CHANGING WORLD OF WORK: Implications for Worker Safety & Health

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**21st Century Work Characteristics**

- **Engineering + Digital Technology**
  - Miniaturization & Robotization
  - Smart systems reshaping human-machine relationship

- **New business structuring focusing on digital work product**
  - Knowledge work that can be digitized can be separated from geography
    - Resulting in telework, nomadic work, & virtual work;
    - Reducing hierarchical and geographical barriers, modifying conceptions of space and time and further blurring the line between work and home life.

- **“Gig” instead of a job?**
  - Series of shorter-term jobs
  - Some coordinated through a mobile app

- **“New” employment arrangements—a matter of perspective**
  - Longstanding temporary work arrangements in blue-collar work are now being “newly” applied to white collar work
Employment: From *Stability* to *Precariousness*

- Growth of companies created by industrial revolution
  - Vertical structure differentiated jobs from one another

- “Good” job =
  - Being an “employee” (as American law understands the term) of a particular company for your entire working life until you qualified for a private or social security pension

- Government built social welfare laws along same lines
  - Workers got security, benefits, protections, and steady wage increases
    - Social Security (1935), FLSA (1938), Medicare (1965)
  - Companies got stable workforce in which they could invest with a fair expectation of positive returns including retention
Employment: From *Stability* to *Precariousness*

- **Erosion of the *Standard* Employment Relationship**
  - From internal labor market to external labor market

- **Rise of “temporariness”**
  - In a triangular or dual employer relationship

- **Increase in job insecurity**
  - Stress continuum: permanent → downsizing → temporary → unemployment

- **Decline in social protections**
  - Workers’ compensation, health insurance, wage & hour protections

- **Disempowerment**
  - Declining unionization in the private sector leading to individualized bargaining between employer and worker

- **Powerless to exercise legally granted workplace rights**
  - Worker protection laws written based on a mid-20th century model
New Economy Employment and Risk
• **Employment**—Organization has directive control
  – Direct Employment—Standard employment relationship
    • Full-time employees
    • Part-time employees
    • On-call employees
    • Direct hire temporary employees
  – Co-employment—3rd party added to the relationship
    • Professional employment organization (PEO) workers
    • Leasing agency workers
    • Staffing agency or help services temporary workers

• **Contract Work**—Organization lacks directive control
  – Direct contracting
    • Independent contractors
  – Subcontracting
    • Vendor on premises
Temporary Services Industry

- As a share of the employment services industry, the temporary help industry has grown. In 2000, the temporary help industry accounted for 68% of all employment services industry jobs. By 2014, the share grew to 81%
Prevalence of New Arrangements

- **1995—2005**
  - 9.3 to 10.1% of total employment

- **2005—2015**
  - 10.1 to 15.8% of total employment
  - Represents an increase of 9.4 million over ten year period
    - Greater than the rise in total employment for same period
    - Meaning there was a small net decline in number of workers in standard arrangements

- **2010 National Health Interview Survey**
  - 18.7% of 27,157 adults work in non-standard arrangements
  - Represents ~29 million total US workers

- **GAO, 2015**
  - Size of the contingent workforce can range from less than 5% to more than 33% of total employed labor force, depending on widely-varying definitions of “contingent” work
### Firms Using Temporary Workers by Size

<table>
<thead>
<tr>
<th>Percent of Firms Using Temporary or Leased Workers</th>
<th>25-99 Employees</th>
<th>Average 25+ Employees</th>
<th>100+ Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>12%</td>
<td>15%</td>
<td>24%</td>
<td></td>
</tr>
</tbody>
</table>

*Source: American Staffing Association, Client Survey (ASA, 2011)*
Occupations in Temporary Help Industry, 2014

