mental well-being (OR : 0.98, 95% CI 0.96, 0.99)  
• Each week increase in length of leave was associated with a 4% reduction in the odds of reporting poor physical well-being (OR : 0.96, 95% CI (0.95, 0.98)  
• 2.43 point increase in mental health score for full sample, 2.78 point increase for men only | Mortality, Birth outcomes, Mental health and well-being, Social well-being | Strong |
| **Business** | • Employers reported that CA paid family leave law had either a “positive effect” or ‘no noticeable effect’ on productivity (89 percent), profitability (91 percent), turnover (96 percent), and employee morale (99 percent); Over 90 percent of employers offering leave report either a positive effect or no effect on morale, turnover, profitability, or productivity, with significant majorities (over 63 percent for all categories) reporting positive effects; Google reported a 50 percent reduction in turnover among women after increasing its paid maternity leave duration from 12 weeks to 18 weeks, while Accenture reported a 40 percent reduction in attrition following the birth or adoption of a child. Aetna also reported an increase from 77 percent to 91 percent of women returning to work after expanding its maternity leave policy  
• Employers reported that CA paid family leave law had either a “positive effect” or ‘no noticeable effect’ on productivity (89 percent), profitability (91 percent), turnover (96 percent), and employee morale (99 percent)” | Health/safety, Productivity, Morale/job satisfaction, harassment, Employee retention, Brand equity, Profitability, Business costs/assets | Limited or mixed |
Health Insurance

Most non-elderly Americans receive health insurance through an employer-based plan. However, whether employers offer workers health coverage varies significantly by employee-type and income. According to a 2016 Issue Brief from the Kaiser Family Foundation, approximately 72% of full-time workers received an offer of employer-sponsored coverage while only 21% of part-time workers did (Long, Rae, Claxton, & Damico, 2016). Enrollment in employer-sponsored insurance also varies according to household income, with lower-income households less likely to be enrolled than higher-income households (Long, Rae, Claxton, & Damico, 2016). Most workers pay a portion of the cost of the premium for their employer-sponsored plan, with an average contribution of 18% for single coverage and 30% for family coverage. Contribution levels vary according to firm size, with employees at smaller firms making larger contributions. Most employer-sponsored plans also require cost-sharing through a general annual deductible, copayments, or coinsurance (Kaiser Family Foundation and the Health Research & Educational Trust, 2016).

Despite gains in coverage under the Affordable Care Act, approximately 28.5 million people remained uninsured at the end of 2015 (Kaiser Family Foundation, 2016). Estimates indicate that approximately 31 million were underinsured in 2014 (Collins, Rasmussen, Beutel, & Doty, 2015). The underinsured are those who have health insurance but experience high out-of-pocket costs or deductibles relative to their incomes.

This section will assess the health outcomes associated with uninsurance and underinsurance, as well as potential business outcomes associated with uninsured or underinsured workers.

Health Impacts

One of the earliest studies designed to assess the effects of health insurance coverage was the RAND Health Insurance Experiment, a large-scale, randomized experiment conducted between 1971 and 1982. This study found that reduced cost-sharing increased the use of both appropriate and inappropriate care, with no health benefits, except for the poorest and sickest participants (Brook, et al., 2006). Since then, studies assessing health outcomes associated with insurance coverage have been primarily observational in nature, with quasi-experimental designs becoming more common.

A 2009 review of 42 studies assessing the association between health insurance and health outcomes found consistently positive and often significant effects of health insurance coverage on health (McWilliams, 2009). Insurance coverage is correlated with improved general health and improved outcomes for adults with chronic conditions in particular. A 2008 review found that insurance is particularly important for vulnerable groups such as infants, children, and individuals with AIDS, and that insurance coverage can improve specific measures such as blood pressure for the broader population. However, it found that evidence of a more general impact remains less well understood (Levy & Meltzer, 2008). Studies assessing the correlation between insurance coverage and mortality tend to find that lack of coverage is associated with increased mortality (McWilliams, 2009; Wilper, et al., 2009).

More recent reviews have yielded similar findings, with recent studies suggesting that coverage effects are “nuanced” with some chronic conditions improving after obtaining coverage and others showing little to no change (Sommers, Gawande, & Baicker, 2017). These studies have been primarily based on studies of Medicaid rather than private insurance. However, the authors conclude that having insurance appears to be “quite beneficial, but from patients’ perspectives it does not seem to matter much whether it is public or private” (Sommers, Gawande, & Baicker, 2017). Studies assessing mortality and self-reported health show that health insurance coverage is positively associated with improved self-evaluated health and reduced mortality (Sommers, Gawande, & Baicker, 2017).

Business & Economic Impacts

Research on business outcomes associated with offering health insurance coverage to employees is sparse. Currently much work is speculative in nature, suggesting potential pathways by which offering health insurance to employees could improve, for example, productivity metrics (Davis, Collins, Doty, Ho, & Holmgren, 2005). However, a few studies have assessed the connection between employer-provided health insurance and productivity, with mixed results.

One study of the manufacturing sector linked plant-level data on productivity to survey data on employer provided insurance. It found that health insurance offers are positively associated with labor productivity in plants of all sizes (Nguyen & Zawacki, 2009). Potential pathways include improved health status, increased work effort, reduced absenteeism, or reduced turnover. A study of older workers (age 52-64) based on the 2004–2006 Health and Retirement
Study found that employer-sponsored health insurance does not affect illness-related absenteeism (Xu & Jensen, 2012). A more recent study using data from the Medical Expenditure Panel Survey found that insured workers miss 77% fewer workdays in a 2-year period than an uninsured worker, which results in 5.5 more workdays in one year (Dizoli & Pinheiro, 2016). Analysis of the construction industry suggests that portable union or non-portable nonunion employer-provided health insurance may increase the probability of worker retention (Kim & Philips, 2010).

### Research Summary Table, Health Insurance

<table>
<thead>
<tr>
<th>Impacts</th>
<th>Summary of Quantitative Outcomes</th>
<th>Indicators</th>
<th>Evidence Strength</th>
</tr>
</thead>
</table>
| Health    | • After additional adjustment for race/ethnicity, income, education, self- and physician-rated health status, body mass index, leisure exercise, smoking, and regular alcohol use, the uninsured were more likely to die (hazard ratio=1.40; 95% CI=1.06, 1.84) than those with insurance.  
  • Long-term and short-term uninsured adults were more likely than insured adults to report not seeing a physician when needed due to cost (26.8%, 21.7%, 8.2%); long-term uninsured adults were more likely not to have had a routine checkup in the last 2 years (42.8%, 22.3%, 17.8%).  
  • Underinsured children, odds ratios for access problems: No usual source of care, 1.37 (1.11-1.69); delayed or forgone care in past yr, 3.51 (2.92-4.21); no visit for preventive care in past yr, 1.19 (1.03-1.37);  
  • The insurance effect on health outcomes appears to be in the range of about 2–11 percent.                                                                                                                   | Mortality, Health behaviors, Other chronic diseases                                             | Limited or mixed |
| Business  | • A study using data from the Medical Expenditure Panel Survey found that insured workers miss 76.54% fewer workdays in a 2-year period than an uninsured worker, which results in 5.5 more workdays in one year                                                                 | Health/safety, Productivity, Morale/job satisfaction/ harassment, Employee retention, Brand equity, Profitability, Business costs/assets | Limited or mixed  |
Equality, Diversity & Impartiality

Inequality and discrimination in the United States take many forms. They may be based on racial/ethnic identity, sex and gender, sexual orientation, disability, age, and class position (Krieger, Discrimination and Health, 2000). Discrimination and inequality have been increasingly studied as a determinant of population health in the 21st century, with several proposed pathways including economic and social deprivation, hazardous environmental condition, socially inflicted trauma, targeted marketing of legal and illegal substances, and inadequate healthcare (including access, diagnosis, and treatment) (Krieger, 2000; Krieger, 2014). Discrimination and inequality have been linked to a range of population health and well-being outcomes, including poorer access to medical care and a broad range of disease outcomes and health risk behaviors (Williams, Priest, & Anderson, 2016; Lukachko, Hatzenbuehler, & Keyes, 2014; Pickett & Wilkinson, 2015; Burkhauser, Hahn, Lillard, & Wilkins, 2015).

In 2016, approximately 18% of persons with a disability in the United States were employed, compared to 65.3% of those without a disability. The unemployment rate for persons with a disability was 10.5%, over twice that of those without a disability (Bureau of Labor Statistics, 2017). These disparities remain despite the passage of the Americans with Disabilities Act, which protects the employment of people with disabilities (Bruyère, von Schrader, Coduti, & Bjelland, 2010).

This section will cover the health effects and business impacts of inequality and discrimination, as well as acts and behaviors stemming from them. Along with discrimination, bullying and harassment based on factors such as race, gender; socioeconomic status, and national origin will be addressed. This section will also discuss the health and business outcomes associated with employment for people with disabilities, initiatives designed to prevent discrimination against, and strategies to improve inclusion of employees with disabilities.

Health Impacts

Occupational health and safety risks are not equally distributed in the United States. Instead, they reflect larger patterns of inequality and disadvantage. In 2015, incidence rates of fatal occupational injuries were higher for Hispanic or Latino workers than Black non-Hispanic and White non-Hispanic workers (Bureau of Labor Statistics, 2016). Earlier research suggests that Black workers, workers less than a high school degree, foreign-born workers, and low-wage workers were more likely to be employed in high-injury and high-illness occupations (Steege, Baron, Marsh, Menéndez, & Myers, 2014).

A 2015 literature review identified several ways in which workplace discrimination can affect individuals including physical effects, psychological effects, and work-related attitudes or behaviors (these will be discussed in the section below). Physical effects identified in the literature include “increased stress, loss of appetite, headaches, loss of sleep, lack of energy, high blood pressure, ulcers, or chest pain,” while psychological effects include “lack of self-confidence, mental distress, low self-esteem, anxiety, depression, lack of cooperation, insecurity, and a feeling of helplessness” (Triana, Trzebiatowski, & Byun, 2015).

Workplace injustices such as discrimination, harassment, and bullying/abuse have also been associated with a variety of health outcomes including psychological and physical health outcomes and health behaviors. Psychological outcomes associated with discrimination include an increase in the number of days of poor mental health, psychological distress, anxiety and depression, negative emotions, and emotional trauma. Cross-sectional studies have shown evidence of somatic health effects including clinically significant increases in blood pressure. Workers experiencing discrimination may also be at increased risk for work-related injury or illness (Okechukwu, Souza, Davis, & de Castro, 2014). Sexuality-based work discrimination has also been associated with poorer self-rated health and increased functional limitation.

Research on specific sectors and types of workers, such as Latina hotel housekeepers, has found that workers from disadvantaged groups are often “rendered particularly vulnerable to elevated occupational hazards and resultant health strains due to their socioeconomic status, immigration status, language barriers, and lack of access to healthcare services” (Hsieh, Apostolopoulos, & Sönmez, 2016, p. 568). None of the workers interviewed in one study received sick pay nor were they offered health insurance. This resulted in women avoiding medical care and attending work when seriously ill. Discrimination took various forms, with Salvadoran women reporting being assigned poor cleaning tools and being judged and punished differently from members of other racial or ethnic groups. The experience of Latina hotel housekeepers illustrates two potential pathways from societal disadvantage to occupational health disparities: Labor stratification, where minority and other disadvantaged workers are systematically hired into positions with poorer working conditions as well as differential assignment to hazardous duties, in which some groups of workers are exposed to more occupational hazards than others (Okechukwu, Souza, Davis, & de Castro, 2014).

Discrimination and workplace injustice may also affect health-related behaviors such as tobacco and alcohol use. One study found that discrimination in the workplace was associated
with current smoking, daily smoking, and heavy drinking (Chavez, Ornelas, Lyles, & Williams, 2015). Associations varied according to race/ethnicity, with Hispanic workers experiencing discrimination more likely to engage in heavy and binge drinking, while Black workers were more likely to engage in current and daily smoking, but not alcohol use.

While several large-scale studies have evaluated the association between employment and health for the general population, fewer have focused specifically on the association for persons with disabilities. A policy brief published by the National Center on Leadership for the Employment and Economic Advancement of People with Disabilities (LEAD Center) found several studies in which an association between employment and improved health outcomes for people with disabilities specifically. Outcomes associated with employment include higher rates of self-reported good, very good, or excellent health; less frequent reports of mental distress; lower use of health care services; lower rates of smoking; and higher quality of life (Goodman, 2015). These correlations were primarily derived from observational studies, and there is little causal evidence on the physical or mental health outcomes associated with employment for people with disabilities (Goodman, 2015). One longitudinal study did find that individuals with serious mental illness in a supported employment program who worked an average of 13.8 hours per week had lower mental health care costs than those who were either not steadily employed or not employed at all.

**Business & Economic Impacts**

Workplace racial discrimination and bullying have been linked to both self-reported and medically-certified sickness absence, with the strongest associations were between bullying and medically-certified sickness absence counterproductive work behaviors (Okechukwu, Souza, Davis, & de Castro, 2014). A 2015 literature review identified several work-related attitudes and behaviors associated with discrimination: “lower job satisfaction, lower organizational commitment, and higher intent to turnover” (Triana, Trzebiatowski, & Byun, 2015). Such attitudes and behaviors, as well as increases in sickness absence, may lead to reduced productivity.

Increasing diversity as a means to discrimination and inequality has been identified as a potential avenue for improving firm performance. Studies have been conducted at various levels, from individual business units to senior management and boards of directors. A multilevel study assessing the effect of workforce diversity on shareholder value for 96 large firms over a 5-year period found that measures of diversity among both lower-level and upper-level employees are significantly related to shareholder value (Ellis & Keys, 2015). For lower-level diversity, these measures included workforce heterogeneity and the number of minority new hires. Of the upper-level variables, board diversity and percentage of minorities among the most highly paid employees, only the latter was significantly associated with shareholder value. Lower-level diversity was also found to be more important for companies in service industries, although the relationship for only one of the measures, workforce heterogeneity was statistically significant.

Studies have also examined how the match between racial and ethnic proportions within a community and those within an organization affect performance. Studies that explored this impact through assessing performance of businesses that better match community demographics did not find strong significant results (Leonard, Levine, & Joshi, 2004; Sacco & Schmitt, 2005), although one study found that demographic matching was significantly related to return on profit for African-American, but not Hispanic, employees and community members (Gonzalez, 2013). This study did not find a significant association between demographic matching and employee effectiveness. Using another approach, this study also found that diversity, regardless of whether business unit demographics match community demographics, within business units is associated with increased return on profit and employee effectiveness in diverse communities, but not in homogenous communities.

While many companies have policies in place designed to address issues related to diversity in the workplace, programs designed specifically to address disability-related issues are less common, with less than a third of those who reported having diversity programs reporting a disability-specific program (Erickson, von Schrader, Bruyère, & VanLooy, 2014). Fewer firms also track metrics for employees with disabilities than for other protected groups. Such metrics include compensation equity, retention and advancement, number of job applicants, and number of applicants hired (Erickson, von Schrader, Bruyère, & VanLooy, 2014).

Research on business outcomes associated with such policies and metrics is rare. Some companies report that people with disabilities have comparable or below average absentee rates and, in some cases, may have a lower lost time incidence rate, with some variation based on the type of disability. However, findings are not consistent (Zwerling, Whitten, Davis, & Sprince, 1997; Lengnick-Hall, Gaunt, & Kulkarni, 2008).

There is limited evidence that committing to creating inclusive work environments for people with disabilities offers a competitive advantage for companies. This evidence comes
primarily from companies within the service and hospitality industries. An analysis of disability inclusion initiatives at Walgreens and Mohegan Sun, for example, found that workers with disabilities performed strongly across a range of metrics including loyalty, turnover, productivity and safety. At Walgreens, turnover at distribution centers decreased after an initiative was launched to hire a large number of employees with disabilities for positions at the distribution centers. The disability inclusion initiative was also credited with increasing sales and creating recognition for Walgreens, since local governments and agencies recognized the company as “employer of the year” Participants in the Mohegan Sun initiative stated that it has created a positive image for guests. However, this study is limited by the self-reported nature of the data, which may introduce bias (Kalargyrou, 2014).

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<tr>
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<tbody>
<tr>
<td>• Among respondents, 70,080 completed the workplace discrimination measure. Discrimination was more common among black non-Hispanic (21%), Hispanic (12%), and other race respondents (11%) than white non-Hispanics (4%) (p&lt;0.001). In the total sample, discrimination was associated with current smoking (risk ratio [RR]=1.32, 95% CI=1.19, 1.47), daily smoking (RR=1.41, 95% CI=1.24, 1.61), and heavy drinking (RR=1.11, 95% CI=1.01, 1.22)</td>
<td>Health/safety, Absenteeism/presenteeism, Productivity, Morale/job satisfaction/Harassment, Employee retention, Reputation/stakeholders, Sales/revenue, Profitability, Share price</td>
<td>Strong</td>
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<td>• UK-based study: The risk of mental disorders was highest among ethnic minority individuals reporting unfair treatment (odds ratio [OR]=2.0; 95% confidence interval [CI]=1.2, 3.2) and racial insults (OR=2.3; 95% CI=1.4, 3.6). The overall greatest risks were observed among Black Caribbeans exposed to unfair treatment at work (OR=2.9; 95% CI=1.2, 7.3) and Indian (OR=3.1; 95% CI=1.4, 7.2), Bangladeshi (OR=32.9; 95% CI=2.5, 436.0), and Irish (OR=2.9; 95% CI=1.1, 7.6) individuals reporting insults.</td>
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<td>• Boston-based study: Among men (table 2), the only three variables yielding consistent significant estimates across Models 2 through 5 for their positive association with psychological distress were: 1. being a perpetrator of IPV (β range 0.5-0.7, per unit change in score), 2. being subjected to high versus no racial discrimination (β range 2.3-2.5) and 3. being subjected to workplace abuse (β range ~0.2, per unit change in score).</td>
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<td>• Boston-based study: Among women five variables yielded consistently significant parameter estimates in the different models, indicating higher risk of psychological distress associated with: 1. poverty (β range 1.1-1.4), 2. being subjected to high levels of racial discrimination (β range 4.8-5.4), 3. workplace abuse (β range ~0.2), 4. high exposure to occupational hazards (β range 1.9-3.1) and 5. smoking (β range 1.7-2.2); significantly lower levels of psychological distress were consistently associated with higher scores for social desirability (β range -0.03 to -0.02).</td>
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<td>• In 2016, approximately 18% of persons with a disability in the United States were employed, compared to 65.3% of those without a disability. The unemployment rate for persons with a disability was 10.5%, over twice that of those without a disability</td>
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<td>• In the only longitudinal study in the U.S. that explores the impact of work on health care costs for people with disabilities, researchers at Dartmouth Medical School found that individuals with a serious mental illness, who maintained work with an average of 13.8 hours per week (5,060 hours per year), had lower mental health care costs than those who were unemployed or not steadily employed. Over the course of the study’s 10 years, individuals who maintained steady employment had mental health medical costs that were $166,350 less per person than the group that was unable to maintain consistent employment</td>
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<td>• Women with disabilities and an MP impairment were almost twice as likely to work in a service occupation as women without disabilities (28% vs. 15%), which contributed to a significant wage gap between disabled and non-disabled women.</td>
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• African-Americans and whites reported significant relations between racial/ethnic bullying and counterproductive actions ($r = .27$ and $r = .28$, respectively).
• The relation between general bullying and counterproductive behavior was significant only for African-Americans ($r = .26$) and Hispanic/Latinos ($r = .62$), and only the correlation for Hispanic/Latinos was significantly stronger than for whites.
• Demographic matching: the interaction of African-Americans in the business unit and the community on was significantly related to return on profit ($b = 0.58$, $p < 0.05$), while it was not significantly related to employee effectiveness. Results were not significant for Hispanic employees and community residents on either variable.
• Racial/ethnic diversity fit: interaction between business unit and community diversity was significantly related to return on profit ($b = 0.26$, $p < 0.05$) and employee effectiveness ($b = 0.84$, $p < 0.05$).
• Appearance on an annual ranking of top performing companies associated with a 2-day cumulative abnormal return of 0.94% for those ranked for the first time and 0.66% for all other ranked (data from 1998-2002).
• Upper level diversity as measured by percent minority among top paid employees as a positive association with 2-day cumulative abnormal return (CAR) for companies ranked as top performing in diversity ($\beta = 2.58$, $p < 0.05$); Lower level diversity a measured by workforce heterogeneity ($\beta = 13.07$, $p < 0.01$) and minority new hires ($\beta = 5.36$, $p < 0.05$) are also associated with 2-day CAR. One model found workforce heterogeneity was significantly associated with 2-day CAR in the service industry ($\beta = 2.73$, $p < 0.05$).
• Discrimination-related lawsuits with no confounding events within the same time period are negatively associated with 11-day CAR (mean CAR = -1.37, $p < 0.05$)
• A national survey in the US found that 92% of subjects reported feeling more favorable or much more favorable toward companies that hire persons with disabilities, and 87% of participants stated that they would rather give their business to such companies.
• Participants showed a moderately positive purchase intention (mean = 5.22) for this type of restaurant, which is significantly greater than 4 on a 1-7 scale ($t = 11.35$, $p < 0.001$)
Financial Literacy

Financial literacy is a fairly recent construct, first brought to prominence by the Jump$tart Coalition for Personal Financial Literacy, which defines it as “the ability to use knowledge and skills to manage one’s financial resources effectively for lifetime financial security” (Jump$tart Coalition for Personal Financial Literacy, 2017). Financial education initiatives, however, date back to the early 20th century, while policy initiatives in the US became more common in the 1950s and 1960s (Hastings, Madrian, & Skimmyhorn, 2013). Workplace financial education was first introduced in the 1980s, when employers instituted educational programs focused on financial decisions and retirement planning. The rate of adoption rose significantly in the 1990s, driven in part by the rise of retirement plans such as 401(k)s with two-thirds of employers who offered such programs in 1994 having adopted them after 1990 (Bernheim & Garrett, 2003). This section will cover research assessing the effect of financial literacy on health and well-being with an emphasis on private-sector initiatives, the effectiveness of such initiatives, and workplace outcomes associated with workplace financial education.

Health Impacts

Studies evaluating the connection between financial literacy and physical and mental health are rare. Such studies tend to focus on either the connection between financial literacy and patient decision-making and behavior (Meyer, 2017) or cognitive function (Han, et al., 2014), the latter particularly among older adults.

Financial literacy has been identified as a potential determinant of health, although research on patient financial literacy in the healthcare context has been limited compared to research on health literacy. However, some studies have shown that low levels of financial literacy may be associated with poor health-related financial behavior (Robb & Woodard, 2011; Greene, Peters, Mertz, & Hibbard, 2008). One study found that lower levels of financial literacy were significantly associated with lower use of health-related financial best practices including lacking health insurance and not establishing an emergency fund (Robb & Woodard, 2011). Low financial literacy has also been associated with an increased likelihood of selecting high-deductible health plans. Individuals with lower financial literacy levels were more likely to select these plans, however (Greene, Peters, Mertz, & Hibbard, 2008). More direct links between physical health and financial literacy have also been assessed. A cross-sectional study using data from the Rush Memory and Aging Project, found that financial literacy was associated with health promoting behaviors such as cognitive activity, as well as health status indicators such as functional status, mental health, and cognition (Bennett, Boyle, James, & Bennett, 2012).

Financial literacy has also been linked to a wider range of well-being outcomes, particularly those associated with financial wellness and retirement preparedness. A 2015 meta-analysis of studies assessing the effectiveness of financial education found that of the 180 studies reviewed, 144 found that financial education can improve financial outcomes (Miller, Reichelstein, Salas, & Zia, 2015). Studies that focus on interventions in the United States find mixed results, with small but positive effects on retirement savings but small negative effects on loan defaults. Overall, the analysis suggests that financial education can impact some financial behaviors, such as savings and record keeping, which are considered fundamental to personal financial management and areas in which an individual can exert significant control. Employer-provided financial education programs have been shown to have a positive effect on retirement, with the magnitude of the positive effect larger for lower-income and younger workers (Smith, 2016). However, as another study notes, even if lower-income workers benefit most in terms of percentage change, such increases start from a low base, so the dollar amounts are often very small (Lusardi & Mitchell, 2007).

Business & Economic Impacts

Research on the connection between business outcomes and financial literacy is limited. However, survey data suggests that employees whose employers provide financial education are more likely to report strong agreement with the statement that they are “proud to say I work for [name of company]” (Hira & Loibl, 2005).
## Research Summary Table, Financial Literacy

<table>
<thead>
<tr>
<th>Impacts</th>
<th>Summary of Quantitative Outcomes</th>
<th>Indicators</th>
<th>Evidence Strength</th>
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</table>
| **Health**| • Meta-analysis: Effect sizes for papers testing retirement savings behavior after financial education interventions range from -0.04-0.23 with an overall effect size of 0.08 (90% CI: 0.01, 0.16). Effect size from US-based study testing loan default after intervention: -0.09 (90% CI: -0.12, -0.06).  
  • Health and Retirement Study data estimated effects are sizable, particularly for the least wealthy, for whom attending seminars appears to increase financial wealth (a measure of retirement savings that excludes housing equity) by approximately 18%, however these are measured from a low base so the dollar amount may be very small  
  • For non-highly compensated employees, frequent seminars are associated with participation rates 11.5 percentage points higher than plans with no seminars, for highly compensated employees, this figure is 6.4 percentage points.  
  • Association of financial literacy with health-promoting behaviors and health status in fully adjusted models: Cognitive activity (b = 0.075, p = 0.001); global cognition (b=0.154, p < 0.001), episodic memory (b=0.144, p < 0.001), perceptual speed (b=0.168, p < 0.001), working memory (b=0.169, p < 0.001), visuospatial ability (b=0.118, p < 0.001), semantic memory (b=0.155, p < 0.001), instrumental ADL (b=0.178, p < 0.001), depression (b=-0.111, p < 0.001), loneliness (b=-0.045, p = 0.026). | Mental health and well-being, Social well-being          | Limited or mixed |
| **Business**| • Financial literacy classes associated with improved financial literacy, which led to higher confidence in financial future, which in turn increased the likelihood of strongly agreeing with the statement “proud to say, I work for [name of company]” by 12 percentage points. | Health/safety     | Limited or mixed  |
**Work Time**

As the International Labor Organization (ILO) notes in its research report on working time, health and safety, technological and economic developments have resulted in a shift from the traditional workweek to a range of non-standard work schedules including "shift work, compressed work weeks, weekend work, and on-call work" alongside the blurring of the line between work and non-work time (Tucker & Folkard, 2012, p. v). The following will review the literature on the health impacts associated with these working time arrangements, changes to work time arrangements, and employee control over working time. Following the ILO report, this review will be structured based on the impacts of a.) working hours (the number of hours worked in a workday and/or workweek), b.) working time arrangements (work schedules), and c.) control over working time arrangements.

**Health Impacts**

**Working Hours**

A 2003 review of the association between workhours and health based on 27 studies found mixed evidence for health impacts associated with extended work hours. Two studies of cardiovascular disease found increased risk of ischemic heart disease and myocardial infarction associated with longer work hours. One study each found an increased risk of diabetes and disability retirement. One study found higher all-cause mortality after 5 years for men who worked more than 5 hours of overtime per week. Some studies reported an association between long work hours and adverse general health, while some found no association. Several studies reported an association between workhours and fatigue. This review also assessed studies reporting associations between work hours and physiological measures include cardiovascular, immunologic and other biochemical indices. There was mixed evidence of impact on these indices as well, with some evidence of increased mean 24-hour heart rate, blood pressure, decreased natural killer cells. Mixed results were found for associations between work hours and BMI, alcohol consumption, and smoking. Most studies evaluating sleep hours found negative associations between sleep hours on weekdays and work hours, as well as a between work hours and sleep debt. (van der Hulst, 2003)

In its research paper on working time, health and safety, the ILO distinguishes between the impacts of long daily working hours (compressed work weeks) and long weekly working hours. Like the review described above, the ILO report identifies a lack of evidence “linking [compressed work weeks] with negative physical and psychological health outcomes” (Tucker & Folkard, 2012, p. 14). Rather, negative health outcomes associated with long work hours tend to be found in combination with high work demands, regular overtime, and physical demands. Research analyzing occupational injury and accident data suggests that risk of injuries and accidents increases significantly in the last three hours of a 12-hour shift. The ILO report concludes that rather than shift length itself, the arrangement and structure of shifts (e.g., start/finish times, distribution of rest breaks) influence the health impacts of extended working hours.

As with long daily working hours, evidence of the health impact of long weekly work hours is mixed. (Allen, Slavin, & Bunn III, 2007; Tucker & Folkard, 2012). Research based on the Whitehall II Study, a study of British civil servants, found an association between long working hours and incident coronary heart disease. Researchers have identified several variables that influence the relationship between working hours and health including level of autonomy, job demands, and rewards. As such, many of the potential harms of long working hours result from “other factors that tend to coincide with long working hours, e.g., heavy work load, sleep disruption, and the inability to unwind and detach from work” (Tucker & Folkard, 2012, p. 17). As with long daily working hours, research has identified a strong positive relationship between weekly working hours and occupational injury and illness risk, although this relationship may also be influenced by characteristics of work and workers (Allen, Slavin, & Bunn III, 2007, p. 168).

**Shift Work**

As noted briefly above, the arrangement and structure of shifts may influence the health impacts associated with working time. This has led to a significant body of research on the effects of shift work on both physical and mental health. Shift work refers to “an arrangement of work hours that uses two or more teams (shifts) to cover the time needed for production” (Åkerstedt, 1988, p. 17). This is particularly the case as the number of shift workers has increased in developed countries in response to demand for round-the-clock service, technical need, and economic reasons (Vogel, Braungardt, Meyer, & Schneider, 2012).

A 2012 review of the effects of shift work on physical and mental health found mixed evidence on mental health impacts. Some studies found elevated risk of anxiety and depressive symptoms. However, in some studies such associations were not found to be significant when controlling for demographic variables and work-related factors. Studies of health professionals have found that nurses working night shifts experienced higher scores regarding “somatization, obsessive-compulsive, interpersonal sensitivity, anxiety, and
While both men and women working night shift schedules study, shift workers did not experience a similar decline. A 2010 study of Canadian shift workers found that although there is evidence of gender differences in occupational injury, work on work-to-family conflict (Fenwick & Tausig, 2001) but mixed evidence on gender differences in the impact of shift work; and (iii) there is an increased relative risk of myocardial infarction in occupations with a high proportion of shift workers” (Tucker & Folkard, 2012, p. 23). In addition to cardiovascular disease risk, shift workers also demonstrate elevated incidence of some gastrointestinal disorders, and breast cancer. Evidence for association of shift work and other cancers is significantly more limited (Vogel, Braungardt, Meyer, & Schneider, 2012).

The ILO report finds a range of studies suggesting an association between shift work and a range of cardiovascular diseases. Research shows that “(i) cardiovascular risk factors, angina pectoris and high blood pressure are prevalent among shiftworkers; (ii) morbidity due to cardiocirculatory and ischemic heart diseases rises with age and years in shift work; and (iii) there is an increased relative risk of myocardial infarction in occupations with a high proportion of shiftworkers” (Tucker & Folkard, 2012, p. 23). In addition to cardiovascular disease risk, shift workers also demonstrate elevated incidence of some gastrointestinal disorders, and breast cancer. Evidence for association of shift work and other cancers is significantly more limited (Vogel, Braungardt, Meyer, & Schneider, 2012).

The 2012 review also assesses impacts on a worker’s social (and family) life which have been described as, from a subjective perspective, “more disturbing than those related to the biological sphere” (Vogel, Braungardt, Meyer, & Schneider, 2012, p. 1123). That said, social impacts also represent increased risk factors for accidents as well as psychoneurotic, gastrointestinal and cardiovascular health problems (Costa, 2003). Impacts on family life are felt not just by the worker but also by other members who may need to adapt to “altered daily rhythms” (Vogel, Braungardt, Meyer, & Schneider, 2012, p. 1123). Shift workers experience increased work-to-family conflict, reduced spouse satisfaction, increased divorce rates, and increased absence from family obligations (Vogel, Braungardt, Meyer, & Schneider, 2012). A 2003 study of US survey data found a “significant, strong, positive relationship between shift work and NWFSp [negative work-to-family spillover] …even when controlling for education, occupation, and standard demographic characteristics” (Grosswald, 2003, p. 53).

Several researchers have analyzed the impact of shift work through the lens of gender (Åkerstedt, 1988; Fenwick & Tausig, 2001; Wong, McLeod, & Demers, 2011). There is mixed evidence on gender differences in the impact of shift work on work-to-family conflict (Fenwick & Tausig, 2001) but there is evidence of gender differences in occupational injury. A 2010 study of Canadian shift workers found that although worker injury had declined in general during the period under study, shift workers did not experience a similar decline. While both men and women working night shift schedules experienced nearly twice the risk of injury compared to those in regular day schedules, this study’s findings suggest an elevated relative risk of injury among women (Wong, McLeod, & Demers, 2011).

Control Over Working Time

Several studies have found a relationship between schedule control and a range of health and family-related outcomes. The ILO study reports findings of several studies suggesting that shift workers with control over their shifts experience positive changes in self-reported health, blood pressure and psychological health. Such control also attenuates some of the negative impacts of work-related stress (Tucker & Folkard, 2012). Control and flexibility (where variations in working time are primarily under the control of the employee) may benefit men and women differently, with women more likely to report experiencing benefits (Tucker & Folkard, 2012). However, some studies found no evidence that schedule control mediates the impacts of schedule times or variation in effect by gender (Fenwick & Tausig, 2001).

Business & Economic Impacts

Alongside its research on the relationship between working time and health, the ILO also produced a synthesis paper on the effects of working time on productivity and firm performance. It found that, in general, longer per employee working hours are not associated with increased productivity. In a study of 18 manufacturing industries in the United States, use of overtime was associated with lower output per worker hour (Golden, 2012). A study of 18 OECD countries finds that when “annual working time climbs above a threshold of 1,925 hours, a 1-percent increase in working time would lead to a decrease in productivity of roughly 0.9 percent at the threshold and a fully proportional decrease of 1 percent past the threshold of 2,025 hours” (Golden, 2012, p. 6). One cited study that analyzed 88 projects in the electrical and mechanical trades found a “distinct decrease in productivity as the number of hours worked per week and/ or project duration increases” (Golden, 2012, p. 8).

Indirect effects on productivity may result from adverse effects of long hours on worker health. Long or irregular work hours are associated with physical, psychological, and injury risks that may “limit long-run capacity to remain productive at work” (Golden, 2012, p. 8). However, in one study of hourly manufacturing workers little association between long work hours and either physical or non-physical presenteeism was found. Instead, individual characteristics of employees such as age, gender and job characteristics as well as prior health status were found to be more significantly
associated with adverse health, safety or productivity (Allen, Slavin, & Bunn III, 2007).

There have been few attempts to quantify the financial impact of long working hours. According to one analysis, workers with fatigue cost US employers approximately $136.4 billion in health-related lost production time. The ILO report suggests that shorter working hours in specific situations where long hours result in greater fatigue could increase productivity and reduce production costs (Golden, 2012).

Findings on workers’ control over scheduling (flexibility) are difficult to generalize. Evidence from firms such as AstraZeneca and GlaxoSmithKline suggest that arrangements such as job-sharing have the potential to increase (or at least maintain) productivity levels (Golden, 2012). A 2001 study cited in the ILO report found that giving workers the option to take time off when a family member was ill or to work remotely were associated positively with firm profits (Golden, 2012). Potential mechanisms for this finding include reduced job dissatisfaction and stress. A range of studies demonstrate “that flexible work schedules help employees better coordinate their daily work and life responsibilities and boost their on-the-job performance” (Golden, 2012, p. 12).

Several review articles have assessed the state of research on the connections between shift work and safety (Folkard & Tucker, 2003), productivity (Folkard & Tucker, 2003), performance quality (de Cordova, Bradford, & Stone, 2016), and sick leave (Merkus, et al., 2012). Generally, findings suggest a negative relationship between shift work and these measures. While shiftwork is often introduced for economic reasons (such as maximizing the use of expensive equipment), such arguments depend on “productivity and safety being maintained at an acceptable level” (Folkard & Tucker, 2003, p. 95). Concentrating on the effects of working at night, one review concluded that both safety and productivity are reduced at night largely due to “impaired health, a disturbed social life, shortened and disturbed sleep, and disrupted circadian rhythms” (Folkard & Tucker, 2003, p. 99). Suggestions for reducing these negative outcomes include considering the number of successive night shifts, shift length, and the availability of rest breaks.

A review of 13 articles published between 2004 and 2012 found that most studies report increased errors and/or decreased overall performance among shift workers, particularly those working at night (de Cordova, Bradford, & Stone, 2016). As with the review discussed above, potential suggestions include adjusting the structure of night shifts to include more substantial breaks and providing opportunities to adjust between changes from night shift to other shifts (de Cordova, Bradford, & Stone, 2016, p. 832).

Along with increased errors and reduced productivity at the worksite, research has also evaluated the relationship between shift work and sick leave. A 2012 review of 24 studies found inconclusive evidence of an association between sick leave and rotating shifts, shift work including nights, fixed night work, 8-hour shifts, and 12-hour shifts (Merkus, et al., 2012). Of the nine studies under review that were evaluated as high quality, two longitudinal studies found a positive association between fixed evening shifts and duration of sick leave for female healthcare workers (Merkus, et al., 2012, p. 705). This, alongside other reviews, suggest the productivity impacts of shift work may vary significantly across schedules, industries, and types of workers. Previous work on this issue has suggested that managers should provide support including stress-coping programs and worker-centered approaches to morale improvements (de Cordova, Bradford, & Stone, 2016, p. 832). This may be particularly important for women, who are likely to bear the burden both of work-related injuries and negative work-to-family spillover as discussed in the previous section.
## Research Summary Table, Work Time

<table>
<thead>
<tr>
<th>Impacts</th>
<th>Summary of Quantitative Outcomes</th>
<th>Indicators</th>
<th>Evidence Strength</th>
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<tbody>
<tr>
<td><strong>Health</strong></td>
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<td></td>
<td><strong>Cardiovascular disease, Diabetes, Health behaviors, Mental health and well-being, Social well-being</strong></td>
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<td>• Physical Outcomes: risk ratio 2.94 for myocardial infarction associated with working &gt; 11 hrs/day; 4x higher risk for noninsulin-dependent diabetes; working in jobs with overtime schedules is associated with a 61% higher injury hazard rate than jobs without overtime; odds ratio of 2.3 for motor vehicle crashes after extended shift compared to normal shift</td>
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<td>Limited or mixed</td>
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<td>• Psychosocial Outcomes: Work-family spillover: 1.5-1.6 times higher rate of sickness absence, 3.6-6.5 times higher odds ratio for psychological distress and poor health</td>
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<td>• The risk of occupational injury is doubled when employees work more than 12 hours per day and goes up by over 40 per cent over 10 hours in a given day</td>
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<td>• Working 60 hours or more a week was also associated with a higher risk (relative risk = 3.7) of disability retirement</td>
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<td>• Among men: poor mental health status (aOR=2.06, 95% CI=1.31-3.24), self-reported hypertension (aOR=1.60, 95% CI=1.12-2.29), smoking (aOR=1.33, 95% CI=1.03-1.72), shortage of sleep (aOR=1.42, 95% CI=1.09-1.85), no leisure time physical activity (aOR=2.43, 95% CI=1.64-3.60)</td>
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<td>• Working more than 40 hours a week was related to an increased risk of acute infection (risk ratio=2.0)</td>
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<td>• 10% of night and rotating shift workers experience shift-work sleep disorder</td>
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<td>• Odds ratios showed that the risk for severe sleepiness was 6-14 times higher on the night shift and about twice as high on the morning shift as on the day shift</td>
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<td>• The calculated hazard ratio for occupational injuries was 1.43 for evening shifts, 1.36 for rotating shifts, and 1.30 for night shifts</td>
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<td>• Shift work increases the risk of coronary heart disease by 30-40%</td>
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<td>• Schedule control associated with 1 extra hour of sleep on work nights</td>
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<td>• Significant regression coefficients for schedule control: lack of work-home balance: -.164; burnout: -.230; distress: -.823; poor general health: -.116; minor physical problems: -.132</td>
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<tr>
<td><strong>Business</strong></td>
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<td></td>
<td><strong>Health/safety, Productivity, Quality, Business Costs, Profitability</strong></td>
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<td></td>
<td>• Fatigue costs US employers approximately $136.4 billion in health-related lost production time and may be associated with long hours</td>
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<td>• When annual working time climbs above a threshold of 1,925 hours, a 1-percent increase in working time would lead to a decrease in productivity of roughly 0.9 percent at the threshold and a fully proportional decrease of 1 percent past the threshold of 2,025 hours</td>
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<td>• A 10-per cent increase in overtime resulted, on average, in a 2.4-per cent decrease in productivity measured by hourly output.</td>
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<td>• Worker performance in a sample of white-collar jobs decreased by as much as 20 per cent when 60 or more hours were worked per week</td>
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<td>• Of the 103,059 work hours that were lost during construction, 82,546 resulted from inefficiencies due to overtime</td>
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<td>• Effect estimates for an association between shift work and sick leave varied among the included studies from protective (OR 0.75; NS) to an increased risk for sick leave (OR 2.6; p&lt;0.05).</td>
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<td>• Fixed evening workers: increased risk of ≥2 week sick leave OR=1.31 (1.13 to 1.51); increased risk for ≥8 week sick leave, OR=1.26 (1.03 to 1.55)</td>
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<td>• Mean score of committing errors for shift workers (5.49) was significantly higher than non-shift workers (4.53; p &lt; 0.0001)</td>
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<td>• Night shift workers had a 10% decrease in reaction time</td>
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<td>• Risk was found to increase in an approximately linear fashion across the three shifts, showing an increased risk of 18.3% on the afternoon shift and of 30.4% on the night shift, relative to that on the morning shift</td>
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<td>• From 30 to 50 per cent of observed differences in health indicators between workers engaged in flextime (either alone or combined with compressed workweeks) and those not engaged in a formal arrangement were explained by perceived workplace flexibility.</td>
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</table>
Job Security

The effects of job insecurity on worker health have been studied since at least the mid-1960s. The rise of “flexible production” in the 1970s, deindustrialization, technological change, globalization, and the recommodification of labor have transformed patterns of employment and job securities that underpinned the post-war economic and social order. In this context, researchers have defined job insecurity as the discrepancy between the level of job security a person experiences and the level she might prefer” (Ferrie, 2001; Benach, et al., 2014; Benach & Muntaner, Precarious Employment and Health: Developing a Research Agenda, 2007). This captures a wide range of experiences of job insecurity, from workers in the primary labor market where workers are accustomed to long-term secure employment, to those in the secondary labor market where jobs are often seasonal, part-time, or temporary (Ferrie, 2001). In the wake of the Great Recession, concerns about the impacts of this type of “precarious employment” as a social determinant of health have increased, with a significant upward trend in the number of papers published using this term (Benach, et al., 2014). Research evaluating the health effects of both job insecurity and precarious employment are assessed below.

Health Impacts

In studies of the health effects of job insecurity, populations studied have been either those who report their job as insecure (perceived job insecurity) or those who are deemed to be at risk of job insecurity by researchers (attributed job insecurity) (Ferrie, 2001). A 2001 review of the health effects of job insecurity evaluated both perceived and attributed job insecurity and its effects on psychological and physical health. Longitudinal studies evaluating the effects of perceived and attributed job insecurity have found consistent adverse effects on psychological morbidity. Evidence of a dose-response relationship between attributed job insecurity and measures of morbidity including “self-rated health ‘less than good’ and regular low back pain” has also been documented (Ferrie, 2001, p. 72). There is also evidence of tension within the home as well as low birthweight for gestational age (Ferrie, 2001).

More recent studies have largely confirmed a negative relationship between job insecurity and health. Some studies have also shown an association between job insecurity and occupational injury (Probst & Brubaker, The Effects of Job Insecurity on Employee Safety Outcomes: Cross-Sectional and Longitudinal Explorations, 2001; Probst, Layoffs and Tradeoffs: Production, Quality, and Safety demands Under the Threat of Job Loss, 2002). A 2007 meta-analysis evaluating 133 studies with 172 independent samples found a statistically significant negative relationship between job insecurity and both physical and psychological health. The authors also conducted a moderator analysis to determine whether the relationship between job insecurity and health was dependent on other variables, in this case, tenure, age, and gender. It found that the negative effects of job insecurity on health were more severe for employees with longer tenure and for older employees, while effects were similar across gender (Cheng & Chan, 2008). Research on job insecurity and depression has found that persistent perceived job insecurity is an important predictor of depressive symptoms even after controlling for sociodemographic and work characteristics (Burgard, Brand, & House, 2009; Meltzer, et al., 2010).

A 2012 review found consistent evidence that workers who are of lower socioeconomic or social class positions, racial/ethnic minorities, immigrants, and/or women are more likely to be exposed to job insecurity. The limited research on differential vulnerability to the health effects of job insecurity finds consistent evidence for workers of lower socioeconomic position but inconsistent evidence for women and racial/ethnic minorities and immigrants (Landsbergis, Grzywacz, & LaMontagne, 2014). The authors suggest that effective interventions designed to address these issues should capture the views and ideas of all stakeholders, including “workers in lower socioeconomic positions; workers employed on a precarious/contingent or short-term basis, particularly women; and night-shift workers,” especially since the status of these workers may constrain their level of comfort with bringing complaints about work hazards (Landsbergis, Grzywacz, & LaMontagne, 2014, p. 506). The authors cite the British Standards Institution’s PAS1010 on the management of psychosocial risks in the workplace as well as labor-management voluntary agreements as potential mechanisms for managing the exposure to psychosocial hazards such as job insecurity (Landsbergis, Grzywacz, & LaMontagne, 2014).

A review of the literature on precarious employment as a social determinant of health found that precarious workers experience a range of negative physical and psychological health effects through multiple pathways. It lays out three main pathways: a) increased exposure to harmful working conditions, b) limited control over professional and personal life and c) consequences related to the social and material consequences of precariousness (Benach, et al., 2014, pp. 241-242). Precarious workers experience increased exposure to both physical risks in the workplace (e.g., toxic exposure) and suboptimal OHS prevention including “less qualitative protective gear or lack of training about occupation risks and necessary precautions to decrease those risks” (Benach, et al., 2014, p. 242).
Psychosocial characteristics such as lack of support at work can contribute to these risks as well as being stressors and predictors of adverse health outcomes in their own right. A lack of control over professional and personal life may lead to psychosocial stress through “experiences of job insecurity, feelings of betrayal and injustice as a consequence of breaches in the psychological contract with the employer, feelings of powerlessness and being out of control, lack of future opportunities, or denial of a professional identity” (Benach, et al., 2014, p. 242). These social stressors have also been linked to adverse health and well-being. Outside of the workplace, precarious employment results in economic costs for the workers’ family members. Precarious employment is also linked to other forms of social precarity and other social determinants of health including access to health care, lifestyle, and housing conditions. The effects of precarious employment thus ripple outward from the worker to their families to the wider communities within which they live and work. Some scholars have identified job insecurity as a partial explanation for racial disparities in health in the United States, although more research is required to better capture this (Fullerton & Anderson, 2013).

As with the negative effects of working time, there is some evidence that increasing workers’ sense of job control can lessen the negative effects of job insecurity (Barling & Kelloway, 1996; Schreurs, van Emmerik, Notelaers, & Hans, 2010).

Business & Economic Impacts

Evidence on the relationship between job security and business performance is mixed, and few studies were found that attempted to assess a direct connection between job security and business performance. Much of the literature on the relationship between job insecurity and corporate performance assess job insecurity in the context of other human resources management (HRM) practices. One study of HRM in the US banking sector found job security to be positive related to both return on assets and return on equity (Delery & Doty, 1996). A study examining HRM practices in German, Italian, and Japanese companies found that while job insecurity does not directly affect organizational performance, it may limit the potential of other HRM practices (Ahmad & Schroeder, 2003).

Several studies have assessed the relationship between job security and perceived performance. A 2007 study of working part-time MBA students in the southwest and west coast of the United States found that job insecurity has a negative correlation with job satisfaction, with an indirect effect on perceived organizational performance (Reisel, Chia, Maloles III, & Slocum Jr, 2007). A 2009 study of Greek HR managers found no correlation between job security and perceived firm performance, while other HRM practices such as training, compensation policy, and decentralization were related to perceptions of performance (Vlachos, 2009). The generalizability of these findings is limited, and the use of cross-sectional data limits the ability to draw conclusions about causation.
### Research Summary Table, Job Security

<table>
<thead>
<tr>
<th>Impacts</th>
<th>Summary of Quantitative Outcomes</th>
<th>Indicators</th>
<th>Evidence Strength</th>
</tr>
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</table>
| **Health** | • Insecure workers were significantly more likely to meet criteria for major or minor depression (odds ratio [OR] = 7.27; 95% confidence interval [CI] = 3.12, 16.9) and to report a recent anxiety attack (OR = 3.52; CI = 1.47, 8.44), even after adjustment.  
• Increased likelihood of depression among those agreeing that their job security was poor [odds ratio (OR) 1.58, 95% confidence intervals (CI) 1.22–2.06, p<0.001].  
• High perceived workplace control reduced adverse consequences of job security to 0; at low levels of workplace control insecurity was positively associated with blood pressure (B=0.34, p<0.01) and health problems (B=0.23, p < 0.05).  
• When job insecurity was high, levels of impaired general health increased significantly among individuals with low job control (B=.21, t=7.35, p<.001). | Mental health and well-being | Strong |
| **Business** | • Banks one standard deviation higher on job security are estimated to be 0.09 higher on ROA and 0.63 higher on ROE.  
• High perceived workplace control was positively associated with organizational commitment (B=0.41, p<0.01). | Health/safety, Job satisfaction, Return on assets, Return on equity, Business performance | Limited or mixed |
Pay Practices/Wages

Income is an important social determinant of health (World Health Organization, 2013). For working-age people with jobs, wages (including salaries) make up the largest share of income. Wages are a “fundamental dimension” of job quality and among the most important aspects of employment (Leigh & De Vogli, Low Wages as Occupational Health Hazards, 2016). According to the Current Population survey, about one-third of workers in the United States make less than 150% of the federal minimum wage for a 40-hour work week (United States Census Bureau, 2017). Low wage work is likely to remain a significant part of the labor market, as nearly half of the fastest growing occupations require no postsecondary education (Bureau of Labor Statistics, 2017). This section will assess the relationship between wages and health and business outcomes. It will examine research in three main areas: low wages as a potential risk factor, minimum wage policies, and wage satisfaction.

Health Impacts

Low Wages

There are several mechanisms that may explain the association of low wages with poor health. These include poor diet and housing, increased stress and violence, limited time for leisure and exercise, unaffordability of health insurance, and limited access to healthcare (McLellan, 2017). Further, low-wage workers may not be able to leave unsafe work environments because, among other reasons, they may lack information about and the skills to secure alternative employment (Shapiro, 2017). They may also lack bargaining power in order to “bid up” their wages to compensate for dangerous work environments (Mehta & Theodore, 2006; Shapiro, 2017). Accordingly, some researchers have suggested that low wages should be considered an occupational health risk (Leigh & De Vogli, Low Wages as Occupational Health Hazards, 2016). In general, low- to mid-wage workers are more likely to report fair or poor health, a chronic condition, or disability and are less likely to have paid-time off to see a doctor during work hours. They are also less likely to have paid sick leave (Collins, Davis, Doty, & Ho, 2004).

Occupational injury is common among low-wage workers. A study of low wage hotel room cleaners in Las Vegas found that in one month, 47% of room cleaners experienced severe bodily pain in general, 43% experienced neck pain, 59% experienced upper back pain, and 63% experienced lower back pain. (Krause, Scherzer, & Rugulies, 2005). A separate study of hotel employees in Florida hotels found that injury rates were highest in the occupations with lower wages, such as housekeepers, who experienced an injury rate of 7.9 injuries per 100 worker-years compared to the hotel employee average of 5.2 injuries per 100 worker-years. However, sex and gender also partially explained the discrepancy in injury rates (Buchanan, et al., 2010). Low-wage workers may be at heightened risk for injury because of the nature of low-wage work. A survey of 275 low-wage workers in the Syracuse, New York, area found that low-wage workers’ occupations expose them to frequent bending and twisting, heavy physical loads and prolonged sitting (Zoeckler, et al., 2014). Over 50% of workers surveyed in this study reported at least one symptom or injury associated with these risks, such as muscle, joint, or back pain. Seventy percent of surveyed works reported at least one hazardous exposure on the job. The most common exposures were dusts, chemicals, repeated motions, and blood or bodily fluids (Zoeckler, et al., 2014). However, it is not clear that there is a causal relationship between wages and injury or exposure to hazardous working conditions: a prospective study of office workers in Atlanta, Georgia, found that workers making below $50,000 were no more likely to experience neck pain that workers making $50,000 or more (Gerr, et al., 2002).

Low-wage workers may also underreport occupational injuries and illness, which could lead to treatment delay and further disability. A study of underreporting of occupational injury and illness found that cases among low-wage workers are more likely to be “filtered” out and thus underreported by the Bureau of Labor Statistics and other sources (Azaroff, Levenstein, & Wegman, 2002). For example, low-wage workers are more likely to be fired for complaining about injury or illness (Azaroff, Levenstein, & Wegman, 2002). A descriptive study of low-wage garment workers in California found that while nearly all patients presenting at a women’s health clinic had injuries likely to be covered by workers’ compensation, almost none of the patients were willing to file claims. Explanations included job loss and fear of being blacklisted in the industry (Burgel, Lashuay, Israel, & Harrison, 2004). However, other factors such as immigration status, race, and gender may play a role in this fear as well. Similarly, a study of New York workers’ compensation claim rejection for carpal tunnel syndrome found that it was correlated with socioeconomic status and that claims by low-wage workers were more likely to be challenged (Herbert, Janeway, & Scheckter, 1999). It is unclear from the study whether these delays resulted in treatment delays or further disability.

Low wages may also affect the health and well-being of family members of low-wage workers. A recent review article found that a majority of studies (29 out of 34) found that low income and poverty had a negative impact on a range of childhood outcomes (Cooper & Stewart, 2013). Of these studies, 6 showed a significant effect for some but not all outcomes. For example, some found significant effects...
on cognitive outcomes but not on other health outcomes (Cooper & Stewart, 2013). Analysis of a randomized control trial of the Minnesota Family Investment Program found that an increase in income had a significant effect on child social behavior and school engagement (Gennetian & Morris, 2003).

Policies designed to improve health and well-being may also fail to provide the promised benefits to low-wage workers. The Family Medical Leave Act provides one such example. While many low-wage workers are not covered by the act, those that are may be unable to take advantage of it. One study found that, in 2000, three out of four workers that reported needing leave but did not take leave cited lost wages as a main reason (O’Leary, 2007).

### Minimum Wages

The health outcomes associated with minimum wage policies have attracted significant attention from public health researchers. Generally, minimum wages are thought to improve health outcomes by increasing income, because most measures of injury, poor health, and disease vary inversely with income (Bhatia, 2014). Public health research on minimum wages has focused on a wide range of health and well-being measures. These outcomes include, among others, overall health, mental health, unmet medical need, lack of insurance, birth outcomes, adolescent fertility, and health behaviors. Evidence for the relationship between minimum wages and health outcomes ranges from weak to strong, with most evidence falling somewhere in between.

A 2016 study based on data from all US births over a period of 25 years also found that an increase in the minimum wage is associated with an increase in birth weight driven by increased gestational length and fetal growth rate (Wehby, Dave, & Kaestner, 2016). An ecologic cohort study of state minimum wage laws and newly diagnosed HIV cases among heterosexual black residents of urban areas in the United States found that, adjusting for confounders, metropolitan statistical areas with a minimum wage that was one dollar higher at baseline had a 27.1% lower rate of newly diagnosed HIV cases. According to the authors’ exploratory analysis, this relationship may be mediated by income inequality. (Cloud, et al., 2019). This study was not able to identify a causal relationship. A quasi-natural experiment in the United Kingdom found that introduction of a minimum wage in 1999 reduced the probability of depressive symptoms among low-wage workers. It found that the effect was similar to that of antidepressant medication (0.37 standard deviations v. 0.39 standard deviations). The minimum wage decreased the probability of depressive symptoms by reducing financial strain (Reeves, McKee, Mackenbach, Whitehead, & Stuckler, 2017).