- Transportation and material moving: 24.0%
- Production: 24.0%
- Office and administrative support: 20.7%
- Computer and mathematical: 3.4%
- Healthcare practitioners and technical: 3.3%
- Business and financial operations: 3.2%
- Construction and extraction: 2.9%
- Sales and related: 2.3%
- Healthcare support: 2.3%
- Building and grounds cleaning and maintenance: 2.2%
- Education, training, and library: 1.9%
- Installation, maintenance, and repair: 1.9%
- Architecture and engineering: 1.6%
- Food preparation and serving related: 1.5%
- Personal care and service: 1.2%
- Management: 1.1%
- Life, physical, and social science: 0.7%
- Protective service: 0.6%
- Arts, design, entertainment, sports, and media: 0.5%
- Legal: 0.4%
- Community and social service: 0.2%
- Farming, fishing, and forestry: 0.2%

Temporary Employment by Region

**Northeast**
- 1990: 205,187
- 2008: 344,965
- Percent change: 68.1%

**West**
- 1990: 261,569
- 2008: 492,390
- Percent change: 88.2%

**Midwest**
- 1990: 261,799
- 2008: 568,267
- Percent change: 117.1%

**South**
- 1990: 396,904
- 2008: 897,786
- Percent change: 126.2%

*Source: QCEW data.*
Incentives for Employers to Hire Temps

• **When Expertise Is Needed**
  – Domestic outsourcing to smaller firm allows firm to tap into expertise

• **When Flexible Staffing Is Needed**
  – Helps adjust to fluctuations in demand—temps easier to replace

• **When Costs Need Saving**
  – Cost of expert services less if obtained in the market vs internally
  – Reduces social protection costs
    • Health, pension, workers’ compensation, unemployment insurance

• **When Capital is Needed**
  – Financial markets incentivize corporations to shed all but their core business
    • Working under corporate brand name, but working for serial subcontractors
    • Lean management—a contractor can do peripheral tasks cheaper than can primary employer because of specialization
Chart 1. Indexed employment of temporary help services and of all industries, 1990–2008

Index [1990 = 100]

- Temporary help services
- Total

SOURCE: QCEW data.
Why *People* Do Temporary Staffing Work


### Reasons for Choosing Temporary or Contract Work

- **49%**: It's a way to get a permanent job
- **40%**: Was unable to find a permanent job
- **28%**: To obtain work experience
- **24%**: To improve skills
- **22%**: Flexible hours/schedule
- **20%**: Between permanent jobs
“The Fissured Workplace”

• “For many businesses, sustaining the employer-employee relationship ranks below customer relationship management and investor value.”

• “Large corporations have shed their role as direct employers of the people responsible for their products, in favor of outsourcing work to small companies that compete fiercely with one another.”

• Results:
  – “Declining wages, eroding benefits, inadequate health and safety protections, and ever-widening income inequality.”
Issues in New Economic Work

• Management
  – How do organizations decide which arrangement to use?
  – How do workers in different employment arrangements, but working side by side, alter the social context of work and managers’ ability to get work done?
  – How are efforts at safety culture affected?

• Legal
  – How do the various definitions of employee and employer affect the new economic work arrangements?
  – Differing ways to determine the legally responsible employer.

• Economic
  – Western countries taking on features associated with informal economies of less developed countries
  – Is all temporary work low wage work? It was, but changing...
# Toward Higher Skill and Pay

## Table 1. Employment and wages in employment services occupations for 2008, and percent change for 2004–08

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Employment</th>
<th>Percent of total</th>
<th>Mean annual wage</th>
<th>Percent change, 2004–08</th>
</tr>
</thead>
<tbody>
<tr>
<td>All occupations, all industries</td>
<td>135,185,230</td>
<td>...</td>
<td>$42,270</td>
<td>5.5</td>
</tr>
<tr>
<td>All occupations, employment services</td>
<td>3,408,230</td>
<td>100.0</td>
<td>32,530</td>
<td>−.1</td>
</tr>
<tr>
<td>Office and administrative support</td>
<td>843,560</td>
<td>24.8</td>
<td>27,890</td>
<td>1.1</td>
</tr>
<tr>
<td>Transportation and material moving</td>
<td>660,530</td>
<td>19.4</td>
<td>22,460</td>
<td>−21.6</td>
</tr>
<tr>
<td>Production</td>
<td>654,030</td>
<td>19.2</td>
<td>23,700</td>
<td>18.4</td>
</tr>
<tr>
<td>Construction and extraction</td>
<td>186,590</td>
<td>5.5</td>
<td>30,360</td>
<td>−4.9</td>
</tr>
<tr>
<td>Healthcare practitioner and technical services</td>
<td>168,270</td>
<td>4.9</td>
<td>62,770</td>
<td>11.3</td>
</tr>
<tr>
<td>Business and financial operations</td>
<td>156,300</td>
<td>4.6</td>
<td>57,640</td>
<td>49.7</td>
</tr>
<tr>
<td>Sales and related</td>
<td>102,930</td>
<td>3.0</td>
<td>37,560</td>
<td>13.3</td>
</tr>
<tr>
<td>Building and grounds cleaning and maintenance</td>
<td>91,970</td>
<td>2.7</td>
<td>21,730</td>
<td>−12.5</td>
</tr>
<tr>
<td>Healthcare support</td>
<td>79,940</td>
<td>2.4</td>
<td>26,200</td>
<td>−8.8</td>
</tr>
<tr>
<td>Computer and mathematical</td>
<td>77,970</td>
<td>2.3</td>
<td>71,020</td>
<td>41.2</td>
</tr>
<tr>
<td>Food preparation and serving related</td>
<td>74,490</td>
<td>2.2</td>
<td>20,800</td>
<td>−23.5</td>
</tr>
<tr>
<td>Management</td>
<td>58,090</td>
<td>1.7</td>
<td>97,990</td>
<td>−5.0</td>
</tr>
<tr>
<td>Installation, maintenance, and repair</td>
<td>54,880</td>
<td>1.6</td>
<td>35,600</td>
<td>10.4</td>
</tr>
<tr>
<td>Architecture and engineering</td>
<td>47,460</td>
<td>1.4</td>
<td>66,260</td>
<td>7.2</td>
</tr>
<tr>
<td>Personal care and service</td>
<td>37,190</td>
<td>1.1</td>
<td>21,670</td>
<td>26.0</td>
</tr>
<tr>
<td>Education, training, and library</td>
<td>30,930</td>
<td>.9</td>
<td>43,240</td>
<td>40.5</td>
</tr>
<tr>
<td>Arts, design, entertainment, sports, and media</td>
<td>26,320</td>
<td>.8</td>
<td>49,670</td>
<td>23.3</td>
</tr>
<tr>
<td>Life, physical, and social science</td>
<td>15,830</td>
<td>.5</td>
<td>52,130</td>
<td>11.3</td>
</tr>
<tr>
<td>Protective service</td>
<td>14,580</td>
<td>.4</td>
<td>24,220</td>
<td>24.8</td>
</tr>
<tr>
<td>Legal</td>
<td>10,950</td>
<td>.3</td>
<td>80,650</td>
<td>87.2</td>
</tr>
<tr>
<td>Community and social services</td>
<td>7,940</td>
<td>.2</td>
<td>34,570</td>
<td>39.8</td>
</tr>
<tr>
<td>Farming, fishing, and forestry</td>
<td>7,490</td>
<td>.2</td>
<td>23,030</td>
<td>−75.3</td>
</tr>
</tbody>
</table>

**Source:** OES data
Issues in New Economic Work: Health

• Health & Safety
  – Do alternative arrangements impact the health of the people involved in new economic work arrangements?
  – Is the arrangement itself a risk factor for premature mortality, injury, illness?
  – To date, limited empirical evidence concerning its health consequences

• New Employment  → Precariousness → Health
  – How do you measure precariousness?
    • Develop a new, theory-based, multi-dimensional tool for epi studies

• EPRES
  – The Employment Precariousness Scale
  – Psychometric tool measure precariousness in public health research
  – Health Inequalities Research Group (GREDS)
    • Vives et al. Occup Environ Med 2010;67:548-555
Measuring Precariousness Using EPRES

- **Temporariness**
  - Duration of current employment
  - Months working in previous year

- **Disempowerment**
  - How did you settle your wages or working hours?