Several studies have sought to estimate the health impacts of proposed minimum wage increases at the state and local level. An ecological study examining the effects on premature mortality of a minimum wage of $15 per hour in New York City found that a $15 per hour minimum wage could have averted 2,800 to 5,500 premature deaths between 2008 and 2012, primarily in low-income communities and communities of color. The authors claim similar results when additional controls were included as a robustness check. These variables included unemployment rate, noninsurance rate, air quality, and the proportions of adults who were smokers (Tsao, et al., 2016). A 2014 study of California’s Senate Bill 935, which...
proposed to increase the state’s minimum wage in three steps, starting at $11 an hour in 2015 and by an additional $1 per hour in both 2016 and 2017, with inflation-linked increases after 2017 found that the proposed wage increase would result in fewer chronic diseases and disabilities; less hunger, smoking and obesity; and lower rates of depression and bipolar illness (Bhatia, 2014). Some key findings included that an increase of the minimum wage to $13 per hour would result in an estimated 389 avoided deaths among working-age adults. Findings for other issues relied largely on existing correlations between income and health measures in California as opposed to determining whether those affected by a minimum wage increase would also experience the health benefits attributed to such an increase (Bhatia, 2014).

Wage Satisfaction
Most research on wage satisfaction focuses on its potential effects on business outcomes (discussed below). Most studies of wage satisfaction and health tend to focus on its impact on the performance and job satisfaction of healthcare providers such as nurses. Research on health outcomes themselves tends to focus on issues such as stress and work-family conflict (Bhave, Kramer, & Glomb, 2013; Kim & Garman, 2004). Wage or pay satisfaction may be associated with health outcomes such as a reduced likelihood of workplace injury and reduced work family conflict (Bhave, Kramer, & Glomb, 2013; Hayes, Taylor, & Smith, 2012). While a lack of pay satisfaction may cause financial stress, financial stress itself may decrease pay satisfaction.

Business Outcomes

Low Wages
Pay practices including wage levels may be associated with several business outcomes. The primary business outcomes associated with wages are productivity, turnover, and job satisfaction. In general, low wage workers tend to have shorter job tenure than other workers (Lane, 2000). Potential explanations include the increased stress associated with economic scarcity that may lead to illness or burnout, which may in turn lead to increased absenteeism and eventually turnover (Meuris & Leana, 2015). A commonly cited example is the purported difference in turnover between Wal-Mart’s Sam’s Club and Costco. At Costco, where wages were approximately $17 per hour, turnover was significantly below the industry average “at 17% overall and just 6% after one year’s employment” compared to 44% per year, closer to the industry average, at Wal-Mart (Cascio, 2006). On the other hand, a 2007 study found that when looking at the retail sector as a whole Wal-Mart’s entrance into the market accounts for a 40% reduction of turnover in the retail sector overall and that that overall earnings (if not hourly wages) improve by just over 6 percent when Wal-Mart enters the market (Hicks, 2007).

Studies examining the relationship between wages and turnover have reached conflicting conclusions. Literature reviews from the 1970s found both that pay is consistently negatively related to turnover and that such findings are inconclusive (Cotton & Tuttle, 1986). A 1986 meta-analysis found that 29 of 32 datasets showed a negative correlation between pay and turnover, with only one dataset showing a positive correlation (Cotton & Tuttle, 1986). It also found that for blue-collar and nonmanagerial workers, turnover is less reliably tied to pay than for professional employees. A more recent meta-analysis found moderate effect sizes for pay variables (Griffeth, Hom, & Gaertner, 2000). A 2014 study of healthcare workers found that workers with low wages were less likely to express an intention to stay in their current position (Steinmetz, de Vries, & Tijdens, 2014).

Low-wage workers may also bear the burden of economic scarcity, which may affect job performance. One study reports that the strain caused by economic scarcity exerts a greater effect on cognition than one night of sleep deprivation. Accordingly, the job performance of low-wage workers who experience chronic economic scarcity may be significant (Mullainathan & Shafir, 2013). On the other hand, high wages may also be associated with higher job anxiety because higher wages induce stress if employees feel obligated to perform better in return for higher wages (Bryson, Barth, & Dale-Olsen, 2012).

Minimum Wages
Minimum wage regulations have been criticized for potentially leading to job loss among the intended beneficiaries of such regulations. There is no consensus on the impacts of a minimum wage on employment. Some studies find that minimum wage increases slow employment growth but do not cause immediate job loss (Meer & West, 2016). Others show that minimum wage increases reduce the hours worked in low-wage jobs and reduce the amount paid to low-wage workers (Jardim, et al., 2018).

A study comparing contiguous county pairs that straddle state borders finds no adverse employment effects and suggests that traditional approaches to studying employment effects of minimum wages tend to find spurious negative effects (Dube, Lester, & Reich, Minimum Wage Effects Across State Borders: Estimates Using Contiguous Counties, 2010). A study assessing the effect of minimum wages on the total number of jobs in the United States found that, on average, the number of missing jobs paying below the new minimum during the five years following implementation closely
matches the excess number of jobs paying just above minimum, leaving the number of low wage jobs essentially unchanged while raising the earnings of those workers (Dube, Giuliano, & Leonard, Fairness and Frictions: The Impact of Unequal Raises on Quit Behavior, 2015). A pilot study of a living wage in Ontario, Canada, found that workers making a living wage were had a higher affective commitment to their employer and lower turnover intentions compared to those making the minimum wage (Zheng & Honig, 2017). However, this study occurred before a living wage policy was implemented, so it is not clear that it would find similar results if employees were paid the living wage because of a living wage regulation. While minimum wage increases are commonly cited as causing job loss among teenagers, one study found that minimum wage increases had a positive impact on job stability among teenagers (Kolko & Neumark, 2007).

Firm migration is another potential avenue by which job losses could occur as a result of the minimum wage (Bhatia, 2014). In general, however migration is unlikely to have a significant enough impact to form a “reliable basis for claims about business climate or economic performance” (Gittings & Schmutte, 2016).

Wage Satisfaction

Wage satisfaction may affect business performance through its impact on job satisfaction and turnover. A 2010 study of employees of the University of California system found that workers with below median wages tended to report both lower pay satisfaction and lower job satisfaction. Similarly, below median earners are more likely to report searching for a new job (Card, Mas, Moretti, & Saez, 2010). A later study of healthcare workers found similar results, with employees with low wage satisfaction less likely to express an intention to stay in their current position (Steinmetz, de Vries, & Tijdens, 2014).

Research on wage satisfaction based on peer comparison is inconclusive in terms of its effects on performance and turnover (Charness & Kuhn, 2007; Dube, Giuliano, & Leonard, Fairness and Frictions: The Impact of Unequal Raises on Quit Behavior, 2015). A laboratory study examining the connection between wages and work effort found that a person’s own wages were more important in determining work effort than wages of coworkers (Charness & Kuhn, 2007). However, whether these results are generalizable as they are based on a small sample of undergraduate participants. A 2015 study found that quit rates strongly reflect wage comparisons to same-store peers (Dube, Giuliano, & Leonard, Fairness and Frictions: The Impact of Unequal Raises on Quit Behavior, 2015). It estimated that concerns about relative pay account for between 70% and 90% of the total effect of individual wages on quits (Dube, Giuliano, & Leonard, Fairness and Frictions: The Impact of Unequal Raises on Quit Behavior, 2015).
<table>
<thead>
<tr>
<th>Impacts</th>
<th>Summary of Quantitative Outcomes</th>
<th>Indicators</th>
<th>Evidence Strength</th>
</tr>
</thead>
</table>
| Health  | • Low-wage hotel employees had an injury rate of 7.9 per 100 worker-years compared to average of 5.2 per 100 worker-years  
• Workers whose workers’ compensation claims were challenged had significantly lower mean average weekly wages (p = 0.03)  
• One-dollar increase in minimum wage associated with 1.4 percentage point decrease in smoking prevalence  
• One-dollar increase in minimum wage decreased by 16.5% the likelihood of reporting poor or very poor health  
• One-dollar increase in state minimum wage above the federal minimum wage was associated with 1%-2% decrease in low birthweight and a 4% decrease in post-neonatal mortality  
• Metropolitan statistical areas with a minimum wage that was one dollar higher at baseline had a 27.12% lower rate of newly diagnosed HIV cases among heterosexual black residents  
• Introduction of minimum wage in UK reduced probability of depressive symptoms with an effect similar to that of antidepressant medication (0.37 standard deviations v. 0.39 standard deviations)  
• Raising minimum wage to $15 per hour in NYC could have averted 2,800 to 5,500 premature deaths between 2008 and 2012  
• Raising minimum wage to $13 per hour in CA would result in estimated 389 avoided deaths among working-age adults  
• One-dollar increase in minimum wage is associated with reduced likelihood of reporting unmet medical need by 14.7%.  
• One-dollar increase in minimum wage associated with a decrease in numbers of days in the past 30 days by 0.045 or 1.8% evaluated at the mean | Health/ safety, health behaviors, birth outcomes, mental health and well-being, mortality | Limited or mixed |
| Business| • At Costco, where wages were approximately $17 per hour, turnover was significantly below the industry average “at 17% overall and just 6% after one year’s employment” compared to 44% per year, closer to the industry average, at Wal-Mart  
• Pay level significantly correlated with turnover intent (r = -0.32, p < 0.1); pay raise significantly correlated with turnover intent (r = -0.30, p <0.1)  
• Satisfaction with pay level significantly correlated with turnover intent (β = -0.28, p <0.001)  
• 2-month quit rate positively associated with higher peer wages (β = 0.44, p < 0.05)  
• In all, 40 of 73 workers (55%) chose a value of three or greater, indicating a “moderate influence” or greater of coworker wages on their choice of how much effort to supply  
• Estimates imply that relative-pay concerns account for roughly 70-90% of the total effect of own-wages on quits  
• Estimation that if the City of Los Angeles increased its minimum wage to $15.25 by 2019, overall operating costs would increase by 0.9%  
• $1 increase in minimum wage is associated with a decrease in the absence rate by 0.29 or 16.1% evaluated at the mean | Productivity, absenteeism, turnover, work effort | Limited or mixed |
Occupational Health and Safety

This section will discuss the health impacts of injuries and illnesses that occur in the workplace, including the physical factors that can contribute to these injuries. While industrialized countries have laws and regulations in place regarding many of these factors, the injuries and illnesses discussed in this section are often preventable (Burton, 2010). This section will also address the evidence for occupational health and safety interventions as well as the business impact of these interventions and work-related injuries and illnesses they are meant to prevent.

Health Impacts

In the United States, there were approximately 2.9 million nonfatal workplace injuries and illnesses occurring at a rate of 3.0 injuries per 100 full-time equivalent workers (Bureau of Labor Statistics, 2016) and 4,836 fatal workplace injuries in 2015 (Bureau of Labor Statistics, 2016). Incidence rates of nonfatal occupational injuries and illnesses were highest in agricultural, transportation, and health care and social assistance sectors (Bureau of Labor Statistics, 2016), while the highest rates of fatal occupational injuries occurred in truck transportation, agricultural industries, mining, and oil and gas extraction (Bureau of Labor Statistics, 2016). Many of these are closely, although not exclusively, linked with elements of the physical work environment including physical, chemical, biological, ergonomic, and mechanical hazards. Incidence rates were highest for injuries and illnesses involving days away from work linked to overexertion, contact with objects/equipment, and falls, slips, and trips. Transportation incidents were the most common events or exposure linked to fatal occupational injuries in 2015, with falls, slips, and trips, and contact with objects and equipment the second and third most common respectively. Incidence rates of fatal occupational injuries were higher for men than women and higher for Hispanic or Latino workers than Black non-Hispanic and White non-Hispanic workers. Along with the health impacts, there is also evidence that earnings growth for workers with an injury is weaker than non-injured workers (Woock, 2009; Dong, Wang, Largay, & Sokas, 2016).

A wide range of interventions to address occupational injuries and illnesses have been evaluated for effectiveness. These interventions address a wide range of occupational health and safety issues including disability management, return-to-work, injury prevention, hearing protection, and ergonomics (Burton, 2010). Generally, interventions based on training alone have not been found to be effective or show inconsistent results regarding improved outcomes (Tullar, et al., 2010; Burton, 2010). However, according to a 2013 review of interventions to prevent injuries in construction workers, the “vast majority of technical, human and organizational interventions that are recommended by standard texts of safety, consultants and safety courses have not been adequately evaluated” (van der Molen, et al., 2013). This review did find low-quality evidence that company-oriented safety interventions including multifaceted safety campaigns can reduce non-fatal injuries, however.

A review of studies involving voluntary and mandatory occupational health and safety management systems (OHSMS) found that all studies involving voluntary interventions found positive findings. However, study quality was judged to be moderate due to simplicity of study design and limited sample size (three of four studies involved single workplaces, for example). Findings for mandatory OHSMS found that adoption of such systems reduced rates of lost-time injury and led to increased productivity. However, these studies were also evaluated as being of moderate quality (Robson, et al., 2005).

As for ergonomic risks, participatory approaches tend to have more evidence for effectiveness than approaches relying solely on training. These approaches involve workers in “planning and controlling a significant amount of their own work activities, with sufficient knowledge and power to influence both processes and outcomes.” A systematic review of participatory ergonomics interventions found “partial evidence” that participatory interventions had a small positive impact on musculoskeletal symptoms, as well as productivity impacts, discussed below (Cole, et al., 2005; Institute for Work and Health, 2008).

Business & Economic Impacts

An early estimate of the economic costs of workplace injuries estimated society-wide costs of over $140 billion annually. Of this, $10 billion was the result of work disruption and $5.4 billion were legal and administrative costs, including health insurance, life and disability insurance, workers’ compensation, motor-vehicle insurance, and sick leave (Miller & Galbraith, Estimating the Costs of Occupational Injury in the United States, 1995). A more recent estimate of economy-wide costs found costs of approximately $250 billion with $67 billion attributable to medical costs and $183 billion attributable to indirect costs including lost earnings, fringe benefits, and home production (Leigh, Economic Burden of Occupational Injury and Illness in the United States, 2011). Industry-specific societal costs have also been estimated. The average cost per case of fatal or nonfatal injury in construction in 2002 was estimated to be approximately $27,000 compared to $15,000 for all industry (Waehrer, Dong, Miller, Haile, & Men, 2007).
A 1997 study estimated employer costs of occupational injuries at $155 billion. This estimate includes costs associated with medical payments, tax payments, wage replacement, other administrative and legal costs, motor-vehicle and other insurance, workplace disruption and lost productivity, and property damage (for motor-vehicle crashes only) (Miller T. R., 1997). The National Safety Council estimate $11.5 billion in employers' uninsured costs for workplace injuries in 2013 (National Safety Council, 2015). These costs represent the dollar value of time lost by uninjured workers. The ability to estimate employer-specific costs is limited by the ability to estimate the transfer of these costs from employers to other economic actors (e.g., consumers.). Other issues associated with these estimations include double-counting, underreporting, data availability, and generalization (Lebeau & Duguay, 2013).

Few studies have assessed the link between OHS performance and business performance. A 2001 study based on interviews with directors of 30 FTSE 500 organizations found that “arguments for OHS are evolving from legal compliance towards competitive advantage and world class business performance” and that among the “most sophisticated firms” OHS is viewed as a consequence of broader initiatives targeting productivity, competitiveness, and profitability (Smallman & John, 2001). Studies of firms that have adopted voluntary OHS standards have found mixed results. An analysis of Spanish firms that adopted OHSAS 18001 (BSI, 2017) standard found an average increase in labor productivity (as measured by sales divided by employees) of 4.21 percentage points as the result of an additional year of certification (Abad, Lafuente, & Vilajosana, 2013). The ability to generalize to firms in the United States is limited, however; because of significant differences in labor market structure and regulations, as well as the macroeconomic environment. There is “partial evidence” that participatory ergonomics interventions reduce lost days from work and also reduce workers’ compensation claims (Cole, et al., 2005).

A 2007 study analyzed the relationship between operating performance and the disconnect between employee and manager safety perceptions; that is, the difference in perceptions of workplace safety between survey employees and surveyed managers. The authors hypothesized that a smaller disconnect is associated with high operating performance. Testing the relationship between this disconnect and external and internal plant performance. They found that as the disconnect decreases, internal scrap and rework performance improved, as did internal reliability and durability. External performance as measured by delivery rate, reliability, and external production costs was also found to improve when the safety disconnect decreased (Veltri, Pagell, Behm, & Das, 2007). A study of listed fashion and textile firms in the United States that have adopted OHSAS 18001 examined sales performance, profitability, and return on assets. This study found that firm sales performance improved after adopting OHSAS 18001, while most firms experienced negative return on assets post-adoption (Fan & Lo, 2012). However, this study is limited by small sample size resulting from low level of adoption of OHSAS 18001 in the United States.
Research Summary Table, Occupational Health & Safety

<table>
<thead>
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<th>Impacts</th>
<th>Summary of Quantitative Outcomes</th>
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<th>Evidence Strength</th>
</tr>
</thead>
</table>
| Health    | • 2.9 million nonfatal workplace injuries and illnesses occurring at a rate of 3.0 injuries per 100 full-time equivalent workers, 4,836 fatal workplace injuries in 2015  
  • Results from regression analyses of the manufacturing sector data (controlled for employment, union status, time and sector) showed that Bill 70 (Ontario, Canada) had a significant effect, equivalent to an 18% decrease in lost-time injury rate; 39% of workplaces in Norway attributing an increase in recognition of OHS issues to OHS legislation  
  • Adoption of voluntary OHS standards associated with 24% decrease in illness/injury frequency and a 34% decrease in lost-time case rate over 3 years                                                                                   | Mortality  | Strong            |
| Business  | • The National Safety Council estimate $11.5 billion in employers’ uninsured costs for workplace injuries in 2013;  
  • OHS Standards and sick leave: the relationship was in the expected direction but weak (standardized beta coefficients of 0.026 and 0.048, respectively), but not statistically significant.  
  • 13% decrease in workers’ compensation cost per employee; decreases of 25%-52% in premium rates; insignificant impact on of adoption of OSHAS 18001                                                                 | Health/safety, Productivity, Quality, Sales/revenue, Business costs, Return on assets, Economic costs to society | Limited or mixed |
Workplace Physical Environment

The physical work environment includes the “structure, air machines, furniture, products, chemicals, materials and processes that are present or that occur in the workplace” including the outdoors and vehicle if work occurs there (Burton, 2010, p. 84). Because occupational health and safety issues associated with the physical work environment, such as injury and fatality rates are widely covered in ESG reporting frameworks and ratings methodologies, this review will focus on a broader range of characteristics of the physical work environment including, but not limited to, air quality, lighting, “green building” practices, as well as attempts to promote health through the built environment. This section will also address the wider environment within which the workplace finds itself, with discussion of the effects of, for example, health-promoting infrastructure in the surrounding community.

Health Impacts

Alongside workplace policies and employment benefits, companies may also use various aspects of the physical environment to promote health among their employees and employees’ families, as well as within the community in which they operate.

As the obesity epidemic has grown in the United States, costs associated obesity and obesity-related health issues such as reduced productivity, increased absenteeism, and increased presenteeism have received significant attention (Finkelstein, DiBonaventura, Burgess, & Hale, 2010). Many efforts to address obesity take the form of promoting physical activity both in leisure time and while at work. However, there is mixed evidence of the relationship between the work environment and physical activity or obesity. A 2010 study of hotel workers found no relationship between environmental variables addressing physical activity and nutrition and BMI (Nigg, et al., 2010).

A 2014 analysis of worksites participating in the Tailored Worksite Weight Control Programs study and using a similar environmental assessment found that certain environmental factors are associated with lower BMI, however. These included access to outdoor areas, the presence of a cafeteria, and fewer vending machines. The latter was directly associated with better eating habits which, in turn, was related to lower BMI (Almeida, et al., 2014). Worksite workout facilities were associated with higher BMI. The authors suggest that this may be due to employers with a higher proportion of overweight and obese employees installing workout facilities to address the prevalence of obesity among employees (Almeida, et al., 2014, p. 783).

A Canadian study found that employees who reported workplace environments supportive of physical activity were more likely to be either moderately active or active (Watts & Mâsse, 2013). Supportive workplace amenities included a pleasant place to walk, playing field, gym facilities, fitness classes, organized sports teams, showers/ change rooms, and programs to improve health. A recent study evaluating the effects of workplace shower facilities specifically on physical activity found no significant differences in changes in physical activity over time among the three study groups: those with new showers, those with existing showers, and those with no worksite showers (Nehme, Pérez, Ranjit, Amick, & Kohl, 2017).

The built environment is an important determinant of individual and population health. The built environment also plays a critical role in addressing environmental challenges, such as climate change. Recognizing the potential connections between these goals, several researchers have sought to understand how green building efforts can serve as a template for health promotion in the built environment (Trowbridge, Worden, & Pyke, 2016) as well as the effects of current green building standards on the health of employees (Allen, et al., 2015; Thatcher & Milner, 2012; Singh, Syal, Grady, & Korkmaz, 2010).

According to a 2015 review, most Leadership in Energy and Environment Design (LEED®) health credits are related to Indoor Environmental Quality (IEQ) with requirements such as ventilation rates that meet ASHRAE 62.1 (“Ventilation Rates for Acceptable Indoor Air Quality”), control of environmental tobacco smoke, and cleaning practices to limit biological and chemical exposure” and additional credits available for increased filtration, carbon dioxide monitoring, “increasing ventilation, use of low emitting materials, protecting ventilation systems from construction debris, indoor air quality monitoring, thermal comfort, interior lighting, daylighting and views, integrated pest management, and green cleaning” (Allen, et al., 2015, p. 251).

Alongside LEED, several recent health-focused building standards have also been released such as the WELL Building Standard (2014) and the Living Building Challenge (LBC) (2006). Many of the WELL Building Standard credits are similar to those found in LEED; however, it extends the focus on health to additional areas such as sleep quality and ergonomic factors. Notable features of the LBC include its “Red List’… banning the use of harmful materials or chemicals, and the “DECLARE” process, which requires disclosure of ingredients in products” (Allen, et al., 2015, p. 251).

The 2015 review assessed 17 studies on green buildings and health. Of four studies based on a UC Berkeley Center for the Built Environment (CBE) survey tool, all found that occupants were more satisfied with indoor...
air quality, building cleanliness and maintenance, and their workspace in LEED buildings than in non-LEED buildings. They differed, however, on thermal comfort, lighting, and acoustics. Another survey-based study investigating IEQ found that more LEED building occupants reported good air quality and fewer reported coughs, sneezes, and neck and shoulder aches. A study focusing on absenteeism found that employees reported significantly lower rates attributable to asthma and respiratory allergies as well as fewer work hours affected by depression and stress (Allen, et al., 2015, p. 254). Studies that included objective IEQ measures generally find improvements in indoor air quality with mixed evidence for other factors including thermal conditions, noise, and lighting (Allen, et al., 2015, p. 254). Studies that have assessed “sick building syndrome,” a group of symptoms attributed to building characteristics have had difficulty identifying specific environmental features responsible for these symptoms (Marmot, et al., 2006; Wolkoff, 2013). However, some compounds have been identified as likely to contribute to sensory irritation in office settings. These include, but are not limited to, acetic acid and formaldehyde (Wolkoff, 2013).

Less work has been done on the relationship between working in a green building and employee mental health. A 2012 study found that working in a green building did not consistently produce significantly better psychological wellbeing (Thatcher & Milner, The Impact of a ‘Green’ Building on Employees’ Physical and Psychological Wellbeing, 2012). A later study by the same authors found similar results (Thatcher & Milner, Changes in Productivity, Psychological Wellbeing and Physical Wellbeing from Working in a ‘Green’ Building, 2014).

The physical environment beyond the walls of the workplace can also play an important role in employee health, as well as the health of families and the wider community. Features of the built environment near the workplace including intersection density, area of vegetation, and distance to workplace have been shown to be associated with improved cardiorespiratory fitness and/or BMI, but more strongly with cardiorespiratory fitness with effect sizes that “could translate into meaningful effects at the population level” (Hoehner, et al., 2013).

**Business & Economic Impacts**

Several researchers have attempted to measure the impact of indoor environmental quality (IEQ) on job satisfaction, employee productivity as well as the savings generated through practices that promote high IEQ. A 2009 study of an office building in Michigan found that environmental satisfaction plays an important part in predicting job satisfaction, although to a lesser extent than satisfaction with management and compensation (Newsham, et al., 2009). A review of laboratory and field experiments on the relationship between indoor air quality (IAQ) and productivity in office settings found that performance improved by between 5 percent and 10 percent. A range of life-cycle analyses suggest that the economic benefits from improved IAQ can be up to 60 times higher than the investment, with investments generally able to be recovered in two years due to productivity gains (Wargocki, 2008). Other studies have not found a statistically significant relationship between IEQ and either work performance or organizational citizenship behavior (i.e. behavior beyond what is required for the position) (Fege, Wallbaum, Janser, & Windlinger, 2013). The authors of the previously cited study suggest that the current state of research has confirmed the link between building characteristics and comfort but the link has not been confirmed between comfort and performance, engagement, and organizational citizenship behavior. They also suggest that additional research is needed to understand the link between comfort, performance, and economic benefits (Fege, Wallbaum, Janser, & Windlinger, 2013, p. 29).

Studies focusing specifically on labeled buildings (e.g., LEED-rated buildings) that have found self-reported productivity improvements report improvements ranging from 2.6 percent to 4.9 percent (Singh, Syal, Grady, & Korkmaz, 2010; Miller, Pogue, Gough, & Davis, 2009). Using average salary figures, one study calculated the dollar value of this productivity increase as $5,204 per worker. The same study also reported an average economic impact of self-reported reductions in sick days of $1,229 (Miller, Pogue, Gough, & Davis, 2009).

GRESB, an investor-driven organization that assesses the ESG performance of real assets globally has recently introduced a voluntary health-specific module which includes ten indicators designed to assess health and well-being performance in leadership, policy, needs assessment, implementation action, and performance monitoring (Worden, McMahon, Pyke, & Trowbridge, 2016). The module assesses practices related both to internal health promotion (i.e. efforts directed at employees) and externally (i.e. health promotion through products and services). Companies that chose to complete the module varied in performance, suggesting that “health presents an emerging and valuable market, and that interest is not limited to longstanding market leaders” (Worden, McMahon, Pyke, & Trowbridge, 2016, p. 6). Results from the module’s first year also suggest that companies’ desire to reduce downside risk may be driving the consideration of health within the real estate industry (Worden, McMahon, Pyke, & Trowbridge, 2016, p. 10).
<table>
<thead>
<tr>
<th>Impacts</th>
<th>Summary of Quantitative Outcomes</th>
<th>Indicators</th>
<th>Evidence Strength</th>
</tr>
</thead>
</table>
| **Health**| • Not having access to outdoor space ($\beta = -0.87, p<0.05$), and having exercise rooms available at the worksite ($\beta = 0.72, p<0.05$) were related to higher BMI.  
• The presence of a cafeteria improved eating habits ($\beta = -0.51, p<.001$) while the presence of more vending machines made them worse ($\beta = 0.04, p<0.05$).  
• Reduced by 2.35 h/mo. for each occupant reporting asthma or allergies  
• Reduced by 2.86 h/mo. for each occupant reporting depression or stress  
• Participants who reported 2 or more physical supports for active commuting were more likely to actively commute at least once per week than those who reported none, but participants reporting only 1 physical support were not; for men, neither having 2 or more nor a single physical workplace support was related to increased odds of active commuting. In contrast, compared with women who reported no physical supports in the workplace, women who reported 2 or more physical supports were more than 10 times as likely to actively commute, and women who reported a single physical support were more than 3 times as likely to actively commute. | Obesity, Health behaviors, Other chronic diseases, Mental health and well-being | Limited or mixed |
| **Business**| • Self-reported productivity improved by 2.6% for all occupants in labeled buildings  
• Improvements in indoor air quality improve performance by 5-10% in lab and field experiments; studies of labeled buildings (e.g., LEED) have found self-reported productivity improvements ranging from 2.6-4.9% and self-reported reductions in sick days | Health/safety, Absenteeism/presenteeism, Productivity, Morale/job satisfaction/job harassment, Business costs, ROI | Limited or mixed |
Community Environmental Impacts

The potential health impacts of corporate operations within the communities in which they operate is well known. These include those resulting from air and water pollution (Political Economy Research Institute, University of Massachusetts Amherst, 2017), quality of life impacts such as unpleasant odors (Donham, et al., 2006), as well as impacts on social capital and community cohesion in the United States. Minority groups and the poor often bear the burden of these exposures and health impacts (Ash & Boyce, 2011; Burger & Gochfeld, 2011). Climate change is increasingly recognized as a major public health issue that affects “the social and environmental determinants of health that underpin good health” (Watts, et al., 2017). Along with the impacts of pollution, the health, well-being and business impacts of climate change will also be discussed.

Health Impacts

A range of negative health outcomes are associated with environmental pollution. The future health effects of air pollution are likely to be greatest in developing countries; however air pollution remains a risk in OECD countries including the United States. A 2013 study estimated that approximately 200,000 premature deaths per year in the U.S. are attributable to changes in fine particulate matter (PM2.5) concentrations, and about 10,000 deaths are attributable to changes in ozone concentrations. Of these, industrial emissions account for approximately 41,000 and 2,000 deaths respectively (Caiazzo, Ashok, Waitz, Yim, & Barret, 2013). Mortality rates associated with these emissions vary geographically. For example, approximately 20% of ozone-related mortalities from all sectors occur in Texas. In general, southern states experience higher levels of emissions-related mortality than northern states. A recent study of Volkswagen’s use of “defeat devices” in vehicles with diesel engines estimated that excess emissions resulting from such vehicles will cause 59 early deaths (Barrett, et al., 2015). Exposure to these vehicles is also estimated to result in 31 additional cases of chronic bronchitis and 34 hospital admissions, resulting in approximately 120,000 minor restricted activity days (Barrett, et al., 2015).

As noted above, the effects of air pollution are not equally distributed spatially. Nor are they equally distributed demographically. A 2014 study of nitrogen dioxide concentrations found that population-weighted mean concentrations are 4.6 parts per billion, or 38%, higher for nonwhites than for whites. Based on this finding, the authors estimate that reducing nonwhite exposure to the level of whites would reduce mortality from ischemic heart disease by approximately 7,000 deaths per year (Clark, Millet, & Marshall, 2014). Other studies have found similar exposure patterns for other pollutants such as benzene and acetaldehyde (Yu & Stuart, 2016).

Climate change is increasingly recognized as a public health problem both through the direct effects of rising temperatures (Watts, et al., 2017; McCabe & Burke, 2016; Almeida, et al., 2014; Bobb, Peng, Bell, & Dominici, 2014) and changes in the frequency and strength of weather events such as storms and droughts (Bell, et al., 2016; Watts, et al., 2017), but also through “less direct” pathways such as changes in the burden and distribution of infectious disease (Wu, Lu, Zhou, Chen, & Xu, 2016), effects on food security (Tai, Val Martin, & Heald, 2014), and potential climate-related displacement and conflict (Watts, et al., 2017; Gemenne, Barnett, Adger, & Dabelko, 2014). Climate-related health impacts disproportionately affect the health of “vulnerable populations and people in low-income and middle-income countries” (Watts, et al., 2017, p. 1).

Along with a reduction of the negative health impacts associated with climate change, climate change mitigation may also produce co-benefits, or benefits that extend beyond the direct benefits of a more stable climate. Improved air quality is a commonly studied health co-benefit (Shindell, Lee, & Faluvegi, 2016; Buonocore, Lambert, Burtaw, Sekar, & Driscoll, 2016; West, et al., 2013; Anenberg, et al., 2012; Shaw, Hales, Howden-Chapman, & Edwards, 2014). Such an impact may result from decarbonization in sectors such as transportation (Shaw, Hales, Howden-Chapman, & Edwards, 2014; Shindell, Lee, & Faluvegi, 2016) and power (Buonocore, Lambert, Burtaw, Sekar, & Driscoll, 2016; Perera, 2017) as well as through mitigation of the impact of climate change itself on air quality (Harlan & Ruddell, 2011). Along with the impacts of corporate operations, climate change impacts are felt through other pathways, including changes in the frequency and strength of weather events (McCabe & Burke, 2016; Buonocore, Lambert, Burtaw, Sekar, & Driscoll, 2016; Perera, 2017) as well as through mitigation of the impact of climate change itself on air quality (Harlan & Ruddell, 2011).

Business & Economic Impacts

Results of studies assessing the business impact of emissions reductions, “green management,” and environmental performance have shown mixed results (Molina-Azorin, Claver-Cortés, López-Gamero, & Tari, 2009; Albertini, 2013; Hart & Ahuja, 1996). However, literature reviews tend to find that positive relationships between improvements in environmental management and corporate financial performance, with some reporting a stronger connection between environmental management variables than environmental performance variables (Albertini, 2013). Other pathways connecting improved environmental performance and business outcomes that have been identified include improved access to markets, product differentiation, selling pollution-control technology, risk management and external stakeholder relationships, cost of material, energy, and services, cost of capital, and cost of labor (Ambec & Lanoie, 2008).
Climate change poses to business in several areas. These include physical risks, price risks, product risks, ratings risk, reputation risk, and regulation or policy risk (Engle, Enkvist, & Henderson, 2015). Since 2010, several events have demonstrated the potential economic costs of climate change. Companies have reported a range of impacts associated with extreme weather events. In 2011, Honda suffered a loss of over $250 million due to flooding of automobile assembly plants in Thailand. Munich Re experienced a 38% decline in quarterly profits due to an increase in claims resulting from severe flooding in Australia in 2010 and 2011 (Crawford & Seidel, 2013). Hurricane Sandy is estimated to have cost utilities in New Jersey $1.8 billion (Maher & Peace, 2015). It is estimated that labor productivity of outdoor workers in fields such as construction, utility maintenance, landscaping, and agriculture could decrease by 3%. As the climate warms, energy costs may also rise as demand for electricity for air conditioning increases (Gordon, 2014). For fossil fuel companies, a transition to an economy that keeps warming below 2°C is estimated to result in unburnable “stranded assets” of 60% to 80% of publicly listed fossil fuel reserves, costing an estimated $28 trillion in revenues over the next two decades (Caldecott, Harnett, Cojoianu, Kok, & Pfeiffer, 2016).

An analysis of the impact of climate change on financial assets has suggested that the expected value at risk along a business-as-usual emission path is 1.8% or (US$2.5 trillion). The same analysis found that limiting warming to 2° or less would reduce this figure by 0.6 percentage points (Dietz, Bowen, Dixon, & Gradwell, 2016). An analysis of European banks’ exposure to climate-related risk found that while banks are, in general, not directly affected by an increase in non-performing loans in the fossil fuel and utility sector, but are exposed to increased volatility due to climate mitigation policies. Other financial actors, such as pension funds, may be more exposed to adverse shocks in the fossil fuel sector and increased volatility in other climate-relevant sectors (Battiston, Mandel, Monasterolo, Schütze, & Visentin, 2017).

There are also economic opportunities associated with climate change.
### Research Summary Table, Community Environmental Impacts

<table>
<thead>
<tr>
<th>Health</th>
<th>Summary of Quantitative Outcomes</th>
<th>Indicators</th>
<th>Evidence Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>• In the United States, 54 cases of the top 100 corporate air polluters, minorities bear excess burden; in 15 of these cases, the minority share exceeds half of the total human health impacts from the firm’s industrial air pollution. In 66 cases, poor people bear excess burden.</td>
<td></td>
<td>Mortality, Cardiovascular disease, Cancer, Social well-being</td>
<td>Strong</td>
</tr>
<tr>
<td>• A 2013 study estimated that approximately 200,000 premature deaths per year in the U.S. are attributable to changes in fine particulate matter (PM2.5) concentrations, and about 10,000 deaths are attributable to changes in ozone concentrations. Of these, industrial emissions account for approximately 41,000 and 2,000 deaths respectively. Rates associated with these emissions vary geographically. For example, approximately 20% of ozone-related mortalities from all sectors occur in Texas. In general, southern states experience higher levels of emissions-related mortality than northern states. A recent study of Volkswagen’s use of “defeat devices” in vehicles with diesel engines estimated that excess emissions resulting from such vehicles will cause 59 early deaths. Exposure to vehicles is also estimated to result in 31 additional cases of chronic bronchitis and 34 hospital admissions, resulting in approximately 120 000 minor restricted activity days.</td>
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<td>• By 2030, clean energy policies could prevent 175,000 premature deaths, with 22,000 (11,000–96,000; 95% confidence) fewer annually thereafter, whereas clean transportation could prevent 120,000 premature deaths and 14,000 (9,000–52,000) annually thereafter.</td>
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<td>• Total health co-benefits of the EPA’s Clean Power Plan are estimated at $29 billion 2010 USD (95% CI: $2.3 billion - $68 billion)</td>
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<td>• Relative to a reference scenario, global GHG mitigation avoids 0.5±0.2, 1.3±0.5 and 2.2±0.8 million premature deaths in 2030, 2050 and 2100. Global average marginal co-benefits of avoided mortality are US$50–380 per tonne of CO2.</td>
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<td>• Estimates suggest that in the year 2020, the reductions in adverse health outcomes from lessened exposure to PM2.5 resulting from GHG reduction efforts would yield economic benefits in the range of $6 to $30 billion (in 2008 USD), depending on the specific activity. This equates to between $40 and $198 per metric ton of CO2 in health benefits.</td>
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<th>Business</th>
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<tr>
<td>• Since the program began, Dow has given the WRAP Award to 395 projects. Worldwide, the projects account for the reduction of 230,000 tons of waste, 13 million tons of wastewater, and 8 trillion BTUs of energy. The (net) value of all these projects totals roughly $1 billion; five changes have been made recently at the headquarters of Adobe Systems (ranging from automatic faucets to motion sensors), which involved an initial investment of around $250,000 for annual savings of around $246,000; Impact of environmental management systems was relatively large when compared to other coefficients (on average, the coefficient assigned to EMS2 (formal, uncertified) was 1.29 while the average coefficient assigned to EMS3 (formal, certified) was 2.44).</td>
<td></td>
<td>Health/safety, Reputation/stakeholders, Productivity, Risk management, Business performance, Sales/revenue, Business cost, Return on assets, Economic costs to society</td>
<td>Strong</td>
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<tr>
<td>• Near-term national benefits of US climate policy consistent with 2C of warming are valued at US$250 billion per year.</td>
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<td>• Without global action on climate change, over 1.8 billion labor hours per year are expected to be lost to extreme temperatures by the end of the century. GHG mitigation contributes to saving approximately $110 billion in annual wages by 2100.</td>
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<td>• Over half (55) of S&amp;P Global 100 companies reported they have already experienced the effects of extreme weather and climate change (38 companies) or expect to within the next 5 years (17).</td>
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<td>• Honda estimates losses from flooding at assembly plants in Thailand at more than $250 million in 2011.</td>
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<td>• An increase of 1F would represent a potential increase of 4-5% in energy costs to run air conditioning.</td>
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<td>• For fossil fuel companies, a transition to a 2C economy is estimated to result in stranded assets of 60–80% of publicly listed fossil fuel reserves</td>
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<td>• An analysis of the impact of climate change on financial assets have suggested that the expected value at risk along a business-as-usual path is 1.8% or US$2.5 trillion.</td>
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<tr>
<td>• Limiting warming to 2C or less would reduce the climate value at risk by 0.6 percentage points.</td>
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Social Capital and Social Cohesion

While there is no universally agreed-upon definition of social capital, it generally refers to the “links, shared values and understandings in society that enable individuals and groups to trust each other and so work together” (OECD, 2007). The concept has been used to study a wide range of topics including civil society, political development, entrepreneurship, and institutional development. In the past two decades, it has increasingly been applied to the field of public health, as well. Social capital can be assessed in the workplace as well as within the community at large. This section will assess the health and business impacts of social capital and social cohesion within both settings. Because social capital is often considered a key element of social cohesion (Oxoby, 2009), studies assessing both concepts will be covered in this section.

Health Impacts

Community-level Studies

The health outcomes associated with social capital in the United States have been studied at various levels including states, communities, neighborhoods, and workplaces. At the state level, various measures of social capital have been shown to be associated with health outcomes. Using data from residents in 39 states from General Social Surveys conducted between 1986 and 1990, an ecological analysis found that three social capital indicators, interpersonal trust, norms of reciprocity, and density of associational membership were significantly associated with health outcomes. For example, increased per capita group membership was associated with lower age-adjusted overall mortality rates and that the level of distrust was correlated with age-adjusted mortality rates. Higher levels of distrust were associated with higher rates of “most major causes of death,” including coronary heart disease, malignant neoplasms, cerebrovascular disease, unintentional injury, and infant mortality (Kawachi & Berkman, 2000). A later study assessed the relationship between similar social capital indicators and individual self-rated health, finding that even after adjusting for individual risk factors (e.g., low-income, tobacco use), individuals living in states with low levels of social capital were at increased risk of poor self-rated health (Kawachi & Berkman, 2000).

Associations between social capital and health outcomes have been demonstrated at lower levels as well, including at the community and neighborhood level. One measure of social capital and civic engagement, membership in community groups, has been found to be associated with improved recall of health-related messages, making such membership a potential pathway for health promotion and thus improved health outcomes (Viswanath, Steele, & Finnegan Jr, 2006). There is also evidence that civic group participation may promote increase physical activity (Marquez, Gonzalez, Gallo, & Ji, 2016). Among older adults in Europe, social participation in athletic and social clubs, educational courses, volunteer and charitable work, religious organizations, and political or community-related organization were all found to be independently and significantly associated with a lower risk of fair to poor health (Sirven, Berchet, & Litwin, 2015).

A 2017 study of preventive healthcare usage based on data from the Health and Retirement Study (HRS) found that, after adjusting for sociodemographic characteristics and baseline health, each standard deviation increase in neighborhood social cohesion was associated with a higher likelihood that people would obtain influenza vaccinations or cholesterol tests. Women in neighborhoods with higher social cohesion were also more likely to receive mammograms and pap tests, while men were not more likely to receive prostate exams (Kim & Kawachi, Perceived Neighborhood Social Cohesion and Preventive Healthcare Use, 2017). Findings were similar in a study also based on the HRS that focused on neighborhood social cohesion and heart attack, with a model that adjusted for age, gender, race, marital status, education, and total wealth. In this model, each standard deviation increase in perceived neighborhood social cohesion was associated with a 22% reduction in odds of myocardial infarction (Kim, Hawes, & Smith, 2014). While most studies show an association between social capital, social cohesion, and health in the expected direction, such findings are not universal. A 2017 study of neighborhood disorder and child health found that an increase in neighborhood disorder was associated with lower odds of a child reporting fair or poor health (Zuberi & Teixeira, 2017).

Workplace-level Studies

Much of the evidence for an association between workplace social capital and health comes from the Finnish Public Sector Study (FPSS), a cohort study composed of data from national health registers and repeated surveys with two- to four-year intervals (University of Turku, 2017). A prospective cohort study of over 28,000 workers evaluated the association between workplace social capital and all-cause mortality. Associations between self-assessed social capital and coworker-assessed social capital were examined. Workplace social capital was measured at two points in time using a validated 8-item instrument. It found that a 1-unit increase in the mean of self-assessed workplace social capital was associated with a 19% decrease in the risk of all-cause mortality (age- and gender-adjusted hazard ratio = 0.81, 95% confidence interval = 0.66–0.99) (Oksanen, et al., 2011). Unlike self-assessed social capital, coworker-assessed social capital was not found to be associated with all-cause mortality. Similarly, an examination of the association between workplace social capital and chronic hypertension...
using FPSS data found that male employees in low social capital workplaces were 40%-60% more likely to develop chronic hypertension (age-adjusted hazard ratio = 1.57, 95% confidence interval = 1.15-2.14). Coworker-assessed social capital was not significantly associated with hypertension, nor was there any association between social capital and hypertension for women (Oksanen, et al., 2012). A study of adherence to antihypertensive medication found no consistent evidence of an association between workplace social capital and adherence among employees with chronic hypertension (Oksanen, et al., 2011).

Studies of workers in the private sector have also found similar results regarding the health outcomes associated with workplace social capital and social cohesion. A study of 1740 workers and 288 managers in 26 US manufacturing firms based on data from the Harvard Cancer Prevention Project’s Healthy Directions-Small Business Study found that workplace social capital at the individual level and contextual level buffered associations between job demands and smoking (Sapp, Kawachi, Sorensen, LaMontagne, & Subramanian, 2010). Individual-level social capital was measured using three questions related to willingness to help, trust, and whether managers look out for workers. Contextual-level social capital was assessed using a manager survey with Likert-scale responses to questions related to social aspects of the workplace. The study found that among workers with high job demands, those in high social capital workplaces had lower odds of being a current smoker (individual social capital: OR=0.45, 95% confidence interval = 0.27-0.74; contextual social capital: OR= 0.58, p= 0.03, 95% confidence interval = 0.35-0.95).

A study of employees from six German information and communication technology companies. It found that after controlling for sociodemographic factors, health awareness, and job strain, “lower levels of perceived social capital at work are associated with the experience of depressive symptoms (OR = 0.76, 95% CI: 0.64-0.90)” (Jung, et al., 2012, p. 23). Perceived social capital was measured using the Social Capital in Organizations Scale, which measures features of social capital such as “perceived common values, support, cohesion, and trust” within organizations (Jung, et al., 2012, p. 24). A study of 718 employees at two Dutch companies assessing the association between organizational social capital and perceived health and emotional exhaustion found that Organizational social capital was significantly correlated with perceived health (r = 0.20; P < 0.05) and emotional exhaustion (r = −0.33; P < 0.05) (van Schepingen, et al., 2013). A review of prospective multilevel studies on social capital and health identified four studies in which workplace social capital had positive effects on health outcomes, including smoking cessation, depression, and self-rated health (Murayama, Fujiwara, & Kawarchi, 2012).

Business & Economic Impacts

Community

Studies assessing the contribution of social capital outside of the workplace to business performance are uncommon. A meta-analysis of 65 studies on social capital and economic performance found that evidence for an association varies according to the spatial unit under study. At the national level, studies using trust as a measure of social capital tend to show a positive relationship while those using associations tend to find a negative relationship. Regional studies within one country, on the other hand, tend to find a positive relationship between economic performance and social capital as measured by both trust and associations (Westlund & Adam, 2010). Most studies measured economic performance using growth of GDP or GDP per capita although other, more specific metrics were assessed. These included patent applications, investment, high-tech export, employment/unemployment, productivity, and value added.

Workplace

The association between organizational performance and social capital has been assessed for a range of performance outcomes including presenteeism, absenteeism, and workplace behavior. A study of 718 employees at two Dutch companies found that organizational social capital was significantly correlated with perceived health (r = 0.20; P < 0.05), emotional exhaustion (r = −0.33; P < 0.05), presenteeism (r = −0.26; P < 0.05), and effective personal functioning (r = 0.17; P < 0.05) (van Schepingen, et al., 2013). Low organizational social capital has also been shown to be associated with a significantly increased odds ratio for both self-labeled (vertical: OR = 3.25; CI = 2.34–4.51; horizontal: OR = 3.17; CI = 2.41–4.18) and observed (vertical: OR = 2.09; CI = 1.70–2.56; horizontal: OR = 1.60; CI = 1.35–1.89) workplace bullying (Pihl, Albertsen, Hogh, & Sønderbo Anderson, 2017).

A meta-analysis of 65 studies on social capital and economic performance found that evidence for an association varies according to the unit under study. At the firm level, findings are “unambiguous” with all studies finding a positive association between social capital and economic performance (Westlund & Adam, 2010). Of the 65 studies reviewed, 21 studies assessed firms from a range of countries including the United Kingdom, China, Taiwan, the Netherlands, Norway, Colombia, Canada, Belgium, Finland, Japan, and the United States. Performance variables included return on investment, equity, and/or assets; market-to-book ratio; total shareholder return; profits; market shares; sales; revenues; and self-evaluated competitiveness and performance.
### Research Summary Table, Social Capital & Cohesion

<table>
<thead>
<tr>
<th>Impacts</th>
<th>Summary of Quantitative Outcomes</th>
<th>Indicators</th>
<th>Evidence Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>• Each standard deviation increase in neighborhood social cohesion was associated with a higher likelihood that people would obtain influenza vaccinations (OR:1.09, 95% CI:1.04, 1.15) or cholesterol tests (OR:1.10, 95% CI:1.02, 1.19). Further, women were more likely to receive mammograms/x-rays (OR:1.10, 95% CI:1.01, 1.19) or Pap tests (OR:1.08, 95% CI:1.00, 1.17). However, men were not more likely to receive prostate exams (OR:1.06, 95% CI:0.96, 1.17)</td>
<td></td>
<td>Mortality, Cardiovascular disease, Health behaviors, Mental health and well-being, Social well-being</td>
</tr>
<tr>
<td></td>
<td>• Each standard deviation increase in perceived neighborhood social cohesion was associated with a 22% reduced odds of myocardial infarction (OR = 0.78, 95% CI:0.63–0.94)</td>
<td></td>
<td>Limited or mixed</td>
</tr>
<tr>
<td></td>
<td>• A one-unit increase in the mean of repeated measurements of self-assessed social capital in the workplace was associated with a 17% decrease in the risk of all-cause mortality</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Employees with either low vertical or horizontal social capital were 30–50% more likely to be diagnosed with depression or to start antidepressant treatment than their counterparts with high social capital</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Organizational social capital was significantly associated with perceived health ($\beta = 0.20$, $P &lt; 0.001$), and with emotional exhaustion ($\beta = −0.34$, $P &lt; 0.001$). Both health indicators, in turn, were associated with absenteeism, presenteeism and effective personal functioning in the presumed direction, i.e. better health was associated with better functioning. Especially bonding social capital was significantly associated with health ($\beta = 0.14$, $P &lt; 0.01$), and with emotional exhaustion ($\beta = −0.26$, $P &lt; 0.001$). Linking social capital was associated with emotional exhaustion as well ($\beta = −0.09$, $P &lt; 0.05$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• A one standard deviation higher WSC score predicted a reduced risk of sickness absence after adjustment for sociodemographic variables, prevalent health problems and health behaviors (HR = 0.85, 95% CI:0.74–0.99). The HR was attenuated and lost statistical significance after further adjustment for occupational grade (HR = 0.90, 95% CI:0.78–1.04). When stratified by occupational grade, high WSC predicted a decreased risk of sickness absence among higher grade workers (HR = 0.61, 95% CI:0.44–0.84) but not among lower grade workers (HR = 0.98, 95% CI:0.83–1.15). The interaction effect of WSC and occupational grade was statistically significant (HR = 0.97, 95% CI:0.95–0.99).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business</td>
<td>• When stratified by occupational grade, high WSC predicted a decreased risk of sickness absence among higher grade workers (HR = 0.61, 95% CI:0.44–0.84) but not among lower grade workers (HR = 0.98, 95% CI:0.83–1.15).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Organizational social capital was negatively associated with presenteeism ($\beta = −0.26$; $P &lt; 0.001$) and positively associated with effective personal functioning ($\beta = 0.20$; $P &lt; 0.001$)</td>
<td></td>
<td>Limited or mixed</td>
</tr>
<tr>
<td></td>
<td>• A one standard deviation higher WSC score predicted a reduced risk of sickness absence after adjustment for sociodemographic variables, prevalent health problems and health behaviors (HR = 0.85, 95% CI:0.74–0.99). The HR was attenuated and lost statistical significance after further adjustment for occupational grade (HR = 0.90, 95% CI:0.78–1.04). When stratified by occupational grade, high WSC predicted a decreased risk of sickness absence among higher grade workers (HR = 0.61, 95% CI:0.44–0.84) but not among lower grade workers (HR = 0.98, 95% CI:0.83–1.15). The interaction effect of WSC and occupational grade was statistically significant (HR = 0.97, 95% CI:0.95–0.99).</td>
<td></td>
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</tr>
</tbody>
</table>
Community Involvement

Business involvement in community health efforts takes many forms, from traditional corporate philanthropy to more novel approaches such as cross-sector collaboration. Such collaboration involves the development of partnerships between health sectors and those “not traditionally considered to be health-related” (Chandra, et al., 2016, p. 62). Along with business, this category also includes economic development, media, and law enforcement. In this review, corporate involvement in community health will refer to corporate efforts to improve health and well-being that members of the wider community within which they operate as opposed to those efforts that focus primarily on employees and their families (addressed earlier). It will also include disaster relief and community resilience efforts.

Health Impacts

There is a limited evidence base for the impact of business involvement in community health efforts on population health outcomes. Few companies “extend prevention initiatives to include the wider community” and there is a “lack of systematic documentation of the activities that corporations are engaged in outside the workplace” (Tryon, Bolnick, Pomeranz, Pronk, & Yach, 2014). While data on the eligibility of spouses and dependents for programs such as biometric screenings and health risk assessments is readily available (Kaiser Family Founation and Health Reesarch & Educational Trust, 2016), there is very little data on the eligibility of community members to take advantage of company health programs.

A 2015 report by the Vitality Institute assessed a range of company efforts and provided some data on community health impact. Bath Iron Works (BIW) and L.L. Bean, two major employers in Midcoast Maine partnered to offer diabetes prevention program to community members in 2014. Bath Iron Works has also engaged other community organizations since its initial partnership with L.L. Bean. After the first class, BIW observed an average weight loss of 7.1 percent among participants at completion. In the second class, BIW observed an average weight loss of 7.2 percent and a 0.3 point drop in A1c values (Oziransky, Yach, Tsao, Luterek, & Stevens, 2015, p. 59). Since 2007, Dow Chemical has collaborated with the Michigan Health Improvement Alliance (MiHIA), which seeks to improve the rank of communities on the Robert Wood Johnson Foundation’s County Health Rankings. In that time, 10 of 14 counties that are part of MiHIA have improved their position, and self-reported quality of life has improved between 6 percent and 37 percent in the communities with Dow community engagement efforts (Oziransky, Yach, Tsao, Luterek, & Stevens, 2015, p. 61).

The Campbell Soup Company’s Health Communities program, based on a collective impact approach, has brought together a range of cross-sector partners with the common goal of reducing childhood obesity and food insecurity by 50 percent in 10 years (Fortunato, 2015). According to a discussion paper published in 2015 reports “significant behavioral changes among our youngest community members, whose physical activity has increased and intake of fresh produce and attitudes about eating new foods have measurably improved” with “small sample sets of children” showing stabilized and decreasing BMI, and improved access to healthier foods in Camden, New Jersey (Fortunato, 2015, p. 3).

 Corporations may also take part in cross-sector collaboration after natural disasters. Corporations may provide expertise in supply chain management and logistics, for example, along with material and financial support. A paper developing a model for such cross-sector collaboration highlights the example of DHL’s partnership with the UN Office for the Coordination of Humanitarian Affairs and national Red Cross/Red Crescent societies, among others (Maon, Lindgreen, & Vanhamme, 2009). The partnership between TNT and the United Nations World Food Programme (WFP) is another example of a collaboration established prior to a disaster occurring, rather than on an ad-hoc basis post-disaster. After the 2004 Indian Ocean tsunami, for example, TNT’s truck convoys were the first to deliver food to Banda Ache, while in India, TNT subsidiaries warehoused relief supplies and transported them from these hubs to affected areas (Thomas & Fritz, 2006). A 2011 review of Fortune 100 company involvement in domestic and international disasters found that most involvement, as described in CSR reports, was episodic and reactive, and directed toward post-disaster, response-based activities (Johnson, Connolly, & Carter, 2011).

However, opportunities for businesses to contribute to disaster preparedness and post-response recovery have also been identified, and some companies have begun to play this role. A 2016 RAND Corporation Perspective on the role of the private sector in disaster recovery identifies Office Depot’s efforts to educate small businesses about emergency preparedness through its foundation as one example.