- **Vulnerability**
  - Afraid to demand better working conditions or fair treatment?

- **Wages**
  - Cover basic needs?
  - Allow for unexpected expenses?

- **Rights**
  - Sick, medical & family leave
  - Paid holiday; Wage and hour protection

- **Exercise of rights**
  - Can you exercise any of the rights permanent workers have?
Health & Safety Implications Using Differential Risk Analysis

• Access to social insurance benefits

• Unequal lifespans

• Social determinant of health

• Mental Health

• Specific risks:
  – Mortality
  – Morbidity
    • Injury
    • Illness
Social Insurance Access

• Access to health insurance was 35% lower for workers in new economy employment than standard employees in agriculture

• New economy employment is a barrier health insurance and workers’ compensation insurance which may contribute to health inequalities in the longer term.

• Asfaw et al. (2014). *J Health Disparities Research and Practice, 7*(3), 81-97
Unequal Life Spans

• Exposure to harmful organizational practices in temp work
  – Job insecurity
  – Low job control
  – High job demands
  – Low social support at work

• Unequal life spans
  – These exposures may explain significant proportion of observed inequality in life spans in different demographic groups in the U.S.

• Enter: Sociology of work as determinants of health
Employment Type as a Social Determinant

**Political power: market**
- Unions, corporations, institutions

**Political power: government**
- Parties

**Political power: society**
- Social movements, NGOs, community associations

**Labor market**
- Labor regulations, active labor market policies, OHS legislation

**Welfare state**
- Social policies, health policies, pensions, consumer and environmental protection, equity

**Full standard employment**

**Unemployment**

**Informal employment**

**Precarious employment**

**Unpaid household and care work**

**Social and family networks**

**Health and quality of life**

**Material deprivation**
- Income, wealth, housing quality, residential neighborhood quality

**Hazardous working conditions**
- Physical, chemical, ergonomic, biologic, psychosocial

**Figure 1**
Conceptual model linking precarious employment and health and quality of life (main potential pathways are shown; increasing arrow thickness indicates greater importance). Abbreviations: NGOs, nongovernmental organizations; OHS, occupational health and safety.
Mental Health

• Previous studies on unemployment, organizational restructuring, and forced downsizing have documented an association with psychological ill-health.

• A meta-analysis of 27 studies suggests higher psychological morbidity among temporary workers compared with permanent employees

• Relationship between temporary employment and increased psychological morbidity may reflect the adverse effect of job insecurity, financial instability and other social determinants on mental health.
Percentage Change in Work Stress by Type of Employment: 2002-2014

Source: NIOSH Quality of WorkLife survey (http://www.cdc.gov/niosh/topics/stress/qwlquest.html)
## Percentage Change in Work Stress

**NIOSH Quality of WorkLife Study**

<table>
<thead>
<tr>
<th>Type of Employment Arrangement</th>
<th>Percent Change in Stress from 2002 to 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard employment</td>
<td>- 4%</td>
</tr>
<tr>
<td>Work under a contractor</td>
<td>- 14%</td>
</tr>
<tr>
<td>Paid by a temporary agency</td>
<td>+ 48%</td>
</tr>
<tr>
<td>On-call work</td>
<td>+ 12%</td>
</tr>
<tr>
<td>Independent contractor</td>
<td>- 14%</td>
</tr>
</tbody>
</table>
Mortality Risk—Europe

- Longitudinal data from 10 towns in Finland—26,592 men and 65,759 women
- Overall mortality 1.2-1.6 times higher among temporary employees compared to permanent employees
  - For alcohol-related causes, hazard ratio was more for men with temporary jobs as was smoking-related cancer.
  - Corresponding risks were greater for the unemployed
  - Moving from temp to permanent work associated with lower mortality than remaining continuously in permanent employment

- Conventional research practice of treating the employed as a single group may attenuate the association between employment status and mortality!

Mortality Risk—U.S.

- **CFOI**
  - In 2013, Census of Fatal Occupational Injuries (CFOI) reported
    - 17% of all workers killed were working in alternative arrangements
    - Such workers represented less than 3% of total private sector workforce

- **NIOSH**
  - Odds of reported fatal incident as opposed to a reported non-fatal incident were 2.8 times higher for contract workers than operators.
  - Other factors associated with fatality:
    - Being a contract worker or being more than 8 hours into a working day
    - Having less overall experience in that specific mine
    - Contractors had higher reported fatality rates than direct employees but lower reported non-fatal injury rates.

Morbidity: Injury

• **European Studies**
  – 7 of 13 European reports show increased risk (Virtanen 2005).

• **U.S. Studies**
  – Higher injury rates in subcontracting turnaround procedures at *petrochemical* facilities (Rebitzer 1995).
  – Temps had twice injury rate at a *plastics* manufacturer (Morris 1999).
  – Workers’ comp injury claim rates for temps double those of permanent workers in *Washington state* (Smith 2010).
  – *PROPUBLICA*, using Florida workers’ compensation data and BLS data, found an injury odds ratio of close to 4 for temporary workers compared to all other workers (Pierce 2013).
New Employment: Social Consequences

- New economy employment increases negative consequences for an injured worker and society, but advantages employers:

  - **Workers** -
    - More hazardous work assigned to leased/temporary workers.
    - Because of a lack of social insurance protections, injured worker might quickly find herself out of a job and, depending on the severity of an injury, the prospects of new employment might be slim.

  - **Society** -
    - Employer-based health insurance is a rarity for leased/temporary workers, so the costs of treating injuries are typically shifted to the worker or the public at large through government-sponsored health programs.

  - **Employers +**
    - Do not directly pay for workers’ compensation and health insurance—they are insulated from premium adjustments based on the cost of workers’ injuries.
    - Employers of new economy labor escape the financial incentives that drive decisions to eliminate hazards for other workers.
Morbidity: Illness

• European Studies
  – Finnish study showed that temporary employment was associated with 1.2 to 1.6 times higher all-cause mortality compared with permanent employment.
  – Those who were removed from temporary to permanent had lower mortality than those who remained in temporary employment.

• U.S. Studies
  – Few studies have been undertaken.
  – National databases do not currently collect information on employment status with any detail to be able to discern health outcomes.
  – Insurer and provider databases may provide some data.
Right to Paid Sick Leave

• Prevalence of PSL Benefit:
  – 70% of US civilian “full-time” workers have paid sick leave
  – Only 19% of new economy workers have PSL

• PSL Promotes Accessing Healthcare:
  – Workers without PSL 3 times more likely to forgo medical care for themselves
  – 1.6 times more likely to forgo medical care for their family

  – DeRigne et al. *Health Affairs* (2016)
Right to Paid Sick Leave

• **Injury**
  – 28% lower injury likelihood for workers with access to paid sick leave compared to workers without access
    
    – Asfaw, A. et al. (2012). *Am J Pub Health;102(9):e59-e64*

• **Employee turnover less**
  – Access to PSL could decrease the odds of changing jobs voluntarily by 22% (in press)
  – Cost savings to employers?

• **Transmission of contagious diseases less in workplace**
  – Expanding PSL could save employers $0.65 to $1.95 billion per year in 2015 dollars in reduced absenteeism costs from influenza-like illnesses (in press)
Rights: Paid Sick Leave

• NIOSH currently examining the *business value* of providing PSL:
  
  – Net (benefits) savings or costs to employers who provide PSL
  – Evidence of economic returns would help employers make informed decisions about providing or expanding PSL
  – Research findings to date indicate cost savings
    • Employers could achieve a net return of $2.44 to $30.93 billion per year in 2015 dollars by investing in paid sick leave

Executive Order 13706—Labor Day 2015

• “Agencies shall, to the extent permitted by law, ensure that new contracts include a clause, which the contractor and any subcontractors shall incorporate into lower-tier subcontracts, specifying, as a condition of payment, that all employees, in the performance of the contract or any subcontract thereunder, shall earn not less than 1 hour of paid sick leave for every 30 hours worked.”