---

67. A1c (glycated hemoglobin) values are used to assess glycemic control in people with diabetes.
Other examples include Airbnb partnering with cities to identify hosts for people who have been displaced by disaster and Citigroup’s programs to provide prepaid benefit cards for those without formal bank accounts (Chandra, Moen, & Sellers, 2016). Programs like Citibank’s may also improve community resilience, particularly among vulnerable communities, along with providing an immediate response to a disaster.

The RAND Perspective also identifies several challenges. The authors note that there is currently “very little understanding of the ROI” of private-sector funds dedicated to disaster response and recovery (Chandra, Moen, & Sellers, 2016, p. 17). They found that no study has assessed the effectiveness of funds, and that linking private-sector funds to recovery outcomes “has not been pursued” (Chandra, Moen, & Sellers, 2016, p. 17). This does not appear to have changed since the publication of the RAND Perspective in 2016.

Business & Economic Impacts

Several potential elements of a business case for corporate investment in community health have been hypothesized. A study based on a 2014 convening of corporate executives and thought leaders found that potential reasons to invest in community health include talent attraction/retention, health and human performance, health care and productivity costs, and community buying power (Pronk, Baase, Noyce, & Stevens, 2015). Currently, much of the evidence for such positive business impact is anecdotal and self-reported by companies and organizations involved with community health efforts (Taylor, 2015; National Business Coalition on Health, 2013).

Other organizations have made the case for community health as a critical component of creating a healthy workforce. A Vitality Institute report exploring “opportunities for win-win relationships” between business and community health organizations emphasized the threat of non-communicable diseases (NCDs) to business profit and loss and economic vitality more broadly (Oziransky, Yach, Tsao, Luterek, & Stevens, 2015). The report emphasizes rising health care costs to employers, productivity losses due to absenteeism, presenteeism, and disability, and output loss linked with NCDs. Opportunities from investing in community health such as identifying market trends of interest to investors and other stakeholders are identified, but does not provide empirical evidence to back these potential gains. The Vitality Institute report also found that the health of communities is linked to the health of workforces, with employment sectors with unhealthy workforces more likely to be located in counties with poor health (Oziransky, Yach, Tsao, Luterek, & Stevens, 2015), although these findings are limited by the cross-sectional nature of the analysis.

The Vitality Institute report also discussed the business impacts of their community health efforts. Dow, for example, spent $4.8 million less in U.S. health care costs than it would have had it experienced the industry average, while BIW has calculated the company’s net projected savings over 5 years as the result of enrolling 90 participants in the DPP and has estimated future health care costs of participants will decrease by 60 percent over 5 years.

### Research Summary Table, Community Involvement

<table>
<thead>
<tr>
<th>Impacts</th>
<th>Summary of Quantitative Outcomes</th>
<th>Indicators</th>
<th>Evidence Strength</th>
</tr>
</thead>
</table>
| Health  | • Average weight loss of 7.1 percent among participants at completion, average 0.3 point drop in A1c values  
  • 10 of 14 counties that are part of MIHA have improved their County Health Rankings position, and self-reported quality of life has improved between 6 percent and 37 percent | Cardiovascular disease, Obesity, Health behaviors, Social well-being | Limited or mixed |
| Business | • No quantitative data found | Health/safety, Reputation/stakeholders, Business costs | Limited or mixed |

(Chandra, Moen, & Sellers, 2016).
Conclusion

A large body of research has examined the ways that businesses impact the health of their employees, as well as the ways that businesses have sought to improve employee health. This review has found firm evidence that businesses play an important role in employee, family and community health and well-being through several avenues, although evidence for many health promotion and improvement interventions remains mixed. There is a smaller body of research examining the business impacts of employee health and health-related interventions. Findings in this area are mixed, with measurement challenges and/or potential bias limiting the strength of many studies. For most issues covered, further study is needed to assess both health and business impacts.

Strong evidence exists for the positive health impacts of some aspects of workplace health promotion programs in certain areas including overall health risk, health habits, cholesterol and blood pressure. Such programs are also one of the few areas covered in this review that have been evaluated through randomized control trials. A large number of observational studies provide evidence that psychosocial features of the work environment such as work scheduling and job insecurity can have significant negative impacts on employee health, as well as significant negative work-to-family spillover. Evidence of the impact of paid family leave on maternal and child health as well as improved health for employees taking leave in non-birth-related circumstances.

Discrimination and inequality within the workplace are also strongly associated with a range of negative physical and mental health. There is also significant evidence that social capital and social cohesion within communities is associated with the use of preventive services and health outcomes such as heart attacks. There is also strong evidence linking air, water, and soil pollution to negative human health outcomes. Climate change also poses several risks to human health, and there is strong evidence that climate change mitigation activities will have co-benefits for human health. There is evidence for an association between health impacts and exposure to marketing, particularly tobacco, alcohol, and food marketing. The association is generally strongest among children and adolescents.

Several areas warrant further research based on this review. Employee schedule control is one such area. Findings are mixed as to whether employees with greater control over their schedule experience improved health outcomes. The health impacts of certain aspects of the workplace environment also require further study. While some environmental variables related to indoor air quality have been found to have an important impact on employee health, findings related to environmental features designed to promote physical activity are less conclusive. The health outcomes associated with social capital and social cohesion within the workplace also merit further attention. It is difficult to measure the direct health impact associated with corporate political activity, however there is evidence that corporate political activity can shape health-related public policy. Corporate investment in community health, disaster response and recovery, and community resilience warrant additional study as well.

Evidence of business impact remains limited for nearly all interventions, programs, and policies designed to improve employee, family, and community health. Studies of return-on-investment (ROI) for workplace health promotion programs are common, but results vary significantly. Productivity measurements are commonly used to assess the impact of a range of health issues including workplace wellness programs, but also job insecurity, scheduling, and the work environment; however findings are mixed. In the case of paid family leave, retention of current employees and attractiveness to potential employees is a commonly cited benefit, however there is limited peer-reviewed evidence for such claims.

There is also some evidence that higher levels of social capital and social cohesion are associated with a range of positive business outcomes including higher productivity. Similarly, some evidence suggests that recognition for efforts in improving diversity is associated with improved financial performance, and that companies targeted by discrimination lawsuits experience poorer performance. Climate change also poses a range of risks to business, although exposure to specific types of risk (e.g., physical vs. regulatory risk) varies significantly by sector. Climate change mitigation is likely to reduce this risk. There is mixed evidence for an association between business performance and corporate political activity. There is limited evidence for an association between joining self-regulatory initiatives related to child marketing and improved financial performance.

This review suggests that while companies can play a significant role in the health of employees, families, and communities, there is uncertainty about how companies can best have a positive impact. In most areas, there is also uncertainty as to whether companies should expect significant economic return on such activities.
II.B. Health Measures in Major Environmental, Social and Governance Frameworks

Introduction

The following report characterizes the prevalence of Culture of Health Business Practices in major environmental, social and governance (ESG) reporting frameworks and research methodologies. It documents those measures that are already present and examines the degree to which disclosures related these COHBPs (see Part I) are represented in these reporting frameworks and research methodologies.

(NB: This research report was developed before the Stakeholder Consultation. The COHBP related to pay practices was added after the Stakeholder Consultation. Measures associated with pay practices were not included in this research.)

Culture of Health Factors in Existing ESG Frameworks

This section documents those CoH measures already in use in major environmental, social and governance (ESG) frameworks. Incorporation of ESG data has become an increasingly prominent approach to investing with approximately $8.1 trillion in assets managed according to some ESG criteria in 2016 (USSIF, 2017). This figure represents growth of over 30% from 2015 (Global Sustainable Investment Alliance, 2017). Incorporation of ESG factors into investment decision-making processes requires information on corporate ESG performance. This has led to the development of an “ESG Information Market” which along with companies and investors includes a diverse set of reporting frameworks, as well as a diverse group of research firms, non-profit organizations, and financial services firms that produce ESG ratings, rankings, and indices.

Related Research

Organizations such as the Occupational Safety and Health Administration (OSHA) and the Vitality Institute have argued for deeper integration of health-related issues into ESG reporting and ratings (Vitality Institute, 2016). Other researchers have proposed creating health-focused counterparts to, for example, the Dow Jones Sustainability Indices.

The Vitality Institute and others provide specific metrics for corporate reporting. Alongside traditional occupational health and safety metrics, they also suggest reporting on a range of other factors. Both include metrics related to support for healthy lifestyles in the workplace (e.g., healthy food options in cafeterias or vending machines) and health risk assessments. Loeppke et al. include metrics related to the health status of employees (e.g., Percentage of employees in individual high health risk levels at baseline and annual follow-up) alongside metrics related to programs and policies.

The following treatment deals first with major reporting standards and second with major ESG research methodologies. GISR has mapped current disclosures in these frameworks to the 15 business practices discussed in the literature review (see II.A. Literature Review: Culture of Health Business Practices) and assessed the relative degree of disclosure for each Culture of Health Business Practice.
Reporting Standards

The GRI Sustainability Reporting Standards, the Sustainability Accounting Standards Board (SASB) Standards, and the International Integrated Reporting (IIRC) Framework are the most prominent ESG reporting standards with GRI being the most commonly used. Of these, GRI and SASB provide specific reporting metrics which were assessed and categorized according to 15 (of the 16) Culture of Health Business Practices (COHBPs) addressed in detail in the literature review (see II.A. Literature Review). The IIRC, on the other hand, provides more of a conceptual framework for organizations to apply when producing an integrated report. As such, we discuss its health-related content qualitatively.

GRI Standards

GRI is the most widely used framework for sustainability reporting worldwide, with over 10,000 organizations producing GRI reports (GRI, 2017). The GRI Sustainability Reporting Standards (GRI Standards) are the latest evolution of GRI's sustainability reporting framework, and were published in October 2016. The GRI Standards are structured as a set of modular reporting standards that can be used by any organization to report about its impacts on the economy, the environment, and society.

The set includes three universal Standards applicable to all organizations: GRI 101: Foundation, GRI 102: General Disclosures, and GRI 103: Management Approach. In addition, there are more than 30 topic-specific Standards, organized into Economic, Environmental, and Social categories, which organizations can select from to report on their material topics.

A number of GRI Standards include specific health-related disclosures; namely GRI 401: Employment 2016, GRI 403: Occupational Health and Safety 2018, and GRI 416: Customer Health and Safety 2016. Other GRI Standards contain disclosures which are relevant for understanding an organization's impact on health through, for example, its air emissions, waste generation and disposal, or marketing and labeling practices.

GRI 401: Employment 2016 includes disclosures on parental leave and benefits given to full-time (but not part-time) employees, such as life insurance, health care or disability and invalidity coverage.

The GRI 403: Occupational Health and Safety 2018 Standard comprises ten disclosures. These cover the organization's occupational health and safety management system and its coverage; the processes for hazard identification, risk assessment, and incident investigation; the available occupational health services; worker participation, consultation, and communication; training; the promotion of worker health; as well as information on work-related injuries and work-related ill health.

GRI 416: Customer Health and Safety 2016 comprises two disclosures: assessment of the health and safety impacts of product and service categories and incidents of non-compliance concerning health and safety impacts of products and services.

SASB

SASB was founded in 2011 with the mission to set industry-specific standards for corporate sustainability disclosure with an emphasis on financial materiality and comparability. SASB Standards are designed for inclusion in SEC filings, such as Forms 10-K, 20-F, and 40-F rather than standalone sustainability or ESG reports. Because the concept of materiality drives mandated disclosure in the United States, SASB metrics have been established for industries based on topics that are reasonably likely to be material and to have material impacts on the financial condition or operating performance of companies within an industry. SASB determines which topics are likely to be material based on evidence of interest, evidence of financial impact, and forward-looking impact (Sustainability Accounting Standards Board, 2017).

Industries are categorized according to SASB's Sustainability Industry Classification System (SICS) which groups companies that share similar resource intensities, as well as sustainability risks and opportunities (Sustainability Accounting Standards Board, 2017). At the highest level, companies are categorized into Thematic Sectors (e.g., Resource Transformation) followed by Sub-Sectors (e.g., Industrials), followed by Industries (e.g., Electrical/Electronic Equipment). Disclosures are then specified based on likely materiality for each Industry. This results in large sets of indicators even taking into consideration the repetition of certain metrics particularly across Industries within the same Sector and Sub-Sector.
Because of SASB’s emphasis on financial materiality, health-related disclosures vary significantly across sectors and across industries within the same sector (Sustainability Accounting Standards Board, 2017). Despite this variation, there are two areas that are clearly emphasized: occupational health and safety and environmental impacts. Occupational health and safety metrics are included for every sector except Financials, while environmental impact disclosures are included in the Consumption, Infrastructure, Non-Renewable Resources, Renewable Resources and Alternative Energy, Services, and Transportation Sectors.

Metrics related to workplace factors such as diversity appear in certain industries. For example, within the Consumption sector, gender and racial/ethnic representation is only deemed likely to be material in three of the fifteen industries within the sector. Outside of the Health Care Sector, there are no references to wellness programs and other health-related benefits.

SASB disclosures also reflect industry-specific health risks. For example, use of and employee exposure to pesticides is included for the Agricultural Products industry, while employee exposure to tobacco smoke is included the Casinos & Gaming industry.

IIRC

The IIRC is a coalition of companies, investors, regulators, NGOs, and other stakeholders with the mission of establishing “integrated reporting and thinking within mainstream business practice as the norm in the public and private sectors” (The IIRC, 2017). The IIRC’s Framework brings together financial and non-financial reporting based on “six capitals” including financial, manufactured, intellectual, human, social and relationship, and natural capital. The IIRC defines the capitals as “stocks of value that are increased, decreased or transformed through the activities and outputs of the organization” (The IIRC, 2013, p. 11). The IIRC seeks to establish its Framework as the norm for corporate reporting through which information currently appearing in separate reports will be more connected in order to communicate “the full range of factors that materially affect the ability of an organization to create value over time” (The IIRC, 2013, p. 2).

As noted earlier, the IIRC’s Framework itself does not prescribe metrics for companies to report, but instead provides an approach to reporting information that the organization has deemed material. However, it is likely that culture of health factors for employees would fall primarily under two of the capitals defined by the IIRC: human capital and social/relationship capital. Human capital, defined as people’s competencies, capabilities, and experiences, would include employee health. The IIRC published a paper in 2016 on human capital reporting, which included several potential inputs, activities, outputs, and outcomes associated with human capital. It included several health-related factors including benefits, retention rates after parental leave, absence and accident rates, days lost to injury, and work-related fatalities (The IIRC, 2016).

Social and relationship capital, defined as the institutions and relationships within and between communities, stakeholders, and other networks, would include corporate involvement in community health efforts. Within the banking sector, examples of potentially health-related reporting on social and relationship capital have included the amount of community impact loans and units of affordable housing funded (IIRC Banking Network, 2016). Because social and relationship capital also includes shared norms and common values and behaviors, cultural factors around how a company values the health of its employees, their families, and communities would fall under this capital.

Ratings Methodologies

Corporate sustainability or ESG ratings play an important role in the ESG information market. These ratings provide a score or grade based on a company’s performance across a range of issues and indicators with indicators often weighted based on characteristics such as sector, industry, and geography. As of November 2017, over 155 ESG research organizations produce over 650 ratings products (including ratings, rankings, and indices). However, within this diverse group, just over one third are ESG-combined ratings (as opposed to “single-issue” ratings) and are investor-focused with a small subset covering a large number of companies (Global Initiative for Sustainability Ratings, 2017):
The analysis that follows focuses on health-related disclosures within three of these large, investor-focused frameworks. JUST Capital’s rating methodology will also be included because of its proximity to the scope of the current project.

JUST Capital and RobecoSAM make their methodologies public. Information from two other organizations listed in Table 2-2 is included below. With this data, the sample represents, in aggregate, a group of organizations that evaluates a majority of uniquely rated companies worldwide. To preserve the confidentiality of the information generously provided by these organizations, the data has been anonymized.

ESG Research Organization 1: RobecoSAM

The RobecoSAM Corporate Sustainability Assessment (RobecoSAM, 2017) provides the foundation for the Dow Jones Sustainability Indices (DJSI) as well as a range of other ESG index families. It is an annual evaluation of corporate sustainability practices. Over 3,000 companies from 60 industries participate, answering 80-120 industry-specific questions across economic, environmental, and social dimensions.

Within the RobecoSAM Corporate Sustainability Assessment (CSA), health-related metrics primarily appear within the Environmental and Social Dimensions. Disclosures under the Environmental Dimension are primarily associated with emissions, hazardous waste, and exhaust related to operations and transportation. While disclosures within the Social Dimension primarily fall under occupational health and safety, this dimension also includes questions relating to the presence of a healthy lifestyle incentive and health management. The RobecoSAM CSA also asks for disclosure of workplace health promotion and wellness programs and policies, including steps taken to improve health impacts of the physical work environment such as programs related to noise, air quality, and on-site fitness facilities.

The Social Dimension also includes a series of questions regarding gender and minority representation in the workforce and in management positions specifically. It also asks for detailed information regarding average compensation for men and women at the executive, management, and non-management level.

The RobecoSAM CSA also asks companies to disclose the types of philanthropic activities they engage in, to quantify their contributions, and to assess how the company’s stated philanthropic priorities align with business drivers.

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Table 2-2: Major Investor-Oriented Ratings Organizations

<table>
<thead>
<tr>
<th>Organization</th>
<th>Headquarters</th>
<th>Number of Companies Covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bloomberg</td>
<td>New York, USA</td>
<td>10,000+</td>
</tr>
<tr>
<td>MSCI</td>
<td>New York, USA</td>
<td>6,000+</td>
</tr>
<tr>
<td>Thomson Reuters</td>
<td>New York, USA</td>
<td>6,000+</td>
</tr>
<tr>
<td>FTSE Russell</td>
<td>London, UK</td>
<td>4,100+</td>
</tr>
<tr>
<td>Sustainalytics</td>
<td>Amsterdam, the Netherlands</td>
<td>4,500+</td>
</tr>
<tr>
<td>oekom research</td>
<td>Munich, Germany</td>
<td>3,800+</td>
</tr>
<tr>
<td>Vigeo Eiris</td>
<td>Paris, France/London, UK</td>
<td>3,260+</td>
</tr>
<tr>
<td>RobecoSAM</td>
<td>Zurich, Switzerland</td>
<td>3,400+</td>
</tr>
</tbody>
</table>

68. While each of these organizations may have a sector focus, many individual companies will be rated by a number of the organizations listed. No unique count of worldwide companies rated has been completed.
ESG Research Organization 2: JUST Capital

JUST Capital is a research organization that seeks to provide all of society’s stakeholders – employees, concerned citizens, business leaders and others – with the information they need to assess how “just” companies are. JUST Capital’s assessment of the 1000 largest publicly-traded corporations is based on a survey designed to determine which aspects of corporate behavior Americans value most. The JUST Capital Methodology is broken down into three levels: Drivers, Components, and Metrics. Drivers are weighted based on survey results, with higher weights given to Drivers that are more highly prioritized by the public. Components are grouped together into these Drivers and a series of Metrics are used to evaluate corporate performance on the Components.

JUST Capital’s rating methodology (JUST Capital, 2017) includes several health-related metrics within several Drivers including Workers, Communities, and Environment. Within each Driver and Component, metrics assessing policies, performance, and management commitments are complemented by crowd-sourced metrics based on the evaluations of current and former employees. In this respect, its content and data sources differ significantly from other ESG rating methodologies.

The Workers Driver includes metrics related to wages, paid time off, health insurance, and discrimination. Wages figure prominently within this driver, with four metrics related to wages: Employee Living Wage Ratio, Fair Pay Percentage, Fair Pay Rating, and Wage Violations. These metrics use crowdsourced data from current and former employees, county-level purchasing power adjustments to assess corporate compensation practices for employees based on industry and job level, and data collected by non-profit organizations. In assessing health insurance, JUST Capital also includes employee assessments of benefit quality. Company disclosure of its paid time off policy and employee assessment of vacation, paid time off, and parental leave policies are also included. Discrimination in employment is evaluated using a commitment metrics based on statements, company pay equity analysis, or public pledges as well as cases of discrimination in employment appearing in major news sources.

Metrics related to workplace safety, work-life balance, discrimination, and respect are also included in the Workers Driver. Workplace safety is evaluated with metrics such as recordable incident rate, as well as a “commitment” metric based on the existence of workplace safety policies, training, and the presence of health and safety management systems such as OHSAS 18001. Controversies relating to workplace safety in major media reports are also included. Work-life balance is evaluated by a metric assessing a company’s commitment to work-life balance through provision of flexible working hours and provision of daycare services for employees. JUST Capital also includes a crowd-sourced work-life balance metric based.

Performance within the Community Driver is evaluated through disclosure of corporate giving sources and pledges to donate a percentage of revenue or profits, as well as the company’s charitable giving as a percentage of pre-tax profit.

Environmental impacts are assessed using performance metrics including damage costs associated with air pollution, water use, and hazardous waste, and the number of accidents disclosed by the company. An assessment of political activity was included in earlier rankings, but has been dropped from the 2017-2018 methodology because this component failed to meet the threshold of 50% of Americans including it as an important aspect of corporate justness in response to JUST Capital’s surveys (JUST Capital, 2017).

ESG Research Organization 3: Anonymous

ERO3’s products enable all investors across a range of asset classes to understand the risks and opportunities associated with potential investments or counterparties. ERO3 collects ESG data from published company material and integrates it into its proprietary data service. ERO3 covers approximately 120 indicators for large- and mid-cap companies included in major investment indices or which disclose ESG data.

Health-related indicators in ERO3’s ESG framework are heavily tilted toward occupational health and safety metrics such as injury rates, lost time incident rates, and fatalities for both employees and contractors. Approximately one third of the social indicators are associated with employee and contractor injuries and fatalities. The presence of a health and safety policy is evaluated, as is the amount of money spent on community-building activities. Several data fields related to diversity are also present including the number of women and minorities employed and in management positions. The average age of the workforce and the percentage of employees with disabilities are also included.
ESG Research Organization 4: Anonymous

ERO4 provides ESG data on over 400 metrics on thousands of companies allowing users to build ESG factors into portfolio analysis, equity research, quantitative analysis or screening. ERO4 also provides ESG indices and issue-specific indices including fossil-free and gender diversity indices.

The majority of ERO4’s health-related metrics fall into the occupational health and safety domain. These include metrics on policies and management practices related to occupational health and safety, injury and illness rates for employees and contractors, and fatalities for employees and contractors.

There are a small number of metrics related to diversity, work time, community involvement, marketing practices, and political activity. The number of metrics related to these areas range from one to three, compared to the nearly 30 metrics related to occupational health and safety.
Summary
ESG reporting standards from the Global Reporting Initiative (used by over 10,000 corporations worldwide) and the Sustainability Accounting Standards Board were reviewed for extant Culture of Health measures, as were those ESG research methodologies that, in aggregate, represent the majority market share. The table below summarizes the findings, with the Prevalence column representing the proportion of Culture of Health measures related to a particular COHBP.

Table 2-3: Prevalence of COH Health Measures in ESG Reporting Frameworks & Research Methodologies

<table>
<thead>
<tr>
<th>Health Culture</th>
<th>Responsible Corporate Political Activity</th>
<th>Responsible Marketing Practices</th>
<th>Health Promotion &amp; Wellness</th>
<th>Paid Family &amp; Medical Leave</th>
<th>Health Insurance</th>
<th>Equality, Diversity &amp; Impartiality</th>
<th>Financial Literacy</th>
<th>Work Time</th>
<th>Job Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td>2</td>
<td>16</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>2</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>12</td>
<td>10</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

1. Pay Practices was added after the Stakeholder Consultation at the behest of the Advisory Committee. This body of research was not updated to include it.

The majority of Culture of Health Business Practices (COHBP) are only partially represented in existing ESG frameworks. The majority of health-related measures are associated with occupational health and safety or environmental impacts. These areas tend to be covered in the most detail, while others receive a more limited treatment, if they are present at all. While significant gaps exist in the coverage of COH measures in ESG frameworks, those that do exist pave the way for a more complete coverage over time.
Conclusion

Several clear features characterize the coverage of Culture of Health Business Practices in ESG reporting standards and research methodologies.

Issues within the physical work environment, particularly workplace injuries are covered by all frameworks. However, many physical hazards (e.g., noise) are not specifically addressed within the disclosures. Within the psychosocial avenue of influence, employment discrimination, wages, job security, and job training are commonly covered. Environmental Impacts are commonly covered by metrics related to involvement typically dominate coverage within this avenue of influence mostly with indicators related to air and water pollution, hazardous waste, and climate change. Community involvement through donations and corporate philanthropic efforts is also commonly assessed, although the depth of coverage varies.

However, for most COHBPs, there is uneven coverage across ESG frameworks. Disclosures related to Health Culture are generally absent, although JUST Capital’s inclusion of metrics that assess the degree to which the board is responsible for “justness” issues comes closest to addressing one aspect of this COHBP. Metrics related to social capital and social cohesion tend to refer to the communities in which companies operate, although some frameworks do include metrics related to the workplace, such as transparent and open communication between management and employees. Metrics related to political activity, marketing practices, health promotion and wellness, paid family and medical leave, work time, and job security appear in some frameworks but not others. For example, parental leave appears in only three of the frameworks assessed as do indicators related to work time. Job security appeared in two of the six frameworks assessed. Provision of health insurance was found in only two frameworks, while metrics related to physical environment were found in only one.

These results differ in some ways from previous analyses of health-related disclosures in ESG frameworks (Malan, Radjy, Pronk, & Yach, 2016) which suggested a more significant emphasis on occupational health and safety. Issues such as diversity, social capital and cohesion, marketing practices, and community involvement and investment are commonly covered by reporting standards and ratings methodologies. However, while these issues are often covered, this analysis reveals that they are often covered in less detail than occupational health and safety issues. While there may be one metric related to paid family and medical leave, for example, occupational health and safety issues are often covered by more than 10 distinct indicators. Increasing the detail with which CoH factors are covered may be a potential avenue to expand CoH coverage within ESG frameworks.
II.C. Corporate Reporting of COH Business Practices

Introduction

A key contributor to understanding business’ health impacts is the information that companies themselves report on these impacts. Corporate sustainability/ESG reporting has risen steadily over the past decade. A KPMG survey of 4,900 companies that make up the 100 largest companies by revenue in 49 countries found that sustainability reporting has risen significantly in the past decade, from 41% to 72% in 2017. Among the largest 250 global companies, the reporting rate has risen from 64% in 2005 to 93% in 2017 (KPMG).

This document provides a brief overview of the current state of corporate reporting as it relates to the 16 Culture of Health Business Domains (COHBPs) introduced in Part I. It is organized into two main sections. The first describes aggregate trends in reporting on these COHBPs in non-financial reports, annual financial reports, and SEC Form 10-K filings. The second examines a sample of non-financial reports across eight industry groups and describes both common features of reporting within industries and approaches to reporting that stand out from industry peers. In doing so, it highlights a range of measures that companies are using in order to engage with the COHBPs.

Methods

Data from corporate reports was collected using the eRevalue Datamaran (Datamaran, n.d.) tool using its keyword search functionality for non-financial (sustainability, corporate responsibility or ESG) and financial reports, as well as SEC Form 10K filings published between 2012 and 2017. Multiple keywords were searched for each COHBP (see Appendix D). Individual hits for each query were reviewed in context to determine relevancy. Hits deemed irrelevant were excluded from analysis.

Data was collected on the number of reports containing each keyword for eight industries: Utilities, Industrials, Technology Equipment & Services, Health Care & Pharmaceuticals, Financial Services, Basic Materials, Consumer Goods & Services, and Oil & Gas. For each industry, the number of reports containing each keyword was recorded for three types of reports: Non-financial Reports, Financial Reports, and SEC Form 10-K filings.

A random sample of 57 companies was selected for content analysis. These companies were drawn from the population of 370 companies of which non-financial reports were included in the database. See Table 2 (Appendix) for further details including the full list of companies included in the sample and representativeness.

Reports for the sample companies were reviewed for references to COHBP keywords. Relevant text surrounding the keyword(s) was analyzed using several descriptive criteria including level of detail, presence of qualitative and/or quantitative data, and integration into a larger narrative.

(NB: This research report was developed before the Stakeholder Consultation. The COHBP related to pay practices was added after the Stakeholder Consultation. Measures associated with pay practices were not included in this research.)

Findings

Trends

The following sections provide a brief overview of trends in corporate reporting on COHBPs from 2012 to 2017.