• Executive order is effective immediately and shall apply to covered contracts where the solicitation for such contract has been issued, or the contract has been awarded outside the solicitation process, on or after: January 1, 2017

Healthy Families Act

- **H.R. 932**
  - Would require employers with 15 or more employees to provide workers with up to 56 hours of PSL during each year.
  - New economy employment, it is undisputed that workers are employees, BUT who are their employers?
  - Uses Fair Labor Standards Act definition of “employer”
    - Any person acting directly or indirectly in the interest of an employer in relation to an employee
      - Economic realities test
    - More than one employer—joint employers—who is liable?
      - To decide: some courts have as few as 2, others 4, 5, 6, 7, 8, up to 13 factor tests

- **National Federation of Small Business Opposed**
  - Loss of 430,000 jobs over a ten year period
    - Account for 58% of all jobs lost
  - Cumulative real output = $652 billion
  - Small business would bear 50% of lost output
Why the Differential Risks?

• New economy jobs are more hazardous than standard jobs
  – Less experience & familiarity with operations due to short tenure at a worksite
  – Fewer hours of safety training relevant for the specific job assignment
  – More distant relationships with longer-term workers who could help navigate worksite hazards

• Limited availability & use of personal protective equipment

• Less likely to report unsafe conditions because of risks associated with precarious employment

• Confusion (real or perceived) about who is responsible for worker safety:
  – Who is the responsible employer? How do you tell?
  – Common law test, economic realities test, IRS test, various court cases
Research 1

- **Agreed on definitions** of economic work arrangements
  - Standard indicators for survey research needed
  - Precarious, contingent, temporary, alternative, new economy, gig
  - Definitions of new economy relationships lack standardization across intra- and inter-national databases
    » Benach et al. (2012)

- **Improved surveillance** about extent of new economy arrangements and number of workers involved in each type is needed
  - Data challenges in measuring extent of new economy arrangements
  - Dynamic arrangements
    » Bernhardt (2014)
Research 2

- Are existing models for employment quality that relate to health outcomes useful?
  - Pressures-Disorganization-Regulatory (PDR) Failure Model
  - Employment strain model (demand/control model)
  - Rodger’s multidimensional definition of precarious work
  - Employment Precariousness Scale (EPRES)(2012).

- If so, use a model to:
  - Organize data and understand links between employment & health
  - Encourage observation/testing of causal pathways & mechanisms
  - Identify potential entry points to implement interventions

- Benach et al. (2016). What should we know about precarious employment and health in 2025? Framing the agenda for the next decade of research. Int J. Epidemiol, 45(1), 232-238.
Research 3

• **Possible Studies?**
  – Prospective study of health consequences of new economy employment
    • Chronic stressor vs shorter isolated exposures
    • Choice vs. forced
  – Intervention effectiveness study of a range of policy approaches
    – Boden et al. (2016)

• **Emphasize study of the “new” organization of work as distinct research area**
  – NIOSH
    • Healthy work design and worker well-being (NORA 3)
Some Final Thoughts

• Risk from New Arrangements Are Real
  – Evidence is unequivocal that employers are shifting burden of protecting workers from the things that go wrong in life to the worker.
  – Evidence suggests that workers employed in a triangular arrangements (co-employment) are at higher risk for occupational safety and health risks than workers in direct employment arrangements or direct contracting.

• Better Taxonomy, Better Surveillance and New Research Methods and Research Needed!
OSHA/NIOSH Recommended Practices

• 8 recommendations for staffing agencies and host employers.
• https://www.osha.gov/Publications/OSHA3735.pdf
Thank You!
Selected References


Benach et al. (2016). What should we know about precarious employment and health in 2025? Framing the agenda for the next decade of research. *Int J. Epidemiol, 45*(1), 232-238.


DeRigne, L., Stoddard-Dare, P., & Quinn, L. (2016). Workers without paid sick leave less likely to take time off for illness or injury compared to those with sick leave. Health Affairs, 35(3), 520-527.