Non-Financial Reports

From 2012 to 2017, four COHBPs consistently dominate corporate non-financial reporting: Community Environmental Impacts, Equality, Diversity & Impartiality, Responsible Corporate Political Activity and Occupational Health & Safety. Keywords related to these COHBPs consistently appeared in over 60% of reports each year. Community Environmental Impact
Impacts keywords are most prevalent, appearing in over 80% of reports ever year. Community Involvement, Physical Environment and Social Capital & Social Cohesion keywords also appeared frequently, appearing in over 50% of reports from 2012 to 2017. Less common, but still frequently appearing, were keywords related to Health Promotion & Wellness and Job Security which appeared in between 30% and 40% of reports in most years. The remaining COHBPs, Health Culture, Health Insurance, Work Time, Responsible Marketing Practices, Paid Family & Medical Leave and Financial Literacy appear less frequently, appearing in fewer than 20% of reports each year.

Overall, the proportion of reports mentioning keywords associated with at least one of the 15 COHBPs has generally remained consistent. The figures for most COHBPs reflect this general trend. Equality, Diversity & Impartiality and Paid Family & Medical Leave are two exceptions that show a marked increase over the period. In 2012, only 1% of reports mentioned keywords associated with Paid Family & Medical Leave, compared to 12% in 2017. Keywords related to Equality, Diversity & Impartiality rose from a higher baseline of 65% in 2012 to 75% in 2017.
Financial Reports

Similarly, a small number of COHBPs are dominant in corporate annual financial reports from 2012 to 2017. The percentage of reports containing keywords related to these COHBPs is generally much lower than in non-financial reports, though. The most commonly discussed COHBPs are Community Environmental Impacts, Equality, Diversity & Impartiality, Health Insurance and Responsible Corporate Political Activity. Keywords related to these COHBPs appear in 20% or more of reports almost every year. A larger grouping of COHBPs appears in between 5% and 15% of reports each year. This group includes, in order of prevalence, Job Security, Occupational Health & Safety, Community Involvement, Work Time, Physical Environment, Social Capital & Social Cohesion, Responsible Marketing Practices and Financial Literacy. Health Promotion & Wellness, Paid Family & Medical Leave and Health Culture appear in fewer than 5% of reports each year.

There is a small positive trend in the prevalence of COHBPs in financial reports, with an average increase of 2% from 2012 to 2017. Two COHBPs increased by 5 percentage points or more over this period: Equality Diversity & Impartiality (8%) and Responsible Corporate Political Activity (5%).
Keywords associated with Community Environmental Impacts, Equality, Diversity & Impartiality and Health Insurance appear in over 20% of SEC Form 10K filings each year from 2012 to 2017. Of these, Community Environmental Impacts related keywords consistently appear most commonly, with over 30% of filings containing related keywords each year. Keywords related to Equality, Diversity & Impartiality appear in over 25% of filings each year, while Health Insurance-related keywords appear in between 22% and 26% each year.

(GRI, 2016)

The remaining COHBPs can be described as appearing either occasionally or rarely. The former group includes Responsible Corporate Political Activity, Job Security and Work Time, all of which appear in over 10% of filings. The latter includes Responsible Marketing Practices and Occupational Health & Safety. The latter group includes those COHBPs that appear in less than 10% of filings, Physical Environment, Community Involvement, Social Capital & Social Cohesion, Financial Literacy, Health Promotion & Wellness, Paid Family & Medical Leave and Health Culture.

There is a small upward trend for most COHBPs, although changes from 2012 to 2017 are smaller than those in non-financial and financial reports.Unlike those reports, where Equality, Diversity & Impartiality exhibited the largest increase, in Form 10K filings, Responsible Corporate Political Activity has seen the largest increase, 4 percentage points, from 2012 to 2017.
Industry Breakdown & Materiality

The concept of materiality plays an important role in sustainability reporting. The GRI Standards, for example, contain a Materiality Principle, which states that the report “shall cover topics that reflect the reporting organization’s significant economic, environmental, and social impacts” or “substantively influence the assessments and decisions of stakeholders” (GRI, 2016). Material topics may include, for example, issues that have been identified by industry peers and competitors. Some approaches to sustainability reporting, such as the SASB Standards, define issues and metrics that are likely to be material at the industry and sector levels (SASB, 2017). Because of the importance of materiality in corporate reporting practice, the prevalence of COHBPs in corporate reporting is likely to vary according to industry. This section describes this variation.

The most commonly appearing COHBPs within each industry generally align with the most commonly appearing COHBPs in aggregate. For example, for reports published in 2017, Community Environmental Impacts is the most commonly discussed COHBP in almost every industry, appearing in over 80% of reports analyzed for every industry, with the exception of the Financial Services industry. Equality, Diversity & Impartiality is frequently the second-most commonly discussed COHBPs, with Responsible Corporate Political Activity often close behind. Occupational Health & Safety is also commonly reported, although there is a wider range here. For example, 94% of the Basic Materials industry reports contained references to Occupational Health & Safety while only 32% of Financial Services reports did. While 21% of Financial Services reports discussed Paid Family & Medical Leave, only 5% of Industrials reports did. See Figure 4 for a complete picture of reporting on COHBPs for all eight industry groups.

### Figure 2-4 Prevalence of Culture of Health Business Domains (COHBPs) by Industry, 2017

<table>
<thead>
<tr>
<th>Industry Category</th>
<th>Utilities</th>
<th>Industrials</th>
<th>Technology Equipment &amp; Services</th>
<th>Health Care &amp; Pharmaceuticals</th>
<th>Financial Services</th>
<th>Basic Materials</th>
<th>Consumer Goods &amp; Services</th>
<th>Oil and Gas</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Environmental Impacts</td>
<td>83%</td>
<td>89%</td>
<td>92%</td>
<td>88%</td>
<td>70%</td>
<td>100%</td>
<td>84%</td>
<td>91%</td>
<td>86%</td>
</tr>
<tr>
<td>Equality, Diversity &amp; Impartiality</td>
<td>83%</td>
<td>70%</td>
<td>86%</td>
<td>82%</td>
<td>73%</td>
<td>78%</td>
<td>77%</td>
<td>64%</td>
<td>76%</td>
</tr>
<tr>
<td>Responsible Corporate Political Activity</td>
<td>59%</td>
<td>59%</td>
<td>75%</td>
<td>76%</td>
<td>59%</td>
<td>69%</td>
<td>62%</td>
<td>91%</td>
<td>66%</td>
</tr>
<tr>
<td>Occupational Health &amp; Safety</td>
<td>69%</td>
<td>70%</td>
<td>63%</td>
<td>76%</td>
<td>32%</td>
<td>94%</td>
<td>57%</td>
<td>91%</td>
<td>64%</td>
</tr>
<tr>
<td>Community Involvement</td>
<td>48%</td>
<td>57%</td>
<td>57%</td>
<td>64%</td>
<td>44%</td>
<td>63%</td>
<td>60%</td>
<td>73%</td>
<td>57%</td>
</tr>
<tr>
<td>Physical Environment</td>
<td>66%</td>
<td>48%</td>
<td>55%</td>
<td>70%</td>
<td>86%</td>
<td>28%</td>
<td>47%</td>
<td>32%</td>
<td>56%</td>
</tr>
<tr>
<td>Social Capital &amp; Social Cohesion</td>
<td>69%</td>
<td>56%</td>
<td>59%</td>
<td>42%</td>
<td>52%</td>
<td>50%</td>
<td>44%</td>
<td>59%</td>
<td>53%</td>
</tr>
<tr>
<td>Health Promotion &amp; Wellness</td>
<td>41%</td>
<td>27%</td>
<td>24%</td>
<td>48%</td>
<td>41%</td>
<td>38%</td>
<td>26%</td>
<td>36%</td>
<td>33%</td>
</tr>
<tr>
<td>Job Security</td>
<td>41%</td>
<td>27%</td>
<td>37%</td>
<td>36%</td>
<td>22%</td>
<td>38%</td>
<td>22%</td>
<td>18%</td>
<td>29%</td>
</tr>
<tr>
<td>Financial Literacy</td>
<td>17%</td>
<td>14%</td>
<td>8%</td>
<td>12%</td>
<td>35%</td>
<td>0%</td>
<td>10%</td>
<td>9%</td>
<td>15%</td>
</tr>
<tr>
<td>Paid Family &amp; Medical Leave</td>
<td>21%</td>
<td>5%</td>
<td>8%</td>
<td>18%</td>
<td>21%</td>
<td>9%</td>
<td>9%</td>
<td>9%</td>
<td>12%</td>
</tr>
<tr>
<td>Work Time</td>
<td>3%</td>
<td>6%</td>
<td>16%</td>
<td>9%</td>
<td>5%</td>
<td>16%</td>
<td>21%</td>
<td>5%</td>
<td>11%</td>
</tr>
<tr>
<td>Health Culture</td>
<td>17%</td>
<td>8%</td>
<td>8%</td>
<td>15%</td>
<td>3%</td>
<td>13%</td>
<td>14%</td>
<td>14%</td>
<td>11%</td>
</tr>
<tr>
<td>Responsible Marketing Practices</td>
<td>3%</td>
<td>2%</td>
<td>4%</td>
<td>24%</td>
<td>10%</td>
<td>3%</td>
<td>23%</td>
<td>0%</td>
<td>10%</td>
</tr>
<tr>
<td>Health Insurance</td>
<td>0%</td>
<td>5%</td>
<td>12%</td>
<td>27%</td>
<td>14%</td>
<td>6%</td>
<td>8%</td>
<td>5%</td>
<td>10%</td>
</tr>
</tbody>
</table>
The Industry-specific sections below discuss these findings in greater detail. Each begins with a summary of the prevalence of each COHBP within the Industry. This is followed by samples drawn from reports published by companies within each industry to provide a more complete picture of how each COHBP is discussed across industries.

**Basic Materials Industry**

In 2017, at least one company within the Basic Materials industry published a report mentioning each of the COHBPs, with the exception of Financial Literacy. The most commonly appearing COHBPs are similar to the most frequently mentioned COHBPs discussed previously. The top five COHBPs mentioned in the reports analyzed from companies in this industry were

1. **Community Environmental Impacts** (100% of reports)
2. **Occupational Health & Safety** (94% of reports)
3. **Equality, Diversity & Impartiality** (78%)
4. **Responsible Corporate Political Activity** (69%)
5. **Community Involvement** (61%).

There are several approaches that Basic Materials companies take when discussing these and other COHBPs. Health Culture is sometimes included in the vision or mission statements of companies. For example, one company stated that its “vision is to create a global culture of health, where our people and their families become responsible for their individual well-being through informed, active participation in health and wellness activities.” (PPG, 2016)

In discussing Equality, Diversity & Impartiality, one company referred to the number of complaints regarding discriminatory or harassing conduct and reported the number of complaints that were substantiated and whether or not disciplinary actions were taken (Freeport-McMoran, 2016). Other companies highlight their performance on or inclusion in sustainability ratings, rankings, and indices, such as the Human Rights Campaign Corporate Equality Index (HRC CEI).

**Consumer Goods & Services Industry**

For Consumer Goods & Services companies, the COHBPs referred to most frequently are:

1. **Community Environmental Impacts** (91%)
2. **Equality, Diversity & Impartiality** (77%)
3. **Responsible Corporate Political Activity** (62%)
4. **Community Involvement** (60%)
5. **Occupational Health & Safety** (57%).

Consumer Goods & Services companies report on a wide range of COHBPs and do so with varying levels of detail. One discussion of Health Culture by a company within the sample, for example, involved a discussion of how health and wellness programs are designed to contribute to a culture of health (Goodyear, 2016). This company’s reporting also discussed a third-party Culture of Health evaluation based on over 100 components that contribute to a Culture of Health. Other discussions provide less detail, with one company briefly mentioning its commitment to building a culture of health and safety for its employees. References to Social Capital & Social Cohesion reflect a similar range, with some companies providing a detailed discussion of their approaches to, for example, building trust between employees and managers. Others refer to third-party certifications for psychologically healthy workplaces, which includes criteria based on relevant factors such as recognition, involvement, and conflict management.

Equality, Diversity & Impartiality reporting in this industry frequently involves a discussion of company demographics overall and by job category. Rankings such as the HRC CEI also appear frequently within these reports. One sampled
company also discussed its commitment to pay equality, with references to future plans to conduct pay analyses that will cover race and ethnicity along with gender (Colgate, 2016). For those companies that reported on specific aspects of Responsible Corporate Political Activity, it was often related to issues within the Equality, Diversity & Impartiality COHBP. One company discussed its support for a state-level gender equality bill and its opposition to state-level bills that, in the company’s view, discriminated against LGBTQ individuals (Caesars, 2016-7). Companies also discuss the existence of Political Action Committees, trade association membership, and whether, for example, company dues to trade associations may be used for political contributions.

A small number of the sample companies reported on Responsible Marketing Practices, particularly those that produce food and beverages as well as those whose products or services are generally viewed as harmful (e.g., tobacco, gaming). Two food and beverage companies referred to policies related to advertising for children, with differing age cutoffs (12 vs 18) (Coca-Cola, 2016).

A small number of companies in the sample provided significant detail regarding Health Promotion & Wellness. One company provided a target related to participation in wellness programs, as well as changes in health outcomes for a cohort of participants who have been involved since the programs were introduced. These outcomes included hypertension, obesity, cholesterol, tobacco use, and the presence of three or more health risks (Caesars, 2016-7). While many of these outcome categories showed improvement, the company also included data for areas where outcomes were poorer (e.g., obesity increased over time). Other companies also discussed the level of participation as well as the percentage of participants who achieved personal goals.

Healthy dining options, tobacco-free workplace policies, and on-site fitness centers featured prominently in discussions of the Physical Environment COHBP. Recognition by a third-party, such as the “Fit-Friendly Worksites” recognition from the American Heart Association was also mentioned.

### Financial Services Industry

Companies within the Financial Services industry also appear to report frequently on COHBPs. Reports from Financial Services companies appeared most frequently in search results for

| 1. Physical Environment (86%) |
| 2. Equality, Diversity & Impartiality (73%) |
| 3. Community Environmental Impacts (70%) |
| 4. Responsible Corporate Political Activity (59%) |
| 5. Social Capital & Social Cohesion (52%) |

Compared to the average across industries, keywords related to Health Promotion & Wellness (41%), Health Insurance (14%), Paid Family & Medical Leave (21%), Physical Environment (86%) and Financial Literacy (35%) are more prevalent in reports published by companies within the Financial Services industry. The high level of reporting on Financial Literacy within the Financial Services industry relative to others highlights the way in which the relevance of certain COHBPs and measures may differ across industries.

Financial Services companies within the sample report a range of statistics, programs and policies related to Equality, Diversity & Impartiality. One company reported setting goals for increased gender and racial/ethnic diversity in senior management and the progress it has made toward reaching those goals (State Street Corp., 2016). Multiple companies discussed external recognition such as the HRC CEI, Disability Equality Index Best Places to Work, LATINA Style Best Company for Latinas, DiversityInc Top Company for Diversity, among others. Several companies discussed the existence of a range of employee resource groups based on gender identity, racial and ethnic identity, sexual orientation, and other characteristics. The purposes and activities of these groups were often tied to issues related to the Social Capital & Social Cohesion COHBP, such as trust, communication, and engagement. One company in particular reported that employees who agreed that the company promotes and values diversity were significantly more engaged than those who did not. This company also reported that the percentage of employees agreeing with that statement surpasses the industry benchmark.
There are a range of approaches to Responsible Corporate Political Activity among the sampled companies. Some simply report that they do not make contributions to candidates, parties, campaigns or ballot initiatives, while others discuss their role in shaping policy that may affect their business and the role governing bodies within the company play in ensuring that resources are deployed in a way that protects the interests of shareholders, employees and customers. Some companies discuss their stances on issues that are not directly related to business interests. These issues are often related to Equality, Diversity & Impartiality, with one company reporting that it has taken a strong stand on issues such as marriage equality, equal pay for women and safety for transgender people (State Street Corp., 2016).

Reporting on Health Promotion & Wellness is common among the sampled companies. Several companies report on the existence of a range of programs from health coaching to fitness challenges. Some also provide data on the level of participation. Financial Literacy offerings such as retirement planning are often discussed as part of health and wellness offerings, as are aspects of the Physical Environment such as on-site fitness centers and health clinics. Some companies also highlight the emotional wellness component of Health Promotion & Wellness, discussing programs and resources related to stress management and caregiver support. Issues related to Work Time also appear in discussions of Health Promotion & Wellness, with companies tying their offering opportunities for flexible scheduling, compressed work weeks, and job share opportunities to employee wellness as well as engagement and productivity.

Healthcare & Pharmaceuticals Industry

Reports from Healthcare & Pharmaceutical companies appeared most frequently in search results for

| 1. Community Environmental Impacts (88%) |
| 2. Equality, Diversity & Impartiality (82%) |
| 3. Occupational Health & Safety (76%) |
| 3. Responsible Corporate Political Activity (76%) |
| 5. Community Involvement (64%) |

Building a culture of health is a common goal among sampled Healthcare and Pharmaceutical companies. Half of sampled companies discuss goals related to building a culture of health, with one company describing a Culture of Health goal related to employee access to a comprehensive set of health-related programs and services. This company also provided specific details about executive-level responsibility for achieving this goal. Another company discussed aspects of the Physical Environment such as tobacco-free policies and Occupational Health & Safety that would contribute to the overall Culture of Health within the company. Issues related to Social Capital & Social Cohesion were discussed in the context of employee surveys, with one company providing details about employee participation and company performance across the categories covered in the survey. The importance of engagement and cohesion were linked to employee productivity and reduced levels of absenteeism.

Sampled companies take varying approaches to discussing Equality, Diversity & Impartiality. One company provides targets for gender diversity as well as current gender statistics for management, total workforce, and new hires. Another company highlighted the participation of its CEO in a local Pride March. Several companies highlight external recognition by organizations such as LATINA Style, HRC, DiversityInc, and the Association of People with Disabilities alongside anti-discrimination policies and programs. These companies also discuss the strategic importance of Employee Resource Groups for employees who share a range of identities.

Health Promotion & Wellness features prominently in reports from companies in the sample. Some companies provide brief overviews of the resources and programs available to employees such as tobacco cessation, wellness seminars, biometric screening and fitness reimbursements. Others provide a much more detailed description of the programs and how they fit into the company’s overall approach to building a culture of health. For example, one company describes how data from personal health assessments completed by employees was used to develop programs for weight management. Aspects of the Physical Environment, such as smoke-free workplace policies, on-site fitness centers and healthy options for on-site dining are common in these discussions as well.

All sampled companies discuss their approach to Responsible Corporate Political Activity. One company discussed a specific state bill that they supported alongside a range of advocacy organizations (Mylan NV, 2016). Others direct...
 readers to company websites for more information about company memberships and political contributions. Some highlight their performance on the Center for Political Accountability CPA-Zicklin index, which benchmarks the political disclosure and accountability policies and practices of leading U.S. public companies. Companies also tend to emphasize their compliance with relevant campaign finance regulations as well. Similarly, companies within this sector emphasize their compliance with laws and regulations related to pharmaceutical marketing, as well as compliance with standards and codes established by industry associations such as the Pharmaceutical Research and Manufacturers of America (PhRMA) Code and the Compliance Program Guidance for Pharmaceutical Manufacturers.

Industrials

Reports from Industrials companies appeared most frequently in search results for

1. Community Environmental Impacts (89%)
2. Occupational Health & Safety (70%)
3. Equality Diversity & Impartiality (70%)
4. Responsible Corporate Political Activity (59%)
5. Community Involvement (57%)

Health Culture appears infrequently in reports sampled. One report, however, does mention external recognition for its efforts to improve workplace health culture for its employees (Norfolk Southern Corp, 2016). Social Capital & Social Cohesion appear slightly more often, with significant variation in the level of detail provided. For example, one company mentions that employees participate in inclusion groups and engagement surveys designed to identify ways to create a “collaborative culture,” but does not provide further details regarding findings or participation levels (CSX Corp., 2016).

Health Promotion & Wellness is a common topic of discussion in reports in this industry with screening, condition management, tobacco cessation, and physical activity among the most commonly discussed features. One company includes Financial Literacy programs as one “pillar” in its Health Promotion & Wellness offerings. A commitment to tobacco-free facilities is often discussed alongside other tobacco cessation resources, while healthy food and beverage options are often discussed as part of weight management programs (CSX Corp., 2016).

Reporting on Responsible Corporate Political Activity often refers to legal and regulatory compliance, with some organizations highlighting external recognition by organizations such as the Center for Political Accountability. Several reports disclose membership in organizations such as the Business Roundtable, National Association of Manufacturers, and the Association of American Railroads, among others. The existence of company PACs is also commonly discussed, along with policies related to PAC contributions by employees.

Greenhouse gas emissions, energy efficiency, and the existence of environmental management systems are common features of reporting within the Community Environmental Impacts COHBP. Targets and goals related to environmental performance are also common, as is external recognition by organizations such as CDP and the United States Environmental Protection Agency. The discussion of environmental performance is often one of the most detailed sections of the sampled reports.
Community Involvement reporting often describes amounts donated, as well as the number of volunteers and volunteer hours provided by the company. Descriptions of focus areas are common as well, with one report describing a community investment program focused on the four areas of safety, community, environment and wellness (CSX Corp., 2016). Some reports highlight the connection between, for example, healthy communities and business success.

**Oil & Gas Industry**

Reports from Oil & Gas companies appeared most frequently in search results for:

| 1. Community Environmental Impacts (91%) |
| 1. Occupational Health & Safety (91%) |
| 1. Responsible Corporate Political Activity (91%) |
| 4. Community Involvement (73%) |
| 5. Equality, Diversity & Impartiality (64%) |

Reporting on COHBP is generally less prevalent in the Oil & Gas industry than others. However, sampled reports reveal a wide variation both in terms of the COHBP discussed and the level of detail provided within each COHBP. For example, when discussing engagement and communications, two important aspects of Social Capital & Social Cohesion, some reports contain only brief mentions of employee engagement surveys while others discuss company goals and engagement survey results. Similarly, when discussing Equality, Diversity & Impartiality, one company reports the existence of internal assessments while others provide company demographics and explain their approach to fostering a diverse workplace and equal opportunities for all current and prospective employees. One company also discussed its efforts to improve diversity outreach through work with external organizations such as the Society of Women Engineers (Hess, 2016).

While all sampled reports discuss Occupational Health & Safety, this COHBP too reveals a range of corporate practices. While all provide basic performance and training data, one company’s report also provides results from a survey of employees that focuses on beliefs among employees regarding Occupational Health & Safety issues relative to industry comparison groups (Marathon, 2016). For example, the company reported that the level of belief among employees that supervisors do not put production ahead of safety was 26% higher than industry comparison groups.

As noted above, Responsible Corporate Political Activity is frequently discussed in Oil & Gas company reports. All reports sampled provide detailed information on contributions to campaigns, PACs, trade associations as well as lobbying expenses. They also discuss the companies’ approaches to political activity, with some discussing in detail the oversight and review process for political contributions and public policy. There is similar variation in reporting on Community Environmental Impacts, with some companies providing, for example, a brief description of the types of emissions tracked and regulatory compliance. Others provide specific performance data and information on trends over the past decade.

**Technology Equipment & Services Industry**

Reports from Technology companies appeared most frequently in search results for:

| 1. Community Environmental Impacts (92%) |
| 2. Equality, Diversity & Impartiality (86%) |
| 3. Responsible Corporate Political Activity (75%) |
| 4. Occupational Health & Safety (63%) |
| 5. Social Capital & Social Cohesion (59%) |

Equality, Diversity & Impartiality features prominently in reports published by Technology Equipment & Services companies. Every report in the sample contains a discussion related to issues within this COHBP, and most provide significant details. Several report on several measures of diversity including gender representation at the Board level, along with discussions of the age, racial/ethnic, ability, LGBTQ and gender make-up of the workforce as a whole. Discussion of external recognition, including performance on the HRC CIE and the DiversityInc Top 50. Employee identity and affinity groups are also common, with several companies...
discussing the importance of such groups for fostering diverse workplaces and improving business performance. Issues related to the Social Capital & Social Cohesion COHBP are common in discussions of these groups. Analyses of gender pay disparities and commitments to pay equity appear as well.

Responsible Corporate Political Activity is often discussed in conjunction with issues related to Equality, Diversity & Impartiality. Several companies discuss their support of legislation that would address discrimination against LGBTQ individuals and their opposition to bills that they viewed as discriminatory, such as North Carolina HB2 (Qualcomm, 2016). Reports that discuss Responsible Corporate Political Activity also commonly include discussions of company PACs, trade association memberships, and compliance with campaign finance regulations as well as the company’s overall approach to political activity and policy advocacy.

Health Promotion & Wellness activities are commonly reported, with varying level of detail provided. One company, for example, provides a brief list of health and wellness programs including health checks, fitness reimbursements, stress reduction courses, on-site fitness centers, and a new on-site health clinic (Alliance, 2016). Work Time is also linked to Health Promotion & Wellness through the inclusion of sabbaticals and flexible work arrangements as part of the company’s approach to prioritizing health and wellness. Other companies provided additional data on participation, with one company reporting the number of employees who accessed the company health portal, completed a health screening, and fitness challenges (Verizon, 2016). Another company provides additional detail on health outcomes associated with participation in one wellness challenge, reporting both the number of participants as well as the number of employees who lost weight, increased exercise, reduced stress levels, or lowered blood pressure (Bloomberg, 2016). Some companies also reported on aspects of the Physical Environment that allow employees to reach these goals such as on-site fitness centers and walking trails. One company reported the number of employees who have access to an on-site gym.

Reporting on Paid Family & Medical Leave revealed significant differences in corporate practice, with one company providing from 10 days for mothers and fathers to 3 months for new mothers (Bloomberg, 2016), while another reported that it expanded its paid leave program to 18 weeks at full pay for both birth mothers and fathers and adoptive parents (VMware Inc.). Other benefits, such as health insurance, were discussed in some reports, most often with little detail. One company, however, did report that in the past year there was no increase in benefit premiums (Alliance, 2016).

Community Environmental Impacts is frequently discussed in Technology Equipment & Services reports, with an emphasis on greenhouse gas emissions and energy consumption in many reports. Sampled reports often discussed goals such as operating as a “net-zero” greenhouse gas emissions company and 100% renewable energy targets. Resource use, particularly as it relates to paper was also commonly discussed. One report discussed certification of environmental management systems in manufacturing facilities as well (Dell, FY16). Community Involvement reporting often referred to the amount contributed to a range of causes and organizations, along with data on employee participation such as the number of hours volunteered. One report also described a five-year goal for community investment as a percentage of adjusted net EBITDA (Alliance, 2016).

Utilities Industry

Reports from Utilities companies appeared most frequently in search results for

| 1. Community Environmental Impacts (83%) |
| 1. Equality, Diversity & Impartiality (83%) |
| 3. Occupational Health & Safety (69%) |
| 3. Social Capital & Social Cohesion (69%) |
| 5. Responsible Corporate Political Activity (59%) |

Two of the sampled Utilities reports contain brief discussions of Health Culture, primarily as it relates to corporate values. These were paired with an emphasis on Occupational Health and Safety issues, although one report also discusses its Health Promotion & Wellness offerings in this context (PPL Corp., 2016). Commonly cited programs and resources include health education, on-site screenings, flu shots, and on-site health centers. One report discussed health outcomes associated with health and fitness services including improvements in blood pressure and body-mass index among participants (PPL Corp., 2016). One company reported expanding access to some programs to spouses and domestic partners, while another provided on-site screenings to both spouses and dependents (Exelon, 2016).

On-site fitness centers and healthy-eating programs were discussed in three of the sampled reports. Financial Literacy resources were discussed in two reports, with one report...
describing such resources as part of its Employee Assistance Program. Health Insurance was infrequently discussed in reports, with two reports including references to health insurance benefits. One reported that the percentage of medical costs paid by the company (Xcel Energy, 2016).

The Social Capital & Social Cohesion COHBP appears frequently, with references to communication, recognition and fulfillment in the workplace being most common. Several companies discussed the results of employee engagement surveys, as well as trends in these results. One report also discussed goals related to employee and manager engagement metrics (Duke Energy, 2016). Equality, Diversity & Inclusion was frequently tied to issues related to Social Capital & Social Cohesion, with several reports emphasizing the importance of a diverse and inclusive workplace alongside employee engagement, communication, and trust. External recognition, such as performance on the HRC CEI was also discussed, along with the existence of employee resource groups and equal opportunity and non-discrimination policies. One report discussed a review of employee pay and performance data which did not find indicators of gender discrimination in compensation (Exelon, 2016). This report also discussed the company’s commitment to conduct an annual gender pay analysis for all positions. Statistics relating to workforce diversity were also commonly reported.

Legal and regulatory compliance were common to the discussion of Responsible Corporate Political Activity in five of the sampled reports. Disclosure of contributions and memberships were common, as were discussions of policies and procedures related to political contributions and organization membership. Several reports described Community Involvement in environmental preservation alongside measures of employee donation and volunteering.

Occupational Health & Safety metrics such as lost time incident rates, lost day cases, and work-related fatalities appeared in four of the sampled reports. Safety training and goal-setting were also frequently discussed. One report also described the way that Health Promotion & Wellness initiatives such as athletic training and health assessments contributed to the company’s safety goals (PPL Corp., 2016).

References to Job Security were limited to employee turnover statistics, with one report providing a breakdown of the proportion of turnover resulting from retirement, resignation, and dismissal for performance or misconduct. None of the sampled reports discussed Work Time. One report discussed Paid Family & Medical Leave, reporting that the company expanded its paid leave policy to 16 weeks for mothers, eight weeks for fathers and adoptive parents, plus two weeks of family leave (Exelon, 2016).

Greenhouse gas emissions and air quality were discussed in all sampled reports. Discussion of regulatory and legal issues, including references to the Clean Power Plan and the Cross-State Air Pollution Rule, were commonly discussed aspects of the Community Environmental Impacts COHBP. Energy efficiency programs to reduce greenhouse gas emissions were also frequently discussed. Some reports discussed programs available to assist customers who are unable to pay their utility bills.

Conclusions

Overall, the prevalence of Culture of Health Business Domains (COHBPs) in corporate reporting has remained relatively consistent from 2012 to 2017. Two exceptions stand out, particularly in non-financial reporting: Equality, Diversity & Impartiality and Paid Family & Medical Leave, both of which have increased by approximately 10 percentage points over this period. While there are few significant differences in the trendlines, there is significant variation in the overall prevalence of individual COHBPs. The Community Environmental Impacts COHBP, for example, consistently appears in over 85% of reports, while others such as Work Time, Health Culture, and Health Insurance never appear in over 20%. Trends for financial reports and SEC filings are similar, although the prevalence of each COHBP is significantly lower than in non-financial reports, with the most prevalent, Community Environmental Impacts, never appearing in over 35% of reports or filings.

An analysis of non-financial reports by companies in eight industry groups found that the most prevalent COHBPs were consistent across industries. These generally included Community Environmental Impacts, Equality, Diversity & Impartiality, Responsible Corporate Political Activity, Occupational Health & Safety and Community Involvement. Other COHBPs that appeared among the top five most prevalent practices include Social Capital & Social Cohesion, Physical Environment, and Community Involvement. There were some significant differences in prevalence of the less commonly discussed practices. For example, reporting on Responsible Marketing Practices appeared more frequently in reports from the Health Care & Pharmaceuticals (24%) and
Consumer Goods & Services (23%) industries than the other six industries. Paid Family & Medical Leave was also more prevalent in a small group of industries, Utilities (21%), Financial Services (21%) and Health Care & Pharmaceuticals (18%).

Despite these differences, report content analysis reveals that there are also significant intra-industry differences. That is, while the prevalence of a particular COHBP may be high or low in a given industry, the presence and level of detail for the COHBP in a given company’s report may differ significantly from companies in the same industry. This appears to be the case for many of the practices that fall into the middle of the pack in terms of prevalence, such as Paid Family & Medical Leave, Health Promotion & Wellness, and Job Security. Additionally, this intra-industry variation suggests that while certain COHBPs may be more relevant to certain industries, each COHBP has the potential to become material for companies within the eight industries reviewed.
Project Research References


Datamaran, e. (n.d.). *Datamaran is a market intelligence tools that allows users to search and analyze 50,000 corporate reports from 7,000 companies worldwide.* Retrieved from www.datamaran.com/.


In collaboration with A Culture of Health for Business
Part II: Project Research


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GRI 401


Appendices

A. Summary of Quantitative Findings for Part II, A. Literature Review

B. Strength of Quantitative & Quantitative Findings for Part II.A. Literature Review

C. COHBP Outcomes Methodology for Part II.A. Literature Review

D. COHBP Queries for Part II.C. Corporate Reporting of COHBPs

E. Report Content Analysis, Sample Companies by Industry for Part II.C. Corporate Reporting of COHBPs
Appendix A: Summary of Quantitative Outcomes for Part A.I. Literature Review

<table>
<thead>
<tr>
<th>Health Culture</th>
<th>Business Outcomes</th>
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<tr>
<td>Employees agreeing the company values my health were more likely to engage in higher PA levels (aOR*=1.54, 95% CI:1.09-2.16) and less likely to be obese (aOR=0.73, 95% CI: 0.54-0.98).</td>
<td>• Improved financial performance based on simulated portfolios ranging from 2.35x to 3.33x</td>
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<td>Seeing co-workers eating fruits and vegetables was associated with increased reporting of eating at least one</td>
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<td>Vegetable per day (aOR=1.43, 95% CI: 1.06-1.91).</td>
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<td>Seeing co-workers being active was associated with higher PA levels (aOR 1.56, 95% CI: 1.19-2.05).</td>
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<td>Health culture scores (Lifegain Health Culture Audit) correlated with health-related communications (β=0.62) and environmental structure (β=0.37).</td>
<td>• When stratified by occupational grade, high WSC predicted a decreased risk of sickness absence among higher grade workers (HR = 0.61, 95% CI = 0.44–0.84) but not among lower grade workers (HR = 0.98, 95% CI = 0.83–1.15). The HR was attenuated and lost statistical significance after further adjustment for occupational grade (HR = 0.90, 95% CI = 0.78–1.04). When stratified by occupational grade, high WSC predicted a decreased risk of sickness absence among higher grade workers (HR = 0.61, 95% CI = 0.44–0.84) but not among lower grade workers (HR = 0.98, 95% CI = 0.83–1.15). The interaction effect of WSC and occupational grade was statistically significant (HR = 0.97, 95% CI = 0.95–0.99).</td>
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<td>• Health culture scores (Lifegain Health Culture Audit) correlated with health-related communications (β=0.62) and environmental structure (β=0.37).</td>
<td>• Organizational social capital was negatively associated with presenteeism (β = −0.26; P &lt; 0.001) and positively associated with effective personal functioning (β = 0.20; P &lt; 0.001)</td>
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<td>• Each standard deviation increase in neighborhood social cohesion was associated with a higher likelihood that people would obtain influenza vaccinations (OR:1.09, 95% CI:1.04, 1.15) or cholesterol tests (OR:1.10, 95% CI:1.02, 1.19). Further, women were more likely to receive mammograms/x-rays (OR:1.10, 95% CI:1.01, 1.19) or Pap tests (OR:1.08, 95% CI:1.00, 1.17). However, men were not more likely to receive prostate exams (OR:1.06, 95% CI:0.96, 1.17)</td>
<td>• A one standard deviation higher WSC score predicted a reduced risk of sickness absence after adjustment for sociodemographic variables, prevalent health problems and health behaviors (HR = 0.85, 95% CI = 0.74–0.99). The HR was attenuated and lost statistical significance after further adjustment for occupational grade (HR = 0.90, 95% CI = 0.78–1.04). When stratified by occupational grade, high WSC predicted a decreased risk of sickness absence among higher grade workers (HR = 0.61, 95% CI = 0.44–0.84) but not among lower grade workers (HR = 0.98, 95% CI = 0.83–1.15). The interaction effect of WSC and occupational grade was statistically significant (HR = 0.97, 95% CI = 0.95–0.99).</td>
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<td>• Each standard deviation increase in perceived neighborhood social cohesion was associated with a 22% reduced odds of myocardial infarction (OR = 0.78, 95% CI, 0.63–0.94)</td>
<td>• A one-unit increase in the mean of repeated measurements of self-assessed social capital in the workplace was associated with a 17 % decrease in the risk of all-cause mortality</td>
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<td>• Employees with either low vertical or horizontal social capital were 30–50 % more likely to be diagnosed with depression or to start antidepressant treatment than their counterparts with high social capital</td>
<td>• Organizational social capital was negatively associated with presenteeism (β = −0.26; P &lt; 0.001) and positively associated with effective personal functioning (β = 0.20; P &lt; 0.001)</td>
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<td>• Organizational social capital was significantly associated with perceived health (β = 0.20, P &lt; 0.001), and with emotional exhaustion (β = −0.34, P &lt; 0.001). Both health indicators, in turn, were associated with absenteeism, presenteeism and effective personal functioning in the presumed direction, i.e. better health was associated with better functioning. Especially bonding social capital was significantly associated with health (β = 0.14, P &lt; 0.01), and with emotional exhaustion (β = −0.26, P &lt; 0.001). Linking social capital was associated with emotional exhaustion as well (β = −0.09, P &lt; 0.05)</td>
<td>• A one standard deviation higher WSC score predicted a reduced risk of sickness absence after adjustment for sociodemographic variables, prevalent health problems and health behaviors (HR = 0.85, 95% CI = 0.74–0.99). The HR was attenuated and lost statistical significance after further adjustment for occupational grade (HR = 0.90, 95% CI = 0.78–1.04). When stratified by occupational grade, high WSC predicted a decreased risk of sickness absence among higher grade workers (HR = 0.61, 95% CI = 0.44–0.84) but not among lower grade workers (HR = 0.98, 95% CI = 0.83–1.15). The interaction effect of WSC and occupational grade was statistically significant (HR = 0.97, 95% CI = 0.95–0.99).</td>
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• Among respondents, 70,080 completed the workplace discrimination measure. Discrimination was more common among black non-Hispanic (21%), Hispanic (12%), and other race respondents (11%) than white non-Hispanics (4%) (p<0.001). In the total sample, discrimination was associated with current smoking (risk ratio [RR]=1.32, 95% CI=1.19, 1.47), daily smoking (RR=1.41, 95% CI=1.24, 1.61), and heavy drinking (RR=1.11, 95% CI=1.01, 1.22).

• UK-based study: The risk of mental disorders was highest among ethnic minority individuals reporting unfair treatment (odds ratio [OR]=2.0, 95% confidence interval [CI]=1.2, 3.2) and racial insults (OR=2.3, 95% CI=1.4, 3.6). The overall greatest risks were observed among Black Caribbeans exposed to unfair treatment at work (OR=2.9, 95% CI=1.2, 7.3) and Indian (OR=3.1; 95% CI=1.4, 7.2), Bangladeshi (OR=32.9; 95% CI=2.5, 436.0), and Irish (OR=2.9, 95% CI=1.1, 7.6) individuals reporting insults.

• Boston-based study: Among men (table 2), the only three variables yielding consistent significant estimates across Models 2 through 5 for their positive association with psychological distress were: 1. being a perpetrator of IPV (β range 0.5 to 0.7, per unit change in score), 2. being subjected to high versus no racial discrimination (β range 2.3 to 2.5) and 3. being subjected to workplace abuse (β range ~0.2, per unit change in score).

• Boston-based study: Among women five variables yielded consistently significant parameter estimates in the different models, including higher risk of psychological distress associated with: 1. poverty (β range 1.1-1.4), 2. being subjected to high levels of racial discrimination (β range 4.8-5.4), 3. workplace abuse (β range ~0.2), 4. high exposure to occupational hazards (β range 1.9-3.1) and 5. smoking (β range 1.7-2.2); significantly lower levels of psychological distress were consistently associated with higher scores for social desirability (β range -0.03 to -0.02).

• In 2016, approximately 18% of persons with a disability in the United States were employed, compared to 65.3% of those without a disability. The unemployment rate for persons with a disability was 10.5%, over twice that of those without a disability.

• In the only longitudinal study in the U.S. that explores the impact of work on health care costs for people with disabilities, researchers at Dartmouth Medical School found that individuals with a serious mental illness, who maintained work with an average of 13.8 hours per week (3,060 hours per year), had lower mental health care costs than those who were unemployed or not steadily employed. Over the course of the study’s 10 years, individuals who maintained steady employment had mental health medical costs that were $166,350 less per person than the group that was unable to maintain consistent employment.

• Women with disabilities and an MP impairment were almost twice as likely to work in a service occupation as women without disabilities (28% vs. 15%), which contributed to a significant wage gap between disabled and non-disabled women.

• African-Americans and whites reported significant relations between racial/ethnic bullying and counterproductive actions (r = .27 and r = .28, respectively).

• The relation between general bullying and counterproductive [work] behavior was significant only for African-Americans (r = .26) and Hispanic/Latinos (r = .62), and only the correlation for Hispanic/Latinos was significantly stronger than for whites.

• Demographic matching: the interaction of African-Americans in the business unit and the community on was significantly related to return on profit (b = 0.58, p < 0.05), while it was not significantly related to employee effectiveness. Results were not significant for Hispanic employees and community residents on either variable.

• Racial/ethnic diversity fit: interaction between business unit and community diversity was significantly related to return on profit (b = 0.26, p < 0.05) and employee effectiveness (b = 0.84, p < 0.05).

• Appearance on an annual ranking of top performing companies associated with a 2-day cumulative abnormal return of 0.94% for those ranked for the first time and 0.66% for all other ranked (data from 1998-2002).

• Upper level diversity as measured by percent minority among top paid employees as a positive association with 2-day cumulative abnormal return (CAR) for companies ranked as top performing in diversity (β=2.58, p <0.05); Lower level diversity a measured by workforce heterogeneity (β=13.07, p <0.01) and minority new hires (β=5.36, p <0.05) are also associated with 2-day CAR. One model found workforce heterogeneity was significantly associated with 2-day CAR in the service industry (β=2.73, p<0.05).

• Discrimination-related lawsuits with no confounding events within the same time period are negatively associated with 11-day CAR (mean CAR = -1.37, p <0.05)

• A national survey in the US found that 92% of subjects reported feeling more favorable or much more favorable toward companies that hire persons with disabilities, and 87% of participants stated that they would rather give their business to such companies.

• Participants showed a moderately positive purchase intention (mean = 5.22) for this type of restaurant, which is significantly greater than 4 on a 1-7 scale (t =11.35; p < 0.001)
<table>
<thead>
<tr>
<th>Responsible Political Activity</th>
<th>Health Outcomes</th>
<th>Business Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• No quantitative results found</td>
<td>• Meta-analysis found mixed results for firm outcomes: non-significant for cumulative abnormal stock return ($r=0.08$, $p &gt; 0.05$, CI: -0.17-0.1), market value ($r = 0.032$, $p &gt; 0.05$, CI: -0.09-0.16); small significant effect size for accounting measures ($r = 0.035$, $p &lt; 0.05$, CI: 0.25-0.45).</td>
<td>• Five years after joining the CFBAI, participants experienced abnormal returns of 16% compared to -34% for non-participating companies.</td>
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<tr>
<td>• Based on literature findings, one model predicts that reducing advertising exposure to zero among children would decrease the average BMI by 0.38 kg/m² and lower the prevalence of obesity from 17.8% to 15.2% (95% CI: 14.8-15.6) for boys and from 15.9% to 13.5% (95% CI: 13.1-13.8) for girls.</td>
<td>• Random effects model of CPA in air transport industry found that as lobbying intensity increases by 1% over time and across firms, EBIT increases by $209,830; Fixed effects model found that as lobbying intensity increased by 1%, EBIT increases by $195,000</td>
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<tr>
<td>• Children consumed 14% (RR = 1.14, 95% CI: 1.02-1.27) more high-sugar breakfast cereal brands for every 10 high-sugar breakfast cereal ads seen in the past 7 days.</td>
<td>• Sample of M&amp;A deals by politically connected firms and matched non-connected peers found that deals in countries with strong legal systems/low levels of corruption, connected bidders underperform unconnected bidders by roughly 15% in terms of abnormal stock returns over a 3-year period.</td>
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<tr>
<td>• After adjusting for demographics, SES, and other screen time, moderate McDonald’s/Subway/Wendy’s ad exposure was associated with a 31% (95% CI: 12%-53%) increase in the likelihood of consuming McDonald’s/Subway/Wendy’s in the next week. High exposure was associated with a 26% (95% CI: 13%-41%) increase.</td>
<td>• A one-unit increase in PAC intensity is associated with an increase in ROIC of 0.996 and in ROA by 0.329</td>
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<tr>
<td>• Meta-analysis of 18 studies indicates small-to-moderate effect size for advertising on food consumption with participants eating more after exposure to food advertising than after control conditions (SMD: 0.37, 95% CI: 0.09-0.65). Subgroup analysis showed no significant effect for adults but a moderate effect size for children (SMD: 0.56, $P = 0.003$, 95% CI: 0.18-0.94).</td>
<td>• Systematic review of longitudinal studies of alcohol marketing and youth alcohol consumption find odds ratios ranging from 1.00 to 1.69 for exposure to alcohol marketing and initiation of alcohol use, 1.38 to 2.15 for subsequent hazardous or binge drinking.</td>
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<tr>
<td>COH Business Practice</td>
<td>Health Outcomes</td>
<td>Business Outcomes</td>
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</table>
| Workplace Health Promotion and Wellness | • Average 0.3 point drop in A1c values.  
• 29 percent reduction in hospital admissions.  
• Quality of life: 10% increase.  
• Total health risk: 25% decrease.  
• Mental health: 33% decrease in depression, 32% decrease in anxiety, 32% decrease in somatization, 47% decrease in hostility; 6.1% risk reduction for stress.  
• Exercise: Increasing walking by 103 minutes/week; 2x as likely to exercise.  
• Diet: Increase in daily fruit/vegetable consumption by 0.7 servings.  
• Overweight, obesity, BMI: BMI decreases of 0.04 kg/m², 4.3%; 9% decrease in body fat, weight/BMI maintenance.  
• Cholesterol: 13% improvement in HDL cholesterol.  
• Blood pressure: 1% reduction of diastolic blood pressure.  
• Tobacco use: 10% higher quit rate. | • Disease management: Average ROI $3.78 for every dollar invested; reduced health care costs by $136 per member per month.  
• Lifestyle management: Average ROI $0.48 for every dollar invested; reduction in absenteeism of 0.13 days/62 minutes per year.  
• Johnson & Johnson’s worksite health promotion program found average annual per employee savings of $565 representing a return on investment in the range of $1.88 to $3.92 for every dollar spent.  
• Decrease in medical costs of approximately $3.27 for each dollar spent on wellness programs while costs associated with absenteeism decreased by approximately $2.73 for each dollar spent. |
| Health Insurance | • After additional adjustment for race/ethnicity, income, education, self- and physician-rated health status, body mass index, leisure exercise, smoking, and regular alcohol use, the uninsured were more likely to die (hazard ratio=1.40; 95% CI=1.06, 1.84) than those with insurance.  
• Long-term and short-term uninsured adults were more likely than insured adults to report not seeing a physician when needed due to cost (26.8%, 21.7%, 8.2%); long-term uninsured adults were more likely not to have had a routine checkup in the last 2 years (42.8%, 22.3%, 17.8%)  
• Underinsured children, odds ratios for access problems: No usual source of care, 1.37 (1.11-1.69); delayed or forgone care in past yr, 3.51 (2.92-4.21); no visit for preventive care in past yr, 1.19 (1.03-1.37);  
• The insurance effect on health outcomes appears to be in the range of about 2–11 percent. | • A study using data from the Medical Expenditure Panel Survey found that insured workers miss 76.54% fewer workdays in a 2-year period than an uninsured worker, which results in 5.5 more workdays in one year. |
| Occupational Health and Safety | • 2.9 million nonfatal workplace injuries and illnesses occurring at a rate of 3.0 injuries per 100 full-time equivalent workers, 4,836 fatal workplace injuries in 2015  
• Results from regression analyses of the manufacturing sector data (controlled for employment, union status, time and sector) showed that Bill 70 (Ontario, Canada) had a significant effect, equivalent to an 18% decrease in lost-time injury rate; 39% of workplaces in Norway attributing an increase in recognition of OHS issues to OHS legislation  
• Adoption of voluntary OHS standards associated with 24% decrease in illness/injury frequency and a 34% decrease in lost-time case rate over 3 years | • The National Safety Council estimate $11.5 billion in employers’ uninsured costs for workplace injuries in 2013;  
• OHS Standards and sick leave: the relationship was in the expected direction but weak (standardized beta coefficients of 0.026 and 0.048, respectively), but not statistically significant.  
• 13% decrease in workers’ compensation cost per employee; decreases of 25%-52% in premium rates; insignificant impact on of adoption of OSHAS 18001 |
### Health Outcomes

- **Physical Outcomes**: risk ratio 2.94 for myocardial infarction associated with working > 11 hrs/day; 4x higher risk for noninsulin-dependent diabetes; working in jobs with overtime schedules is associated with a 61% higher injury hazard rate than jobs without overtime; odds ratio of 2.3 for motor vehicle crashes after extended shift compared to normal shift.
- **Psychosocial Outcomes**: Work-family spillover: 1.5-1.6 times higher rate of sickness absence, 3.6-6.5 times higher odds ratio for psychological distress and poor health.
- The risk of occupational injury is doubled when employees work more than 12 hours per day and goes up by over 40 per cent over 10 hours in a given day.
- Working 60 hours or more a week was also associated with a higher risk (relative risk = 3.7) of disability retirement.
- Among men: poor mental health status (aOR=2.06, 95% CI=1.31-3.24), self-reported hypertension (aOR=1.60), 95% CI=1.12-2.29), smoking (aOR=1.33), 95% CI=1.03-1.72), shortage of sleep (aOR=1.42, 95% CI=1.09-1.85), no leisure time physical activity (aOR=2.43, 95% CI=1.64-3.60).
- Working more than 40 hours a week was related to an increased risk of acute infection (risk ratio=2.0).
- 10% of night and rotating shift workers experience shift- work sleep disorder.
- Odds ratios showed that the risk for severe sleepiness was 6-14 times higher on the night shift and about twice as high on the morning shift as on the day shift.
- The calculated hazard ratio for occupational injuries was 1.43 for evening shifts, 1.36 for rotating shifts, and 1.30 for night shifts.
- Shift work increases the risk of coronary heart disease by 30-40%.
- Schedule control associated with 1 extra hour of sleep on work nights.
- Significant regression coefficients for schedule control: lack of work-home balance: -0.164; burnout: -0.230; distress: -0.0823; poor general health: -0.116; minor physical problems: -0.132.

### Business Outcomes

- Fatigue costs US employers approximately $136.4 billion in health-related lost production time and may be associated with long hours.
- When "annual working time climbs above a threshold of 1,925 hours, a 1-percent increase in working time would lead to a decrease in productivity of roughly 0.9 percent at the threshold and a fully proportional decrease of 1 percent past the threshold of 2,025 hours.
- Fatigue costs US employers approximately $136.4 billion in health-related lost production time and may be associated with long hours.
- When "annual working time climbs above a threshold of 1,925 hours, a 1-percent increase in working time would lead to a decrease in productivity of roughly 0.9 percent at the threshold and a fully proportional decrease of 1 percent past the threshold of 2,025 hours.
- A 10-per cent increase in overtime resulted, on average, in a 2.4-per cent decrease in productivity measured by hourly output.
- Worker performance in a sample of white-collar jobs decreased by as much as 20 per cent when 60 or more hours were worked per week.
- Of the 103,059 work hours that were lost during construction, 82,546 resulted from inefficiencies due to overtime.
- Effect estimates for an association between shift work and sick leave varied among the included studies from protective (OR 0.75; NS) to an increased risk for sick leave (OR 2.6; p<0.05).
- Fixed evening workers: increased risk of ≥2 week sick leave OR=1.31 (1.13 to 1.51); increased risk for ≥8 week sick leave, OR=1.26 (1.03 to 1.55).
- Mean score of committing errors for shift workers (5.49) was significantly higher than non-shift workers (4.53; p < 0.0001).
- Night shift workers had a 10% decrease in reaction time.
- Risk was found to increase in an approximately linear fashion across the three shifts, showing an increased risk of 18.3% on the afternoon shift and of 30.4% on the night shift, relative to that on the morning shift.
- From 30 to 50 per cent of observed differences in health indicators between workers engaged in flexitime (either alone or combined with compressed workweeks) and those not engaged in a formal arrangement were explained by perceived workplace flexibility.
<table>
<thead>
<tr>
<th>COH Business Practice</th>
<th>Health Outcomes</th>
<th>Business Outcomes</th>
</tr>
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</table>
| **Job Security**      | • Insecure workers were significantly more likely to meet criteria for major or minor depression (odds ratio [OR] = 7.27; 95% confidence interval [CI] = 3.12, 16.9) and to report a recent anxiety attack (OR = 3.52; CI = 1.47, 8.44), even after adjustment.  
• Increased likelihood of depression among those agreeing that their job security was poor (odds ratio [OR] 1.58, 95% confidence intervals [CI] 1.22–2.06, p<0.001).  
• High perceived workplace control reduced adverse consequences of job security to 0; at low levels of workplace control insecurity was positively associated with blood pressure (B=0.34, p<0.01) and health problems (B=0.23, p<0.05).  
• When job insecurity was high, levels of impaired general health increased significantly among individuals with low job control (B=-2.1, t=7.35, p<0.001). | • Banks one standard deviation higher on job security are estimated to be 0.09 higher on ROA and 0.63 higher on ROE.  
• High perceived workplace control was positively associated with organizational commitment (B=0.41, p<0.01). |
| **Paid Family & Medical Leave** | • Increasing the length of paid leave beyond 8 weeks could reduce maternal depressive symptoms by 9 percent; the probability of being classified as severely depressed by 2 percentage points; increase likelihood of self-reporting excellent health by 3.5 percentage points  
• A 2.7 percent decrease in the high school dropout rate and a 5 percent in wages at age 30 for children of mothers with leave (Norway)  
• Each week increase in length of leave was associated with a 2% reduction in the odds of reporting poor mental well-being (OR : 0.98, 95% CI 0.96, 0.99)  
• Each week increase in length of leave was associated with a 4% reduction in the odds of reporting poor physical well-being (OR : 0.96, 95% CI (0.95, 0.98)  
• 2.43 point increase in mental health score for full sample, 2.78 point increase for men only | • Employers reported that CA paid family leave law had either a “positive effect” or “no noticeable effect” on productivity (89 percent), profitability (91 percent), turnover (96 percent), and employee morale (99 percent). Over 90 percent of employers offering leave report either a positive effect or no effect on morale, turnover, profitability, or productivity, with significant majorities (over 63 percent for all categories) reporting positive effects; Google reported a 50 percent reduction in turnover among women after increasing its paid maternity leave duration from 12 weeks to 18 weeks, while Accenture reported a 40 percent reduction in attrition following the birth or adoption of a child. Aetna also reported an increase from 77 percent to 91 percent of women returning to work after expanding its maternity leave policy.  
• Employers reported that CA paid family leave law had either a “positive effect” or “no noticeable effect” on productivity (89 percent), profitability (91 percent), turnover (96 percent), and employee morale (99 percent). |
| **Workplace Physical Environment** | • Not having access to outdoor space (β =−0.87, p<0.05), and having exercise rooms available at the worksite (β =0.72, p<0.05) were related to higher BMI.  
• The presence of a cafeteria improved eating habits (β =−0.51, p<.001) while the presence of more vending machines made them worse (β =-0.04, p<0.05).  
• Reduced by 2.35 h/mo. for each occupant reporting  
• Asthma or allergies  
• Reduced by 2.86 h/mo. for each occupant reporting  
• Depression or stress  
• Participants who reported 2 or more physical supports for active commuting were more likely to actively commute at least once per week than those who reported none, but participants reporting only 1 physical support were not; for men, neither having 2 or more nor a single physical workplace support was related to increased odds of active commuting. In contrast, compared with women who reported no physical supports in the workplace, women who reported 2 or more physical supports were more than 10 times as likely to actively commute, and women who reported a single physical support were more than 3 times as likely to actively commute. | • Self-reported productivity improved by 2.6% for all occupants in labeled buildings  
• Improvements in indoor air quality improve performance by 5-10% in lab and field experiments; studies of labeled buildings (e.g., LEED) have found self-reported productivity improvements ranging from 2.6-4.9% and self-reported reductions in sick days. |
### COH Business Practice

#### Wages

- Low-wage hotel employees had an injury rate of 7.9 per 100 worker-years compared to average of 5.2 per 100 worker-years
- Workers whose workers’ compensation claims were challenged had significantly lower mean average weekly wages ($p = 0.03$)
- One-dollar increase in minimum wage associated with 1.4 percentage point decrease in smoking prevalence
- One-dollar increase in minimum wage decreased by 16.5% the likelihood of reporting poor or very poor health
- One-dollar increase in state minimum wage above the federal minimum wage was associated with 1%-2% decrease in low birthweight and a 4% decrease in post-neonatal mortality
- Metropolitan statistical areas with a minimum wage that was one dollar higher at baseline had a 27.12% lower rate of newly diagnosed HIV cases among heterosexual black residents
- Introduction of minimum wage in UK reduced probability of depressive symptoms with an effect similar to that of antidepressant medication (0.37 standard deviations vs. 0.39 standard deviations)
- Raising minimum wage to $15 per hour in NYC could have averted 2,800 to 5,500 premature deaths between 2008 and 2012
- Raising minimum wage to $13 per hour in CA would result in estimated 389 avoided deaths among working-age adults
- One-dollar increase in minimum wage is associated with reduced likelihood of reporting unmet medical need by 14.7%.
- One-dollar increase in minimum wage associated with a decrease in numbers of days in the past 30 days by 0.045 or 1.8% evaluated at the mean

#### Community Investment

- Average weight loss of 7.1 percent among participants at completion, average 0.3 point drop in A1c values
- 10 of 14 counties that are part of MiHIA have improved their County Health Rankings position, and self-reported quality of life has improved between 6 percent and 37 percent

### Health Outcomes

- At Costco, where wages were approximately $17 per hour, turnover was significantly below the industry average “at 17% overall and just 6% after one year’s employment” compared to 44% per year, closer to the industry average, at Wal-Mart
- Pay level significantly correlated with turnover intent ($r = -0.32, p < 0.1$); pay raise significantly correlated with turnover intent ($r = -0.30, p < 0.1$)
- Satisfaction with pay level significantly correlated with turnover intent ($\beta = -0.28, p < 0.001$)
- 2-month quit rate positively associated with higher peer wages ($\beta = 0.44, p < 0.05$)
- In all, 40 of 73 workers (55%) chose a value of three or greater, indicating a “moderate influence” or greater of coworker wages on their choice of how much effort to supply
- Estimates imply that relative-pay concerns account for roughly 70-90% of the total effect of own-wages on quits
- Estimation that if the City of Los Angeles increased its minimum wage to $15.25 by 2019, overall operating costs would increase by 0.9%
- $1 increase in minimum wage is associated with a decrease in the absence rate by 0.29 or 16.1% evaluated at the mean

### Business Outcomes

- No quantitative data found
In the United States, 54 cases of the top 100 corporate air polluters, minorities bear excess burden; in 15 of these cases, the minority share exceeds half of the total human health impacts from the firm’s industrial air pollution. In 66 cases, poor people bear excess burden.

A 2013 study estimated that approximately 200,000 premature deaths per year in the U.S. are attributable to changes in fine particulate matter (PM2.5) concentrations, and about 10,000 deaths are attributable to changes in ozone concentrations. Of these, industrial emissions account for approximately 41,000 and 2,000 deaths respectively, rates associated with these emissions vary geographically. For example, approximately 20% of ozone-related mortalities from all sectors occur in Texas. In general, southern states experience higher levels of emissions-related mortality than northern states. A recent study of Volkswagen’s use of “defeat devices” in vehicles with diesel engines estimated that excess emissions resulting from such vehicles will cause 59 early deaths. Exposure to vehicles is also estimated to result in 31 additional cases of chronic bronchitis and 34 hospital admissions, resulting in approximately 120,000 minor restricted activity days.

A 2014 study of nitrogen dioxide concentrations found that population-weighted mean concentrations are 4.6 parts per billion, or 38%, higher for nonwhites than for whites. Based on this finding, the authors estimate that reducing nonwhite exposure to the level of whites would reduce mortality from ischemic heart disease by approximately 7,000 deaths per year.

By 2030, clean energy policies could prevent 175,000 premature deaths, with 22,000 (11,000–96,000; 95% confidence) fewer annually thereafter, whereas clean transportation could prevent 120,000 premature deaths and 14,000 (9,000–52,000) annually thereafter.

Total health co-benefits of the EPA’s Clean Power Plan are estimated at $29 billion 2010 USD (95% CI: $2.3 billion - $68 billion)

Relative to a reference scenario, global GHG mitigation avoids 0.5±0.2, 1.3±0.5 and 2.2±0.8 million premature deaths in 2030, 2050 and 2100. Global average marginal co-benefits of avoided mortality are US$50–380 per tonne of CO₂.

Estimates suggest that in the year 2020, the reductions in adverse health outcomes from lessened exposure to PM2.5 resulting from GHG reduction efforts would yield economic benefits in the range of $6 to $30 billion (in 2008 USD), depending on the specific activity. This equates to between $40 and $198 per metric ton of CO₂ in health benefits.

Since the program began, Dow has given the WRAP Award to 395 projects. Worldwide, the projects account for the reduction of 230,000 tons of waste, 13 million tons of wastewater, and 8 trillion BTUs of energy. The (net) value of all these projects totals roughly $1 billion; five changes have been made recently at the headquarters of Adobe Systems (ranging from automatic faucets to motion sensors), which involved an initial investment of around $250,000 for annual savings of around $246,000; Impact of environmental management systems was relatively large when compared to other coefficients (on average, the coefficient assigned to EMS2 (formal, uncertified) was 1.29 while the average coefficient assigned to EMS3 (formal, certified) was 2.44).

Near-term national benefits of US climate policy consistent with 2°C of warming are valued at US$250 billion per year.

Without global action on climate change, over 1.8 billion labor hours per year are expected to be lost to extreme temperatures by the end of the century. GHG mitigation contributes to saving approximately $110 billion in annual wages by 2100.

Over half (55) of S&P Global 100 companies reported they have already experienced the effects of extreme weather and climate change (38 companies) or expect to within the next 5 years (17).

Honda estimates losses from flooding at assembly plants in Thailand at more than $250 million in 2011.

An increase of 1°F would represent a potential increase of 4-5% in energy costs to run air conditioning.

For fossil fuel companies, a transition to a 2°C economy is estimated to result in stranded assets of 60-80% of publicly listed fossil fuel reserves.

An analysis of the impact of climate change on financial assets have suggested that the expected value at risk along a business-as-usual path is 1.8% or US$2.5 trillion.

Limiting warming to 2°C or less would reduce the climate value at risk by 0.6 percentage points.
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<th>COH Business Practice</th>
<th>Health Outcomes</th>
<th>Business Outcomes</th>
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| Financial Literacy/Education | • Meta-analysis: Effect sizes for papers testing retirement savings behavior after financial education interventions range from -0.04 to 0.23 with an overall effect size of 0.08 (90% CI: 0.01, 0.16). Effect size from US-based study testing loan default after intervention: -0.09 (90% CI: -0.12, -0.06).  
• Health and Retirement Study data estimated effects are sizable, particularly for the least wealthy, for whom attending seminars appears to increase financial wealth (a measure of retirement savings that excludes housing equity) by approximately 18%, however these are measured from a low base so the dollar amount may be very small.  
• For non-highly compensated employees, frequent seminars are associated with participation rates 11.5 percentage points higher than plans with no seminars, for highly compensated employees, this figure is 6.4 percentage points.  
• Association of financial literacy with health-promoting behaviors and health status in fully adjusted models: Cognitive activity (b = 0.075, p = 0.001); global cognition (b=0.154, p < 0.001), episodic memory (b=0.144, p < 0.001), perceptual speed (b=0.168, p < 0.001), working memory (b=0.169, p < 0.001), visuospatial ability (b=0.118, p < 0.001), semantic memory (b=0.155, p < 0.001), instrumental ADL (b=-0.178, p < 0.001), depression (b=-0.111, p < 0.001), loneliness (b=-0.045, p = 0.026). | • Financial literacy classes associated with improved financial literacy, which led to higher confidence in financial future, which in turn increased the likelihood of strongly agreeing with the statement "proud to say, I work for [name of company]" by 12 percentage points. |
### Appendix B: Strength of Qualitative & Quantitative Findings for Part II.A. Literature Review

<table>
<thead>
<tr>
<th>COH Business Practice</th>
<th>Health Impact</th>
<th>Business Impact</th>
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<tr>
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<td>Strong Evidence</td>
<td>Limited or Mixed</td>
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<td>Health Culture</td>
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<tr>
<td>Responsible Corporate Political Activity</td>
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<td>Responsible Marketing Practices</td>
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<tr>
<td>Health Promotion &amp; Wellness</td>
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<td>Paid Family &amp; Medical Leave</td>
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<td>Health Insurance</td>
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<tr>
<td>Equality, Diversity &amp; Impartiality</td>
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<td>Financial Literacy</td>
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<td>Work Time</td>
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<td>Job Security</td>
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<tr>
<td>Pay Practices</td>
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<tr>
<td>Occupational Health &amp; Safety</td>
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<tr>
<td>Physical Environment</td>
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<tr>
<td>Community Environmental Impacts</td>
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<tr>
<td>Social Capital &amp; Cohesion</td>
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<td>Community Involvement</td>
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</table>

- **Health Impact**: Evidence of health benefits of the business practices.
- **Business Impact**: Evidence of business benefits of the business practices.

Promoting an organizational culture of health over and above wellness and health promotion programs

Activity meant to shape public policy or public opinion

Advertising of unhealthy products, commitments to responsible marketing practices

Providing health promotion and wellness programs

Allowing employees to earn pay while away attending to illness, a family member or newborn

Providing employer-based health insurance plans

Managing inequality, discrimination and diversity, including disability

Providing financial literacy resources

Managing working hours, schedules and schedule control

Managing job insecurity as perceived (by the employee) or attributed (by researchers)

Managing wage policies, minimum wages, wage satisfaction

Mandatory and voluntary occupational health and safety programs

Managing air quality, lighting, green buildings, attempts to promote health through the built environment, excluding OHS

Managing the environmental impacts of company operations on communities

Encouraging links, shared values and understanding

Investments in programs to benefit communities, including disaster response and recovery
Appendix C: COHBP Outcomes
Methodology for Part II.A.
Literature Review

The following matrix summarizes the health and business outcomes grouped by the business practices (COHBPs) identified in the literature review, Part II.A. The review showed that each COHBP positively, negatively or both positively and negatively influenced a wide range of health indicators and indicators of business performance. In order to convert the data into positive signals (positive COHBP influences on the business or health indicator), the following methodology was used.

• The presence of a COHBP was shown to positively influence one or more of 21 indicators of business performance (Cols 2-22) and one or more of 10 indicators of health (Cols 32-41)

• The absence or suboptimal execution of a COHBP negatively influenced up to 9 business indicators (Cols 23-31) and up to 10 health indicators (Cols 42-51)

• In most cases, the presence of a COHBP is associated with positive outcomes, while the absence or suboptimal implementation of a COHBP is associated with negative outcomes. However, in certain cases, the presence of COHBPs may be associated with negative health or business outcomes. As with the cases where an absence of a COHBP is associated with negative outcomes, these cases are marked with a negative sign. For some COHBPs, the evidence suggests both potentially positive and negative outcomes; these are noted with a “+/-”. In keeping with the precepts of this project, the summary focuses exclusively on the positive outcomes.
### Table C-1: Health and Business Outcomes, Raw Data (Positive and Negative Outcomes) and Converted Data (Positive)

#### BUSINESS OUTCOMES FROM LITERATURE SEARCH

<table>
<thead>
<tr>
<th>Presence of Business Practice Influences...</th>
<th>Absence or Suboptimal Practice Influences...</th>
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<tbody>
<tr>
<td>Health, Safety</td>
<td>Economic Costs, Society</td>
</tr>
<tr>
<td>Absenteeism/Presenteeism</td>
<td>Safety/Health</td>
</tr>
<tr>
<td>Customer Satisfaction/Absenteeism/Presentee</td>
<td>Customer Satisfaction/Absenteeism/Presentee</td>
</tr>
<tr>
<td>Quality</td>
<td>Quality</td>
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<tr>
<td>Employment</td>
<td>Employment</td>
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**16 Culture of Health Business Practices**

| Health Culture | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|----------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Responsible Corporate Political Activity     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Responsible Marketing Practices              |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Paid Family & Medical Leave                  | +/-|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Health Promotion & Wellness                  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Health Insurance                             |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Equality, Diversity & Impartiality           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Financial Literacy                           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Work Time                                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Job Security                                 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Pay Practices                                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Occupational Health & Safety                 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Physical Environment                         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Community Environmental Impacts              |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Social Capital & Cohesion                    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Community Involvement                        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

+ Positive Influence, - Negative Influence
### Table C-1 Health and Business Outcomes, Raw Data (Positive and Negative Outcomes) and Converted Data (Positive)

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#### 16 Culture of Health Business Practices

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+ Positive Influence, - Negative Influence
### Table C-1 Health and Business Outcomes, Raw Data (Positive and Negative Outcomes) and Converted Data (Positive)

#### 16 Culture of Health Business Practices

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+ Positive Influence, - Negative Influence
Table C-1 Health and Business Outcomes, Raw Data (Positive and Negative Outcomes) and Converted Data (Positive)

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<td>Health Promotion &amp; Wellness</td>
<td>Mental Health and Well-Being</td>
</tr>
<tr>
<td>Paid Family &amp; Medical Leave</td>
<td>Work Time</td>
</tr>
<tr>
<td>Health Insurance</td>
<td>Job Security</td>
</tr>
<tr>
<td>Equality, Diversity &amp; Impartiality</td>
<td>Pay Practices</td>
</tr>
<tr>
<td>Financial Literacy</td>
<td>Occupational Health &amp; Safety</td>
</tr>
<tr>
<td>Work Time</td>
<td>Physical Environment</td>
</tr>
<tr>
<td>Job Security</td>
<td>Community Environmental Impacts</td>
</tr>
<tr>
<td>Pay Practices</td>
<td>Social Capital &amp; Cohesion</td>
</tr>
<tr>
<td>Occupational Health &amp; Safety</td>
<td>Community Involvement</td>
</tr>
</tbody>
</table>

+ Positive Influence, - Negative Influence

Note 1. Research literature was confined to business outcomes from political activity in general and not as it pertains to health specifically.
The matrix above underwent three transformations to finalize the summary:

1. The business performance indicators (Table C-1, Cols 2-31) were mapped from 21 original into a total of six new indicator groups (Table C-2, Rows 1-6) as shown:

<table>
<thead>
<tr>
<th>New Performance Indicator Groups</th>
<th>Presence of Business Practice Influences...</th>
<th>Absence or Suboptimal Practice Influences...</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Health &amp; Safety</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Productivity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Talent Management</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brand Management</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Financial Performance</td>
<td></td>
</tr>
<tr>
<td>Economic Costs to Society</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Negative influences on business and health outcomes when a COHBP was suboptimal or absent were converted into positives (i.e., a negative negative makes a positive).

3. Positive (and negative negative) business and health impacts were aggregated into the 6 new business indicators groups and the original 10 health impact categories (see Table C-1, Cols 74 to 89).

Limitations

- This representation of data does not characterize evidence quality, number of studies reporting an impact, strength of signal, degree of impact, or scope, all of which are discussed in the Literature Review, Part II.A.
- No attempts have been made to score or rank the impacts.
## Appendix D: COHBP Queries for Part II.C. Corporate Reporting of COHBPs

<table>
<thead>
<tr>
<th>COHBP</th>
<th>Queries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Culture</td>
<td>“health culture” OR “culture of health” OR “health leadership” OR “health &quot;values&quot;”~3* OR “health &quot;beliefs&quot;”~3*</td>
</tr>
<tr>
<td>Social Capital &amp; Cohesion</td>
<td>“social cohesion” OR “social capital” OR “employee engagement” OR “employee communication”</td>
</tr>
<tr>
<td>Equality, Diversity &amp; Impartiality</td>
<td>“racial diversity” OR “ethnic diversity” OR “gender diversity” OR “equality” OR “inequality” OR “discrimination” OR “wage gap” OR “pay gap” OR “pay ratio” OR “disabled”</td>
</tr>
<tr>
<td>Corporate Political Activity</td>
<td>“political contributions” OR “advocacy” OR “public policy” OR “trade association membership” OR “industry association membership” OR “political action committee” OR “lobbying”</td>
</tr>
<tr>
<td>Marketing Practices</td>
<td>“responsible marketing” OR “marketing practices” OR “responsible advertising” OR “advertising practices” OR “marketing to children” OR “advertising to children” OR “youth marketing” OR “youth advertising” OR “CFBAI”</td>
</tr>
<tr>
<td>Health Promotion &amp; Wellness</td>
<td>“workplace wellness” OR “employee wellness” OR “lifestyle management” OR “disease management” OR “health incentive” OR “well-being incentive” OR “tobacco cessation” OR “health counseling” OR “employee assistance program” Nothing with ‘promotion?’</td>
</tr>
<tr>
<td>Health Insurance</td>
<td>“health insurance benefit” OR “health insurance benefits” OR “health insurance”</td>
</tr>
<tr>
<td>Occupational Health &amp; Safety</td>
<td>“occupational health and safety” OR “occupational health and safety management” OR “OHSAS 18001” OR “safety training” OR “injury rate”</td>
</tr>
<tr>
<td>Job Security</td>
<td>job security” OR “employee turnover” OR “layoff” OR “layoffs”</td>
</tr>
<tr>
<td>Work Time</td>
<td>“shift work” OR “schedule flexibility” OR “scheduling flexibility” OR “workplace flexibility” OR “overtime”</td>
</tr>
<tr>
<td>Paid Family &amp; Medical Leave</td>
<td>“paid family leave” OR “paid sick leave” OR “paid medical leave” OR “family medical leave act” OR “paid maternity leave” OR “paid paternity leave” OR “paid parental leave” OR “paid leave”</td>
</tr>
<tr>
<td>Physical Environment</td>
<td>“physical activity support” OR “on-site gym” OR “fitness center” OR “exercise center” OR “fitness facilities” OR “cafeteria” OR “on-site dining” OR “walking path” OR “walking trail” OR “bicycle storage” OR “active commute” OR “active commuting” OR “smoking policy” OR “tobacco-use policy” OR “indoor air quality” OR “LEED” OR “green building” OR “wellness center” OR “nature trail”</td>
</tr>
<tr>
<td>Community Involvement</td>
<td>“community investment” OR “community involvement” OR “community health” OR “community partnership” OR “community organization” OR “cross-sector collaboration” OR “healthy communities” OR “disaster relief”</td>
</tr>
<tr>
<td>Community Environmental Impacts</td>
<td>“greenhouse gas emissions” OR “air pollution” OR “water pollution” OR “hazardous waste” OR “pollution prevention” OR “environmental management system” OR “toxic release”</td>
</tr>
<tr>
<td>Financial Literacy</td>
<td>“financial literacy” OR “financial education” OR “retirement counseling”</td>
</tr>
</tbody>
</table>

*This query represents a “proximity search” that returns results where the two keywords queried are separated by three words or fewer.
## Appendix E: Report Content Analysis, Sample Companies by Industry for Part II.C. Corporate Reporting of COHBPs

<table>
<thead>
<tr>
<th>Industry</th>
<th>Companies</th>
<th>Industry Sample Percentage (i.e., Proportion of companies from each industry in the sample of 57 companies)</th>
<th>Industry Population Percentage (i.e., Proportion of companies from each industry in the population of 370 companies)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic Materials</strong></td>
<td>Freeport-McMoran Inc. PPG Industries Inc. Tahoe Resources Inc. Arconic Inc.</td>
<td>7%</td>
<td>9%</td>
</tr>
<tr>
<td><strong>Consumer Goods &amp; Services</strong></td>
<td>Caesars Entertainment Corp Colgate-Palmolive Co Dish Network Corp Goodyear Tire &amp; Rubber Co Keurig Green Mountain Inc. Kimberly-Clark Corp Kroger Co Lowes Cos Inc. Macys Inc. Marriott International Reynolds American The Coca-Cola Co The J.M Smucker Co</td>
<td>23%</td>
<td>21%</td>
</tr>
<tr>
<td><strong>Financial Services</strong></td>
<td>Allstate Corp Boston Properties Inc. CBRE Group Inc. Keycorp Kilroy Realty Corp Kimco Realty Corp Simon Property Group Inc State Street Corp Wells Fargo &amp; Co</td>
<td>17%</td>
<td>16%</td>
</tr>
<tr>
<td><strong>Healthcare &amp; Pharmaceuticals</strong></td>
<td>Gilead Sciences Inc Johnson &amp; Johnson Merck &amp; Co Inc. Mylan NV</td>
<td>7%</td>
<td>9%</td>
</tr>
<tr>
<td><strong>Industrials</strong></td>
<td>CSX Corp Cummins Inc. Norfolk Southern Corp Owens Corning Republic Services Inc. Rockwell Automation Inc. Southwest Airlines Co The Boeing Co United Rentals Inc.</td>
<td>16%</td>
<td>17%</td>
</tr>
<tr>
<td><strong>Oil &amp; Gas</strong></td>
<td>Chesapeake Energy Corp EQT Corp Hess Corp Marathon Petroleum Corp Valero Energy Corp</td>
<td>9%</td>
<td>6%</td>
</tr>
<tr>
<td><strong>Technology Equipment &amp; Services</strong></td>
<td>Alliance Data Systems Corp Bloomberg Dell Inc. Qualcomm Inc. Salesforce.com Inc. Verizon Communications Inc. VMWare Inc.</td>
<td>12%</td>
<td>14%</td>
</tr>
<tr>
<td><strong>Utilities</strong></td>
<td>Duke Energy Corp Eversource Energy Exelon Corp Nextera Energy Inc. PPL Corp Xcel Energy Inc.</td>
<td>11%</td>
<td>8%</td>
</tr>
</tbody>
</table>
# Glossary

## General Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Absenteeism</strong></td>
<td>Missing work because of injury or other health reason</td>
</tr>
<tr>
<td><strong>Community</strong></td>
<td>The activities, expertise, and other resources an enterprise engages in or provides to the social and physical community or communities in which it operates and which affect the physical and mental health, safety and well-being of workers and their families (Burton, 2010).</td>
</tr>
<tr>
<td><strong>Job Insecurity</strong></td>
<td>Broadly speaking, the discrepancy between the level of security a person experiences and the level she or he might prefer (Bartley &amp; Ferrie, 2001). In studies of job insecurity, the status of being insecure may be self-perceived or externally attributed.</td>
</tr>
<tr>
<td><strong>Paid Family &amp; Medical Leave</strong></td>
<td>Leave granted to an employee to care for a family member, including paid maternity and paternity leave. The leave may be available to care for a newborn child, an adopted child, a sick child, a sick adult relative or for a serious personal health condition. This leave is given in addition to any sick leave, vacation, personal leave or short-term disability leave that may be available to the employee (EY, 2017).</td>
</tr>
<tr>
<td><strong>Personal Health Resources</strong></td>
<td>The supportive environment, health services, information, resources, opportunities and flexibility an enterprise provides to workers to support or motivate their efforts or to maintain healthy personal lifestyle practices, as well as to monitor and support their ongoing physical and mental health (Burton, 2010).</td>
</tr>
<tr>
<td><strong>Physical Work Environment</strong></td>
<td>The part of the workplace facility that can be detected by human or electronic senses, including the structure, air, machines, furniture, products, chemicals, materials and processes that are present or that occur in the workplace, and which can affect the physical or mental safety, health and well-being of workers. If the worker performs his or her tasks outdoors or in a vehicle, then that location is the physical work environment (Burton, 2010).</td>
</tr>
<tr>
<td><strong>Precarious Employment</strong></td>
<td>Non-standard employment generally characterized by low pay, insecurity, irregular schedules, and a lack of benefits (Benach &amp; Muntaner, 2007).</td>
</tr>
<tr>
<td><strong>Presenteeism</strong></td>
<td>Attending work but not fully functioning because of injury, illness or other medical reasons</td>
</tr>
<tr>
<td><strong>Psychosocial Work Environment</strong></td>
<td>The organizational culture and organization of work, the attitudes, values, beliefs and practices that are demonstrated on a daily basis in the enterprise, and which affect the mental and physical well-being of employees (Burton, 2010).</td>
</tr>
<tr>
<td><strong>Shiftwork</strong></td>
<td>Work outside the normal daylight hours. This may involve work in the evening, in the middle of the night, overtime or extended workdays. Rotational shiftwork involves changing work times from day to evening or day to night, which might happen at different times of the week or at different times of the month (Rosa &amp; Colligan, 1997).</td>
</tr>
<tr>
<td><strong>Social Capital</strong></td>
<td>Generally refers to the “links, shared values and understandings in society that enable individuals and groups to trust each other and so work together” (OECD, 2007).</td>
</tr>
<tr>
<td><strong>Social Cohesion</strong></td>
<td>Social cohesion refers to the degree to which a group produces positive membership attitudes and behaviors and when group members’ interpersonal interactions maintain these conditions (Oxoby, 2009).</td>
</tr>
<tr>
<td><strong>Workplace Health Promotion</strong></td>
<td>A coordinated set of programs, policies, benefits, and environmental supports designed to keep all employees healthy and safe (Centers for Disease Control and Prevention, 2017).</td>
</tr>
</tbody>
</table>
### Statistical Terms

69. **Adjusting or Controlling for a Variable:** Assessing the effect of one variable while accounting for the effect of another (confounding) variable.

**Association:** Two variables are associated if some of the variability of one can be accounted for by the other.

**Confidence Interval (CI):** To say that the 95% confidence interval for an unknown quantity is \([a, b]\) means that 95% of similarly constructed confidence intervals in repeated samples from the same population would contain the unknown quantity. Very loosely speaking one could say that she is 95% “confident” that the unknown value is in the interval \([a, b]\).

**Correlation coefficient:** The correlation coefficient \(r\) is a measure of how nearly a scatterplot falls on a straight line. The correlation coefficient is always between \(-1\) and \(+1\).

**Effect Size:** Magnitude of effect of a factor on an outcome which may be reported as a proportion, ratio, regression coefficient, or measure of association.

**Hazard Rate:** The instantaneous rate with which an event occurs at a single point in time.

**Hazard Ratio (HR):** The ratio of hazard rates at a single time for two types of subjects.

**Incidence:** Incidence represents the number of new events that have occurred in a specific time interval divided by the population at risk at the beginning of the time interval. The result gives the likelihood of developing an event in that time interval.

**Odds:** The chance or frequency of occurrence or presence of a characteristic relative to its nonoccurrence or absence.

**Odds Ratio (OR):** The odds ratio equals the odds that an individual with a specific condition has been exposed to a risk factor divided by the odds that a control has been exposed.

**Prevalence:** Prevalence refers to the number of individuals with a given disease at a given point in time divided by the population at risk at that point in time.

**P Value:** The probability of getting a result that is as or more extreme than the observed statistic if the null hypothesis were true.

**Regression coefficient:** The quantity that represents the change in dependent variable for a one-unit change in the independent variable.

**Risk Ratio (RR):** The ratio of the probabilities of two events.

**Standard Deviation (SD):** A measure of the variability (spread) of measurements across subjects. If data is normally distributed, the mean plus or minus 1.96 standard deviations is expected to cover 95% of the distribution of the measurement.

**Standardized Coefficients:** Also referred to as beta coefficients, these result when analysis is performed on variables that have been standardized so that they have variances of 1.0.

**Standardized Mean Difference:** A measure of effect size commonly used in meta-analyses. In the social sciences, magnitude of the effect size is often interpreted according to the following guidelines: small, SMD = 0.2; medium, SMD = 0.5; large, SMD = 0.8.

**Variance:** A measure of the spread or variability of a distribution, equaling the average value of the squared difference between measurements and the population mean measurement.

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